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ActiveMover transfer system

1.0



Symbols

Potential applications



Suitable for use in clean rooms

Product features



Magnetic

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ActiveMover transfer system

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ActiveMover – the transfer system for high-speed applications

The ActiveMover transfer system by Rexroth can be used wherever products have to be transported with speed and precision.

High speed, rapid acceleration and a low-friction, magnetic clutch help reduce cycle time. Workpiece pallets can be moved independently to any defined position, even along curves, at a wide range of acceleration rates and speeds smoothly and with precision. All this while also remaining easily accessible, giving you maximum accessibility to the workpiece.

In addition, sections can be added on as needed, making it a snap to expand with more stations.

The free programming and control of each individual workpiece pallet allows entire sequences of processes to be implemented with ease. The system can even operate in reverse, as well as in asynchronous and synchronous modes.

Benefits from its special features

- ▶ **Precise:** Exact workpiece pallet positioning without additional indexing
- ▶ **Fast:** Shorter cycle times through high speed and acceleration, faster workpiece pallet changeover
- ▶ **Robust:** Powerful drive up to 160 N per workpiece pallet plus a solid design—for the simplest process integration and a wide range of uses
- ▶ **Flexible:** Standard industrial controllers can be connected; every workpiece pallet is freely programmable and quickly convertible



ActiveMover – precise, fast, robust and flexible

Precision

Exact workpiece pallet positioning without additional indexing. Workpiece pallets are automatically moved to any position with precision, even along curves. This not only increases process quality, it also improves your productivity and, with it, your profitability.

Speed

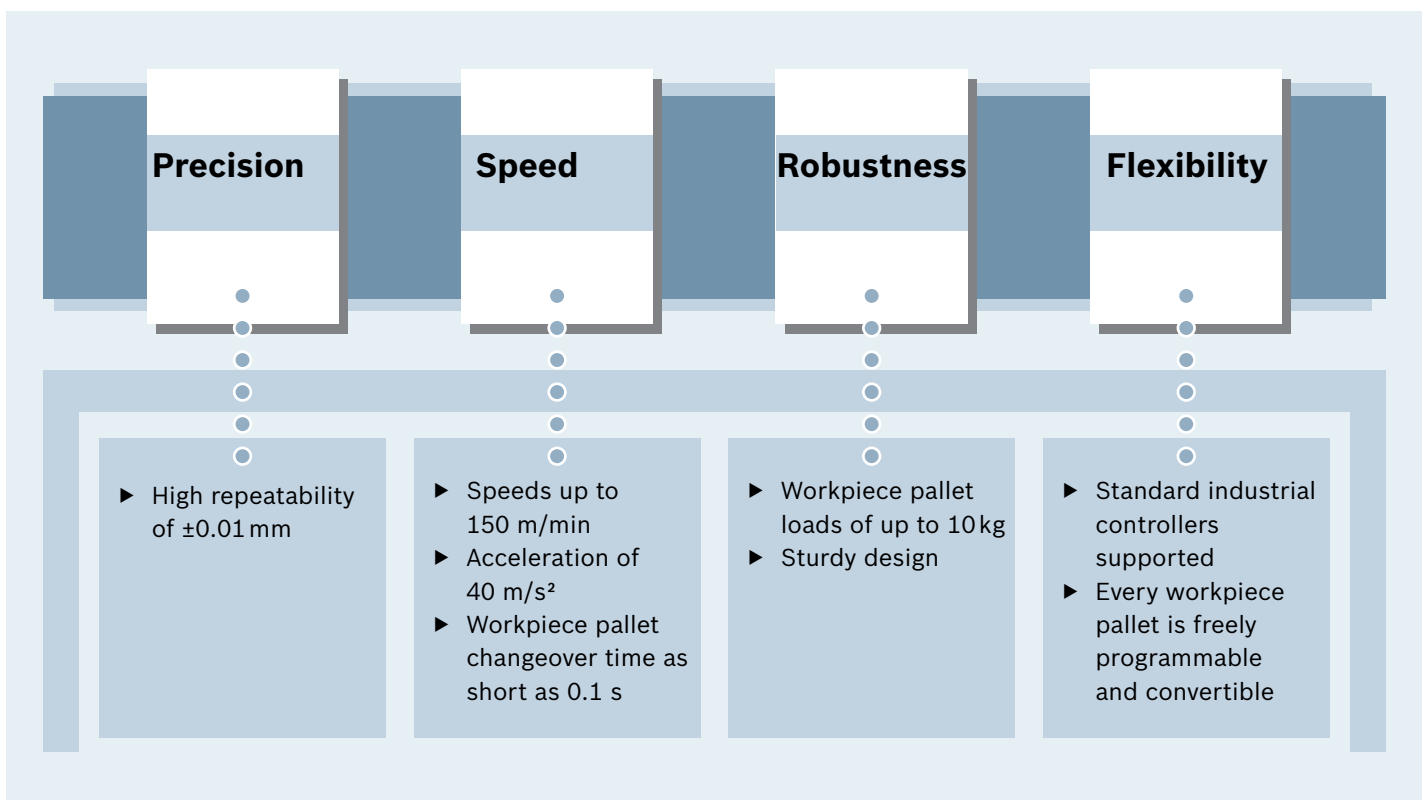
The low-friction, magnetic clutch between linear drive and workpiece pallet helps achieve high speeds and rapid acceleration. In addition, no time is lost from stopping, positioning and adjusting. Benefit from reduced cycle time and increase your productivity while lowering costs.

Robustness

A powerful drive moves workpiece pallets weighing up to 10 kg with up to 160 N. The bores in the sturdy base frame allow specific work stations or enclosures to be directly integrated, making the ActiveMover transfer system highly versatile.

Flexibility

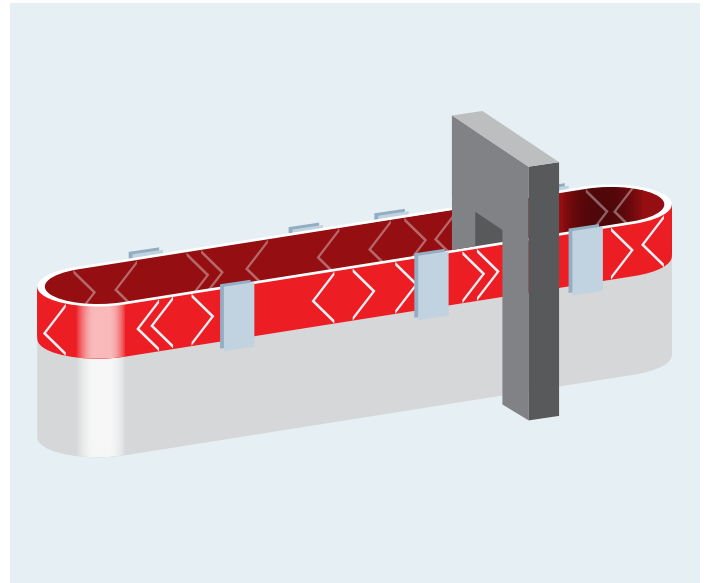
Save on costs by covering the majority of your manufacturing processes with one system and standardizing your production facility. The following operating modes are available: reverse, asynchronous and synchronous.



ActiveMover – the solution for high product variety or sensitive materials

Operating principle

The basic layout of the Rexroth ActiveMover transfer system consists of straight sections and 180° curved sections with vertically installed, low-wear linear motors. Workpiece pallets travel to precisely defined positions independently of one another, sometimes even to several consecutive positions within a single station. Parts are processed on your product fixture, which is mounted to the workpiece pallet. For precise control, a unique number can be stored on an optional data carrier mounted to each workpiece pallet. Once the workpiece pallet passes the reading station, the data carrier is read at full speed (150 m/min) and acceleration (40 m/s²).



ActiveMover – uses as versatile as its applications

Practical flexibility – versatile uses



Precise

- ▶ Electronics boards
- ▶ Controllers
- ▶ Glucose test strips and lancets
- ▶ Door lock actuators
- ▶ Syringe needles
- ▶ Catheters
- ▶ Inhaler dose meters
- ▶ Blood collection devices

Fast

- ▶ Colored pencils
- ▶ Contact lenses
- ▶ Disposable razors
- ▶ Hygiene products
- ▶ Spray nozzles
- ▶ Cell phones
- ▶ Spark plugs
- ▶ Injectors
- ▶ Lipsticks



Robust

- ▶ Dry food filling and packaging
- ▶ Guide rails
- ▶ Roller bearings/sleeve bearings
- ▶ Control units
- ▶ Servo motors
- ▶ Wiper motors

Flexible

- ▶ Cell phones
- ▶ LED lights
- ▶ ABS/ESP valves
- ▶ Fuse holders
- ▶ Hinges
- ▶ Valve assembly
- ▶ Dry food filling and packaging
- ▶ Pens

Ambient conditions

General conditions:

Operating temperature

- ▶ + 0 ... + 50 °C (application-based)

Humidity

- ▶ 10 ... 95%

Noise level

- ▶ 70 dB

Materials used, media resistance

The Rexroth ActiveMover transfer system is manufactured with high-quality materials for continuous use. It is resistant to common industrial lubricants and conditioners, as well as water, mineral oil, grease and detergents.

However, we cannot guarantee that the products contained in this catalog are resistant to all combinations of testing fluids, gases or solvents. Contact us if you have any doubts about resistance to specific chemicals, such as test oil, doped oils, aggressive cleaning agents, solvents or brake fluid.

Please contact your Rexroth representative if you have any doubts.

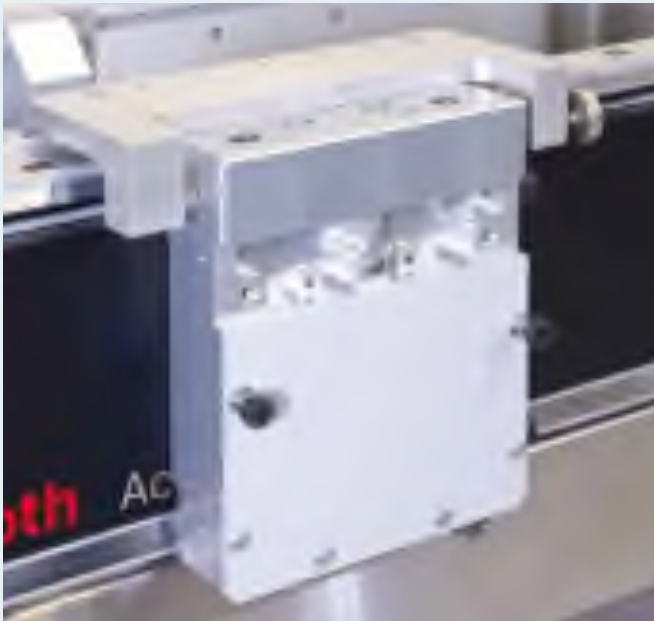
Use in clean rooms

A typical ActiveMover layout has been certified accordingly for use in clean rooms by Fraunhofer IPA* in accordance with DIN EN ISO 14644-1.



* Fraunhofer Institute for Manufacturing Engineering and Automation

ActiveMover – configuration and commissioning



Technical constraints

Workpiece pallet

- ▶ Load (carrying plate + product)
 - 3 magnets: ≤ 10 kg
 - 2 magnets: ≤ 2 kg
- ▶ Sizes up to 500 mm x 300 mm
A test should be conducted for greater widths.
- ▶ Min. distance between workpiece pallets (center-center)
 - 2 magnets: ≥ 167 mm
 - 3 magnets: ≥ 200 mm



What you provide

- ▶ The product carrying plate is designed by you to meet the product's requirements and mounted in the designated recess in the workpiece pallet.

When fastening the load, process forces should also be taken into account.

The workpiece pallet may need to be supported.

Ideally, the product's center of gravity should be in the center and as close to the motor as possible.

- ▶ Depending on cycle time, the number of workpiece pallets should be as low as possible.



Planning with MTpro

MTpro is an intuitive software program for planning assembly systems that assists you from selecting to configuring, to ordering Rexroth products. Components can be selected from the range via drag-and-drop and assembled quickly and easily using the snap function. Thanks to automatic parts list costing and electronic order integration, you can keep costs under control and minimize time spent ordering. Numerous interfaces allow planning data to be used by other departments, such as Design, Purchasing and Service. With MTpro you can plan, cost out and document your assembly systems in just a few steps.



Configuration and commissioning

ActiveMover is commissioned quickly and easily with the AMpro configuration software, which monitors and calibrates the hardware. The AMpro software simplifies application programming by allowing the movement profiles of each workpiece pallet to be set without requiring any programming knowledge. ActiveMover offers an open interface for many popular PLC architectures. Using ready-made function modules, you can integrate your application programming to optimize processes in the assembly line.

Component overview

A Workpiece pallet
Precisely transports and positions your workpiece.

B Section module
Generates electromagnetic force to drive the workpiece pallets.

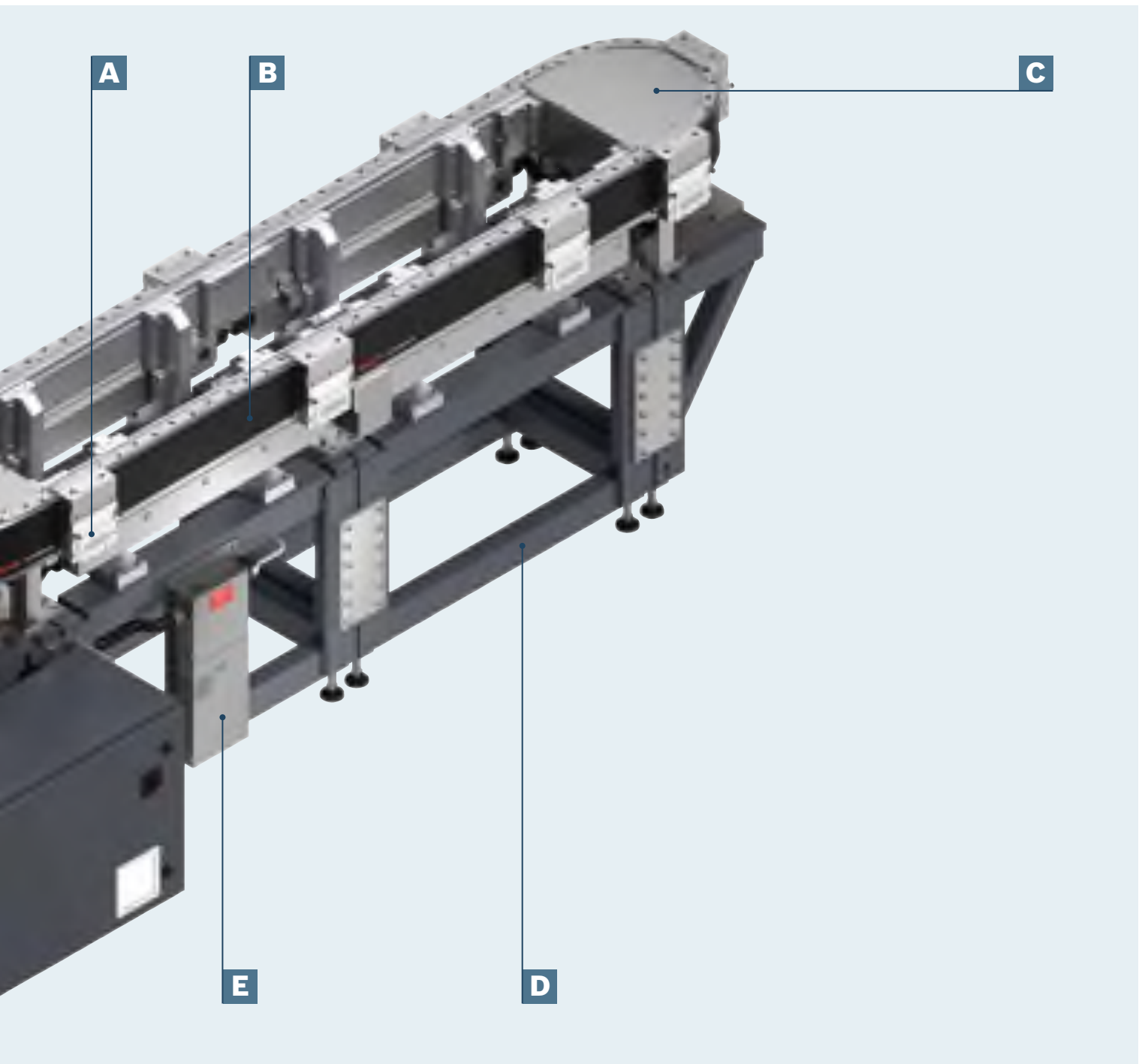
C Curve module
Generates electromagnetic force to drive the workpiece pallets.

D Base frame
Supports the section and curve modules. Offers mounting options for control cabinets and power supplies. Adjustable feet for rough system leveling.

E Power supply
Supplies power to the 28 V DC system.

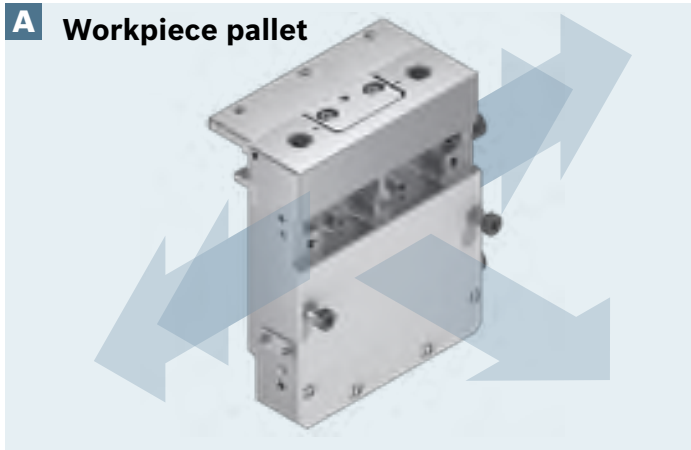
F Control cabinet
For electrical installation and system control.





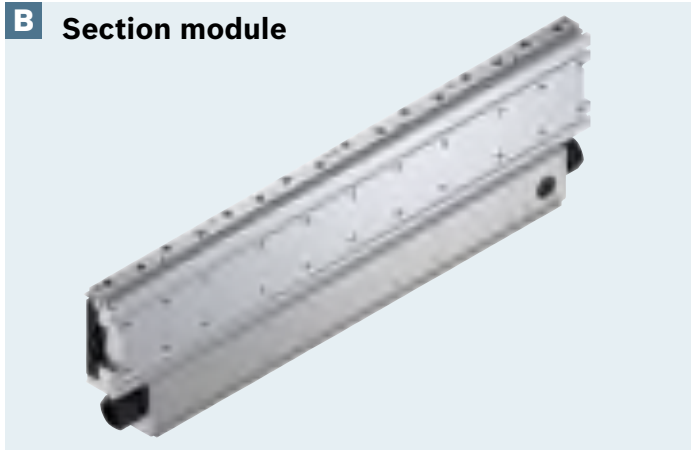
ActiveMover – component overview

A Workpiece pallet



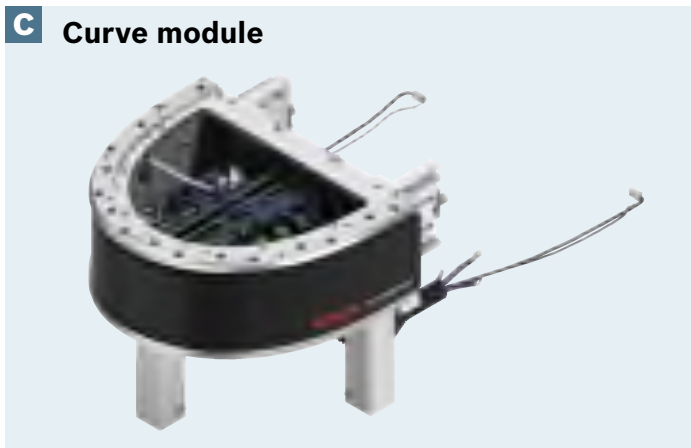
- ▶ Workpiece pallet width (incl. rubber buffer) 165 mm
- ▶ Fixture width up to 500 mm
- ▶ Two or three magnetic plates
- ▶ Loads up to 10 kg
- ▶ Bores for installing your carrying plate
- ▶ Low-maintenance
- ▶ Identification systems supported
- ▶ Individually controllable
- ▶ Open accessibility

B Section module



- ▶ Length 1000 mm
- ▶ Integrated measuring system to detect workpiece pallet position
- ▶ Sturdy design
- ▶ Enclosed electronics box

C Curve module



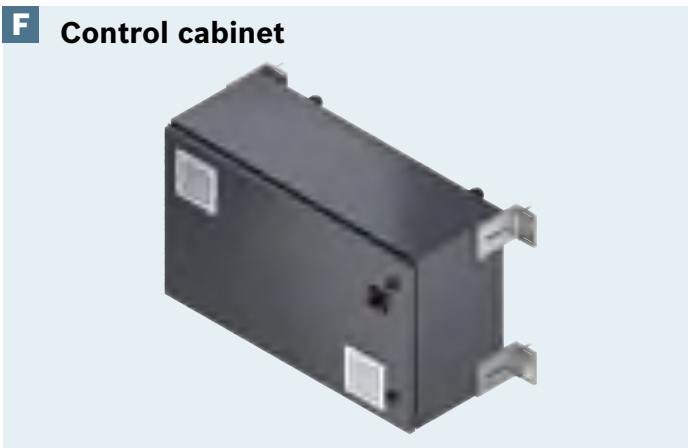
- ▶ Integrated measuring system to detect workpiece pallet position
- ▶ Sturdy design
- ▶ Electronics protected by removable cover

D Base frame

- ▶ Sturdy base frame in painted steel
- ▶ Standard frame length 1000 mm or compact variant length 400 mm
- ▶ Conveyor height 1100 mm
- ▶ Bores for integrating work stations/enclosures

E Power supply set

- ▶ Simple connection to control cabinet and modules
- ▶ Number depends on application
- ▶ Can be assembled horizontally and vertically

F Control cabinet

- ▶ Two versions (EU and NA)
- ▶ No assembly required for rapid commissioning
- ▶ Interface modules supported (PROFINET, Ethernet/IP, EtherCAT, etc.)
- ▶ Stop Category 1 emergency stop safety circuit per DIN EN 60204-1 supported
- ▶ Uninterruptible power supply (UPS)



Workpiece pallet

2

Workpiece pallet

2-6

Identification system

2-9

ActiveMover – workpiece pallet

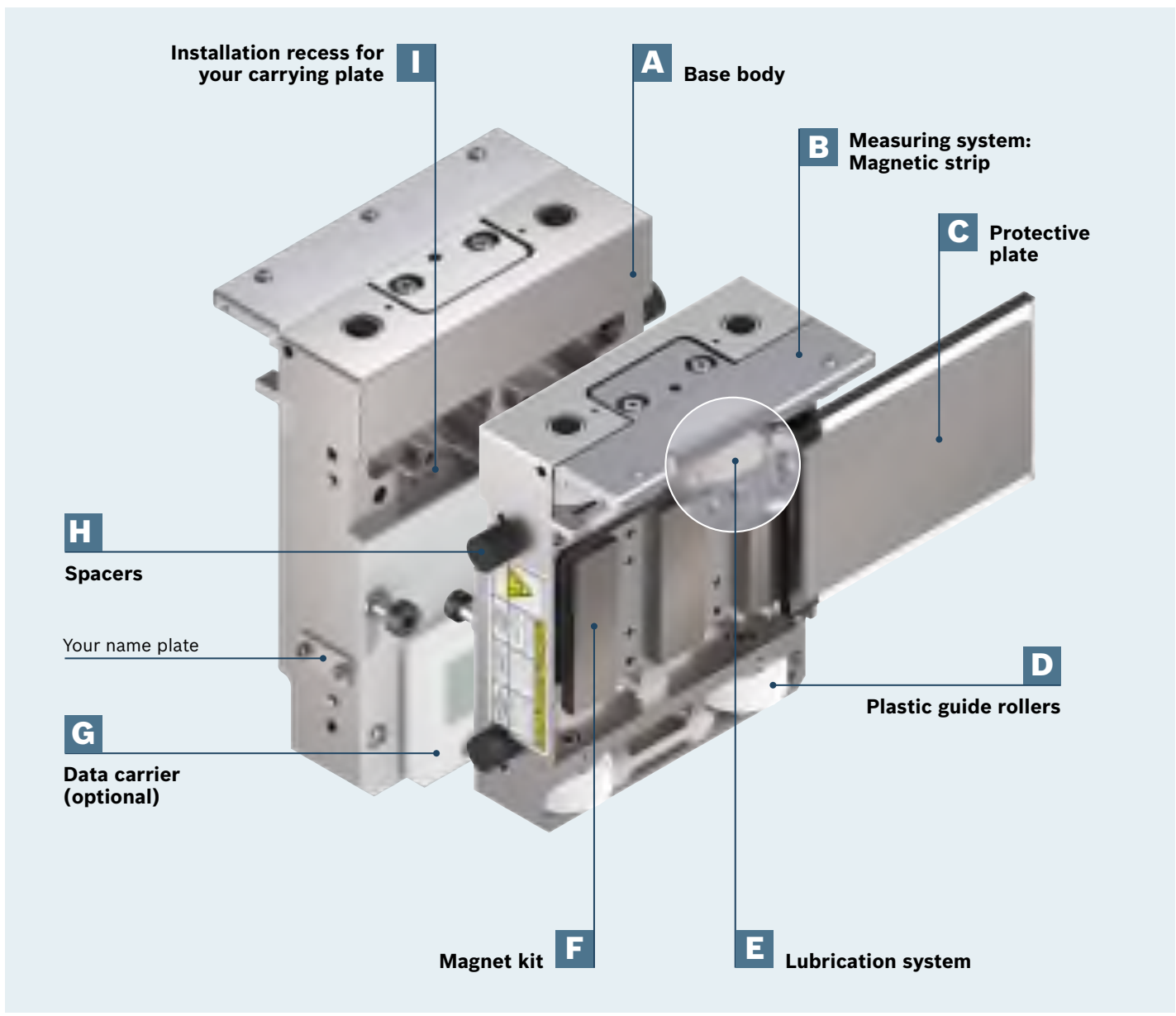
Precise, fast, customizable

The workpiece pallet assists in low-friction transport and precise product positioning. It also supports your carrying plate.



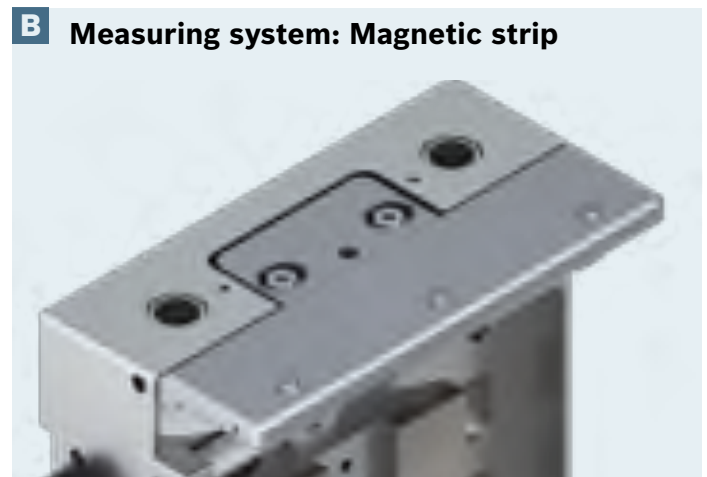
Benefits of its special features:

- ▶ **Low-maintenance:** Lubricating felt easily lubricates the guide rails for longer guide roller service life and reduced wear
- ▶ **Static-free:** Any static charges are dissipated by integrated discharge brushes
- ▶ **Low-noise:** Quiet, low-vibration transitions thanks to a continuous line of contact between plastic guide rollers
- ▶ **Versatile:** Open accessibility from five sides for distinct, custom processes
- ▶ **Uncomplicated:** Your carrying plate is installed easily and reliably with bore and dowel pin
- ▶ **Stable:** Positioning prevents the workpiece pallet from tipping and protects the measuring system against any mechanical collisions with work stations
- ▶ **Safe:** Magnetic field is shielded to safely preserve the workpiece pallet





- ▶ Base body: Design with cavity to reduce weight and increase supported load
- ▶ Protective plate to shield magnetic field



- ▶ Precise, contactless workpiece pallet position detection at full speed and acceleration



- ▶ Low-wear, quiet and low-vibration plastic guide rollers
- ▶ Provide stability and assist in precise positioning on the X-, Y- and Z-axes



- ▶ Felt acts as a lubricant reservoir
- ▶ Even film of lubricant on the guide rail reduces wear in the plastic guide rollers

F Magnet kit

- ▶ 2 magnets: ≤ 2 kg load
- ▶ 3 magnets: ≤ 10 kg load
- ▶ Draw the guide rollers to the guide rail
- ▶ Workpiece pallet does not need to be locked in

G Data carrier (optional)

- ▶ One-time, unique identification of the workpiece pallet via infrared
- ▶ Mounted directly on the workpiece pallet cover

H Spacers

- ▶ Can be mounted on both sides as desired (standard 13 mm)
- ▶ Provide safety during manual movement

I Installation recess for your carrying plate

- ▶ Recesses, threads and dowel pin to precisely attach the carrying plate and prevent rotating

Workpiece pallet



- ▶ Available in two versions:
 - 2 magnet plates (≤ 2 kg load)
 - 3 magnet plates (≤ 10 kg load)
- ▶ Protective plate to shield magnetic field
- ▶ Low-wear, quiet and low-vibration plastic guide rollers
- ▶ Low-maintenance and long-lasting thanks to lubricating felt to evenly lubricate guide rails/rollers
- ▶ Variable load centers of gravity thanks to guide rollers
- ▶ Open accessibility to workpiece pallets from five sides
- ▶ Identification systems supported

The workpiece pallet ensures low-friction transport and precise product positioning. Bores and recesses allow your carrying plate (up to 500 mm) to be attached.

The workpiece pallet can support a data carrier (infrared). The data on the data carrier can be read at full speed and acceleration as the workpiece pallet passes through the reading station.

Accessories

Recommended accessories

- ▶ Data carrier
- ▶ Felt lubrication: ISO VG 46 food-grade lubricant

Delivery information

Included in delivery

- ▶ Protective plate to shield magnetic field when workpiece pallet is removed

Condition on delivery

- ▶ No assembly required

Ordering information

Product designation	Material number
Workpiece pallet with 2 magnets	3 842 559 433
Workpiece pallet with 3 magnets	3 842 559 434

Technical data

Material number		3 842 559 433	3 842 559 434
Properties			
Workpiece pallet weight	kg	2.18	2.65
Load	kg	≤ 2	≤ 10
Material		Cover: thermoplastic film Lubricating felt: SAE F-1 Magnets: neodymium Guide roller: POM Rubber buffer: chloroprene rubber (CR) Protective plate: polycarbonate (PC) + steel Base plate: anodized aluminum	Cover: thermoplastic film Lubricating felt: SAE F-1 Magnets: neodymium Guide roller: POM Rubber buffer: chloroprene rubber (CR) Protective plate: polycarbonate (PC) + steel Base plate: anodized aluminum
Additional information			
Magnetic field strength	Gs	2.5 ... 268.0	3.0 ... 1400.0
Max. acceleration*	Section module, 1 kg load	m/s ² 40	40
	Section module, 10 kg load	m/s ² –	10
	Curve module, 1 kg load	m/s ² 20	20
Max. speed*	Section module	m/min 150	150
	Curve module	m/min 150 (load-based)	150 (load-based)
Max. acceleration force (motor)	N	120	160
Magnetic force	Section module	N 860	1290
	Curve module	N 430	645
Max. input power	W	275	275
Positioning accuracy*	Curve module	mm –	–
	Section module	mm 0.050 (X-axis)	0.050 (X-axis)
Repeat accuracy* of single workpiece pallet	Curve module	mm ± 0.025 (X-/Y-/Z-axis)	± 0.025 (X-/Y-/Z-axis)
	Section module	mm ± 0.01 (X-axis)	± 0.01 (X-axis)
		mm ± 0.015 (Y-axis)	± 0.015 (Y-axis)
		mm ± 0.025 (Z-axis)	± 0.025 (Z-axis)

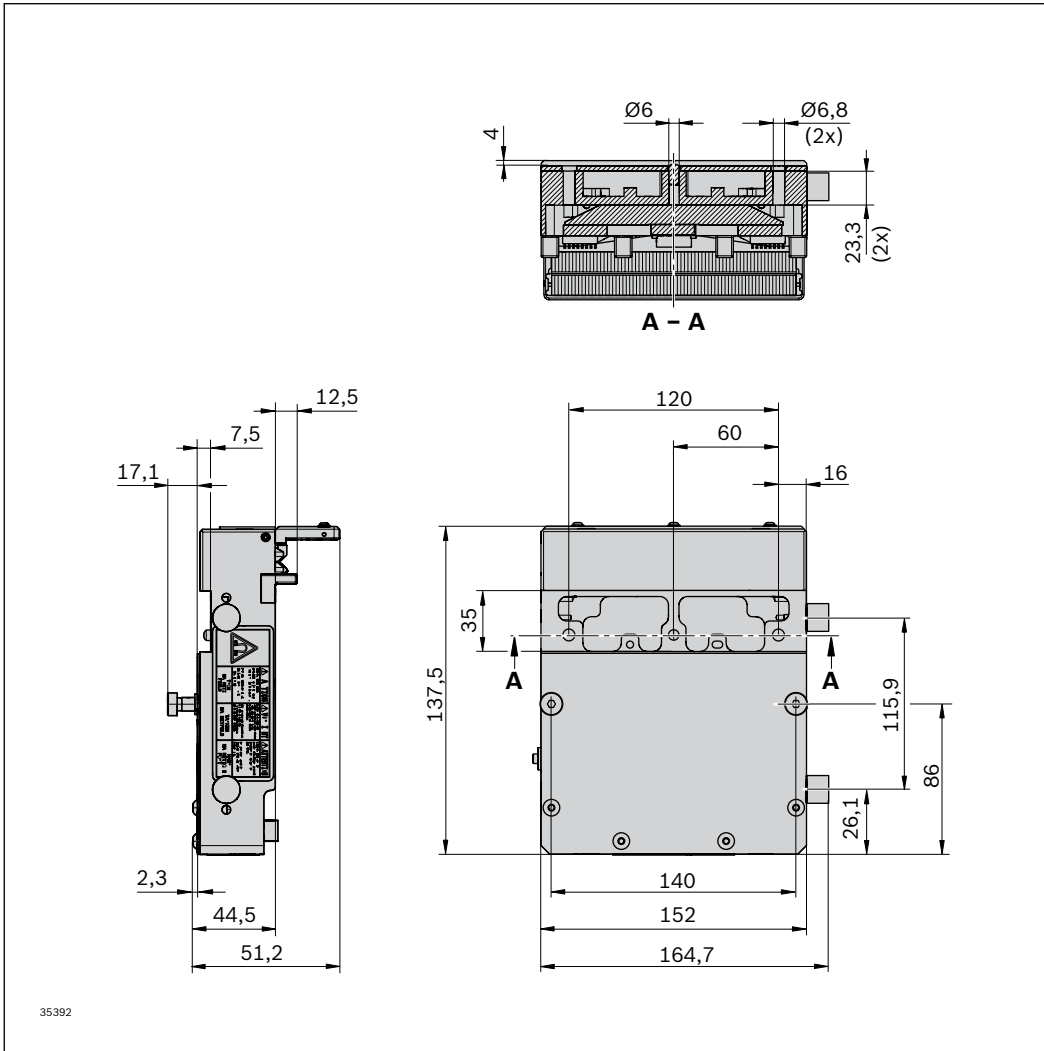
* Orientation information, values depend on application.

Min. distance between workpiece pallets

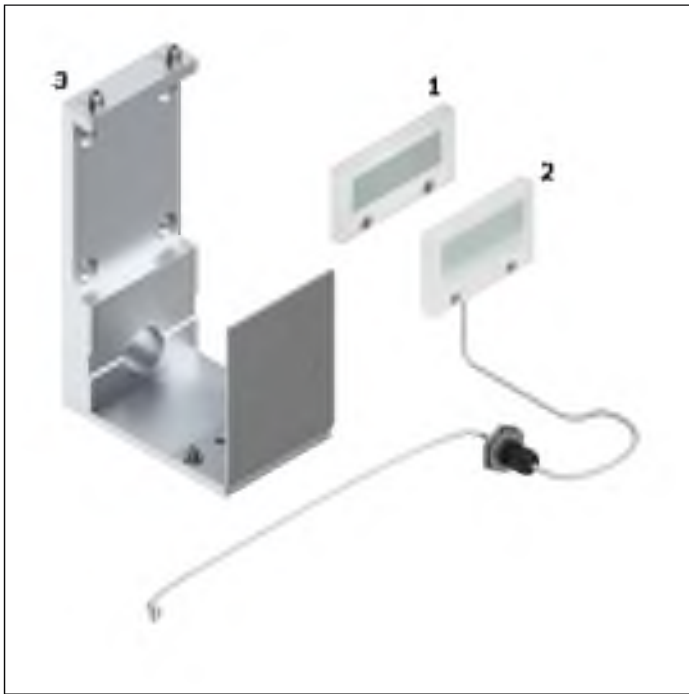
The min. distance between workpiece pallets depends on the workpiece pallet version and is measured from the center of one workpiece pallet to the center of another workpiece pallet.

		3 842 559 433	3 842 559 434
Curve module	mm	200	200
Section module	mm	167 (with rubber buffer)	200
		154 (without rubber buffer)	

Dimensions



Identification system



- ▶ Data carrier (1) for uniquely identifying the workpiece pallet (data integrity)
- ▶ Reading head (2) for reading the data at full speed and acceleration
- ▶ Assembly kit (3) for mounting the reading head and adjusting the distance between reading head and data carrier
- ▶ Infrared data transmission
- ▶ Configuration via AMpro software

The workpiece pallet is uniquely identified by a data carrier mounted to the workpiece pallet. The reading head is plug-and-play and is attached to the section module, reading the data carrier number as soon as the workpiece pallet passes through the reading station.

The required distance between reading head and data carrier is 1 mm.

To be able to identify the number saved on the data carrier, the data carrier's number is physically engraved on its side (see Fig. on p. 2-11).

Accessories

Required accessories

- ▶ AMpro software

Delivery information

Included in delivery

- ▶ Depending on order:
 - Data carrier, incl. fastening material
 - Reading head, incl. connecting cable and fastening material
 - Assembly kit

Condition on delivery

- ▶ Assembly required

Ordering information

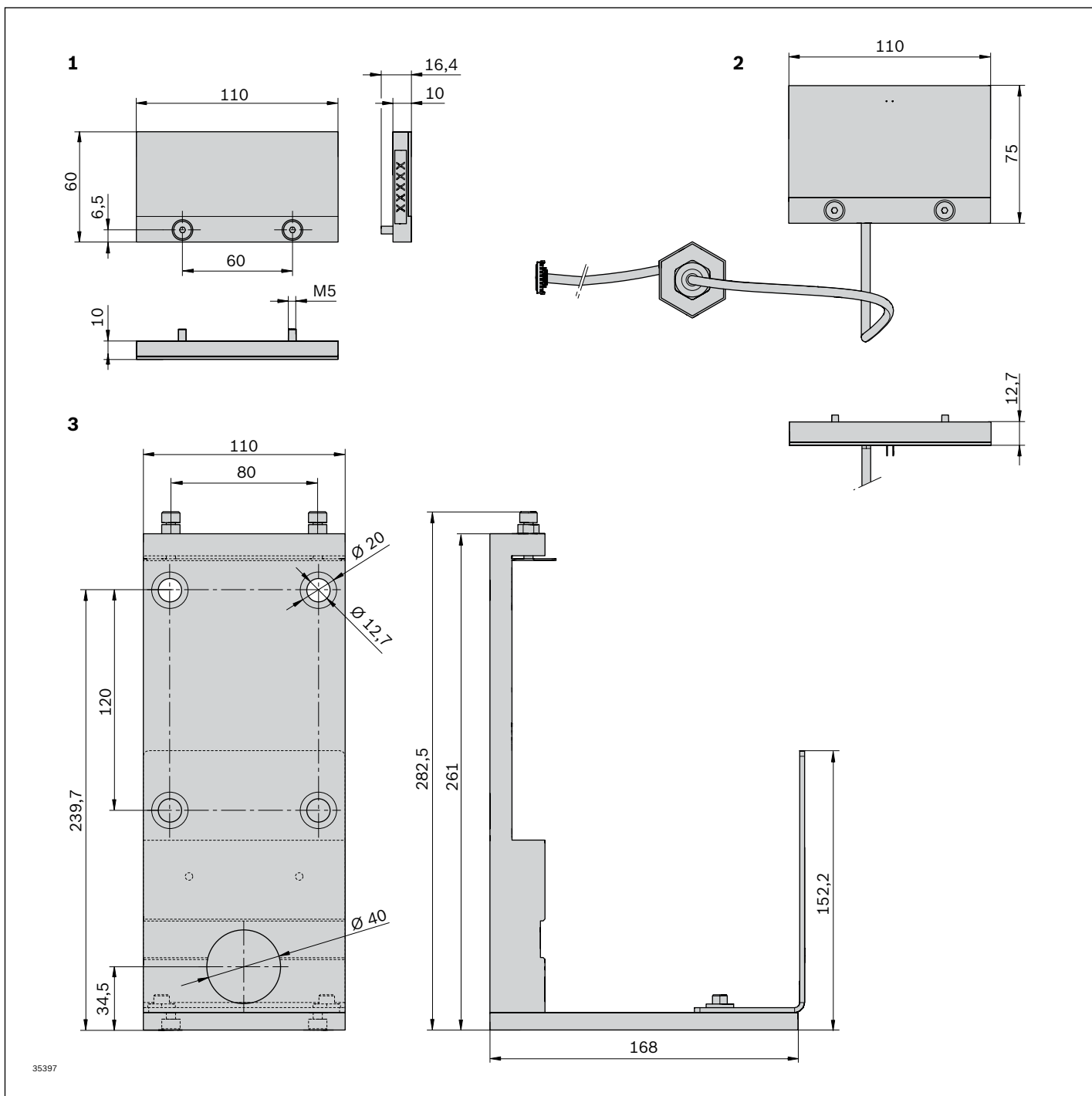
Product designation	L (mm)	Material number
Data carrier		3 842 559 447
Reading head	1500	3 842 559 441
Assembly kit		3 842 559 440

Technical data

Material number		3 842 559 447	3 842 559 441	3 842 559 440
Properties				
Weight	kg	0.1	0.3	2.4
Material		POM	POM, nickel-plated brass, PVC	Anodized aluminum, Steel
Additional information				
Reading distance ¹⁾	mm	–	1	–
Reading speed	m/min	–	≤ 150	–
Acceleration	m/s ²	–	≤ 40	–
Laser		–	Class 1	–

¹⁾ Distance between reading head and data carrier

Dimensions



- 1 Data carrier, XXXXX = data carrier identification number
- 2 Reading head
- 3 Assembly kit



Sections

3

Section module	3-6
Module holder	3-8
Section module connecting kit	3-10
Curve module	3-12

ActiveMover – modules

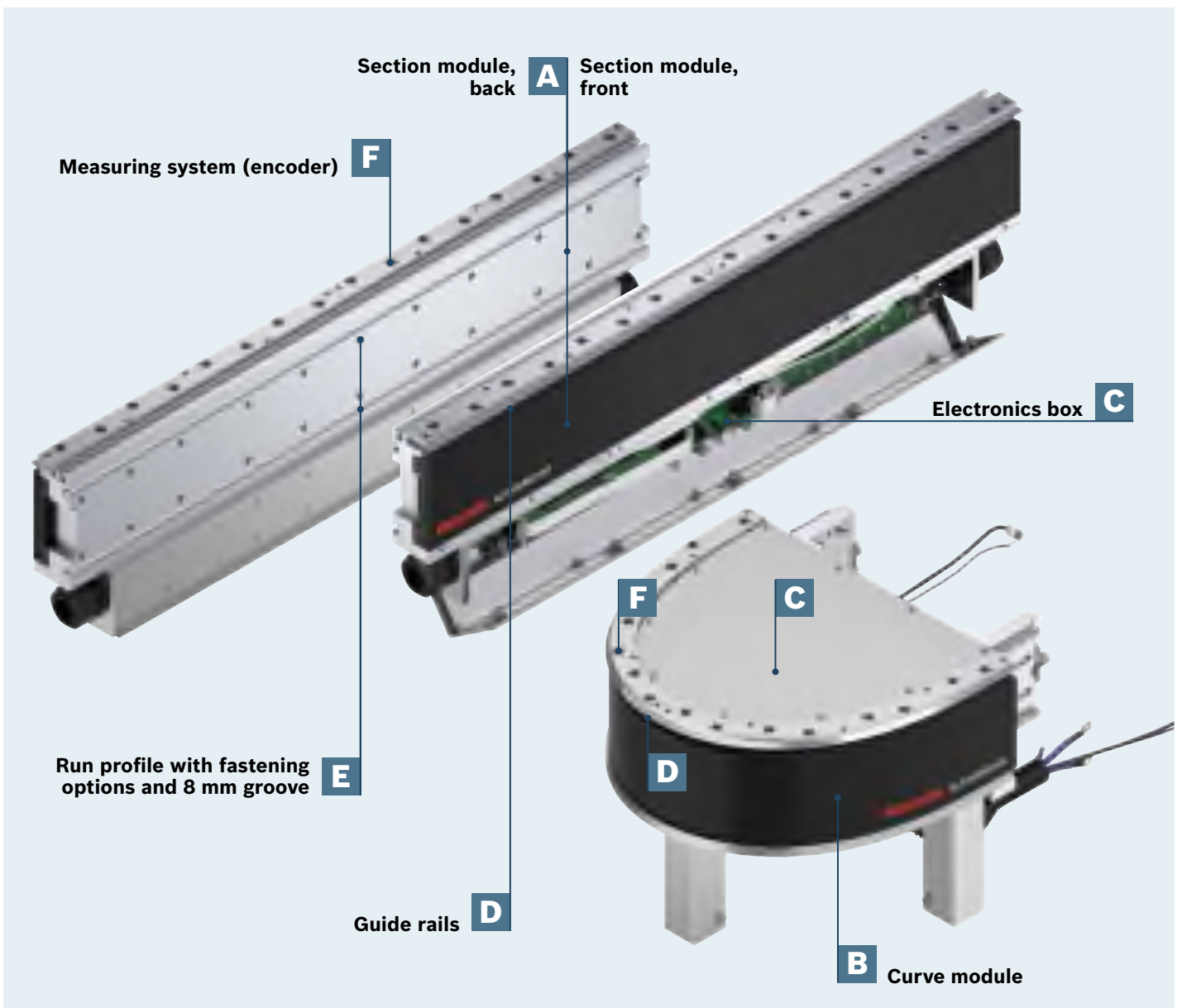
Uncomplicated, sturdy, accurate

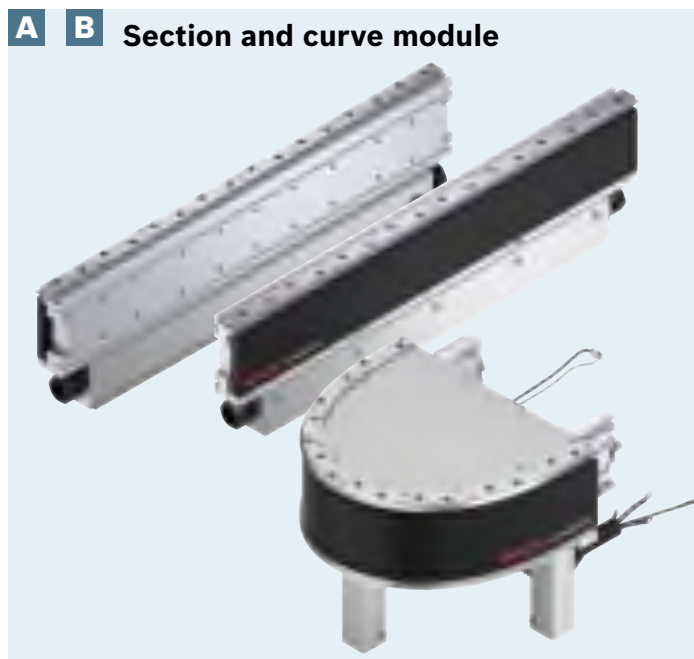
Sturdy section and curve modules support the low-friction movement of the workpiece pallet and ensure an ultra-precise production process.



Benefits of its special features:

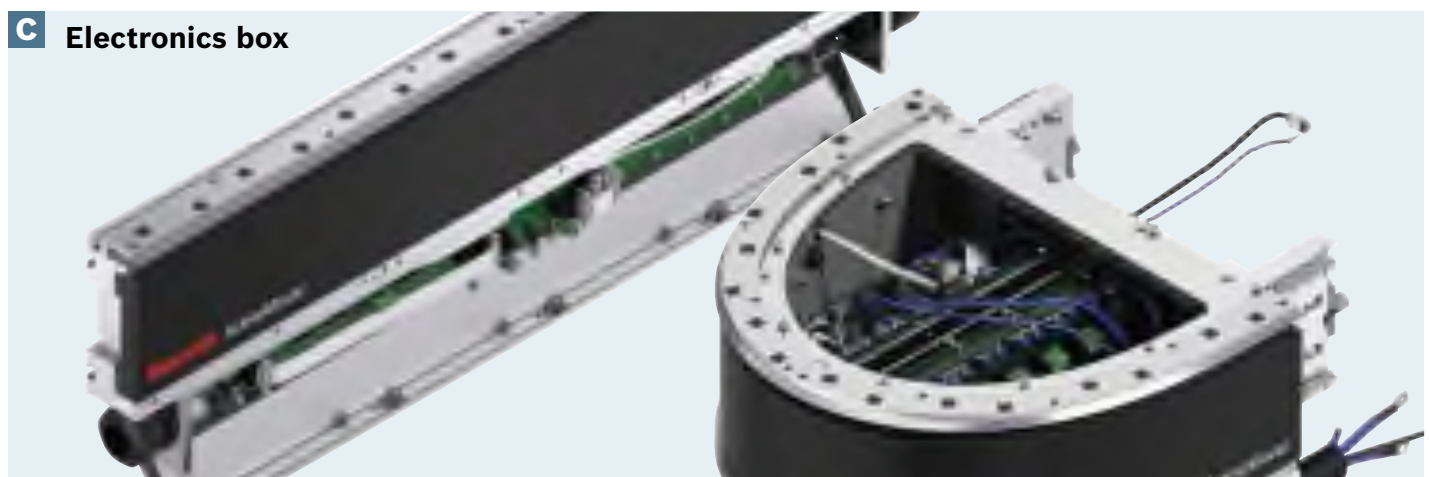
- ▶ **Low-maintenance:** Save on spare parts through innovative technology and modular components
- ▶ **Sensitive:** Special guide rails ensure a gentle production process and simplify workpiece pallet conversion
- ▶ **Uncomplicated:** Simple adjusting with a special connecting kit and compatible with fastening elements from Rexroth's Basic Mechanical Elements line
- ▶ **Stable:** Vertical and horizontal workpiece pallet support function
- ▶ **Safe:** Electronic components installed in an electronics box with flap guard
- ▶ **Ultra-precise:** Precise, contactless position detection via measuring system and ultra-precise workpiece pallet positioning guaranteed





Section and curve module

- ▶ For generating an electromagnetic field for workpiece pallet transport
- ▶ Modular design, fewer spare parts and reduced installation errors
- ▶ Curve profile prevents jerky movements (shocks/jerks/vibration) in the workpiece pallet to protect the product. Workpiece pallet can be positioned exactly where desired even on the curve module
- ▶ Straight section at the ends of the curve module ensure:
 - Gentle workpiece pallet transition
 - Easy and minor adjusting of curves
 - Easy and minor adjusting of guide rails, reducing wear, vibrations and noise



Section module

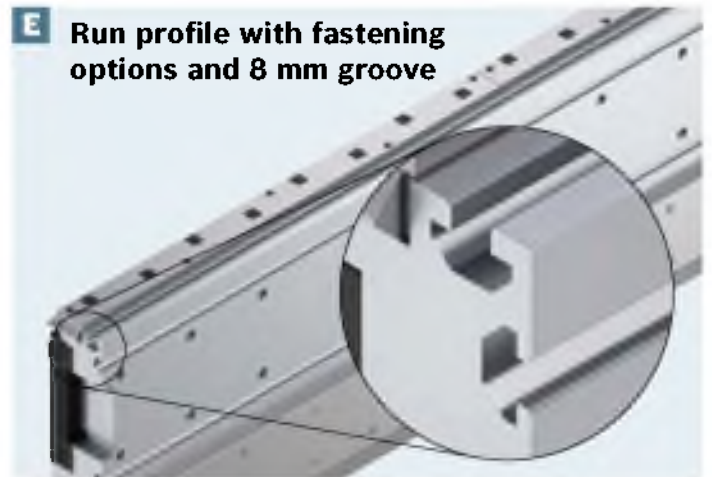
- ▶ Flap guard for quick accessibility and maintenance
- ▶ Connecting cables can be inserted from the side
- ▶ Cable socket with EMC protection (electromagnetic compatibility)

Curve module

- ▶ Electronics protected by removable cover
- ▶ Connecting cables can be inserted from below



D Guide rail



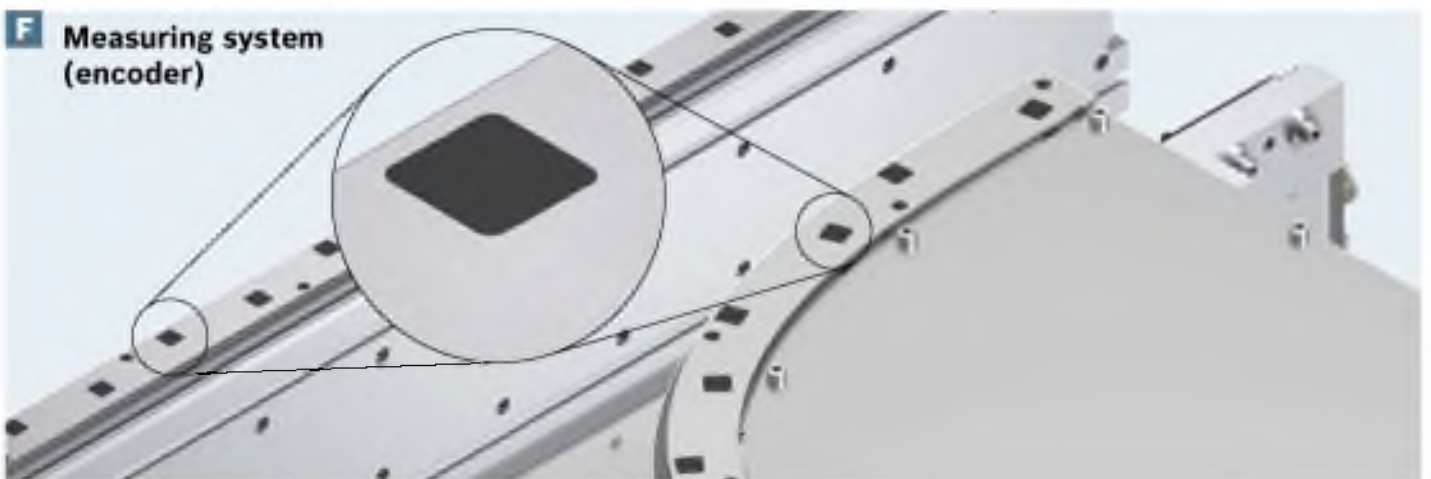
E Run profile with fastening options and 8 mm groove

Section and curve module

- ▶ For vertical and horizontal workpiece pallet support
- ▶ Allows for easy workpiece pallet conversion
- ▶ With overlapping transitions to compensate for tolerances and minimize gaps

Section module

- ▶ For mounting brackets, cable ducts, etc.
- ▶ Compatible with fastening elements from Rexroth's Basic Mechanical Elements line



F Measuring system (encoder)

Section and curve module

- ▶ Precise, contactless position detection at full speed and acceleration
- ▶ Valid position values supplied at any position
- ▶ Mounted to aluminum profiles for quick and easy replacing
- ▶ Protective cap protects against soiling and foreign bodies
- ▶ 1 μm travel resolution
- ▶ Same measuring system for section and curve modules

Section module



- ▶ For generating and regulating an electromagnetic field for workpiece pallet transport
- ▶ Integrated measuring system (encoder) to for contactless workpiece pallet position detection
- ▶ Enclosed electronics box
- ▶ For quickly and easily removing workpiece pallets, as the guide rollers on the workpiece pallet are not interlocked with the system
- ▶ 8 mm groove for mounting brackets, cable ducts, etc. (compatible with fastening elements from Rexroth's Basic Mechanical Elements line)

The motor on the run profile generates and regulates the electromagnetic field for transporting the workpiece pallet. The electronics box on the section module is easily accessed by a flap guard. Installation cables can be inserted from the side, and power supply and identification system cables from below.

The integrated measuring system (encoder) ensures precise detection of any workpiece pallet position.

The chamfered ends of the guide rails allow modules to overlap. This gives the guide rollers continuous contact with the guide rails, providing low-friction and low-vibration transport between section modules.

Accessories

Required accessories

- ▶ Module holder, section module connecting kit

Delivery information

Included in delivery

- ▶ Cable socket with EMC protection (electromagnetic compatibility)
- ▶ Centering piece
- ▶ T-slot stones for assembling section module connecting kit

Condition on delivery

- ▶ No assembly required

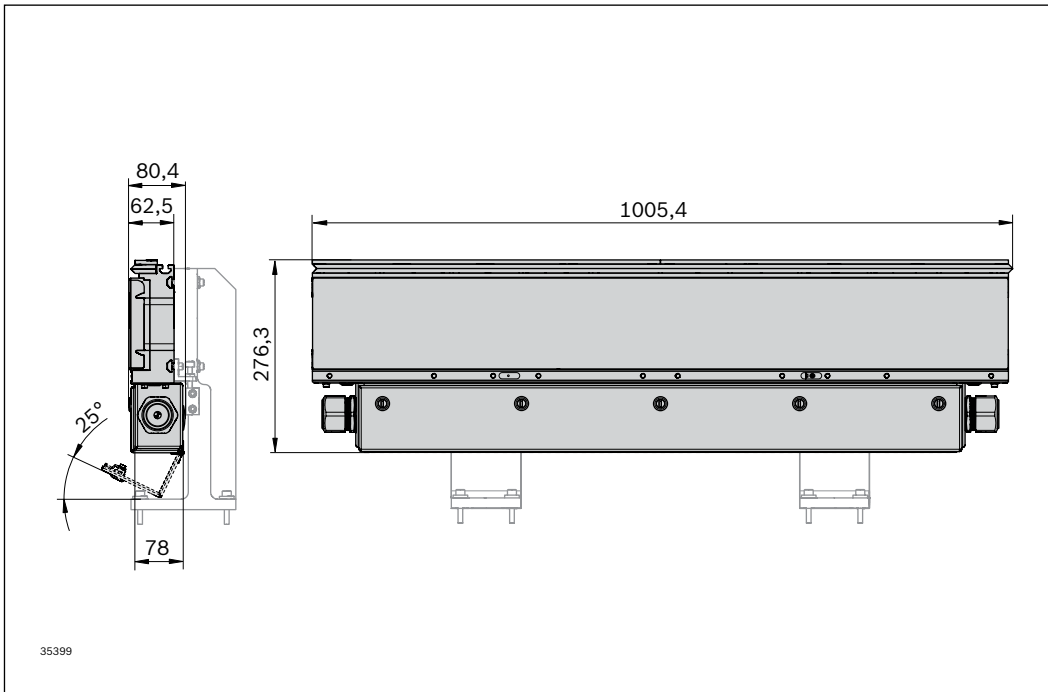
Ordering information

Product designation	L (mm)	Material number
28 V DC section module	1000	3 842 559 426

Technical data

Material number		3 842 559 426	
Properties			
Weight		kg	41
Material			Anodized aluminum, stainless steel, PA, PC, epoxy
Additional information			
Voltage		V DC	28 (motor) 24 (digital)
Max. number of section modules/system		Modules	48
Max. acceleration force	Workpiece pallet with 2 magnets	N	120
	Workpiece pallet with 3 magnets	N	160
Max. input power		W	10

Dimensions



Module holder



- ▶ For easy, stable mounting of the section module to the base frame
- ▶ Allows the section module height to be adjusted easily
- ▶ With bores and threads to allow you to install covers

Module holder for mounting the section module on the base frame. Module holders can be height-adjusted to compensate for the height offset between section modules.

Accessories

Required accessories

- ▶ Fixing plate

Delivery information

Included in delivery

- ▶ Fastening material and height adjuster

Condition on delivery

- ▶ Assembly required

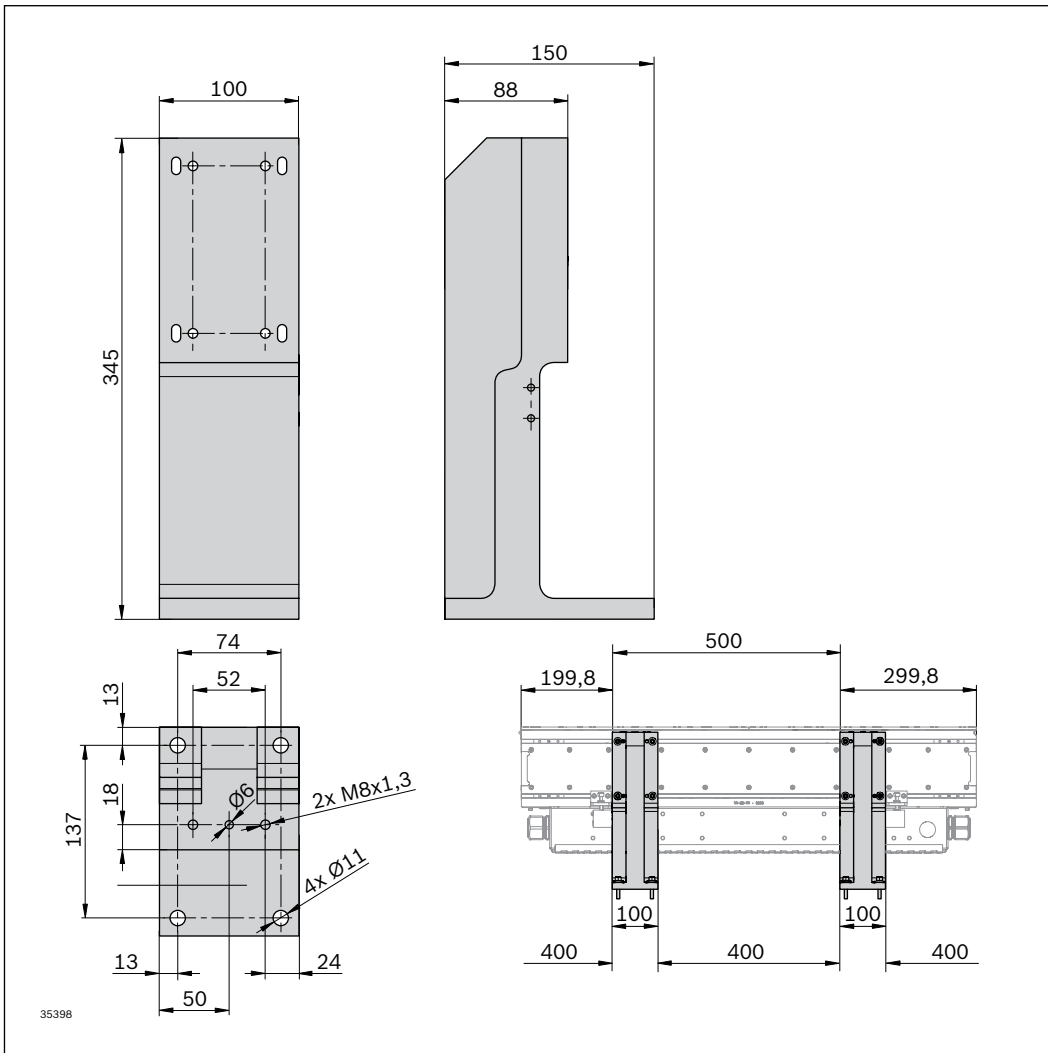
Ordering information

Product designation	Packaging unit	Material number
Module holder	Set	3 842 559 429

Technical data

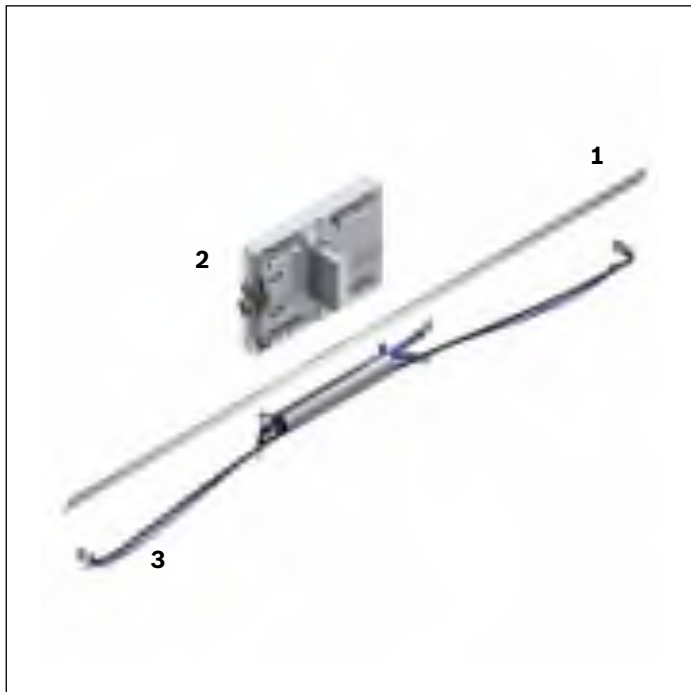
Material number		3 842 559 429
Properties		
Weight	kg	8
Material		Anodized aluminum

Dimensions



Notice: Recommended holder spacing: 400 mm

Section module connecting kit



- ▶ For connecting section modules
- ▶ For making fine adjustments and compensating for tolerances between section modules

Connecting kit for making precise lateral adjustments ($\pm 20 \mu\text{m}$) to section modules. The flat guide rail is mounted to the section modules using small magnets. The chamfered ends of the guide rails allow modules to overlap.

This gives the guide rollers continuous contact with the guide rails, providing low-friction and low-vibration transport between section modules. Sensitive products can be transported without damage.

Delivery information

Included in delivery

- ▶ Fastening material
- ▶ Flat guide rail (1) L = 1000 mm
- ▶ Connecting plate (2) (incl. connecting block, adjusting screw, adjusting wedge)
- ▶ Cable set (3), incl. installation material for section modules, consisting of 3x cable (0 V, 24 V, 28 V DC), grounding cable, network cable and cable guard pipe

Condition on delivery

- ▶ Assembly required

Ordering information

Product designation	Packaging unit	Material number
Section module connecting kit	Set	3 842 559 438

Technical data

Material number		3 842 559 438
Properties		
Weight	kg	3.3
Material		Anodized aluminum
Dimensions		
Guide rail length	mm	1000

Curve module



- ▶ For generating and regulating an electromagnetic field for workpiece pallet transport
- ▶ Integrated measuring system (encoder) to for contactless workpiece pallet position detection
- ▶ Electronics protected by removable cover
- ▶ For quickly and easily removing workpiece pallets, as the guide rollers on the workpiece pallet are not interlocked with the system
- ▶ Sturdy bracket

The motor on the curve module generates and regulates the electromagnetic field for transporting the workpiece pallet. The electronics are easily accessed via a cover. Installation cables can be inserted from below. The integrated measuring system (encoder) ensures precise detection of any workpiece pallet position. Module holders with

adjusting screws to precisely align and mount the curve module to the base frame. The chamfered ends of the guide rails allow modules to overlap.

This gives the guide rollers continuous contact with the guide rails, providing low-friction and low-vibration transport between curve modules/modules.

Accessories

Required accessories

- ▶ Incl. fixing plate for mounting to base frame

Delivery information

Included in delivery

- ▶ Fastening material
- ▶ Curve module connecting kit (incl. guide rail)
L = 500 mm; adjusting wedge; connecting block; cable set, incl. installation material for section modules, consisting of 3x cable (0 V, 24 V, 28 V DC), grounding cable, network cable and cable guard pipe
- ▶ Module holder, incl. cover

Condition on delivery

- ▶ Some assembly required

Ordering information

Product designation	Material number
Curve module	3 842 559 430

Technical data

Material number	3 842 559 430	
-----------------	---------------	--

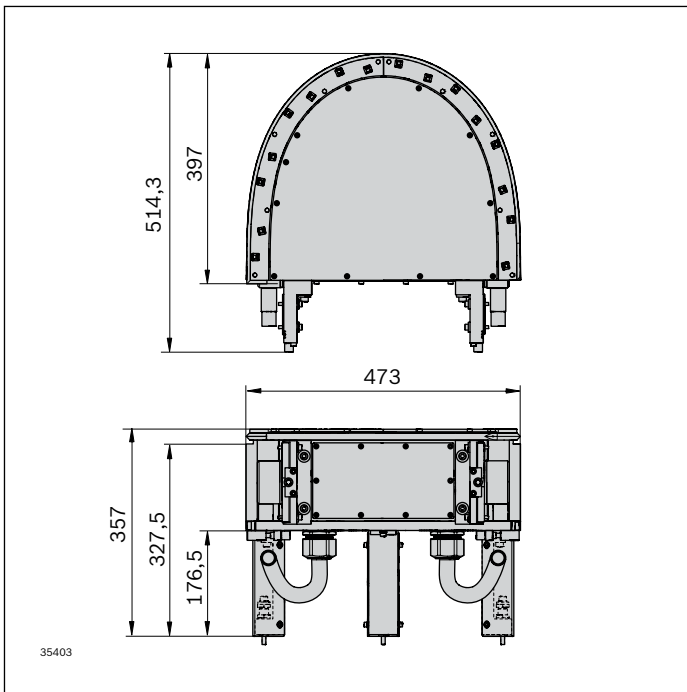
Properties

Weight	kg	65
Material		Anodized aluminum, stainless steel, PA, PC, epoxy

Additional information

Voltage	V DC	28 (motor) 24 (digital)
Max. input power	W	10

Dimensions





Base frame

4

Base frame	4-6
-------------------	------------

Fixing plate	4-8
---------------------	------------

Base frame connecting kit	4-10
----------------------------------	-------------

ActiveMover – base frame

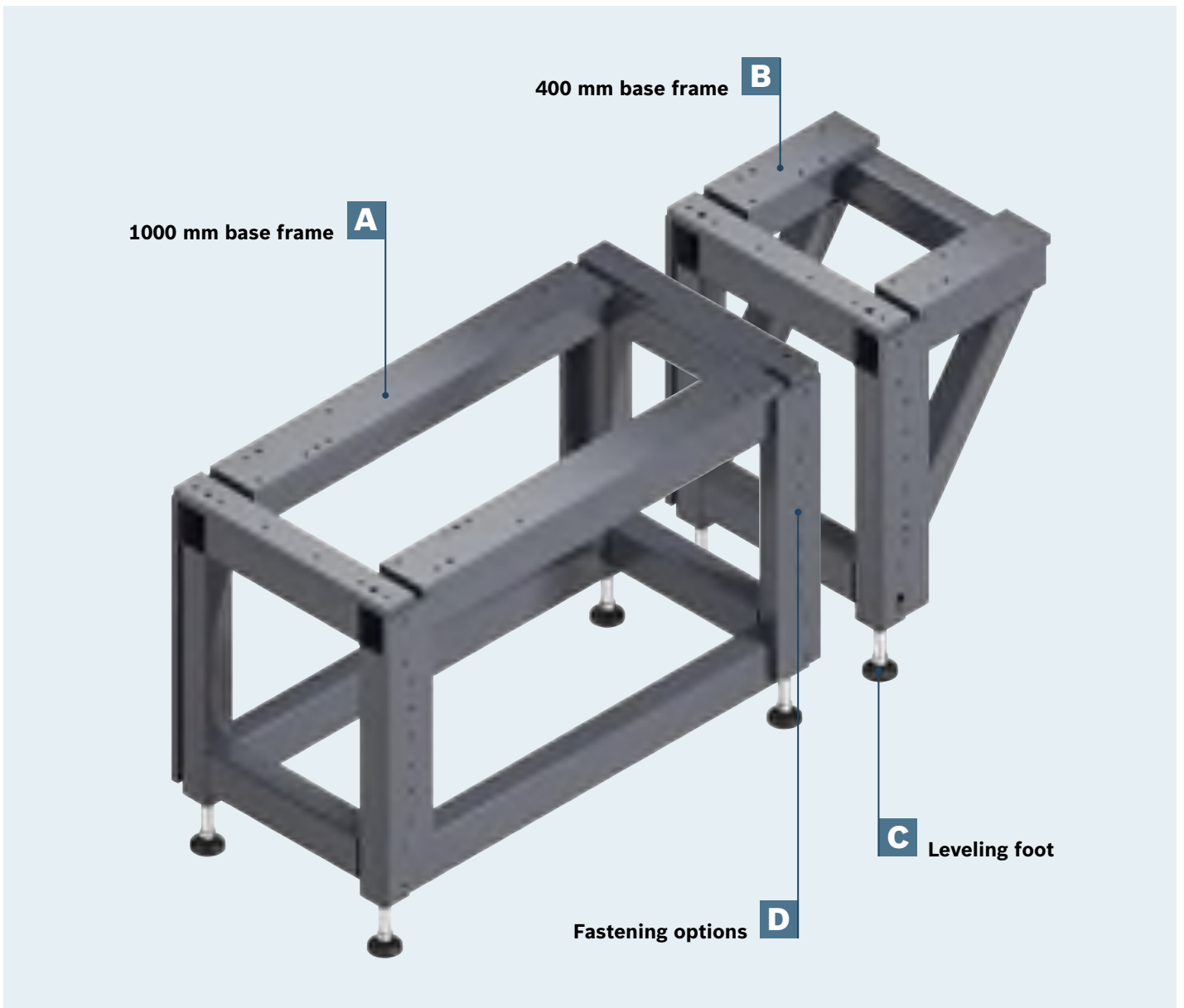
Sturdy base, compact and flexible

The sturdy design of the base frames offers a flexible base for tailored solutions. Perfectly tuned to all ActiveMover components.



Benefits of its special features:

- ▶ **Safe:** Sturdy design in painted steel offers a safe base for all components and your work stations
- ▶ **Reliable:** High-quality materials and practical experience ensure perfect interaction between all required components and trouble-free management of any loads encountered
- ▶ **Customizable:** Bores allow for any level of expansion for tailored solutions



A 1000 mm base frame



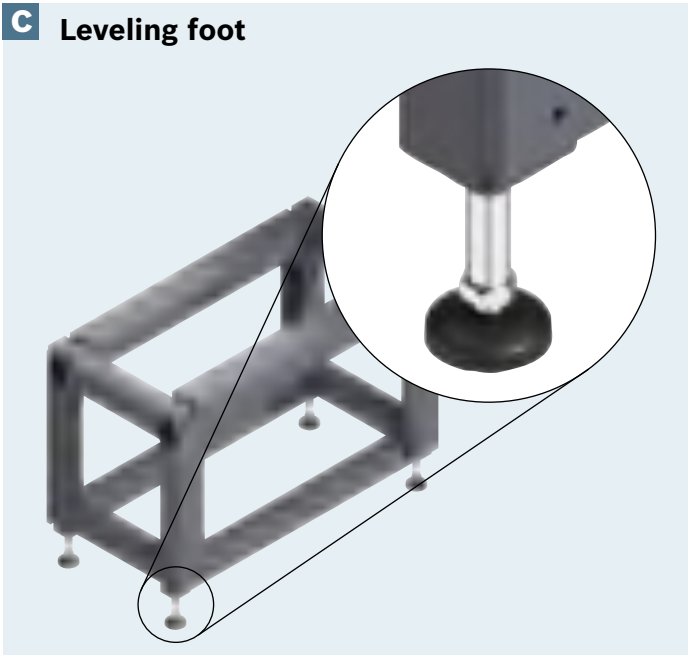
- ▶ Sturdy base frame in painted steel
- ▶ Standard frame for the section and curve modules, 1000 mm long
- ▶ Conveyor height 1100 mm
- ▶ Supports ActiveMover control cabinet

B 400 mm base frame

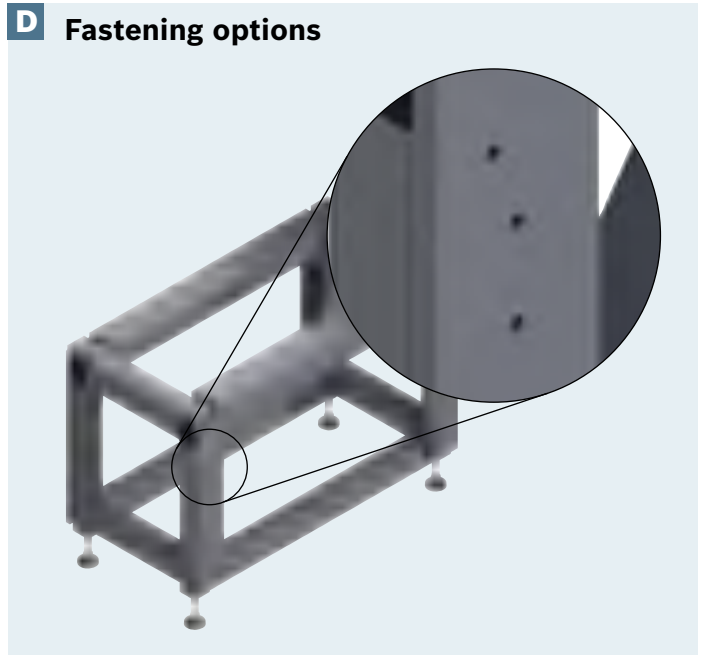


- ▶ Sturdy base frame in painted steel
- ▶ Sturdy base frame for mounting curve modules, 400 mm long
- ▶ Conveyor height 1100 mm



C Leveling foot

- ▶ Adjustable leveling feet for stability
- ▶ Support system leveling

D Fastening options

- ▶ Comes with prefabricated threads and bores for mounting work stations and enclosures, or components such as control cabinet, fixing plates and connecting kits

- ▶ Note the fastening options for flexible power supply placement



Base frame



- ▶ Base frame (1) up to L = 1000 mm for section or curve modules
- ▶ Base frame (2) up to L = 400 mm for curve modules
- ▶ With adjustable leveling feet
- ▶ With bores and threads for mounting fixing plates, connecting kits and control cabinets

The sturdy base frame is used to securely mount curve and section modules.

Accessories

Required accessories

- ▶ L = 1000 mm: fixing plate for section and curve modules
- ▶ L = 400 mm: fixing plate for curve modules
- ▶ Base frame connecting kit

Delivery information

Condition on delivery

- ▶ No assembly required

Ordering information

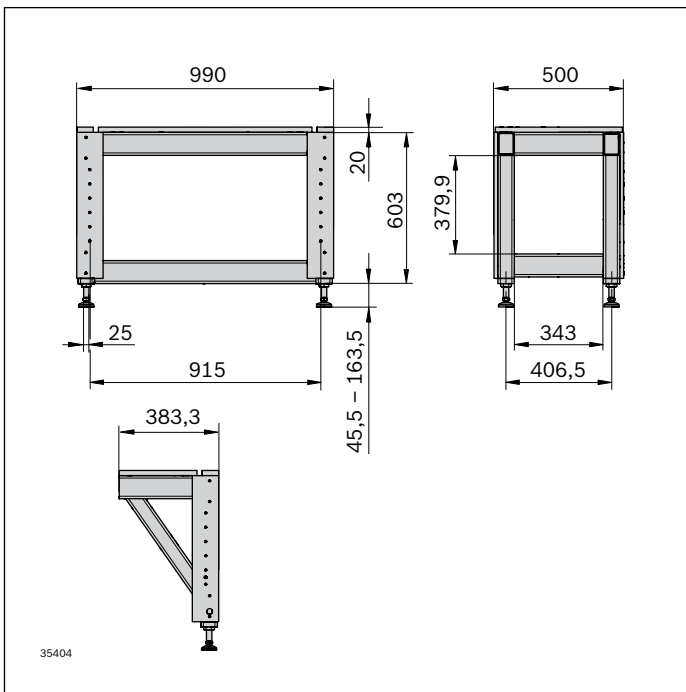
Product designation	Material number
Base frame L 1000	3 842 559 450
Base frame L 400	3 842 559 451

Technical data

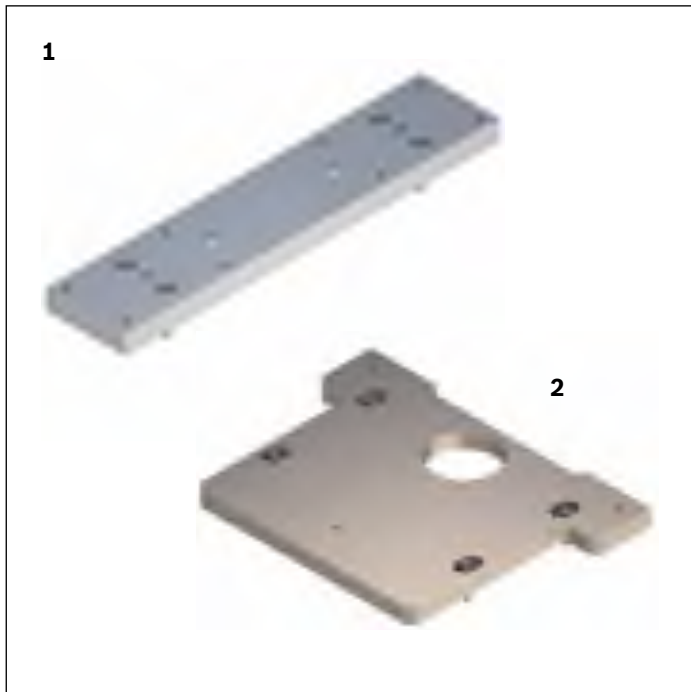
Material number	3 842 559 450	3 842 559 451
Properties		
Weight	kg	
	135	62
Material	Painted steel (RAL 7024), die-cast zinc, galvanized steel	Painted steel (RAL 7024), die-cast zinc, galvanized steel
Dimensions		
Length	1000	400
Conveyor height	1100	1100

4

Dimensions



Fixing plate



- ▶ Section module fixing plate (**1**) for mounting the section module on the base frame.
- ▶ Curve module fixing plate (**2**) for mounting the curve module on the base frame, with recess for cable passage

Fixing plates for mounting section and curve modules to the base frame.

Delivery information

Included in delivery

- ▶ Fastening material

Condition on delivery

- ▶ Assembly required

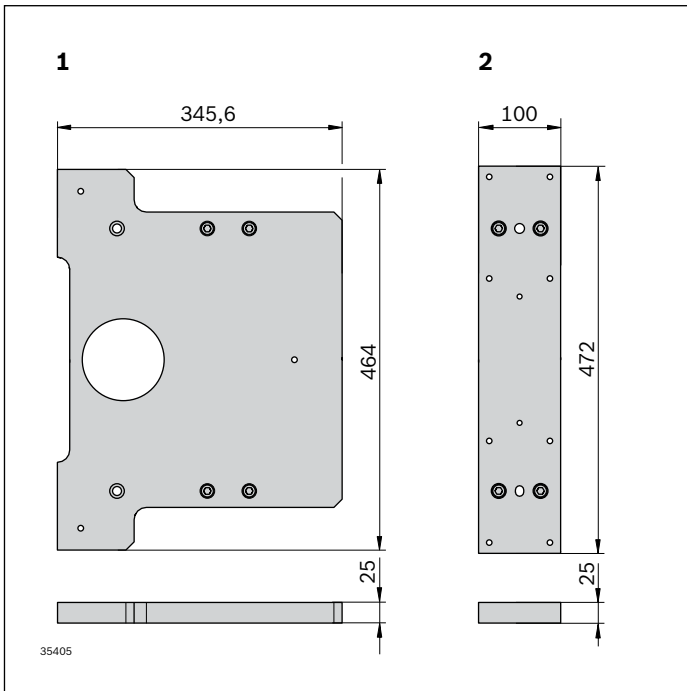
Ordering information

Product designation	Packaging unit	Material number
Section module fixing plate	Set	3 842 559 454
Curve module fixing plate	–	3 842 559 455

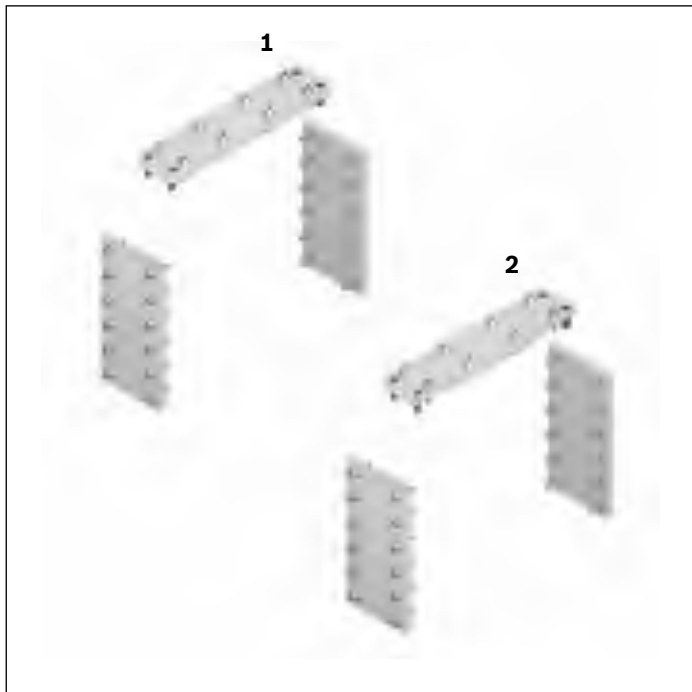
Technical data

Material number		3 842 559 454	3 842 559 455
Properties			
Weight	kg	6.7	8.5
Material		Anodized aluminum	Anodized aluminum

Dimensions



Base frame connecting kit



- ▶ Connecting kit **(1)** for connecting two base frames (between section modules)
- ▶ Connecting kit **(2)** for connecting two base frames (between curve module and section module)

Base frame connecting kit for connecting base frames and section or curve modules.

Accessories

Recommended accessories

- ▶ Base frame

Condition on delivery

- ▶ Assembly required

Delivery information

Included in delivery

- ▶ Fastening material

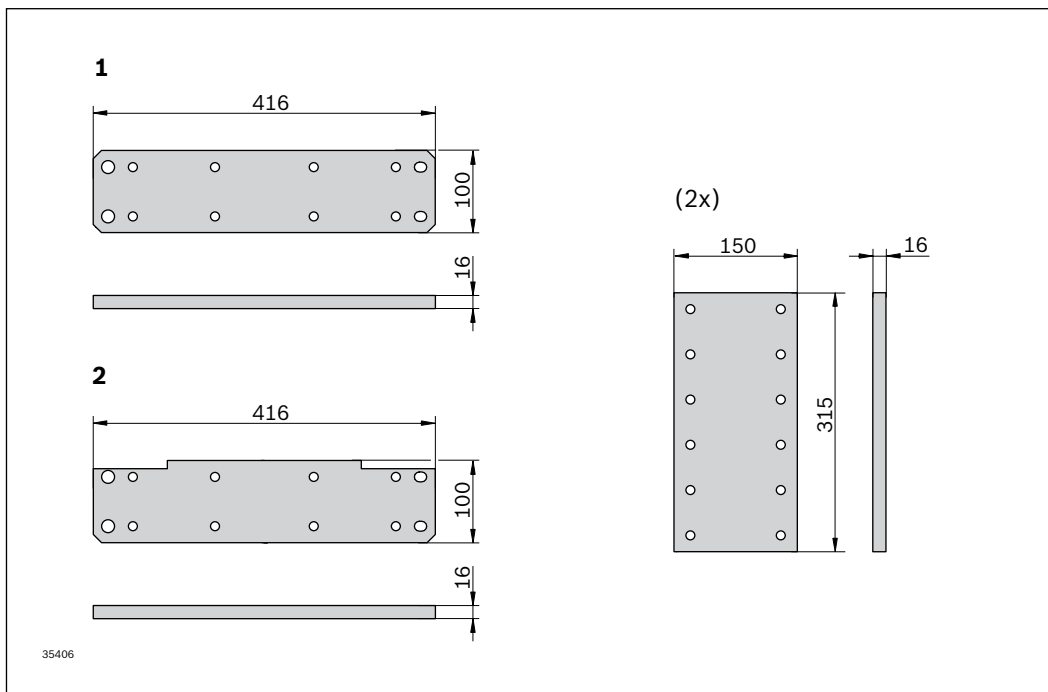
Ordering information

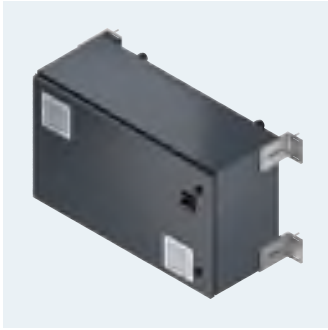
Product designation	Packaging unit	Material number
Base frame connecting kit (section module)	Set	3 842 559 452
Base frame connecting kit (curve module)	Set	3 842 559 453

Technical data

Material number		3 842 559 452	3 842 559 453
Properties			
Weight	kg	17	17
Material		Nickel-plated steel	Nickel-plated steel

Dimensions





Power supply

Power supply set

5-6

Control cabinet

5-8

ActiveMover – power supply

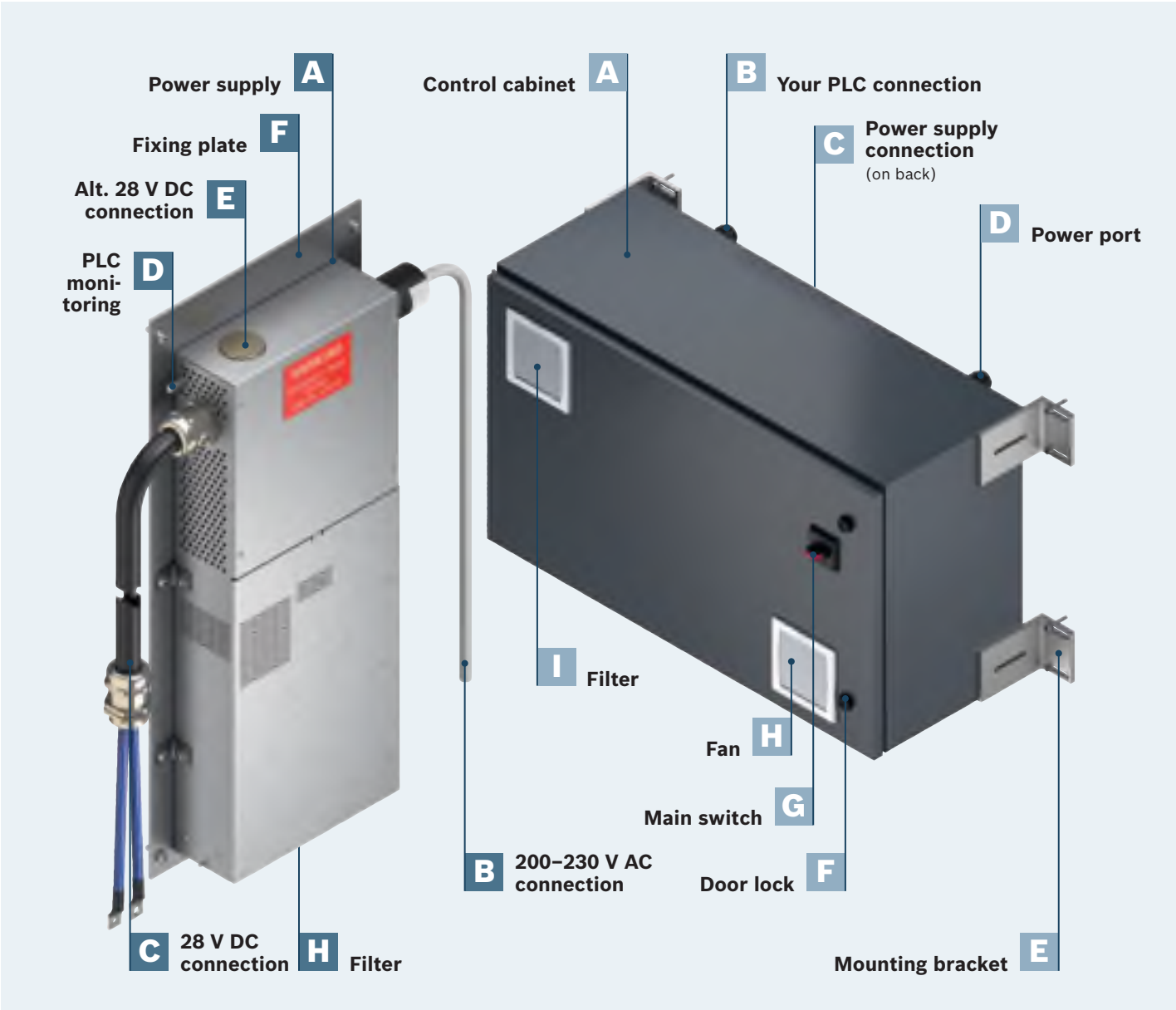
Reliable, powerful, efficient

Power supply and control cabinet form the perfect combination for an efficient, reliable system.

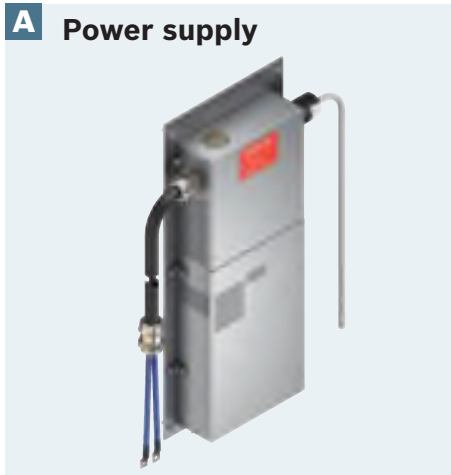


Benefits of its special features:

- ▶ **Reliable:** Various interfaces available for tailored requirements
- ▶ **Powerful:** Rexroth quality and experience guarantee perfect interaction between all necessary components
- ▶ **Efficient:** The built-in uninterruptible power supply (UPS) ensures the system shuts down safely without losing data in the event of a power failure or voltage fluctuations



A Power supply



- ▶ 28 V DC system power supply
- ▶ Horizontal or vertical mounting

B 200–230 V AC connection



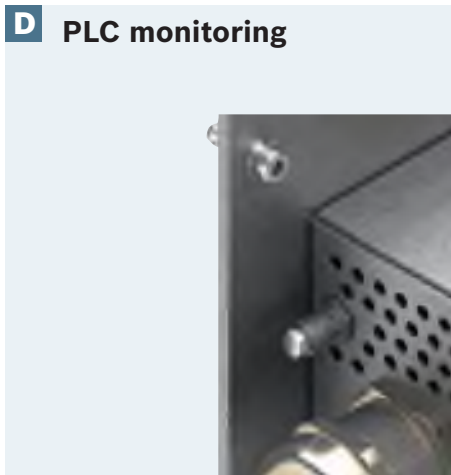
- ▶ Plug connector for your 200–230 V AC connection to control cabinet

C E 28 V DC connections



- ▶ Output for powering section and curve modules
- ▶ Cable length 1.5 m

D PLC monitoring



- ▶ PLC monitoring of power supply

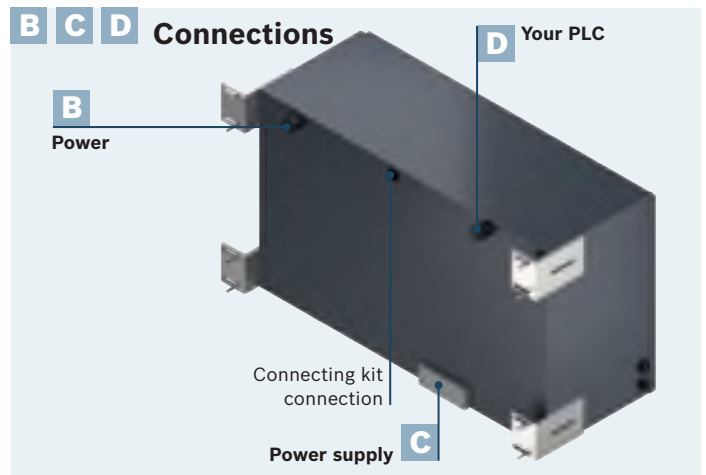
F Fixing plate



- ▶ For mounting the power supply to a Rexroth base frame or your base frame

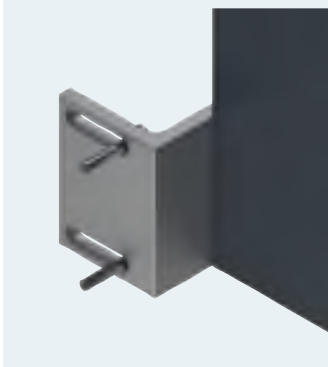
A Control cabinet

- ▶ 2 versions: EU and NA
- ▶ Built-in controller, UPS and all necessary electrical components
- ▶ Interface modules (Ethernet/IP, EtherCAT, PROFINET, etc.)
- ▶ Integrated UPS for power failures or voltage fluctuations
- ▶ Stop Category 1 emergency stop safety circuit per DIN EN 60204-1 supported



- ▶ Various connection options for tailored uses

E Mounting bracket



- ▶ For mounting the control cabinet to the base frame

F Door lock



- ▶ For securing the control cabinet door

G Main switch



- ▶ Simple operation via main switch
- ▶ You are responsible for installing emergency stop switch and grounding

H Filter and fan



- ▶ Ensure an optimal control cabinet environment

Power supply set



- ▶ For powering section or curve modules
- ▶ Vertical or horizontal mounting on the base frame

Section and curve modules are powered by corresponding power supply sets. The number of power supply sets needed is determined by the number of workpiece pallets and modules used.

Sets should be placed either all horizontally or all vertically along the entire system.

Accessories

Recommended accessories

- ▶ Connecting cable with min. cross-section of $3 \times 1.5 \text{ mm}^2$ (incl. protective conductor) for 200–230 V AC connection to control cabinet. You are responsible for complying with country-specific regulations/requirements on connecting cables and routing.
- ▶ Connection cable for PLC monitoring (24 V)

Delivery information

Included in delivery

- ▶ Plug connector, cable gland, incl. installation cable for installing on section and curve modules
- ▶ Fixing plate, incl. fastening kit

Condition on delivery

- ▶ No assembly required

Ordering information

Product designation	Packaging unit	Material number
28 V power supply	Set	3 842 559 435

Technical data

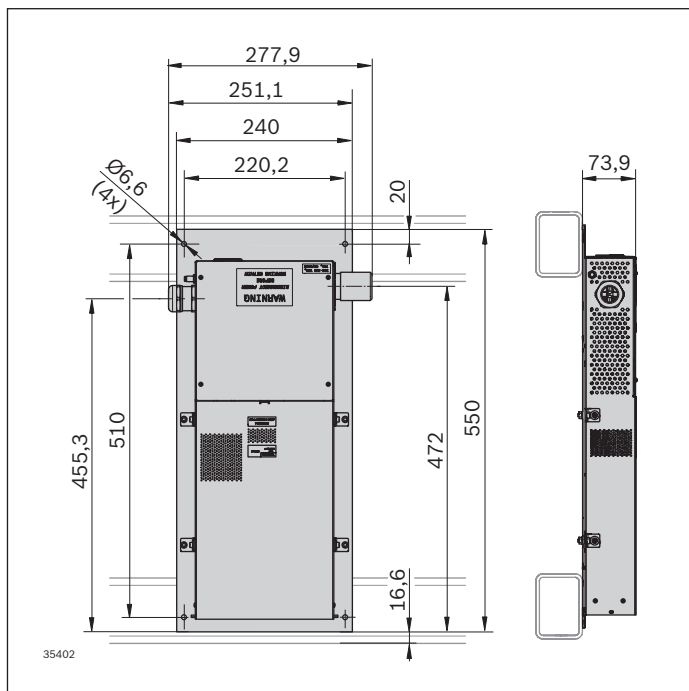
Material number	3 842 559 435	
Properties		
Material	Aluminum, nickel-plated brass, PA, PUR	
Additional information		
Line voltage (input)	V AC	200–230
Supplied voltage (output)	V DC	28
Max. power	W	1316
Min. number of power supplies	Units per system	3
Max. number of power supplies	Units per system	Depends on application
Dimensions		
Cable length	mm	1500

Calculating max. number of power supplies

- Section module input power x no. section modules
- + curve module input power x no. curve modules
- + workpiece pallet input power x no. workpiece pallets

Max. power supply output

Dimensions



Control cabinet



The controller in the control cabinet assumes control and monitoring of each module and workpiece pallet. The optional interface module offers flexible connections for your standard industrial PLC. You can integrate emergency stop safety circuits using the existing safety relay to ensure the necessary system safety.

Accessories

Required accessories

- ▶ Interface module (PROFINET, Ethernet/IP, EtherCAT, etc.)
- ▶ Control cabinet connecting kit

Delivery information

Included in delivery

- ▶ Connecting kit: ferrites, network cable, cable protection hose, cable (24 V), grounding cable, network coupler, fastening kit
- ▶ Circuit diagram
- ▶ Controller (i5 processor), uninterruptible power supply (UPS), all necessary electrical components for system connection, incl. fastening kit

- ▶ Supports Stop Category 1 emergency stop safety circuit per DIN EN 60204-1
- ▶ Two versions:
 - EU
 - NA
- ▶ With uninterruptible power supply (UPS)
- ▶ PLC interface: PROFINET, Ethernet/IP, EtherCAT, etc.
- ▶ With filter and fan for control cabinet climate control

Notice:

To connect to your PLC, an interface module is required that easily clips into the module holder in the control cabinet. The module holder can hold up to two interface modules for more interfaces.

Connecting cables can be inserted both from the side and from below. A UPS powers the modules with 24 V DC in the event of a power failure to allow system data to be saved.

Recommended accessories

- ▶ Connecting cable for you to install power, PLC, AMpro

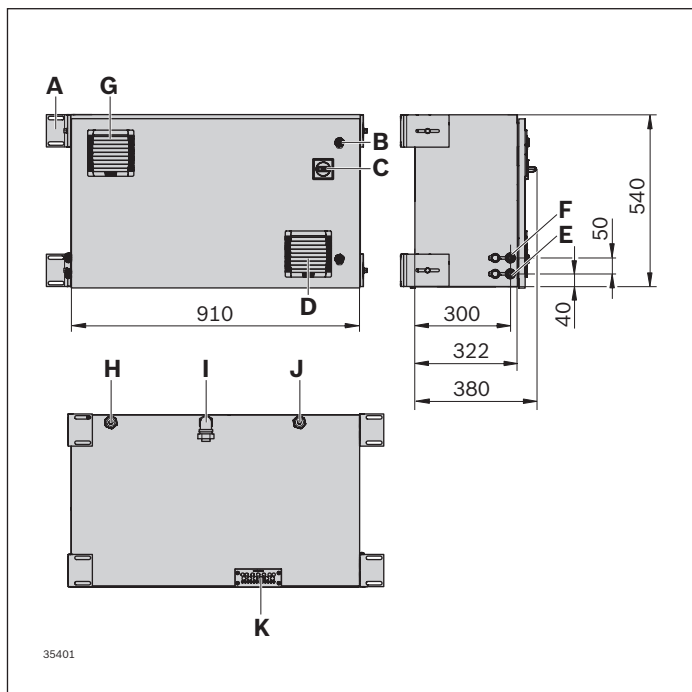
The units are available in different country variants:

- ▶ EU: connect up to 24 power supplies
- ▶ NA: connect up to 12 power supplies

Condition on delivery

- ▶ Control cabinet: no assembly required
- ▶ Interface module connecting kit: assembly required

Ordering information



Product designation	Material number
Complete control cabinet (EU)	3 842 559 462
Complete control cabinet (NA)	3 842 559 459

- A Mounting bracket
- B Door lock
- C Main switch
- D Fan
- E PLC controller connection
- F AMpro connection
- G Filter
- H Power port
- I Connecting kit connection
- J PLC controller connection (optional)
- K Power supply connection

Technical data

Material number		3 842 559 462	3 842 559 459
Country classification		EU	NA
Properties			
Weight	kg	70	70
Material		Painted sheet steel (RAL 7024), PA, filter (RAL 7035)	Painted sheet steel (RAL 7024), PA, filter (RAL 7035)
Additional information			
Line voltage (input)*	V AC	230/400 3P + N + PE	120/208 3P + N + PE
Supplied voltage (output)	V AC	230	208
Uninterruptible power supply (UPS)	V DC	24	24
Line amperage (based on number of power supplies)	A	55	55
Uninterruptible power supply (UPS)	A	10	10
Frequency	Hz	50	60

* N = neutral conductor, PE = protective earth conductor

Ordering information

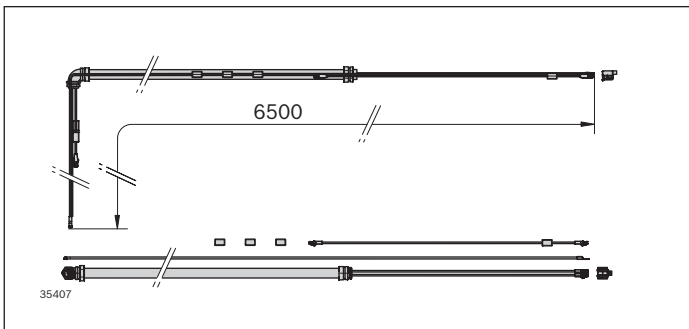


Interface module Product designation	Material number
Ethernet	3 842 559 444
PROFINET	3 842 559 445
EtherCAT	3 842 559 446

Technical data

Material number		3 842 559 444	3 842 559 445	3 842 559 446
Properties				
Weight	kg	0.06	0.06	0.06
Material		PVC	PVC	PVC

Ordering information



Product designation	Material number
Control cabinet connecting kit	3 842 559 449

Technical data

Material number		3 842 559 449
Properties		
Weight	kg	5
Material		Galvanized steel, PVC



Control

AMpro

6-6

Function modules

6-7

6

ActiveMover – Control system

Easy, integrated, open

During planning, it is important to take into account specific requirements, targets and priorities. Complex assembly processes often require a very flexible system, which our control components allow to perfection.



Benefits of its special features:

- ▶ **Simple:** Commissioning/parameterization, monitoring of the ActiveMover transfer system and even troubleshooting are all done with the AMpro configuration software, and require no programming knowledge.
- ▶ **Integrated:** The controller assumes control and monitoring of the entire system, reducing programming effort for the application. Integrated collision control prevents workpiece pallets from touching. It also ensures safe transport and protects your products.
- ▶ **Open:** ActiveMover offers an open interface for many popular PLC architectures. Using ready-made function modules, you can simplify your application programming to optimize processes in the assembly line.



A **Controller**



- ▶ Integrated in control cabinet
- ▶ Controls workpiece pallet movement based on PLC commands
- ▶ Monitors workpiece pallet position based on the data recorded by the measuring system
- ▶ Prevents collisions between workpiece pallets
- ▶ Notifies the PLC when a workpiece pallet has arrived at its programmed destination
- ▶ Controls and monitors every section and curve module

B **AMpro**



- ▶ Configuration and system diagnostics
- ▶ Allows the system to be configured easily for rapid commissioning
- ▶ No programming knowledge required
- ▶ Can be used as a diagnostic tool for hardware monitoring (module temperature, voltage) or even for workpiece pallet calibration

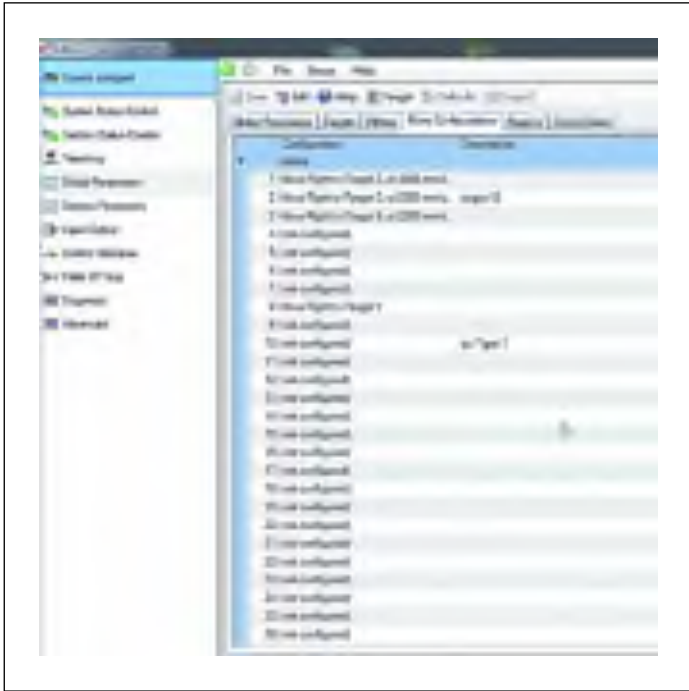
C Function modules

- ▶ Subprograms with a clearly defined data interface between ActiveMover and PLC
- ▶ Simplify PLC programming
- ▶ Come with a data interface programming library for ActiveMover

D Programmable logic controller (PLC)

- ▶ Your application controller
- ▶ Sends processes to every workstation in the production line
- ▶ Determines flexible movement parameters (speed, acceleration, offset)/the next destination of every workpiece pallet independently
- ▶ Rexroth function modules assist in programming your application

AMpro



- ▶ Configuration and system diagnostics
- ▶ Allows the system to be configured easily for rapid commissioning
- ▶ No programming knowledge required
- ▶ Can be used as a diagnostic tool for hardware monitoring (module temperature, voltage) or even for workpiece pallet calibration

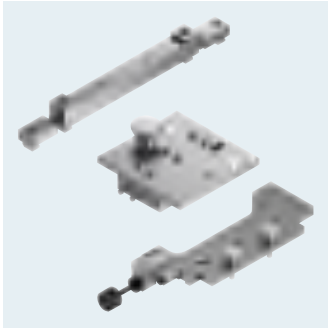
AMpro is the configuration software for easy commissioning, parameterization and monitoring of the ActiveMover system.

Function modules



- ▶ Subprograms with a clearly defined data interface between ActiveMover and PLC
- ▶ Simplify application programming
- ▶ Come with a data interface programming library for ActiveMover

For quickly and easily integrating ActiveMover into your PLC.



Tools

Calibration set

7-6

Removal tool

7-8

7

ActiveMover – tools

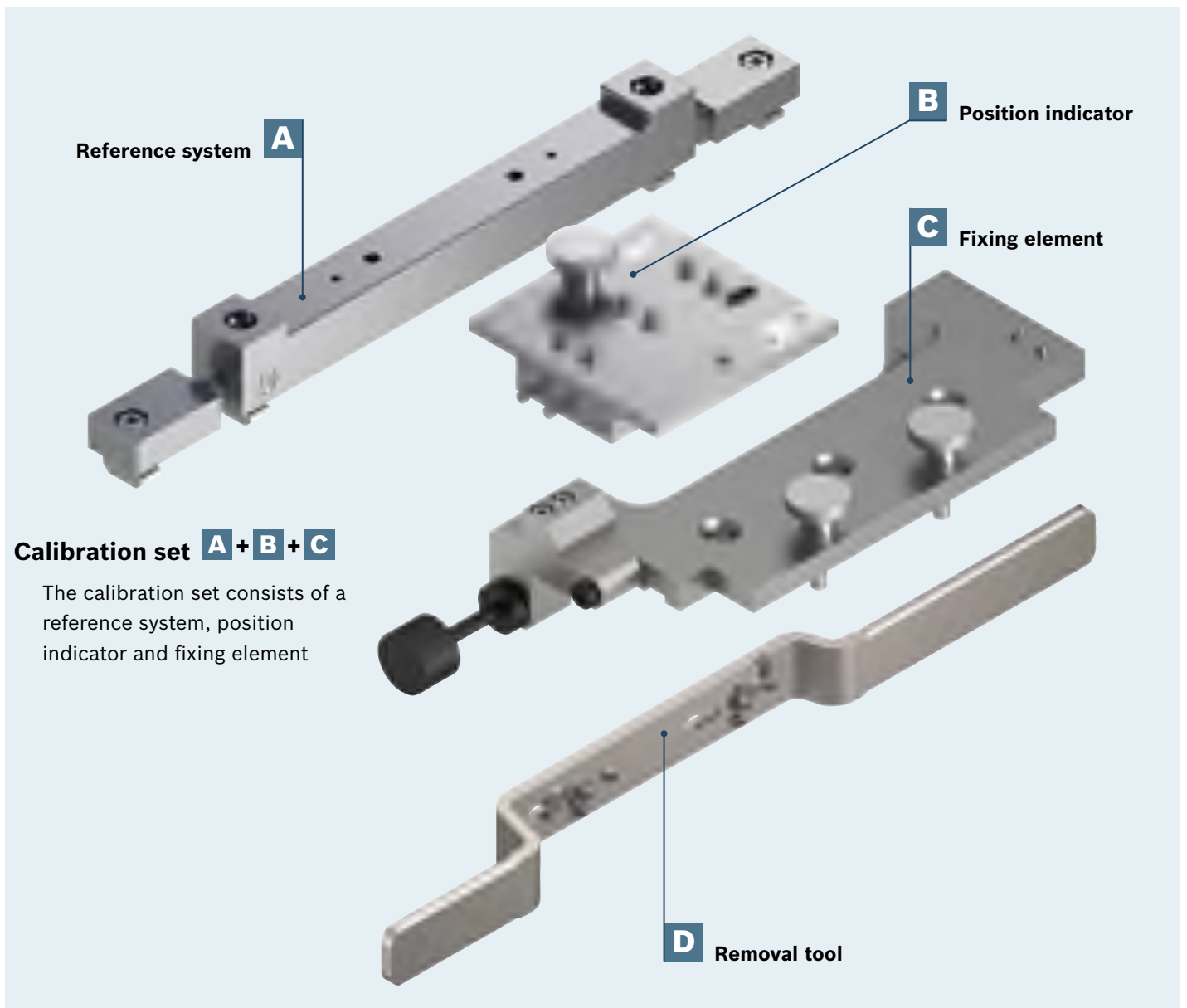
Sophisticated, precise, simple

Convenient workpiece pallet changeover and calibration with the right tools.
Fast and easy.



Benefits of its special features:

- ▶ **Sophisticated:** Perfectly matched components allow for smooth interaction when calibrating workpiece pallets
- ▶ **Precise:** Guarantee workpiece pallet repeat accuracy of up to ± 0.01 mm for a result that stays consistent
- ▶ **Simple:** Quick and easy use of the tools improve process quality

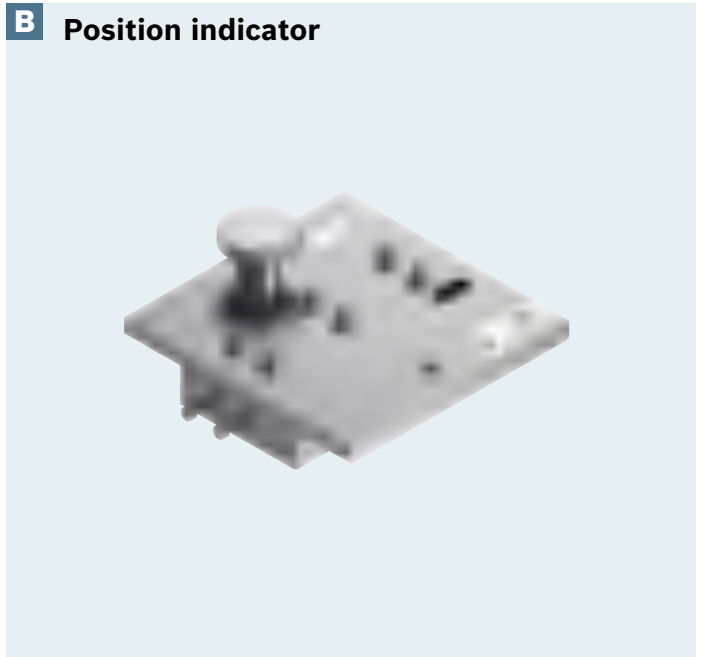


A Reference system

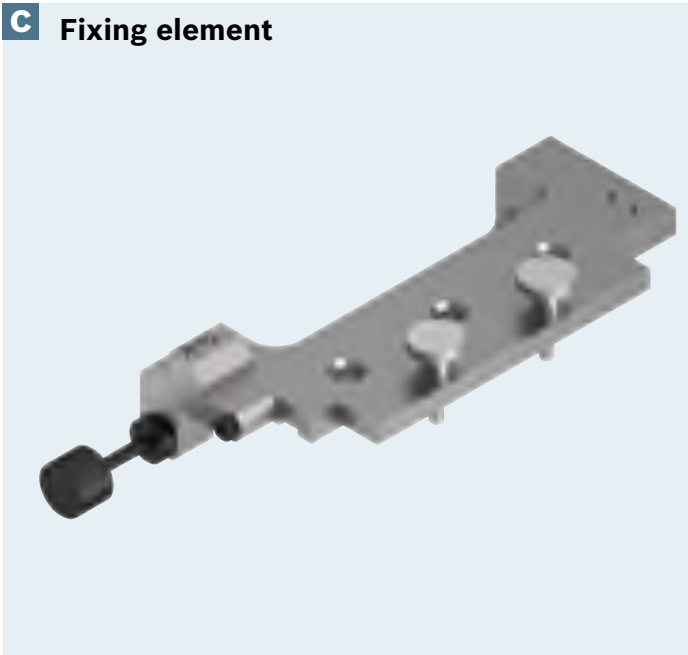


- ▶ Helps calibrate all workpiece pallet magnetic strips
- ▶ Remains after calibration as a reference for new workpiece pallets or magnetic strips when recalibrating the ActiveMover system

B Position indicator



- ▶ Helps precisely position the reference system, which is based on the position of a predefined encoder
- ▶ Is removed after calibration from the ActiveMover system for other applications

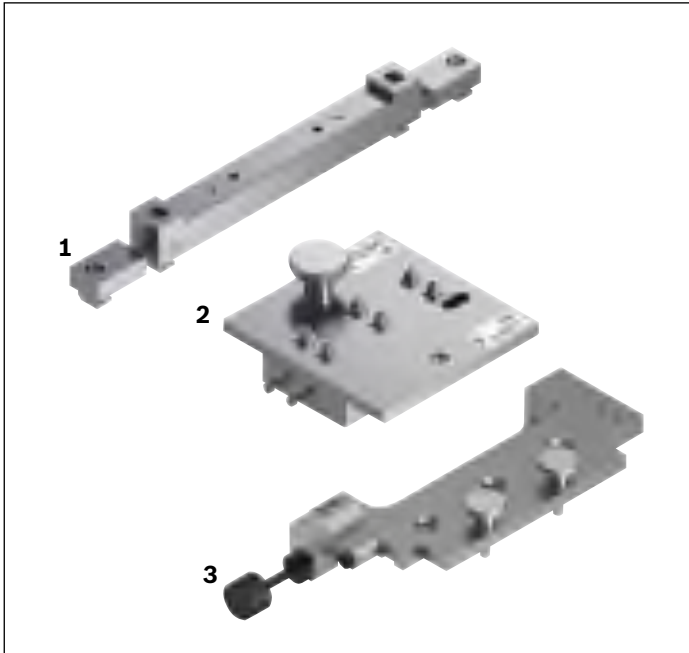
C Fixing element

- ▶ Positions and fixes the workpiece pallet to calibrate the magnetic strip
- ▶ Is removed after calibration from the ActiveMover system for other applications

D Removal tool

- ▶ Once the tool is set and locked in place, the lever action allows the magnetic force to be easily overcome
- ▶ Ensures quick, easy and safe installation/removal of the workpiece pallet
- ▶ Workpiece pallets can be installed or removed anywhere, whether on a section module or a curve module
- ▶ No removal of other components needed

Calibration set



- ▶ For calibrating the magnetic strips on workpiece pallets
- ▶ The calibration set consists of a reference system (1), position indicator (2) and fixing element (3)
- ▶ Reference system (1): helps calibrate all workpiece pallet magnetic strips
- ▶ Position indicator (2): helps precisely position the reference system, which is based on the position of a predefined encoder
- ▶ Fixing element (3): positions and fixes the workpiece pallet in the desired position to calibrate the magnetic strips

The workpiece pallet calibration set is used to calibrate new workpiece pallets. Every component is perfectly matched and easy to use.

Delivery information

Included in delivery

- ▶ Position indicator
- ▶ Fixing element
- ▶ Reference system

Condition on delivery

- ▶ Assembly required

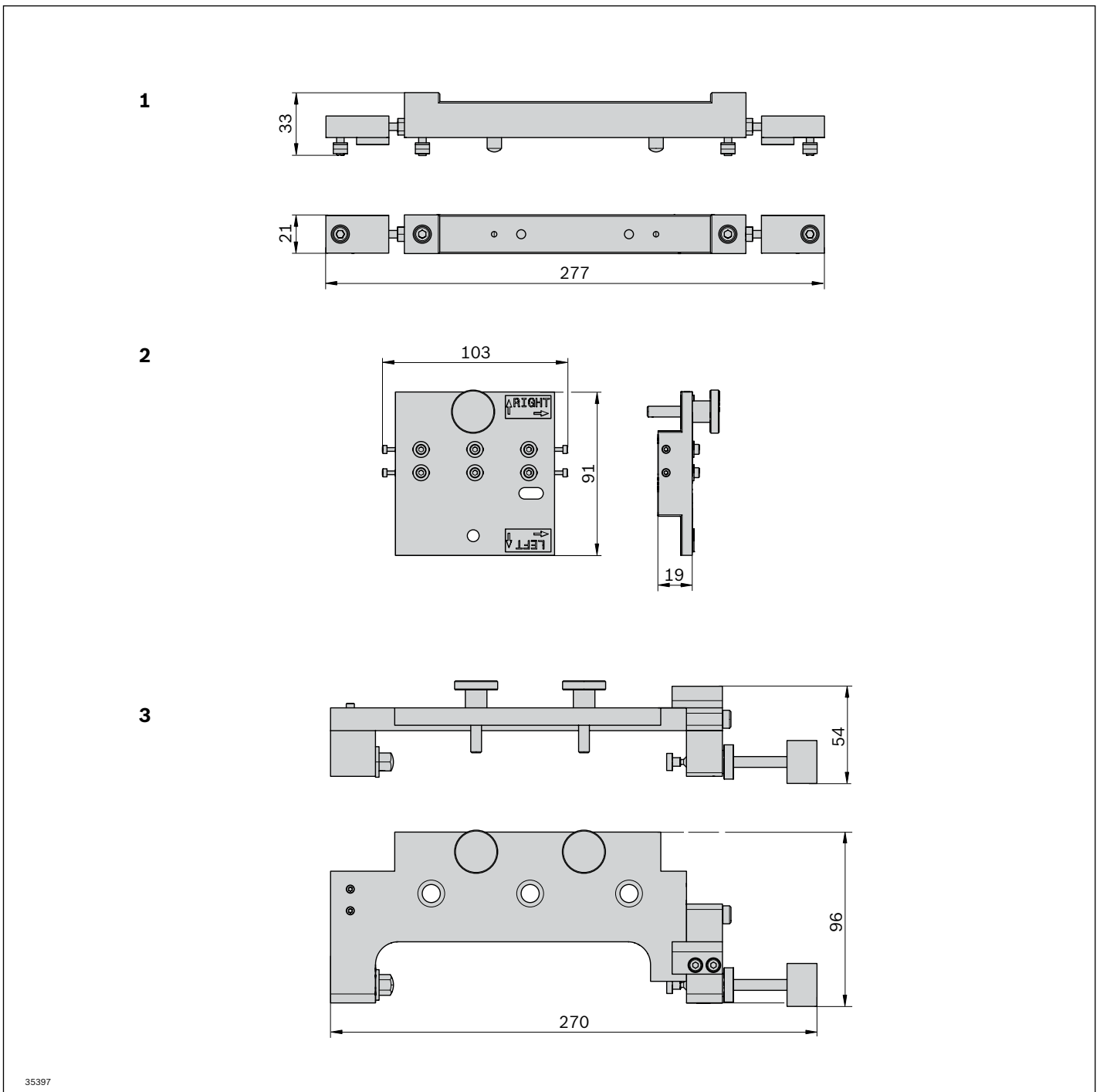
Ordering information

Product designation	Material number
Calibration set	3 842 559 456

Technical data

Material number	3 842 559 456
Properties	
Material	Aluminum, steel
Weight	2.2 kg

Dimensions



Removal tool



- ▶ Once the tool is set and locked in place, the lever action allows the magnetic force to be easily overcome
- ▶ Ensures quick, easy and safe installation/removal of the workpiece pallet
- ▶ Workpiece pallets can be installed or removed anywhere, whether on a section module or a curve module
- ▶ No removal of other components needed

The removal tool is used to quickly and easily install and remove workpiece pallets. Workpiece pallets can be replaced on both section modules and curve modules.

Delivery information

Condition on delivery

- ▶ Assembly required

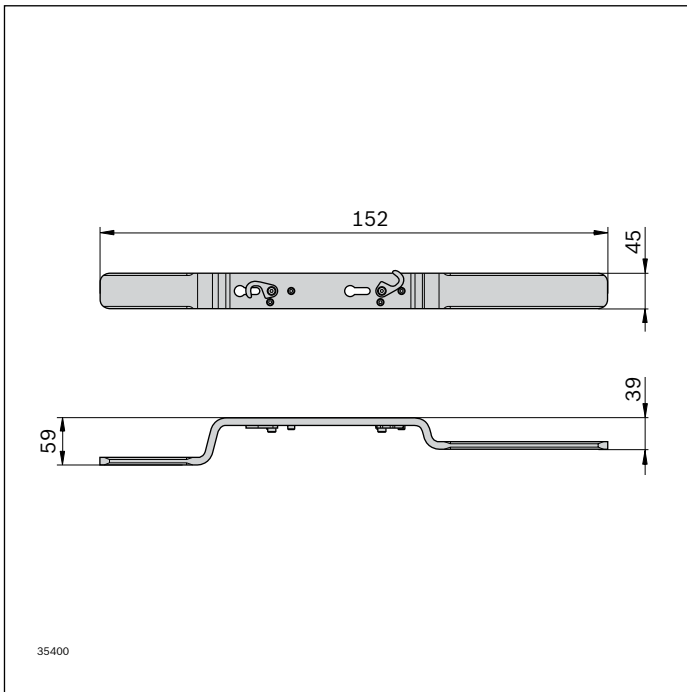
Ordering information

Product designation	Material number
Removal tool	3 842 559 439

Technical data

Material number	3 842 559 439
Properties	
Material	Aluminum
Weight	kg 0.8

Dimensions



Material numbers overview

3 842 559 426	3-6	3 842 559 441	2-9	3 842 559 453	4-10
3 842 559 429	3-8	3 842 559 444	5-10	3 842 559 454	4-8
3 842 559 430	3-13	3 842 559 445	5-10	3 842 559 455	4-8
3 842 559 433	2-6	3 842 559 446	5-10	3 842 559 456	7-7
3 842 559 434	2-6	3 842 559 447	2-9	3 842 559 459	5-9
3 842 559 435	5-7	3 842 559 449	5-10	3 842 559 462	5-9
3 842 559 438	3-10	3 842 559 450	4-6		
3 842 559 439	7-8	3 842 559 451	4-6		
3 842 559 440	2-9	3 842 559 452	4-10		

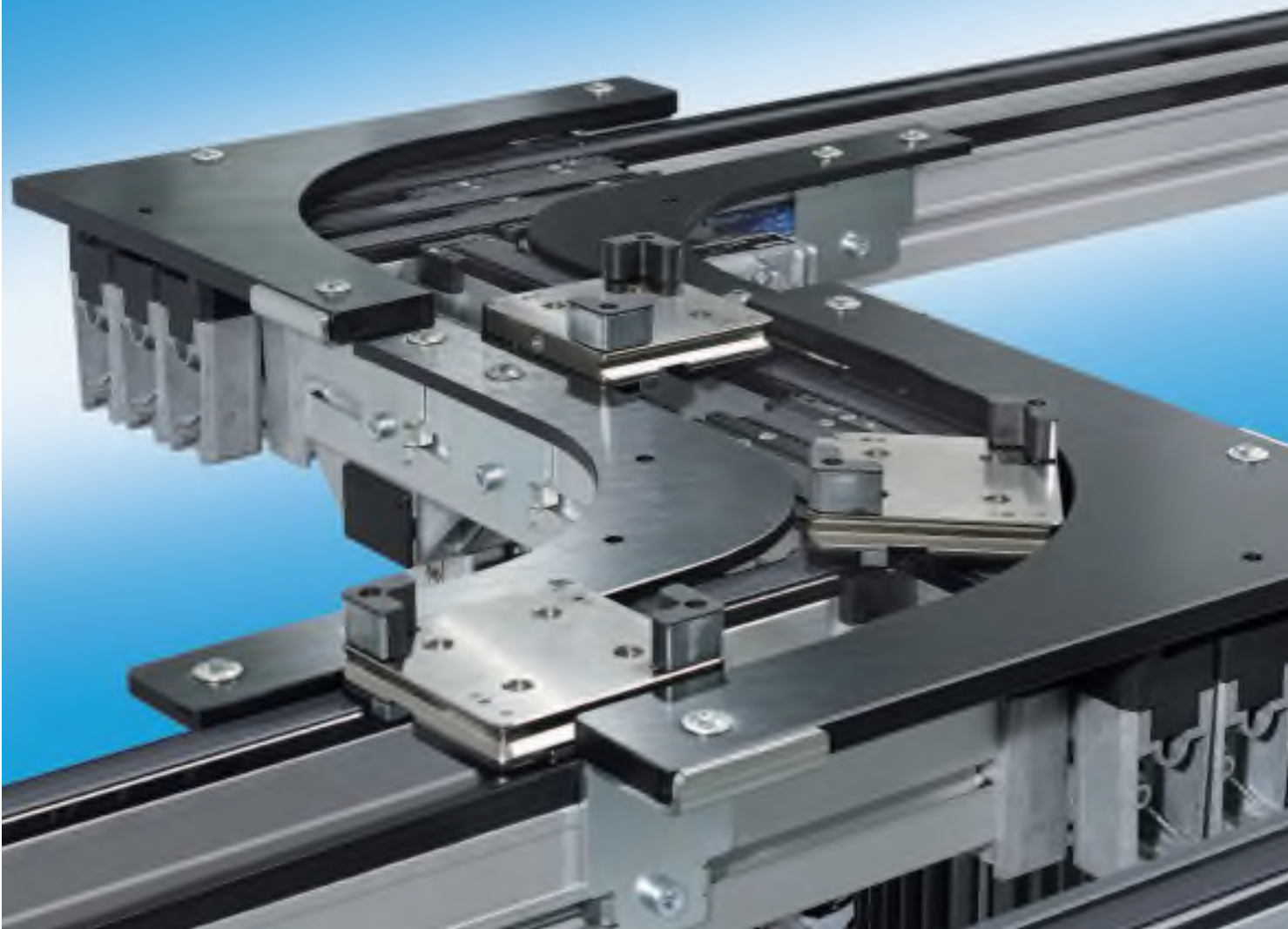
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Transfersystem TS 1
Transfer system TS 1
Système de transfert TS 1

Ausgabe
Version
Version **5.4**

The Drive & Control Company



Symbole

Symbols

Symboles

Produkteigenschaften

Product features

Caractéristiques du produit



Zulässige Werkstückträgerlast
Permissible workpiece pallet load
Charge de la palette porte-pièces admissible



Zulässige Streckenlast
Permissible section load
Charge de section admissible



Geeignet für den Einsatz in einer EPA*
Suitable for use in an EPA*
Indiqué pour une utilisation en EPA*



Wiederholgenauigkeit
Reproducing accuracy
Précision de répétition



Hub über Transportniveau
Lift above transportation level
Hauteur de levée sur niveau de transport



Reversierbetrieb zulässig
Reverse operation permissible
Fonctionnement inverse autorisée



Zulässige Prozesskraft
Permissible process force
Pression de pres. maximale autorisée



Einheit mit energieeffizientem Antrieb verfügbar
Unit with energy-efficient drive available
Unité disponible avec entraînement à forte efficacité énergétique



Druckluftanschluß erforderlich
Pneumatic connection required
Raccordement pneumatique nécessaire

EPA = *Elektrostatisch geschützte Bereiche*
Electrostatic discharge protected areas
Zones protégées contre les décharges électrostatiques

* *Die Rücksprache mit Ihrer Rexroth-Fachvertretung wird empfohlen.*
A contact with your Rexroth representative is recommended.
Nous conseillons le contact avec votre représentant spécialisé Rexroth.



Geeignet für den Einsatz in Trockenräumen mit relativer Luftfeuchtigkeit bis ca. 1%
Suitable for use in dry rooms with relative air humidity of up to approx. 1%
Indiqué pour une utilisation en salle de séchage avec humidité relative de l'air jusqu'à env. 1 %



Geeignet für den Einsatz in Reinräumen bis zu Klasse ISO 7
Suitable for use in cleanrooms up to class ISO 7
Indiqué pour une utilisation en salle blanche jusqu'à la classe ISO 7

Fördermedien

Conveying media

Convoyeurs



Zahnriemen
Toothed belt
Courroie dentée



Gurt
Belt
Courroie



Rundriemen
Rounded belt
Courroie ronde

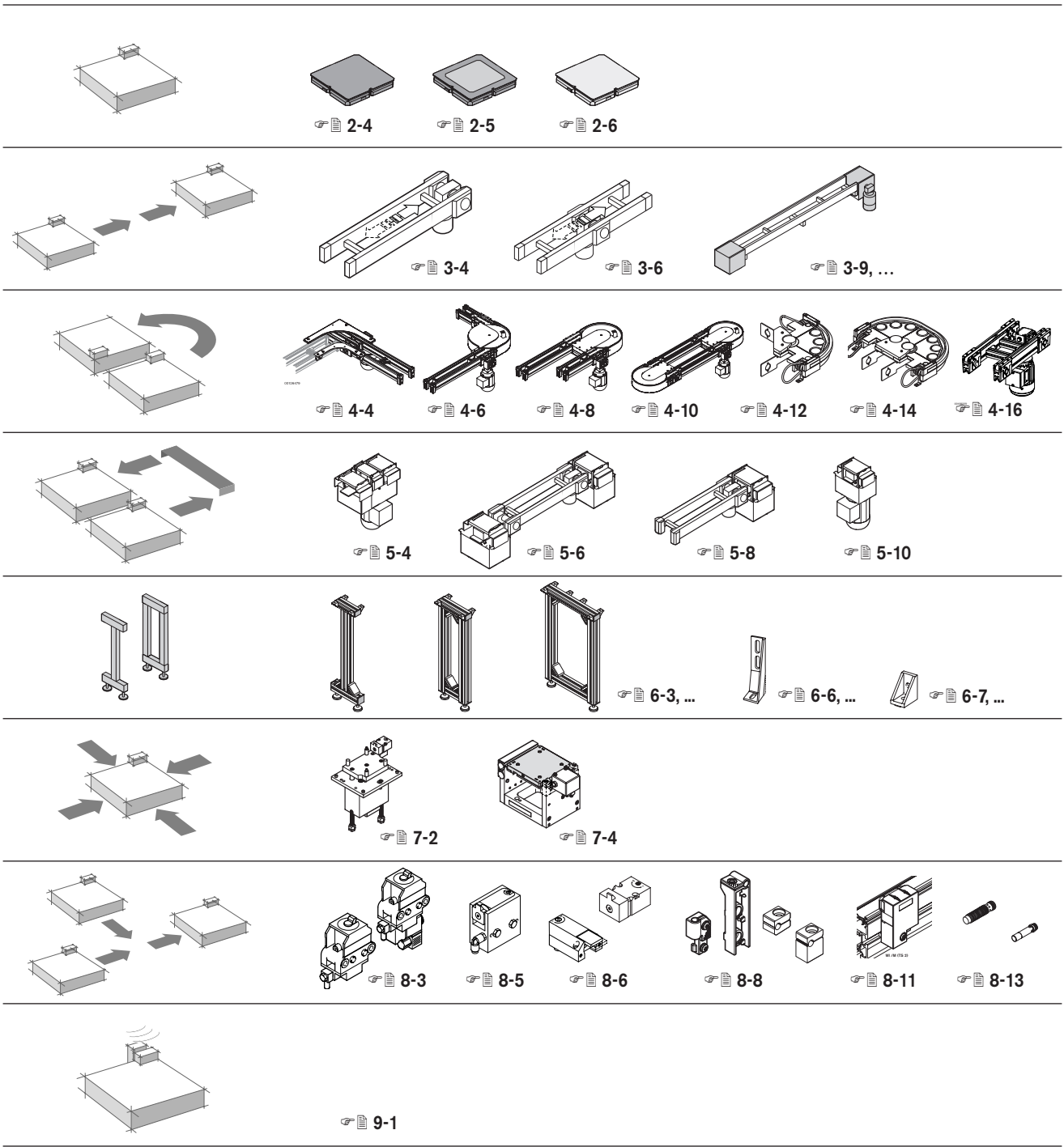


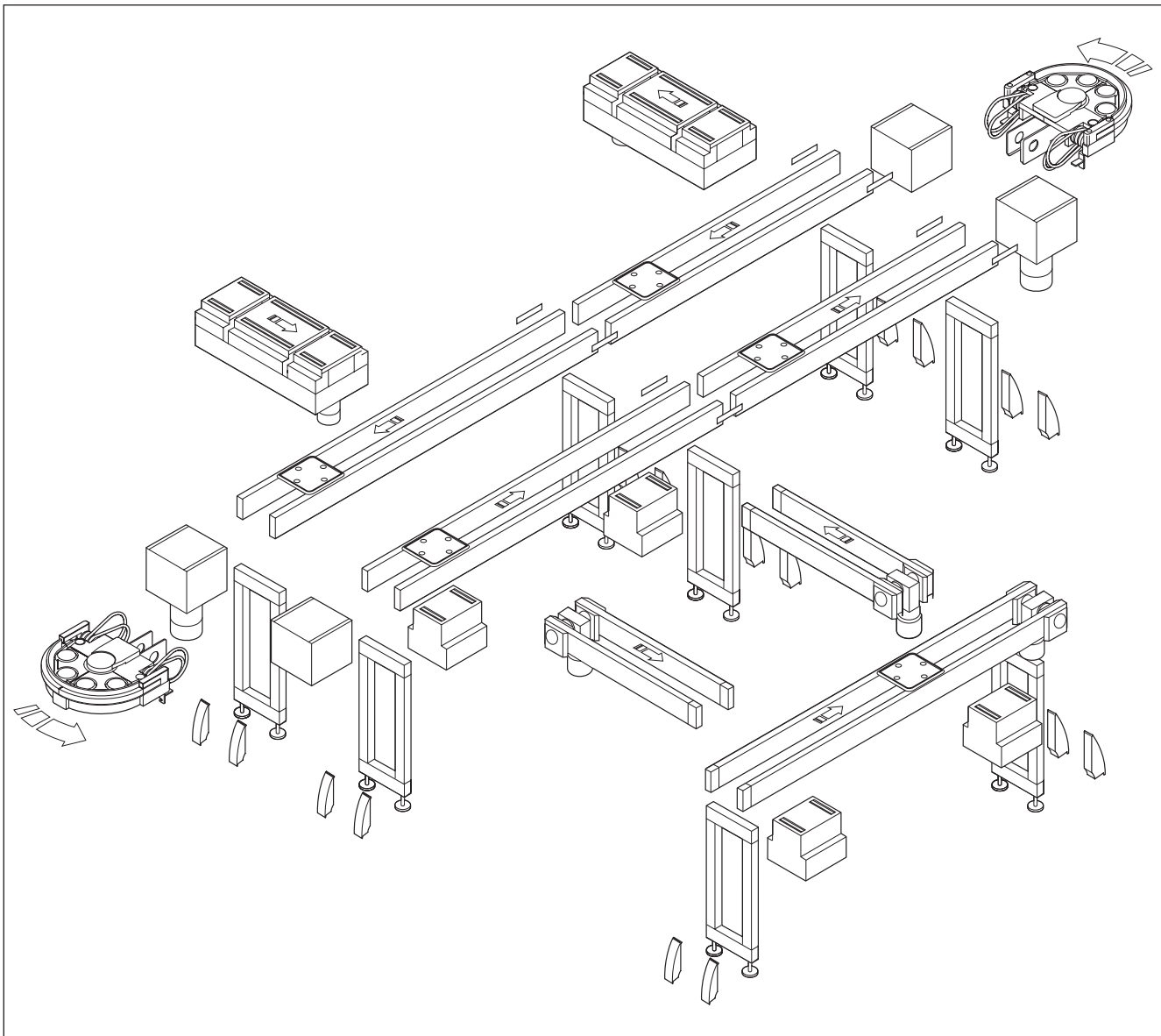
Drehscheibe
Rotary disk
Plateau tournant

Systemübersicht TS 1

System overview of TS 1

Vue d'ensemble du système TS 1





■ Bei Rexroth können Sie Ihr Transfersystem in Komponenten beziehen oder als komplettes Umlaufsystem inklusive Inbetriebnahme von Ihrem Vertragshändler.

■ You can order your transfer system from Rexroth in separate components, or as a complete circuit including initial operation by your dealer.

■ Chez Rexroth, vous pouvez vous procurer les composants de votre système de transfert que vous désirez ou alors un circuit complet, y compris la mise en service par votre point de vente.

Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

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Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

Funktionsprinzip

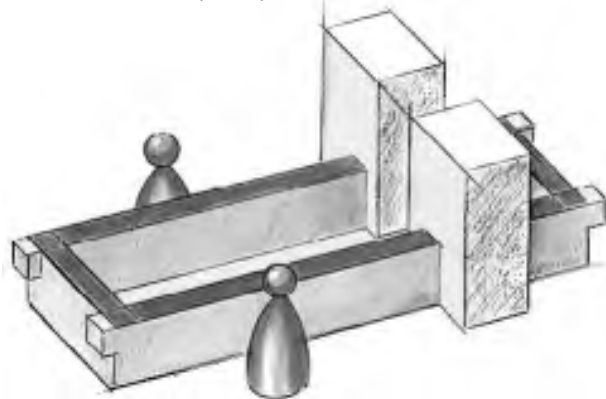
Operating principle

Principe de fonctionnement

■ In einer Montagelinie werden mit Hilfe eines Transfersystems Werkstücke von Station zu Station befördert. Auf zwei stetig umlaufenden Gurten, Zahnriemen, Flachplattenketten oder Staurollenketten oder Rundriemen werden Werkstückträger (WT) über Reibung mitgenommen. Die WT nehmen die Werkstücke auf. Alle Bearbeitungen erfährt das Werkstück auf dem WT. Im Datenspeicher auf dem WT werden Informationen über Ziele und Bearbeitungszustände mitgeführt. An den Stationen (Handarbeitsplätzen oder Automatikstationen) wird der WT durch Vereinzeler VE angehalten, während das Fördermittel weiterläuft. Vor einzelnen Stationen können mehrere WT aufgestaut werden. Damit können kleine Puffer gebildet werden. Nach beendetem Arbeitsgang an der jeweiligen Station wird der WT für den Transport zur nächsten Arbeitsstation freigegeben. Das Öffnen des pneumatischen VE erfolgt dabei manuell oder durch eine Stationssteuerung. Am Ende des Montageablaufes wird das fertig montierte Werkstück aus dem WT entnommen.

■ On an assembly line workpieces have to be transported from one station to another using a transfer system. Workpiece pallets (WT) are conveyed by friction on two constantly moving belts, toothed belts, flat top chains, accumulation roller chains or rounded belts. The workpiece pallets hold the workpieces. A workpiece on the workpiece pallets is transported through all the processing stages. Information about destination and processing stage are carried in the workpiece pallet data storage. The workpiece pallet is stopped by stop gates at stations (areas for manual work or automatic stations), while the conveyor continues moving. Several workpiece pallets can be built up in front of certain stations, to form small buffers. Once the processing stage at a station is completed, the workpiece pallet is released to travel on to the next workstation. At the same time, the pneumatic stop gate is opened, either manually or with a station control. At the end of the assembly process the workpiece is removed from the workpiece pallet.

■ Dans une chaîne de montage, des pièces sont transportées d'un poste à l'autre à l'aide d'un système de transfert. Des palettes porte-pièces (WT) sont convoyées par friction sur deux courroies, courroies dentées, chaînes à plateformes, chaînes à galets d'accumulation ou corroies rondes continuellement en mouvement. Les palettes porte-pièces servent à la réception des pièces. La pièce est entièrement usinée sur la palette porte-pièces. Les informations concernant les destinations et les états d'usinage sont enregistrées dans le support mobile de données sur la palette porte-pièces. La palette porte-pièces est stoppée aux postes de travail (postes de travail manuel et postes automatiques) grâce au séparateur VE pendant que le convoyeur continue à avancer. Plusieurs palettes porte-pièces peuvent être accumulées devant un poste permettant d'en avoir quelques-unes d'avance. Une fois l'opération terminée au poste de travail correspondant, la palette porte-pièces peut passer au poste de travail suivant. L'ouverture du séparateur pneumatique VE se fait alors soit manuellement, soit à l'aide d'une commande poste. En fin de chaîne de montage, la pièce assemblée est enlevée de la palette porte-pièces.



Hauptschluss
Main circuit
Circuit principal

Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

Layoutplanung

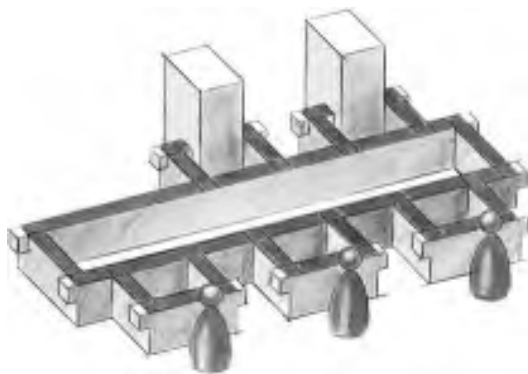
Layout planning

Conception du schéma d'implantation

■ Bei der Planung eines Anlagen-Layouts spielt die Frage nach den individuellen Anforderungen, Zielen und Zielprioritäten des Unternehmens eine wichtige Rolle. Komplexe Montageabläufe erfordern häufig eine hohe Systemflexibilität aufgrund:

- hoher Umrüsthäufigkeit
- variantenabhängiger Abtaktungsprobleme
- unterschiedlicher Arbeitsinhalte in den Stationen
- häufiger Erzeugnisänderungen
- starker Stückzahlschwankungen

In solchen Fällen ist ein Ausschleusen der WT aus dem Hauptumlauf (Hauptschluss) in taktunabhängige Nebenschlussplätze sinnvoll. Als Hauptschluss bezeichnet man die Anordnung von Arbeitsplätzen/Stationen in Reihe. Nebenschluss ist das Ausschleusen von WT aus dem Hauptschluss zur taktunabhängigen Bearbeitung mit anschließendem Wiedereinschleusen in den Hauptschluss.



Nebenschluss
Shunt
Circuit dérivé

■ When planning the layout of a system, it is very important to enquire about the individual requirements, targets and priorities of a company. A very flexible system is often required for complex assembly procedures. This may be due to:

- very frequent conversion
- cycle problems due to different models
- differences in the work involved at each station
- frequent product changes
- great fluctuation in number of workpieces

In cases like this, it is practical to transfer the workpiece pallet off the main conveyor (main circuit) into a shunt system which is independent of the main cycle. The term main circuit is used to describe workstations arranged in series. A shunt is when workpiece pallets are directed out of the main circuit for processing independently of the main cycle, and then reintegrated in the main circuit.



Mischform
Mixed system
Forme mixte

■ Lors de la conception du schéma d'implantation d'une installation, les besoins individuels, les objectifs et les priorités d'une entreprise jouent un rôle primordial. La complexité de certaines chaînes de montage demande souvent une grande flexibilité de la part du système en raison :

- des transformations très fréquentes
- des problèmes de concordance des cadences différentes suivant les variantes utilisées
- des différentes opérations réalisées dans les postes de travail
- des changements fréquents de produit
- des variations importantes dans le nombre de pièces

Dans ces cas-là, il est utile de prévoir une sortie de la palette porte-pièces du circuit principal dans un poste de travail d'un circuit dérivé ayant sa propre cadence. On désigne comme circuit principal la disposition des postes de travail en série. Un circuit dérivé est conçu pour éjecter les palettes porte-pièces du circuit principal pour un usinage à une autre cadence et pour ensuite les réintégrer dans le circuit principal.

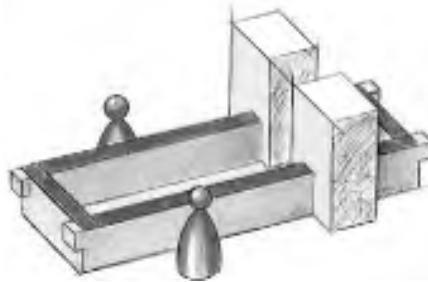
Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

Anlagenlayouts

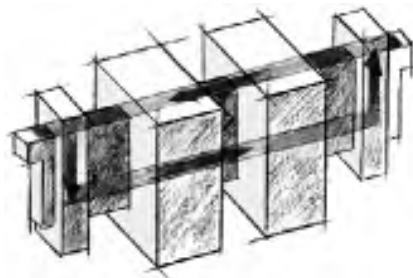
System layouts

Schémas d'implantation des installations

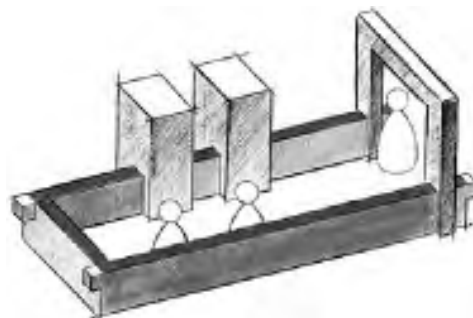
Hauptschluss
Main circuit
Circuit principal



Karreebauweise
 Rectangular circuit
 Circuit carré

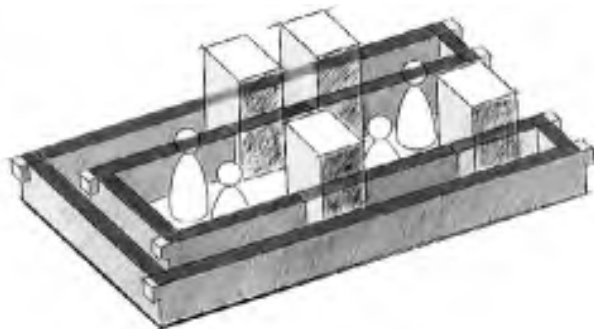


Linienbauweise (mit Lift*)
 Linear construction (with lift*)
 Construction en ligne
 (avec élévateur*)



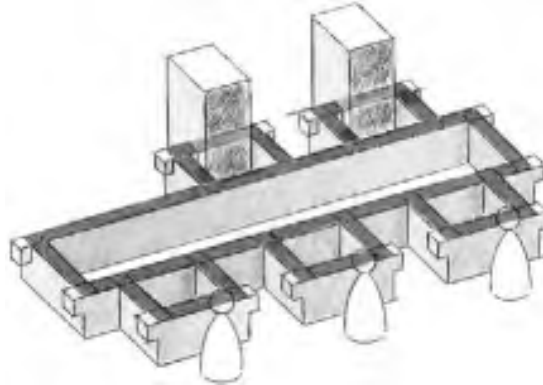
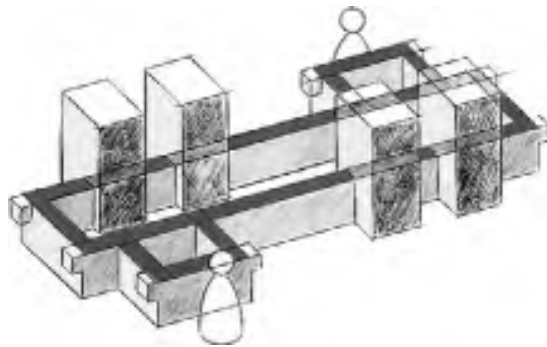
U-Form (mit Lift*)
 U-shape (with lift*)
 Forme en U (avec élévateur*)

*Über Lifte beraten Sie unsere Partner.
 *Our partners can advise you about lifts.
 *Nos partenaires vous conseilleront
 à propos des élévateurs.



U-Form
 U-shape
 Forme en U

Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

**Nebenschluss
Shunt
Circuit dérivé**Parallelarbeitsplätze
Parallel workstations
Postes de travail en parallèle**Mischformen
Mixed systems
Formes mixtes**Karreebauweise mit Parallel-
arbeitsplätzen
Rectangular circuits with
parallel workstations
Circuits carrés avec postes
de travail en parallèle

Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

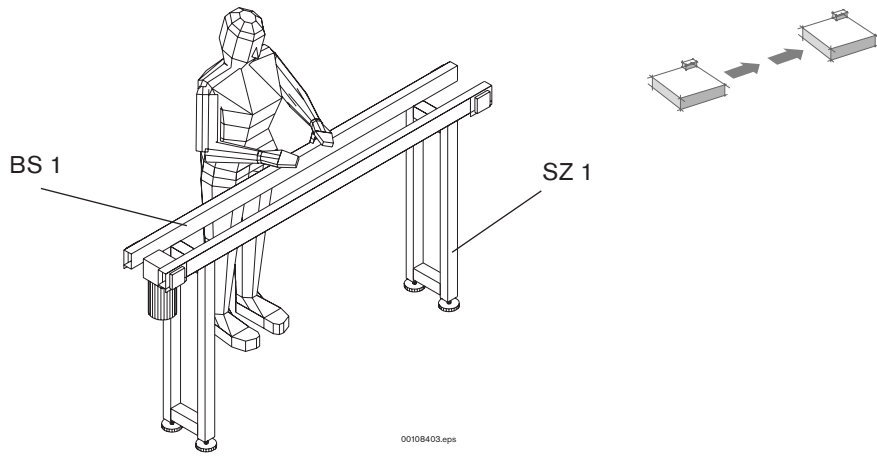
Lösungsangebote Design ideas Suggestions

Längstransport
Longitudinal transport
Transport longitudinal

■ Fertig montiert (ohne Stützen)

■ Fully assembled (without leg sets)

■ Complètement monté (sans supports de section)

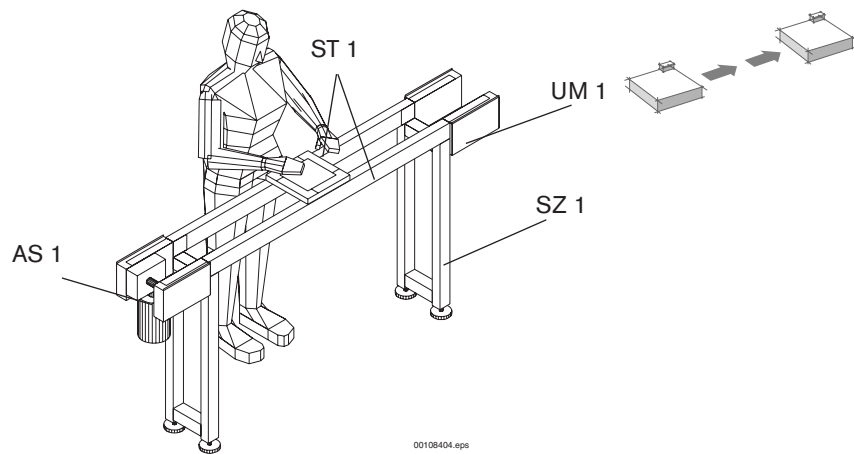


BS 1 3-4

■ Für größere Strecken und Lasten

■ For long sections and heavy loads

■ Pour des sections et des charges plus importantes



AS 1, UM 1, ST 1, SZ 1 3-10, 3-12, 3-13, 6-3

Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

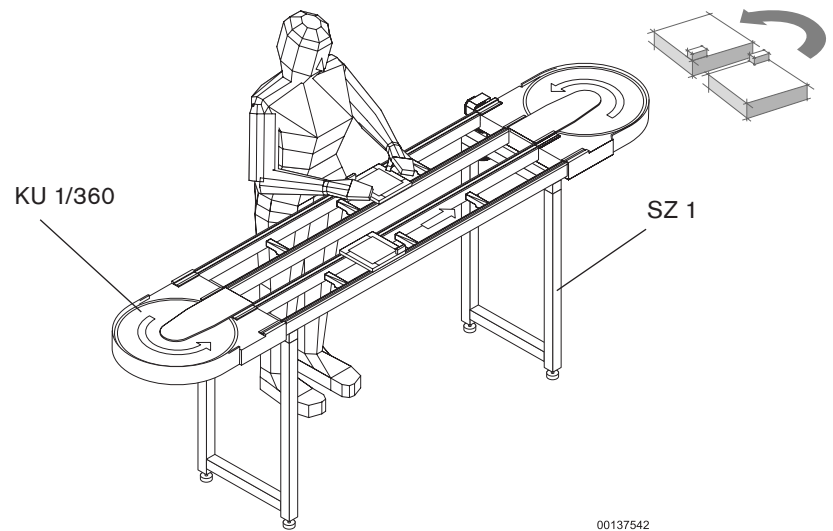
**WT-Umlauf
Circuit
Circuit**

■ Minimaler Installations- und Steuerungsaufwand

■ Minimal installation effort and control requirements

■ Système facile à monter et à commander

1



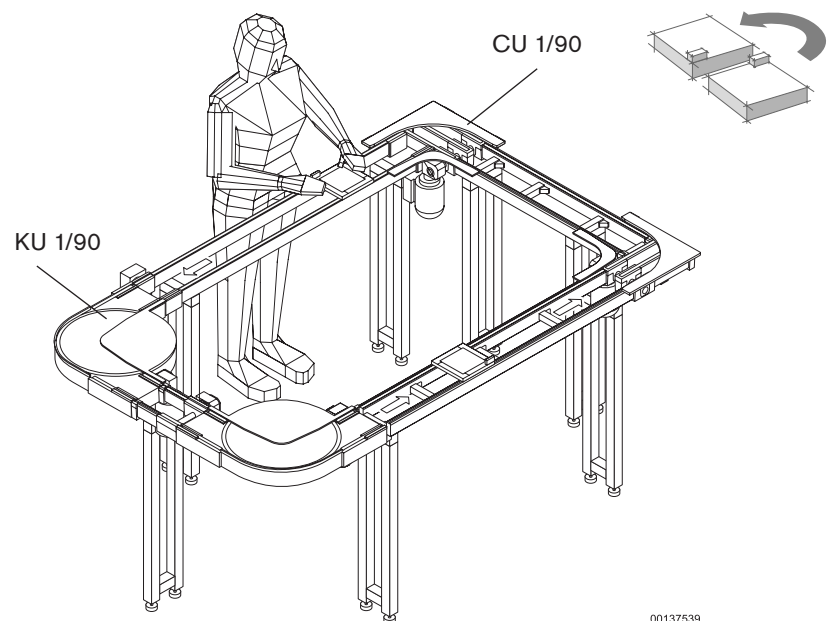
KU 1/360 4-10

00137542

■ Für geringe Taktzeiten

■ For short cycle times

■ Pour des cadences réduites



CU 1/90, KU 1/90 4-4, 4-6

00137539

Eigenschaften TS 1 · TS 1 features · Caracteristiques TS 1

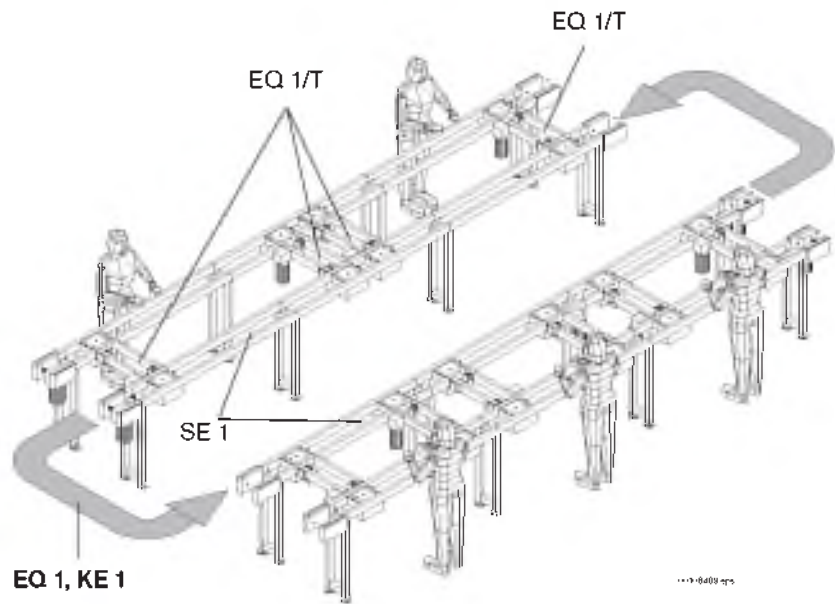
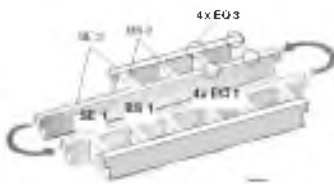
Systeme
Systems
Systèmes

■ Kostengünstige Standardlösung

■ Economical, standard solution

■ Solution standard à un prix avantageux

SE 1  3-8

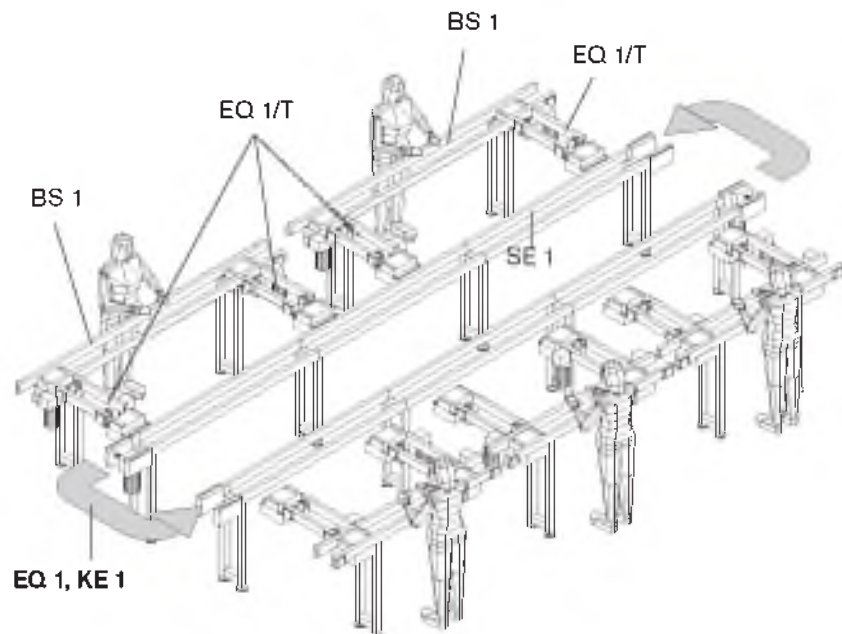
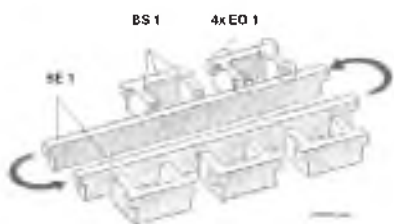


■ Hohe Umbauflexibilität
(einfacher Austausch von Stationen)

■ Very versatile design
(stations are easily exchanged)

■ Construction facilement transformable
(échange simple de postes de travail)

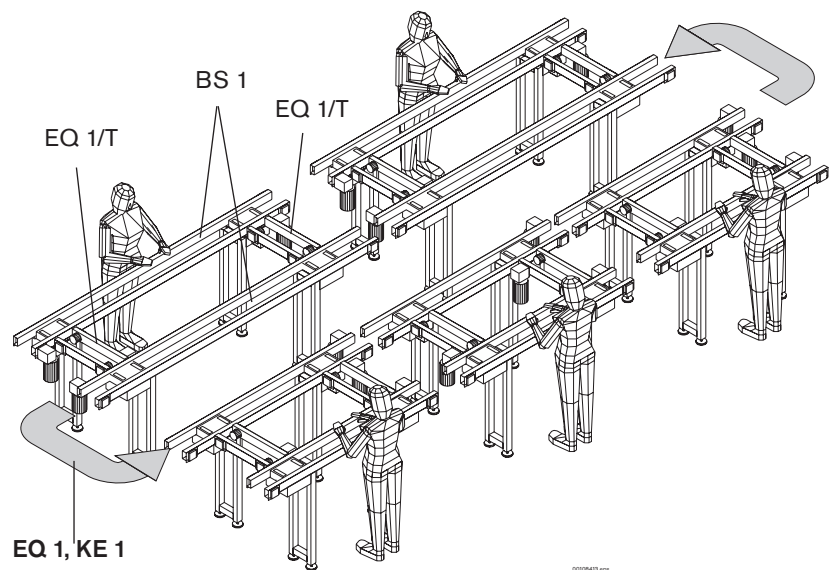
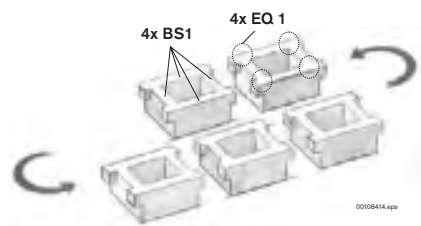
SE 1  3-8



Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

Systeme
Systems
Systèmes

- – Einfache Erweiterung der Anlage mit zusätzlichen Stationen
 – Hohe Wiederverwendbarkeit ganzer Anlagenteile
- – Simple extension of system with additional stations
 – High degree of reusability of whole sections of the system
- – Installation facile à agrandir en ajoutant des postes supplémentaires
 – Taux de réutilisation élevé de parties entières de l'installation



Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

Transfersysteme – Übersicht

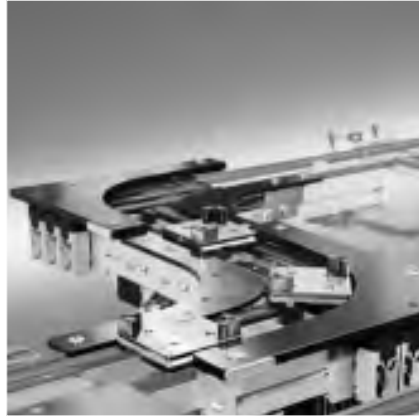
Transfer systems – overview

Systèmes de transfert – vue d'ensemble

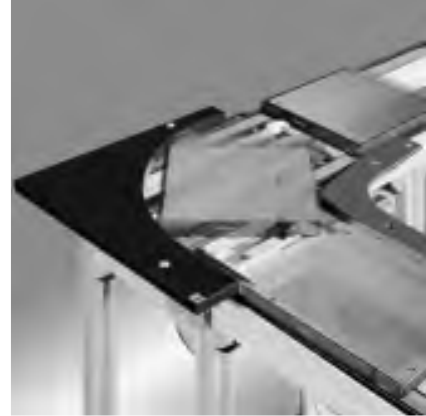
Material- und Informationsflusstechnik MIT

Die Bezeichnung TS steht für flexibles Transfersystem. Die Systeme – TS 1, TS *2plus* und TS 5 – unterscheiden sich in Abmessungen und zulässigen Traglasten.

Die Transfersysteme bestehen aus standardisierten Baueinheiten, die beliebig zu einem System kombinierbar sind. Dies ermöglicht die Ausführung zahlreicher Varianten und führt zu maßgeschneiderten Anlagen, abgestimmt auf die jeweilige Montageaufgabe.



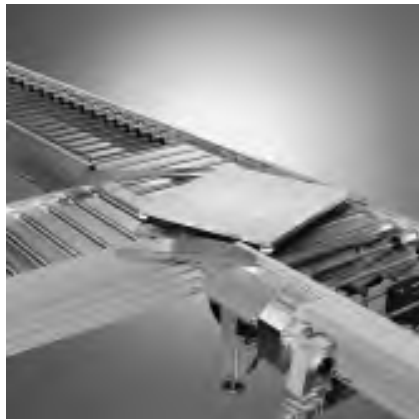
TS 1

TS *2plus*

Material and information flow technology MIT

The letters TS stand for a flexible transfer system. The systems available – TS 1, TS *2plus* and TS 5 – differ in size and permissible load.

The transfer systems consist of standardized components that are freely combinable to form a system. This permits the construction of numerous variants and provides made-to-measure systems, tailored to the particular assembly task.



TS 5

Technique de gestion du flux de matériels et d'informations MIT

La dénomination TS est une abréviation pour un système de transfert flexible.

Les systèmes – TS 1, TS *2plus* et TS 5 – se différencient par leurs dimensions et les charges admissibles. Les systèmes de transfert sont composés de composants standardisés, combinables à volonté. Cela permet la construction de nombreuses variantes et l'obtention d'installations sur mesure, adaptées aux besoins spécifiques de chaque montage.

Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

■ Identifikations- und Datenträgersysteme speichern alle produkt- und prozessbezogenen Daten direkt am Werkstückträger und ermöglichen deren dezentrale oder zentrale Verarbeitung.

■ Identification and data storage systems store all product and process-related data directly on the workpiece pallet and enable local or central data processing.

■ Les systèmes d'identification et de supports de données enregistrent l'ensemble des données relatives aux produits et aux processus directement sur la palette porte pièces et permettent un traitement centralisé ou décentralisé.



ID 15



ID 40



ID 200

Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

Auswahldaten

Selection data

Données de sélection

Verfügbare Werkstückträger (WT) - Abmessungen

Werkstückträger mit Grundflächen ab 80 x 80 mm (TS 1), über 845 x 1040 mm (TS 5), bis 1200 x 1200 mm (TS 2plus) erlauben die bedarfsgerechte Anpassung an die entsprechende Werkstück-Geometrie. Bei Bedarf können auch mehrere Werkstücke auf einem Werkstückträger (WT) fixiert werden.

Zulässige Werkstückträger (WT)

-Auflagegewichtskraft F_{WT}

Um die zulässige Flächenpressung zwischen WT und Fördermittel nicht zu überschreiten, ist für jede WT-Größe die WT-Auflagegewichtskraft F_{WT} beschränkt.

Die WT-Auflagegewichtskraft F_{WT} resultiert aus:

- WT-Leergewicht
- WT-Zuladung (Werkstück, Aufnahme etc.)
- Gewicht der Sonderausstattung (Datenspeicher, etc.)

Bei nicht quadratischen Werkstückträgern ist zu beachten, dass die zulässige WT-Auflagegewichtskraft F_{WT} im Längs- und Quertransport unterschiedlich sein kann.

Available workpiece pallet (WT) dimensions

Workpiece pallets with base areas of 80 x 80 mm (TS 1) to 845 x 1040 mm (TS 5) to 1200 x 1200 mm (TS 2plus) allow adjustment to the respective workpiece geometry as needed. If necessary, a number of workpieces can be accommodated on a single workpiece pallet (WT).

Permissible loading weight for workpiece pallet F_{WT}

The workpiece pallet loading weight F_{WT} of each workpiece pallet size is limited so that the permissible surface pressure between the workpiece pallet and conveying media is not exceeded.

The workpiece pallet loading weight F_{WT} consists of the following:

- the empty weight of the workpiece pallet
- the weight supported by the workpiece pallet (workpiece, holder, etc.)
- the weight of special equipment (data storage, etc.)

For workpiece pallets that are not square, please note that the permissible WT loading weight F_{WT} may be different for longitudinal conveyors and transverse conveyors.

Dimensions de palettes porte-pièces (WT) disponibles

Les palettes porte-pièces dont les dimensions sont comprises entre 80 x 80 mm (TS 1), 845 x 1040 mm (TS 5) et 1200 x 1200 mm (TS 2plus) permettent l'adaptation parfaite à la géométrie spécifique de la pièce. Une seule palette porte-pièces (WT) peut également recevoir plusieurs pièces, en fonction des besoins.

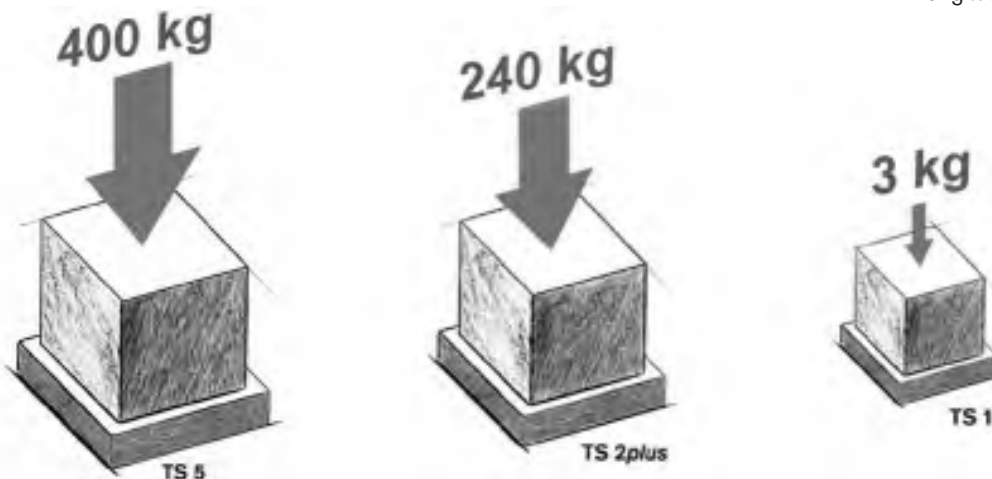
Force massique admissible de palette porte-pièces F_{WT}

Pour ne pas dépasser la force superficielle admissible entre la palette porte-pièces et le convoyeur, la force massique F_{WT} de la palette porte-pièces est limitée pour chaque taille de palette porte-pièces.

La force massique F_{WT} de palette porte-pièces résulte :

- du poids propre de la palette porte-pièces
- de la charge de la palette porte-pièces (pièce à usiner, support, etc.)
- du poids des équipements spécifiques (support mobile de données, etc.)

Pour des palettes porte-pièces non carrées, noter que la force massique autorisée de palette porte-pièces F_{WT} peut différer en cas de transport longitudinal et transversal.



Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

Systemkenngößen

System parameters

Grandeurs caractéristiques du système

■ **Zulässige Streckenbelastung $F_{G\text{ zul}}$.**
Bei der Auslegung der Förderstrecken ist darauf zu achten, dass die **Summe F_G aller Werkstückträger-Auflagegewichtskräfte F_{WT}** , die sich gleichzeitig auf der Förderstrecke im Stau befinden, **kleiner ist als die zulässige Streckenbelastung der Förderstrecke $F_{G\text{ zul}}$.**

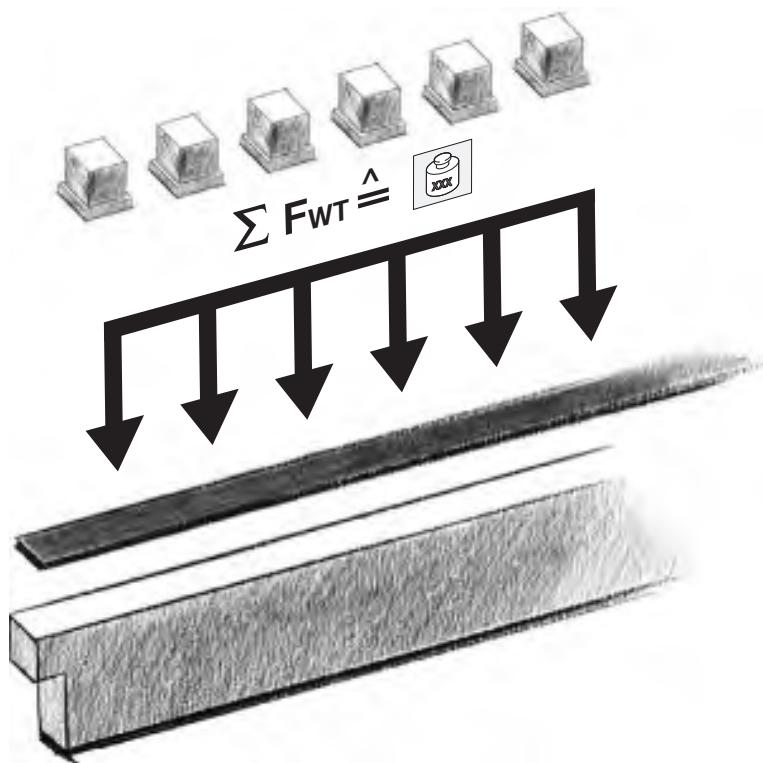
Wird die zulässige Streckenbelastung $F_{G\text{ zul}}$ der Förderstrecke dabei überschritten, muss diese in mehrere Einzelstrecken unterteilt werden. Die zulässige Streckenbelastung der einzelnen Förderstrecken ist den Einzelbeschreibungen zu entnehmen.

■ **Permissible section loading $F_{G\text{ zul}}$.**
When designing the conveyor sections, it is important to ensure that the **total mass F_G of the loading weight of all workpiece pallets F_{WT}** which are on the conveyor section in accumulation operation at one time is **below the permissible load for conveyor sections $F_{G\text{ zul}}$.**

If this permissible load $F_{G\text{ zul}}$ for the conveyor section is exceeded, the section must be divided into several individual sections. The permissible section loading of the individual conveyor sections can be determined from the individual descriptions.

■ **Charge de section admissible $F_{G\text{ zul}}$.**
Lors de la conception des sections de transport, veillez à ce que le **total F_G des forces massiques de toutes les palettes porte-pièces F_{WT}** se trouvant sur un même convoyeur en accumulation soit **inférieur à la charge de section admissible des convoyeurs $F_{G\text{ zul}}$.**

Si ce total dépasse la charge de section admissible du convoyeur $F_{G\text{ zul}}$, celui-ci doit être réparti sur plusieurs sections. Vous trouverez la charge de section admissible dans la description détaillée de chaque convoyeur.



Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

■ **Längstransport, Quertransport**

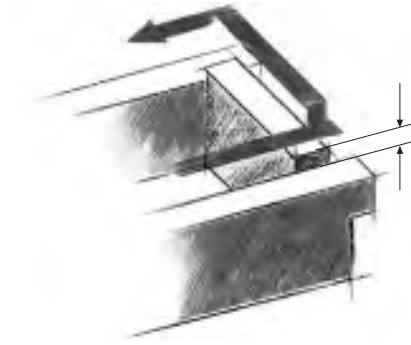
Das Transportniveau des Quertransports liegt über dem des Längstransports. Die Haupttransportrichtung einer Anlage ist der Längstransport.

■ **Longitudinal conveyor, transverse conveyor**

The transport level of the transverse conveyor is above that of the longitudinal conveyor. A system's main direction of transportation is the longitudinal conveyor.

■ **Transport longitudinal, transport transversal**

Le niveau de transport transversal est supérieur à celui du transport longitudinal. La direction principale de transport d'une installation est longitudinale.



■ **Spurbreite**

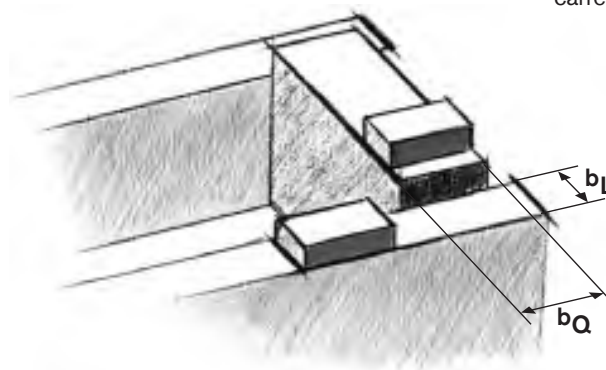
Die Spurbreite b ergibt sich direkt aus den entsprechenden Werkstückträger-Abmessungen b_{WT} und l_{WT} . Daher ist zu beachten, dass bei rechteckigen (also nicht quadratischen) Werkstückträgern die Spurbreiten b für Längstransport und Quertransport unterschiedlich sind.

■ **Track width**

The track width b is directly related to the workpiece pallet dimensions b_{WT} and l_{WT} . For this reason, the conveyor track widths b are different for the longitudinal and transverse conveyors if the workpiece pallet is rectangular, i.e. not square.

■ **Ecartement de voie**

L'écartement de voie b est calculé en fonction des dimensions correspondantes de la palette porte-pièces b_{WT} et l_{WT} . C'est pourquoi les écartements de voie b de la section pour les transports longitudinaux et transversaux sont différents si la palette porte-pièces est rectangulaire (c'est-à-dire pas carrée).



Zulässige Schwerpunktlage

Um die Beschleunigungskräfte bei Vereinzelung oder Richtungsänderungen (Kurven, Wechsel in die Quertransportrichtung) störungsfrei aufnehmen zu können, ist die Lage des Beladungsschwerpunktes auf dem Werkstückträger zu beachten.

Generell empfehlen wir:

1. die Werkstückträger möglichst mittig zu belasten
2. den Beladungsschwerpunkt in der Höhe h_s nicht über $1/2 b_{WT}$ (mit $b_{WT} \leq l_{WT}$) hinauskommen zu lassen

Permissible gravity center position

When separating pallets or changing directions (curves, change in the transverse conveyor direction), it is important to observe the position of the gravity center load on the workpiece pallet to ensure that the acceleration forces can be absorbed without any interferences.

Generally we recommend that:

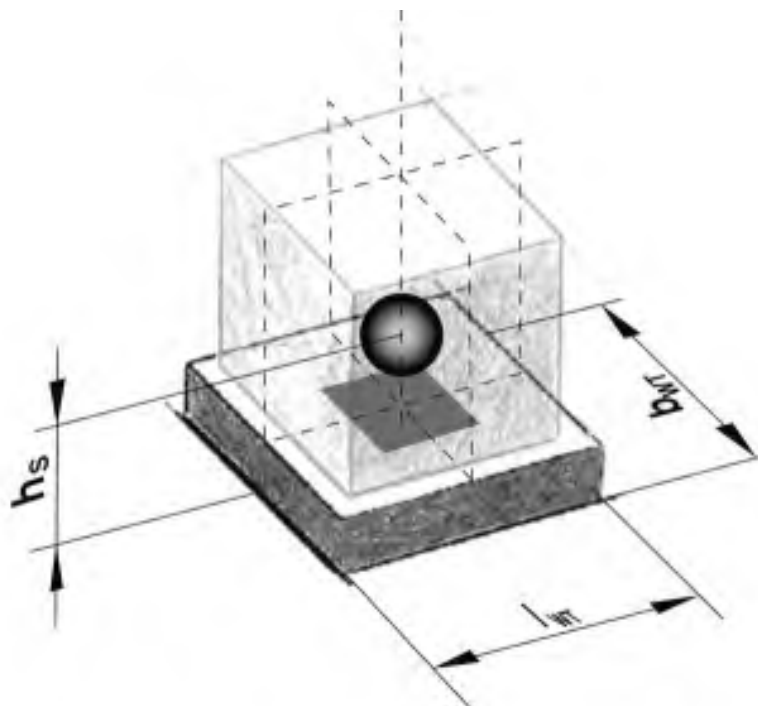
1. The load should be positioned in the center of the workpiece pallet.
2. The center of gravity should not exceed a height h_s of $1/2 b_{WT}$ (with $b_{WT} \leq l_{WT}$).

Position admissible du centre de gravité

Afin de pouvoir absorber les forces accélératrices lors de séparation ou modifications de direction (courbes, changement dans la direction de transport transversal) sans défaut, il faut faire attention à la position du centre de gravité de la charge sur la palette porte-pièces.

En général, nous conseillons :

1. de charger la palette porte-pièces le plus au centre possible
2. de ne pas laisser le centre de gravité de la charge dépasser dans la hauteur h_s $1/2 b_{WT}$ (avec $b_{WT} \leq l_{WT}$)



Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

Verwendete Materialien, Medienbeständigkeit

Die Rexroth-Transfersysteme werden für den Dauereinsatz aus hochwertigen Materialien hergestellt. Sie sind beständig gegen die in normaler Industrieumgebung üblicherweise vorkommenden Schmier- und Pflegemittel. Im Rahmen dieses Kataloges kann jedoch keine Gewähr für die Beständigkeit gegenüber allen möglichen Kombinationen an Prüffluiden, Gasen oder Lösemitteln übernommen werden. Bitte erkundigen Sie sich hierzu im Zweifelsfall bei Ihrer Rexroth-Fachvertretung.

Verwendbarkeit in elektrostatisch gefährdeten Bereichen

Nahezu alle Komponenten und Bauteile der Rexroth-Transfersysteme sind leitfähig beziehungsweise in leitfähiger Ausführung erhältlich. Sie sind damit grundsätzlich für den Einsatz in EPA (ESD Protected Areas – elektrostatisch gefährdeten Bereichen) geeignet. Im Einzelfall empfehlen wir hierzu die Rücksprache mit Ihrer Rexroth-Fachvertretung.



Materials used, resistance to media

Rexroth transfer systems are manufactured with high-quality materials to ensure continuous use. They are resistant to lubricating and cleansing agents that are common in an industrial environment. However, we cannot guarantee that the products contained in this catalog are resistant to all combinations of testing liquids, gases, or solvents. Please contact your Rexroth representative if you have any doubts.

Suitability for electrostatically sensitive areas

Almost all of the components and parts in Rexroth transfer systems are ESD-compatible or available in ESD-compatible design. They can thus principally be used in EPA (ESD protected areas). We do, however, recommend that you contact your Rexroth representative.



Matériaux utilisés, résistance chimique

Les systèmes de transfert Rexroth sont fabriqués pour l'utilisation de longue durée en utilisant des matériaux de haute qualité. Ils sont résistants aux matières lubrifiantes et aux produits d'entretien rencontrés d'habitude dans un environnement industriel normal. Dans le cadre de ce catalogue, aucune garantie ne peut toutefois être donnée pour la résistance vis-à-vis de toutes les combinaisons possibles de fluides d'essai, gaz ou solvants. Dans le doute, veuillez vous renseigner sur ce point auprès de votre représentant spécialisé Rexroth.

Utilité pratique dans les zones sensibles aux décharges électrostatiques

Presque tous les composants et éléments de construction des systèmes de transfert Rexroth possèdent une capacité de décharge électrostatique ou sont disponibles en version avec capacité de décharge électrostatique. Ils sont ainsi essentiellement appropriés pour l'utilisation en EPA (ESD Protected Areas – zones sensibles aux décharges électrostatiques). Au cas par cas, nous conseillons sur ce point un entretien préliminaire avec votre représentant spécialisé Rexroth.

Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

Eigenschaften TS 1

Features

Caractéristiques

Das TS 1 ist das Kleine in der Reihe der Transportsysteme von Bosch Rexroth. Werkstückabmessungen und Traglasten sind auf die Montage kleiner Erzeugnisse zugeschnitten. Der Einsatz von erprobten und ausgereiften Doppelgurten, Förderstrecken, Hub-Quereinheiten und Kurven garantiert Ihnen höchste Fertigungssicherheit. Das Transfersystem TS 1 besteht aus standardisierten Baueinheiten, die beliebig zu einem System kombinierbar sind. Dies ermöglicht die Ausführung zahlreicher Varianten und führt zu maßgeschneiderten Anlagen, abgestimmt auf die jeweiligen Anforderungen. Der modulare Aufbau erlaubt Ihnen die kostengünstige Nutzung von Ratio-Potentialen in Ihrer Fertigung. Die robuste Auslegung stellt die Wiederverwendbarkeit für die Montage Ihrer zukünftigen Produktgenerationen sicher.

Beim TS 1 stehen 3 Größen zur Auswahl: Werkstückträger 80 x 80, 120 x 120 und 160 x 160. Die max. zulässige Gesamtmasse Werkstückträger beträgt 3 kg. Das TS 1 wird daher u. a. bei der manuellen und automatischen Montage von elektronischen und elektromechanischen Produkten sowie Automobilkomponenten eingesetzt. Aufgrund seiner Abmessungen und Traglasten eignet sich das TS 1 auch zur Vor- oder Teilmontage innerhalb eines größeren, übergeordneten Montagesystems, Transfersystems oder als Zuführung an Montageautomaten.

The TS 1 is the baby in the line of transfer systems from Bosch Rexroth. Workpiece pallet dimensions and loading capacities are tailored to the assembly of small products. And the use of proven and perfected double belts, conveyor sections, lift transverse units and curves guarantees maximum production reliability. The TS 1 transfer system consists of standardized modules that are freely combinable to form a system. This permits the construction of numerous variants and provides made-to-measure systems, tailored to the particular requirements. The modular construction lets you cost-effectively exploit opportunities to rationalize your production operation. The robust design ensures that you can put it to use for the assembly of your future product generations.

Three sizes are available for the TS 1: workpiece pallets 80 x 80, 120 x 120 and 160 x 160. The maximum permissible total pallet weight is 3 kg. The TS 1 is used in manual and automated assembly of electronic and electro-mechanical products as well as automotive parts, for example. Due to its dimensions and loading capacity, the TS 1 is also suited to pre- or partial assembly within a larger, higher-level assembly system, transfer system, or as feeder to assembly machines.

Le TS 1 est le benjamin de la série des systèmes de transfert Bosch Rexroth. Les dimensions des palettes porte-pièces et les charges sont conçues sur mesure pour le montage de petites pièces. L'utilisation de doubles courroies, de sections de transport, d'unités de levée transversale et de courbes éprouvées, fruits d'une technique longuement mûrie, garantit un maximum de sécurité lors de la fabrication. Le système de transfert TS 1 comprend des composants standards qui peuvent être combinés à volonté pour concevoir un système. Ceci permet de réaliser de nombreuses variantes et des installations faites sur mesure, adaptées aux exigences requises. Sa conception modulaire vous permet de mieux rationaliser à des coûts modérés votre production. Sa robustesse fait qu'il est réutilisable pour le montage de vos futures générations de produits.

Le TS 1 est disponible en trois tailles : palette porte-pièces 80 x 80, 120 x 120 et 160 x 160. Poids total max. admissible de la palette porte-pièces : 3 kg. Le TS 1 est employé entre autres pour le montage manuel et automatique de composants automobiles, électroniques et électromécaniques. Grâce à ses dimensions et à ses charges, le TS 1 convient également pour le montage préalable ou partiel au sein d'un système de montage ou de transfert plus grand et superposé ou bien comme système d'amenée pour les machines d'assemblage.

Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

Energieeffizienz – Rexroth 4EE

Energy efficiency – Rexroth 4EE

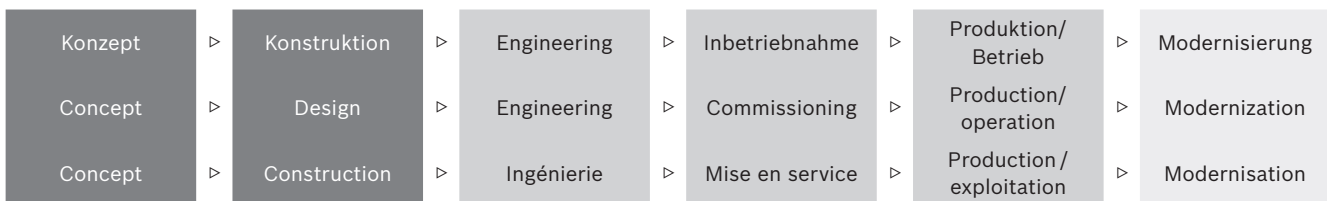
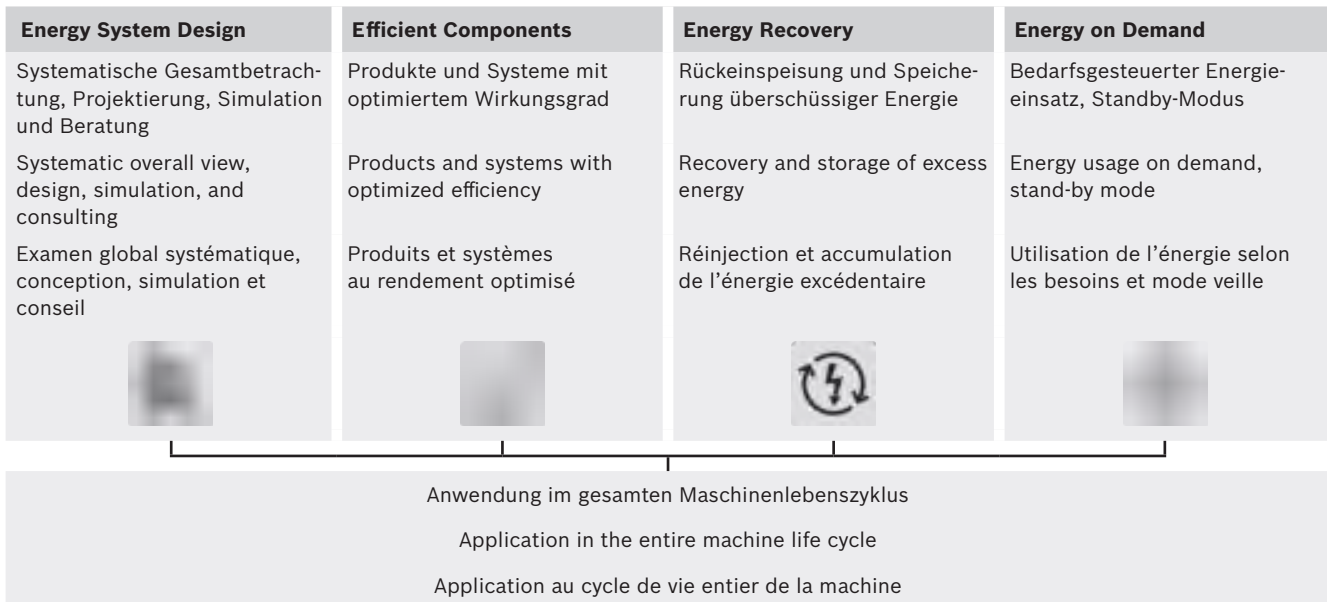
Efficacité énergétique – Rexroth 4EE



■ **Energieeffizienz ist ein entscheidender Unternehmensfaktor**
 Aus wirtschaftlicher Sicht, führen Energieeffizienz und verminderte Emissionen zu niedrigeren Betriebskosten und bringen Vorteile im hart umkämpften globalen Wettbewerb. Zusätzlich wird das Erreichen der weltweiten gesetzlichen Umweltvorgaben unterstützt. Alle Optimierungspotenziale werden dann wirkungsvoll genutzt, wenn nicht nur Details einer Anlage, sondern das System als Ganzes optimiert wird. Die 4EE-Systematik umfasst vier Hebel:

■ **Energy efficiency – a key factor for corporate success**
 From an economic point of view, energy efficiency and reduced emissions lower operating costs and offer a competitive edge in the fiercely competitive global market. In addition, they help support compliance with environmental standards. All potentials for optimization are used effectively when not only the details of a system but the system as a whole is optimized. The 4EE system features four levers:

■ **Efficacité énergétique : moteur essentiel d'une entreprise**
 Du point de vue économique, l'efficacité énergétique et la réduction des émissions diminuent les frais d'exploitation, tout en offrant un avantage considérable sur un marché très disputé. Elles contribuent par ailleurs au respect des lois et directives environnementales internationales. Les potentiels d'optimisation ne sont exploités de manière efficace que lorsque le système entier, et non certaines parties isolées d'une installation, est optimisé. La méthode 4EE comprend quatre approches :



Eigenschaften TS 1 · TS 1 features · Caractéristiques TS 1

**Wirtschaftliche Systemauslegung**

Um hohe Energieeffizienz zu erreichen muss das System als Ganzes betrachtet werden – bereits in der Planungsphase. Der TS 1 Baukasten bietet eine Vielzahl von Modulen, mit denen sich das Transfersystem genau entsprechend der jeweiligen Anforderungen auslegen lässt. Damit werden bereits im Vorfeld Überdimensionierung und hohe Energieverluste wirksam vermieden.

**Efficient system layout**

To achieve high energy efficiency, the system must be examined as a whole – as early as in the planning phase. The TS 1 modular system offers numerous modules, all of which enable you to implement a transfer system tailored precisely to your application. This effectively prevents overdimensioning and high energy losses in advance.

**Conception économique de système**

Pour atteindre une forte efficacité énergétique, le système doit être considéré dans son ensemble et ce dès la phase de planification. Grâce à ses nombreux modules, le système modulaire TS 1 permet de réaliser des systèmes de transfert précisément adaptés aux tâches. Les surdimensionnements et fortes pertes énergétiques qui y sont liées sont ainsi écartés d'emblée.

**Energieeffiziente Module**

Die TS 1-Module sind mit besonders energieeffizienten Antrieben ausgestattet. Der Wirkungsgrad der meisten Motoren übertrifft bereits heute die zukünftig geplanten Anforderungen. Reibungsoptimierte Materialien z. B. bei Gleitleisten, reibungsmindernde Getriebeöle und viele weitere konstruktive Details sorgen im Zusammenspiel für ein optimiertes Gesamtsystem.

**Energy-efficient modules**

The TS 1 modules are equipped with particularly energy-efficient drives. The efficiency of most of the motors already exceed requirements planned for the future. The interplay of friction-optimized materials, e.g. on slide rails, friction-minimizing gear oils, and numerous further design details ensures an optimized overall system.

**Modules à haut rendement**

Les modules TS 1 sont dotés d'entraînements à forte efficacité énergétique, dont le rendement dépasse déjà pour la plupart des moteurs les futures exigences légales. L'interaction de matériaux optimisés en terme de frottement tels que les rails de glissement, d'huiles à engrenages réduisant les frictions et de nombreux autres détails de conception garantissent une efficacité optimale du système global.

**Bedarfsgerechter Energieeinsatz**

Minimaler Energieverbrauch setzt voraus, dass Anlagenteile bedarfsgesteuert abgeschaltet werden können. Alle Motoren des TS 1 sind für Start-Stopp-Betrieb und Frequenzumrichterbetrieb ausgelegt.

**Energy use on demand**

Minimal energy consumption requires the ability to be able to switch off system components on demand. All motors of the TS 1 are designed for start-stop operation and frequency converter operation.

**Energie à la demande**

Une consommation minimale d'énergie présuppose que les diverses parties de l'installation puissent être alimentées selon les besoins. Tous les moteurs du TS 1 intègrent une fonction marche-arrêt et sont conçus pour un fonctionnement avec variateur de fréquence.

**Weltweit einsetzbar**

Für den internationalen Einsatz sind die meisten Motoren mit den Zulassungen CE, cURus, CCC ausgestattet.

**Worldwide approval**

For international use, most of the motors feature CE, cURus, and CCC approvals.

**Utilisation universelle**

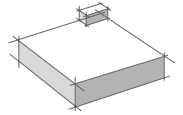
Disposant pour la plupart de marquages CE, cURus et CCC, nos moteurs peuvent être utilisés dans le monde entier.

Werkstückträger · Workpiece pallets · Palettes porte-pièces

Werkstückträger

Workpiece pallets

Palettes porte-pièces



Einsatzgebiete der Werkstückträger Workpiece pallet applications Utilisation des palettes porte-pièces	👉 📄 2-2
Kunststoff-Werkstückträger Plastic workpiece pallets Palettes porte-pièces en plastique	👉 📄 2-4
Standard-Werkstückträger Standard workpiece pallets Palettes porte-pièces standard	👉 📄 2-5
Präzisions-Werkstückträger Precision workpiece pallets Palettes porte-pièces de précision	👉 📄 2-6

Werkstückträger · Workpiece pallets · Palettes porte-pièces

Einsatzgebiete der Werkstückträger




Workpiece pallet applications

Utilisation des palettes porte-pièces

Der Werkstückträger dient im Transfersystem als Transportmittel für das Werkstück auf dem Weg durch die Stationen der Bearbeitung.

- Über integrierte Positionierbuchsen wird eine definierte Positionierung des aufgenommenen Werkstückes in der Bearbeitungsstation ermöglicht.
- In optional verfügbaren Datenträgern können werkstückrelevante Informationen das Werkstück auf dem Bearbeitungsweg begleiten. Diese können vor Ort ausgewertet und aktualisiert werden.

Für einen voll ausgebauten Werkstückträger mit einer Werkstückträger-Gesamtmasse von bis zu 3 kg stehen verschiedene Werkstückträger zur Auswahl:




- Der WT 1/K als besonders leichter Werkstückträger in Vollkunststoffausführung für Transport- und Positionieraufgaben.  2-4.
- Der WT 1/S als robuster Werkstückträger in Stahl-Kunststoff Mischbauweise für einfache Positionieraufgaben und mittlere Prozesskräfte.  2-5.
- Der WT 1/P als hochpräziser Werkstückträger in Aluminium-Ganzmetallbauweise für präzise Positionieraufgaben und mittlere Prozesskräfte.  2-6.

Für eine störungsfreie Funktion der Vereinzeler und der Positioniereinheit ist eine Mindestmasse des Werkstückträgers von 0,5 kg erforderlich.

The workpiece pallet serves to transport the workpiece to the different workstations in the transfer system.

- Integrated positioning bushings are used to correctly position the transported workpiece in the workstation.
- Data tags (optionally available) store relevant workpiece information. This information accompanies the workpiece along the processing route and can be analyzed and updated on-site.

For a fully developed workpiece pallet with a total workpiece pallet weight of up to 3 kg, various workpiece pallets are available:




- The WT 1/K is a particularly lightweight workpiece pallet made of plastic which is suitable for transporting and positioning.  2-4.
- The WT 1/S is a sturdy workpiece pallet made of a steel-plastic composite material used for simple positioning tasks and medium process forces.  2-5.
- The WT 1/P is a high-precision workpiece pallet made entirely of aluminum used for exact positioning tasks and medium process forces.  2-6.

A minimum workpiece pallet weight of 0.5 kg is required to ensure proper function of the stop gate and positioning unit.

La palette porte-pièces sert dans le système de transfert à transporter la pièce tout au long des étapes de l'usinage.

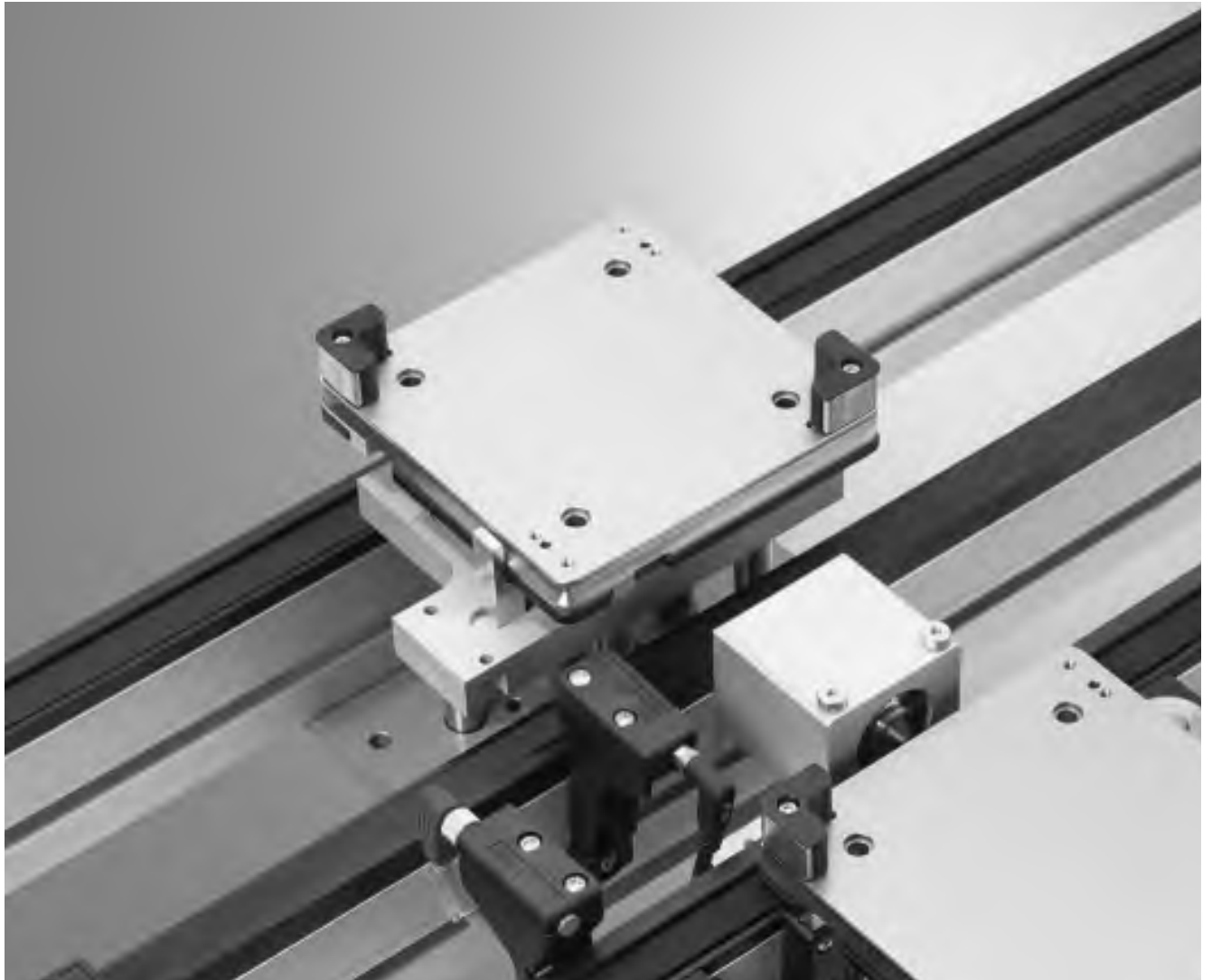
- L'intégration de douilles de positionnement permet de positionner la pièce de façon définie sur le poste de travail.
- Grâce à des supports de données disponibles en option, des informations significatives concernant la pièce peuvent l'accompagner pendant l'usinage. Ces données peuvent être analysées et actualisées sur place.

Pour une palette porte-pièces complète avec un poids total de palettes porte-pièces allant jusqu'à 3 kg, différentes palettes porte-pièces sont disponibles :

- La WT 1/K est une palette porte-pièces particulièrement légère, entièrement en plastique et conçue pour le transport et des tâches de positionnement.  2-4.
- La WT 1/S est une palette porte-pièces robuste en matériau mixte acier/plastique destinée à des tâches simples de positionnement et des forces moyennes de traitement.  2-5.
- La WT 1/P est une palette porte-pièces extrêmement précise en exécution aluminium/tout métal pour des tâches de positionnement précises et des forces moyennes de traitement.  2-6.

Pour un fonctionnement irréprochable des séparateurs et de l'unité de positionnement, un poids minimal de 0,5 kg est requis pour la palette porte-pièces.

Werkstückträger · Workpiece pallets · Palettes porte-pièces



Werkstückträger · Workpiece pallets · Palettes porte-pièces

Werkstückträger WT 1/K

Workpiece pallet

Palette porte-pièces



Verwendung:

Der WT 1/K ist ein besonders leichter Werkstückträger in Vollkunststoff-Ausführung. Durch das geringe WT-Leergewicht bei einer zulässigen Gesamtlast von max. 3 kg ergibt sich eine höhere WT-Zuladung (Werkstück + Aufnahme) als bei anderen WTs. Der WT 1/K eignet sich besonders für Transport- und einfache Positionieraufgaben in Verbindung mit der Positioniereinheit PE 1/P. Der Einsatz mit der Hub- und Positioniereinheit HP 1/P ist nicht möglich.

Ausführung:

- 3 Standardgrößen
- Zweiseitige Prismen-Nut zur Positionierung in der Positioniereinheit PE 1/P
- An- und Einbaumöglichkeiten für Mobile Datenträger der Identssysteme ID 15, ID 40 und ID 200
- Austauschbare Laufsohlen

Material:

- Vollkunststoff-Ausführung aus Polyamid (PA 66)
- Laufsohlen: Polyamid (PA 66)

Lieferumfang:

Werkstückträger, komplett

Lieferzustand:

Montiert

Zubehör optional:

- Dämpfungselement, 2-7
- Schaltelement, 2-8
- Mobile Datenträger ID 15/MDT, ID 40/MDT oder ID 200/MDT, siehe Katalog Identifikationssysteme (3 842 536 509)

Application:

The WT 1/K is a particularly lightweight workpiece pallet made of plastic. There is a higher workpiece pallet load (workpiece + holder) than for other workpiece pallets due to the low workpiece pallet empty weight with a permissible total load of max. 3 kg. The WT 1/K is especially suitable for positioning tasks in conjunction with the PE 1/P position unit. Use with the HP 1/P lift position unit is not possible.

Design:

- 3 standard sizes
- Two-sided prism groove for positioning in the PE 1/P position unit
- Attachment and installation options for mobile data tags from the ID 15 and ID 40 identification systems
- Replaceable wear pads

Material:

- All-plastic version made of polyamide (PA 66)
- Wear pads: polyamide (PA 66)

Scope of delivery:

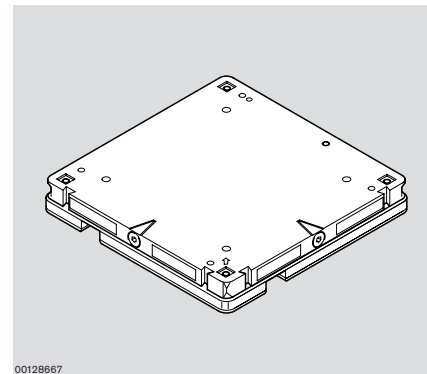
Workpiece pallet, complete

Condition of delivery:

Workpiece pallet, assembled

Optional accessories:

- Damping element, 2-7
- Switch element, 2-8
- Mobile data tags ID 15/MDT, ID 40/MDT or ID 200/MDT, see Identification systems catalog (3 842 536 509)



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Utilisation :

La WT 1/K est une palette porte-pièces particulièrement légère et entièrement en plastique. Grâce au faible poids propre de la palette et au 3 kg de charge max. par palette, la charge utile (pièce + posage) est plus élevée qu'avec les autres palettes.

La WT 1/K convient particulièrement pour le transport et pour des tâches de positionnement simples en association avec l'unité de positionnement PE 1/P. Il n'est pas possible de l'utiliser avec l'unité de levée et de positionnement HP 1/P.

Construction :

- 3 tailles standard
- Rainure en prisme bilatérale pour un positionnement dans l'unité de positionnement PE 1/P
- Possibilités de montage et d'installation pour support mobile de données des systèmes d'identification ID 15, ID 40 et ID 200
- Semelles échangeables

Matériau :

- Modèle entièrement en plastique en polyamide (PA 66)
- Semelles : polyamide (PA 66)

Fournitures:

Palette porte-pièces, complète

Etat à la livraison :

Monté

Accessoires en option :

- Élément d'amortissement, 2-7
- Élément de commutation, 2-8
- Support mobile de données ID 15/MDT, ID 40/MDT ou ID 200/MDT, voir catalogue Systèmes d'identification (3 842 536 509)

WT 1/K

l_{WT} [mm]	b_{WT} [mm]	$m_{WT}^{1)}$ [kg]	$F_{GL}^{2)}$ [kg]	Nr./No./N°
80	80	0,075	1,5	3 842 527 122
120	120	0,135	2,2	3 842 527 123
160	160	0,225	3,0	3 842 527 124

¹⁾ Leergewicht/Eigengewicht des Werkstückträgers

¹⁾ Empty weight/workpiece pallet system weight

¹⁾ Poids à vide/poids propre de la palette porte-pièces

²⁾ Zulässiges Werkstückträger-Auflagegewicht

²⁾ Permissible workpiece pallet loading weight

²⁾ Force massique admissible de palette porte-pièces



2-2



11-10

Werkstückträger · Workpiece pallets · Palettes porte-pièces

Werkstückträger WT 1/S

Workpiece pallet

Palette porte-pièces



Verwendung:

Der WT 1/S ist ein Werkstückträger in Kunststoff-Stahl-Mischbauweise mit hoher Steifigkeit. Damit ist das Einbringen von Durchbrüchen in der Stahlplatte möglich.

Der WT 1/S eignet sich auch für den Transport und die Bearbeitung leichter Teile. Zur Positionierung dient die Positioniereinheit PE 1/P. Der Einsatz mit der Hub- und Positioniereinheit HP 1/P ist nicht möglich.

Ausführung:

- 3 Standardgrößen
- Rahmen aus Polyamid, Trägerplatte aus Stahl
- Zweiseitige Prismen-Nut zur Positionierung in der Positioniereinheit PE 1/P
- An- und Einbaumöglichkeiten für Mobile Datenträger der Identensysteme ID 15, ID 40 und ID 200
- Austauschbare Laufsohlen

Material:

Rahmen, Laufsohlen: Polyamid (PA 66)

Trägerplatte: Stahl, KTL-beschichtet

Lieferumfang:

Werkstückträger, komplett

Lieferzustand:

Montiert

Zubehör optional:

- Dämpfungselement, 2-7
- Schaltelement, 2-8
- Mobile Datenträger ID 15/MDT, ID 40/MDT oder ID 200/MDT, siehe Katalog Identifikationssysteme (3 842 536 509)

Application:

The WT 1/S is a workpiece pallet made of a steel-plastic composite material with high rigidity. This makes it possible to make perforations in the steel plate.

The WT 1/S is also suitable for transporting and processing lightweight parts. The PE 1/P position unit is used for positioning. Use with the HP 1/P lift position unit is not possible.

Design:

- 3 standard sizes
- Polyamide frame, steel carrier plate
- Two-sided prism groove for positioning in the PE 1/P position unit
- Attachment and installation options for mobile data tags from the ID 15 and ID 40 identification systems
- Replaceable wear pads

Material:

Frame, wear pads: polyamide (PA 66)

Carrier plate: steel, KTL-coated

Scope of delivery:

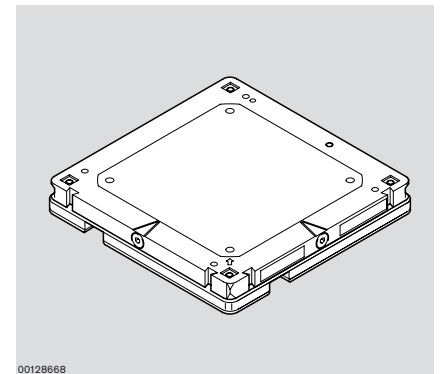
Workpiece pallet, complete

Condition of delivery:

Workpiece pallet, assembled

Optional accessories:

- Damping element, 2-7
- Switch element, 2-8
- Mobile data tags ID 15/MDT, ID 40/MDT or ID 200/MDT, see Identification systems catalog (3 842 536 509)



00128668

Utilisation :

La WT 1/S est une palette porte-pièces très rigide en matériau mixte acier/plastique. Cela permet la perforation de la plaque d'acier.

La WT 1/S convient également pour le transport et l'usinage de pièces légères. Pour le positionnement, on utilise l'unité de positionnement PE 1/P. Il n'est pas possible de l'utiliser avec l'unité de levée et de positionnement HP 1/P.

Construction :

- 3 tailles standard
- Cadre en polyamide, plaque-support en acier
- Rainure en prisme bilatérale pour un positionnement dans l'unité de positionnement PE 1/P
- Possibilités de montage et d'installation pour support mobile de données des systèmes d'identification ID 15, ID 40 et ID 200
- Semelles échangeables

Matériau :

Cadre, semelles : polyamide (PA 66)

Plaque-support : acier, KTL-couverté

Fournitures :

Palette porte-pièces, complète

Etat à la livraison :

Monté

Accessoires en option :

- Élément d'amortissement, 2-7
- Élément de commutation, 2-8
- Support mobile de données ID 15/MDT, ID 40/MDT ou ID 200/MDT, voir catalogue Systèmes d'identification (3 842 536 509)

WT 1/S

l_{WT} [mm]	b_{WT} [mm]	$m_{WT}^{1)}$ [kg]	$F_{GL}^{2)}$ [kg]	Nr./No./N°
80	80	0,165	1,5	3 842 526 849
120	120	0,430	2,2	3 842 526 850
160	160	0,830	3,0	3 842 526 851

¹⁾ Leergewicht/Eigengewicht des Werkstückträgers

¹⁾ Empty weight/workpiece pallet system weight

¹⁾ Poids à vide/poids propre de la palette porte-pièces

²⁾ Zulässiges Werkstückträger-Auflagegewicht

²⁾ Permissible workpiece pallet loading weight

²⁾ Force massique admissible de palette porte-pièces



2-2



11-10

Werkstückträger · Workpiece pallets · Palettes porte-pièces

Werkstückträger WT 1/P

Workpiece pallet

Palette porte-pièces



Verwendung:

Der WT 1/P ist ein Werkstückträger in Aluminium-Ganzmetallbauweise mit hoher Steifigkeit.

Der WT 1/P eignet sich für höchste Präzisionsanforderungen in Verbindung mit der Positioniereinheit PE 1/P und der Hub- und Positioniereinheit HP 1/P.

Ausführung:

- 3 Standardgrößen
- Aluminium-Ganzmetallbauweise
- Zweiseitige Schwalbenschwanz-Nut zur Positionierung in der Positioniereinheit PE 1/P
- Positionierbuchsen für den Einsatz mit der Hub- und Positioniereinheit HP 1/P
- An- und Einbaumöglichkeiten für Mobile Datenträger der Identifikationssysteme ID 15, ID 40 und ID 200
- Austauschbare Laufsohlen

Material:

- Werkstückträger: Aluminium, chem. vernickelt
- Laufsohle: Polyamid (PA66)

Lieferumfang:

Werkstückträger, komplett

Lieferzustand:

Montiert

Zubehör optional:

- Schaltelement, 2-8
- Mobile Datenträger ID 15/MDT, ID 40/MDT oder ID 200/MDT, siehe Katalog Identifikationssysteme (3 842 536 509)

Application:

The WT 1/P is a workpiece pallet of high rigidity made entirely of aluminum. The WT 1/P is suitable for tasks requiring the highest level of precision in conjunction with the PE 1/P position unit and the HP 1/P lift position unit.

Design:

- 3 standard sizes
- All-aluminum version
- Two-sided dovetail groove for positioning in the PE 1/P position unit
- Positioning bushings for use with the HP 1/P lift position unit
- Attachment and installation options for mobile data tags from the ID 15, ID 40 and ID 200 identification systems
- Replaceable wear pads

Material:

- Workpiece pallet: aluminum, chem. nickel-plated
- Wear pad: polyamide (PA66)

Scope of delivery:

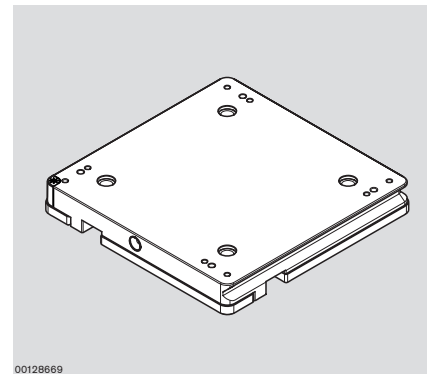
Workpiece pallet, complete

Condition of delivery:

Assembled

Optional accessories:

- Switch element, 2-8
- Mobile data tags ID 15/MDT, ID 40/MDT or ID 200/MDT, see Identification systems catalog (3 842 536 509)



00128669

Utilisation :

La WT 1/P est une palette porte-pièces d'une grande rigidité en raison de sa construction en aluminium/tout métal.

La WT 1/P répond aux critères de précision les plus élevés en association avec l'unité de positionnement PE 1/P et avec l'unité de levée et de positionnement HP 1/P.

Construction :

- 3 tailles standard
- Construction en aluminium/tout métal
- Rainure en queue d'aronde bilatérale pour un positionnement dans l'unité de positionnement PE 1/P
- Douilles de positionnement pour utilisation avec l'unité de levée et de positionnement HP 1/P
- Possibilités de montage et d'installation pour support mobile de données des systèmes d'identification ID 15, ID 40 et ID 200
- Semelles échangeables

Matériau :

- Palette porte-pièces : aluminium, nicklé chim.
- Semelles : polyamide (PA66)

Fournitures :

Palette porte-pièces, complète

Etat à la livraison :

Monté

Accessories en option :

- Élément de commutation, 2-8
- Support mobile de données ID 15/MDT, ID 40/MDT ou ID 200/MDT, voir catalogue Systèmes d'identification (3 842 536 509)

WT 1/P

l_{WT} [mm]	b_{WT} [mm]	$m_{WT}^{1)}$ [kg]	$F_{GL}^{2)}$ [kg]	Nr./No./N°
80	80	0,205	1,5	3 842 530 443
120	120	0,440	2,2	3 842 530 444
160	160	0,760	3,0	3 842 530 445

¹⁾ Leergewicht/Eigengewicht des Werkstückträgers

¹⁾ Empty weight/workpiece pallet system weight

¹⁾ Poids à vide/poids propre de la palette porte-pièces

²⁾ Zulässiges Werkstückträger-Auflagegewicht

²⁾ Permissible workpiece pallet loading weight

²⁾ Force massique admissible de palette porte-pièces



2-2



11-11

Werkstückträger · Workpiece pallets · Palettes porte-pièces

Dämpfungselement

Damping element

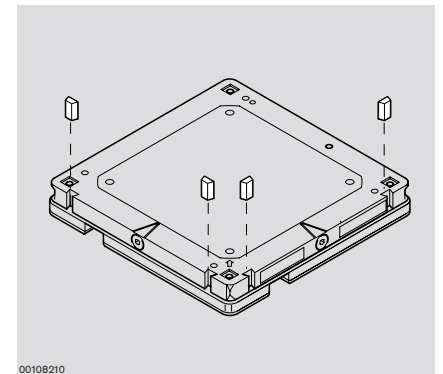
Élément d'amortissement

■ **Verwendung:**
Dämpfungselement zur Dämpfung der Geräusche bei Kontakt der Werkstückträger WT 1/K oder WT 1/S

Material:
PUR, rot

■ **Application:**
Damping element to deaden contact noises of workpiece pallets WT 1/K or WT 1/S

Material:
PUR, red



00108210

■ **Utilisation :**
Élément d'amortissement pour assourdir le bruit provoqué par le contact entre les palettes porte-pièces WT 1/K ou WT 1/S

Matériau :
PUR, rouge

Dämpfungselement
Damping element
Élément d'amortissement

	Nr./No./N°
20	3 842 532 813

Werkstückträger · Workpiece pallets · Palettes porte-pièces

Schaltelement

Switch element

Élément de commutation

■ **Verwendung:**

Schaltelement zur Bedämpfung von seitlich angebrachten induktiven Sensoren

■ **Material:**

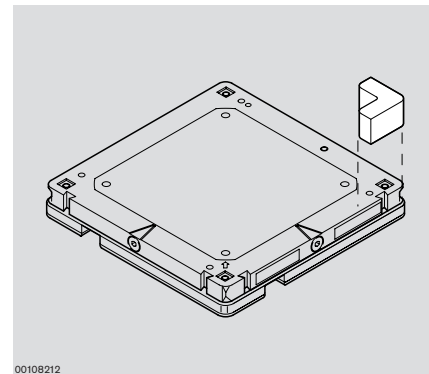
PA, schwarz
rostfreies Stahlblech

■ **Application:**

Switch element to excite inductive proximity switches mounted on the side

■ **Material:**

PA, black, stainless sheet steel



00108212

■ **Utilisation :**

Élément de commutation pour amortir les détecteurs de proximité inductives montés latéralement

■ **Matériau :**

PA, noir, tôle en acier inoxydable

Schaltelement
Switch element
Élément de commutation

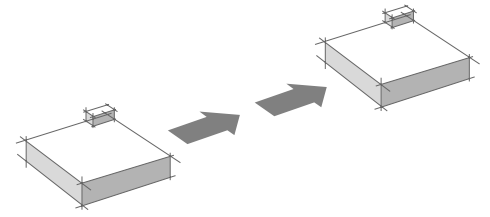
	Nr./No./N°
10	3 842 532 814

Längstransport · Longitudinal conveyor · Transport longitudinal


Längstransport

Longitudinal conveyor


Transport longitudinal



Bandstrecken
Belt sections
Sections à bande

 3-2

Streckeneinheiten
Conveyor units
Unités de section

 3-8

Längstransport · Longitudinal conveyor · Transport longitudinal

Bandstrecken BS

Belt sections

Sections à bande

■ Verwendung:

Bandstrecken BS 1/... werden bei kurzen Transportstrecken und geringen Belastungen eingesetzt. Damit sind sie geeignet, taktunabhängige Arbeitsplätze oder Fördersysteme mit kleineren Förderlängen zu realisieren. Bandstrecken werden mit verschiedenen Antriebsvarianten, aber auch ohne eigenen Antrieb z. B. für den Parallelbetrieb mit einer anderen Bandstrecke angeboten. Als Fördermittel dient ein Zahnriemen aus Polyurethan mit PA-Gewebeauflage. Die Förderrichtung kann, wenn nicht ausdrücklich angegeben, bei Bedarf reversierend sein.

■ Lieferumfang:

Die Bandstrecken BS werden montiert geliefert. Der Motor liegt lose bei.

Für den Einsatz der Bandstrecke als Quertransport zwischen zwei Hauptstrecken muss ein Verbindungssatz (☞ 3-18, 4-18, 5-12) separat bestellt werden.

■ Application:

Belt sections BS 1/... are designed for short transport sections and for light loads. This makes them suitable for workstations, which are not part of a production cycle, or conveyor systems with short transport distances. Belt sections are available with different variants of drive units but also without their own drive unit, e. g. for parallel operation with another belt section. The conveyor medium is a toothed belt made of polyurethane with a woven PA surface. The conveyors are available with reversible transport direction if not explicitly indicated otherwise.

■ Scope of delivery:

The BS belt sections are delivered assembled. The motor is enclosed separately.

When the belt section is to be used as a transverse conveyor between two main conveyor sections a connection kit (☞ 3-18, 4-18, 5-12) must be ordered separately.

■ Utilisation:

Les sections à bande BS 1/... sont utilisées sur les sections de transport de courte distance et pour les petites charges. Elles conviennent pour réaliser des postes de travail qui ne vont pas à la même cadence ou des systèmes de transport avec des petites longueurs de transport. Les sections à bande sont disponibles avec différentes versions d'entraînements, mais aussi sans entraînement propre par ex. pour un fonctionnement en parallèle avec une autre section à bande. Une courroie dentée en polyuréthane à revêtement de toile en PA sert de convoyeur. La direction de transport peut, si elle n'est pas explicitement déterminée, être inversée si nécessaire.

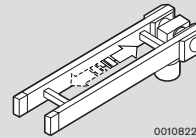
■ Fournitures :

Les sections à bande BS sont livrées montées. Le moteur joint est non assemblé.


Pour utiliser la section à bande comme convoyeur transversal entre deux sections principales, un jeu de jonction (☞ 3-18, 4-18, 5-12) doit être commandé séparément.

Längstransport · Longitudinal conveyor · Transport longitudinal

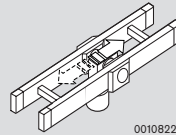
Bandstrecke BS 1
Belt section
Section à bande




00108220

 3-4

Bandstrecke BS 1/M
Belt section
Section à bande



00108222

 3-6

Längstransport · Longitudinal conveyor · Transport longitudinal

Bandstrecke BS 1

Belt section

Section à bande



Verwendung:

- Längstransport des Werkstückträgers mit segmentierten Förderstrecken bis 5000 mm
- Quertransport des Werkstückträgers zwischen parallelen Förderstrecken (in Verbindung mit zwei Hub-Quereinheiten HQ 1/U)

Ausführung:

- Funktionsbereite Förderstrecke mit eigenem Antrieb. Motoranbau rechts (MA = R), links (MA = L), bei Spurbreite $b = 160$ mm auch mittig (MA = M).
- Streckenlasten bis 30 kg im Staubetrieb
- Fördermedium: Zahnriemen mit Gewebeauflage, geeignet für den Einsatz in einer EPA
- Je nach Länge wird die BS 1 mit zwei, drei oder vier Querverbindern ausgeliefert, 11-12
- Motoranschluss wahlweise mit Kabel/Stecker (AT = S) oder Klemmkasten (AT = K)

Lieferzustand:

Montiert. Motor liegt lose bei.

Zubehör optional:

- Verbindungssatz, 3-18, 4-18, 5-12
- Streckenstütze SZ 1, 6-3

Application:

- Longitudinal conveying of the workpiece pallet with segmented conveyor sections up to 5000 mm
- Transverse conveying of the workpiece pallet between parallel conveyor sections (in conjunction with two HQ 1/U lift transverse units)

Design:

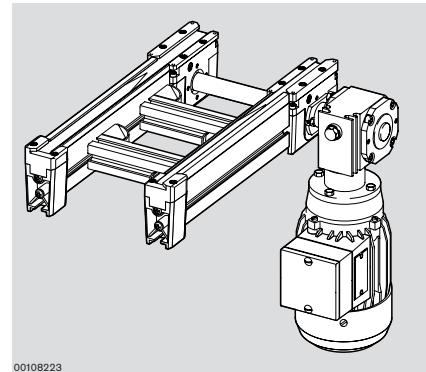
- Ready for operation conveyor section with own drive. Motor mounting right (MA = R) or left (MA = L), for track width $b = 160$ mm also in the middle (MA = M).
- Section loads up to 30 kg in accumulation operation
- Conveyor medium: toothed belt with a woven surface, suitable for use in an EPA
- Depending on the length, the BS 1 is delivered with two, three, or four cross connectors, 11-12
- Motor connection either with cable/plug (AT = S) or terminal box (AT = K)

Condition on delivery:

Assembled. Motor is enclosed separately.

Optional accessories:

- Connection kit, 3-18, 4-18, 5-12
- SZ 1 leg set, 6-3



00108223

Utilisation :

- Transport longitudinal de la palette porte-pièces avec sections de transport segmentées jusqu'à 5000 mm
- Transport transversal de la palette porte-pièces entre des sections de transport parallèles (en association avec deux unités de levée transversales HQ 1/U)

Construction :

- Section de transport prête à fonctionner avec entraînement propre. Montage du moteur à droite (MA = R), à gauche (MA = L), également au centre (MA = M) si écartement de voie $b = 160$ mm.
- Charges de section jusqu'à 30 kg en accumulation
- Convoyeur : courroie dentée à revêtement de toile, indiquée pour une utilisation en EPA
- En fonction de la longueur, la BS 1 est livrée avec deux, trois ou quatre liaisons transversales, 11-12
- Raccordement du moteur au choix avec câble / fiche (AT = S) ou borne de connexion (AT = K)

Etat à la livraison :

Montée. Moteur joint livré non assemblé.

Zubehör optional :

- Jeu de jonction, 3-18, 4-18, 5-12
- Support de section SZ 1, 6-3

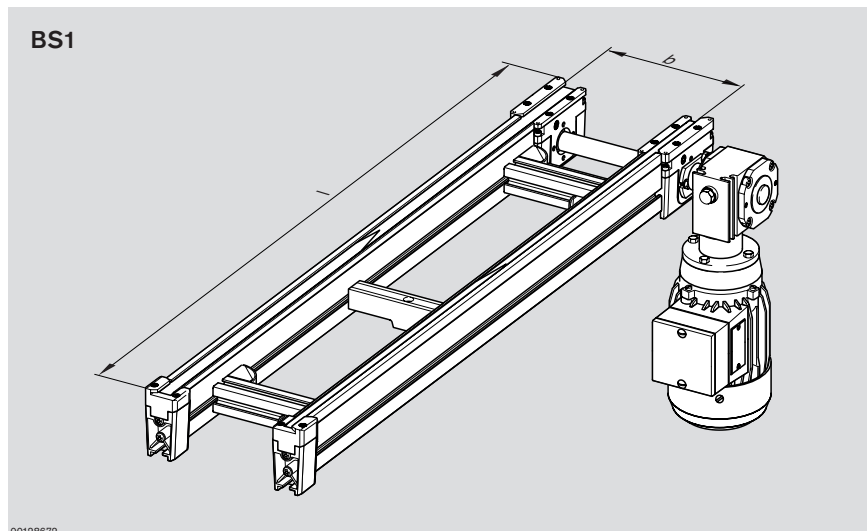


3-2



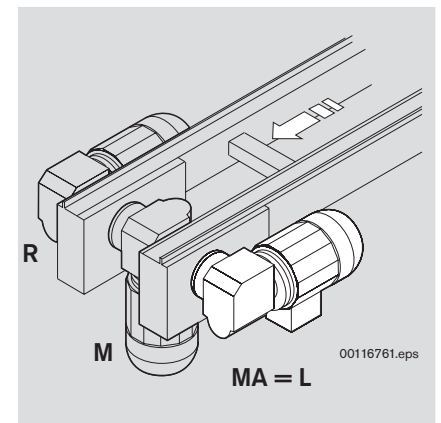
11-12

Längstransport · Longitudinal conveyor · Transport longitudinal



00128672

MA = Motoranordnung
 MA = Motor layout
 MA = Disposition du moteur



Bandstrecke BS 1
 Belt section
 Section à bande

b ¹⁾ [mm]	l ²⁾ [mm]	v _N ³⁾ [m/min] ☞ 11-58ff	U,f ☞ 11-58ff	AT	MA	Nr./No./N°
80	250-5000	0; 6; 9; 12; 15; 18		S; K	R; L	3 842 999 898
120	250-5000	0; 6; 9; 12; 15; 18		S; K	R; L	b = ... mm
160	250-5000	0; 6; 9; 12; 15; 18		S; K	R; L; M	l = ... mm ⁴⁾
80 - 720	250-5000	0; 6; 9; 12; 15; 18		S; K	R; L; M	v _N = ... m/min
						U = ... V
						f = ... Hz
						AT = ...
						MA = ...

1) b = Spurbreite in Transportrichtung

2) l = Länge

3) v_N = Nenngeschwindigkeit;

v_N = 0: ohne Motor und ohne Getriebe

4) Wird entsprechend der Zahnriementeilung abgerundet

Sonderausführungen auf Anfrage

1) b = Track width in direction of transport

2) l = Length

3) v_N = Nominal transportation speed;

v_N = 0: without motor or gear

4) l is rounded in accordance with the toothed belt pitch

Special models on request

1) b = Ecartement de voie en direction du transport

2) l = Longueur

3) v_N = Vitesse nominale

v_N = 0 : sans moteur et sans engrenage

4) Arrondi en fonction du partage de la courroie dentée

Versions spéciales sur demande

Längstransport · Longitudinal conveyor · Transport longitudinal

Bandstrecke BS 1/M

Belt section

Section à bande



Verwendung:

- Längstransport des Werkstückträgers mit segmentierten Förderstrecken bis 5000 mm
- Einbau des Antriebes in der Mitte der Bandstrecke, so dass z. B. Positioniereinheiten oder Hub-Quereinheiten näher an das Streckenende herangebaut werden können

Ausführung:

- Position des Antriebes frei wählbar
- Funktionsbereite Förderstrecke mit eigenem Antrieb. Motoranbau rechts (MA = R), links (MA = L), bei Spurbreite $b = 160$ mm auch mittig (MA = M).
- Streckenlasten bis 30 kg im Staubetrieb
- Fördermedium: Zahnriemen mit Gewebeauflage, geeignet für den Einsatz in einer EPA
- Motoranschluss wahlweise mit Kabel/Stecker (AT = S) oder Klemmkasten (AT = K)

Lieferzustand:

Montiert. Motor liegt lose bei.

Zubehör optional:

- Verbindungssatz, ☞ 3-18, 4-18, 5-12
- Streckenstütze SZ 1, ☞ 6-3

Application:

- Longitudinal conveying of the workpiece pallet with segmented conveyor sections up to 5000 mm
- Drive installation in the middle of the belt section, so that e.g. position units or lift transverse units can be installed closer to the end of the section

Design:

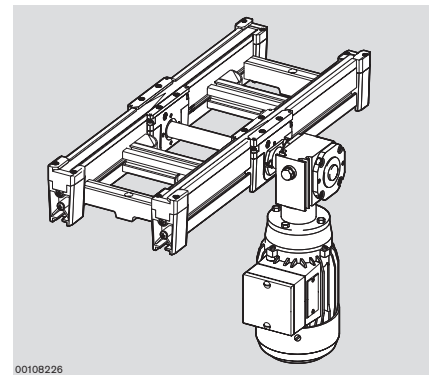
- Position of the drive is freely selectable
- Ready for operation conveyor section with own drive. Motor mounting right (MA = R) or left (MA = L), for track width $b = 160$ mm also in the middle (MA = M).
- Max. permissible load up to 30 kg in accumulation operation
- Conveyor medium: toothed belt with a woven surface, suitable for use in an EPA
- Motor connection either with cable/plug (AT = S) or terminal box (AT = K)

Condition on delivery:

Assembled. Motor is enclosed separately.

Optional accessories:

- Connection kit, ☞ 3-18, 4-18, 5-12
- SZ 1 leg set, ☞ 6-3



00108226

Utilisation :

- Transport longitudinal de la palette porte-pièces avec sections de transport segmentées jusqu'à 5000 mm
- Installation de l'entraînement au centre de la section à bande de sorte que par ex. les unités de positionnement ou les unités de levée transversales puissent être montées plus près de la fin de section

Construction :

- Position de l'entraînement au choix
- Section de transport prête à fonctionner avec entraînement propre. Montage du moteur à droite (MA = R), à gauche (MA = L), également au centre (MA = M) si écartement de voie $b = 160$ mm.
- Charges de section jusqu'à 30 kg en accumulation
- Convoyeur : courroie dentée à revêtement de toile, indiquée pour une utilisation en EPA
- Raccordement du moteur au choix avec câble / fiche (AT = S) ou borne de connexion (AT = K)

Etat à la livraison :

Montée. Moteur joint livré non assemblé.

Zubehör optional :

- Jeu de section, ☞ 3-18, 4-18, 5-12
- Support de section SZ 1, ☞ 6-3

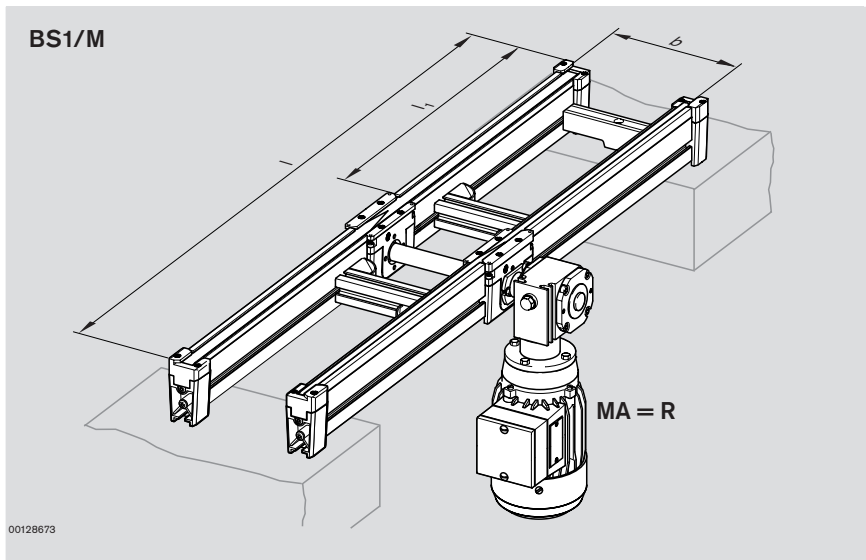


☞ 3-2

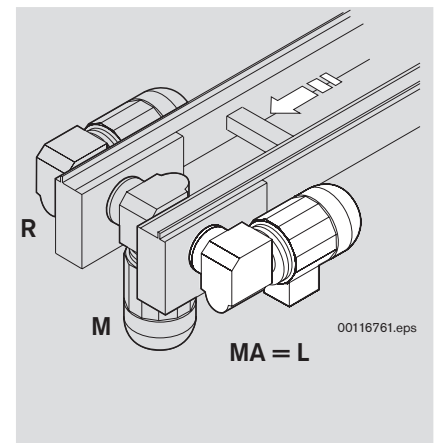


☞ 11-14

Längstransport · Longitudinal conveyer · Transport longitudinal



MA = Motoranordnung
 MA = Motor layout
 MA = Disposition du moteur



Bandstrecke BS 1/M
 Belt section
 Section à bande

b ¹⁾ [mm]	l ²⁾ [mm]	l ₁ [mm]	v _N ³⁾ [m/min] ☞ 11-58ff	U,f ☞ 11-58ff	AT	MA	Nr./No./N°
80	350-5000	90-4800	0; 6; 9; 12; 15; 18		S; K	R; L	3 842 999 900
120	350-5000	90-4800	0; 6; 9; 12; 15; 18		S; K	R; L	b = ... mm
160	350-5000	90-4800	0; 6; 9; 12; 15; 18		S; K	R; L; M	l = ... mm ⁴⁾
80-720	350-5000	90-4800	0; 6; 9; 12; 15; 18		S; K	R; L; M	l ₁ = ... mm ⁴⁾
							v _N = ... m/min
							U = ... V
							f = ... Hz
							AT = ...
							MA = ...

■
 1) b = Spurbreite in Transportrichtung
 2) l = Länge
 3) v_N = Nenngeschwindigkeit;
 v_N = 0: ohne Motor und ohne Getriebe
 4) Wird entsprechend der Zahnriementeilung abgerundet
 Sonderausführungen auf Anfrage

■
 1) b = Track width in direction of transport
 2) l = Length
 3) v_N = Nominal transportation speed;
 v_N = 0: without motor or gear
 4) l_s rounded in accordance with the toothed belt pitch
 Special models on request

■
 1) b = Ecartement de voie en direction du transport
 2) l = Longueur
 3) v_N = Vitesse nominale
 v_N = 0 : sans moteur et sans engrenage
 4) Arrondi en fonction du partage de la courroie dentée
 Versions spéciales sur demande

Längstransport · Longitudinal conveyor · Transport longitudinal

Streckeneinheit

Conveyor unit

Unité de section

Die Streckeneinheit (SE) besteht aus folgenden Einzelkomponenten, die entsprechend dem Bedarf kombiniert werden können:

- Antriebsstation
- Umlenkung
- Strecke
 - Streckenprofil
 - Führungsprofil
 - Profilverbinder
 - Querverbinder
- Gurt
- Streckenstützen

Technische Daten:

Spurbreiten: 80, 120, 160 mm
Länge von 1000 bis 12000 mm

Die zulässige Auflage-Gewichtskraft beträgt für die gesamte Streckeneinheit max. 80 kg im Staubetrieb.

Überschreitet die Summe der aufliegenden WT diesen Wert, so muss die gesamte Strecke in mehrere Teilstrecken aufgeteilt werden.

The conveyor unit (SE) consists of the following components, which can be combined together depending on the requirement:

- Drive module
- Return unit
- Section
 - Section profile
 - Guide profile
 - Profile connector
 - Cross connector
- Belt
- Leg sets

Technical data:

Track widths: 80, 120, 160 mm
Length from 1000 to 12000 mm

The permissible loading weight for the entire conveyor unit is a maximum of 80 kg in accumulation operation.

If the total load of all workpiece pallets exceeds this weight, the section must be divided into several individual sections.

L'unité de section (SE) se compose des éléments suivants qui peuvent être combinés en fonction des besoins :

- Poste d'entraînement
- Renvoi
- Section
 - Profilé de section
 - Profilé de guidage
 - Jonction de profilés
 - Liaison transversale
- Courroie
- Supports de section

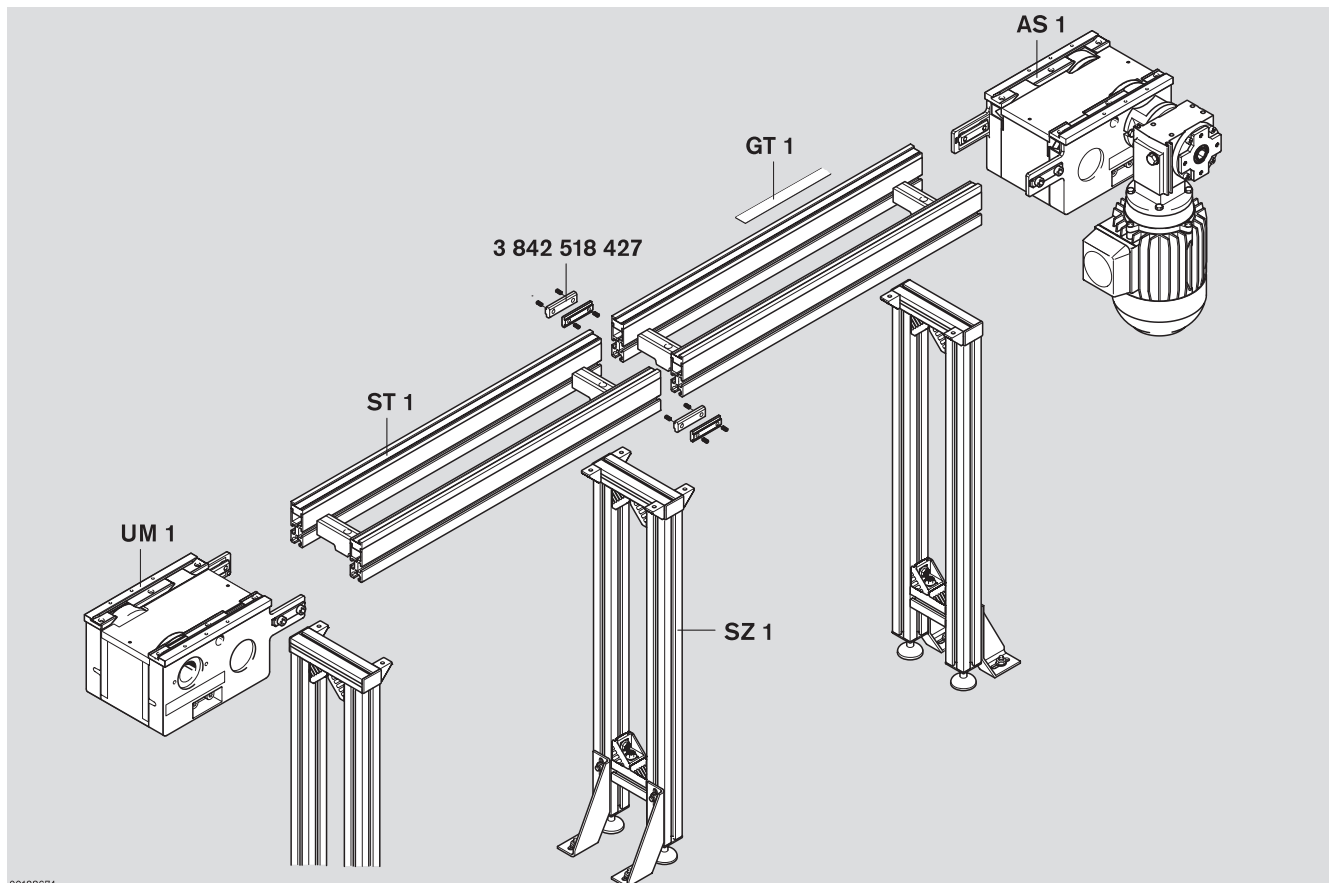
Données techniques :

Ecartements de voie : 80, 120, 160 mm
Longueur de 1000 à 12000 mm

En régime d'accumulation la force massique maximale admissible est de 80 kg pour toute la longueur de l'unité de section.

Si le total des palettes porte-pièces en service dépasse cette charge, il faut diviser la section totale en plusieurs sections partielles.

Längstransport · Longitudinal conveyor · Transport longitudinal



Antriebsstation AS 1
Drive module
Poste d'entraînement

3-10

Umlenkung UM 1
Return unit
Renvoi

3-12

Strecke ST 1, Bauelemente
Section, elements
Section, composants

3-13

Fördermittel Gurt GT 1, Zubehör
Belt conveyor medium, accessories
Convoyeur courroie, accessoires

3-16

Längstransport · Longitudinal conveyor · Transport longitudinal

Antriebsstation AS 1

Drive module

Poste d'entraînement



Verwendung:

Antrieb des Gurtes beim Aufbau von Streckeneinheiten mit Strecke ST 1, Umlenkung UM 1 und Gurt GT 1. Maximale Streckenlänge $l_{s \max} = 12000$ mm.

Ausführung:

- Für Streckenlasten bis zu $F_G = 80$ kg pro Streckeneinheit im Staubetrieb
- Motoranbau wahlweise nach unten hängend oder liegend, rechts oder links außen

Lieferumfang:

- Antriebsstation AS 1
- Befestigungselemente für den Anbau an die Strecke ST 1

Lieferzustand:

Vormontiert; Getriebemotor liegt lose bei.

Zubehör optional:

Stoßverbinder zum Verbinden zweier Streckeneinheiten, 3-18

Application:

Drives the belt in conveyor units constructed with ST 1 section, UM 1 return unit and GT 1 belt. Maximum section length $l_{s \max} = 12000$ mm.

Design:

- For section loads up to $F_G = 80$ kg per conveyor unit in accumulation operation
- Motor mounting either suspended below or horizontal, at right or left outside

Scope of delivery:

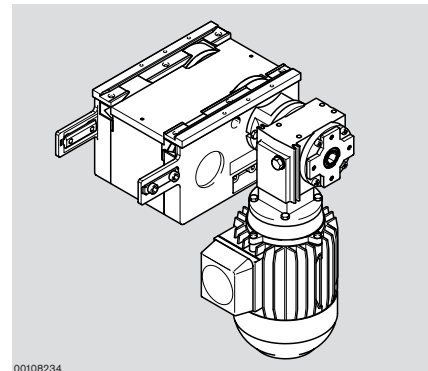
- AS 1 drive module
- Fastening elements for mounting on the ST 1 section

Condition on delivery:

Pre-assembled; gear motor is enclosed separately.

Optional accessories:

Longitudinal end connector for connecting two conveyor units, 3-18



00108234

Utilisation :

Entraînement de la courroie, lors du montage d'unités de section, avec section ST 1, renvoi UM 1 et courroie GT 1. Longueur de section maximale $l_{s \max} = 12000$ mm.

Construction :

- Pour des charges de section jusqu'à $F_G = 80$ kg par unité de section en accumulation
- Montage du moteur au choix pendu vers le bas ou horizontalement, à droite ou à gauche, extérieur

Fournitures :

- Poste d'entraînement AS 1
- Éléments de fixation pour montage sur la section ST 1

Etat à la livraison :

Prémonté ; moto-réducteur joint livré non assemblé.

Accessoires en option :

Jonction bout à bout pour relier deux unités de section, 3-18

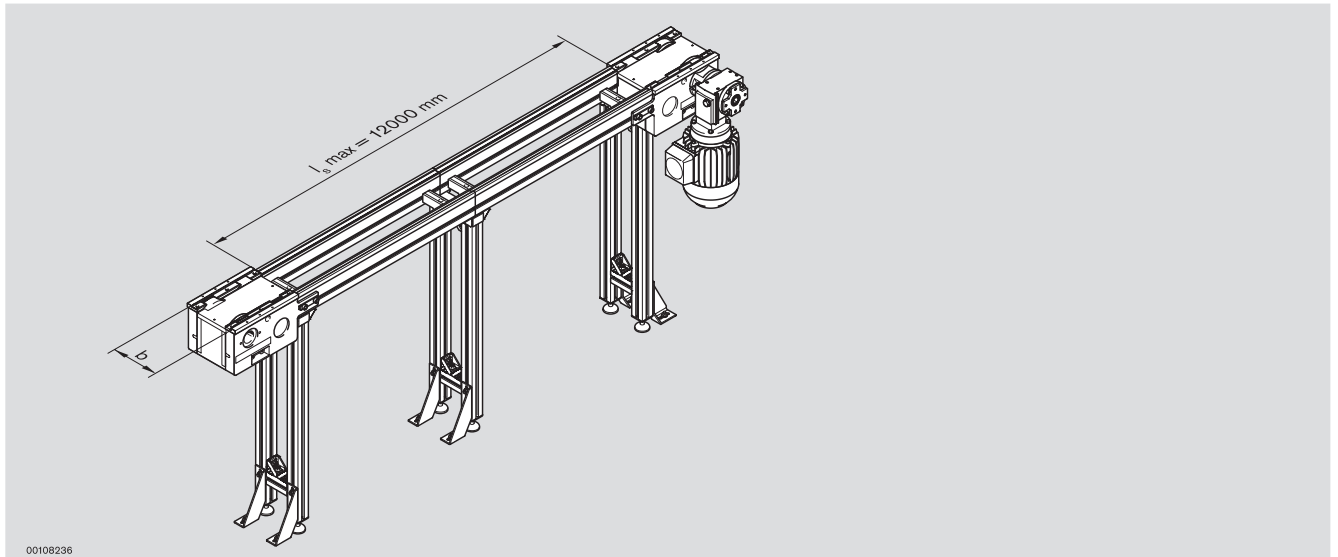


3-8



11-15

Längstransport · Longitudinal conveyor · Transport longitudinal



Antriebsstation AS 1
Drive module
Poste d'entraînement

$b^{1)}$ [mm]	$v_N^{2)}$ [m/min] ☞ 11-58ff	U, f ☞ 11-58ff	Nr./No./N°
80	0; 6; 9; 12; 15; 18		3 842 999 759
120	0; 6; 9; 12; 15; 18		b = ... mm
160	0; 6; 9; 12; 15; 18		v_N = ... m/min
			U = ... V
			f = ... Hz

■
¹⁾ b = Spurbreite in Transportrichtung
²⁾ v_N = Nenngeschwindigkeit;
 $v_N = 0$: ohne Motor und ohne Getriebe
 Sonderausführungen auf Anfrage

■
¹⁾ b = Track width in direction of transport
²⁾ v_N = Nominal transportation speed;
 $v_N = 0$: without motor or gear
 Special models on request

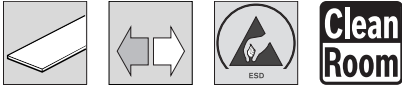
■
¹⁾ b = Ecartement de voie en direction du transport
²⁾ v_N = Vitesse nominale
 $v_N = 0$: sans moteur et sans engrenage
 Versions spéciales sur demande

Längstransport · Longitudinal conveyor · Transport longitudinal

Umlenkung UM 1

Return unit

Renvoi



■ **Verwendung:**

Die Umlenkung UM 1 führt den Gurt in der Strecke zurück zur Antriebsstation AS 1.

■ **Lieferumfang:**

- Umlenkung UM 1
- Befestigungselemente für den Anbau an die Strecke ST 1

■ **Lieferzustand:**

Montiert

■ **Zubehör optional:**

Stoßverbinder zum Verbinden zweier Streckeneinheiten, ☞ 3-18

■ **Application:**

The UM 1 return unit guides the belt in the section back to the AS 1 drive module.

■ **Scope of delivery:**

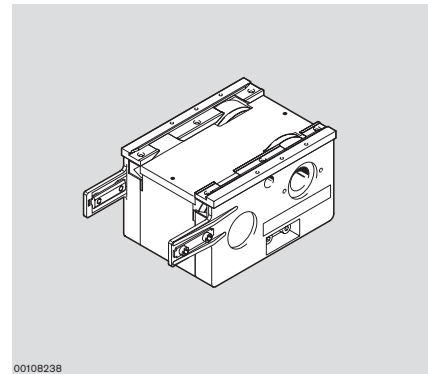
- UM 1 return unit
- Fastening elements for mounting on the ST 1 section

■ **Condition on delivery:**

Assembled

■ **Optional accessories:**

Longitudinal end connector for connecting two conveyor units, ☞ 3-18



00108238

■ **Utilisation :**

Le renvoi UM 1 renvoie la courroie dans la section au poste d'entraînement AS 1.

■ **Fournitures :**

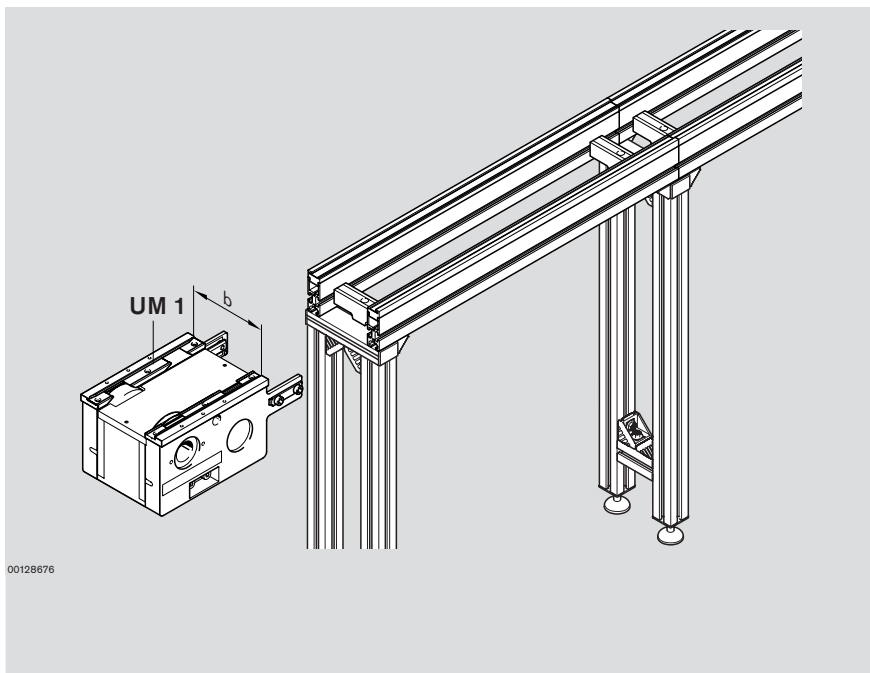
- Renvoi UM 1
- Eléments de fixation pour montage sur la section ST 1

■ **Etat à la livraison :**

Monté

■ **Zubehör optional :**

Jonction bout à bout pour relier deux unités de section, ☞ 3-18



00128676

Umlenkung UM 1
Return unit
Renvoi

b [mm]	Nr./No./N°
80	3 842 999 760
120	b = ... mm
160	



☞ 3-8



☞ 11-15

Längstransport · Longitudinal conveyor · Transport longitudinal

Strecke ST 1

Section

Section



Verwendung:

Aufbau von Streckeneinheiten in Verbindung mit Antriebsstation AS 1 und Umlenkung UM 1

Ausführung:

- Streckenprofil SP 1 als tragendes Element
- Führungsprofil GP 1 zur Führung des Gurtes GT 1; kann bei Verschleiß leicht ausgetauscht werden.
- Maximale Länge $l_{\max} = 6000$ mm

Material:

- Streckenprofil: Aluminium, eloxiert
- Führungsprofil: Kunststoff PE-UHMW (antistatisch)

Lieferumfang:

- 2x Streckenprofil SP 1
- 2x Führungsprofil GP 1

Lieferzustand:

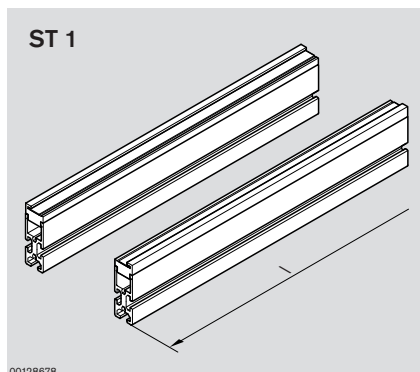
Unmontiert

Zubehör, erforderlich:

- Querverbinder QV 1 zur Definition der Spurweite, ☞ 3-15

Zubehör, optional:

- Streckenstützen SZ 1, ☞ 6-3
- Profilverbinder zur stirnseitigen Verbindung zweier Streckenprofile SP 1, ☞ 3-15. Erforderlich bei $l_s > 6000$ mm.



Application:

Construction of conveyor units in conjunction with the AS 1 drive module and the UM 1 return unit

Design:

- SP 1 section profile as supporting element
- GP 1 guide profile for guiding the GT 1 belt; can be easily exchanged in case of wear.
- Maximum length $l_{\max} = 6000$ mm

Material:

- Section profile: anodized aluminum
- Guide profile: plastic PE-UHMW (anti-static)

Scope of delivery:

- 2x SP 1 section profiles
- 2x GP 1 guide profiles

Condition on delivery:

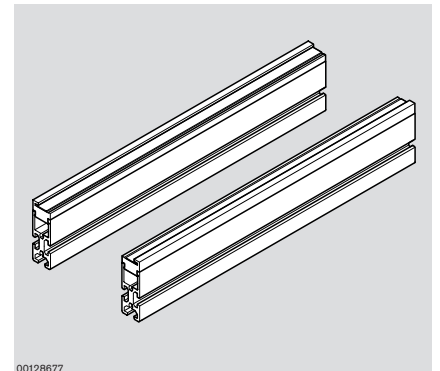
Not assembled

Required accessories:

- QV 1 cross connector to determine the track width, ☞ 3-15

Optional accessories:

- SZ 1 leg sets, ☞ 6-3
- Profile connector to join two SP 1 section profiles end-to-end, ☞ 3-15. Required if $l_s > 6000$ mm.



Utilisation :

Montage d'unités de section en association avec le poste d'entraînement AS 1 et le renvoi UM 1

Construction :

- Profilé de section SP 1 en tant qu'élément porteur
- Profilé de guidage GP 1 pour guider la courroie GT 1 ; peut être facilement remplacé en cas d'usure.
- Longueur maximale $l_{\max} = 6000$ mm

Matériau :

- Profilé de section : aluminium, anodisé
- Profilé de guidage : plastique PE-UHMW (antistatique)

Fournitures :

- 2x profilé de section SP 1
- 2x profilé de guidage GP 1

Etat à la livraison :

Non monté

Accessoires nécessaires :

- Liaison transversale QV 1 pour définir l'écartement de voie, ☞ 3-15

Accessoires en option :

- Supports de section SZ 1, ☞ 6-3
- Jonction de profilés pour relier deux profilés de section SP 1 bout à bout, ☞ 3-15. Nécessaire si $l_s > 6000$ mm.

Strecke ST 1
Section
Section

l [mm]	Nr./No./N°
200-6000	3 842 999 779 l = ... mm



☞ 3-8



☞ 11-16

Längstransport · Longitudinal conveyor · Transport longitudinal

Profile

Profiles

Profilés

Streckenprofil SP 1

Section profile

Profilé de section

Verwendung:

Als tragendes Element zum Aufbau von Strecken ST 1 in Verbindung mit Führungsprofil GP 1 und Querverbindern QV 1

Ausführung:

– Aluminium-Strangpressprofil
– Längsnuten dienen der leichten und problemlosen Montage.

Material:

Aluminium, eloxiert

Application:

Used as the supporting element for constructing ST 1 sections in conjunction with the GP 1 guide profile and QV 1 cross connectors

Design:

– Extruded aluminum profile
– Longitudinal grooves for easy and problem-free assembly.

Material:

Anodized aluminum

Utilisation :

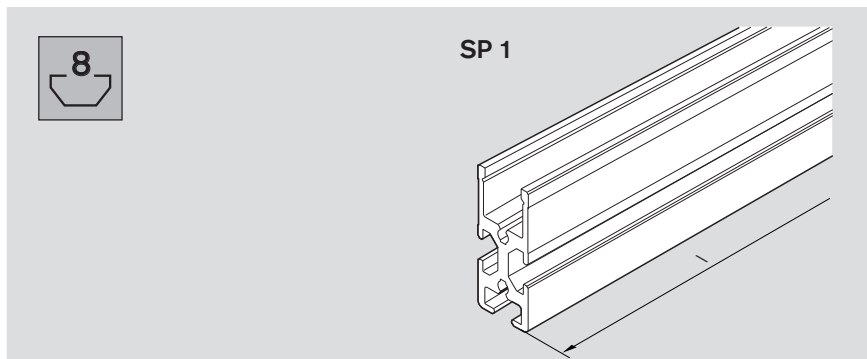
Utilisé en tant qu'élément porteur pour le montage de sections ST 1 en association avec profilé de guidage GP 1 et liaisons transversales QV 1

Construction :

– Profilé en aluminium extrudé
– Rainures longitudinales permettant un montage simple et sans problème.

Matériau :

Aluminium, anodisé



Streckenprofil SP 1
Conveyor section profile
Profilé de section

	l [mm]	Nr./No./N°
	50-6000	3 842 992 934 l = ... mm
LE	l [mm]	Nr./No./N°
	20 6070	3 842 557 245

Führungsprofil GP 1

Guide profile

Profilé de guidage

Verwendung:

Führungsprofil GP 1 zum Aufstecken auf das Streckenprofil und Führen des Gurtes

Material:

Kunststoff PE-UHMW (antistatisch)

Application:

GP 1 guide profile for clipping onto the section profile and guiding the belt

Material:

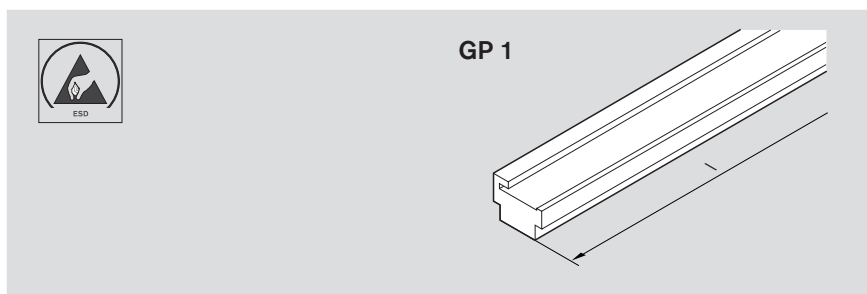
Plastic PE-UHMW (anti-static)

Utilisation :

Profilé de guidage GP 1 à enficher sur le profilé de section pour le guidage de la courroie

Matériau :

Plastique PE-UHMW (antistatique)



Führungsprofil GP 1
Guide profile
Profilé de guidage

	l [mm]	Nr./No./N°
	50-2000	3 842 992 943 l = ... mm
LE	l [mm]	Nr./No./N°
	1 2000	3 842 521 520



3-8



11-16

Längstransport · Longitudinal conveyer · Transport longitudinal

Verbinder

Connectors

Éléments de jonction

Profilverbinder

Profile connector

Jonction de profilés

Verwendung:

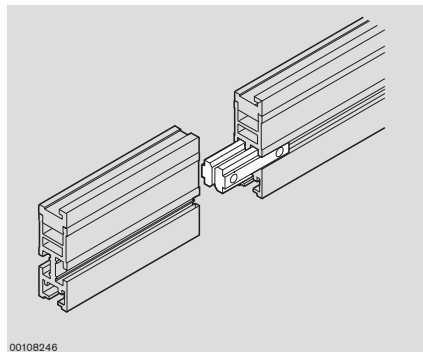
Stirnseitige Verbindung zweier Streckenprofile SP 1. Für jeden Profilstoß sind zwei Profilverbinder erforderlich.

Material:

Stahl, verzinkt

Lieferumfang:

Inklusive Schrauben



Application:

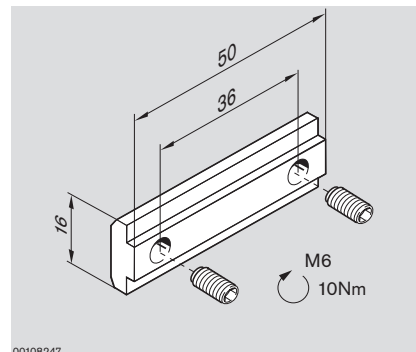
Used to connect two SP 1 section profiles end-to-end. Two profile connectors are required for each profile joint.

Material:

Galvanized steel

Scope of delivery:

Includes screws



Utilisation :

Liaison bout à bout de deux profilés de section SP 1. Deux jonctions de profilés sont nécessaires par jonction bout à bout de profilés.

Matériau :

Acier galvanisé

Fournitures :

Vis incluses

Profilverbinder
Profile connector
Jonction de profilés

Nr./No./N°
3 842 518 427

Querverbinder QV 1

Cross connector

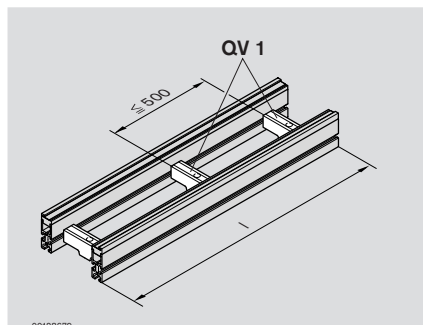
Liaison transversale

Verwendung:

Verbindung zweier Streckenprofile SP 1 und Definition der Spurbreite

Material:

Kunststoff PA6

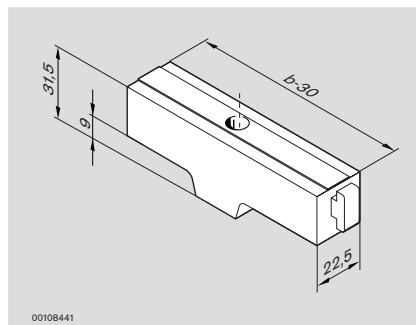


Application:

Used to connect two SP 1 section profiles and to determine the track width

Material:

Plastic PA6



Utilisation :

Liaison de deux profilés de section SP 1 et définition de l'écartement de voie

Matériau :

Plastique PA6

$$A_{QV} = \frac{l}{500 \text{ mm}} + 1$$

A_{QV} = Anzahl Querverbinder
 A_{QV} = Number of cross connectors
 A_{QV} = Nombre de liaisons transversales

Querverbinder QV 1
Cross connector
Liaison transversale

b [mm]	Nr./No./N°
80	3 842 521 342
120	3 842 521 343
160	3 842 521 344



Längstransport · Longitudinal conveyor · Transport longitudinal

Fördermittel Gurt GT 1, Klebstoff

Belt conveyor medium, glue

Convoyeur courroie, colle



Verwendung:

Gurt als Fördermittel transportiert die Werkstückträger im Transfersystem.

Ausführung:

- Gurt aus Polyamid mit Gewebeauflage, elektrisch leitfähig
- Wird bei der Montage gespannt und zu einem endlosen Band verklebt

Material:

Kunststoff Polyamid PA 6.6

Zubehör, erforderlich:

- Gurtmontage-Werkzeugsatz zum Fügen, Spannen und Verkleben, 3-17
- Klebstoff

Erforderliche Gurtlänge l_{GT1} 11-17

Application:

The belt is the conveyor medium that transports the workpiece pallets in the transfer system.

Design:

- Polyamide belt with a woven surface, electrically conductive
- The belt is pretensioned during installation and bonded to form a continuous belt

Material:

Plastic polyamide PA 6.6

Required accessories:

- Belt mounting tool kit for jointing, tensioning, and bonding, 3-17
- Glue

Required belt length l_{GT1} 11-17

Utilisation :

La courroie, en tant que moyen de convoyage, transporte les palettes porte-pièces dans le système de transfert.

Construction :

- Courroie en polyamide avec revêtement de toile, conductrice
- Courroie tendue lors du montage et collée en bande continue

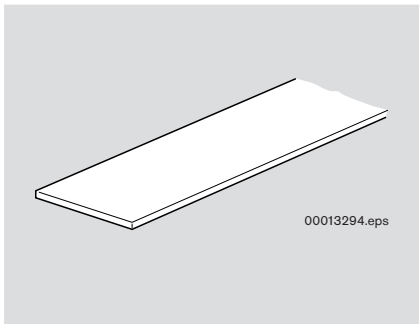
Matériau :

Polyamide PA 6.6 plastique

Accessoires nécessaires :

- Kit d'outillage pour raccorder, précontraindre et coller la courroie 3-17
- Colle

Longueur de courroie requise l_{GT1} 11-17



Gurt GT 1
Belt
Courroie



l_{GT1} [m]	Nr./No./N°
$1 \text{ m} \leq l_{GT1} \leq 50 \text{ m}$	3 842 992 941 $l_{GT1} = \dots \text{ m}$
l_{GT1} [m]	Nr./No./N°
50	3 842 539 480



Klebstoff
Glue
Colle

Verwendung:

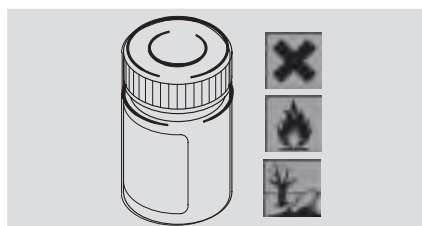
- Verkleben der Gurte in Verbindung mit dem Gurtmontage-Werkzeugsatz
- Nur für den gewerblichen Gebrauch
- Sicherheitshinweise beachten!

Application:

- Used to bond the belts with the belt mounting tool kit
- Only for industrial use
- Observe the safety instructions!

Utilisation :

- Coller des courroies en association avec le kit d'outillage de montage de courroies
- Seulement pour usage industriel
- Veuillez respecter les conseils de sécurité !



	Nr./No./N°
50 ml	3 842 315 106



11-17

Längstransport · Longitudinal conveyer · Transport longitudinal

Gurtmontage-Werkzeuge

Belt mounting tools

Outils de montage de courroies



Verwendung:

- Ausschärfen, Spannen und Verkleben der Gurte GT 1 im Transfersystem TS 1
- Bei Streckenlängen $l_s > 6000$ mm empfehlen wir den Einsatz des Gurtmontage-Werkzeugsatzes aus dem Transfersystem TS 2*plus*, 3 842 532 810.

Ausführung:

- Ausschärfeinrichtung zum Anschleifen der Gurte an der Verbindungsstelle
- Heizpresse zum Warmkleben der Gurte
- Einrichtung zum Vorspannen der Gurte

Lieferumfang:

- Ausschärfeinrichtung
- Heizpresse
- Einrichtung zum Vorspannen
- Thermometer
- Schleifband, Pinsel

Zubehör, optional:

Mit einer zweiten Heizpresse können zwei nebeneinander liegende Gurte gleichzeitig verklebt werden.

Application:

- Used to bevel, pretension, and bond the GT 1 belts in the TS 1 transfer system
- For section lengths $l_s > 6000$ mm, we recommend using the belt mounting tool kit from the TS 2*plus* transfer system, 3 842 532 810.

Design:

- Beveling tool to sharpen off the belt ends where they are joined
- Heat press to bond the belt ends thermally
- Belt pretensioning device

Scope of delivery:

- Beveling tool
- Heat press
- Pretensioning device
- Thermometer
- Abrasive belt, brush

Optional accessories:

If a second heating press is used, two adjacent belts can be bonded at the same time.

Utilisation :

- Biseautage, tension et collage des courroies GT 1 dans le système de transfert TS 1
- Pour des longueurs de section $l_s > 6000$ mm, nous recommandons l'utilisation du kit d'outillage pour montage de courroies du système de transfert TS 2*plus*, 3 842 532 810.

Construction :

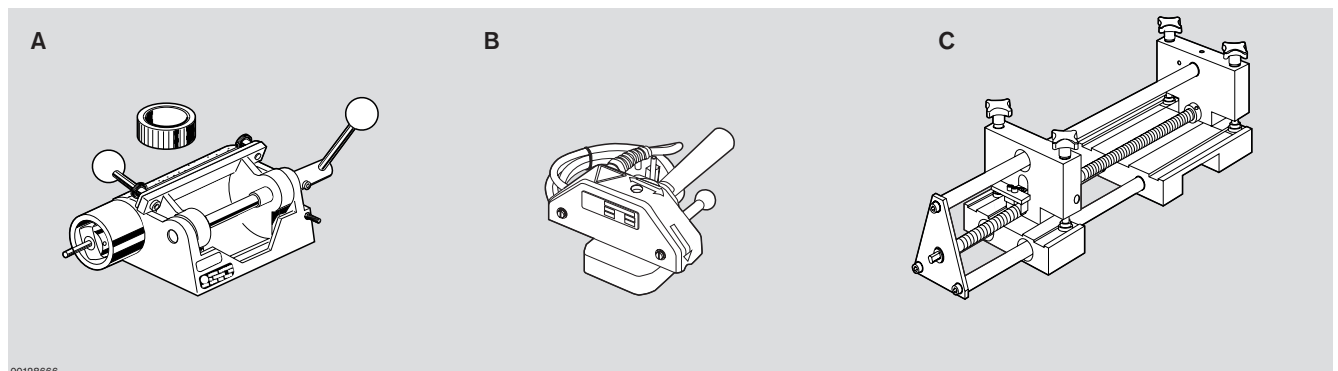
- Dispositif de biseautage pour biseauter les courroies aux jonctions
- Une presse thermique pour le collage à chaud des courroies
- Un dispositif de précontrainte des courroies

Fournitures :

- Dispositif de biseautage
- Presse thermique
- Dispositif de précontrainte
- Thermomètre
- Toile émerie, pinceau

Accessoires en option :

A l'aide d'une deuxième presse thermique, deux courroies situées l'une à côté de l'autre peuvent être collées simultanément.



Gurtmontage-Werkzeugsatz
Belt mounting tool kit
Kit d'outillage de montage de courroies

Heizpresse, einzeln
Heating press, single
Presse thermique, simple

A, B+C

Nr./No./N°
3 842 532 829

B

Nr./No./N°
3 842 516 835

Längstransport · Longitudinal conveyor · Transport longitudinal

Streckenstoß Conveyor joint Jonction de sections

Verwendung:

- Zubehörbausatz zum stirnseitigen Verbinden zweier Streckeneinheiten bzw. Bandstrecken

Für AS1...-AS1, AS1...-UM1 gilt zusätzlich:

- Staubetrieb nicht zulässig
- Zur Überbrückung des Fördergrabens bei $l_{WT} = 80$ mm erforderlich

Application:

- Accessories kit for end-face connection of two conveyor units or belt sections

Additionally, for AS1 ...- AS1, AS1 ...- UM1 the following applies:

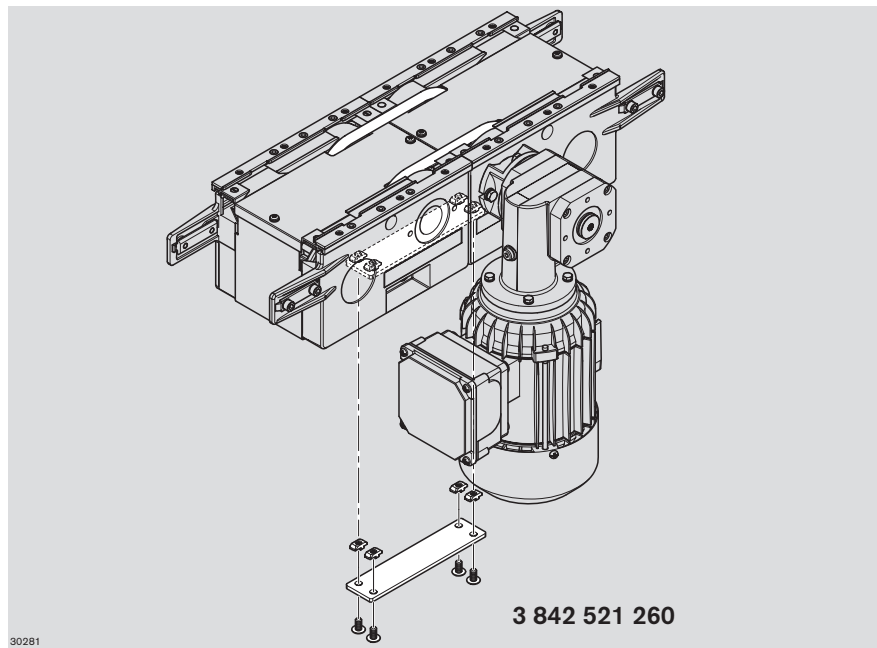
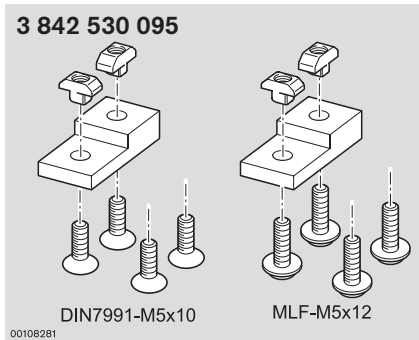
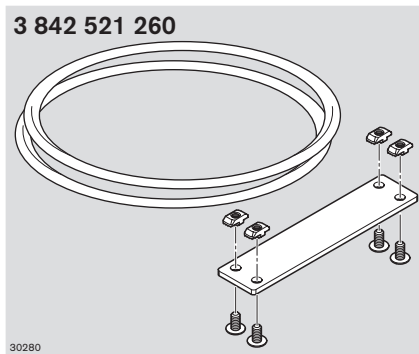
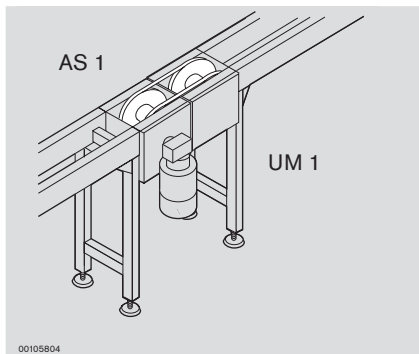
- Accumulation operation not permissible
- Required for bridging the conveyor trench if $l_{WT} = 80$ mm

Utilisation :

- Kit d'accessoires pour relier bout à bout deux unités de section ou deux sections à bande

Pour AS1...-AS1, AS1...-UM1, les points suivants s'appliquent également :

- Fonctionnement en accumulatin non autorisé
- Nécessaire pour recouvrir le fossé de transport pour $l_{WT} = 80$ mm

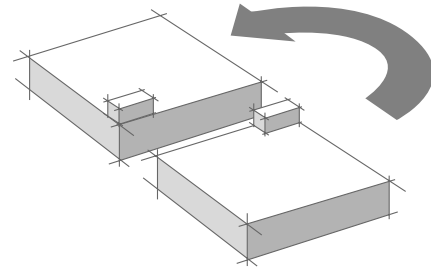


Verbindungssätze
Connection kits
Kit de liaison


	Nr./No./N°
AS1...-AS1	
AS1...-UM1	3 842 521 260
BS1...-BS1	3 842 530 095

Kurven · Curves · Courbes

Kurven Curves Courbes



Einsatz von Kurven
Use of curves
Utilisation des courbes

 4-2

Kurven · Curves · Courbes

Kurven

Curves

Courbes

■ Kurven werden zur Umlenkung des Werkstückträgers am Bandende eingesetzt. Sie sind in Ausführungen mit 90° und 180° Kurvenwinkel erhältlich.

Kurve CU 1/90

Kurve CU 1/90 zum 90°-Kurventransport eines Werkstückträgers. Sie kommt ohne zusätzlichen Antrieb für die Kurvenfunktion aus und kann auf Grund ihrer Staufähigkeit ohne aufwändige Steuerung betrieben werden. Reversierbetrieb ist nicht möglich. Sie eignet sich auch für den Einsatz bei ESD-Anwendungen.

Kurven KU1

Die Kurven KU1 /... haben einen eigenen Antrieb. Mit dem Fördermedium Drehscheibe ist ein Betrieb im Stau möglich. Geeignet für ESD-Anwendungen.

Kurven KE1

Die Kurven KE1 /... haben als Fördermedium einen Rundriemen. Durch eine Vereinzelnung ist dafür zu sorgen, dass auf der Kurve und auf den Übertriebsriemen kein Stau entsteht. Reversierbetrieb ist nicht möglich. Geeignet für ESD-Anwendungen.

■ Curves are employed for turning the workpiece pallets at the belt end. They are available in models with 90° and 180° curve angles.

Curve CU 1/90

The CU 1/90 curve is for 90° curve conveying of a workpiece pallet. No additional drive is needed for the curve function. Due to its ability to accumulate pallets, the curve can be operated without any control effort. Reversible operation is not possible. Also suitable for ESD applications.

Curves KU 1

The curves KU 1 /... have an own drive. With the rotary disk as conveyor medium they can be operated in accumulation mode. Also suitable for ESD applications.

Curves KE 1

The curves KE 1 /... have a rounded belt as conveyor medium. A stop gate must be used to ensure that no accumulation occurs on the curve and on the transmission belt. Reversible operation is not possible. Suitable for ESD applications.

■ Les courbes sont utilisées pour faire tourner les palettes porte-pièces en fin de bande. Elles sont disponibles avec des angles de courbe de 90° et 180°.

Courbe CU 1/90

Courbe CU 1/90 pour le transport à courbe à 90° d'une palette porte-pièces. Elle assume la fonction de courbe sans entraînement supplémentaire et peut être exploitée sans commande compliquée en raison de sa capacité d'accumulation. Le fonctionnement en régime réversible n'est pas possible. Elle convient également pour l'emploi dans des applications ESD.








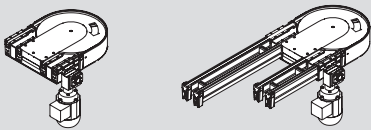


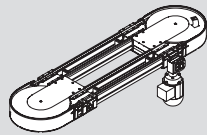


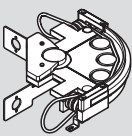


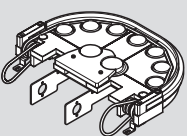


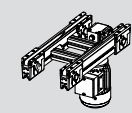

Courbes KU 1

Les courbes KU 1 /... ont un entraînement propre. Avec le plateau tournant pour le convoyage elles peuvent être exploitées en accumulation. Elle convient également pour l'emploi dans des applications ESD.

Courbes KE 1

Les courbes KE 1 /... ont une courroie ronde pour convoyage. Un séparateur permettra d'éviter des accumulations de pièces dans la courbe et dans les courroies de transmission. Le fonctionnement en régime réversible n'est pas possible. Convient aux applications ESD.

Kurven · Curves · Courbes

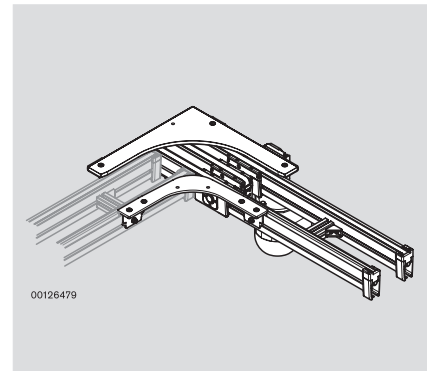
<p>Kurve CU 1/90 Curve Courbe</p>			
<p>Kurve KU 1/90 Curve Courbe</p>			
<p>Kurve KU 1/180 Curve Courbe</p>			
<p>Kurve KU 1/360 Curve Courbe</p>			
<p>Kurve KE 1/O-90 Curve Courbe</p>			
<p>Kurve KE 1/O-180 Curve Courbe</p>			
<p>Bandstrecke BS 1/T Belt section Section à bande</p>			

Kurven · Curves · Courbes

Kurve CU 1/90

Curve

Courbe



Verwendung:

Kurve CU 1/90 zum 90°-Kurventransport eines Werkstückträgers. Sie kommt ohne zusätzlichen Antrieb für die Kurvenfunktion aus. Staufähigkeit bis max. 3 Werkstückträger. Geeignet für den Einsatz bei ESD-Anwendungen. Dämpfungselemente am Werkstückträger (☞ 2-7) dürfen nur in Transportrichtung seitlich und hinten angebracht werden. Reversierbetrieb ist nicht möglich.

Ausführung:

- Der Antrieb erfolgt durch die Bandstrecke. Für die Kurvenfunktion ist kein zusätzlicher Antrieb notwendig.
- Streckenlast bis 30 kg
- Fördermedium: Zahnriemen mit Gewebeauflage, geeignet für den Einsatz in einer EPA
- Kurvenrichtung rechts (KR = R) oder links (KR = L)
- Motoranbau rechts (bei KR = L) oder links (KR = L)
- Motoranschluss wahlweise mit Kabel/Stecker (AT = S) oder Klemmenkasten (AT = K)

Lieferumfang:

- Bandstrecke mit dritter Spur
- Innenführung
- Außenführung
- Befestigungsmaterial
- Verbindungssatz (3 842 536 242)

Lieferzustand:

- Teilmontiert
- Motoranbau MA = L bei KR = R; MA = R bei KR = L

Zubehör, optional:

- Stützen SZ 1/... ☞ 6-3

Application:

The CU 1/90 curve is for 90° curve conveying of a workpiece pallet. No additional drive is needed for the curve function. Accumulation ability of max. 3 pallets. Suitable for use in ESD applications. Damping elements (☞ 2-7) may only be attached on the side and rear of the workpiece pallet in the direction of transport. Reversible operation is not possible.

Design:

- System driven by the belt section. No additional drive is necessary for the curve function.
- Section loads of up to 30 kg
- Curve direction right (KR = R) or left (KR = L)
- Conveyor medium: toothed belt with a woven surface, suitable for use in an EPA
- Motor mounting outside (MA = L when KR = R; MA = R when KR = L)
- Motor connection with either cable/plug (AT = S) or terminal box (AT = K)

Scope of delivery:

- Belt section with third track
- Inner guide
- Outer guide
- Mounting material
- Connection kit (3 842 536 242)

Condition on delivery:

- Partially assembled
- Motor mounting MA = L for KR = R; MA = R for KR = L

Optional accessories:

- SZ 1/... leg sets ☞ 6-3

Utilisation :

Courbe CU 1/90 pour le transport à courbe à 90° d'une palette porte-pièces. Elle assume la fonction de courbe sans entraînement supplémentaire. Capacité d'accumulation de max. 3 palettes porte-pièces. Convient pour l'emploi dans des applications ESD. Les éléments d'amortissement sur la palette porte-pièces (☞ 2-7) doivent être placés uniquement dans la direction du transport latéralement et à l'arrière. Le fonctionnement en régime réversible n'est pas possible.

Construction :

- L'entraînement s'effectue par la section à bande. Pour la fonction de courbe, un entraînement supplémentaire n'est pas requis.
- Charge de section jusqu'à 30 kg
- Sens de la courbe KR = R (à droite), KR = L (à gauche)
- Convoyeur : courroie dentée à revêtement de toile, indiquée pour une utilisation en EPA
- Montage extérieur du moteur (MA = L avec KR = R ; MA = R avec KR = L)
- Raccordement du moteur au choix par câble / fiche (AT = S) ou par borne de connexion (AT = K)

Fournitures :

- Section à bande avec troisième voie
- Guidage intérieur
- Guidage extérieur
- Matériel de fixation
- Jeu de jonction (3 842 536 242)

Etat à la livraison :

- Partiellement monté
- Montage du moteur MA = L pour KR = R ; MA = R pour KR = L

Accessoires en option :

- Supports de section SZ 1/... ☞ 6-3

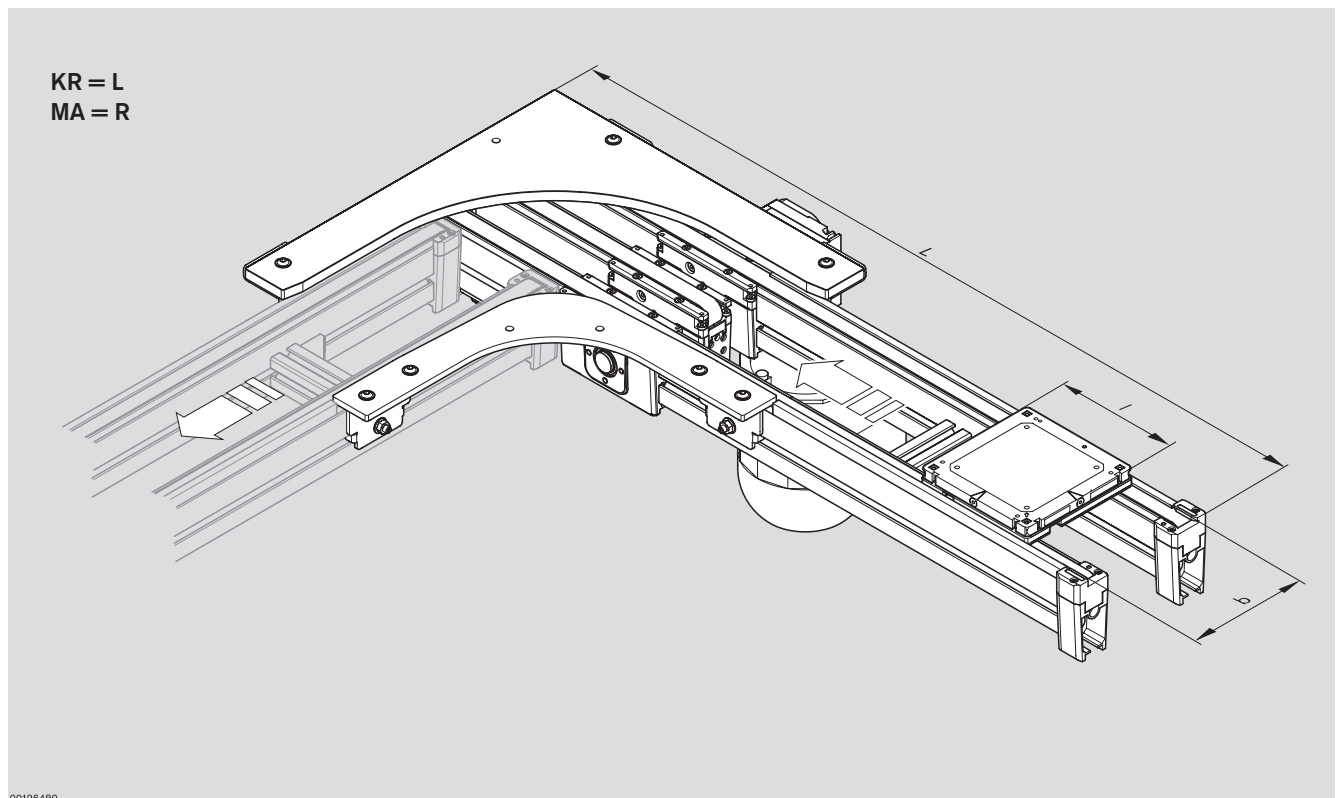


☞ 4-2



☞ 11-18

Kurven · Curves · Courbes



Kurve CU 1/90
Curve
Courbe

$b \times l^{1)}$ [mm]	L [mm]	$v_N^{2)}$ [m/min] ☞ 11-58ff	U, f ☞ 11-58ff	AT	KR ³⁾	Nr./No./N°
80 x 80	415-5000	0; 6; 9; 12; 15; 18		S; K	R; L	3 842 998 287
120 x 120	455-5000	0; 6; 9; 12; 15; 18		S; K	R; L	b = ... mm L = ... mm
160 x 160	495-5000	0; 6; 9; 12; 15; 18		S; K	R; L	v_N = ... m/min U = ... V f = ... Hz AT = ... KR = ...

¹⁾ b = Spurbreite in Transportrichtung
l = Länge in Transportrichtung

²⁾ v_N = Nenngeschwindigkeit;
 $v_N = 0$; ohne Motor und ohne Getriebe

³⁾ KR = R: Kurvenrichtung rechts (R) wird
ausgeliefert mit Motoranbau links (MA = L)
KR = L: Kurvenrichtung links (L) wird
ausgeliefert mit Motoranbau rechts (MA = R)
Sonderausführungen auf Anfrage

¹⁾ b = Track width in direction of transport
l = Length in direction of transport

²⁾ v_N = Nominal speed;
 $v_N = 0$; without motor or gear

³⁾ KR = R; curve direction right (R) will be
delivered with motor mounting left (MA = L)
KR = L; curve direction left (L) will be
delivered with motor mounting right (MA = R)
Special models on request

¹⁾ b = Écart. de voie dans le sens du transport
l = Longueur dans le sens du transport

²⁾ v_N = Vitesse nominale;
 $v_N = 0$; sans moteur et sans engrenage

³⁾ KR = R : sens de la courbe à droite (R)
sera livré avec montage du moteur à gauche
(MA = L) KR = L : sens de la courbe à
gauche (L) sera livré avec montage du
moteur à droite (MA = R)

Versions spéciales sur demande

Kurven · Curves · Courbes

Kurve KU 1/90

Curve

Courbe



Verwendung:

Kurve KU 1/90 mit eigenem Antrieb zum 90°-Kurventransport eines Werkstückträgers.

Die KU 1/90 kann auf Grund ihrer Stauffähigkeit ohne aufwändige Steuerung betrieben werden.

Sie eignet sich auch für den Einsatz bei ESD-Anwendungen.

Reversierbetrieb ist nicht möglich.

Bei Betriebsstillstand (z. B. Schichtende) dürfen keine WTs auf der Kurve stehen.

Ausführung:

- Integrierter gemeinsamer Antrieb für die Drehscheibe und die angebauten Bandstrecken in der Zu- und Ablaufstrecke
- Streckenlast bis 30 kg
- Fördermedium: Drehscheibe, geeignet für den Einsatz in einer EPA
- Länge der Zulauf- und Ablaufstrecke frei wählbar, $l_{max} = 5000$ mm
- Kurvenrichtung rechts (KR = R) oder links (KR = L)
- Motoranbau innen (MA = I) oder außen (MA = A)

Lieferumfang:

- Kurvenmodul komplett mit Antrieb
- Zulaufstrecke (bei $L1 > 150$ mm)
- Ablaufstrecke (bei $L2 > 150$ mm)

Lieferzustand:

Teilmontiert

Zubehör, optional:

- Staudruckregulierung, ☞ 4-18
- Verbindungssatz für Anbau an BS 1, ☞ 4-18
- Verbindungssatz für Anbau an AS 1 oder UM 1, ☞ 4-18
- Stützen SZ 1, ☞ 6-3

Application:

The KU 1/90 curve with own drive is for 90° curve conveying of a workpiece pallet.

Due to its ability to accumulate pallets, the curve can be operated without any control effort.

Also suitable for use in ESD applications.

Reversible operation is not possible.

During downtime (e.g. end of shift), there must be no WTs on the curve.

Design:

- Integrated common drive for the turntable and the attached belt sections in the infeed and outfeed section
- Section load up to 30 kg
- Conveyor medium: turntable, suitable for use in an EPA
- Length of the infeed and outfeed section is freely selectable, $l_{max} = 5000$ mm
- Curve direction right (KR = R) or left (KR = L)
- Motor mounting inside (MA = I) or outside (MA = A)

Scope of delivery:

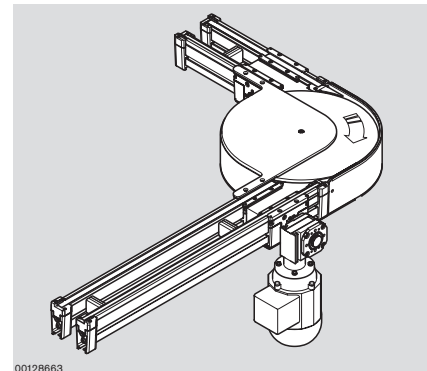
- Curve module complete with drive
- Infeed section (if $L1 > 150$ mm)
- Outfeed section (if $L2 > 150$ mm)

Condition on delivery:

Partially assembled

Optional accessories:

- Accumulation stop gate, ☞ 4-18
- Connection kit for mounting on BS 1, ☞ 4-18
- Connection kit for mounting on AS 1 or UM 1, ☞ 4-18
- SZ 1 leg sets, ☞ 6-3



00128663

Utilisation :

Courbe KU 1/90 avec entraînement propre pour le transport à courbe à 90° d'une palette porte-pièces.

La KU 1/90 peut être exploitée sans commande compliquée en raison de sa capacité d'accumulation.

Elle convient également pour l'emploi dans des applications ESD.

Le fonctionnement en régime réversible n'est pas possible.

En cas d'arrêt d'exploitation (p. ex. à la fin d'une période de travail), aucune palette porte-pièces ne doit se trouver dans la courbe.

Construction :

- Entraînement commun intégré pour le plateau tournant et pour les sections à bande montées dans la section d'entrée et de sortie
- Charge de section jusqu'à 30 kg
- Convoyeur : plateau tournant, indiqué pour une utilisation en EPA
- Longueur de la section d'entrée et de sortie au choix, $l_{max} = 5000$ mm
- Sens de la courbe à droite (KR = R) ou à gauche (KR = L)
- Montage intérieur (MA = I) ou extérieur (MA = A) du moteur

Fournitures :

- Module de courbe complet avec entraînement
- Section d'entrée (pour $L1 > 150$ mm)
- Section de sortie (pour $L2 > 150$ mm)

Etat à la livraison :

Partiellement monté

Accessoires en option :

- Séparateur d'accumulation, ☞ 4-18
- Jeu de jonction pour montage sur BS 1, ☞ 4-18
- Jeu de jonction pour montage sur AS 1 ou UM 1, ☞ 4-18
- Supports de section SZ 1, ☞ 6-3

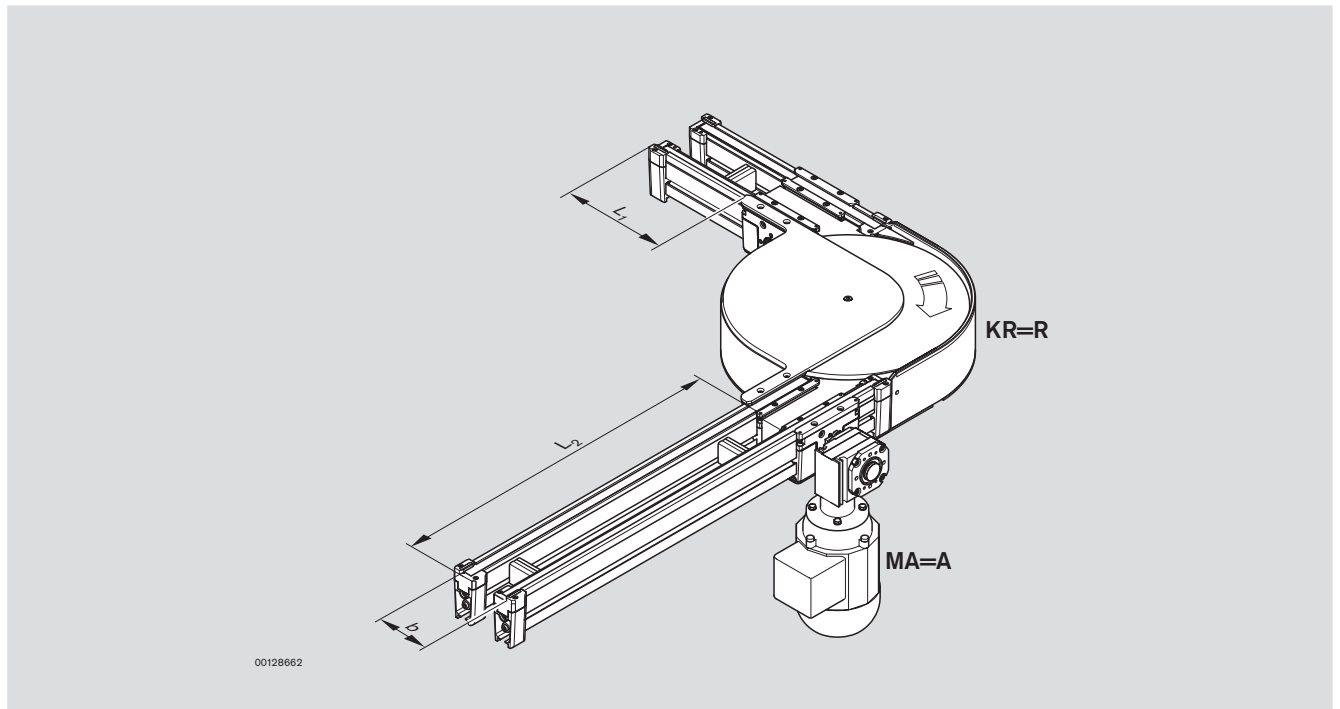


☞ 4-2



☞ 11-19

Kurven · Curves · Courbes



Kurve KU 1/90
Curve
Courbe

b ¹⁾ [mm]	L ₁ , L ₂ [mm]	v _N ²⁾ [m/min] ☞ 11-58ff	U, f ☞ 11-58ff	KR	MA ³⁾	Nr./No./N°
80	0; 150...5000	0; 6; 9; 12; 15; 18		L; R	I; A	3 842 999 986
120	0; 150...5000	0; 6; 9; 12; 15; 18		L; R	I; A	b = ... mm
160	0; 150...5000	0; 6; 9; 12; 15; 18		L; R	I; A	L ₁ = ... mm
						L ₂ = ... mm
						v _N = ... m/min
						U = ... V
						f = ... Hz
						KR = ...
						MA = ...

■
¹⁾ b = Spurbreite in Transportrichtung
²⁾ v_N = Nenngeschwindigkeit
³⁾ Motoranbau A = außen, I = innen

■
¹⁾ b = Track width in direction of transport
²⁾ v_N = Nominal speed
³⁾ Motor mounting A = outside, I = inside

■
¹⁾ b = Ecartement de voie en direc. du transport
²⁾ v_N = Vitesse nominale
³⁾ Montage du moteur A = extérieur, I = intérieur

Kurven · Curves · Courbes

Kurve KU 1/180

Curve

Courbe



Verwendung:

Kurve KU 1/180 mit eigenem Antrieb zum 180°-Kurventransport eines Werkstückträgers.

Die KU 1/180 kann auf Grund ihrer Stauffähigkeit ohne aufwändige Steuerung betrieben werden.

Sie eignet sich auch für den Einsatz bei ESD-Anwendungen.

Reversierbetrieb ist nicht möglich.

Bei Betriebsstillstand (z. B. Schichtende) dürfen keine WTs auf der Kurve stehen.

Ausführung:

- Bandabstand $a = 135$ mm
- Integrierter gemeinsamer Antrieb für die Drehscheibe und die angebauten Bandstrecken in der Zu- und Ablaufstrecke
- Streckenlast bis 30 kg
- Fördermedium: Drehscheibe, geeignet für den Einsatz in einer EPA
- Länge der Zulauf- und Ablaufstrecke frei wählbar, $l_{max} = 5000$ mm
- Kurvenrichtung rechts (KR = R) oder links (KR = L)
- Motoranbau außen (MA = A)

Lieferumfang:

- Kurvenmodul komplett mit Antrieb
- Zulaufstrecke (bei $L1 \geq 150$ mm)
- Ablaufstrecke (bei $L2 \geq 150$ mm)

Lieferzustand:

Teilmontiert

Zubehör, optional:

- Staudruckregulierung, ☞ 4-18
- Verbindungssatz für Anbau an BS 1, ☞ 4-18
- Verbindungssatz für Anbau an AS 1 oder UM 1, ☞ 4-18
- Stützen SZ 1, ☞ 6-3

Application:

The KU 1/180 curve with own drive is for 180° curve conveying of a workpiece pallet.

Due to its ability to accumulate pallets, the KU 1/180 can be operated without any control effort.

Also suitable for use in ESD applications.

Reversible operation is not possible.

During downtime (e.g. end of shift), there must be no WTs on the curve.

Design:

- Belt distance $a = 135$ mm
- Integrated common drive for the turntable and the attached belt sections in the infeed and outfeed section
- Section load up to 30 kg
- Conveyor medium: turntable, suitable for use in an EPA
- Length of the infeed and outfeed section is freely selectable, $l_{max} = 5000$ mm
- Curve direction right (KR = R) or left (KR = L)
- Motor mounting outside (MA = A)

Scope of delivery:

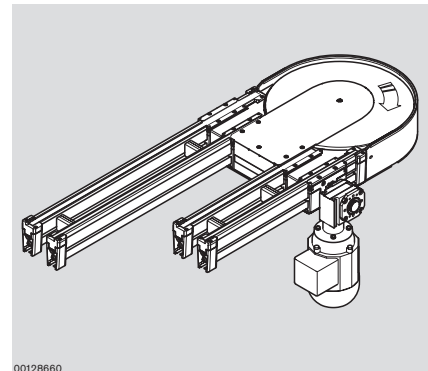
- Curve module complete with drive
- Infeed section (if $L1 > 150$ mm)
- Outfeed section (if $L2 > 150$ mm)

Condition on delivery:

Partially assembled

Optional accessories:

- Accumulation stop gate, ☞ 4-18
- Connection kit for mounting on BS 1, ☞ 4-18
- Connection kit for mounting on AS 1 or UM 1, ☞ 4-18
- SZ 1 leg sets, ☞ 6-3



00128660

Utilisation :

Courbe KU 1/180 avec entraînement propre pour le transport à courbe à 180° d'une palette porte-pièces.

La KU 1/180 peut être exploitée sans commande compliquée en raison de sa capacité d'accumulation.

Elle convient également pour l'emploi dans des applications ESD.

Le fonctionnement en régime réversible n'est pas possible.

En cas d'arrêt d'exploitation (p. ex. à la fin d'une période de travail), aucune palette porte-pièces ne doit se trouver dans la courbe.

Construction :

- Largeur de bande $a = 135$ mm
- Entraînement commun intégré pour le plateau tournant et pour les sections à bande montées dans la section d'entrée et de sortie
- Charge de section jusqu'à 30 kg
- Convoyeur : plateau tournant, indiqué pour une utilisation en EPA
- Longueur de la section d'entrée et de sortie au choix, $l_{max} = 5000$ mm
- Sens de la courbe à droite (KR = R) ou à gauche (KR = L)
- Montage extérieur du moteur (MA = A)

Fournitures :

- Module de courbe complet avec entraînement
- Section d'entrée (pour $L1 \geq 150$ mm)
- Section de sortie (pour $L2 \geq 150$ mm)

Etat à la livraison :

Partiellement monté

Accessoires en option :

- Séparateur d'accumulation, ☞ 4-18
- Jeu de jonction pour montage sur BS 1, ☞ 4-18
- Jeu de jonction pour montage sur AS 1 ou UM 1, ☞ 4-18
- Supports de section SZ 1, ☞ 6-3

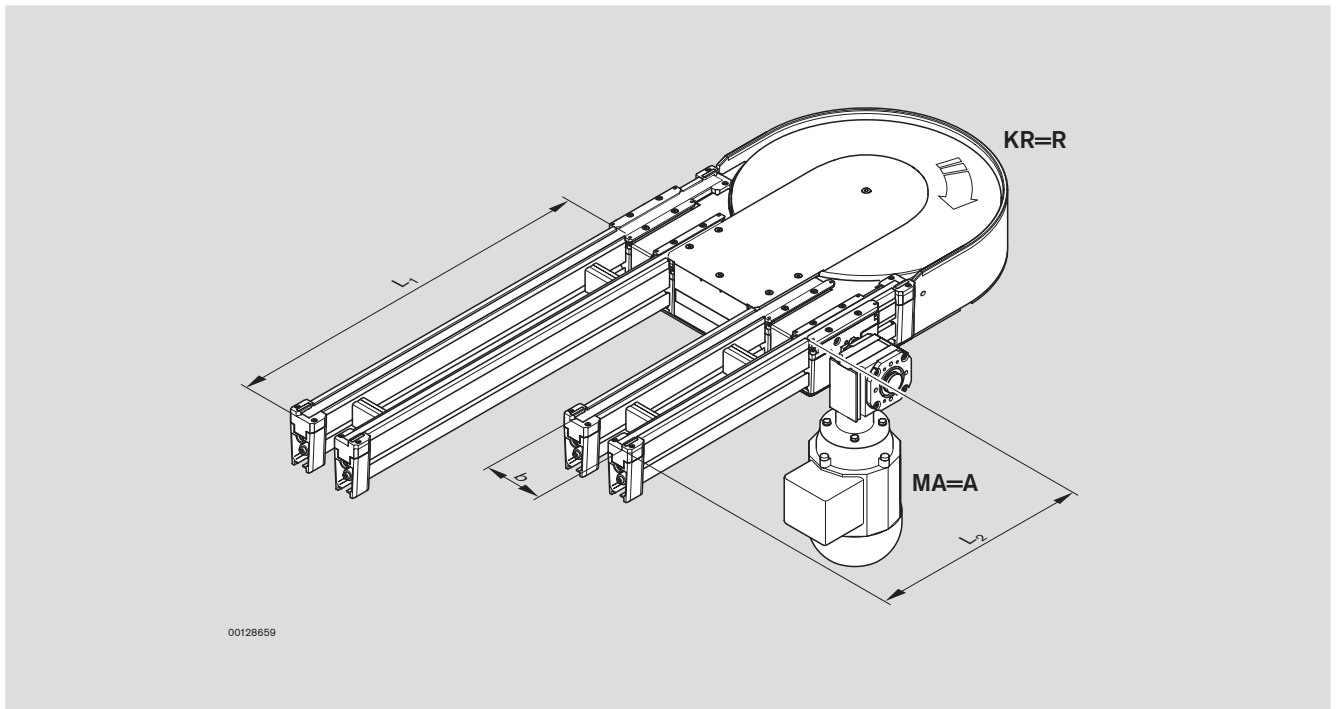


☞ 4-2



☞ 11-20

Kurven · Curves · Courbes



Kurve KU 1/180
Curve
Courbe

b ¹⁾ [mm]	L ₁ , L ₂ [mm]	v _N ²⁾ [m/min] ☞ 11-58ff	U, f ☞ 11-58ff	KR	MA ³⁾	Nr./No./N°
80	0; 150...5000	0; 6; 9; 12; 15; 18		L; R	A	3 842 999 987
120	0; 150...5000	0; 6; 9; 12; 15; 18		L; R	A	b = ... mm
160	0; 150...5000	0; 6; 9; 12; 15; 18		L; R	A	L ₁ = ... mm
						L ₂ = ... mm
						v _N = ... m/min
						U = ... V
						f = ... Hz
						KR = ...
						MA = ...

■
1) b = Spurbreite in Transportrichtung
2) v_N = Nenngeschwindigkeit
3) Motoranbau A = außen

■
1) b = Track width in direction of transport
2) v_N = Nominal speed
3) Motor mounting A = outside

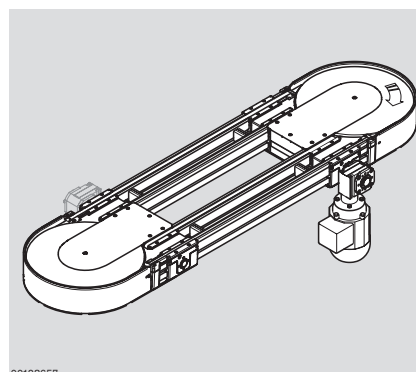
■
1) b = Ecartement de voie en direc. du transport
2) v_N = Vitesse nominale
3) Montage du moteur A = extérieur

Kurven · Curves · Courbes

Kurve KU 1/360

Curve

Courbe



00128657

Verwendung:

Mit der Kurve KU 1/360 läßt sich ein geschlossener Werkstückträgerumlauf besonders preisgünstig mit nur einem Antrieb aufbauen.
Die KU 1/360 kann auf Grund ihrer Staufähigkeit ohne aufwändige Steuerung betrieben werden.
Sie eignet sich auch für den Einsatz bei ESD-Anwendungen.
Reversierbetrieb ist nicht möglich.
Bei Betriebsstillstand (z. B. Schichtende) dürfen keine WTs auf der Kurve stehen.

Ausführung:

- Bandabstand $a = 135\text{mm}$
- Integrierter gemeinsamer Antrieb für beide Drehscheiben und die angebauten Bandstrecken.
Streckenlast bis 24 kg
- Streckenlast bis 30 kg bei Einsatz eines zweiten Antriebes ($AE = 2$)
- Fördermedium: Drehscheibe, geeignet für den Einsatz in einer EPA
- Länge der Bandstrecken frei wählbar, $l_{\text{max}} = 5000\text{ mm}$
- Kurvenrichtung rechts ($KR = R$) oder links ($KR = L$)
- Motoranbau außen ($MA = A$)

Lieferumfang:

- Kurvenmodul komplett mit Antrieb

Lieferzustand:

Teilmontiert

Zubehör, optional:

- Staudruckregulierung, 4-18
- Stützen SZ 1, 6-3

Application:

The KU 1/360 curve can be used for especially inexpensive construction of a closed workpiece pallet circuit using only one drive.
Due to its ability to accumulate pallets, the KU 1/360 can be operated without any control effort.
Also suitable for use in ESD applications.
Reversible operation is not possible.
During downtime (e.g. end of shift), there must be no WTs on the curve.

Design:

- Belt distance $a = 135\text{mm}$
- Integrated common drive for both turntables and the attached belt sections in the infeed and outfeed section. Section load up to 24 kg
- Section load up to 30 kg if a second drive is used ($AE = 2$)
- Conveyor medium: turntable, suitable for use in an EPA
- Length of the belt sections is freely selectable, $l_{\text{max}} = 5000\text{ mm}$
- Curve direction right ($KR = R$) or left ($KR = L$)
- Motor mounting outside ($MA = A$)

Scope of delivery:

- Curve module complete with drive

Condition on delivery:

Partially assembled

Optional accessories:

- Accumulation stop gate, 4-18
- SZ 1 leg sets, 6-3

Utilisation :

Avec la courbe KU 1/360, un circuit de palettes porte-pièces fermé peut être réalisé à un prix particulièrement avantageux avec seulement un entraînement.
La KU 1/360 peut être exploitée sans commande compliquée en raison de sa capacité d'accumulation.
Elle convient également pour l'emploi dans des applications ESD.
Le fonctionnement en régime réversible n'est pas possible.
En cas d'arrêt d'exploitation (p. ex. à la fin d'une période de travail), aucune palette porte-pièces ne doit se trouver dans la courbe.

Construction :

- Largeur de bande $a = 135\text{ mm}$
- Entraînement commun intégré pour les deux plateaux tournants et pour les sections à bande montées
- Charge de section jusqu'à 24 kg
- Charge de section jusqu'à 30 kg avec l'utilisation d'un second entraînement ($AE = 2$)
- Convoyeur : plateau tournant, indiqué pour une utilisation en EPA
- Longueur des sections à bande au choix, $l_{\text{max}} = 5000\text{ mm}$
- Sens de la courbe à droite ($KR = R$) ou à gauche ($KR = L$)
- Montage extérieur du moteur ($MA = A$)

Fournitures :

Module de courbe complet avec entraînement

Etat à la livraison :

Partiellement monté

Accessoires en option :

- Séparateur d'accumulation, 4-18
- Supports de section SZ 1, 6-3

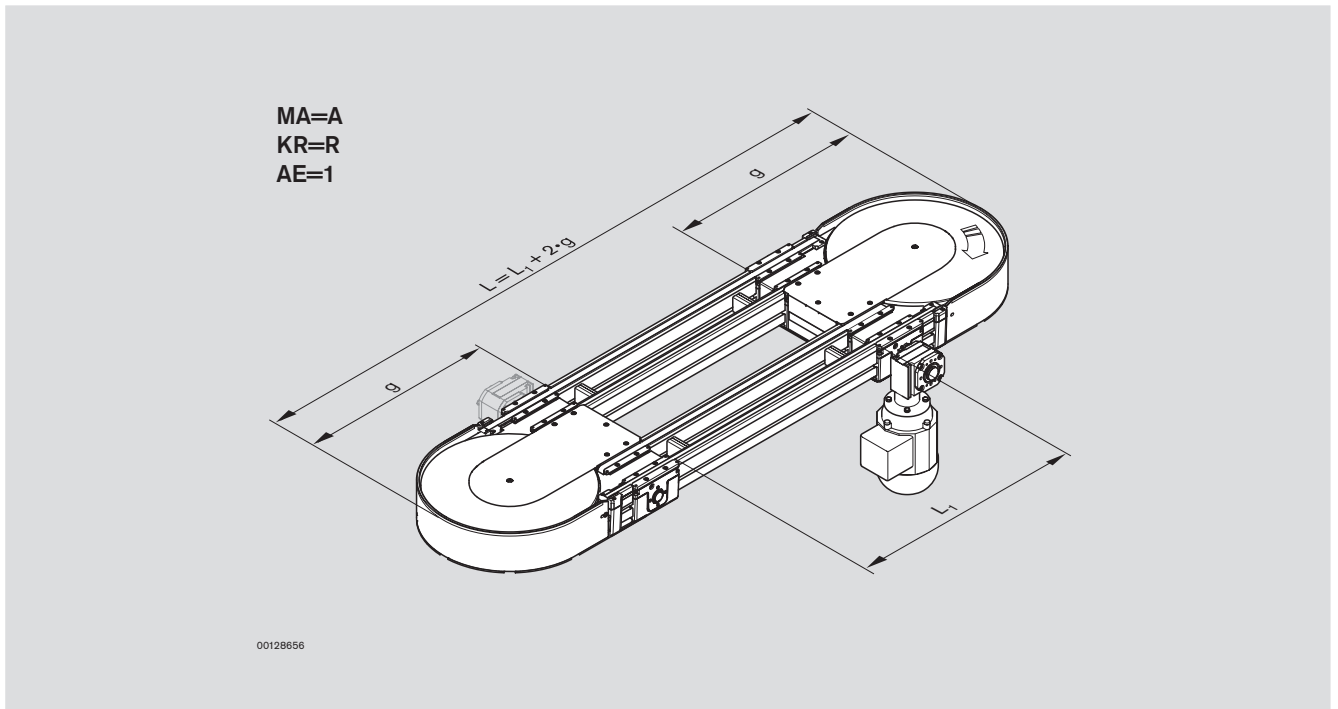


4-2



11-21

Kurven · Curves · Courbes



Kurve KU 1/360
Curve
Courbe

b ¹⁾ [mm]	AE ⁴⁾	L ₁ [mm]	v _N ²⁾ [m/min] ☞ 11-58ff	U,f ☞ 11-58ff	KR	MA ³⁾	Nr./No./N°
80	1; 2	150...5000	0; 6; 9; 12; 15; 18		L; R	A	3 842 999 988
120	1; 2	150...5000	0; 6; 9; 12; 15; 18		L; R	A	b = ... mm
160	1; 2	150...5000	0; 6; 9; 12; 15; 18		L; R	A	AE = ...
							L ₁ = ... mm
							v _N = ... m/min
							U = ... V
							f = ... Hz
							KR = ...
							MA = ...

■
¹⁾ b = Spurbreite in Transportrichtung
²⁾ v_N = Nenngeschwindigkeit
³⁾ Motoranbau A = außen
⁴⁾ AE = 1: 1 Antrieb; AE = 2: 2 Antriebe

■
¹⁾ b = Track width in direction of transport
²⁾ v_N = Nominal speed
³⁾ Motor mounting A = outside
⁴⁾ AE = 1: 1 drive; AE = 2: 2 drives

■
¹⁾ b = Ecartement de voie en direc. du transport
²⁾ v_N = Vitesse nominale
³⁾ Montage du moteur A = extérieur
⁴⁾ AE = 1 : 1 entraînement ;
 AE = 2 : 2 entraînements

Kurven · Curves · Courbes

Kurve KE 1/O-90

Curve

Courbe



Verwendung:

Kurve KE 1/O-90 ohne eigenen Antrieb zum 90°-Kurventransport eines Werkstückträgers.

Durch eine Vereinzelnung ist dafür zu sorgen, dass auf der Kurve und auf den Übertriebsriemen kein Stau entsteht. Reversierbetrieb ist nicht möglich.

Ausführung:

- Der Antrieb erfolgt von einer am Kurvenausgang angeschlossenen Bandstrecke BS 1/T oder der Umlenkung UM 1 einer Streckeneinheit.
- Der Einsatz zusätzlicher Antriebsbausätze verbessert den Transport der Werkstückträger WT 1/P am Anfang und Ende der Kurve.
- Fördermedium: Rundriemen, geeignet für den Einsatz in einer EPA
- Kurvenrichtung rechts (KR = R) oder links (KR = L)
- Der Anbauort AO beschreibt die Einbausituation am Kurveneinlauf bzw. -auslauf.


Lieferumfang:

- Kurve KE 1/O-90
- Befestigungsmaterial entsprechend dem Anbauort AO

Lieferzustand:

Teilmontiert

Zubehör, optional:

- Zusätzliche Antriebsbausätze,  4-13 (empfohlen bei WT 1/... $b \geq 120$ mm bei extremer Schwerpunktage)

Application:

The KE 1/O-90 curve without own drive is for 90° curve conveying of a workpiece pallet.

A stop gate must be used to ensure that no accumulation occurs on the curve and on the transmission belt. Reversible operation is not possible.

Design:

- System driven by a BS 1/T belt section or a UM 1 return unit of a conveyor unit connected to the curve exit.
- The use of additional drive kits improves WT 1/P workpiece pallet conveying at the beginning and end of the curve.
- Conveyor medium: rounded belt, suitable for use in an EPA
- Curve direction right (KR = R) or left (KR = L)
- The installation location (AO) describes the mounting situation at the curve entrance or exit.


Scope of delivery:

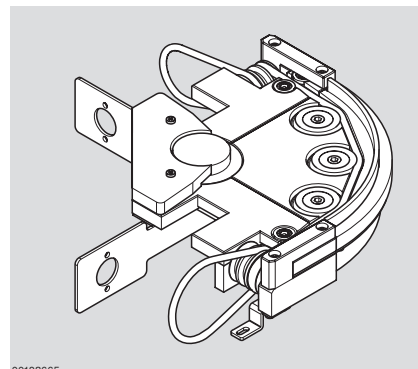
- KE 1/O-90 curve
- Mounting material corresponding to the installation location (AO)

Condition on delivery:

Partially assembled

Optional accessories:

- Additional drive kits,  4-13 (recommended when WT 1/... $b \geq 120$ mm with extreme center of gravity)



00128665

Utilisation :

Courbe KE 1/O-90 sans entraînement propre pour le transport à courbe à 90° d'une palette porte-pièces.

Un séparateur permettra d'éviter des accumulations de pièces dans la courbe et dans les courroies de transmission. Le fonctionnement en régime réversible n'est pas possible.

Construction :

- L'entraînement se fait par une section à bande BS 1/T attenant à la sortie de la courbe ou par le renvoi UM 1 d'une unité de section.
- L'utilisation de kits d'entraînement supplémentaires améliore le transport des palettes porte-pièces WT 1/P à l'entrée et à la sortie de la courbe.
- Convoyeur : courroie ronde, indiquée pour une utilisation en EPA
- Sens de la courbe à droite (KR = R) ou à gauche (KR = L)
- L'emplacement d'installation AO décrit la situation de montage à l'entrée ou à la sortie de la courbe.


Fournitures :

- Courbe KE 1/O-90
- Matériel de fixation correspondant à l'emplacement d'installation AO

Etat à la livraison :

Partiellement monté

Accessoires en option :

- Kits d'entraînement supplémentaires,  4-13 (recommandés pour WT 1/... $b \geq 120$ mm en cas de centre de gravité extrême)

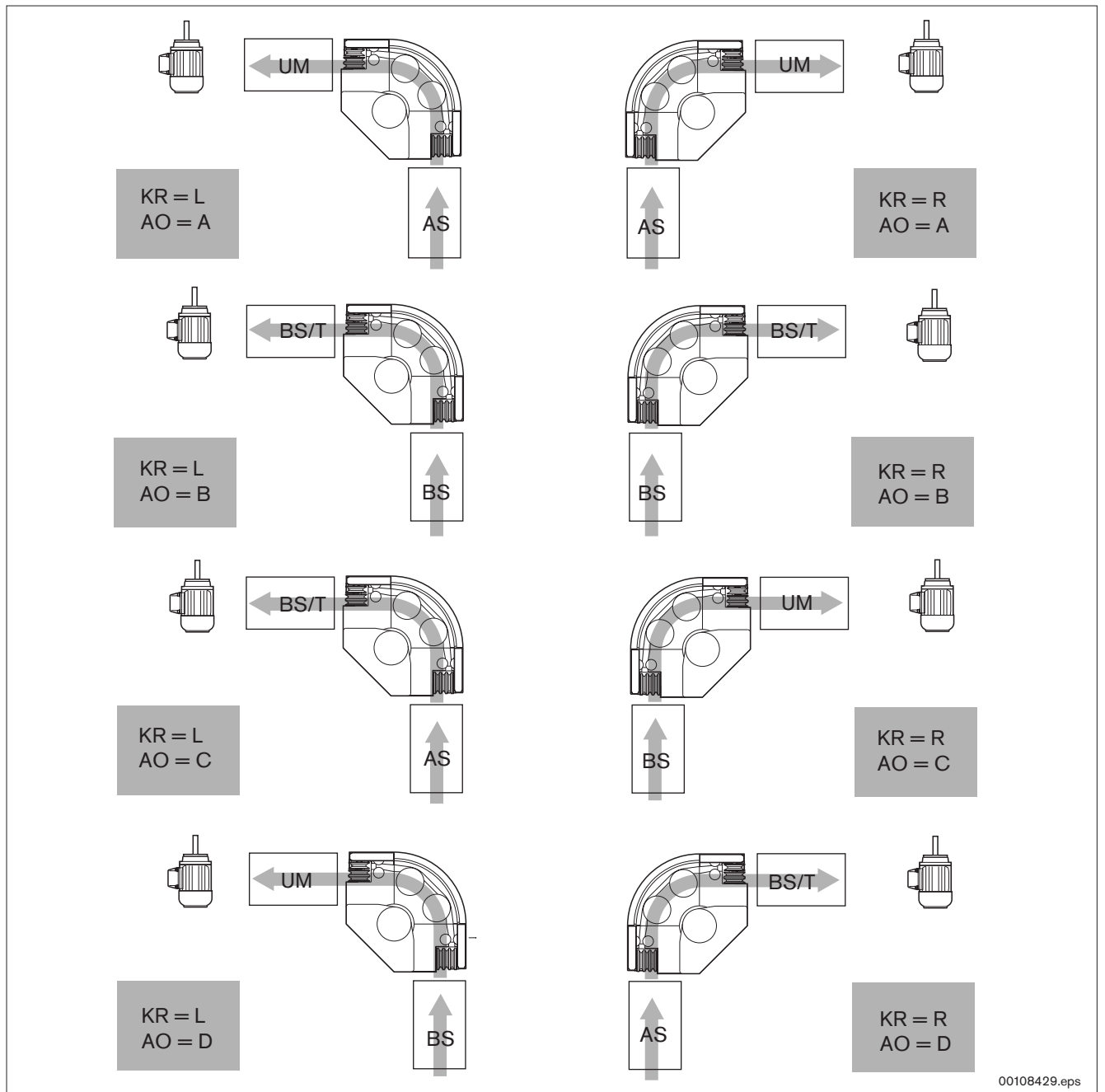


 4-2



 11-22

Kurven · Curves · Courbes



4

Antriebsbausatz für WT 1/... $b \geq 120$ mm
 Drive kit for WT 1/... $b \geq 120$ mm
 Kit d'entraînement pour WT 1/... $b \geq 120$ mm



Kurve KE 1/O-90
 Curve
 Courbe

Nr./No./N°		b [mm]	KR	AO	Nr./No./N°
AS 1-KE 1/O	3 842 537 618	80	L: R	A; B; C; D	3 842 999 764
UM 1-KE 1/O		120	L: R	A; B; C; D	b = ... mm
BS 1-KE 1/O	3 842 537 619	160	L: R	A; B; C; D	KR = ... mm
					AO = ... mm

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Kurven · Curves · Courbes

Kurve KE 1/O-180

Curve Courbe



Verwendung:

Kurve KE 1/O-180 ohne eigenen Antrieb zum 180°-Kurventransport eines Werkstückträgers.

Durch eine Vereinzelnung ist dafür zu sorgen, dass auf der Kurve und auf den Übertriebsriemen kein Stau entsteht. Reversierbetrieb ist nicht möglich.

Ausführung:

- Für Bandabstände $a = 60$ mm oder $a = 135$ mm erhältlich
- Der Antrieb erfolgt von einer am Kurvenausgang angeschlossenen Bandstrecke BS 1/T oder der Umlenkung UM 1 einer Streckeneinheit.
- Der Einsatz zusätzlicher Antriebsbausätze verbessert den Transport der Werkstückträger WT 1/P am Anfang und Ende der Kurve.
- Fördermedium: Rundriemen, geeignet für den Einsatz in einer EPA
- Kurvenrichtung rechts (KR = R) oder links (KR = L)
- Der Anbauort AO beschreibt die Einbausituation am Kurveneinlauf bzw. -auslauf.

Lieferumfang:

- Kurve KE 1/O-180
- Befestigungsmaterial entsprechend dem Anbauort AO

Lieferzustand:

Komplett montiert mit allen zum Antrieb durch BS 1/T oder UM 1 notwendigen Teilen.

Zubehör, optional:

- Zusätzliche Antriebsbausätze, ☞ 4-15 (empfohlen bei WT 1/... $b \geq 120$ mm bei extremer Schwerpunktlage)

Application:

The KE 1/O-180 curve without own drive is for 180° curve conveying of a workpiece pallet.

A stop gate must be used to ensure that no accumulation occurs on the curve and on the transmission belt. Reversible operation is not possible.

Design:

- Available for belt distances $a = 60$ mm or $a = 135$ mm
- System driven by a BS 1/T belt section or a UM 1 return unit of a conveyor unit connected to the curve exit.
- The use of additional drive kits improves WT 1/P workpiece pallet conveying at the beginning and end of the curve.
- Conveyor medium: rounded belt, suitable for use in an EPA
- Curve direction right (KR = R) or left (KR = L)
- The installation location (AO) describes the mounting situation at the curve entrance or exit.

Scope of delivery:

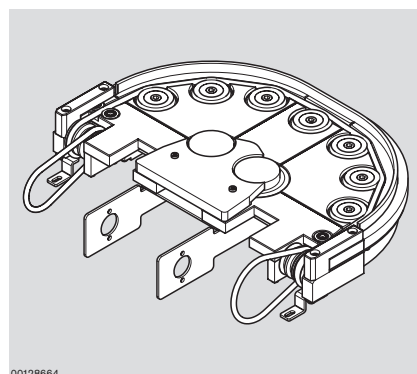
- KE 1/O-180 curve
- Mounting material corresponding to the installation location (AO)

Condition on delivery:

Fully assembled with all parts required for driving by BS 1/T or UM 1

Optional accessories:

- Additional drive kits, ☞ 4-15 (recommended when WT 1/... $b \geq 120$ mm with extreme center of gravity)



00128664

Utilisation :

Courbe KE 1/O-180 sans entraînement propre pour le transport à courbe à 180° d'une palette porte-pièces.

Un séparateur permettra d'éviter des accumulations de pièces dans la courbe et dans les courroies de transmission. Le fonctionnement en régime réversible n'est pas possible.

Construction :

- Disponible pour les largeurs de bande $a = 60$ mm ou $a = 135$ mm
- L'entraînement se fait par une section à bande BS 1/T attenante à la sortie de la courbe ou par le renvoi UM 1 d'une unité de section.
- L'utilisation de kits d'entraînement supplémentaires améliore le transport des palettes porte-pièces WT 1/P à l'entrée et à la sortie de la courbe.
- Convoyeur : courroie ronde, indiquée pour une utilisation en EPA
- Sens de la courbe à droite (KR = R) ou à gauche (KR = L)
- L'emplacement d'installation AO décrit la situation de montage à l'entrée ou à la sortie de la courbe.

Fournitures :

- Courbe KE 1/O-80
- Matériel de fixation correspondant à l'emplacement d'installation AO

Etat à la livraison :

Comprend toutes les pièces nécessaires à l'entraînement par BS 1/T ou UM 1, entièrement monté

Accessoires en option :

- Kits d'entraînement supplémentaires, ☞ 4-15 (recommandés pour WT 1/... $b \geq 120$ mm en cas de centre de gravité extrême)

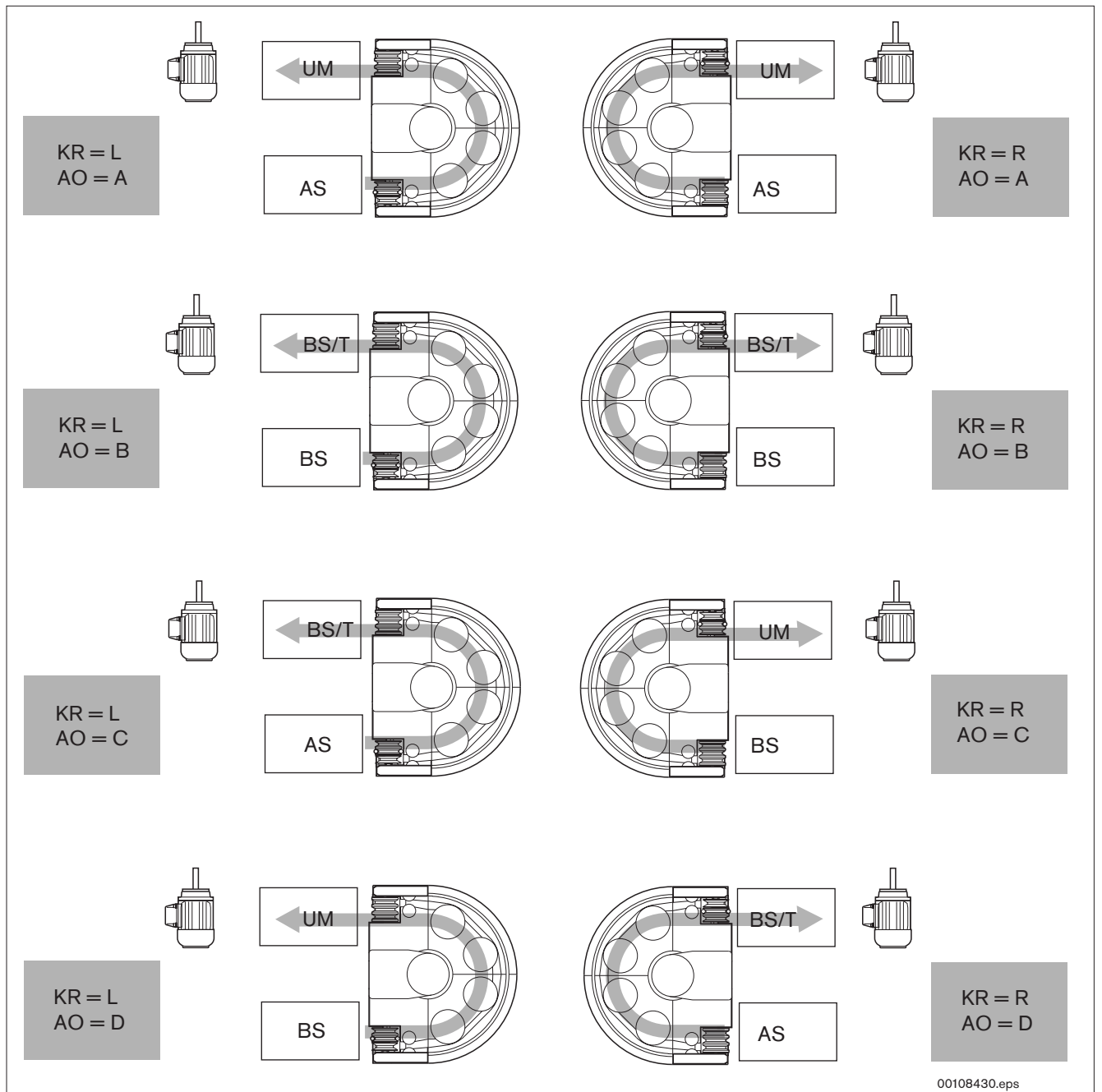


☞ 4-2



☞ 11-23

Kurven · Curves · Courbes



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Antriebsbausatz für WT 1/... b ≥ 120 mm
 Drive kit for WT 1/... b ≥ 120 mm
 Kit d'entraînement pour WT 1/... b ≥ 120 mm



Kurve KE 1/O-180
 Curve
 Courbe

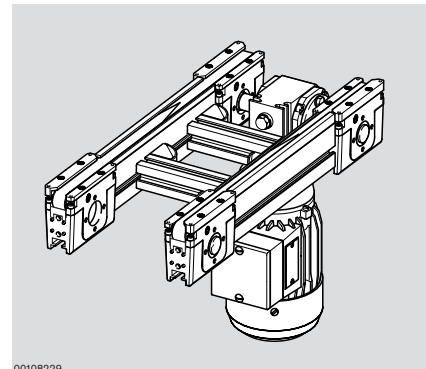
	Nr./No./N°	b [mm]	KR	AO	a [mm]	Nr./No./N°
AS 1-KE 1/O	3 842 537 618	80	L: R	A; B; C; D	60; 135	3 842 999 765
UM 1-KE 1/O		120	L: R	A; B; C; D	60; 135	b = ... mm
BS 1-KE 1/O	3 842 537 619	160	L: R	A; B; C; D	60; 135	KR = ... mm
						AO = ... mm
						a = ... mm

Kurven · Curves · Courbes

Bandstrecke BS 1/T

Belt section

Section à bande



00108229

Verwendung:

- Längstransport des Werkstückträgers mit segmentierten Förderstrecken bis 5000 mm.
- Antrieb von Kurven KE 1/O-90 oder KE 1/O-180 von der Umlenkungsseite aus möglich.

Ausführung:

- Funktionsbereite Förderstrecke mit eigenem Antrieb. Motoranbau rechts (MA = R), links (MA = L), bei Spurbreite $b = 160$ mm auch mittig (MA = M).
- Streckenlasten bis 30 kg im Staubetrieb
- Fördermedium: Zahnriemen mit Gewebeauflage, geeignet für den Einsatz in einer EPA
- An der Umlenkung kann über einen Anbausatz eine Kurve KE 1/O-90 oder KE 1/O-180 angetrieben werden (Anbausatz im Lieferumfang der KE 1/O enthalten).
- Je nach Länge wird die BS 1/T mit zwei, drei oder vier Querverbindern ausgeliefert, 11-13.
- Motoranschluss wahlweise mit Kabel/Stecker (AT = S) oder Klemmenkasten (AT = K)

Lieferzustand:

Montiert; Motor lose beigelegt

Zubehör optional:

- Verbindungssatz, 4-18
- Streckenstütze SZ 1, 6-3

Application:

- Longitudinal conveying of the workpiece pallet with segmented conveyor sections up to 5000 mm.
- Driving the curves KE 1/O-90 or KE 1/O-180 from the return unit side is possible.

Design:

- Ready for operation conveyor section with own drive. Motor mounting right (MA = R) or left (MA = L), for track width $b = 160$ mm also in the middle (MA = M).
- Section loads up to 30 kg in accumulation operation
- Conveyor medium: toothed belt with a woven surface, suitable for use in an EPA
- At the return unit, a KE 1/O-90 or KE 1/O-180 curve can be driven via an attachment kit (attachment kit included in the scope of delivery for the KE 1/O).
- Depending on the length, the BS 1/T is delivered with two, three, or four cross connectors, 11-13
- Motor connection with either cable/plug (AT = S) or terminal box (AT = K)

Condition on delivery:

Assembled, motor included separately

Optional accessories:

- Connection kit, 4-18
- SZ 1 leg set, 6-3

Utilisation :

- Transport longitudinal de la palette porte-pièces avec des sections de transport segmentées jusqu'à 5000 mm.
- Entraînement de courbes KE 1/O-90 ou KE 1/O-180 à partir du côté renvoi possible.

Construction :

- Section de transport prête à fonctionner, avec entraînement propre. Montage du moteur à droite (MA = R), à gauche (MA = L) et, pour un écartement de voie $b = 160$ mm, également au centre (MA = M).
- Charge de section jusqu'à 30 kg en régime d'accumulation
- Convoyeur : courroie dentée à revêtement de toile, indiquée pour une utilisation en EPA
- Une courbe KE 1/O-90 ou KE 1/O-180 peut être entraînée au renvoi par l'intermédiaire d'un kit de montage (kit de montage compris dans la fourniture de la courbe KE 1/O).
- Selon la longueur, la BS 1/T peut être livrée avec deux, trois ou quatre liaisons transversales, 11-13.
- Raccordement du moteur au choix par câble / fiche (AT = S) ou par borne de connexion (AT = K)

Etat à la livraison :

Montée ; moteur fourni non monté

Accessoires en option :

- Jeu de jonction, 4-18
- Support de section SZ 1, 6-3

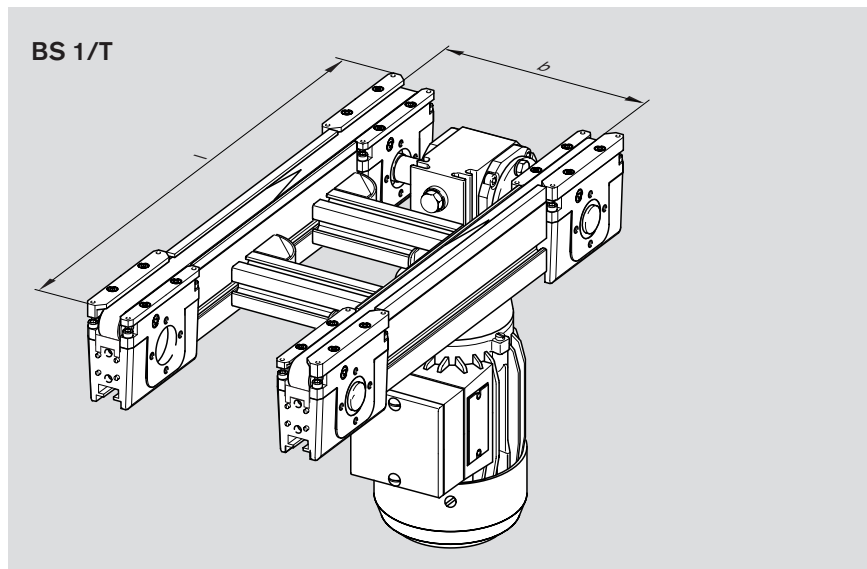


3-2

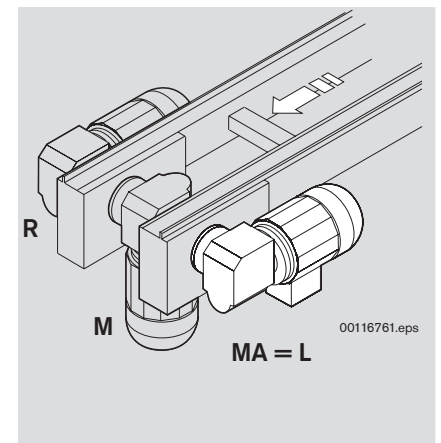


11-13

Kurven · Curves · Courbes



MA = Motoranordnung
MA = Motor layout
MA = Disposition du moteur



Bandstrecke BS 1/T
Belt section
Section à bande

b ¹⁾ [mm]	l ²⁾ [mm]	v _N ³⁾ [m/min] ☞ 11-58ff	U, f ☞ 11-58ff	AT	MA	Nr./No./N°
80	320-5000	0; 6; 9; 12; 15; 18		S; K	R; L	3 842 999 899
120	320-5000	0; 6; 9; 12; 15; 18		S; K	R; L	b = ... mm
160	320-5000	0; 6; 9; 12; 15; 18		S; K	R; L; M	l = ... mm ⁴⁾
80-720	320-5000	0; 6; 9; 12; 15; 18		S; K	R; L; M	v _N = ... m/min
						U = ... V
						f = ... Hz
						AT = ...
						MA = ...

1) b = Spurbreite in Transportrichtung

2) l = Länge

3) v_N = Nenngeschwindigkeit;
v_N = 0: ohne Motor und ohne Getriebe

4) Wird entsprechend der Zahnriementeilung abgerundet

Sonderausführungen auf Anfrage

1) b = Track width in direction of transport

2) l = Length

3) v_N = Nominal transportation speed;
v_N = 0: without motor or gear

4) l is rounded in accordance with the toothed belt pitch

Special models on request

1) b = Ecartement de voie en direction du transport

2) l = Longueur

3) v_N = Vitesse nominale
v_N = 0 : sans moteur et sans engrenage

4) Arrondi en fonction du partage de la courroie dentée

Versions spéciales sur demande

Kurven · Curves · Courbes

Verbindungssatz KU 1, Staudruckregulierung

Connection kit, accumulation stop gate

Kit de liaison, séparateur d'accumulation

Verbindungssatz Connection kit Kit de liaison

Verwendung:

Mittels Verbindungssatz werden Module des TS1 stirnseitig miteinander verbunden.

Lieferumfang:

– Inklusive Schrauben

Application:

The connection kit joins TS 1 modules end-to-end.

Scope of delivery:

– Includes screws

Utilisation :

Le kit de liaison sert à relier des modules TS 1 bout à bout.

Fournitures :

– Vis incluses

Verbindungssatz
Connection kit
Kit de liaison

	Nr./No./N°
KU 1/... - AS 1 (UM 1)	
BS 1/... - AS 1 (UM 1)	3 842 528 855
KU 1/... - BS 1/...	
BS 1/... - BS 1/...	3 842 530 095

Installationshinweis Kurven KU 1/... (Staudruckregulierung)

Installation note for curves KU 1/... (accumulation stop gate)

Conseil d'installation pour courbes KU 1/... (séparateur d'accumulation)

Die Kurven KU1 /... können im Stau betrieben werden. Der auftretende Staudruck wird dabei zuverlässig von der Außenführung der Kurve KU 1/... aufgenommen.

Im gemischten Betrieb mit beladenen und leeren Werkstückträgern kann das zusätzliche Auflaufen schwerer Werkstückträger auf das Stauende jedoch zu einem Ausheben leichter (leerer) Werkstückträger im Stau im Kurvenbereich führen. Mit einer Staudruckregulierung kann der Stau im Kurvenbereich entlastet werden.

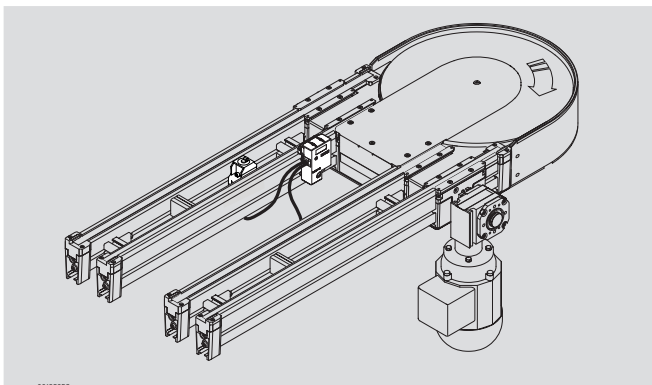
Mit der Wippe WI/M (☞ 8-11), einem pneumatischen Zylinderschalter und einem Vereinzeler lässt sich eine einfache, selbststeuernde Staudruckregulierung rein pneumatisch betreiben

The curves KU 1 /... can be operated in accumulation mode. The outer guide of the curve KU 1 /... is used to reliably control the accumulation pressure. In mixed operation with loaded and empty workpiece pallets, adding heavier workpiece pallets to the end of the accumulation section could cause lighter (empty) workpiece pallets to lift in the curves during accumulation. An accumulation stop gate can be used to reduce the accumulation pressure in curves.

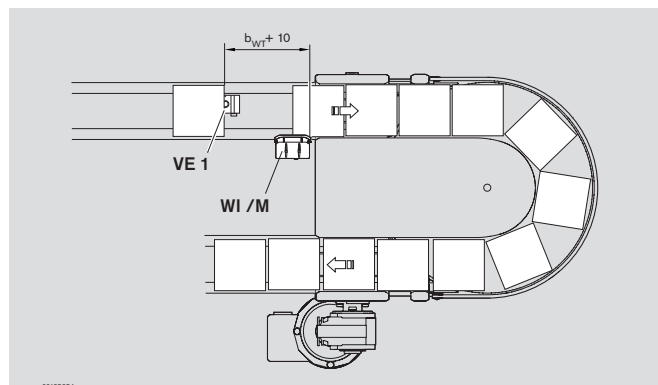
A simple, automatic accumulation stop gate can be pneumatically operated using the rocker WI/M (☞ 8-11), a pneumatic cylinder switch and a stop gate.

Les courbes KU 1 /... peuvent être exploitées en accumulation. La charge d'accumulation intervenante est alors absorbée par le guidage extérieur de la courbe KU 1 /... En service mixté avec des palettes porte-pièces chargés et vides, la montée supplémentaire de lourdes palettes porte-pièces sur le fin de l'accumulation peut toutefois provoquer le soulèvement de palettes porte-pièces légères (vides) dans l'accumulation dans la zone de courbe. Grâce à un séparateur d'accumulation, l'accumulation dans la zone de courbe peut être soulagée.

Avec la bascule WI/M (☞ 8-11), un détecteur de position pneumatique et un séparateur, un simple séparateur d'accumulation automatique peut être exploité exclusivement pneumatiquement.



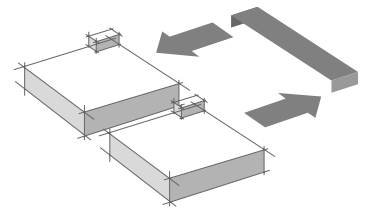
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00128654

Quertransport · Transverse conveyor · Transport transversal

Quertransport Transverse conveyor Transport transversal



Einsatz von Quertransporten
Use of transverse conveyors
Utilisation des transports transversaux



 5-2



Quertransport · Transverse conveyor · Transport transversal

Quertransport

Transverse conveyor

Transport transversal

Quertransporte werden zur 90°-Änderung der Transportrichtung oder zum Umsetzen in parallele Transferlinien eingesetzt. Die mit dem robusten, verschleißarmen und zuverlässigen Transportmedium Zahnriemen ausgerüsteten Quertransporte werden durchgehend ESD-tauglich geliefert. Ein gegenüber dem Längstransport um 4,4 mm angehobenes Höhenniveau ermöglicht es ohne Anpassungsaufwand auch nachträglich, Quertransporte an jeder beliebigen Stelle des Längstransportes einzusetzen. Ein Ausschnitt des Führungsprofils ist nicht erforderlich. Sie können in einfachen Umlaufsystemen (Karree  1-4) zur Transportrichtungsänderung anstelle von Kurven eingesetzt werden. In komplexen Umlaufsystemen dienen sie zur Verzweigung der Werkstückträgerwege zu den einzelnen Bearbeitungsstationen (Nebenschluss  1-5).



Eine Vereinzlung der Werkstückträger ist für den Quertransport erforderlich. (Vereinzler  8-2 ff, Funktionspläne für die Steuerung  11-50)



Komplettlösungen

Für den Einsatz unter beengten Platzverhältnissen (Streckenabstand $a = 60 \text{ mm}$ und $a = 135 \text{ mm}$) eignet sich der EQ 1/TR, für Streckenabstände über 320 mm eignet sich der EQ 1/T oder der EQ 1/TE mit integrierter Bandstrecke.

Module

Für individuelle Anforderungen steht die Hub-Quereinheit mit eigenem Antrieb HQ 1/U zur Verfügung, die auch in Verbindung mit Streckeneinheiten eingesetzt werden kann.

Transverse conveyors are used for 90° changes of the transport direction or for outfeeding to parallel transfer lines. The transverse conveyors are equipped with robust, low-wear and reliable toothed belts and are delivered in complete ESD features. As the transverse conveyor is 4.4 mm higher than the longitudinal conveyor, transverse conveyors can be mounted anywhere on the longitudinal conveyor at a later stage, without any alterations needed. Cutting the guide profile is not necessary. They can replace the use of curves in simple circuits (rectangular circuits  1-4) for changing the transport direction. In complex circuits, they serve to branch off the workpiece pallet routes to the individual workstations (shunt system  1-5).



A workpiece pallet stop gate is required for the transverse conveyor. (stop gate  8-2 et seq., circuit diagrams for the control  11-50)



Complete solutions

For operation where there is limited space available (section distances $a = 60 \text{ mm}$ and $a = 135 \text{ mm}$), the EQ 1/TR is suitable. The EQ 1/T or the EQ 1/TE with integrated belt section is suitable for section distances over 320 mm.

Modules

The HQ 1/U lift transverse unit with integrated drive, that can be used in combination with belt sections, is available for individual requirements.

Les transports transversaux sont implantés pour un changement de 90° de la direction de transport ou pour le changement dans des lignes de transfert parallèles. Les transports transversaux équipés du convoyeur robuste, d'usure faible et fiable que sont les courroies dentées, sont livrés conductibles ESD en continu. Un niveau de hauteur élevé par rapport au transport longitudinal de 4,4 mm permet d'implanter sans investissement d'ajustement, également ultérieurement, des transports transversaux à n'importe quel endroit du transport longitudinal. Une découpe du profilé de guidage n'est pas nécessaire. Sur des circuits simples (construction en carré  1-4), ils peuvent être utilisés à la place de courbes pour changer la direction du transport. Sur des circuits complexes, ils servent à ramifier le parcours des palettes porte-pièces vers les différents postes de travail (circuit dérivé  1-5).

Le transport transversal nécessite une séparation des palettes porte-pièces. (Séparateur  8-2 et suivantes, schémas de fonctionnement pour la commande  11-50)

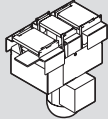
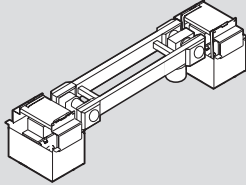
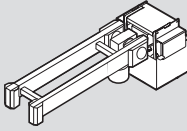
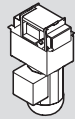
Solutions complètes

L'EQ 1/TR est conçu pour un fonctionnement dans un espace restreint (distance des sections $a = 60 \text{ mm}$ et $a = 135 \text{ mm}$). Le EQ 1/T ou le EQ 1/TE avec section à bande intégrée sont conçus pour des distances de sections supérieures à 320 mm.

Modules

L'unité de levée transversale avec entraînement propre HQ 1/U, qui peut être utilisée en combinaison avec des unités de sections, permet de résoudre les cas particuliers.

Quertransport · Transverse conveyor · Transport transversal

<p>Elektrischer Quertransport EQ 1/TR Electrical transverse conveyor Transport transversal électrique</p>		<p>☞ 5-4</p>
<p>Elektrischer Quertransport EQ 1/T Electrical transverse conveyor Transport transversal électrique</p>		<p>☞ 5-6</p>
<p>Elektrischer Quertransport EQ 1/TE Electrical transverse conveyor Transport transversal électrique</p>		<p>☞ 5-8</p>
<p>Hub-Quereinheit HQ 1/U Lift transverse conveyor Unité de levée transversale</p>		<p>☞ 5-10</p>

Ein Reversierbetrieb ist bei allen Ausführungen möglich. Staubetrieb auf den Hub-/Quereinheiten ist nicht zulässig. Hub-/Quereinheiten besitzen 3 Stellungen:
untere Stellung: WTs auf der Längsstrecke werden durchgelassen
mittlere Stellung: WTs werden auf der Längsstrecke angehalten
obere Stellung: WTs werden über die Seitenführung der Längsstrecke angehoben und auf die Querstrecke transportiert.

Reversible operation is permissible with all models. Accumulation operation on the lift transverse units is not permitted. Lift transverse units have 3 settings:
Lower position: WTs are fed through on the longitudinal section.
Middle position: WTs are stopped on the longitudinal section.
Upper position: WTs are lifted over the lateral guide on the longitudinal section and conveyed to the transverse section.

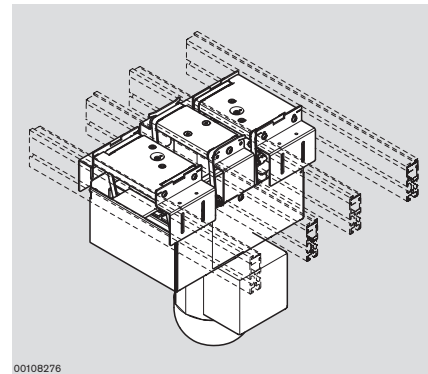
Fonctionnement en régime réversible possible pour tous les modèles. Le fonctionnement en accumulation sur les unités de levée transversale n'est pas possible. Les unités de levée transversale possèdent 3 positions :
Position inférieure : les palettes porte-pièces sur la section longitudinale peuvent passer
Position centrale : les palettes porte-pièces sur la section longitudinale sont stoppées
Position supérieure : les palettes porte-pièces sont soulevées à l'aide du guidage latéral de la section longitudinale et transportées sur la section transversale.

Quertransport · Transverse conveyor · Transport transversal

Elektrischer Quertransport EQ 1/TR

Electrical transverse conveyor

Transport transversal électrique



00108276

Verwendung:

Der elektrische Quertransport EQ 1/TR wird zur Verbindung von zwei parallel laufenden Längsstrecken mit kleinem Streckenabstand a eingesetzt. Er eignet sich auch für den Einsatz bei ESD-Anwendungen. Staubbetrieb ist nicht zulässig.

Ausführung:

- Für Bandabstände $a = 60$ mm oder $a = 135$ mm erhältlich
- Hubzylinder – $D = 25$ mm
- Gesamthub: 13 mm
- Fördermedium: Zahnriemen mit Gewebeauflage, geeignet für den Einsatz in einer EPA
- Pneumatikausrüstung für 2 (oben, Mitte) oder 3 (oben, Mitte, unten) Hubstellungen
- Motoranschluss wahlweise mit Kabel/Stecker (AT = S) oder Klemmenkasten (AT = K)

Lieferumfang:

- EQ 1/TR, komplett montiert
- Schutzkasten
- Befestigungsmaterial zum Einbau zwischen zwei Strecken ST 1

Zubehör, erforderlich:

- Zwei Drosselrückschlagventile M5 zur Zuluftdrosselung
- Anschlagleiste, ☞ 5-13

Zubehör, optional:

- Je nach Einbausituation (☞ 5-2) ist weiteres Zubehör für die Transportsteuerung erforderlich:
- Dämpfer DA 1, ☞ 8-6
- Schalterhalter, ☞ 8-8
- Vereinzeler, ☞ 8-2

Application :

The EQ 1/TR electrical transverse conveyor is used to connect two parallel longitudinal sections which have a small section distance a . Also suitable for use in ESD applications. Accumulation operation is not permitted.

Design:

- Available for belt distances $a = 60$ mm or $a = 135$ mm
- Lifting cylinder – $D = 25$ mm
- Total stroke: 13 mm
- Conveyor medium: toothed belt with a woven surface, suitable for use in an EPA
- Pneumatic equipment for two (top, center) or three (top, center, bottom) lift positions
- Motor connection with either cable/plug (AT = S) or terminal box (AT = K)

Scope of delivery:

- EQ 1/TR, fully assembled
- Housing element
- Mounting material for installation between two ST 1 sections

Required accessories:

- Two throttle non-return valves M5 for inlet throttling
- Stop rail, ☞ 5-13

Optional accessories:

- Depending on the mounting situation (☞ 5-2), additional accessories may be required for transportation control:
- DA 1 damper, ☞ 8-6
- Switch bracket, ☞ 8-8
- Stop gate, ☞ 8-2

Utilisation :

Le transport transversal électrique EQ 1/TR sert de jonction entre deux sections longitudinales parallèles de faible distance des sections a . Il convient également pour l'utilisation dans des applications ESD. Fonctionnement en accumulation non autorisé.

Construction :

- Disponible pour des largeurs de bande $a = 60$ mm ou $a = 135$ mm
- Vérin de levée – $D = 25$ mm
- Course totale : 13 mm
- Convoyeur : courroie dentée à revêtement de toile, indiquée pour une utilisation en EPA
- Équipement pneumatique pour 2 (haut, milieu) ou 3 (haut, milieu, bas) positions de levage
- Raccordement du moteur au choix par câble / fiche (AT = S) ou par borne de connexion (AT = K)

Fournitures :

- EQ 1/TR, complètement monté
- Carter
- Matériel de fixation pour le montage entre deux sections ST 1

Accessoires nécessaires :

- Deux limiteurs de débit unidirectionnels vissables M5 pour l'obturation de l'alimentation
- Barre de butée, ☞ 5-13

Accessoires en option :

- Selon les conditions de montage (☞ 5-2), d'autres accessoires sont nécessaires pour la commande de transport :
- Amortisseur DA 1, ☞ 8-6
- Support d'interrupteur, ☞ 8-8
- Séparateur, ☞ 8-2

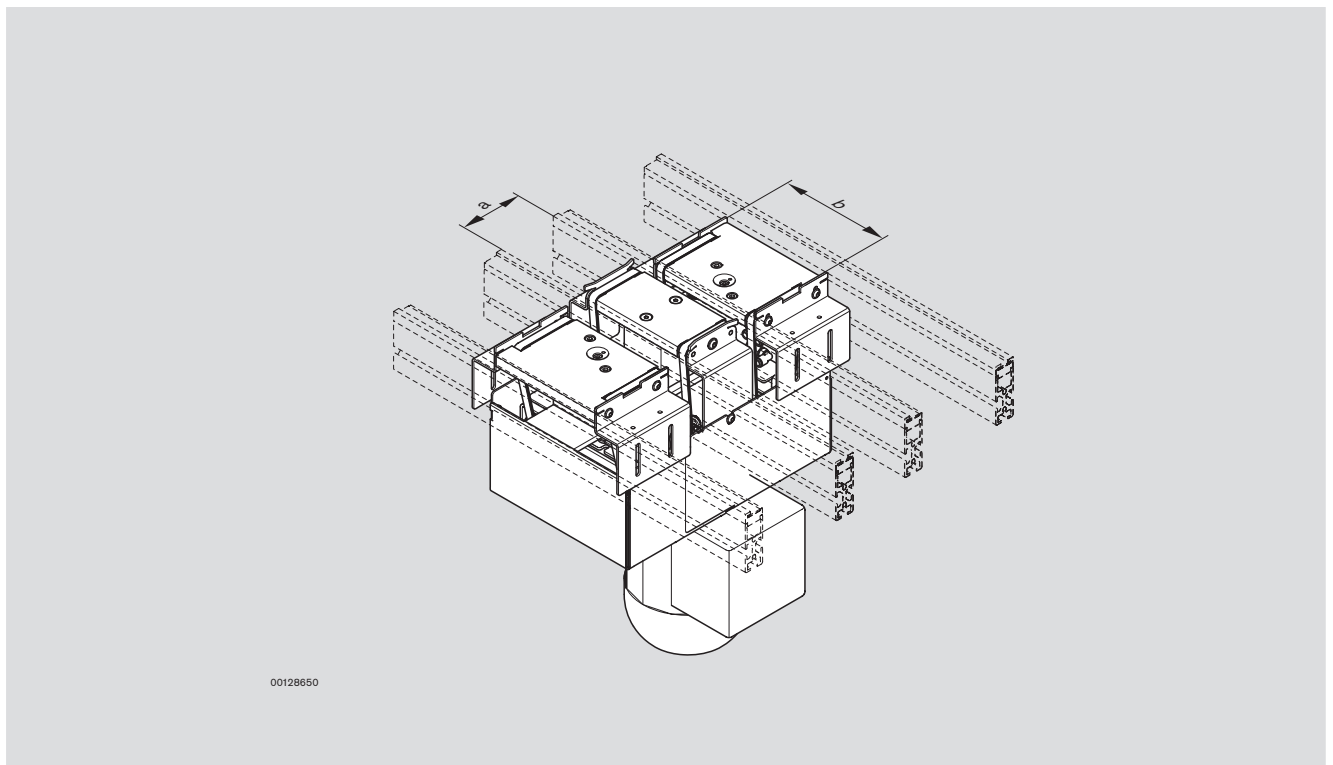


☞ 5-2



☞ 11-24

Quertransport · Transverse conveyor · Transport transversal



Elektrischer Quertransport EQ 1/TR
Electrical transverse conveyor
Transport transversal électrique

b ¹⁾ [mm]	a ²⁾ [mm]	v_N ³⁾ [m/min] ☞ 11-58ff	U, f ☞ 11-58ff	AT	PN	Nr./No./N°
80	60; 135	0; 6; 9; 12; 15; 18		S; K	2 ⁴⁾ ; 3 ⁵⁾	3 842 998 012
120	60; 135	0; 6; 9; 12; 15; 18		S; K	2 ⁴⁾ ; 3 ⁵⁾	b = ... mm
160	60; 135	0; 6; 9; 12; 15; 18		S; K	2 ⁴⁾ ; 3 ⁵⁾	a = ... mm
						v _N = ... m/min
						U = ... V
						f = ... Hz
						AT = ...
						PN = ...

1) **b** = Spurbreite

2) **a** = Streckenabstand

3) **v_N** = Nenngeschwindigkeit

4) **PN** = 2 Pneumatikausrüstung für obere und mittlere Hubstellung

5) **PN** = 3 Pneumatikausrüstung für obere, mittlere und untere Hubstellung
Sonderausführungen auf Anfrage

1) **b** = Track width

2) **a** = Distance between conveyors

3) **v_N** = Nominal speed

4) **PN** = 2 Pneumatic equipment for upper and mid lift position

5) **PN** = 3 Pneumatic equipment for upper, mid and lower lift position
Special models on request

1) **b** = Ecartement de voie

2) **a** = Distance des sections

3) **v_N** = Vitesse nominale

4) **PN** = 2 Équipement pneumatique pour position de levage supérieure et centrale

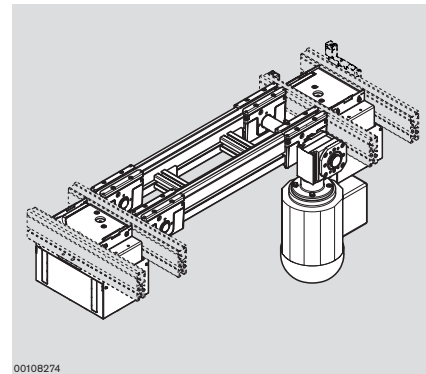
5) **PN** = 3 Équipement pneumatique pour position de levage supérieure, centrale et inférieure
Versions spéciales sur demande

Quertransport · Transverse conveyor · Transport transversal

Elektrischer Quertransport EQ 1/T

Electrical transverse conveyor

Transport transversal électrique



00108274

Verwendung:

Der elektrische Quertransport EQ 1/T wird zur Verbindung von zwei parallel laufenden Längsstrecken mit einem Streckenabstand $a > 320$ mm eingesetzt. Die Bandstrecke sowie die beiden Hub-Quereinheiten werden von einem gemeinsamen Motor angetrieben. Er eignet sich auch für den Einsatz bei ESD-Anwendungen. Staubetrieb auf der Bandstrecke und Reversierbetrieb sind zulässig.

Ausführung:

- Streckenlast bis 30 kg
- Hubzylinder – D = 25 mm
- Gesamthub: 13 mm
- Motoranbau rechts (MA = R) oder links (MA = L), bei $b = 160$ mm auch mittig (MA = M)
- Fördermedium: Zahnriemen mit Gewebeauflage, geeignet für den Einsatz in einer EPA
- Pneumatikausrüstung für 2 (oben, Mitte) oder 3 (oben, Mitte, unten) Hubstellungen
- Motoranschluss wahlweise mit Kabel/Stecker (AT = S) oder Klemmenkasten (AT = K)

Lieferumfang:

- Zwei Hub-Quereinheiten, komplett montiert
- Bandstrecke BS 1/T
- Zwei Schutzkästen
- Zwei Anbausätze für den Antrieb der Hub-Quereinheiten
- Befestigungsmaterial zum Einbau zwischen zwei Strecken ST 1

Zubehör, erforderlich:

- Zwei Drosselrückschlagventile M5 zur Zuluftdrosselung
- Anschlagleiste, ☞ 5-13

Zubehör, optional:

- Je nach Einbausituation (☞ 5-2) ist weiteres Zubehör für die Transportsteuerung erforderlich:
- Dämpfer DA 1, ☞ 8-6
- Schalterhalter, ☞ 8-8
- Vereinzeler, ☞ 8-2

Application:

The EQ 1/T electrical transverse conveyor is used to connect two parallel longitudinal sections which have a section distance $a > 320$ mm. The belt section and both lift transverse units are driven by a common motor. Also suitable for use in ESD applications. Accumulation operation on the belt section and reversible operation are permitted.

Design:

- Section load up to 30 kg
- Lifting cylinder – D = 25 mm
- Total stroke: 13 mm
- Motor mounting right (MA = R) or left (MA = L), for $b = 160$ mm also in the middle (MA = M)
- Conveyor medium: toothed belt with a woven surface, suitable for use in an EPA
- Pneumatic equipment for two (top, center) or three (top, center, bottom) lift positions
- Motor connection with either cable/plug (AT = S) or terminal box (AT = K)

Scope of delivery:

- Two lift transverse units, fully assembled
- BS 1/T belt section
- Two housing elements
- Two attachment kits for driving the lift transverse units
- Mounting material for installation between two ST 1 sections

Required accessories:

- Two throttle non-return valves M5 for inlet throttling
- Stop rail, ☞ 5-13

Optional accessories:

- Depending on the mounting situation (☞ 5-2), additional accessories may be required for transportation control:
- DA 1 damper, ☞ 8-6
- Switch bracket, ☞ 8-8
- Stop gate, ☞ 8-2

Utilisation :

Le transport transversal électrique EQ 1/T sert de jonction entre deux sections longitudinales parallèles dont la distance est $a > 320$ mm. La section à bande ainsi que les deux unités de levée transversales sont entraînées par un moteur commun. L'utilisation du transport transversal électrique convient également pour des applications ESD. Fonctionnement en accumulation sur la section à bande et fonctionnement en régime réversible autorisés.

Construction :

- Charge de section jusqu'à 30 kg
- Vérin de levée – D = 25 mm
- Course totale : 13 mm
- Montage du moteur à droite (MA = R) ou à gauche (MA = L), et au centre (MA = M) pour $b = 160$ mm
- Convoyeur : courroie dentée à revêtement de toile, indiquée pour une utilisation en EPA
- Équipement pneumatique pour 2 (haut, milieu) ou 3 (haut, milieu, bas) positions de levage
- Raccordement du moteur au choix par câble / fiche (AT = S) ou par borne de connexion (AT = K)

Fournitures :

- Deux unités de levée transversales, complètement montées
- Section à bande BS 1/T
- Deux carters
- Deux kits de montage pour l'entraînement des unités de levée transversales
- Matériel de fixation pour le montage entre deux sections ST 1

Accessoires nécessaires :

- Deux limiteurs de débit unidirectionnels vissables M5 pour l'obturation de l'alimentation
- Barre de butée, ☞ 5-13

Accessoires en option :

- Selon les conditions de montage (☞ 5-2), d'autres accessoires sont nécessaires pour la commande de transport :
- Amortisseur DA 1, ☞ 8-6
- Support d'interrupteur, ☞ 8-8
- Séparateur, ☞ 8-2

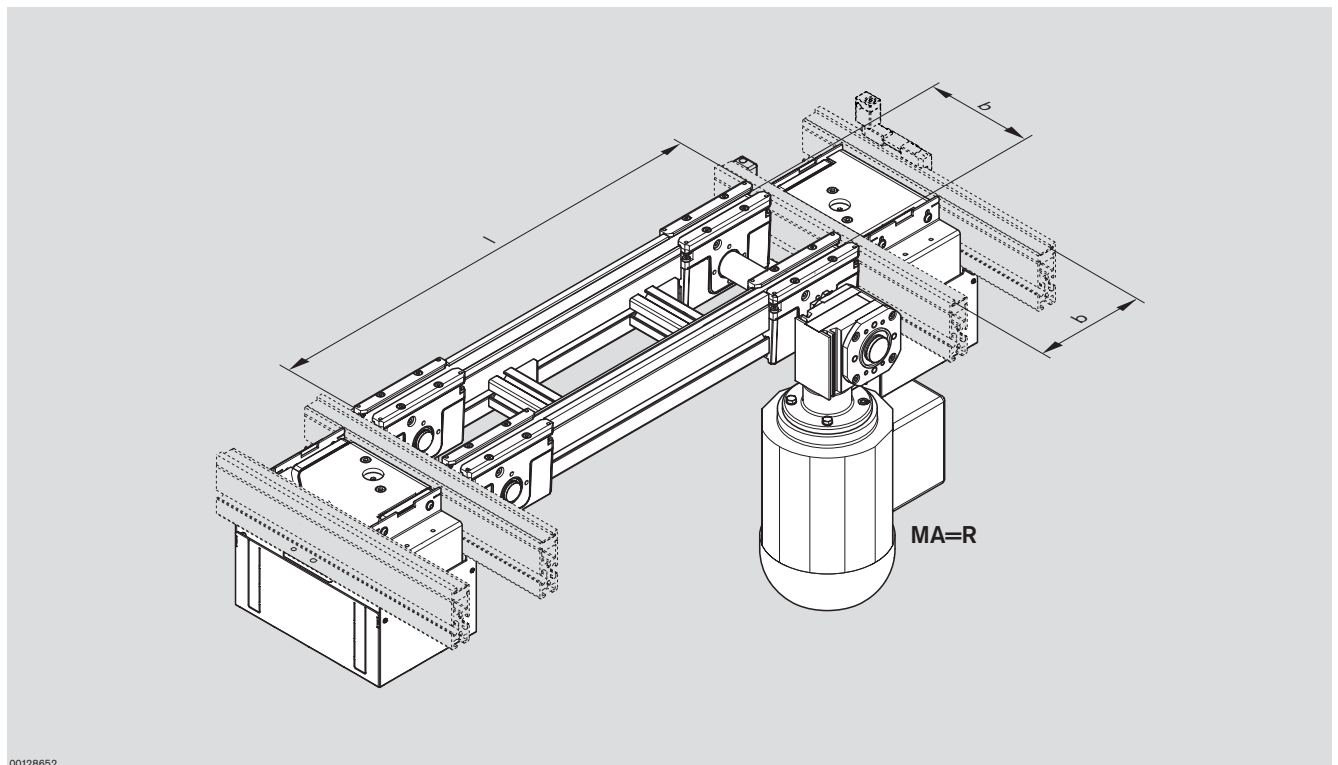


☞ 5-2



☞ 11-26

Quertransport · Transverse conveyor · Transport transversal



00128652



Elektrischer Quertransport EQ 1/T
Electrical transverse conveyor
Transport transversal électrique

b ¹⁾ [mm]	l [mm]	v _N ²⁾ [m/min] ☞ 11-58ff	U,f ☞ 11-58ff	AT	PN	MA ⁵⁾	Nr./No./N°
80	320...5000	0; 6; 9; 12; 15; 18		S; K	2 ³⁾ ; 3 ⁴⁾	R; L	3 842 998 013
120	320...5000	0; 6; 9; 12; 15; 18		S; K	2 ³⁾ ; 3 ⁴⁾	R; L	b = ... mm
160	320...5000	0; 6; 9; 12; 15; 18		S; K	2 ³⁾ ; 3 ⁴⁾	R; L; M	l = ... mm
							v _N = ... m/min
							U = ... V
							f = ... Hz
							AT = ...
							PN = ...
							MA = ...

1) b = Spurbreite

2) v_N = Nenngeschwindigkeit

3) PN = 2 Pneumatikausrüstung für obere und mittlere Hubstellung

4) PN = 3 Pneumatikausrüstung für obere, mittlere und untere Hubstellung

5) MA = Motoranbau

Sonderausführungen auf Anfrage

1) b = Track width

2) v_N = Nominal speed

3) PN = 2 Pneumatic equipment for upper and mid lift position

4) PN = 3 Pneumatic equipment for upper, mid and lower lift position

5) MA = Motor mounting

Special models on request

1) b = Ecartement de voie

2) v_N = Vitesse nominale

3) PN = 2 Équipement pneumatique pour position de levage supérieure et centrale

4) PN = 3 Équipement pneumatique pour position de levage supérieure, centrale et inférieure

5) MA = Montage du moteur

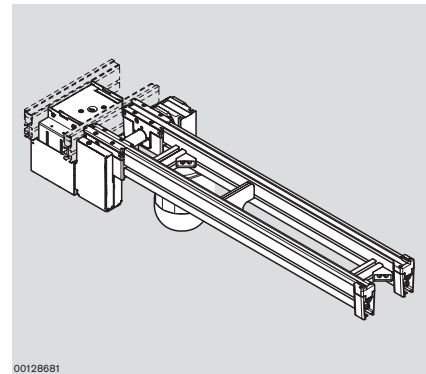
Versions spéciales sur demande

Quertransport · Transverse conveyor · Transport transversal

Elektrischer Quertransport EQ 1/TE

Electrical transverse conveyor

Transport transversal électrique



00128681

Verwendung:

Der elektrische Quertransport EQ 1/TE wird als abzweigende Querstrecke eingesetzt. Diese kann als Stichstrecke verwendet werden, oder am anderen Ende werden die Werkstückträger an eine HQ oder EQ 1/TR mit eigenem Antrieb übergeben, um sie wieder in den Längstransport einzuschleusen. Die Bandstrecke sowie die Hub-Quereinheit werden von einem gemeinsamen Motor angetrieben. Er eignet sich auch für den Einsatz bei ESD-Anwendungen. Staubbetrieb auf der Bandstrecke und Reversierbetrieb sind zulässig.

Ausführung:

- Streckenlast bis 30 kg
- Hubzylinder – D = 25 mm
- Gesamthub: 13 mm
- Motoranbau rechts (MA = R) oder links (MA = L), bei b = 160 mm auch mittig (MA = M)
- Fördermedium: Zahnriemen mit Gewebeauflage, geeignet für den Einsatz in einer EPA
- Pneumatikausrüstung für 2 (oben, Mitte) oder 3 (oben, Mitte, unten) Hubstellungen
- Motoranschluss wahlweise mit Kabel/Stecker (AT = S) oder Klemmenkasten (AT = K)

Lieferumfang:

- Hub-Quereinheit HQ, komplett montiert
- Bandstrecke BS 1
- Schutzkasten
- Anbausatz für den Antrieb der Hub-Quereinheit
- Befestigungsmaterial zum Anbau an eine Strecke ST 1

Zubehör, erforderlich:

- Zwei Drosselrückschlagventile M5 zur Zuluftdrosselung
- Anschlagleiste, ☞ 5-13

Zubehör, optional:

- Je nach Einbausituation (☞ 5-2) ist weiteres Zubehör für die Transportsteuerung erforderlich:
- Dämpfer DA 1, ☞ 8-6
- Schalterhalter, ☞ 8-8
- Vereinzeler, ☞ 8-2

Application:

The EQ 1/TE electrical transverse conveyor is used as a branching transverse section. This can be used as a dead end section, or, with an HQ or EQ 1/TR with own drive at the other end, to feed workpiece pallets back into the longitudinal conveyor section. The belt section and lift transverse unit are driven by a common motor.

Also suitable for use in ESD applications. Accumulation operation on the belt section and reversible operation are permitted.

Design:

- Section load up to 30 kg
- Lifting cylinder – D = 25 mm
- Total stroke: 13mm
- Motor mounting right (MA = R) or left (MA = L), for b = 160 mm also in the middle (MA = M)
- Conveyor medium: toothed belt with a woven surface, suitable for use in an EPA
- Pneumatic equipment for two (top, center) or three (top, center, bottom) lift positions
- Motor connection with either cable/plug (AT = S) or terminal box (AT = K)

Scope of delivery:

- HQ lift transverse unit, fully assembled
- BS 1 belt section
- Housing element
- Attachment kit for the lift transverse unit drive
- Mounting material for installation on an ST 1 section

Required accessories:

- Two throttle non-return valves M5 for inlet throttling
- Stop rail, ☞ 5-13

Optional accessories:

- Depending on the mounting situation (☞ 5-2), additional accessories may be required for transportation control:
- DA 1 damper, ☞ 8-6
- Switch bracket, ☞ 8-8
- Stop gate, ☞ 8-2

Utilisation :

Le transport transversal électrique EQ 1/TE sert de section transversale de bifurcation. Cette dernière peut être utilisée en tant que section à voie unique ou bien, à l'autre extrémité, les palettes porte-pièces sont transférées vers un HQ ou un EQ 1/TR avec entraînement propre afin de se réinjecter dans le transport longitudinal. La section à bande ainsi que l'unité de levée transversale sont entraînées par un moteur commun. L'utilisation du transport transversal électrique convient également pour des applications ESD. Fonctionnement en accumulation sur la section à bande et fonctionnement en régime réversible autorisés.

Construction :

- Charge de section jusqu'à 30 kg
- Vérin de levée – D = 25 mm
- Course totale : 13 mm
- Montage du moteur à droite (MA = R) ou à gauche (MA = L), et au centre (MA = M) pour b = 160 mm
- Convoyeur : courroie dentée à revêtement de toile, indiquée pour une utilisation en EPA
- Équipement pneumatique pour 2 (haut, milieu) ou 3 (haut, milieu, bas) positions de levage
- Raccordement du moteur au choix par câble / fiche (AT = S) ou par borne de connexion (AT = K)

Fournitures :

- Unité de levée transversale HQ, complètement montée
- Section à bande BS 1
- Carter
- Kit de montage pour l'entraînement de l'unité de levée transversale
- Matériel de fixation pour le montage sur une section ST 1

Accessoires nécessaires :

- Deux limiteurs de débit unidirectionnels vissables M5 pour l'obturation de l'alimentation
- Barre de butée, ☞ 5-13

Accessoires en option :

- Selon les conditions de montage (☞ 5-2), d'autres accessoires sont nécessaires pour la commande du transport :
- Amortisseur DA 1, ☞ 8-6
- Support d'interrupteur, ☞ 8-8
- Séparateur, ☞ 8-2

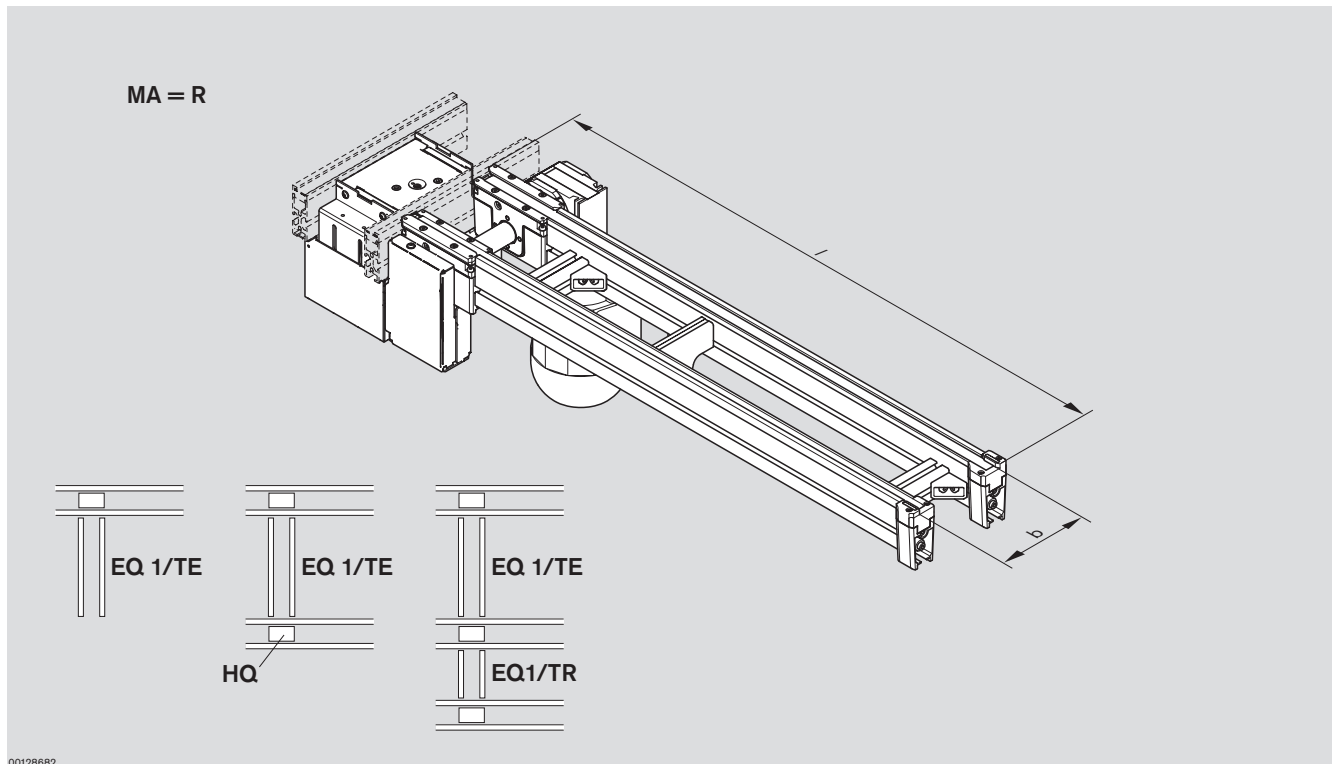


☞ 5-2



☞ 11-28

Quertransport · Transverse conveyor · Transport transversal



Elektrischer Quertransport EQ 1/TE
Electrical transverse conveyor
Transport transversal électrique

b ¹⁾ [mm]	l [mm]	v _N ²⁾ [m/min] ☞ 11-58ff	U,f ☞ 11-58ff	AT	PN	MA ⁵⁾	Nr./No./N°
80	320...5000	0; 6; 9; 12; 15; 18		S; K	2 ³⁾ ; 3 ⁴⁾	R; L	3 842 998 014
120	320...5000	0; 6; 9; 12; 15; 18		S; K	2 ³⁾ ; 3 ⁴⁾	R; L	b = ... mm
160	320...5000	0; 6; 9; 12; 15; 18		S; K	2 ³⁾ ; 3 ⁴⁾	R; L; M	l = ... mm
							v _N = ... m/min
							U = ... V
							f = ... Hz
							AT = ...
							PN = ...
							MA = ...

■
1) b = Spurbreite
2) v_N = Nenngeschwindigkeit
3) PN = 2 Pneumatikausrüstung für obere und mittlere Hubstellung
4) PN = 3 Pneumatikausrüstung für obere, mittlere und untere Hubstellung
5) MA = Motoranbau
Sonderausführungen auf Anfrage

■
1) b = Track width
2) v_N = Nominal speed
3) PN = 2 Pneumatic equipment for upper and mid lift position
4) PN = 3 Pneumatic equipment for upper, mid and lower lift position
5) MA = Motor mounting
Special models on request

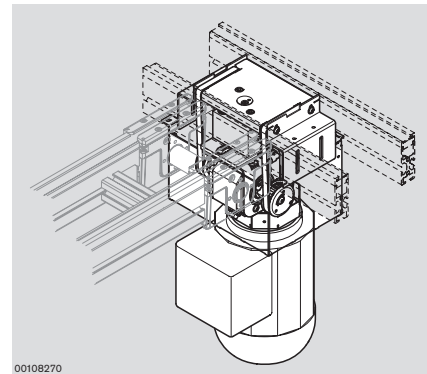
■
1) b = Ecartement de voie
2) v_N = Vitesse nominale
3) PN = 2 Équipement pneumatique pour position de levage supérieure et centrale
4) PN = 3 Équipement pneumatique pour position de levage supérieure, centrale et inférieure
5) MA = Montage du moteur
Versions spéciales sur demande

Quertransport · Transverse conveyor · Transport transversal

Hub- Quereinheit HQ 1/U

Lift transverse conveyor

Unité de levée transversale



Verwendung:

Quertransport von Werkstückträgern WT 1 beim Ausschleusen von einer Längsstrecke in eine Querstrecke oder beim Einschleusen von einer Querstrecke in eine Längsstrecke. Sie eignet sich auch für den Einsatz bei ESD-Anwendungen. Reversierbetrieb ist zulässig, Staubetrieb ist nicht zulässig.

Ausführung:

- Besonders kompakte Bauweise durch unten hängenden Getriebemotor. Geeignet für beengte Einbauverhältnisse.
- Fördermittel: Zahnriemen
- Hubzylinder – D = 25 mm
- Gesamthub: 13 mm
- Fördermedium: Zahnriemen mit Gewebeauflage, geeignet für den Einsatz in einer EPA
- Pneumatikausrüstung für 2 (oben, Mitte) oder 3 (oben, Mitte, unten) Hubstellungen
- Motoranschluss wahlweise mit Kabel/Stecker (AT = S) oder Klemmenkasten (AT = K)

Lieferumfang:

- Hub-Quereinheit HQ 1/U, komplett montiert
- Schutzkasten
- Befestigungsmaterial zum Anbau an eine Strecke ST 1

Zubehör, erforderlich:

- Zwei Drosselrückschlagventile M5 zur Zuluftdrosselung
- Anschlagleiste, ☞ 5-13

Zubehör, optional:

- Je nach Einbausituation (☞ 5-2) ist weiteres Zubehör für die Transportsteuerung erforderlich:
- Dämpfer DA 1, ☞ 8-6
- Schalterhalter, ☞ 8-8
- Vereinzler, ☞ 8-2

Application:

Transverse conveying of WT 1 workpiece pallets: outfeeding workpiece pallets from a longitudinal section to a transverse section or infeeding workpiece pallets from a transverse section to a longitudinal section. Also suitable for use in ESD applications. Reversible operation is permitted, accumulation operation is not permitted.

Design:

- Especially compact design as the gear motor is suspended below the system. Suitable for tight spaces.
- Conveyor medium: toothed belt
- Lifting cylinder – D = 25 mm
- Total stroke: 13 mm
- Conveyor medium: toothed belt with a woven surface, suitable for use in an EPA
- Pneumatic equipment for two (top, center) or three (top, center, bottom) lift positions
- Motor connection with either cable/plug (AT = S) or terminal box (AT = K)

Scope of delivery:

- HQ 1/U lift transverse unit, fully assembled
- Housing element
- Mounting material for installation on an ST 1 section

Required accessories:

- Two throttle non-return valves M5 for inlet throttling
- Stop rail, ☞ 5-13

Optional accessories:

- Depending on the mounting situation (☞ 5-2), additional accessories may be required for transportation control:
- DA 1 damper, ☞ 8-6
- Switch bracket, ☞ 8-8
- Stop gate, ☞ 8-2

Utilisation :

Transport transversal de palettes porte-pièces WT 1 pour l'éjection d'une section longitudinale dans une section transversale ou pour l'injection d'une section transversale dans une section longitudinale. Elle convient également pour l'utilisation dans des applications ESD. Fonctionnement en régime réversible autorisé, fonctionnement en accumulation non autorisé.

Construction :

- Construction particulièrement compacte grâce à un moto-réducteur suspendu en-dessous. Convient pour un espace d'installation exigü.
- Convoyeur : courroie dentée
- Vérin de levée – D = 25 mm
- Course totale : 13 mm
- Convoyeur : courroie dentée à revêtement de toile, indiquée pour une utilisation en EPA
- Équipement pneumatique pour 2 (haut, milieu) ou 3 (haut, milieu, bas) positions de levage
- Raccordement du moteur au choix par câble / fiche (AT = S) ou par borne de connexion (AT = K)

Fournitures :

- Unité de levée transversale HQ 1/U, complètement montée
- Carter
- Matériel de fixation pour le montage sur une section ST 1

Accessoires nécessaires :

- Deux limiteurs de débit unidirectionnels vissables M5 pour l'obturation de l'alimentation
- Barre de butée, ☞ 5-13

Accessoires en option :

- Selon les conditions de montage (☞ 5-2), d'autres accessoires sont nécessaires pour la commande de transport :
- Amortisseur DA 1, ☞ 8-6
- Support d'interrupteur, ☞ 8-8
- Séparateur, ☞ 8-2

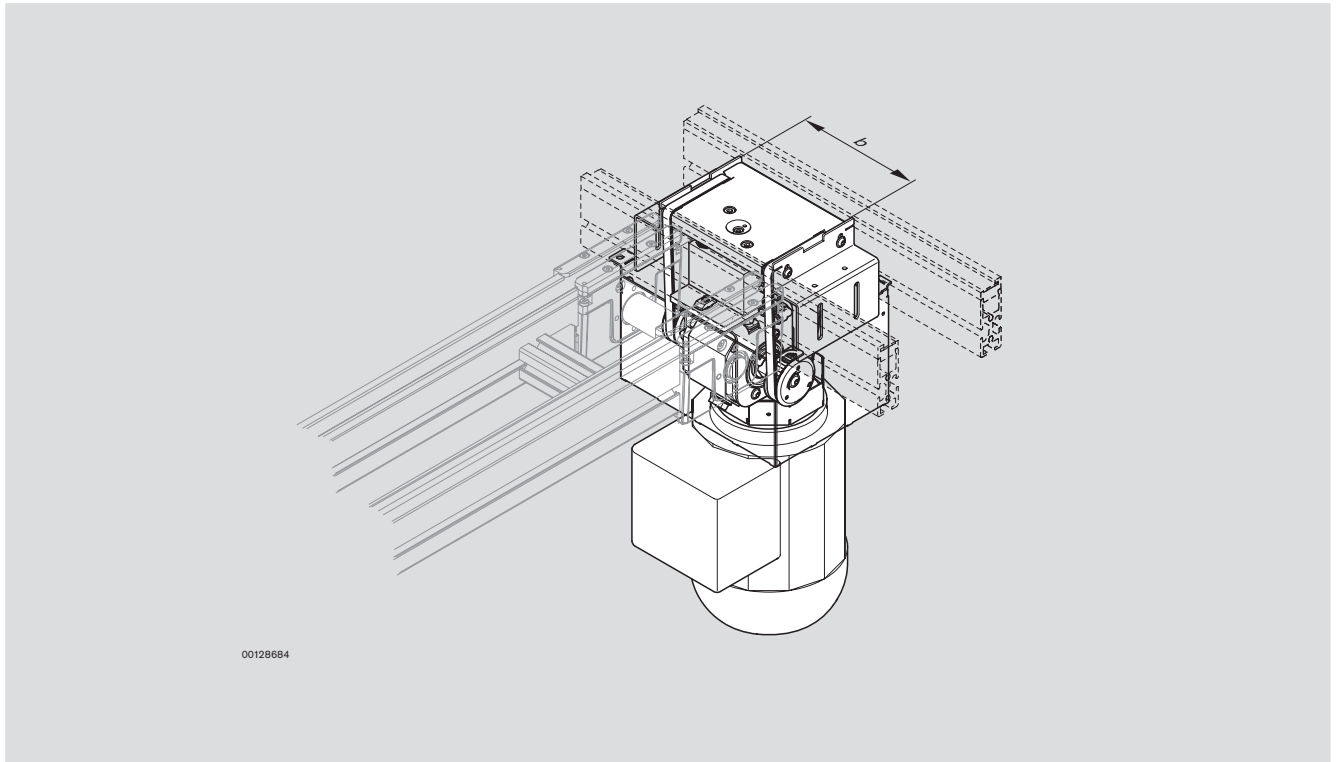


☞ 5-2



☞ 11-30

Quertransport · Transverse conveyor · Transport transversal



5



Hub- Quereinheit HQ 1/U
Lift transverse conveyor
Unité de levée transversale

b_Q [mm]	b_L [mm]	$v_N^{2)}$ [m/min] ☞ 11-58ff	U,f ☞ 11-58ff	AT	PN	Nr./No./N°
80	80	0; 6; 9; 12; 15; 18		S; K	2 ³⁾ ; 3 ⁴⁾	3 842 998 010
120	120	0; 6; 9; 12; 15; 18		S; K	2 ³⁾ ; 3 ⁴⁾	b_Q = ... mm
160	160	0; 6; 9; 12; 15; 18		S; K	2 ³⁾ ; 3 ⁴⁾	b_L = ... mm
						$v_N^{2)}$ = ... m/min
						U = ... V
						f = ... Hz
						AT = ...
						PN = ...

¹⁾ b_Q = Spurbreite im Quertransport
 b_L = Spurbreite im Längstransport

²⁾ v_N = Nenngeschwindigkeit

³⁾ PN = 2 Pneumatikausrüstung für obere und mittlere Hubstellung

⁴⁾ PN = 3 Pneumatikausrüstung für obere, mittlere und untere Hubstellung
Sonderausführungen auf Anfrage

¹⁾ b_Q = Track width in the transverse conveyor
 b_L = Track width in the longitudinal conveyor

²⁾ v_N = Nominal speed

³⁾ PN = 2 Pneumatic equipment for upper and mid lift position

⁴⁾ PN = 3 Pneumatic equipment for upper, mid and lower lift position
Special models on request

¹⁾ b_Q = Ecart. de voie dans le transport transversal
 b_L = Ecart. de voie dans le transport longitudinal

²⁾ v_N = Vitesse nominale

³⁾ PN = 2 Équipement pneumatique pour position de levage supérieure et centrale

⁴⁾ PN = 3 Équipement pneumatique pour position de levage supérieure, centrale et inférieure
Versions spéciales sur demande

Quertransport · Transverse conveyor · Transport transversal

Zubehör EQ 1/...

Accessories

Accessoires

Verbindungssatz Connection kit Kit de liaison

Verwendung:

Verbindungssatz für den Einbau der Bandstrecke BS 1/T zwischen zwei Strecken ST 1. Höhenunterschied des Transportniveaus zwischen Längs- und Querstrecke $dh = 4,4$ mm. Verbindungssatz kann auch verwendet werden, um zwei Bandstrecken BS 1/.. stirnseitig miteinander zu verbinden.

Material: Aluminium, eloxiert

Lieferumfang:
siehe Grafik

Application:

Connection kit for installing a BS 1/T belt section between two ST 1 sections. Height difference of the transport level between longitudinal and transverse section $dh = 4.4$ mm. The connection kit can also be used to join two BS 1/.. belt sections end-to-end.

Material: anodized aluminum

Scope of delivery:
See illustration

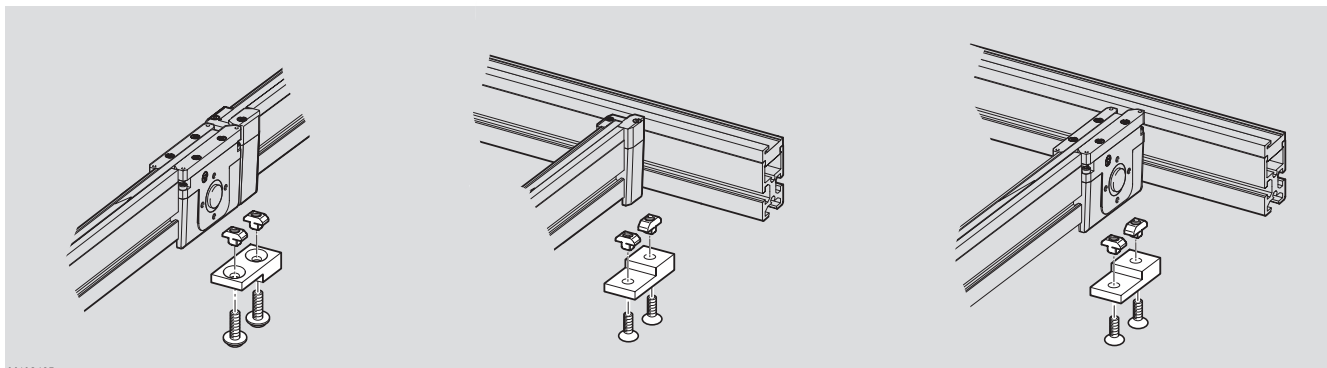
Utilisation :

Kit de liaison pour le montage de la section à bande BS 1/T entre deux sections ST 1. Différence de hauteurs du niveau de transport entre une section longitudinale et une section transversale $dh = 4,4$ mm.

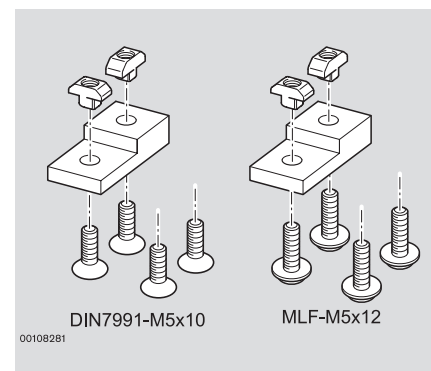
Ce kit de liaison peut également être utilisé pour relier deux sections à bande BS 1/.. bout à bout.

Matériau : aluminium, anodisé

Fournitures :
Voir figure



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Verbindungssatz
Connection kit
Kit de liaison

	Nr./No./N°
BS1...-BS1	3 842 530 095
EQ1...-BS1	

Quertransport · Transverse conveyor · Transport transversal

Anschlagleiste AL 1 Stop rail Barre de butée

Verwendung:

Anschlagleiste für EQ 1/TR, EQ 1/T, EQ 1/TE und HQ 1/U. Sie stoppt den Werkstückträger beim Einschleusen in eine Längsstrecke.

Material: Aluminium, eloxiert

Lieferumfang:

siehe Grafik

Zubehör, optional:

– Dämpfer DA 1/A,  8-6

Application:

Stop rail for EQ 1/TR, EQ 1/T, EQ 1/TE and HQ 1/U. It stops the workpiece pallet when feeding into a longitudinal section.

Material: anodized aluminum

Scope of delivery:

See illustration

Optional accessories:

– DA 1/A damper,  8-6

Utilisation :

Barre de butée pour EQ 1/TR, EQ 1/T, EQ 1/TE et HQ 1/U. Elle stoppe la palette porte-pièces lors de l'injection dans une section longitudinale.

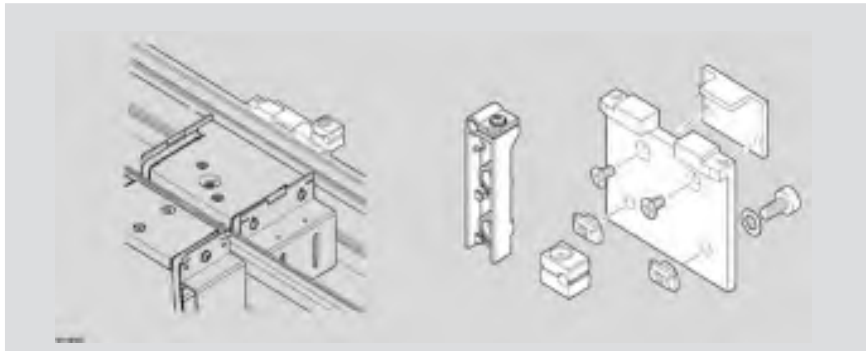
Matériau : aluminium, anodisé

Fournitures :

Voir figure

Accessoires en option :

– Amortisseur DA 1/A,  8-6



Beispiel: EQ 1/TR mit Anschlagleiste
Example: EQ 1/TR with stop rail
Exemple : EQ 1/TR avec barre de butée

Anschlagleiste AL 1
Stop rail
Barre de butée

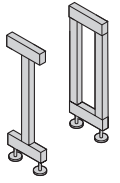
	Nr./No./N°
AL 1	3 842 513 396

Stützen · Leg sets · Supports de section


Stützen

Leg sets


Supports de section




Stützen
Leg sets
Supports de section

 6-3

Fundamentwinkel
Foundation bracket
Equerre de fondation

 6-6

Winkel 20x28
Bracket
Equerre

 6-7

Stützen · Leg sets · Supports de section

Neue Stützenhöhe H

New leg set height H

Nouvelle hauteur de support H

Verwendung:

Die Stützenhöhe wird über den neuen Parameter H definiert, gemessen vom Boden bis Oberkante Fördermedium (= Transportebene).

Zusätzlich wird die Höhe des Streckenprofils als weiterer Bestellparameter angegeben (AO).

Die Höhe der Stütze bis Unterkante Streckenprofil (= h_{sz}) ergibt sich wie folgt: $h_{sz} = H - AO$.

Application:

Defines the height of the leg sets with the new parameter H, measured from floor to top of the conveyor medium (= transport level).

In addition, the height of the section profile is specified as an additional order parameter (AO).

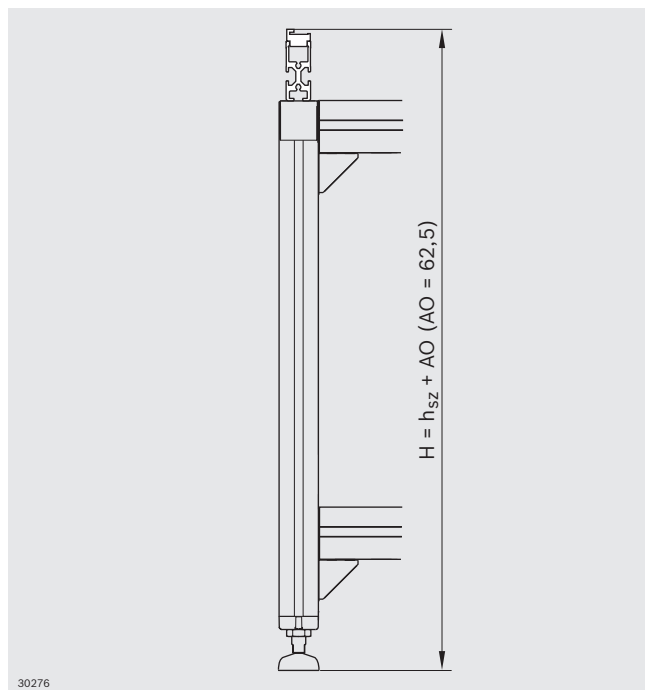
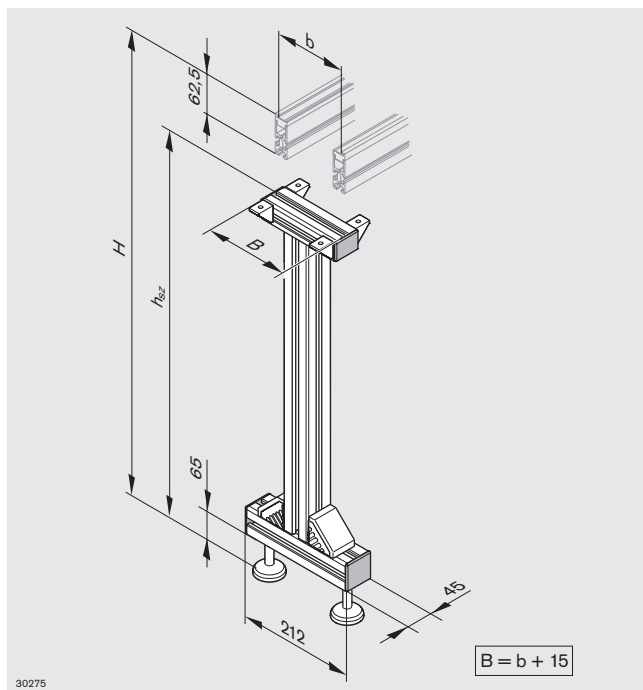
The height of the leg set to lower edge of section profile (= h_{sz}) is calculated as follows: $h_{sz} = H - AO$.

Utilisation :

La hauteur de support est définie par le nouveau paramètre H, mesuré à partir du sol jusqu'au bord supérieur du convoyeur (= niveau de transport).

La hauteur du profilé de section est donnée en tant que paramètre de commande supplémentaire (AO).

La hauteur du support jusqu'au bord inférieur du profilé de section (= h_{sz}) est déterminée comme suit : $h_{sz} = H - AO$.



Stützen · Leg sets · Supports de section

Streckenstützen SZ 1

Leg sets

Supports de section



Verwendung:

Streckenstützen tragen die Förderstrecke. Stützen sind in unmittelbarer Nähe von Antrieb und Umlenkung sowie unter Streckenstößen anzubringen. Bei Streckeneinheiten sind in gleichmäßigem Abstand von max. 2000 mm Streckenstützen zu montieren. Die Streckenstützen müssen mit Fundamentwinkeln am Boden verankert werden.

Ausführung:

- Aluminium-Strangpressprofil
- Höheneinstellbare Standfüße
- Passend für Förderstrecken und Bandstrecken

Lieferumfang:

- Inkl. höheneinstellbarer Standfüße.
- Inkl. Befestigungsmaterial zur Montage der Förderstrecke oder Bandstrecke auf der Streckenstütze

Lieferzustand:

Unmontiert

Zubehör, erforderlich:

- Fundamentwinkel, ☞ 6-6
- Bodendübel, ☞ 6-6

Zubehör, optional:

- Abdeckkappen für Winkel

Application:

Leg sets support the conveyor section. They must be mounted very close to the drive module and return unit, and underneath section joints. Conveyor units are to be supported with extra leg sets in equal distances of max. 2000 mm. Foundation brackets must be used to anchor the leg sets to the floor.

Design:

- Extruded aluminum profiles
- Height-adjustable bases
- Suitable for conveyor sections and belt sections

Scope of delivery:

- Incl. height-adjustable bases
- Incl. mounting material for attaching the conveyor section or belt section to the leg set

Condition on delivery:

Not assembled

Required accessories:

- Foundation bracket, ☞ 6-6
- Anchor bolt, ☞ 6-6

Optional accessories:

- Cover caps for bracket

Utilisation :

Les supports de section portent la section de transport. Les supports doivent être placés à proximité immédiate de l'entraînement et du renvoi ainsi que sous les jonctions de section. Pour des unités de section, les supports de section doivent être montés à intervalle régulier de max. 2000 mm. Les supports de section sont fixés au sol au moyen d'équerres de fondation.

Construction :

- Profilés en aluminium extrudé
- Pieds réglables en hauteur
- Adaptables aux sections de transport et aux sections à bande

Fournitures :

- Pieds réglables en hauteur inclus
- Matériel de fixation inclus pour montage de la section de transport ou de la section à bande sur le support de section

Etat à la livraison :

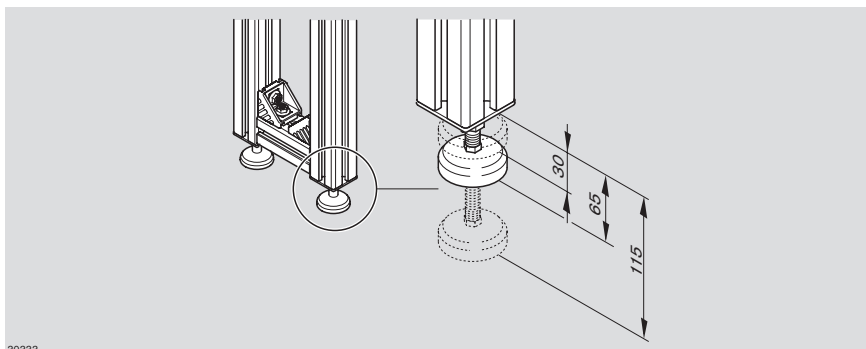
Non monté

Accessoires nécessaires :

- Equerres de fondation, ☞ 6-6
- Cheville de fond, ☞ 6-6

Accessoires en option :

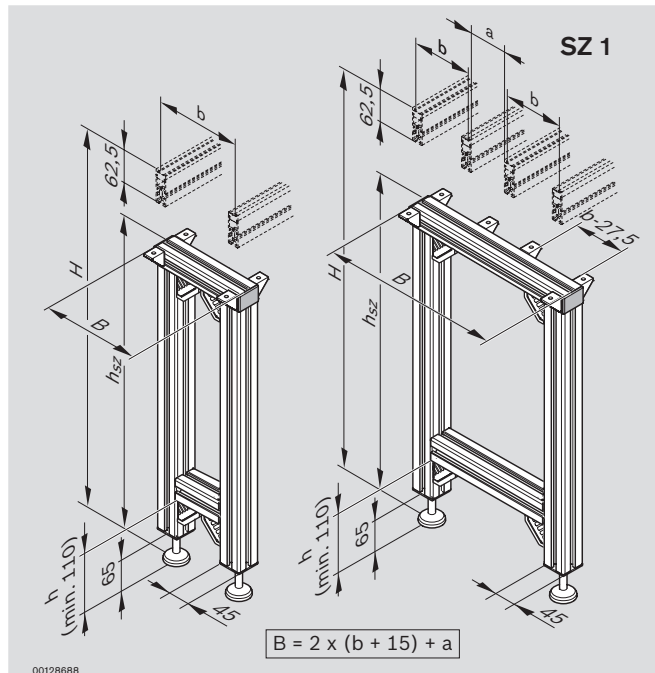
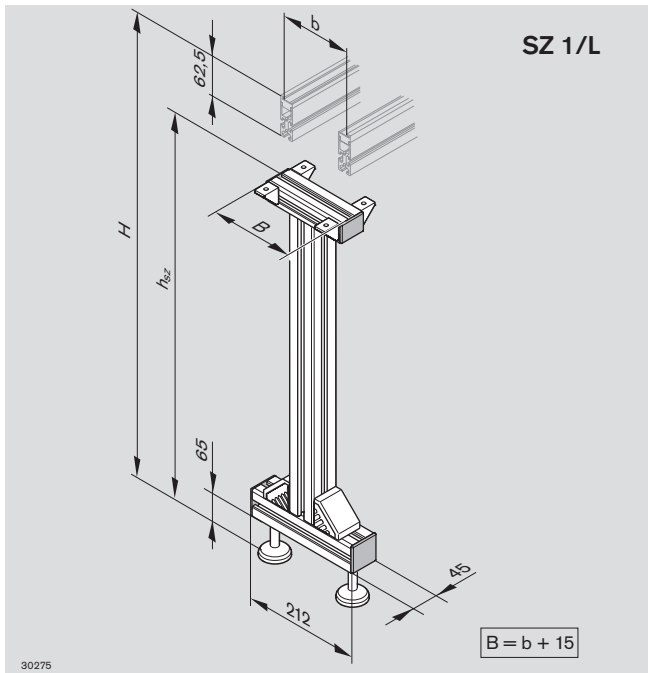
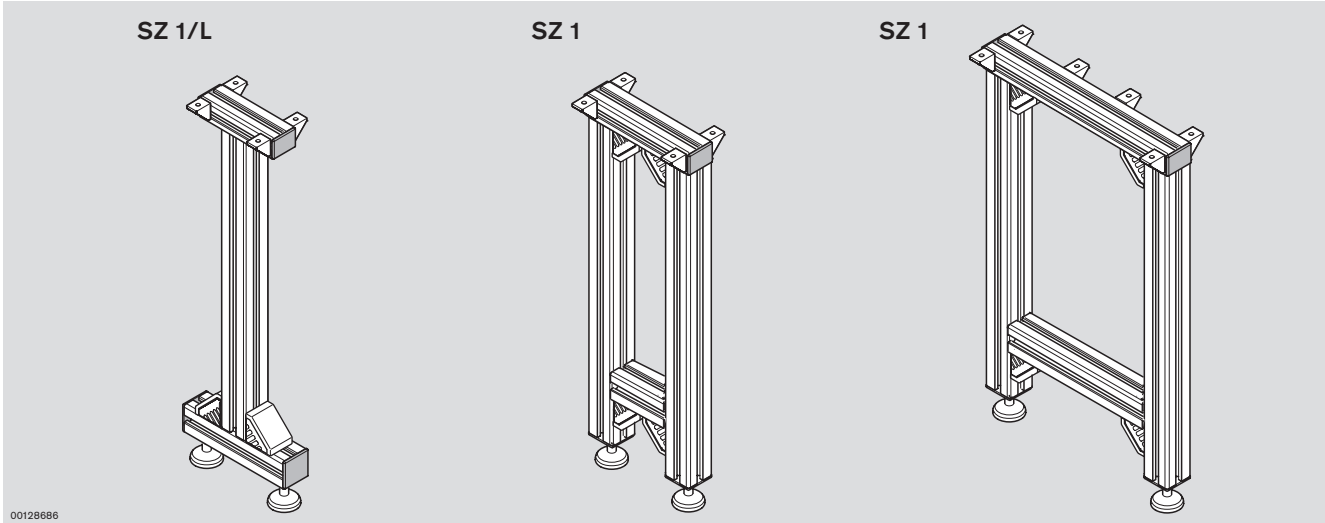
- Caches pour équerre



30333

Stützen · Leg sets · Supports de section

Streckenstützen SZ 1/L, SZ 1
Leg sets
Supports de section



Stützen · Leg sets · Supports de section

Streckenstütze SZ 1/L

Leg set

Support de section

$b^{1)}$ [mm]	$B^{2)}$ [mm]	$AO^{5)}$ [mm]	$H^{6)}$ [mm]	$MT^{7)}$	Nr./No./N°
80; 120; 160 80-160	95-175	62,5	260-2000	0; 1	3 842 996 335 b = ... mm H = ... mm MT = 0; 1

Streckenstütze SZ 1

Leg set

Support de section

$b^{1)}$ [mm]	$B^{3)}$ [mm]	$a^{4)}$ [mm]	$AO^{5)}$ [mm]	$H^{6)}$ [mm]	$MT^{7)}$	Nr./No./N°
80; 120; 160 80-720	175-1630	0, 60-1310	62,5	295-2000	0; 1	3 842 996 336 b = ... mm a = ... mm H = ... mm MT = 0; 1

- 1) b = Spurbreite in Transportrichtung
- 2) B = Stützenbreite: $B = b + 15$
- 3) B = Stützenbreite: $B = 2x (b + 15) + a$
- 4) a = Streckenabstand
- 5) AO = Anbauort
- 6) H = Transporthöhe
- 7) MT = Bausatz
0 = unmontiert
1 = montiert

- 1) b = Track width in direction of transport
- 2) B = Width leg set: $B = b + 15$
- 3) B = Width leg set: $B = 2x (b + 15) + a$
- 4) a = Distance between conveyors
- 5) AO = Installation location
- 6) H = Transportation height
- 7) MT = Kit
0 = not assembled
1 = assembled

- 1) b = Écart. de voie dans le sens du transport
- 2) B = largeur du support : $B = b + 15$
- 3) B = largeur du support : $B = 2x (b + 15) + a$
- 4) a = Écartement de voie
- 5) AO = Emplacement de montage
- 6) H = Hauteur de transport
- 7) MT = Kit de montage
0 = non monté
1 = monté

Für SZ 1 gilt:

bei $a = 0$: einspurige Strecke
mit $B = (b + 15) + a$,
jedoch $B_{\min} = 175$ mm; $b_{\max} = 720$ mm

bei $a \geq 60$: mehrspurige Strecke
mit $B = 2x (b + 15) + a$,
jedoch $B_{\min} = 175$ mm; $b_{\max} = 720$ mm

The following applies to SZ 1:

for $a = 0$: single-track section
with $B = (b + 15) + a$,
however $B_{\min} = 175$ mm; $b_{\max} = 720$ mm

for $a \geq 60$: multi-track section
with $B = 2x (b + 15) + a$,
however $B_{\min} = 175$ mm; $b_{\max} = 720$ mm

Pour SZ 1, les points suivants

s'appliquent :

pour $a = 0$: section à voie unique
avec $B = (b + 15) + a$,
cependant $B_{\min} = 175$ mm ; $b_{\max} = 720$ mm

pour $a \geq 60$: section à voies multiples
avec $B = 2x (b + 15) + a$,
cependant $B_{\min} = 175$ mm ; $b_{\max} = 720$ mm

Stützen · Leg sets · Supports de section

Fundamentwinkel, Bodendübel

Foundation bracket, anchor bolt

Equerre de fondation, cheville de fond

Verwendung:

Mit dem Fundamentwinkel werden Gestelle am Boden gesichert. Das Bohrloch für den Bodendübel kann ohne Entfernen des Fundamentwinkels gesetzt werden.

Material:

– A: Stahlblech verzinkt, transparent chromatiert

Application:

The foundation bracket is used to fix constructions to the floor. A hole for the anchor bolt can be made without removing the foundation bracket.

Material:

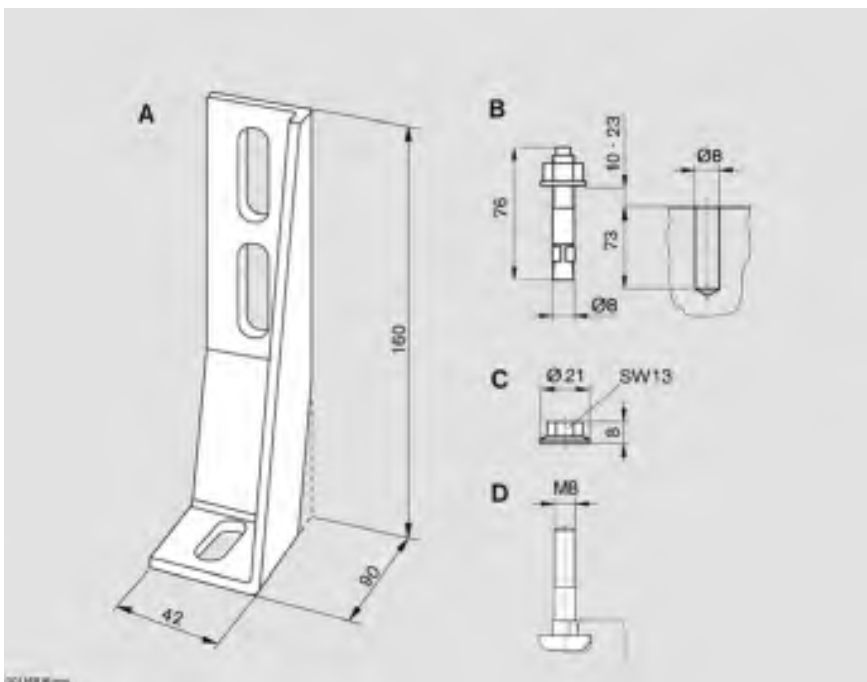
– A: galvanized sheet steel, chromated transparent

Utilisation :

L'équerre de fondation permet de fixer les bâtis au sol. L'alésage pour la cheville de fond peut être effectué sans enlever l'équerre de fondation.

Matériau :

– A : tôle d'acier galvanisé, chromaté transparent



Fundamentwinkel
Foundation bracket
Equerre de fondation

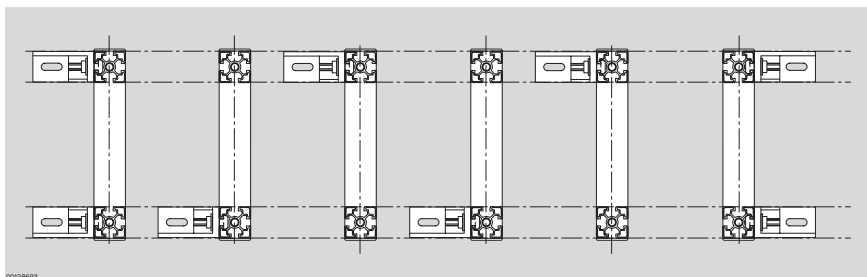
		Nr./No./N°
A	20	3 842 146 815

Bodendübel
Anchor bolt
Cheville de fond

		Nr./No./N°
B	1	3 842 526 560

Hammerkopfschraube und Bundmutter
T-bolt and flange nut
Boulon 1/4 de tour et écrou de butée

		Nr./No./N°
C	100	3 842 345 081
D	M8 x 20	3 842 528 715



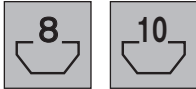
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Stützen · Leg sets · Supports de section

Winkel 20x28

Bracket

Equerre



Verwendung:

Winkel für den Bau von Sonderstützen zur Verbindung der Stützen mit der Strecke ST 1

Material:

– A: Zinkdruckguss

Application:

Brackets for designing special supports to connect leg sets with section ST 1

Material:

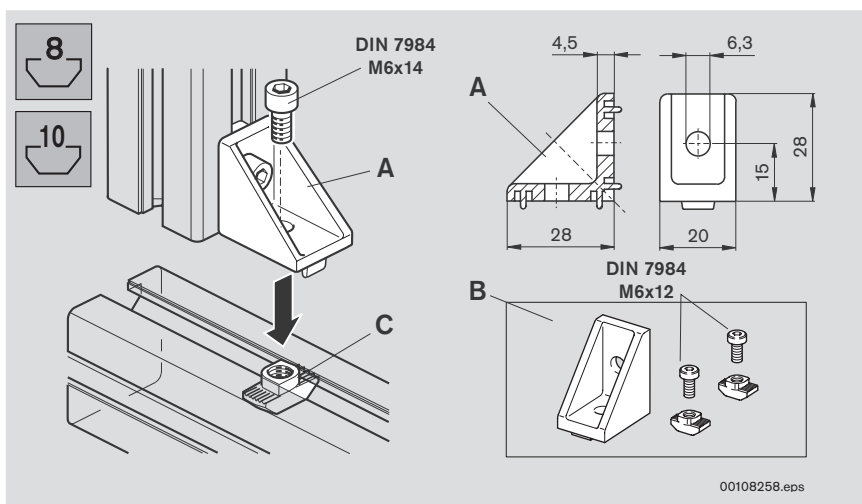
– A: diecast zinc

Utilisation :

Les équerres servent à la construction de supports spéciaux pour la jonction des supports de section avec la section ST 1.

Matériau :

– A : zinc moulé sous pression



Winkel 20x28

Bracket

Equerre

		Nr./No./N°
A	1	3 842 501 587

Hammermutter M6

T-nut

Ecrou à tête rectangulaire

		Nr./No./N°
C	100	3 842 501 753

Hammermutter M6

T-nut

Ecrou à tête rectangulaire

		Nr./No./N°
C	100	3 842 530 285

Winkelsatz

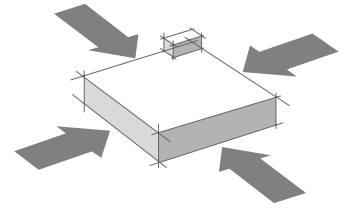
Bracket set

Jeu d'équerres

		Nr./No./N°
B	1	3 842 502 137

Positionieren · Positioning · Positionnement

Positionieren Positioning Positionnement



Hub-Positioniereinheit HP 1/P Lift position unit Unité de levée et de positionnement					
Positioniereinheit PE 1/P Position unit Unité de positionnement					

■ Zur Bearbeitung muss das Werkstück in der Bearbeitungsstation fixiert werden. Die Präzisions-Positioniereinheiten des TS 1 erlauben die hochgenaue Positionierung des auf dem Werkstückträger befestigten Werkstückes in der Bearbeitungsstation.

Mit der Hub-Positioniereinheit HP 1/P (7-2) kann der Werkstückträger bis zu 50 mm vom Band abgehoben werden.

Die HP 1/P ist nur für die Verwendung der Werkstückträger WT 1/P (2-6) geeignet.

Mit der Positioniereinheit PE 1/P (7-4) wird der Werkstückträger nur wenig vom Band abgehoben. Die zulässige Prozesskraft beträgt 100 N.

Die PE 1/P wird in einer Ausführung zur Verwendung mit den Werkstückträgern WT 1/K und WT 1/S und in einer anderen Ausführung zur Verwendung mit den Werkstückträgern WT 1/P des TS 1 angeboten.

■ In order to process the workpiece, it must first be fixed in the workstation. The TS 1 position units precisely position the workpiece fixed to the pallet in the workstation.

With the lift position unit HP 1/P (7-2) the workpiece pallet can be lifted up to 50 mm above the belt. The HP 1/P is only suitable for use with the workpiece pallet WT 1/P (2-6).

With the position unit PE 1/P (7-4) the workpiece pallet is just slightly lifted from the belt. Process forces of up to 100 N are admissible.

The PE 1/P is offered in one version suitable for use with WT 1/K and WT 1/S workpiece pallets and in another version for use with the WT 1/P workpiece pallets from the TS 1 system.

■ Pour pouvoir être traitée, la pièce doit être positionnée dans le poste de travail. Les unités de positionnement de précision du TS 1 permettent le positionnement extrêmement précis de la pièce fixée sur la palette porte-pièces dans le poste de travail.

Avec l'unité de levée et de positionnement HP 1/P (7-2) la palette porte-pièces est soulevée jusqu'à 50 mm du convoyeur.

La HP 1/P ne convient que pour l'utilisation des palettes porte-pièces WT 1/P (2-6).

Avec l'unité de positionnement PE 1/P (7-4) la palette porte-pièces est soulevée minimalement du convoyeur. La force de traitement admissible est de 100 N.

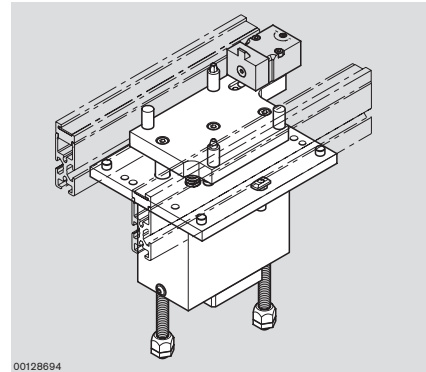
La PE 1/P est proposée dans une version pour l'utilisation avec des palettes porte-pièces WT 1/K et WT 1/S et dans une autre version pour l'utilisation avec des palettes porte-pièces WT 1/P du système TS 1.

Positionieren · Positioning · Positionnement

Hub- und Positioniereinheit HP 1/P

Lift position unit

Unité de levée et de positionnement



Verwendung:

Positionierung eines Werkstückträgers in einer Bearbeitungsstation, bei der der Werkstückträger über das Transportniveau angehoben werden muss.

Ausführung:

- Verwendbar mit Werkstückträgern WT 1/P
- Positionierung über die Positionierstifte der HP 1/P und die Positionierbuchsen des Werkstückträgers WT 1/P
- Zulässige vertikale Prozesskraft bis 400 N inkl. WT 1/P. Dabei unterstützt die Positionierplatte der HP 1/P den WT 1/P an seiner Trägerplatte.
- Wiederholgenauigkeit in X- und Y-Richtung: $\pm 0,025$ mm
- Fester Anschlag zur Vorpositionierung des ankommenden Werkstückträgers. Kann bei Bedarf durch einen Dämpfer DA 1/B (☞ 8-7) ersetzt werden.
- Bei der HP 1/P in der Ausführung mit variablem Hub beträgt die Hubhöhe über Transportniveau max. 50 mm. Die Hubhöhe ist stufenlos verstellbar.
- Die Ausführung mit fester Hubhöhe 15 mm über Transportniveau hat eine besonders niedere Bauhöhe. Daher eignet sie sich besonders für den Einsatz an manuellen Arbeitsplätzen ohne eine Beeinträchtigung der Beinfreiheit.
- Die HP 1/P besitzt drei Stellungen:
 - Untere Stellung: WT auf der Strecke werden durchgelassen.
 - Mittlere Stellung: WT werden auf der Strecke angehalten (durch integrierten Festanschlag oder optional mit Dämpfer DA 1/B (☞ 8-7)). Die mittlere Stellung kann sowohl aus der unteren als auch aus der oberen Stellung heraus angefahren werden.

Application:

Positions a workpiece pallet in a processing station where the workpiece pallet must be raised above the transport level.

Design:

- Usable with WT 1/P workpiece pallets
- Positioning via the positioning pins of the HP 1/P and the positioning bushings of the WT 1/P workpiece pallet
- Permissible vertical process force up to 400 N incl. WT 1/P. The positioning plate of the HP 1/P supports the WT 1/P at its carrying plate.
- Reproducing accuracy in X and Y directions: ± 0.025 mm
- Fixed stop for pre-positioning the incoming workpiece pallet. May be replaced by a DA 1/B damper (☞ 8-7) if necessary.
- In the HP 1/P version with variable stroke, the lift height above transport level is max. 50 mm. The lift height is infinitely adjustable.
- The version with a fixed lift height of 15 mm above transport level has an especially low profile. For this reason, it is especially suited for use in manual workstations, as it does not limit legroom.
- The HP 1/P has three positions:
 - Lower position: WTs on the section are allowed to pass through.
 - Middle position: WTs on the section are stopped (via an integrated fixed stop or optional DA 1/B damper (☞ 8-7)). The middle position can be approached from the lower as well as the upper position.

Utilisation :

Positionnement d'une palette porte-pièces sur un poste de travail sur lequel la palette porte-pièces doit être élevée par rapport au niveau de transport.

Construction :

- Utilisable avec la palette porte-pièces WT 1/P
- Positionnement par les tiges de positionnement de la HP 1/P et par les douilles de positionnement de la palette porte-pièces WT 1/P
- Force de traitement verticale admissible jusqu'à 400 N, y compris la WT 1/P. La plaque de positionnement de la HP 1/P assiste la WT 1/P au niveau de sa plaque-support.
- Précision de répétition dans les sens X et Y : $\pm 0,025$ mm
- Butée fixe pour le pré-positionnement de la palette porte-pièces en approche. La butée peut être remplacée, si besoin est, par un amortisseur DA 1/B (☞ 8-7).
- Concernant la HP 1/P dans sa version avec une levée variable, la hauteur de levée au-dessus du niveau de transport est de 50 mm max. La hauteur de levée est réglable en continu.
- La version avec hauteur de levée fixe de 15 mm au-dessus du niveau de transport a une faible hauteur. C'est pourquoi elle convient particulièrement aux postes de travail manuel sans entraver le mouvement des jambes.
- La HP 1/P possède trois positions :
 - Position inférieure : les WT sur la section peuvent passer.
 - Position centrale : les WT sur la section sont stoppées (par une butée fixe intégrée ou, en option, avec un amortisseur DA 1/B (☞ 8-7)). La position centrale peut être approchée non seulement de la position inférieure mais également de la position supérieure.



☞ 7-1



☞ 11-32

Positionieren · Positioning · Positionnement

- Obere Stellung: WT ist über Positionierstifte indexiert. Die obere Stellung der HP 1/P kann mit einem induktiven Sensor abgefragt werden.
- Die HP 1/P kann direkt unter der Transportstrecke oder auf der Maschinentischplatte einer Station montiert werden.

Lieferumfang:

- Inkl. aller Befestigungselemente
- Schutzkasten (nur 3 842 998 493; für 3 842 998 494 nicht erforderlich)
- Schalterhalter SH 1/S für die Abfrage der WT-Position in der HP 1/P (☞ 8-9)
- Schalterhalter SH 1/M-A für die Abfrage der Stellung der HP 1/P (☞ 8-10)
- Pneumatik Verschraubung

Lieferzustand:

Montiert

Zubehör, optional:

- Vereinzeler VE 1 zur Vorvereinzellung, ☞ 8-3
- Dämpfer DA 1/B, ☞ 8-7
- Sensor (Ø 6,5 mm; $S_N = 4$ mm) zur Abfrage der WT-Position in der HP 1/P und zur Abfrage der oberen Stellung der HP 1/P; ☞ 8-16

- Upper position: the WT is indexed via positioning pins. The upper position of the 1/P can be queried with an inductive sensor.
- The HP 1/P can be mounted directly under the conveyor section or on a station's machine table.

Scope of delivery:

- Incl. all fastening elements
- Housing element (only 3 842 998 493; not required for 3 842 998 494)
- Switch bracket SH 1/S for querying the workpiece pallet position in the HP 1/P (☞ 8-9)
- Switch bracket SH 1/M-A for querying the workpiece pallet position in the HP 1/P (☞ 8-10)
- Pneumatic fitting

Condition on delivery:

Assembled

Optional accessories:

- VE 1 stop gate as preliminary stop gate, ☞ 8-3
- DA 1/B damper, ☞ 8-7
- Sensor (Ø 6.5 mm; $S_N = 4$ mm) for querying the workpiece pallet position in the HP 1/P and for querying the upper position in the HP 1/P; ☞ 8-16

- Position supérieure : les WT sont indexées par les tiges de positionnement. La position supérieure de la HP 1/P peut être demandée avec un capteur inductif.
- La HP 1/P peut être directement montée sous la section de transport ou sur le plateau de table de machine d'un poste de travail.

Fournitures :

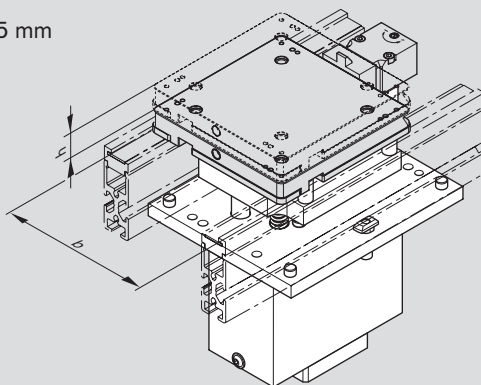
- Éléments de fixation complets inclus
- Carter (uniquement 3 842 998 493 ; inutile pour 3 842 998 494)
- Support d'interrupteur SH 1/S pour l'interrogation de la position de la palette porte-pièces sur une HP 1/P (☞ 8-9)
- Support d'interrupteur SH 1/M-A pour l'interrogation de la position de l'HP 1/P (☞ 8-10)
- Vissage pneumatique

Etat à la livraison : Monté**Accessoires en option :**

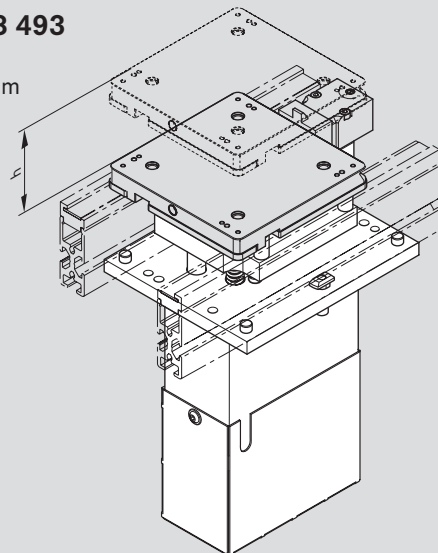
- Séparateur VE 1 pour la pré-séparation, ☞ 8-3
- Amortisseur DA 1/B, ☞ 8-7
- Capteur (Ø 6,5 mm ; $S_N = 4$ mm) pour l'interrogation de la position de la palette porte-pièces sur une HP 1/P et pour l'interrogation de la position supérieure de l'HP 1/P ; ☞ 8-16

3 842 998 494

h = 15 mm

**3 842 998 493**

h = 0...50 mm



Hub- und Positioniereinheit HP 1/P
Lift position unit
Unité de levée et de positionnement

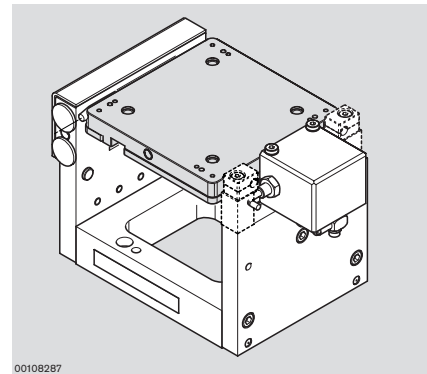
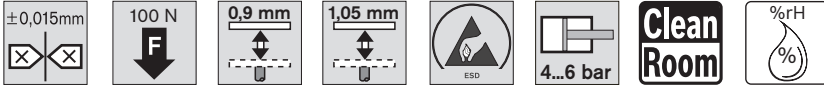
b [mm]	h [mm]	Nr./No./N°
80; 120; 160	15	3 842 998 494
		b = ... mm
80; 120; 160	0...50	3 842 998 493
		b = ... mm

Positionieren · Positioning · Positionnement

Positioniereinheit PE 1/P

Position unit

Unité de positionnement



Verwendung:

Positionierung eines Werkstückträgers in einer Bearbeitungsstation oder einem Handarbeitsplatz mit sehr hohen Anforderungen an die Positioniergenauigkeit

Ausführung:

- Verwendbar mit Werkstückträgern WT 1/S, WT1/K und WT 1/P
- Positionierung über Spannstift und schwimmend gelagerte Welle an der Seite des Werkstückträgers
- Zulässige vertikale Prozesskraft bis 100 N inkl. Werkstückträger
- Wiederholgenauigkeit in X- und Y-Richtung: $\pm 0,015$ mm
- Zur Vorpositionierung des ankommenden Werkstückträgers und zur Vorvereinzelung ist jeweils ein Vereinzeler VE 1 oder VE 1/D zu verwenden.
- Die PE 1/P kann ohne Unterbrechung des Streckenprofils direkt unter der Transportstrecke oder auf der Tischplatte einer Automatikstation befestigt werden.
- Die PE 1/P erlaubt den Zugang zum Werkstückträger auch von unten.

Lieferumfang:

- Positioniereinheit
- Sensor für Stellungenabfrage des Spannzylinders.
- Befestigungsmaterial
- Pneumatische Verschraubung (Drosselrückschlagventil zur Zuluftdrosselung)
- Drei Schalterhalter SH 1/U
- Bei Version für WT 1/P: Anschlagbuchse

Application:

Positioning a workpiece pallet in a processing station or manual workstation with very high positioning accuracy requirements

Design:

- Usable with WT 1/S, WT1/K and WT 1/P workpiece pallets
- Positioning via fixing cylinder and float mounted shaft on the workpiece pallet side
- Permissible vertical process force up to 100 N incl. workpiece pallet
- Reproducing accuracy in X and Y directions: ± 0.015 mm
- VE 1 or V 1/D stop gates are used for pre-positioning the incoming workpiece pallet and as a preliminary stop gate.
- The PE 1/P can be fastened directly under the conveyor section or on the table top of an automated station without interrupting the section profile.
- The PE 1/P also allows access to the workpiece pallet from below.

Scope of delivery:

- Position unit
- Sensor for querying position of fixing cylinder.
- Mounting material
- Pneumatic fitting (throttle non-return valve for inlet-side throttling)
- Three SH 1/U switch brackets
- For WT 1/P version: stop bushing

Utilisation :

Positionnement d'une palette porte-pièces sur un poste de travail ou sur un poste de travail manuel avec des exigences très élevées concernant la précision du positionnement

Construction :

- Utilisable avec les palettes porte-pièces WT 1/S, WT1/K et WT 1/P
- Positionnement par goupille de serrage et par un arbre flottant situé sur le côté de la palette porte-pièces
- Force de traitement verticale admissible jusqu'à 100 N, y compris la palette porte-pièces
- Précision de répétition dans les sens X et Y : $\pm 0,015$ mm
- Le pré-positionnement de la palette porte-pièces en approche ainsi que la pré-séparation nécessitent chacun l'utilisation d'un séparateur VE 1 ou VE 1/D.
- L'unité de positionnement PE 1/P peut être directement fixée sous la section de transport ou sur le plateau de table d'un poste automatique sans que le profilé de section soit interrompu.
- La PE 1/P permet également l'accès à la palette porte-pièces par le bas.

Fournitures :

- Unité de positionnement
- Capteur pour la demande de position du cylindre de fixation.
- Matériel de fixation
- Vissage pneumatique (limiteur de débit unidirectionnel pour obturation de l'alimentation)
- Trois supports d'interrupteur SH 1/U
- Pour la version avec WT 1/P : douille de butée



7-1



11-33

Positionieren · Positioning · Positionnement

■ **Lieferzustand:**
Montiert

Zubehör, erforderlich:

- Vereinzeler VE 1
- Gedämpfter Vereinzeler VE 1/D

■ **Condition on delivery:**
Assembled

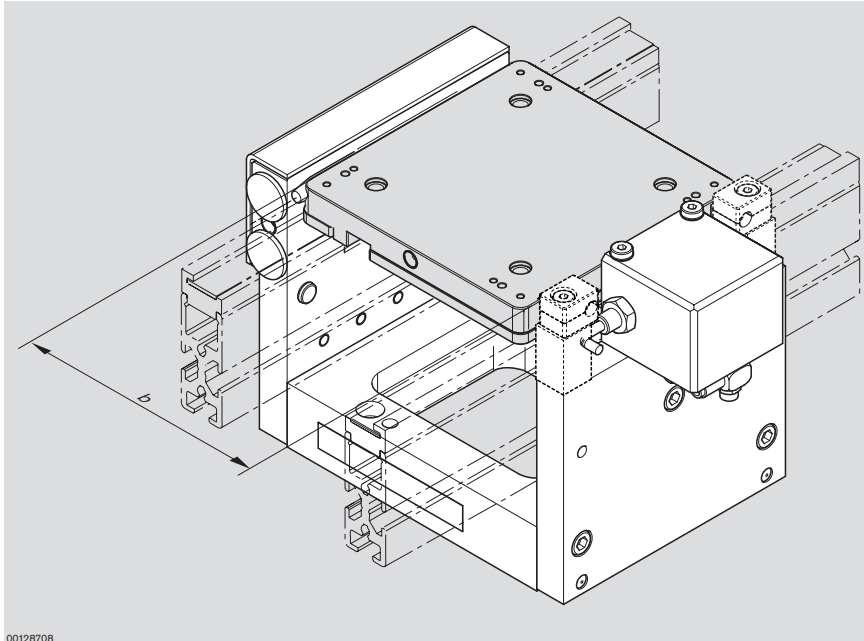
Required accessories:

- VE 1 stop gate
- VE 1/D damped stop gate

■ **Etat à la livraison :**
Monté

Accessoires nécessaires :

- Séparateur VE 1
- Séparateur amorti VE 1/D



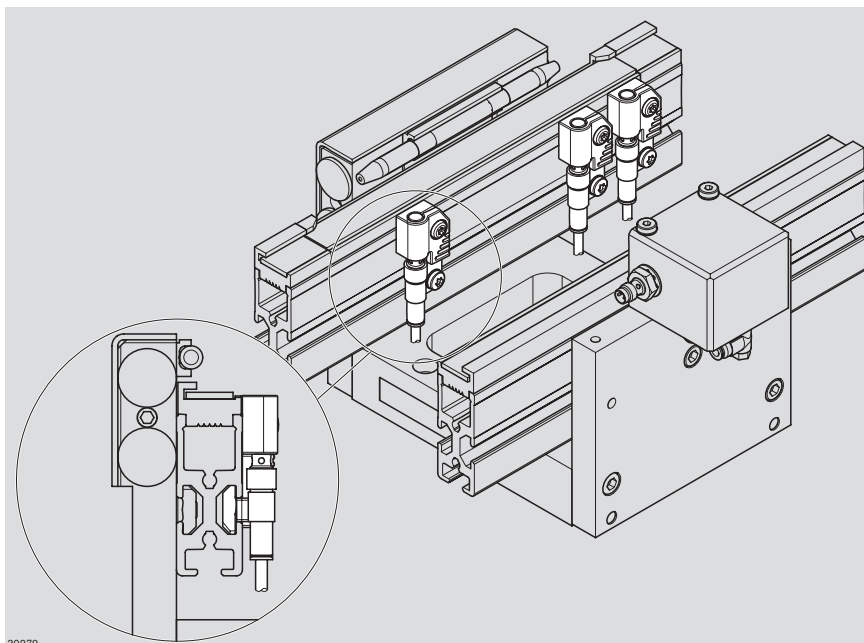
00128708

0,9 mm Für WT 1/S und WT 1/K
For WT 1/S and WT 1/K
Pour WT 1/S et WT 1/K

b [mm]	Nr./No./N°
80; 120; 160	3 842 998 101 b = ... mm

1,05 mm Für WT 1/P
For WT 1/P
Pour WT 1/P

b [mm]	Nr./No./N°
80; 120; 160	3 842 998 102 b = ... mm



30279

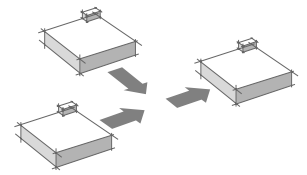
Beispiel für Anbau Schalterhalter
Example of switch bracket installation
Exemple pour montage de support d'interrupteur

Transportsteuerung · Transportation control · Commande de transport

Transportsteuerung

Transportation control

Commande de transport



Vereinzler Stop gates Séparateurs				8-2
Vereinzler VE 1, VE 1/V Stop gate Séparateur				8-3
Vereinzler gedämpft VE 1/D Stop gate, damped Séparateur, amorti				8-5
Dämpfer DA 1 (A, B) Damper Amortisseur				8-6
Schalterhalter SH 1 (U, S, M-A, M-B) Switch brackets Supports d'interrupteur				8-8
Wippe WI/M Rocker Bascule				8-11
Sensoren Sensors Capteurs				8-13

Transportsteuerung · Transportation control · Commande de transport

Vereinzeler


Stop gates

Séparateurs

Die Vereinzeler werden zum Anhalten von Werkstückträgern eingesetzt. Die Betätigung erfolgt pneumatisch. In drucklosem Zustand geht der Vereinzeler durch eine Feder in Sperrstellung und trägt somit wesentlich zur Produktionssicherheit bei.

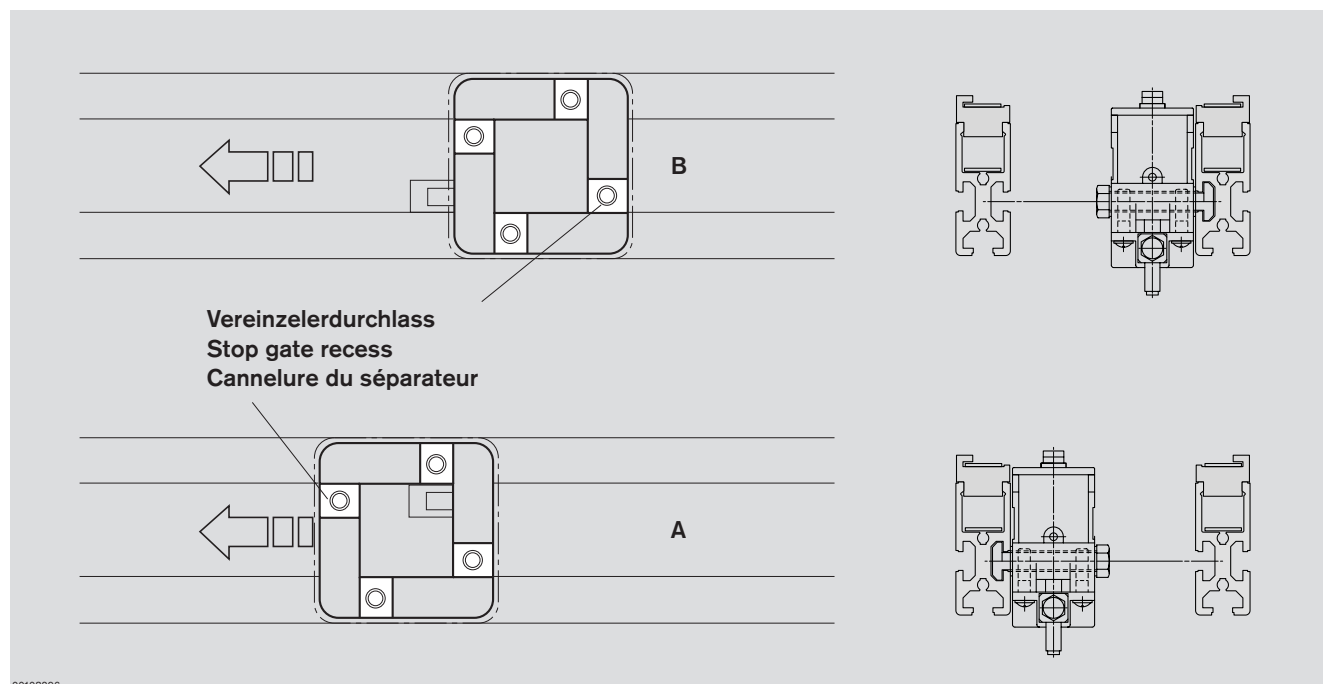
Pneumatische Anschlussbedingungen:  11-34ff

The stop gates are used to stop workpiece pallets. Actuation is pneumatic. In a pressure-free state, the stop gate is held in the blocking position by a spring and thus contributes significantly to production safety.

Requirements for pneumatic connection:  11-34ff

Les séparateurs servent à arrêter les palettes porte-pièces. L'actionnement est réalisé de manière pneumatique. En l'absence de pression, le séparateur se met en position de blocage grâce à un ressort et contribue ainsi à la sécurité de la production.

Conditions de branchement pneumatique :  11-34ff



Die Befestigung am Streckenprofil kann innen rechts (A) oder links (B) erfolgen.

Stop gates can be mounted on the interior of the conveyor section, on the left (B) or right-hand (A) side.

Les séparateurs peuvent être fixés sur le côté intérieur droit (A) ou gauche (B) du profilé de section.

Transportsteuerung · Transportation control · Commande de transport

Vereinzeler VE 1

Stop gate

Séparateur



Verwendung:

Stoppen eines oder mehrerer auflaufender Werkstückträger an der definierten Werkstückträger-Anschlagfläche

Ausführung:

- Pneumatischer Vereinzeler. In drucklosem Zustand geht der Vereinzeler durch eine Feder in die Sperrstellung und der Werkstückträger wird angehalten.
- Kippvereinzeler; Öffnen ohne Verschleiß an der WT-Anlagefläche
- Zulässige Gesamtlast aller Werkstückträger im Stau: 80 kg (bei Fördergeschwindigkeit 9 m/min, siehe Tabelle)

Lieferumfang:

- Inkl. Befestigungsmaterial zur Montage an Förderstrecke
- Pneumatischer Anschluss (Steckfix, Ø 4 mm)

Lieferzustand:

Montiert

Zubehör erforderlich:

- Pneumatikventil. Empfehlung: Rexroth M5, Nenndurchfluss 100 l/min

Zubehör optional:

- Schalterhalter, 8-8

Application:

Stops one or more accumulating workpiece pallets at the defined workpiece pallet stop surface

Design:

- Pneumatic stop gate. In a pressure-free state, the stop gate is held in the blocking position by a spring and the workpiece pallet is stopped.
- Tilting stop gate: opens without causing abrasion on the surface of the workpiece pallet
- Permissible total load of all accumulated workpiece pallets: 80 kg (at conveyor speed 9 m/min, see table)

Scope of delivery:

- Incl. mounting material for mounting on conveyor section
- Pneumatic connection (Quickfix, Ø 4 mm)

Condition on delivery:

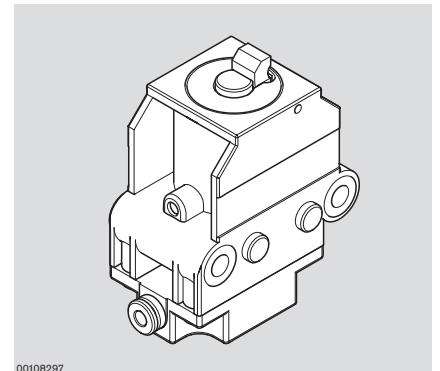
Assembled

Required accessories:

- Pneumatic valve. Recommendation: Rexroth M5, nominal flow 100 l/min

Optional accessories:

- Switch bracket, 8-8



00108297

Utilisation :

Stopper une ou plusieurs palettes porte-pièces entrantes à la surface de butée de la palette porte-pièces définie

Construction :

- Séparateur pneumatique. En l'absence de pression, le séparateur se met en position de blocage grâce à un ressort et la palette porte-pièces est arrêtée.
- Séparateur à bascule ; ouverture sans usure sur la surface de la palette porte-pièces
- Charge totale admissible de toutes les palettes porte-pièces en accumulation : 80 kg (pour vitesse de convoyage 9 m/min, voir tableau)

Fournitures :

- Matériel de fixation pour le montage sur la section de transport inclus
- Raccord pneumatique (Steckfix, Ø 4 mm)

Etat à la livraison :

Monté

Accessoires nécessaires :

- Distributeur pneumatique. Recommandation : Rexroth M5, circulation nominale 100 l/min

Accessoires en option :

- Support d'interrupteur, 8-8

Zulässige Staulast

Permissible accumulation load

Charge d'accumulation admissible

WT [kg]	$v_N^{1)}$ [m/min]
80	6
80	9
60	12
40	15
40	18

¹⁾ Zulässige Fördergeschwindigkeit

¹⁾ Permissible conveying speed

¹⁾ Vitesse de convoyage admissible

Vereinzeler VE 1

Stop gate

Séparateur

Nr./No./N°

3 842 522 400



8-2



11-34

Transportsteuerung · Transportation control · Commande de transport

Vereinzeler VE 1/V

Stop gate

Séparateur



Verwendung:

Stoppen eines oder mehrerer auflaufender Werkstückträger an der definierten Werkstückträger-Anschlagfläche

Ausführung:

- Pneumatischer Vereinzeler. In drucklosem Zustand geht der Vereinzeler durch eine Feder in die Sperrstellung und der Werkstückträger wird angehalten.
- Integriertes Magnetventil ermöglicht kurze Ansprechzeiten
- Kippvereinzeler; Öffnen ohne Verschleiß an der WT-Anlagefläche
- Zulässige Gesamtlast aller Werkstückträger im Stau: 80 kg (bei Fördergeschwindigkeit 9 m/min, siehe Tabelle)

Lieferumfang:

- Inkl. Befestigungsmaterial zur Montage an Förderstrecke
- 3/2-Wegeventil, elektrisch betätigt
- Pneumatischer Anschluss (Steckfix, Ø 4 mm)

Lieferzustand:

Montiert

Zubehör optional

- Schalterhalter, 8-8

Application:

Stops one or more accumulating workpiece pallets at the defined workpiece pallet stop surface

Design:

- Pneumatic stop gate. In a pressure-free state, the stop gate is held in the blocking position by a spring and the workpiece pallet is stopped.
- Integrated solenoid valve ensures short response times
- Tilting stop gate: opens without causing abrasion on the surface of the workpiece pallet
- Permissible total load of all accumulated workpiece pallets: 80 kg (at conveyor speed 9 m/min, see table)

Scope of delivery:

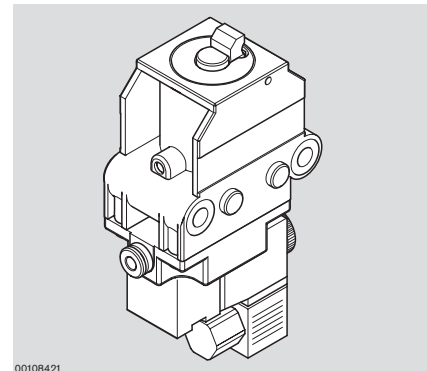
- Incl. mounting material for mounting on conveyor section
- 3/2-way valve, electrically activated
- Pneumatic connection (Quickfix, Ø 4 mm)

Condition on delivery:

Assembled

Optional accessories:

- Switch bracket, 8-8



00108421

Utilisation :

Stopper une ou plusieurs palettes porte-pièces entrantes à la surface de butée de la palette porte-pièces définie

Construction :

- Séparateur pneumatique. En l'absence de pression, le séparateur se met en position de blocage grâce à un ressort et la palette porte-pièces est arrêtée.
- Valve magnétique intégrée qui permet des délais de commande courts
- Séparateur à bascule ; ouverture sans usure sur la surface de la palette porte-pièces
- Charge totale admissible de toutes les palettes porte-pièces en accumulation : 80 kg (pour vitesse de convoyage 9 m/min, voir tableau)

Fournitures :

- Matériel de fixation pour le montage sur la section de transport inclus
- Distributeur 3/2, activation électrique
- Raccord pneumatique (Steckfix, Ø 4 mm)

Etat à la livraison :

Monté

Accessoires en option :

- Support d'interrupteur, 8-8

Zulässige Staulast
Permissible accumulation load
Charge d'accumulation admissible

WT [kg]	$v_N^{1)}$ [m/min]
80	6
80	9
60	12
40	15
40	18

¹⁾ Zulässige Fördergeschwindigkeit

¹⁾ Permissible conveying speed

¹⁾ Vitesse de convoyage admissible

Vereinzeler VE 1/V
Stop gate
Séparateur

Nr./No./N°
3 842 522 399



8-2



11-35

Transportsteuerung · Transportation control · Commande de transport

Vereinzeler, gedämpft VE 1/D

Stop gate, damped

Séparateur, amorti



Verwendung:

Der Vereinzeler VE 1/D findet Anwendung beim Fördern stoßempfindlicher Teile.

Ausführung:

- Pneumatischer Vereinzeler. In drucklosem Zustand geht der Vereinzeler durch eine Feder in die Sperrstellung und der Werkstückträger wird angehalten.
- Pneumatische Dämpfung kann der Werkstückträgermasse angepasst werden
- Mindestmasse des Werkstückträgers: 0,5 kg
- Zulässige Gesamtlast aller Werkstückträger im Stau: 12 kg (bei Fördergeschwindigkeit 6 m/min, siehe Tabelle)

Lieferumfang:

- Inkl. Befestigungsmaterial zur Montage an Förderstrecke
- Pneumatische Winkelverschraubung (Steckfix)

Lieferzustand:

Montiert

Zubehör erforderlich:

- Pneumatikventil. Empfehlung: Rexroth M5, Nenndurchfluss 100 l/min

Zubehör optional:

- Schalterhalter, 8-8

Zulässige Staulast
Permissible accumulation load
Charge d'accumulation admissible

WT [kg]	$v_N^{1)}$ [m/min]
12	6
10	9
10	12
10	15
8	18

Application:

The VE 1/D stop gate is used for conveying shock-sensitive parts.

Design:

- Pneumatic stop gate. In a pressure-free state, the stop gate is held in the blocking position by a spring and the workpiece pallet is stopped.
- Pneumatic damping can be adapted to the workpiece pallet weight
- Minimum weight of the workpiece pallet: 0.5 kg
- Permissible total load of all accumulated workpiece pallets: 12 kg (at conveyor speed 6 m/min, see table)

Scope of delivery:

- Incl. mounting material for mounting on conveyor section
- Pneumatic elbow fitting (Quickfix)

Condition on delivery:

Assembled

Required accessories:

- Pneumatic valve. Recommendation: Rexroth M5, nominal flow 100 l/min

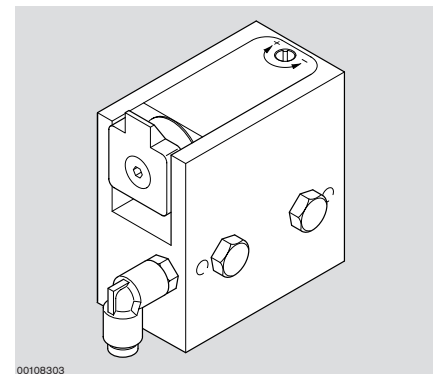
Optional accessories:

- Switch bracket, 8-8

¹⁾ Zulässige Fördergeschwindigkeit

¹⁾ Permissible conveying speed

¹⁾ Vitesse de convoyage admissible



00108303

Utilisation :

Le séparateur VE 1/D est utilisé pour transporter des pièces sensibles aux chocs.

Construction :

- Séparateur pneumatique. En l'absence de pression, le séparateur se met en position de blocage grâce à un ressort et la palette porte-pièces est arrêtée.
- L'amortissement pneumatique peut être adapté en fonction des poids des palettes porte-pièces
- Poids minimal de la palette porte pièces : 0,5 kg
- Charge totale admissible de toutes les palettes porte-pièces en accumulation : 12 kg (pour vitesse de convoyage de 6 m/min, voir tableau)

Fournitures :

- Matériel de fixation pour le montage sur la section de transport inclus
- Raccord à vis coudé pneumatique (Steckfix)

Etat à la livraison :

Monté

Accessoires nécessaires :

- Distributeur pneumatique. Recommendation : Rexroth M5, circulation nominale 100 l/min

Accessoires en option :

- Support d'interrupteur, 8-8

Vereinzeler, gedämpft VE 1/D
Stop gate, damped
Séparateur, amorti

Nr./No./N°

3 842 547 758



8-2



11-36

Transportsteuerung · Transportation control · Commande de transport

Dämpfer DA 1/A

Damper

Amortisseur



Verwendung:

Dämpfer DA 1/A werden eingesetzt, um den Aufprall ankommender Werkstückträger beim Übersetzen von der Quer- in die Längsstrecke oder umgekehrt zu dämpfen.

Ausführung:

- Pneumatischer Dämpfer
- Dämpfungsgrad einstellbar
- Werkstückträgerlast 0,5 kg bis 6 kg zulässig (bei Fördergeschwindigkeit 9 m/min, siehe Tabelle)

Lieferumfang:

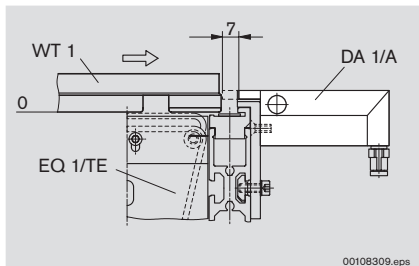
- Inkl. Befestigungsmaterial zur Montage an Anschlagleiste AL1 der EQ 1/...
- Pneumatische Geradverschraubung (Steckfix)

Lieferzustand:

Montiert

Zubehör erforderlich:

- Pneumatikventil. Empfehlung: Rexroth M5, Nenndurchfluss 100 l/min



Application:

DA 1/A dampers are used to cushion the impact of incoming workpiece pallets when they are moved from a transverse section into a longitudinal section and vice versa.

Design:

- Pneumatic damper
- Degree of cushioning adjustable
- Permissible workpiece pallet load 0.5 kg to 6 kg (at conveyor speed 9 m/min, see table)

Scope of delivery:

- Incl. mounting material for mounting to the AL1 stop rail on the EQ 1/...
- Pneumatic straight connection (Quickfix)

Condition on delivery:

Assembled

Required accessories:

- Pneumatic valve. Recommendation: Rexroth M5, nominal flow 100 l/min

Geeignet für den Anbau an EQ 1, HQ 1
Suitable for mounting on EQ 1, HQ 1
Adapté pour le montage sur le EQ 1, HQ 1

Zulässige Staulast (bei max. Werkstückträgermasse 3 kg)

Permissible accumulation load (for max. workpiece pallet weight of 3 kg)

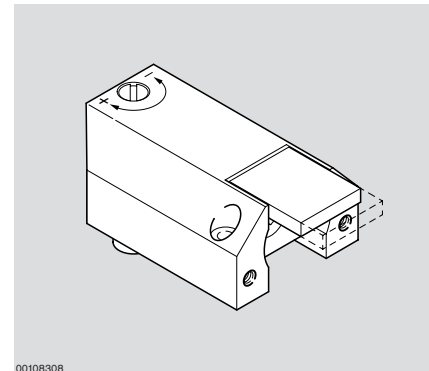
Charge d'accumulation admissible (pour un poids de palette porte-pièces de 3 kg)

WT [kg]	$v_N^{1)}$ [m/min]
10	6
10	9
9	12
8	15
7	18

¹⁾ Zulässige Fördergeschwindigkeit

¹⁾ Permissible conveying speed

¹⁾ Vitesse de convoyage admissible



00108308

Utilisation :

Les amortisseurs DA 1/A sont utilisés pour amortir l'impact des palettes porte-pièces qui arrivent lorsqu'elles passent d'une section transversale à une section longitudinale ou inversement.

Construction :

- Amortisseur pneumatique
- Degré d'amortissement réglable
- Charge de la palette porte-pièces admissible : 0,5 kg à 6 kg (pour une vitesse de convoyage de 9 m/min, voir tableau)

Fournitures :

- Matériel de fixation inclus pour montage sur barre de butée AL1 du EQ 1/...
- Raccord à vis pneumatique rectiligne (Steckfix)

Etat à la livraison :

Monté

Accessoires nécessaires :

- Distributeur pneumatique.
Recommandation : Rexroth M5, circulation nominale 100 l/min

Dämpfer DA 1 (A)

Damper

Amortisseur

Nr./No./N°

3 842 523 376

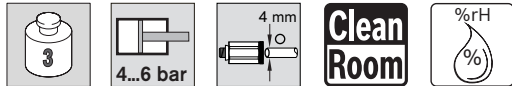


Transportsteuerung · Transportation control · Commande de transport

Dämpfer DA 1/B

Damper

Amortisseur

**Verwendung:**

Dämpfer DA 1/B werden eingesetzt, um den Aufprall ankommender Werkstückträger bei der Einfahrt in die Hub-Positioniereinheit HP 1/P zu dämpfen.

Ausführung:

- Pneumatischer Dämpfer
- Dämpfungsgrad einstellbar
- Werkstückträgerlast 0,5 kg bis 6 kg zulässig (bei Fördergeschwindigkeit 9 m/min, siehe Tabelle)

Lieferumfang:

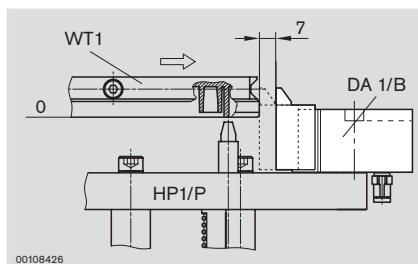
- Inkl. Befestigungsmaterial zur Montage an Förderstrecke
- Pneumatische Geradverschraubung (Steckfix)

Lieferzustand:

Montiert

Zubehör erforderlich:

- Pneumatikventil. Empfehlung: Rexroth M5, Nenndurchfluss 100 l/min

**Application:**

DA 1/B dampers are used to cushion the impact of incoming workpiece pallets when they enter the HP 1/P lift position unit.

Design:

- Pneumatic damper
- Degree of cushioning adjustable
- Permissible workpiece pallet load 0.5 kg to 6 kg (at conveyor speed 9 m/min, see table)

Scope of delivery:

- Incl. mounting material for mounting on conveyor section
- Pneumatic straight connection (Quickfix)

Condition on delivery:

Assembled

Required accessories:

- Pneumatic valve. Recommendation: Rexroth M5, nominal flow 100 l/min

Geeignet für den Anbau an HP1/P
Suitable for mounting on HP1/P
Adapté pour le montage sur le HP1/P

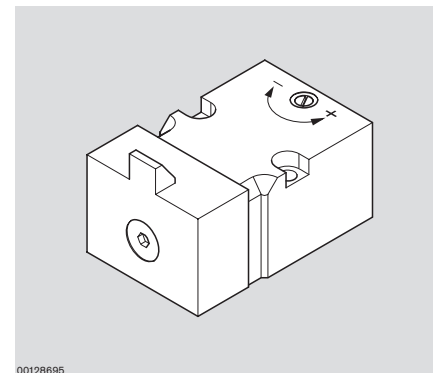
Zulässige Staulast (bei max. Werkstückträgermasse 3 kg)
Permissible accumulation load (for max. workpiece pallet weight of 3 kg)
Charge d'accumulation admissible (pour un poids de palette porte-pièces de 3 kg)

WT [kg]	$v_N^{1)}$ [m/min]
10	6
10	9
9	12
8	15
7	18

¹⁾ Zulässige Fördergeschwindigkeit

¹⁾ Permissible conveying speed

¹⁾ Vitesse de convoyage admissible



00128695

Utilisation :

Les amortisseurs DA 1/B sont utilisés pour amortir l'impact des palettes porte-pièces qui arrivent lors de leur entrée dans l'unité de levée et de positionnement HP 1/P.

Construction :

- Amortisseur pneumatique
- Degré d'amortissement réglable
- Charge de la palette porte-pièces admissible : 0,5 kg à 6 kg (pour une vitesse de convoyage de 9 m/min, voir tableau)

Fournitures :

- Matériel de fixation pour le montage sur la section de transport inclus
- Raccord à vis pneumatique rectiligne (Steckfix)

Etat à la livraison :

Monté

Accessoires nécessaires :

- Distributeur pneumatique.
Recommandation : Rexroth M5, circulation nominale 100 l/min

Dämpfer DA 1/B
Damper
Amortisseur

Nr./No./N°
3 842 535 360



Transportsteuerung · Transportation control · Commande de transport

Schalterhalter SH 1/U

Switch bracket

Support d'interrupteur



Verwendung:

Befestigung für einen Sensor
 Ø 6,5 mm x 30 mm mit
 Steckanschluss M8x1, Nenn-
 Schaltabstand $S_N = 4$ mm, zur Abfrage
 einer Werkstückträgerposition von unten.

Material:

– PE 6.6, schwarz

Lieferumfang:

– Inkl. Befestigungsmaterial zur Montage
 an Förderstrecke

Zubehör erforderlich:

– Sensor Ø 6,5 mm x 30 mm mit
 Steckanschluss M8x1, Nenn-
 Schaltabstand $S_N = 4$ mm

Application:

Mounting a Ø 6.5 mm x 30 mm with
 M8x1 push-in fitting, rated sensing
 range of $S_N = 4$ mm for workpiece pallet
 position inquiry from below.

Material:

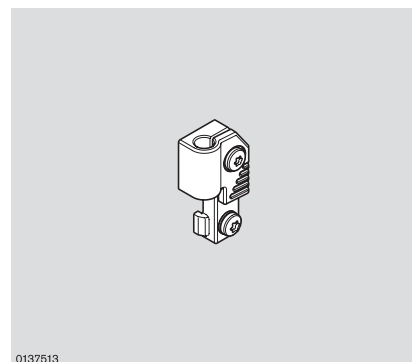
– PE 6.6, black

Scope of delivery:

– Incl. mounting material for mounting
 on conveyor section

Required accessories:

– Ø 6.5 mm x 30 mm sensor with M8x1
 push-in fitting, rated sensing range
 $S_N = 4$ mm



0137513

Utilisation :

Fixation pour un capteur Ø 6,5 mm x 30 mm
 avec raccord instantané M8x1, écart
 nominal de commutation $S_N = 4$ mm
 pour la demande de position d'une
 palette porte-pièces par le dessous.

Matériau :

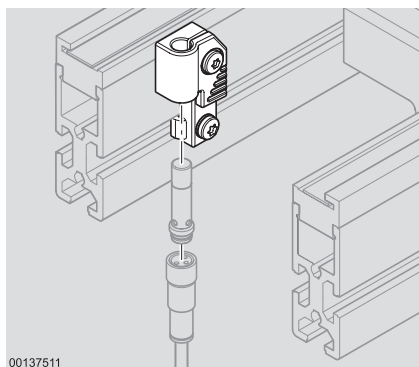
– PE 6.6, noir

Fournitures :

– Matériel de fixation pour le montage
 sur la section de transport inclus

Accessoires nécessaires :

– Capteur Ø 6,5 mm x 30 mm avec
 raccord instantané M8x1, écart
 nominal de commutation $S_N = 4$ mm



00137511

Schalterhalter SH 1/U
 Switch bracket
 Support d'interrupteur

Nr./No./N°

3 842 542 555

Abfrage WT-Position,
 mit Sensor Ø 6,5 mm x 30 mm
 WT position inquiry,
 with Ø 6.5 mm x 30 mm sensor
 Interrogation de la position WT,
 avec capteur Ø 6,5 mm x 30 mm

Nr./No./N°

Sensor für SH 1/U 3 842 542 500

Sensor for SH 1/U

Capteur pour SH 1/U



Transportsteuerung · Transportation control · Commande de transport

Schalterhalter SH 1/S

Switch bracket

Support d'interrupteur



Verwendung:

Befestigung für einen Sensor
 Ø 6,5 mm x 30 mm mit
 Steckanschluss M8x1, Nenn-
 Schaltabstand $S_N = 4$ mm, zur Abfrage
 einer Werkstückträgerposition von unten.

Material:

– PE 6.6, schwarz

Lieferumfang:

– Inkl. Befestigungsmaterial zur Montage
 an Förderstrecke

Zubehör erforderlich:

– Sensor Ø 6,5 mm x 30 mm mit
 Steckanschluss M8x1, Nenn-
 Schaltabstand $S_N = 4$ mm

Application:

Mounting a Ø 6.5 mm x 30 mm with
 M8x1 push-in fitting, rated sensing
 range of $S_N = 4$ mm for workpiece pallet
 position inquiry from below.

Material:

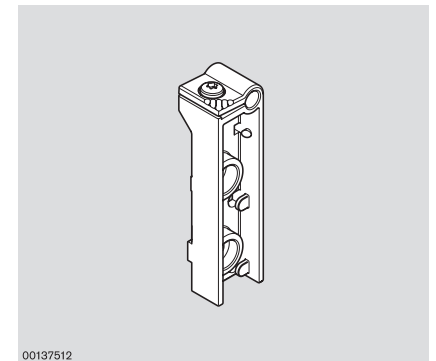
– PE 6.6, black

Scope of delivery:

– Incl. mounting material for mounting
 on conveyor section

Required accessories:

– Ø 6.5 mm x 30 mm sensor with M8x1
 push-in fitting, rated sensing range
 $S_N = 4$ mm



00137512

Utilisation :

Fixation pour un capteur Ø 6,5 mm x 30 mm
 avec raccord instantané M8x1, écart
 nominal de commutation $S_N = 4$ mm
 pour la demande de position d'une
 palette porte-pièces par le dessous.

Matériau :

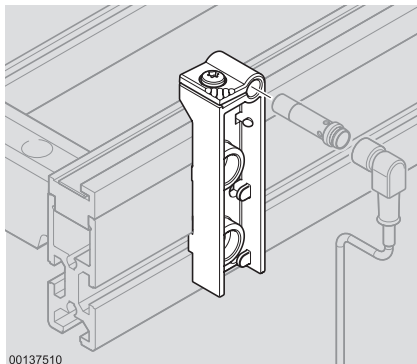
– PE 6.6, noir

Fournitures :

– Matériel de fixation pour le montage
 sur la section de transport inclus

Accessoires nécessaires :

– Capteur Ø 6,5 mm x 30 mm avec
 raccord instantané M8x1, écart
 nominal de commutation $S_N = 4$ mm



00137510

Schalterhalter SH 1/S
 Switch bracket
 Support d'interrupteur

Nr./No./N°

3 842 542 556

Abfrage WT-Position,
 mit Sensor Ø 6,5 mm x 30 mm
 WT position inquiry,
 with Ø 6.5 mm x 30 mm sensor
 Interrogation de la position WT,
 avec capteur Ø 6,5 mm x 30 mm

Nr./No./N°

3 842 542 500

Sensor für SH 1/S

Sensor for SH 1/S

Capteur pour SH 1/S



Transportsteuerung · Transportation control · Commande de transport

Schalterhalter-Kit SH 1/M-A und SH 1/M-B

Switch bracket kit

Kit de support d'interrupteur



Verwendung:

Befestigung für einen Sensor
 Ø 6,5 mm x 30 mm mit
 Steckanschluss M8x1, Nenn-
 Schaltabstand $S_N = 4$ mm, zur Abfrage
 einer Werkstückträgerposition an
 beengten Einbaustellen, z. B. an der
 PE 1/P oder an der HP 1/P.

Ausführung:

– Aufbau aus Halbschalen
 – Halbschalen: Polyamid, schwarz

Lieferumfang:

– Inkl. Befestigungsmaterial zur Montage
 an Förderstrecke

Zubehör erforderlich:

– Sensor Ø 6,5 mm x 30 mm mit
 Steckanschluss M8x1, Nenn-
 Schaltabstand $S_N = 4$ mm

Application:

Mounting a Ø 6.5 mm x 30 mm with
 M8x1 push-in fitting, rated sensing
 range of $S_N = 4$ mm for workpiece pallet
 position inquiry in positions with limited
 e.g. on the PE 1/P or the HP 1/P.

Design:

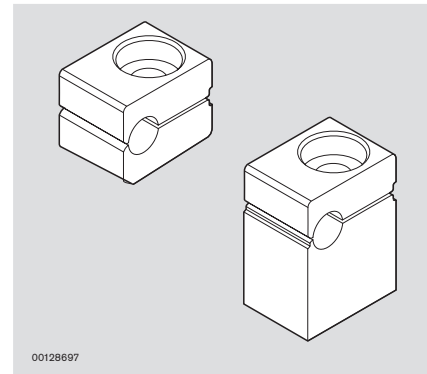
– Design made of half-shells
 – Half shells: polyamide, black.

Scope of delivery:

– Incl. mounting material for mounting
 on conveyor section

Required accessories:

– Ø 6.5 mm x 30 mm with M8x1 push-in
 fitting, rated sensing range $S_N = 4$ mm



00128897

Utilisation :

Fixation pour un capteur Ø 6,5 mm x 30 mm
 avec raccord instantané M8x1, écart
 nominal de commutation $S_N = 4$ mm
 pour la demande de position d'une
 palette porte-pièces sur des espaces
 d'installation exigus, par ex. sur
 une PE 1/P ou une HP 1/P.

Construction :

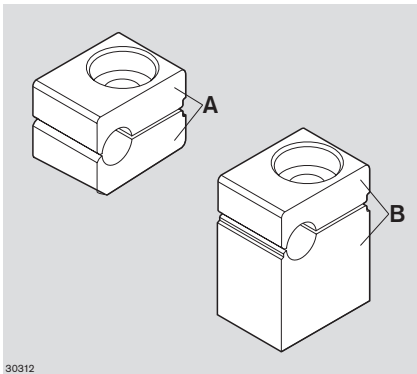
– Montage à partir de demi-coques
 – Demi-coques : polyamide, noir

Fournitures :

– Matériel de fixation pour le montage
 sur la section de transport inclus

Accessoires nécessaires :

– Capteur Ø 6,5 mm x 30 mm avec
 raccord instantané M8x1, écart
 nominal de commutation $S_N = 4$ mm



30312

Schalterhalter-Kit SH 1/M-A
 Switch bracket kit
 Kit de support d'interrupteur

	Nr./No./N°
A	3 842 553 244

Schalterhalter-Kit SH 1/M-B
 Switch bracket kit
 Kit de support d'interrupteur

	Nr./No./N°
B	3 842 553 245

Abfrage WT-Position,
 mit Sensor Ø 6,5 mm x 30 mm
 WT position inquiry,
 with Ø 6.5 mm x 30 mm sensor
 Interrogation de la position WT,
 avec capteur Ø 6,5 mm x 30 mm

	Nr./No./N°
Sensor für SH 1/M-A, SH 1/M-B Sensor for SH 1/M-A, SH 1/M-B Capteur pour SH 1/M-A, SH 1/M-B	3 842 542 500



Transportsteuerung · Transportation control · Commande de transport

Wippe WI/M

Rocker

Bascule



Verwendung:

Zur Bereichsüberwachung und Staudruckregulierung

Ausführung:

- Wahlweise für elektrische oder pneumatische Signalgeber
- Überwachungsbereich: 60 mm

Lieferumfang:

Inkl. Befestigungsmaterial zur Montage der Wippe WI/M an der Förderstrecke ST /... oder Bandstrecke BS /...

Zubehör, optional:

- 12 mm-Sensor rund mit Nenn-Schaltabstand $S_N = 4$ mm, (☞ 8-14, 8-15)
- Pneumatischer Zylinderschalter (B) **3 842 532 151** für direkte Umwandlung der Schieberbetätigung in ein pneumatisches Signal. In Verbindung mit einem Vereinzler VE 1 (☞ 8-3) kann eine einfache, rein pneumatische Staudruckregulierung aufgebaut werden, (☞ 4-18).

Application:

Used for area monitoring and accumulation stop gate

Design:

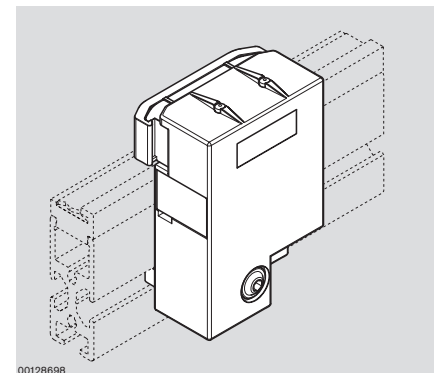
- Either for electric or pneumatic signaling device
- Monitoring area: 60 mm

Scope of delivery:

Includes mounting material to mount the WI/M rocker on the ST /... conveyor section or BS /... belt section

Optional accessories:

- 12 mm sensor, round, with rated sensing range $S_N = 4$ mm, (☞ 8-14, 8-15)
- Pneumatic cylinder switch (B) **3 842 532 151** for direct conversion of the slide actuation into a pneumatic signal. A simple, fully pneumatic accumulation stop gate (☞ 4-18) can be constructed using a VE 1 stop gate (☞ 8-3).



00128698

Utilisation :

Pour contrôler le secteur et pour la régulation de la charge d'accumulation

Construction :

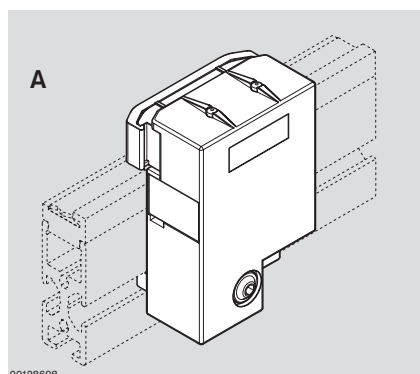
- Au choix pour transmetteur de signal électrique ou pneumatique
- Secteur contrôlé : 60 mm

Fournitures :

Matériel de fixation inclus pour le montage de la bascule WI/M sur la section de transport ST /... ou sur la section à bande BS /...

Accessoires en option :

- Capteur 12 mm rond avec écart nominal de commutation $S_N = 4$ mm, (☞ 8-14, 8-15)
- Détecteur de position pneumatique (B) **3 842 532 151** pour une conversion directe du vannage en un signal pneumatique. En liaison avec un séparateur VE 1 (☞ 8-3), un simple séparateur d'accumulation exclusivement pneumatique peut être constitué (☞ 4-18).



00128698

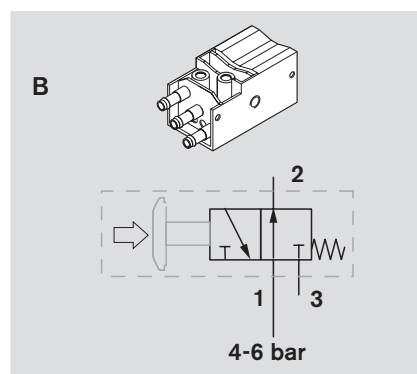
Wippe WI/M
Rocker
Bascule



Nr./No./N°

3 842 530 797

A



Pneumatischer Zylinderschalter
Pneumatic cylinder switch
Détecteur de position pneumatique



Nr./No./N°

3 842 532 151

B

Abfrage WT-Position,
mit Sensoren M12x70 oder M12x67
WT position inquiry,
with M12x70 or M12x67 sensor
Interrogation de la position WT,
avec capteur M12x70 ou M12x67

	Nr./No./N°
Sensoren für WI/M	3 842 501 548
Sensors for WI/M	3 842 549 812
Capteurs pour WI/M	



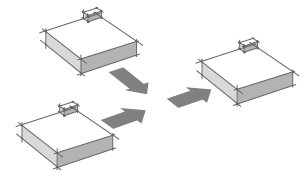
☞ 11-41

Transportsteuerung · Transportation control · Commande de transport

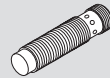
Sensoren


Sensors

Capteurs

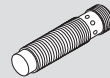



Sensor M12 mit Steckanschluss M12x1
 M12 sensor with M12x1 push-in fitting
 Capteur M12 avec raccord instantané M12x1



 8-14


Sensor M12 mit Steckanschluss M8x1
 M12 sensor with M8x1 push-in fitting
 Capteur M12 avec raccord instantané M8x1



 8-15

Sensor Ø 6,5 mm x 30 mm
 Ø 6.5 mm x 30 mm sensor
 Capteur Ø 6,5 mm x 30 mm



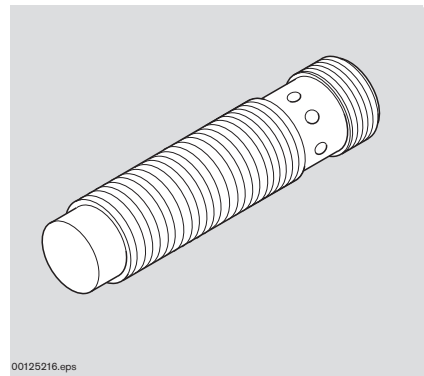
 8-16

Transportsteuerung · Transportation control · Commande de transport

Sensor M12 mit Steckanschluss M12x1

M12 sensor with M12x1 push-in fitting

Capteur M12 avec raccord instantané M12x1

**Verwendung:**

Erkennen der Position eines Werkstückträgers in Verbindung mit einer Wippe WI/M

Ausführung:

- Schutzklasse: IP 68
- Max. Einsatztemperatur: -25 bis 70 °C
- Abmessungen: M12 x 70 mm
- Steckanschluss: M12x1
- Nenn-Schaltabstand: $S_N = 4$ mm
- Schaltfrequenz: 1.500 Hz
- Betriebsstrom: 200 mA
- Mechanischer Einbau: nicht bündig
- Funktionsanzeige: LED
- Schaltausgang: PNP
- Schaltfunktion: Schließer (NO)
- Betriebsspannung: 10...30 V DC
- Zulassungen: CE, UL, CSA
- Normkonformität: IEC 60947-5-2

Material:

Gehäuse: Nichtrostend; PA 12

Einbauort:

Zum Einbau in die Wippe WI/M

Zubehör, erforderlich:

Schaltherhalter

Application:

Used to recognize the position of a workpiece pallet, in conjunction with a WI/M rocker

Design:

- Protection class: IP 68
- Max. operating temperature: -25 to 70 °C
- Dimensions: M12 x 70 mm
- Push-in fitting: M12x1
- Rated sensing range: $S_N = 4$ mm
- Switching frequency: 1.500 Hz
- Operating current: 200 mA
- Mechanical installation: Not flush
- Function display: LED
- Switching output: PNP
- Switching function: Normally open (NO)
- Operating voltage: 10...30 V DC
- Approvals: CE, UL, CSA
- Conformity with standards: IEC 60947-5-2

Material:

Housing: stainless; PA 12

Mounting location:

For installation in the WI/M rocker

Required accessories:

Switch bracket

Utilisation :

Détection de la position d'une palette porte-pièces, en association avec une bascule WI/M

Construction :

- Classe de protection : IP 68
- Température d'utilisation max. : -25 à 70 °C
- Dimensions : M12 x 70 mm
- Raccord instantané : M12x1
- Écart nominal de commutation : $S_N = 4$ mm
- Fréquence de commutation : 1.500 Hz
- Courant de service : 200 mA
- Montage mécanique : Non affleurante
- Affichage des fonctions : LED
- Sortie de commutation : PNP
- Fonction de commutation : Contact de fermeture (NO)
- Tension de service : 10...30 V DC
- Homologations : CE, UL, CSA
- Conformité à la norme : IEC 60947-5-2

Matériau :

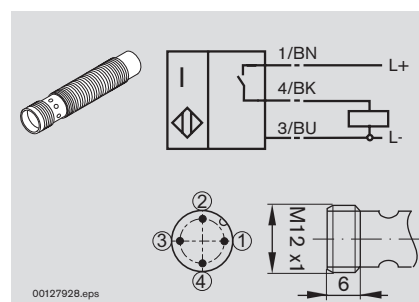
Boîtier : Inoxydable ; PA 12

Emplacement de montage :

Pour montage dans la bascule WI/M

Accessoires nécessaires :

Support d'interrupteur



Sensor M12x70
Sensor M12x70
Capteur M12x70

Nr./No./N°

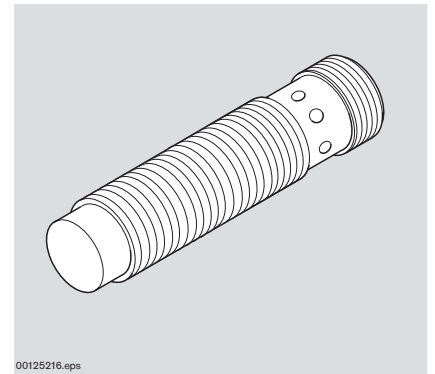
3 842 501 548

Transportsteuerung · Transportation control · Commande de transport

Sensor M12 mit Steckanschluss M8x1

M12 sensor with M8x1 push-in fitting

Capteur M12 avec raccord instantané M8x1

**Verwendung:**

Erkennen der Position eines Werkstückträgers in Verbindung mit einer Wippe WI/M

Ausführung:

- Schutzklasse: IP 67
- Max. Einsatztemperatur: -25 bis 70 °C
- Abmessungen: M12 x 67 mm
- Steckanschluss: M8x1
- Nenn-Schaltabstand: $S_N = 4$ mm
- Schaltfrequenz: 2.500 Hz
- Betriebsstrom: 200 mA
- Mechanischer Einbau: bündig
- Funktionsanzeige: LED
- Schaltausgang: PNP
- Schaltfunktion: Schließer (NO)
- Betriebsspannung: 10...30 V DC
- Zulassungen: CE, UL, CSA
- Normkonformität: IEC 60947-5-2

Material:

Gehäuse: CuZn beschichtet; LCP

Einbauort:

Zum Einbau in die Wippe WI/M

Zubehör, erforderlich:

Schalterhalter

Application:

Used to recognize the position of a workpiece pallet, in conjunction with a WI/M rocker

Design:

- Protection class: IP 67
- Max. operating temperature: -25 to 70 °C
- Dimensions: M12 x 67 mm
- Push-in fitting: M8x1
- Rated sensing range: $S_N = 4$ mm
- Switching frequency: 2.500 Hz
- Operating current: 200 mA
- Mechanical installation: Flush
- Function display: LED
- Switching output: PNP
- Switching function: Normally open (NO)
- Operating voltage: 10...30 V DC
- Approvals: CE, UL, CSA
- Conformity with standards: IEC 60947-5-2

Material:

Housing: coated with CuZn, LCP

Mounting location:

For installation in the WI/M rocker

Required accessories:

Switch bracket

Utilisation :

Détection de la position d'une palette porte-pièces, en association avec une bascule WI/M

Construction :

- Classe de protection : IP 67
- Température d'utilisation max. : -25 à 70 °C
- Dimensions : M12 x 67 mm
- Raccord instantané : M8x1
- Écart nominal de commutation : $S_N = 4$ mm
- Fréquence de commutation : 2.500 Hz
- Courant de service : 200 mA
- Montage mécanique : Affleurante
- Affichage des fonctions : LED
- Sortie de commutation : PNP
- Fonction de commutation : Contact de fermeture (NO)
- Tension de service : 10...30 V DC
- Homologations : CE, UL, CSA
- Conformité à la norme : IEC 60947-5-2

Matériau :

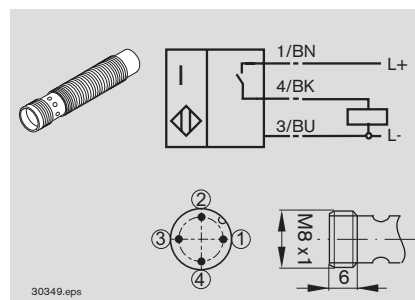
Boîtier : CuZn revêtu ; LCP

Emplacement de montage :

Pour montage dans la bascule WI/M

Accessoires nécessaires :

Support d'interrupteur



Sensor M12x67
Sensor M12x67
Capteur M12x67

Nr./No./N°

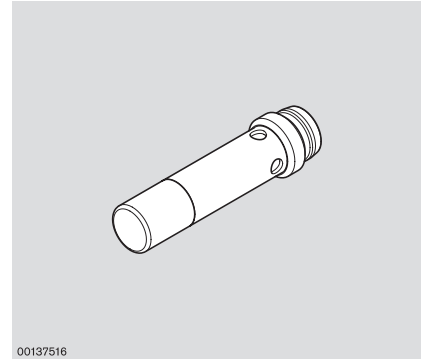
3 842 549 812

Transportsteuerung · Transportation control · Commande de transport

Sensor Ø 6,5 mm mit Steckanschluss M8x1

Ø 6.5 mm sensor with M8x1 push-in fitting

Capteur Ø 6,5 mm avec raccord instantané M8x1



00137516

Verwendung:

Erkennen der Position eines Werkstückträgers durch induktiven Sensor.

Ausführung:

- Schutzklasse: IP 67
- Max. Einsatztemperatur: -20 bis 70 °C
- Abmessungen: 6,5 x 30 mm
- Steckanschluss: M8x1
- Nenn-Schaltabstand: $S_N = 4$ mm
- Schaltfrequenz: 1.500 Hz
- Betriebsstrom: 200 mA
- Mechanischer Einbau: nicht bündig
- Funktionsanzeige: LED
- Schaltausgang: PNP
- Schaltfunktion: Schließer (NO)
- Betriebsspannung: 10...30 V DC
- Zulassungen: CE, cULus

Material:

Gehäuse: Stahl; nichtrostend
Aktive Fläche: PA 12

Einbauort:

Befestigung durch Schalterhalter

Zubehör, erforderlich:

Schalterhalter

Application:

Used to recognize the position of a workpiece pallet with an inductive sensor.

Design:

- Protection class: IP 67
- Max. operating temperature: -20 to 70 °C
- Dimensions: 6.5 x 30 mm
- Push-in fitting: M8x1
- Rated sensing range: $S_N = 4$ mm
- Switching frequency: 1.500 Hz
- Operating current: 200 mA
- Mechanical installation: Not flush
- Function display: LED
- Switching output: PNP
- Switching function: Normally open (NO)
- Operating voltage: 10...30 V DC
- Approvals: CE, cULus

Material:

Housing: Steel; stainless
Active surface: PA 12

Mounting location:

Fastening by switch brackets

Required accessories:

Switch bracket

Utilisation :

Détecter la position d'une palette porte-pièces avec un capteur inductif.

Construction :

- Classe de protection : IP 67
- Température d'utilisation max. : -20 à 70 °C
- Dimensions : 6,5 x 30 mm
- Raccord instantané : M8x1
- Écart nominal de commutation : $S_N = 4$ mm
- Fréquence de commutation : 1.500 Hz
- Courant de service : 200 mA
- Montage mécanique : Non affleurante
- Affichage des fonctions : LED
- Sortie de commutation : PNP
- Fonction de commutation : Contact de fermeture (NO)
- Tension de service : 10...30 V DC
- Homologations : CE, cULus

Matériau :

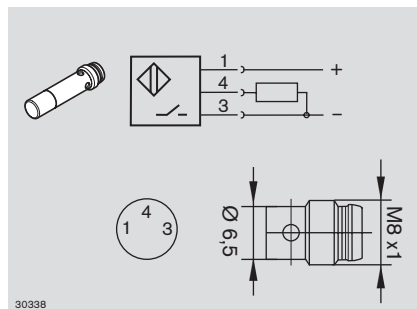
Boîtier : Acier ; inoxydable
Surface active : PA 12

Emplacement de montage :

Fixation par support d'interrupteur

Accessoires nécessaires :

Support d'interrupteur



30338

Sensor Ø 6,5 mm x 30 mm
Sensor Ø 6.5 mm x 30 mm
Capteur Ø 6,5 mm x 30 mm

Nr./No./N°

3 842 542 500

Transportsteuerung · Transportation control · Commande de transport

Sensormatrix

Sensor application matrix

Matrice d'application capteur

Abfrage WT-Position
WT-position inquiry
Interrogation de la position WT

Durchmesser mit Steckanschluss Diameter with push-in fitting Diamètre avec raccord instantané	Sensor Sensor Capteur		
M12 mit M12 M12 with M12 M12 avec M12		3 842 501 548	
M12 mit M8 M12 with M8 M12 avec M8			3 842 549 812
Ø 6,5 mm mit M8 Ø 6.5 mm with M8 Ø 6,5 mm avec M8		3 842 542 500	
	SH 1/U	X	
	SH 1/S	X	
	SH 2/M-A	X	
	SH 2/M-B	X	
	WI/M		X X

Identifikationssysteme · Identification systems · Systèmes d'identification

Identifikationssysteme Identification systems Systèmes d'identification

■ Identifikations- und Datenträgersysteme werden zur Steuerung vielfältiger Produktions- und Transportsysteme in der Montagetechnik eingesetzt.

Objektbezogene Daten bilden die Grundlage für

- Vereinzeler VE, VE 1 oder VE 1/V
- Sensor M8x1 mit Nenn-Schaltabstand $S_N = 4$ mm, bündig einbaubar

Im Katalog RFID-Systeme finden Sie unser aktuelles Produktprogramm an Identifikations- und Datenträgersystemen.

■ Identification and data tag systems are used to control numerous production and transport systems in assembly technology applications.

Data related to objects is the basis for

- VE, VE 1 or VE 1/V stop gates
- M8x1 sensor with rated sensing range $S_N = 4$ mm, can be installed flush

You can find our current range of identification and data tag systems in the RFID systems catalog.

■ Les systèmes d'identification et de supports de données sont mis en œuvre pour commander divers systèmes de transport et de production dans la technique de montage.

Les données relatives aux objets servent de fondement

- Séparateurs VE, VE 1 ou VE 1/V
- Capteur M8x1 avec écart nominal de commutation $S_N = 4$ mm, à pose affleurante

Vous trouverez notre gamme actuelle de systèmes d'identification et de supports de données dans le catalogue des systèmes RFID.

Katalog Identifikationssysteme
Identification systems catalog
Catalogue Systèmes d'identification

	Nr./No./N°
DE	3 842 541 003
EN	3 842 541 004
FR	3 842 541 005
IT	3 842 541 006

Projektierung · Planning · Projeter

Projektierung Planning Projeter

MTpro – Projektierungssoftware
MTpro planning software
MTpro – Logiciel de planification

 10-2

Projektierung · Planning · Projeter

MTpro – Projektierungssoftware

MTpro – Planning software

MTpro – Logiciel de planification

MTpro ist eine Software zur Projektierung von Montagesystemen, die Sie von der Auswahl über die Konfiguration bis zur Bestellung der Produkte von Rexroth begleitet. Das Programm bietet die folgenden Funktionen und Inhalte komplett in 7 Sprachen (en/de/fr/es/it/ja/zh):

Layout Designer zur schnellen Planung kompletter Gestelle und Fördersysteme

- Einfacher Zusammenbau mittels Drag & Drop und Schnappfunktion, ganz ohne CAD-System
- Verbaulogik zur automatischen Konfiguration und Anpassung von Zusammenbauten
- Automatische Stücklistenenerstellung unter Berücksichtigung von Klein- und Zubehörteilen
- Export von 3D-Volumenmodellen
- Bibliothek zur Wiederverwendung von Baugruppen und Layouts

Produktinformationen

- Technische Daten
- Katalogdatenblätter
- Montageanleitungen
- Ersatzteillisten und -zeichnungen

Konfiguration und Berechnung

- Produktkonfiguration und Generierung der Bestellinformation
- Ausgabe von Bestelllisten in benutzerspezifische Vorlagen
- Direkte Anbindung an Rexroth eShop
- Quick & Easy Profilkonfiguration und Zeichnungserstellung
- Weitere Auslegungs- und Berechnungsprogramme

CAD Bibliothek

- Konfigurierbare CAD-Modelle
- Speichern in Standardformaten
- Direktes Einfügen in alle gängigen CAD-Systeme

Systemvoraussetzungen

- Windows ab Version 7
- DVD-ROM-Laufwerk
- Mindestens 6 GB freier Festplattenspeicher
- Adobe Reader ab Version 10
- Internetzugang für die Lizenzierung des Layout Designers und für automatische Updates

MTpro is a software program used for planning assembly systems. It assists you from selection to configuration and ordering of the Rexroth products. The program offers the following functions and full content in seven languages (en/de/fr/es/it/ja/zh):

Layout Designer for planning and designing complete frames and conveyor systems

- Simple design using the drag & drop and snap functions without a CAD system
- Design logic for automatic configuration and assembly adaptation
- Automatic order list generation of all small parts and accessories
- Export of 3D volume models
- Library for saving and reusing your own modules and layouts

Product information

- Technical data
- Catalog data sheets
- Assembly instructions
- Spare parts lists and drawings



Datenträger MTpro
Data carrier MTpro
Support de données MTpro

Nr./No./N°

3 842 539 057

Configuration and calculation

- Product configuration and generation of ordering information
- Issuing of order lists in user-specific presentations
- Direct connection to Rexroth eShop
- Quick & Easy profile configuration and drafting
- Other design and calculation programs

CAD library

- Configurable CAD models
- Memories in standard formats
- Direct integration into all common CAD systems

System requirements

- Windows from version 7 onwards
- DVD-ROM drive
- At least 6 GB of free disk space hard disk space
- Adobe Reader from version 10 onwards
- Internet access for layout designer licensing and automatic updates

■ *MTpro* est un logiciel utilisé pour la planification de systèmes de montage vous accompagnant de la sélection à la commande de produits de Rexroth, en passant par la configuration. Le programme propose les fonctions et contenus complets suivants en 7 langues différentes (de/en/fr/es/it/ja/zh) :

Layout Designer pour la planification rapide de bâtis et de systèmes de convoyage complets

- Montage facile grâce à la fonction drag & drop et snap sans système CAD
- Logique d'intégration pour la configuration et l'adaptation automatiques d'assemblages
- Génération automatique de nomenclatures avec prise en compte de petites pièces et d'accessoires
- Export de modèles volumiques en 3D
- Bibliothèque pour l'utilisation ultérieure de sous-ensembles et de configurations

Informations sur le produits

- Données techniques
- Fiches de données de catalogue
- Notices de montage
- Listes et plans de pièces de rechange

Configuration et calcul

- Configuration de produits et génération des informations de commande
- Édition de listes de commande dans des documents spécifiques aux utilisateurs
- Lien direct vers l'eShop Rexroth
- Quick & Easy Configuration de profilés et création de plans
- Autres programmes de configuration et de calcul

Bibliothèque CAD

- Modèles CAO configurables
- Enregistrement en formats standards
- Insertion directe dans tous les systèmes CAD courants

Conditions système requises

- Windows à partir de la version 7
- Lecteur DVD-ROM
- 6 GB d'espace de disque dur libre au moins
- Adobe Reader à partir de la version 10
- Accès à Internet pour la licence de Layout Designer et les mises à jour automatiques

Technische Daten · Technical data · Données techniques

Technische Daten

Technical data

Données techniques

Systemspezifikationen System specifications Spécifications du système	 11-2
Maßzeichnungen Dimensioned drawings Dessins cotés	 11-10
Berechnung der Durchlaufzeit Calculation of pallet passing time Calculations temps de passage	 11-42
Funktionspläne Circuit diagrams Schémas de fonctionnement	 11-50
Motordaten Motor data Données des moteurs	 11-58
Transportgeschwindigkeiten v_N Transportation speeds v_N Vitesses de transport v_N	 11-60
Motoranschluss Motor connection Raccordement du moteur	 11-61

Technische Daten · Technical data · Données techniques

Systemspezifikationen

System specifications

Spécifications du système

Verwendungszweck

Die Rexroth Transfersysteme bilden jeweils ein Programm von aufeinander abgestimmten mechanischen Komponenten für Transport, Verteilung und Positionierung von Werkstückträgern. Mit diesen Komponenten lassen sich, entsprechend der jeweiligen Anforderung, fast beliebige Anlagenlayouts realisieren. Das Hauptanwendungsgebiet ist der Transport von Werkstücken (auf Rexroth-Werkstückträgern) zu und von manuellen oder automatischen Arbeitsstationen in einer Montagelinie.

Planung

Die Planung eines Transfersystems (Kombination der Komponenten zu einem modularen System), der Aufbau, die Inbetriebnahme und die Wartung sollten nur durch fachkundiges bzw. unterwiesenes Personal erfolgen. Rexroth bietet dafür entsprechende Schulungen an.

Lieferumfang – Kleinteile

Für den Betrieb erforderliche Sensoren, Pneumatik-Ventile und elektrisches und pneumatisches Installationsmaterial sind in der Regel nicht Lieferumfang. Eine Vormontage dieser Teile erfolgt nur, wenn damit besondere Funktionssicherheit gegeben ist, oder wenn der nachträgliche Anbau überproportional aufwändig ist. Die Hinweise auf erforderliche Strom- und Sperrventile im Pneumatik-Schaltplan (in Montage- und Betriebsanleitungen) sind zu beachten.

Hinweise

Beispiele

In Katalogen und Montageanleitungen sind Installationshinweise, Pneumatik-Schaltpläne und typische Funktionsabläufe beschrieben. Bei Aufbau und Inbetriebnahme sind diese zu beachten.

Application

The Rexroth transfer systems all form a program of fine-tuned mechanical components that are used to convey, separate, and position workpiece pallets. With these components, you can create almost any system layout you need. The systems are primarily used to convey workpieces (on Rexroth workpiece pallets) to and from manual or automatic workstations on an assembly line.

Planning

Transfer system planning (the combination of components into a modular system), set-up, initial start-up and maintenance should only be done by trained personnel. Rexroth offers training courses for this purpose.

Scope of delivery – small parts

The sensors, pneumatic valves, and electrical and pneumatic installation material that are necessary for operation are usually not included in the scope of delivery. These parts are only preassembled if they ensure special functional reliability or if installing them at a later point would require too much effort. Please note that the references for the required flow control valves and check valves in the pneumatic switching plan (listed in the assembly and operation instructions) must be followed.

Note

Examples

Installation references, pneumatic switching plans and typical function processes are described in the catalogs and assembly instructions. These must be followed when setting up and commissioning the system.

Application

Les systèmes de transfert Rexroth forment chacun un programme de composants mécaniques accordés entre eux pour le transport, la distribution et le positionnement de palettes porte-pièces. Avec ces composants, presque n'importe quel schéma d'implantation d'installations peut être réalisé conformément aux exigences correspondantes. Le domaine principal d'application est le transport de pièces (sur des palettes porte-pièces Rexroth) dans une chaîne de montage vers et depuis des postes de travail manuels ou automatiques.

Planification

La conception d'un système de transfert (combinaison des composants en un système modulaire), le montage, la mise en service et la maintenance doivent être réalisés uniquement par un personnel compétent ou instruit. Pour cela, Rexroth propose des formations correspondantes.

Fournitures – petits accessoires

Les capteurs, distributeurs pneumatiques, matériel d'installation électrique et pneumatique nécessaires au fonctionnement ne font en général pas partie de la livraison. Un prémontage de ces pièces est réalisé uniquement si une sécurité de fonctionnement particulière est alors présente ou si le montage ultérieur demande des investissements surproportionnels. Les indications dans le plan de montage pneumatique (dans les instructions de montage et d'utilisation) à propos des régulateurs de débit et clapets anti-retour nécessaires doivent être respectées.

Remarques

Exemples

Les catalogues et instructions de montage comportent des indications d'installation, plans de montage pneumatique et opérations de fonctionnement. Elles doivent être respectées lors du montage et de la mise en service.

CE-Kennzeichnung, Verantwortung

Komponenten, die unter die EG-Maschinenrichtlinie fallen, werden mit der entsprechenden Herstellererklärung geliefert. Die Gesamtverantwortung für die Sicherheit einer Anlage (Konformitätserklärung, CE-Kennzeichnung) liegt beim Anlagenbauer. Die Hinweise in den Montageanleitungen und in der **Sicherheitstechnischen Unterweisung von Mitarbeitern – 3 842 527 147** sind zu beachten.

Umgebungsbedingungen**Umweltbedingungen – klimatisch**

Die Transfersysteme sind vorgesehen für den ortsfesten Einsatz in wettergeschützten Bereichen.

Einsatztemperatur

+5... +40°C
-5... +60°C mit 20%
reduzierter Belastung

Lagertemperatur

-25°C... +70 °C

Relative Luftfeuchtigkeit

5... 85 %, nicht betauend

Luftdruck

> 84 kPa entsprechend
Aufstellhöhe < 1400 m über NN.
Bei Aufstellhöhen über 1400 m sind
Belastungswerte um 15% reduziert.

Umweltbedingungen – biologisch

Kein Auftreten von Schimmelwachstum und Schwamm und keine Nagetiere oder andere tierische Schädlinge.

Umweltbedingungen – chemisch

Nicht in unmittelbarer Nachbarschaft von industriellen Anlagen mit chemischen Emissionen.

Umweltbedingungen – physikalisch

Nicht in der Nähe von Sand- oder Staubquellen.
Nicht in Bereichen, in denen regelmäßig Stöße mit hohem Energieinhalt auftreten, hervorgerufen z. B. von Pressen, Schwermaschinen etc.

CE identification, responsibility

Components that fall under the EC machinery guideline are delivered with the corresponding manufacturer's declaration. Overall responsibility for system safety (declaration of conformity, CE identification) lies with the system builder. The references in the assembly instructions and in the **Instructions for employees on safety – 3 842 527 147** must be followed.

Ambient conditions**Environmental conditions – climatic**

The transfer systems have been designed for stationary use in a location that is protected from the elements.

Operating temperature

+5 to +40°C
-5 to +60°C with 20% less load

Storage temperature

-25°C to +70°C

Relative humidity

5 to 85%, non-condensing

Air pressure

> 84 kPa in accordance with
installation altitude < 1400 m above
sea level.
Load values are reduced by 15%
when the system is set up at a location
that is over 1,400 m above sea level.

Environmental conditions – biological

Avoid molds, fungi, rodents, and other vermin.

Environmental conditions – chemical

Do not set up near industrial systems with chemical emissions.

Environmental conditions – physical

Do not set up near sandy or dusty sources. Do not set up in areas that are regularly jarred by high forces caused by e.g. presses, heavy machinery, etc.

Identification CE, responsabilité

Les composants qui tombent sous le coup des directives européennes sur les machines sont livrés avec la déclaration de fabrication correspondante. La complète responsabilité pour la sécurité d'une installation (déclaration de conformité, identification CE) incombe au constructeur de l'installation. Les indications présentes dans les instructions de montage et dans l'**Initiation technique du personnel en matière de sécurité – 3 842 527 147** doivent être respectées.

Conditions ambiantes**Cond. de l'environnement – climatique**

Les systèmes de transfert sont prévus pour l'utilisation stationnaire dans des endroits protégés contre les intempéries.

Température d'utilisation

+5... +40 °C
-5... +60 °C avec charge
réduite de 20 %

Température de stockage

-25 °C ... +70 °C

Humidité relative

5... 85 %, sans formation de
condensation

Pression atmosphérique

> 84 kPa correspondant à l'altitude
d'installation < 1400 m au-dessus du
niveau de la mer. Pour des altitudes
d'installation supérieures à 1400 m,
les valeurs de charge sont réduites
de 15 %.

Cond. de l'environnement – biologique

Aucune apparition de développement de moisissure et champignon et aucun rongeur ou autre animal nuisible.

Cond. de l'environnement – chimique

Pas à proximité immédiate d'installations industrielles avec émissions chimiques.

Cond. de l'environnement – physique

Pas à proximité de sources de sable ou poussières. Pas dans des zones dans lesquelles des secousses régulières avec contenu énergétique élevé suscitées par ex. par estampage, matériels lourds etc., apparaissent.

Technische Daten · Technical data · Données techniques

Verwendete Materialien

Die in den Komponenten verbauten Materialien sind überwiegend:

- Stahl mit korrosionsgeschützter Oberfläche oder rostfrei,
- Messing,
- Aluminium Guss- und Knetlegierungen,
- Polyurethan, Polyamide, zum Teil mit Zusätzen zur Verbesserung der elektrischen und mechanischen Eigenschaften und UHMW-Polyethylen,
- NBR oder Viton für elastische Dichtungen.

Beständigkeit

Beständigkeit gegen viele im Fertigungsbereich übliche Medien wie Benetzung mit Mineralöl, Fett und Waschmitteln erreicht. Bei Zweifel an der Widerstandsfähigkeit gegen bestimmte Chemikalien, z. B. bei Prüflö, legierten Ölen, aggressiven Waschsubstanzen, Lösungsmitteln oder bei Bremsflüssigkeit empfehlen wir die Rücksprache mit Ihrer Rexroth-Fachvertretung. Längerer Kontakt mit stark sauer oder basisch reagierenden Stoffen muss vermieden werden.

Verschmutzung

Bei Verschmutzung – insbesondere mit abrasiven Medien aus der Umgebung – Sand und Silikaten, z. B. aus Baumaßnahmen, aber auch aus Bearbeitungsprozessen am Transfersystem (z. B. Schweißperlen, Bimsstaub, Glasscherben, Späne oder Verlierteile...), kann der Verschleiß stark zunehmen. Die Wartungsintervalle müssen unter solchen Bedingungen ggf. deutlich reduziert werden.

Materials used

The materials used in the components are primarily:

- Non-rusting steel or steel protected against corrosion by a special surface,
- Brass,
- Cast or malleable aluminum alloy,
- Polyurethane, polyamide, some with additives to improve electrical and mechanical characteristics and UHMW polyethylene,
- NBR or Viton for elastic seals.

Media resistance

Resistant to many common media used in production such as mineral oil, grease, and detergents. Contact your Rexroth representative if you have any doubts about resistance to specific chemicals, e.g. test oil, doped oils, aggressive detergents, solvents, or brake fluid. Avoid long-term contact with acidic or basic reacting materials.

Contamination

Wear may increase dramatically if the system is contaminated due to environmental factors, particularly with abrasive media such as sand and silicates, but also due to processes running on the transfer system (e.g. welding beads, pumice dust, glass shards, shavings, or lost parts...). In such cases, maintenance intervals must be substantially shortened.

Matériaux utilisés

Les matériaux utilisés dans les composants sont principalement :

- Acier avec surface protégée contre la corrosion ou inoxydable,
- Laiton,
- Alliage de fonderie et de corroyage d'aluminium,
- Polyuréthane, polyamide, en partie avec additifs pour l'amélioration des propriétés électriques et mécaniques, et polyéthylène UHMW,
- NBR ou Viton pour joints élastiques.

Résistance

La résistance à de nombreuses substances usuelles dans la branche de la production, comme le mouillage avec de l'huile minérale, de la graisse et des détergents, est assurée. En cas de doute sur la résistance à certaines substances chimiques, comme par ex. huile d'essai, huiles super, substances détergentes agressives, solvants ou liquides de freins, nous vous conseillons de contacter votre représentant spécialisé Rexroth. Un contact prolongé avec des substances à forte réaction acide ou basique doit être évité.

Impuretés

Lors d'encrassement, en particulier avec des substances abrasives de l'environnement – sable et silicate par ex. provenant de mesures de construction, mais également des processus de traitement sur le système de transfert (par ex. perles de soudure, poussière de ponce, éclats de verre, copeaux ou pièces en vrac...), l'usure peut être fortement augmentée. Les intervalles de maintenance doivent dans de telles conditions être le cas échéant nettement réduits.

Funktionssicherheit

Beständigkeit gegenüber Medien und Verschmutzung bedeutet nicht, dass gleichzeitig auch die Funktionssicherheit unter allen Umständen gewährleistet ist.

- Flüssigkeiten, die bei Verdunstung eindicken und dabei hoch viskos oder adhesiv (klebrig) werden, können zu Funktionsstörungen führen.
- Medien mit Schmierwirkung können, wenn sie auf Systemen mit Gurten oder Rundriemen verschleppt werden, zur Reduzierung der über Reibung übertragbaren Antriebsleistung führen.
- Bei Systemen mit Förderketten kann das Kettenschmiermittel von Lösungs- oder Waschmitteln ausgewaschen werden.

In solchen Fällen ist bei der Planung der Anlage besondere Aufmerksamkeit erforderlich und Wartungsintervalle sind entsprechend anzupassen.

Umweltverträglichkeit, Recycling

Die eingesetzten Materialien sind umweltverträglich. Die Möglichkeit der Wieder- bzw. Weiterverwendung (ggf. nach Aufarbeitung und Ersatz von Bauteilen) ist vorgesehen. Recyclingfähigkeit ist durch entsprechende Werkstoffauswahl und durch Demontagefähigkeit gegeben.

Anschlussdaten Pneumatik

Druckluft geölt oder ungeölt, gefiltert, trocken.

Betriebsdruck 4...6 bar
Leistungsdaten gelten für einen Betriebsdruck von 5 bar.

Wartung

Die TS-Komponenten sind weitgehend wartungsfrei. Wenn Wartungsfreiheit mit wirtschaftlich vertretbarem Aufwand nicht realisiert werden kann, sind Wartungsanweisungen in der Betriebsanleitung festgelegt.

Functional reliability

Resistance to media and contamination does not mean that functional reliability is guaranteed in every case.

- Liquids that thicken on evaporation and are highly viscous or adhesive (sticky) could lead to a disruption in function.
- Media with lubricating properties may reduce the driving power that is caused by friction if they are transported on systems with belts or round belts.
- The chain lubricant used on conveyor chains can be washed away with solvents or detergents.

Such cases require special attention when planning the system and adjusting the maintenance intervals.

Environmental sustainability, recycling

The materials used are environmentally sustainable and may be recycled or reused (if need be, by converting or replacing components). Recyclability is ensured by the selection of material and the possibility to take the components apart.

Pneumatic connection data

Oiled or non-oiled, filtered, dry compressed air
Operating pressure 4 to 6 bar
Performance data is for an operating pressure of 5 bar.

Maintenance

The TS components require very little maintenance. If maintenance-free operation is not feasible at economic costs, maintenance instructions are included in the operating manual.

Sécurité de fonctionnement

Résistance aux substances et encrassement ne signifie pas qu'en même temps la sécurité de fonctionnement est également garantie dans toutes les conditions.

- Les liquides qui s'épaississent lors d'évaporation et qui deviennent alors très visqueux ou adhésifs (collants) peuvent induire des perturbations fonctionnelles.
- Les substances avec effet de graissage peuvent, si elles sont entraînées sur des systèmes avec des courroies ou des courroies rondes, provoquer une réduction de la puissance d'entraînement transmise par frottement.
- Pour les systèmes avec chaînes de transport, la matière lubrifiante de la chaîne peut être lavée par les solvants et détergents.

Dans de tels cas, une attention particulière est nécessaire lors de la planification de l'installation et les intervalles de maintenance doivent être adaptés en conséquence.

Compatibilité avec l'environnement, recyclage

Les matériaux utilisés sont non polluants. La possibilité de recyclage ou réutilisation (le cas échéant après remise en état et remplacement des composants) est prévue. La capacité de recyclage est donnée grâce au choix approprié des matériaux et grâce à la capacité de démontage.

Données de raccordement pneumatique

Air comprimé huilé ou non huilé, filtré, sec.
Pression de service 4...6 bar
Les données de puissance s'appliquent pour une pression de service de 5 bar.

Maintenance

Les composants TS sont amplement sans maintenance. Si la liberté de maintenance ne peut pas être réalisée avec des dépenses économiquement acceptables, les instructions de maintenance sont stipulées dans les instructions de service.

Verschleiß

Bei einzelnen Komponenten ist Verschleiß prinzipbedingt und nicht vermeidbar. Durch konstruktive Maßnahmen und entsprechende Materialauswahl wird Funktions-sicherheit auf Lebensdauer angestrebt. Verschleiß ist jedoch auch abhängig von den Betriebs-, Wartungs- und Umgebungsbedingungen am Einsatzort (Beständigkeit, Verschmutzung).

Maßnahmen zur Verschleißminderung

Folgende, naheliegende Maßnahmen vermindern Verschleiß und den dadurch bedingten Abrieb:

- Förderstrecken bei Anlagenstillstand abschalten, z. B. in Pausen, über Nacht, am Wochenende.
- Geschwindigkeit der Förderstrecke nicht höher wählen als für jeweilige Funktion erforderlich.
- Werkstückträgermasse minimieren – keine unnötigen Materialanhäufungen in den Werkstückaufnahmen.
- Unnötige Staurecken vermeiden, z. B. durch Reduzierung der WT-Anzahl.
- Staurecken mit hohen Werkstückträgermassen abschalten, solange kein WT-Transport erforderlich.
- Besonders wichtig: Verschmutzung durch abrasive Medien vermeiden bzw. durch regelmäßige Reinigung reduzieren.

Belastungsangaben

Bei Förderstrecken gelten die zulässigen Belastungen unter der Annahme, dass Werkstückträger mit dem maximal zulässigen Werkstückträger-Gesamtmasse im Stau stehen.

Wenn Stau sicher vermieden werden kann, sind höhere Belastungen zulässig. Auf Hub-Quereinheiten ist Staubetrieb nicht zulässig.

Wear

With individual components, wear is caused by the basic principle and cannot be avoided. Constructive measures and selection of the proper materials will help functional reliability last for the entire service life. However, wear depends on the operating, maintenance, and ambient conditions of the system and the location (resistance, contamination).

Measures to reduce wear

The following measures reduce wear and the friction caused by it:

- Switch off conveyor sections when the system is not running, e.g. during breaks, over night, on the weekend.
- Only select speeds that correspond to the particular function.
- Minimize the weight of the workpiece pallet – do not overload workpiece supports with material.
- Avoid unnecessary accumulation sections, e.g. by reducing the number of workpiece pallets.
- Switch off accumulation sections carrying heavy workpiece pallets if transport is not necessary.
- Especially important: Avoid contamination by abrasive media or reduce contamination with regular cleaning.

Load specifications

Permitted loads apply for conveyor sections under the condition that only workpiece pallets with the maximum total permitted weight have accumulated.

Higher loads are permissible if accumulation can be safely avoided. Accumulation operation is not permissible on lift transverse units.

Usure

Pour quelques composants, l'usure est due au principe et est inévitable. Avec des mesures constructives et un choix approprié de matériaux, la sécurité de fonctionnement aspire à la durée de vie. L'usure dépend toutefois également des conditions de service, de maintenance et de l'environnement sur le lieu d'utilisation (résistance, encrassement).

Mesures pour la réduction de l'usure

Les mesures suivantes, faciles à concevoir réduisent l'usure et l'abrasion résultante :

- Arrêter les sections de transport lors de l'arrêt des installations, par ex. pendant les pauses, la nuit, les week-ends.
- Ne pas choisir la vitesse de la section de transport plus élevée que nécessaire pour la fonction correspondante.
- Minimiser le poids des palettes porte-pièces – éviter les accumulations de matériel inutile dans les réceptions de pièces.
- Éviter les sections d'accumulation inutiles, par ex. en réduisant le nombre de palettes porte-pièces.
- Arrêter les sections d'accumulation avec des poids de palettes porte-pièces élevés tant qu'aucun transport de palette porte-pièces n'est nécessaire.
- Particulièrement important : éviter l'encrassement par des substances abrasives ou le réduire en nettoyant régulièrement.

Spécifications de charge

Pour les sections de transport, les charges admissibles s'appliquent en supposant que les palettes porte-pièces fonctionnent en accumulation avec le poids total maximal admissible.

Si les accumulations peuvent être évitées de manière fiable, des charges plus élevées sont admissibles.

Sur les unités de levée transversale, le fonctionnement en accumulation n'est pas admissible.

Verschleiß und Fördergeschwindigkeit

Die Nenndaten für die zulässigen Werkstückträgermassen beschreiben einen Betriebspunkt, bei Standard-Geschwindigkeit und unter normalen Betriebsbedingungen. Während der Lebensdauer beeinflussen der Verschleiß der WT-Laufsohlen und des Fördermittels die Funktion des Systems nicht.

Verschleiß und Mehr- / Minderbelastung

Höhere Belastungen können zu erhöhtem Verschleiß führen und erfordern u. U. kürzere Wartungsintervalle. Bei geringerer Belastung kann mit einer linearen Abnahme des Verschleißes gerechnet werden (halbe Last = halber Verschleiß = doppelte Lebensdauer).

Beladung des Werkstückträgers, Schwerpunktlage

Zentrische Last mit niedrigem Schwerpunkt ist generell anzustreben. Eine ungünstige Verteilung der Last mit hohem und/oder außermittigem Schwerpunkt auf dem WT kann – insbesondere bei kleinen Werkstückträgern – die Laufruhe negativ beeinflussen.

Bei der Anordnung von Aufnahmen und Werkstücken auf dem Werkstückträger ist darauf zu achten, dass der Schwerpunkt des beladenen WT im Bereich $1/3$ der WT-Länge bzw. -Breite um den Mittelpunkt des WT liegt. Die maximale Höhe des Schwerpunktes über der Transportebene sollte $1/2$ WT-Länge bzw. Breite nicht überschreiten. Bei Nichtbeachtung diese Vorgabe kann die Transportsicherheit besonders bei höheren Transportgeschwindigkeiten leiden.

Wear and conveyor speed

Nominal data for the permitted workpiece pallet weight describe operation at standard speeds and under normal operating conditions. Wear on the workpiece pallet wear pads and the conveyor medium will not influence system function throughout the service life.

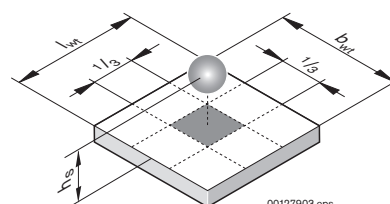
Wear and higher/lower loads

Higher loads may lead to more wear and thus require shorter maintenance intervals. A linear decrease in wear can be calculated for lower loads (half load = half the wear = twice the service life).

Loading the workpiece pallet, gravity center position

Concentric load with a low center of gravity is generally preferable. Incorrect load dispersion with a high and/or excentric gravity center on the workpiece pallet, especially with small workpiece pallets, may have a negative influence on conveying.

Pay attention when arranging workpiece supports and workpieces on the pallet that the center of gravity of the loaded workpiece pallet is approx. $1/3$ of the length or width from the center of the workpiece pallet. The maximum height of the center of gravity over the conveying level should not exceed $1/2$ of the workpiece pallet length or width. Conveying safety may decrease, especially at higher speeds, if these guidelines are not followed.

**Usure et vitesse de convoyage**

Les données nominales pour les poids admissibles des palettes porte-pièces décrivent un point de fonctionnement à une vitesse standard et dans des conditions de fonctionnement normales. Pendant la durée de vie, l'usure des semelles de la palette porte-pièces et du convoyeur n'influencent pas le fonctionnement du système.

Usure et diminution/augmentation de la charge

Des charges plus élevées peuvent provoquer une augmentation de l'usure et nécessitent le cas échéant des intervalles de maintenance plus brefs. Avec une charge plus faible, on peut s'attendre à une diminution linéaire de l'usure (demi-charge = demi-usure = double durée de vie).

Chargement de la palette porte-pièces, position du centre de gravité

Une charge centrée avec un centre de gravité bas est d'une manière générale à aspirer. Une répartition peu propice de la charge avec un centre de gravité haut et/ou excentré sur la palette porte-pièces peut, en particulier pour les petites palettes porte-pièces, influencer négativement la douceur de marche.

Lors de la disposition de réceptions et de pièces sur la palette porte-pièces, il faut veiller à ce que le centre de gravité de la palette porte-pièces chargée soit dans le domaine $1/3$ de la longueur ou de la largeur de la palette porte-pièces autour du point central de la palette porte-pièces. La hauteur maximale du centre de gravité au-dessus du niveau de transport ne doit pas dépasser $1/2$ de la longueur ou de la largeur de la palette porte-pièces. En cas de non-respect de ces contraintes, la sécurité de transport, en particulier à des vitesses de transport élevées, peut en souffrir.

Beladung des Werkstückträgers, Kombination leerer und beladener Werkstückträger

Bei der Auslegung und Erprobung der Baueinheiten wird angenommen, dass Werkstückträger auf einem Streckenabschnitt in einem Umlauf nicht alle dieselbe Masse haben, d. h., dass volle und leere WT in einem Umlauf gemischt vorkommen.

Stark unterschiedliche Massen können aber besondere Maßnahmen erfordern, um Funktionsstörungen zu vermeiden. Das gilt z. B. bei der zulässigen Staulänge vor Vereinzelern, für die Funktion von Dämpfern und gedämpften Vereinzelern und auch bei Stau in Kurven.

In der Regel ist die Funktion nicht eingeschränkt bei einem Massenverhältnis von 2:1 zwischen schweren (mit Werkstücken beladenen) Werkstückträgern und leichten (unbeladenen) Werkstückträgern.

Beladung des Werkstückträgers, Mindestmassen

Im Allgemeinen ist die Mindestmasse des Werkstückträgers nicht relevant. In besonderen Fällen – abhängig von unterschiedlichen Randbedingungen – kann eine applikationsspezifische Mindestmasse für einen sicheren kontinuierlichen Transport erforderlich sein. Das kann z. B. zutreffen, wenn Schaltelemente mechanisch betätigt werden müssen (z. B. an der Wippe), oder wenn ein leichter WT bei Richtungswechsel unruhig läuft – z. B. an der HQ aus der Führung springt. In solch seltenen Fällen sollte bei der Gestaltung der Werkstückaufnahme zusätzlicher Ballast berücksichtigt werden.

Loading the workpiece pallet, combination of empty and loaded workpiece pallets

When setting up and testing the modular units, the workpieces pallets should not all have the same weight on the conveyor sections, i.e. full and empty pallets should all come through the circuit.

Extreme differences in weight may require special measures to avoid functional disruptions. This applies, e.g. to the permissible accumulation length before stop gates, damper and damped stop gate functions, and also accumulation in curves.

Function is usually not limited if the weight ratio is 2:1 between heavy (loaded with a workpiece) and light workpiece pallets (empty).

Loading the workpiece pallet, minimum weight

The minimum weight of the workpiece pallet is generally not relevant. In special cases – depending on the marginal conditions – an application-specific minimum weight may be required for safe and continuous transport. This can occur, for example, if switching elements have to be manually operated (e.g. on the rocker), or if a lighter workpiece pallet does not run smoothly when changing directions, e.g. jumps out of the guide on the HQ. In such unusual cases, additional weight should be added when designing the workpiece pallet.

Chargement de la palette porte-pièces, combinaison palette porte-pièces chargée et vide

Lors de la conception et de l'essai des unités modulaires, il est supposé que les palettes porte-pièces sur un segment de section dans un circuit n'ont pas toutes le même poids, c'est-à-dire que des palettes porte-pièces pleines et vides apparaissent mélangées dans un circuit.

De grands écarts de poids peuvent nécessiter des mesures particulières visant à éviter divers dysfonctionnement. Cela s'applique par ex. pour la longueur admissible d'accumulation devant des séparateurs, pour le fonctionnement d'amortissement et de séparateurs amortis et également pour des accumulations dans des courbes.

En règle générale, le fonctionnement n'est pas limité pour un rapport du poids de 2:1 entre des palettes porte-pièces lourdes (chargées avec des pièces) et des palettes porte-pièces légères (non chargées).

Chargement de la palette porte-pièces, poids minimal

En général, le poids minimal de la palette porte-pièces n'a aucune importance. Dans des cas particuliers - dépendant de différentes conditions additionnelles – un poids minimal spécifique à l'application peut être nécessaire afin d'assurer un transport continu sûr. Cela peut par ex. s'appliquer lorsque des éléments de commutation doivent être actionnés mécaniquement (par ex. sur la bascule), ou si une palette porte-pièces légère circule bruyamment lors du changement de direction – par ex. saute du guidage sur la HQ. Dans de tels cas rares, un lest supplémentaire doit être pris en considération lors de la conception de la réception de pièces.

Überlastung

Überlastung von Förderstrecken kann zum Versagen des Fördermittels und zu vorzeitigem Ausfall von Motoren und Getrieben führen.

Bei Überlastung von pneumatisch betätigten Komponenten kann die Funktion nicht gewährleistet werden.

Transportgeschwindigkeit, Einfluss auf den Verschleiß

Der Verschleiß an Fördermitteln, Gleitschienen, WT-Laufsohlen und dgl. ist proportional zur Transportgeschwindigkeit. Das bedeutet, dass – im Vergleich zu einer Standardgeschwindigkeit von 12 m/min – die Verschleißgrenze bei 18 m/min schon nach $12/18 = 2/3$ der Laufzeit erreicht wird.

Transportgeschwindigkeit, Dynamische Einflüsse

Mit zunehmender Transportgeschwindigkeit nehmen auch die Stöße bei Richtungswechsel und der Rückprall an Vereinzeln zu. Das kann verlängerte Beruhigungszeiten oder den Einsatz von gedämpften Anschlägen vor der Einleitung der nächsten Bewegung erfordern. Bei Staurollenketten als Fördermittel ist bei höheren Geschwindigkeiten der Einsatz der Rücklaufsperrung in Kombination mit Vereinzeln empfehlenswert.

Overloading

Overloading the conveyor sections may damage the conveying medium and cause the motor and gears to break down.

If overloading of pneumatic components occurs, function cannot be guaranteed.

Transportation speed, influence on wear

Wear on the conveying medium, slide rails, workpiece pallet wear pads and the like is proportional to the conveying speed. This means that, in comparison to the standard speed of 12 m/min, when running at 18 m/min the wear limit is already reached at $12/18$ or $2/3$ of the running time.

Transportation speed, dynamic influences

When the conveying speed increases bumps when changing directions and the rebound force on the stop gates also increase. This may require longer damping periods or shock absorbers before the next movement. If accumulation roller chains are the conveying medium a return stop combined with stop gates is recommended for operation at higher speeds.

Surcharge

Une surcharge des sections de transport peut provoquer une défaillance du convoyeur et un arrêt prématuré des moteurs et engrenages.

Lors de surcharge de composants commandés pneumatiquement, le fonctionnement ne peut pas être garanti.

Vitesse de convoyage, influence sur l'usure

L'usure du convoyeur, des glissières, des semelles des palettes porte-pièces et pareil est proportionnelle à la vitesse de convoyage. Cela signifie que, en comparaison avec une vitesse standard de 12m/min, la limite d'usure à 18 m/min est déjà atteinte après $12/18 = 2/3$ de la durée de marche.

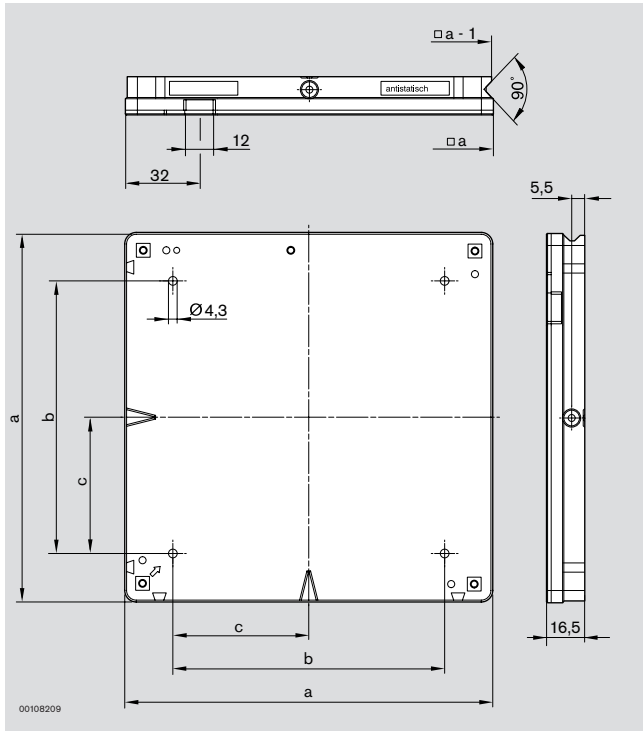
Vitesse de convoyage, influence dynamique

Avec une vitesse de convoyage croissante augmentent également les secousses lors du changement de direction et le rebondissement sur les séparateurs. Cela peut nécessiter des temps d'apaisement prolongés ou l'utilisation de butées amorties avant le déclenchement du prochain mouvement. Pour les chaînes à galets d'accumulation comme convoyeur, l'utilisation de blocage anti-retour en combinaison avec des séparateurs est conseillée pour des vitesses élevées.

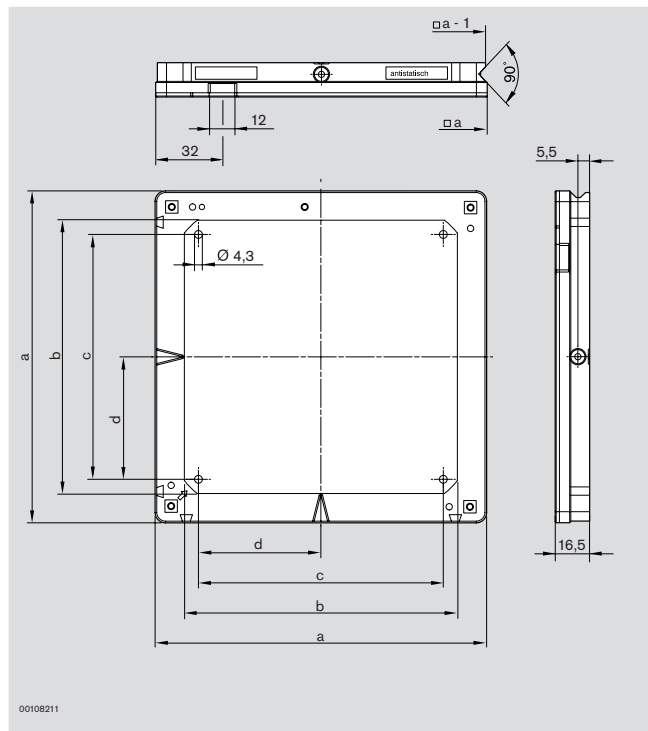
Technische Daten · Technical data · Données techniques

Werkstückträger Workpiece pallet Palette porte-pièces

Werkstückträger WT 1/K Workpiece pallet Palette porte-pièces



Werkstückträger WT 1/S Workpiece pallet Palette porte-pièces



WT 1/K

	a	b	c
80 x 80	80	38	19
120 x 120	120	78	39
160 x 160	160	118	59

WT 1/S

	a	b	c	d
80 x 80	80	52	38	19
120 x 120	120	92	78	39
160 x 160	160	132	118	59

WT 1/K

l_{WT} [mm]	b_{WT} [mm]	$m_{WT}^{1)}$ [kg]	$F_{GL}^{2)}$ [kg]	Nr./No./N°
80	80	0,075	1,5	3 842 527 122
120	120	0,135	2,2	3 842 527 123
160	160	0,225	3,0	3 842 527 124

WT 1/S

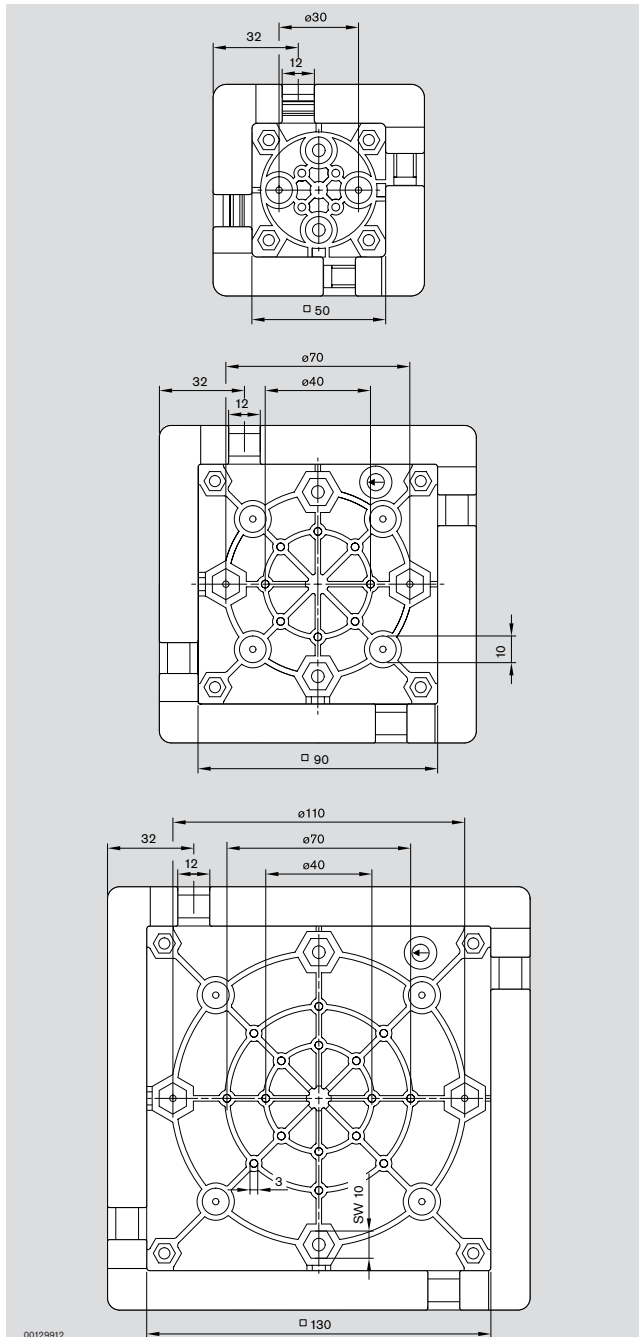
l_{WT} [mm]	b_{WT} [mm]	$m_{WT}^{1)}$ [kg]	$F_{GL}^{2)}$ [kg]	Nr./No./N°
80	80	0,165	1,5	3 842 526 849
120	120	0,430	2,2	3 842 526 850
160	160	0,830	3,0	3 842 526 851

¹⁾ Leergewicht/Eigengewicht des Werkstückträgers
¹⁾ Empty weight/workpiece pallet system weight
¹⁾ Poids à vide/poids propre de la palette porte-pièces

²⁾ Zulässiges Werkstückträger-Auflagegewicht
²⁾ Permissible loading weight of workpiece pallet
²⁾ Force massique admissible de palette porte-pièces

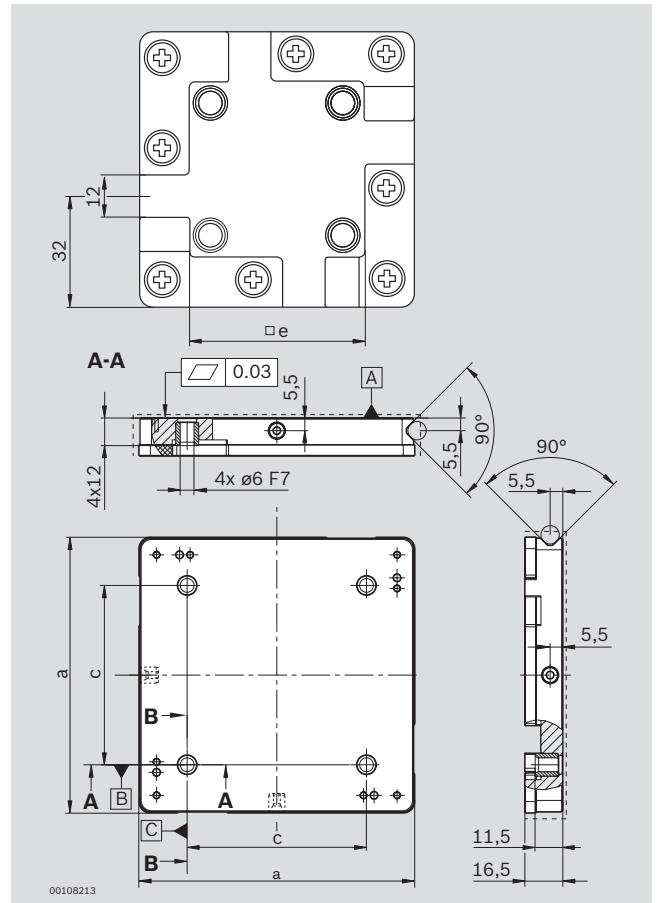
Technische Daten · Technical data · Données techniques

Werkstückträger Unterseite WT 1/K, WT 1/S
Workpiece pallet, underneath
Face inférieure de la palette porte-pièces



- 1) Leergewicht/Eigengewicht des Werkstückträgers
- 1) Empty weight/workpiece pallet system weight
- 1) Poids à vide/poids propre de la palette porte-pièces
- 2) Zulässiges Werkstückträger-Auflagegewicht
- 2) Permissible loading weight of workpiece pallet
- 2) Force massique admissible de palette porte-pièces

Werkstückträger WT 1/P
Workpiece pallet
Palette porte-pièces



WT 1/P

	a	b	c	d	e
80 x 80	80	52	38	19	51 + 0,5
120 x 120	120	92	78	39	91 + 0,5
160 x 160	160	132	118	59	131 + 0,5

l_{WT} [mm]	b_{WT} [mm]	$m_{WT}^{1)}$ [kg]	$F_{GL}^{2)}$ [kg]	Nr./No./N°
80	80	0,205	1,5	3 842 530 443
120	120	0,440	2,2	3 842 530 444
160	160	0,760	3,0	3 842 530 445

WT 1/P

WT 1/P-...	Ebenheit Flatness Planéité □ [mm]
80	0,03
120	0,03
160	0,05

WT 1/K, WT 1/S

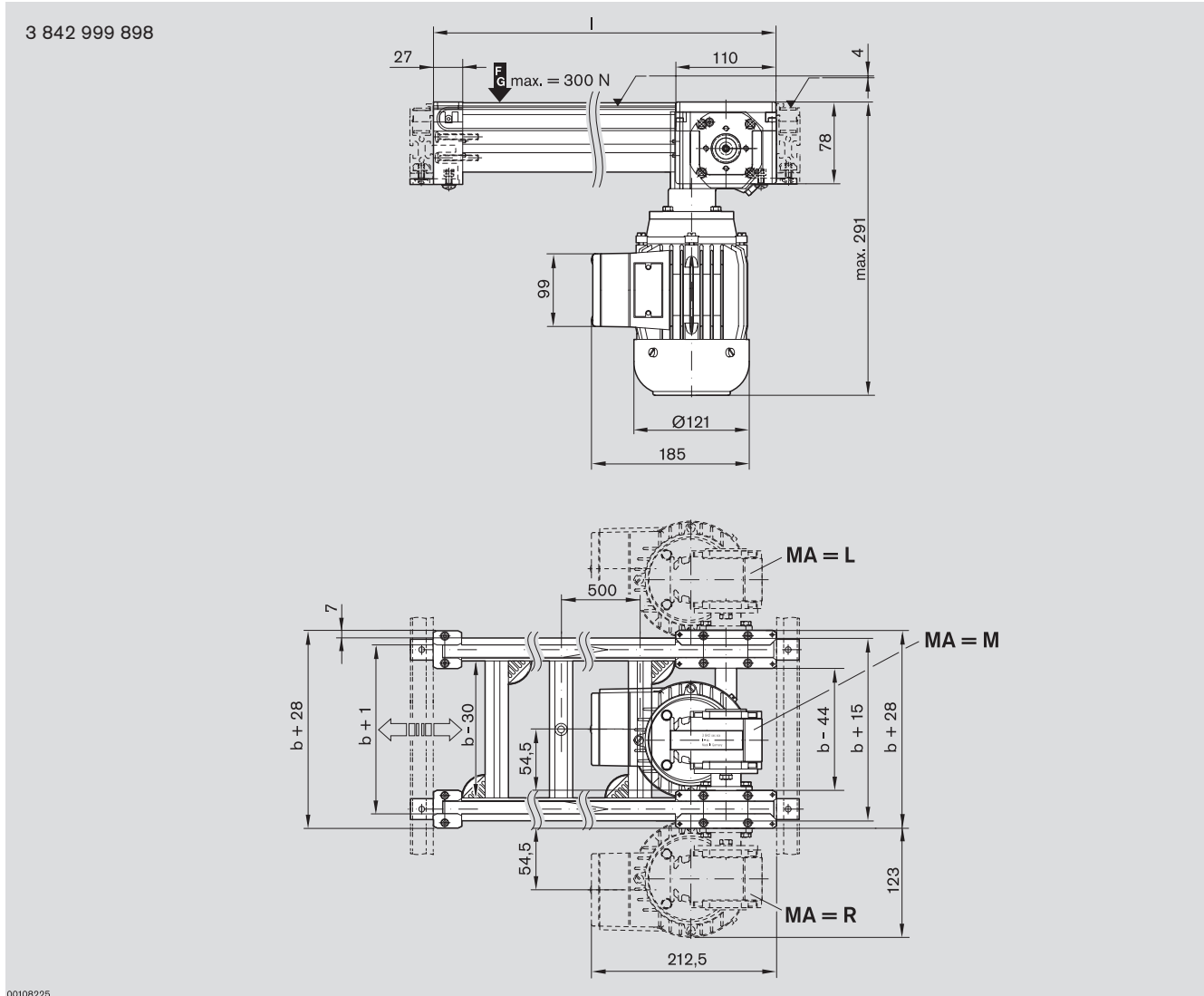
WT 1/K-... WT 1/S-...	Ebenheit Flatness Planéité □ [mm]
80	0,5
120	0,5
160	0,5

Technische Daten · Technical data · Données techniques

Bandstrecke BS 1

Belt section

Section à bande



A_{QV} = Anzahl Querverbinder Kunststoff
 A_{QV} = Number of plastic cross connectors
 A_{QV} = Nombre de liaisons transversales en plastique

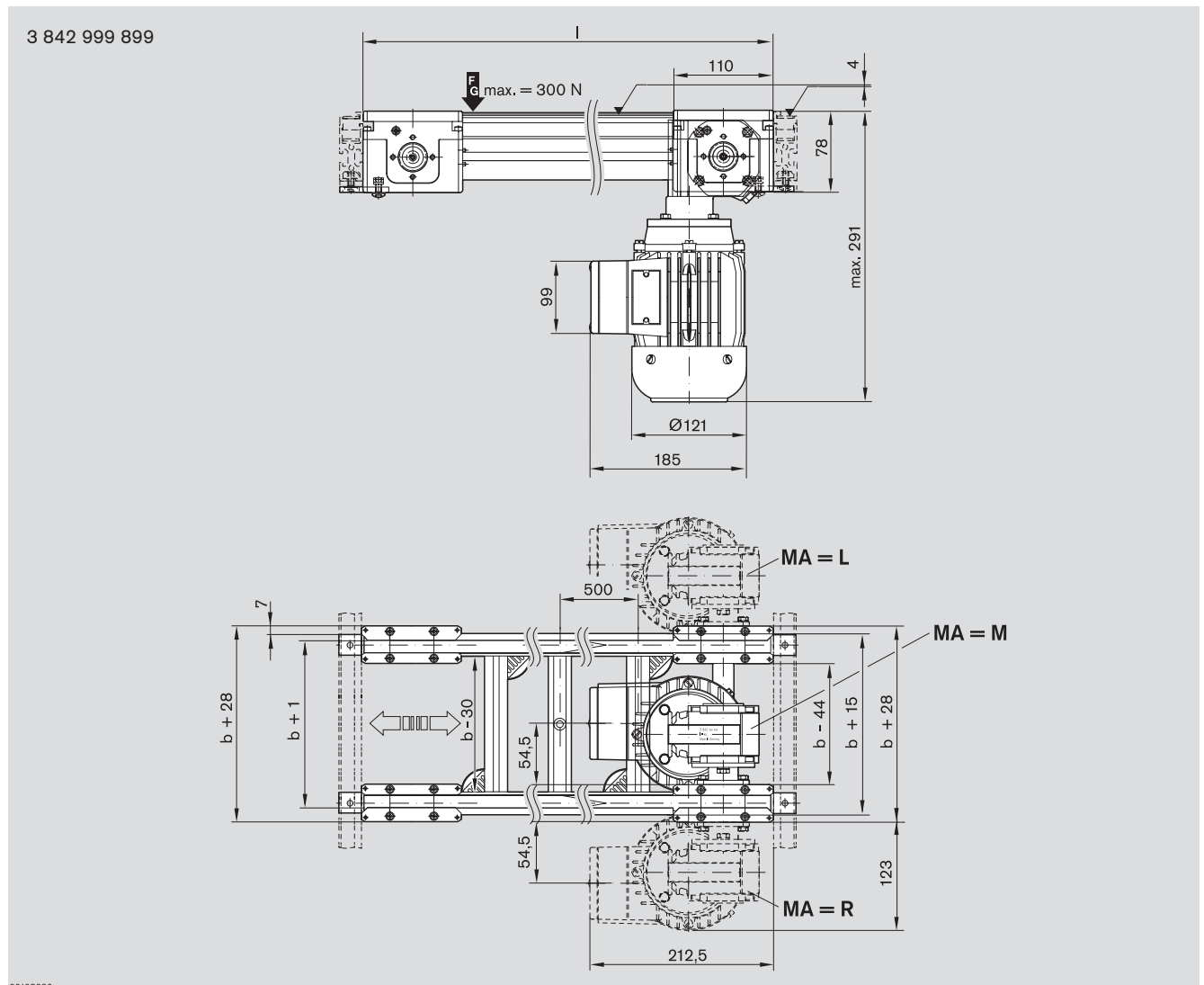
l [mm]	A_{QV}
≤ 899	0
900–1399	1
≥ 1400	2

Technische Daten · Technical data · Données techniques

Bandstrecke BS 1/T

Belt section

Section à bande



A_{QV} = Anzahl Querverbinder Kunststoff

A_{QV} = Number of plastic cross connectors

A_{QV} = Nombre de liaisons transversales en plastique

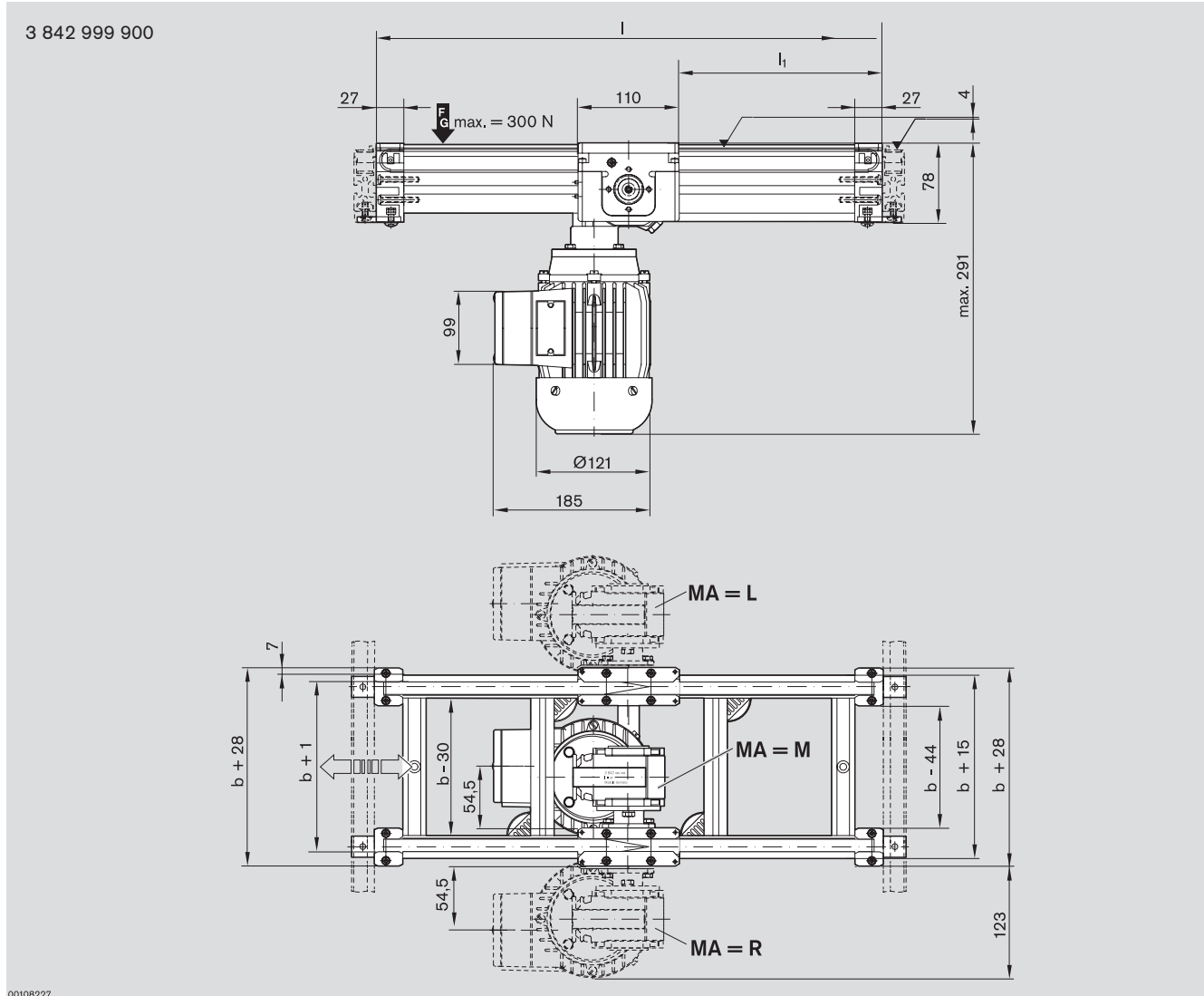
I [mm]	A_{QV}
≤ 899	0
900-1399	1
≥ 1400	2

Technische Daten · Technical data · Données techniques

Bandstrecke BS 1/M

Belt section

Section à bande

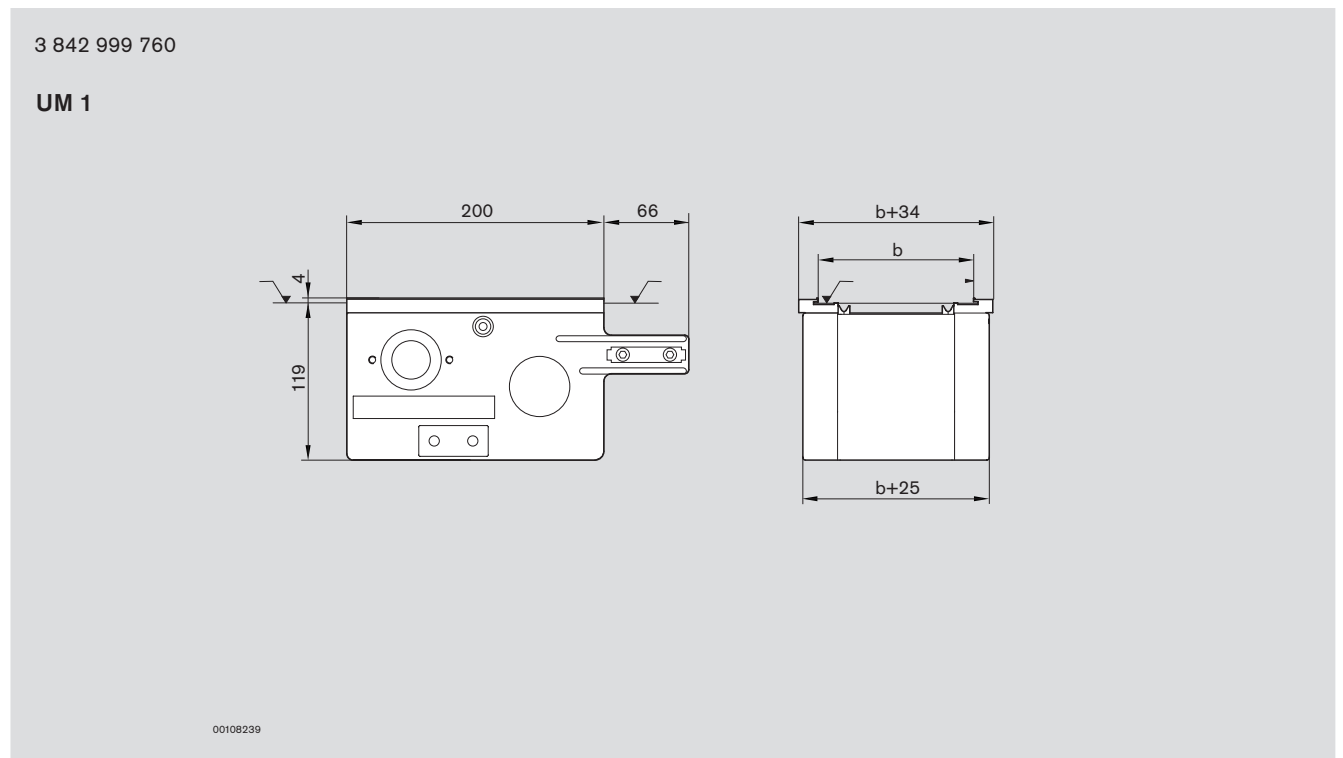
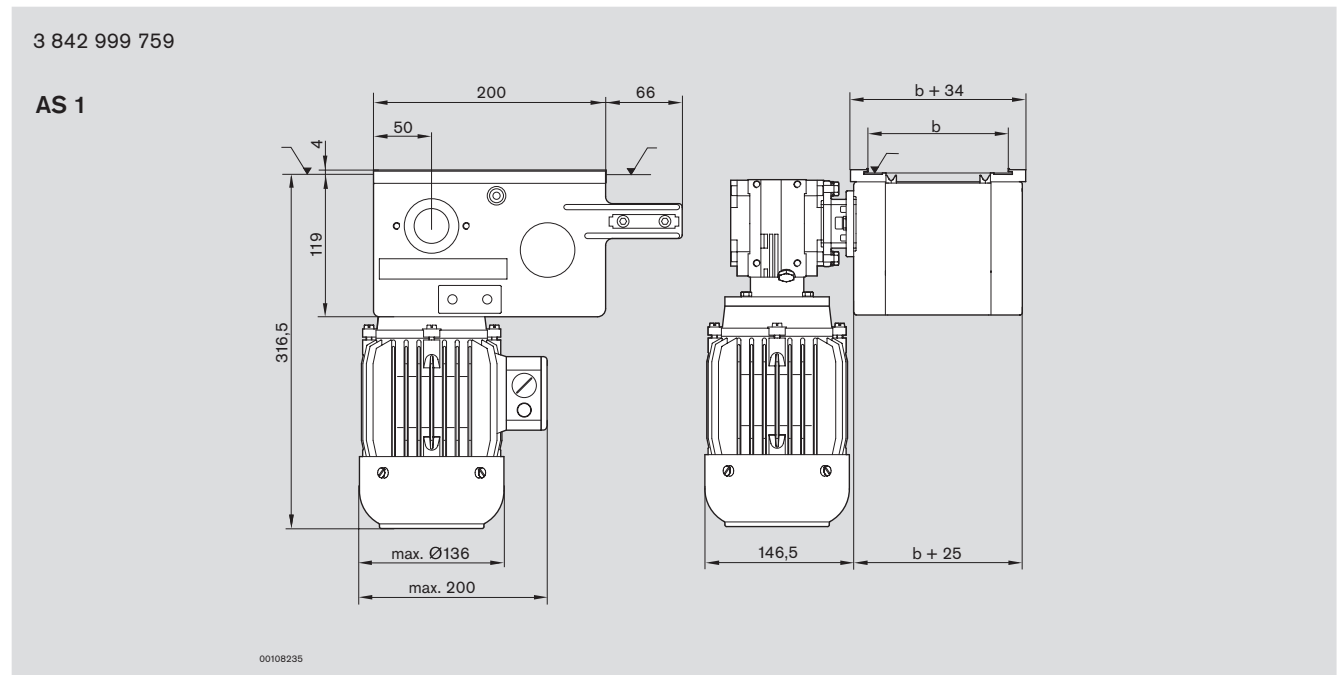


Technische Daten · Technical data · Données techniques

Antriebsstation AS 1, Umlenkung UM 1

Drive unit, Return unit

Poste de entraînement, Renvoi



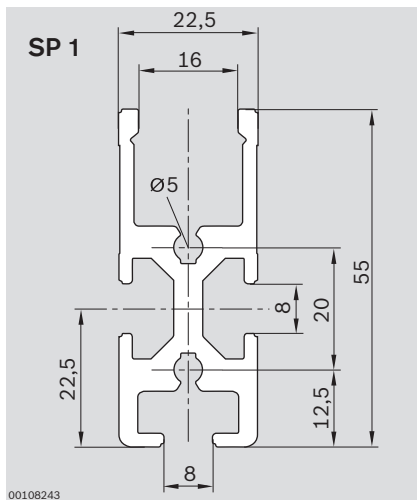
Technische Daten · Technical data · Données techniques

Streckenprofil SP 1, Führungsprofil GP 1, Strecke ST 1

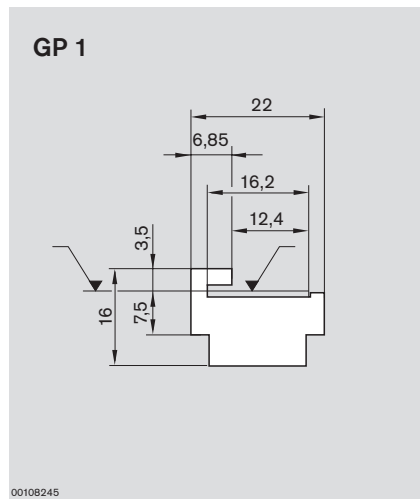
Section profile, guide profile, section

Profilé de section, profilé de guidage, section

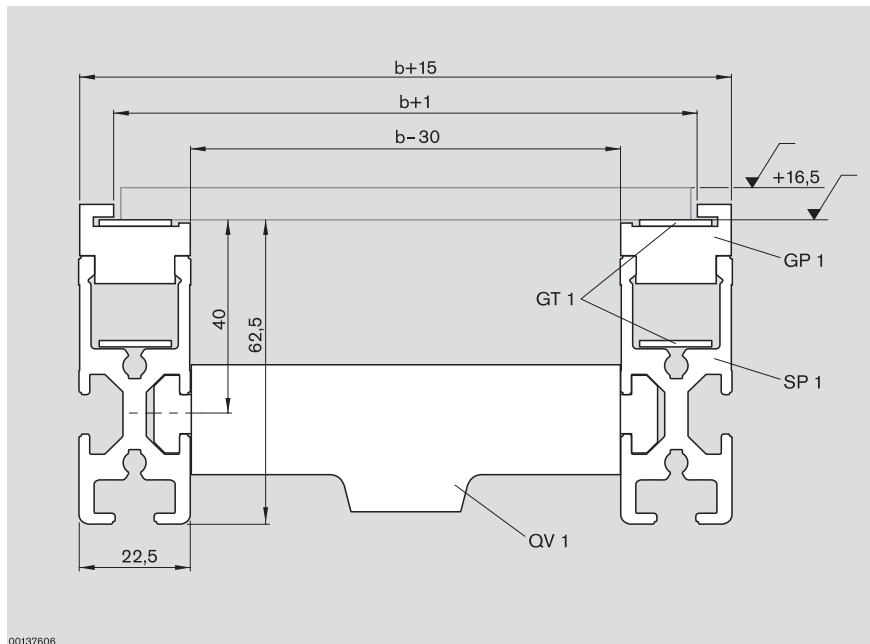
Streckenprofil SP 1
Section profile
Profilé de section



Führungsprofil GP 1
Guide profile
Profilé de guidage



Strecke ST 1
Section
Section

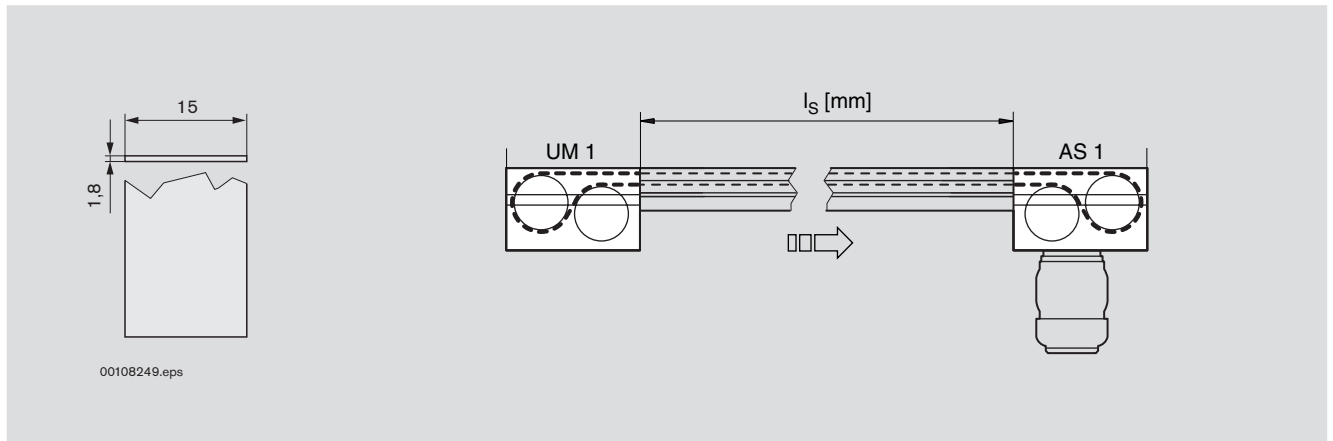


Technische Daten · Technical data · Données techniques

GT 1 Längenberechnung

Length calculation

Calculs de longueur



Erforderliche Gurtlänge l_{GT1}
 Required belt length l_{GT1}
 Longueur de courroie nécessaire l_{GT1}

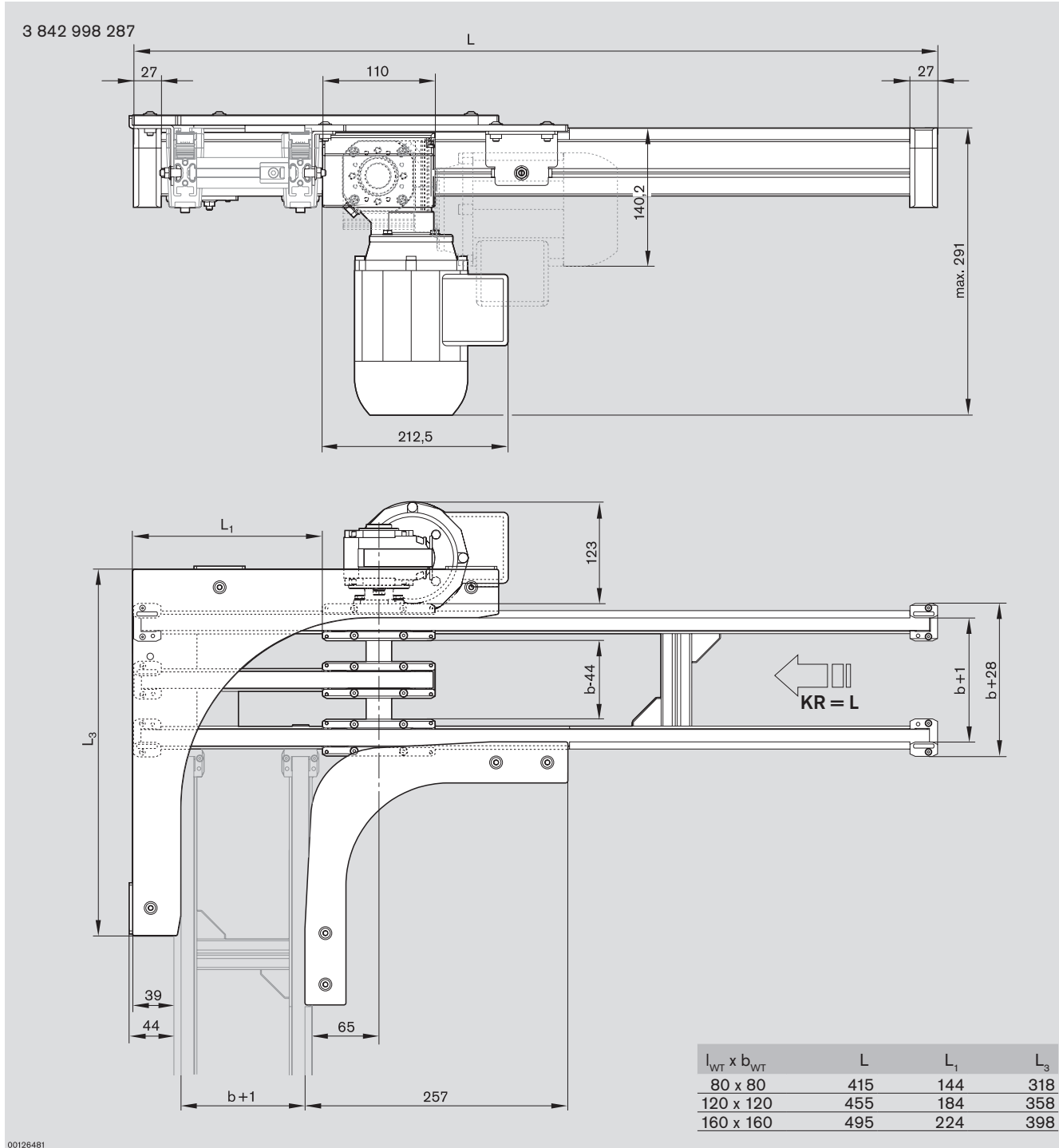
l_s [mm]	l_{GT1} [mm]
400 mm – 2000 mm	$((2 \times l_s + 918) \times 0,99) + 60$ [mm]
2001 mm – 12000 mm	$((2 \times l_s + 918) \times 0,985) + 60$ [mm]

Technische Daten · Technical data · Données techniques

Kurve CU 1/90

Curve

Courbe

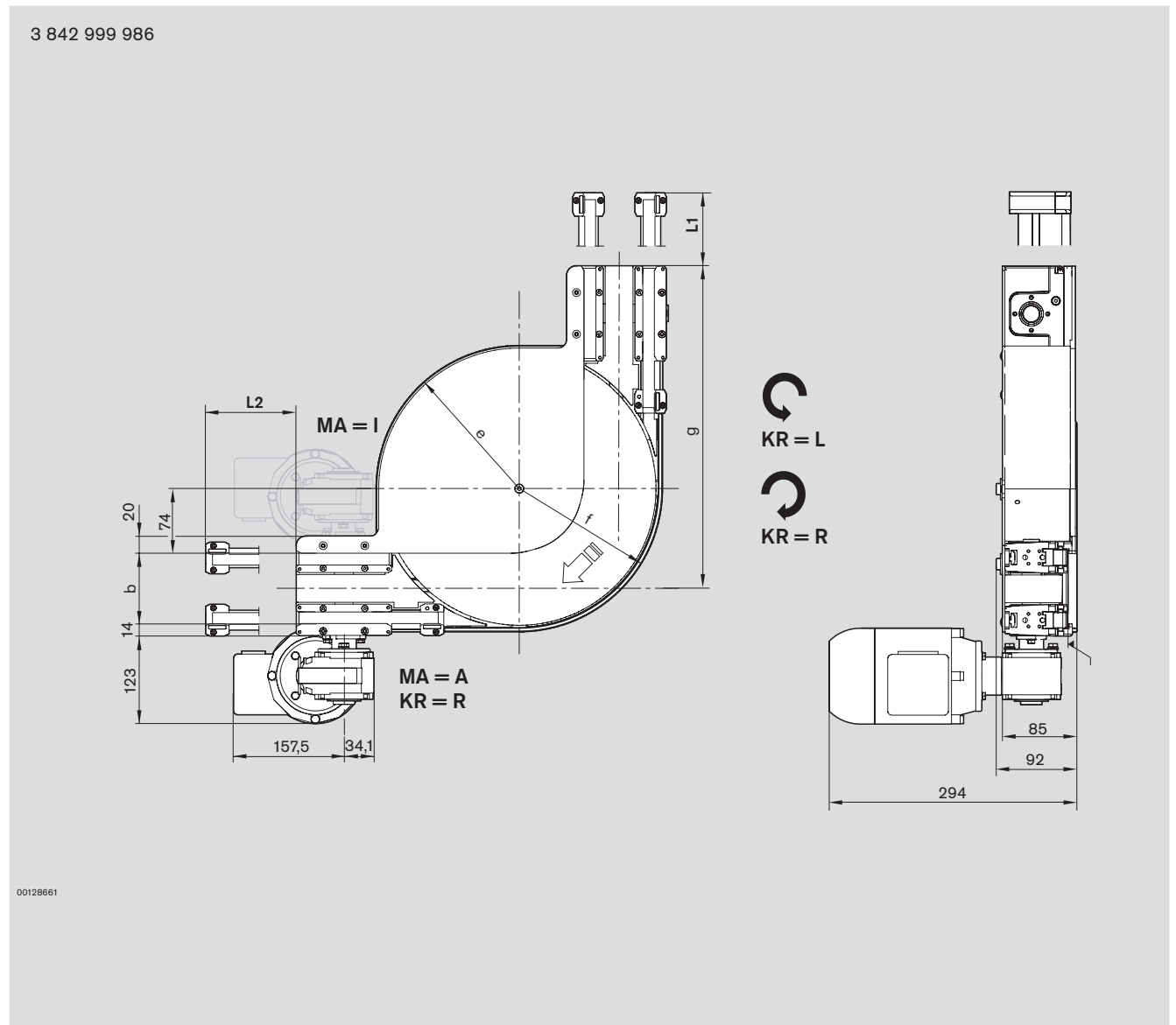


Technische Daten · Technical data · Données techniques

Kurve KU 1/90

Curve

Courbe



b [mm]	e	f	g
80	162	165	372
120	202	203	435
160	240	243	492



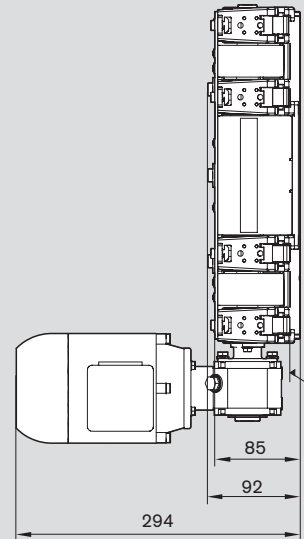
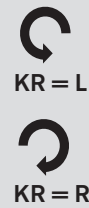
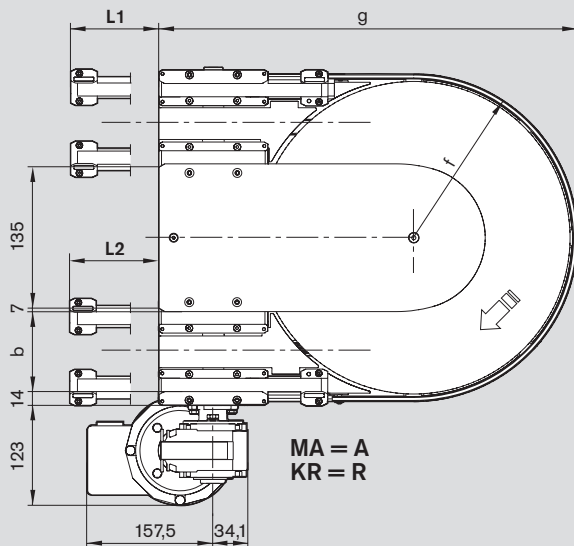
Technische Daten · Technical data · Données techniques

Kurve KU 1/180

Curve

Courbe

3 842 999 987



00128658

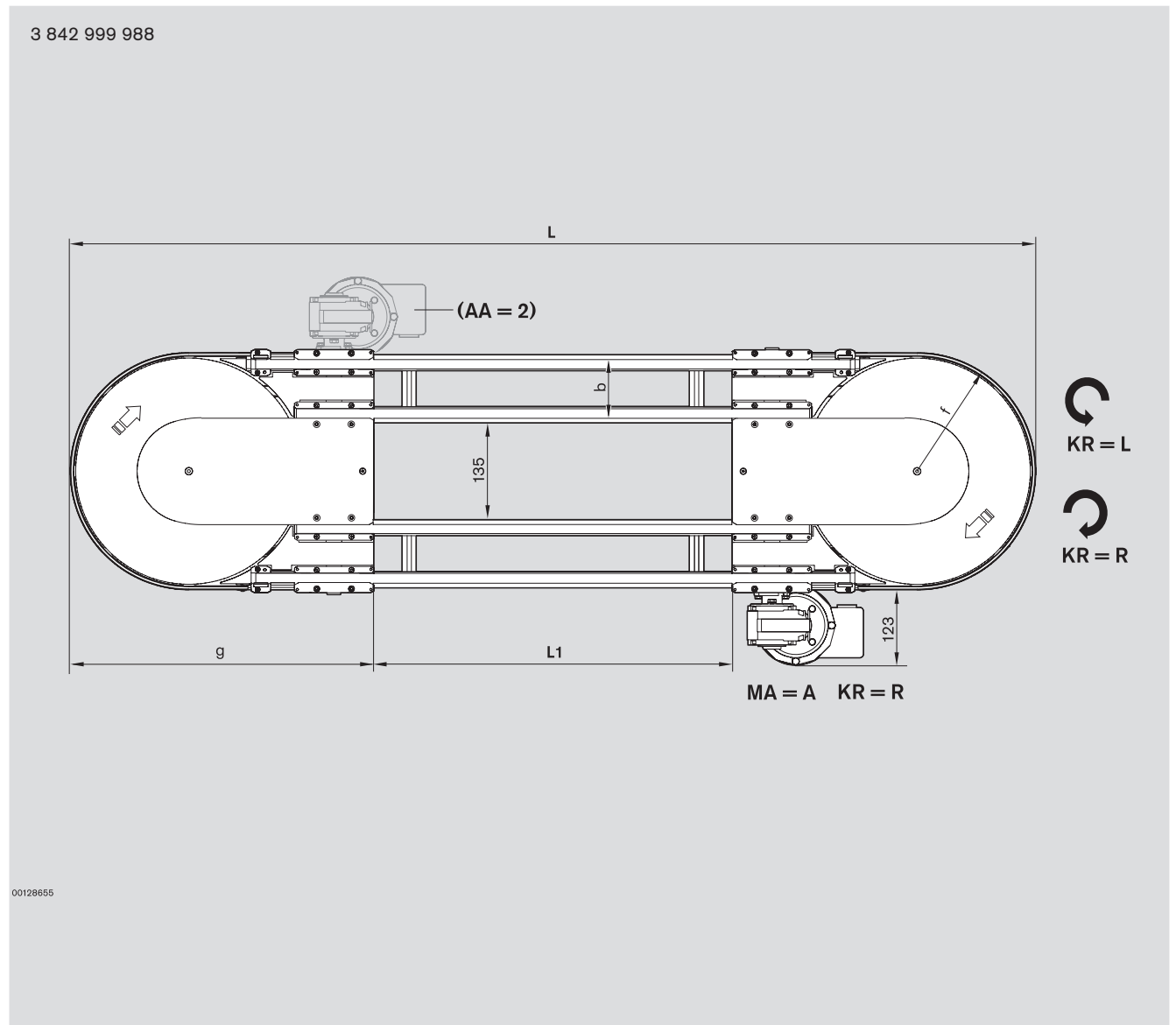
b	f	g
[mm]		
80	165	422
120	203	505
160	243	580

Technische Daten · Technical data · Données techniques

Kurve KU 1/360

Curve

Courbe



b	f	g
[mm]		
80	165	422
120	203	505
160	243	580

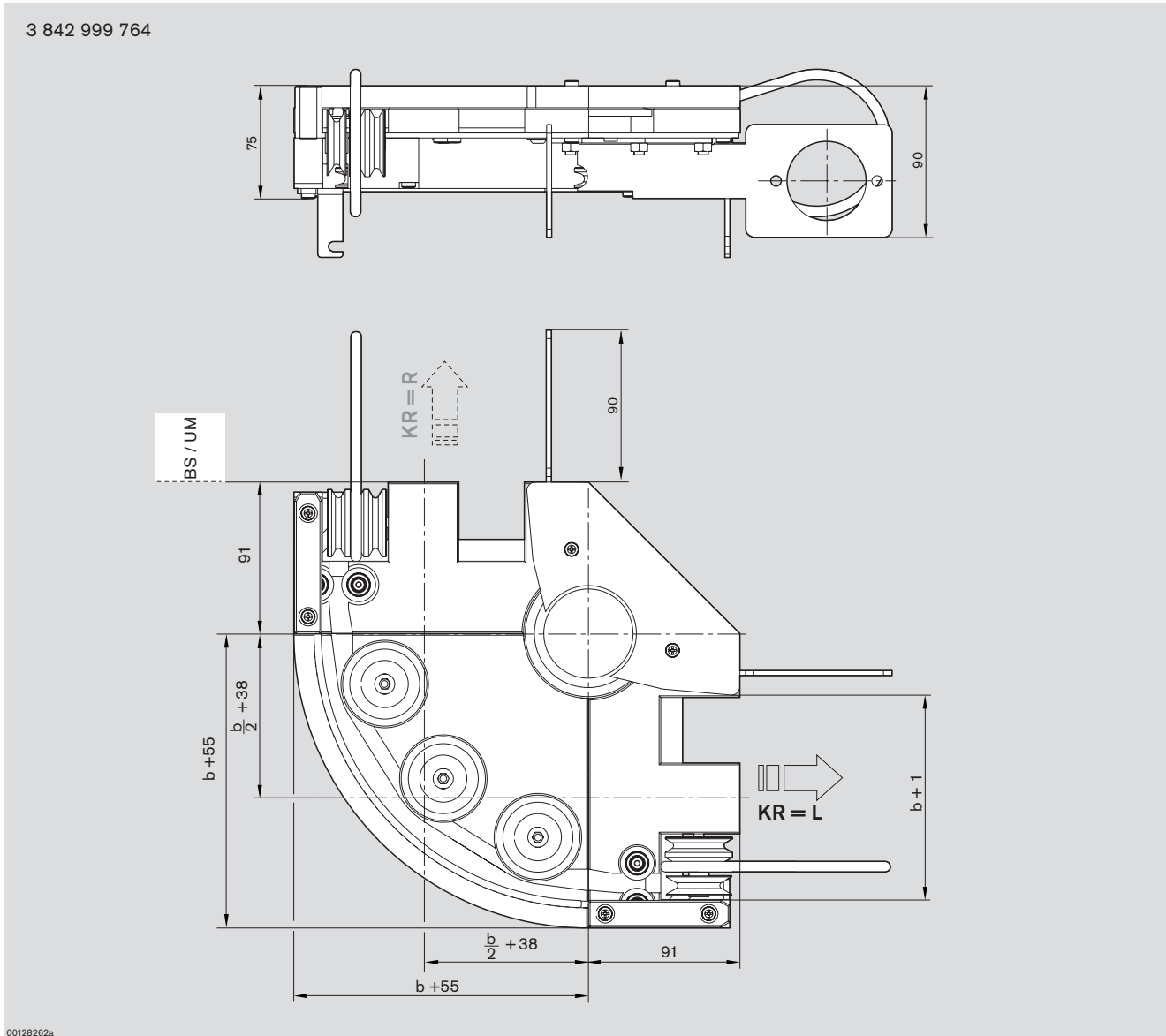


Technische Daten · Technical data · Données techniques

Kurve KE 1/O-90

Curve

Courbe

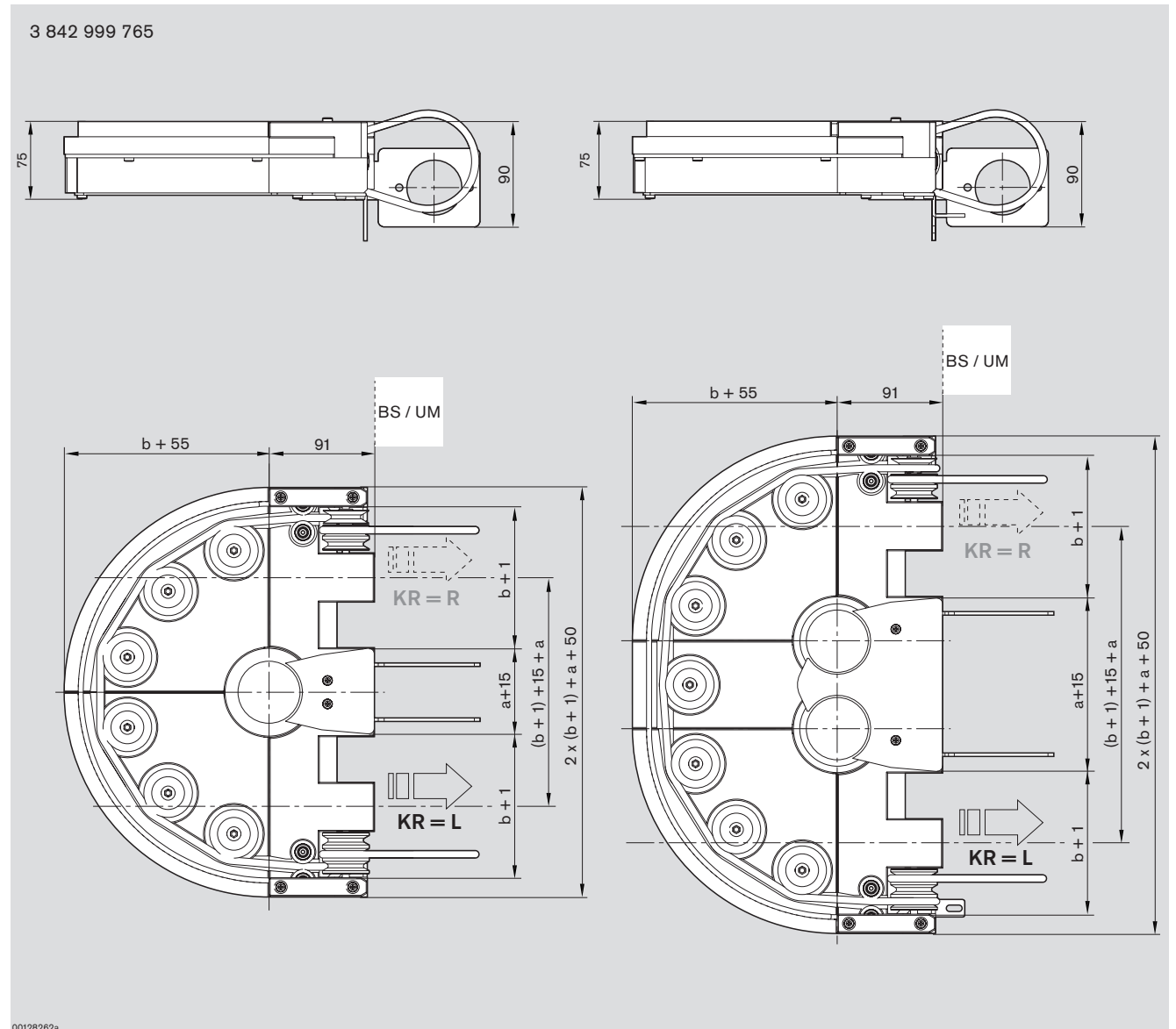


Technische Daten · Technical data · Données techniques

Kurve KE 1/O-180

Curve

Courbe

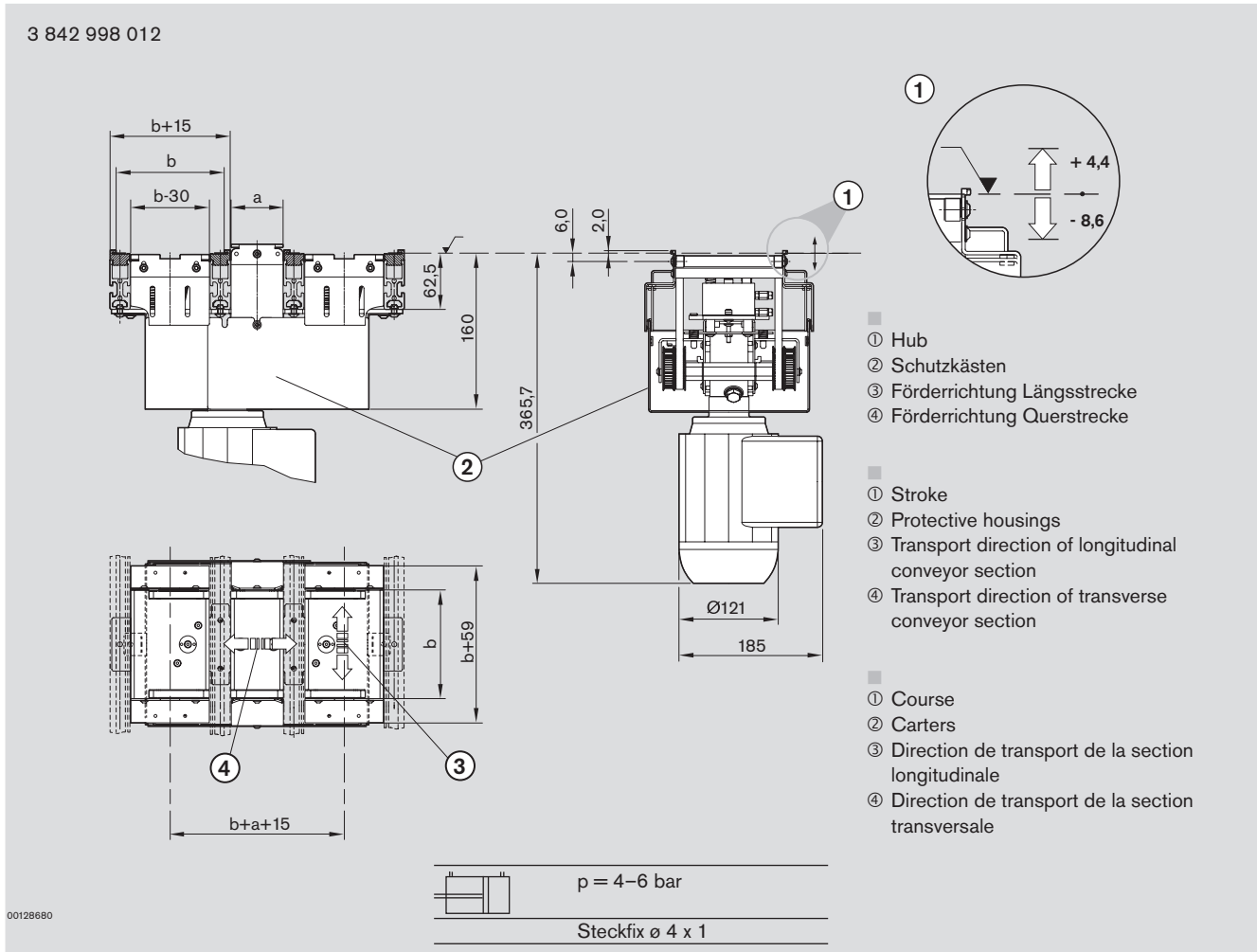


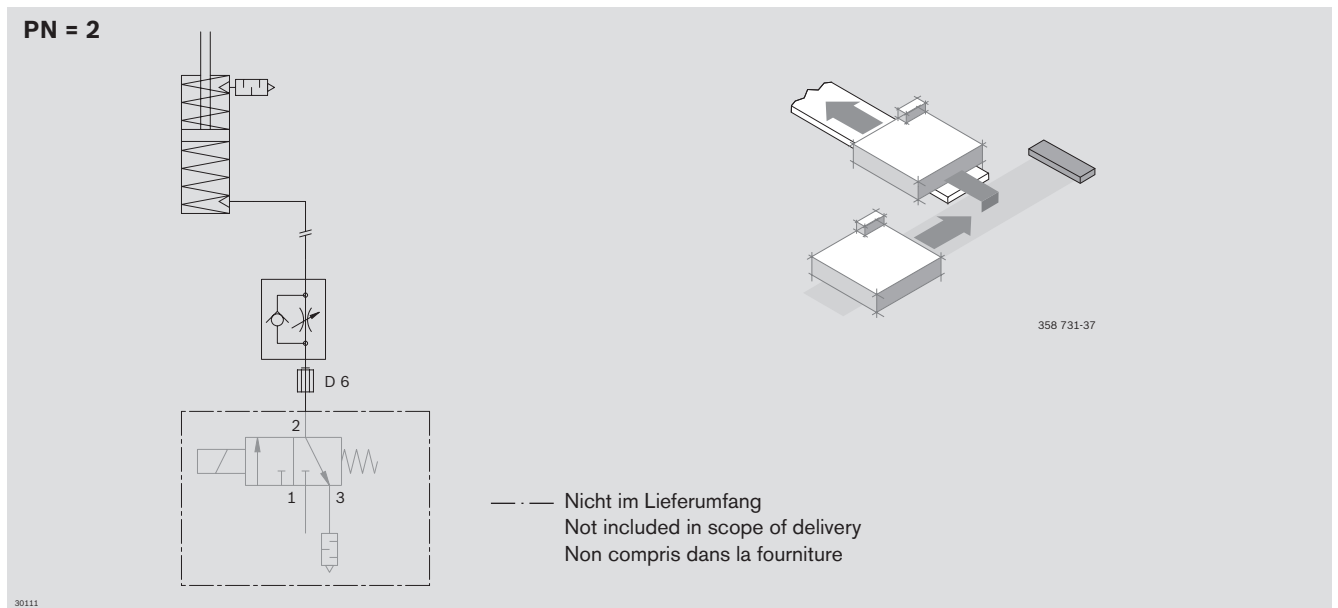
Technische Daten · Technical data · Données techniques

Elektrischer Quertransport EQ 1/TR

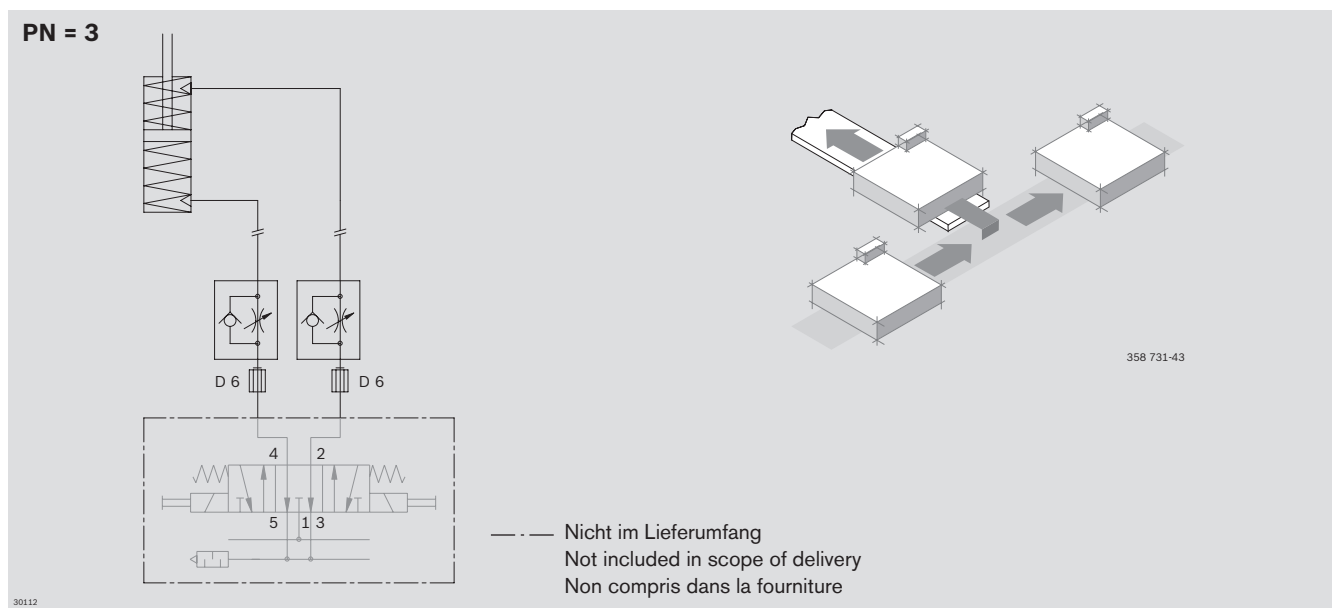
Electrical transverse conveyor

Transport transversal électrique





Schaltbild für Einheit mit Pneumatikrüstung für 2 Stellungen PN = 2
 Circuit diagram for unit with pneumatic equipment for two positions PN = 2
 Schéma de commutation pour unité avec équipement pneumatique pour 2 positions PN = 2



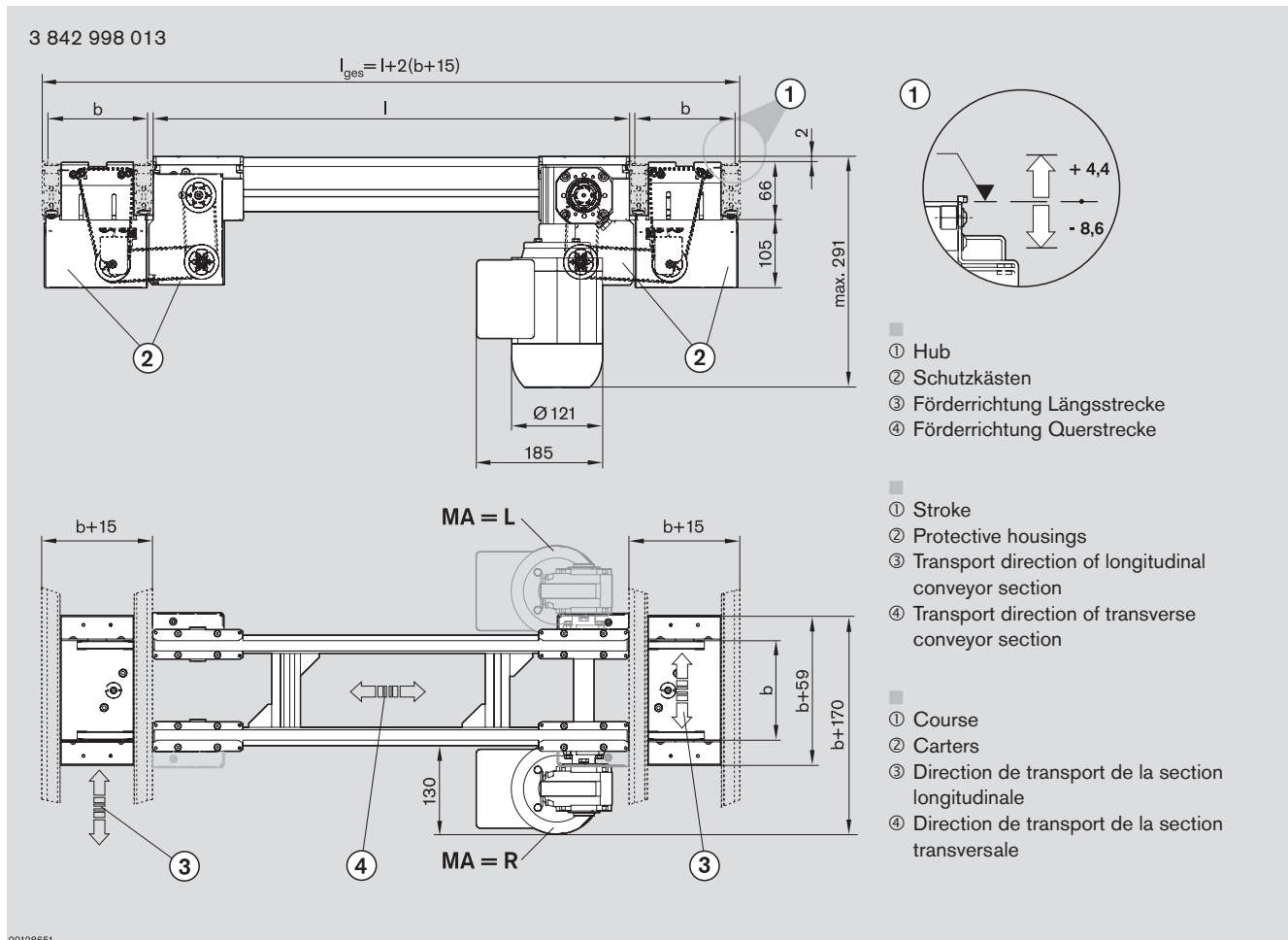
Schaltbild für Einheit mit Pneumatikrüstung für 3 Stellungen PN = 3
 Circuit diagram for unit with pneumatic equipment for three positions PN = 3
 Schéma de commutation pour unité avec équipement pneumatique pour 3 positions PN = 3

Technische Daten · Technical data · Données techniques

Elektrischer Quertransport EQ 1/T

Electrical transverse conveyor

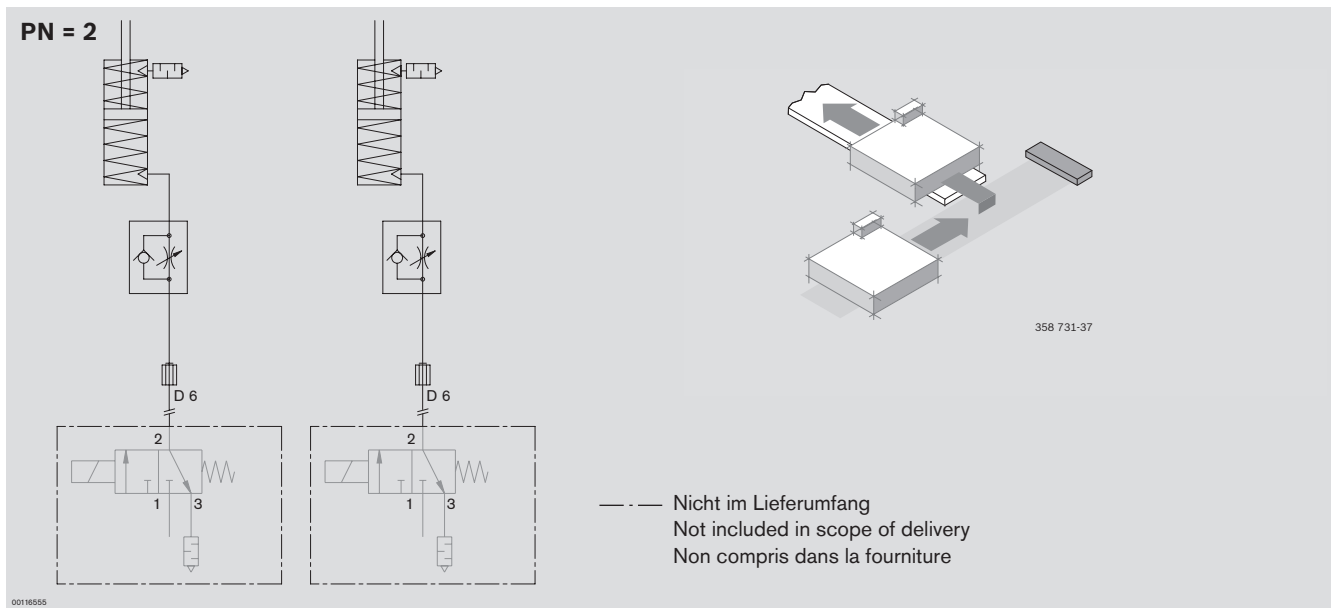
Transport transversal électrique



00128651



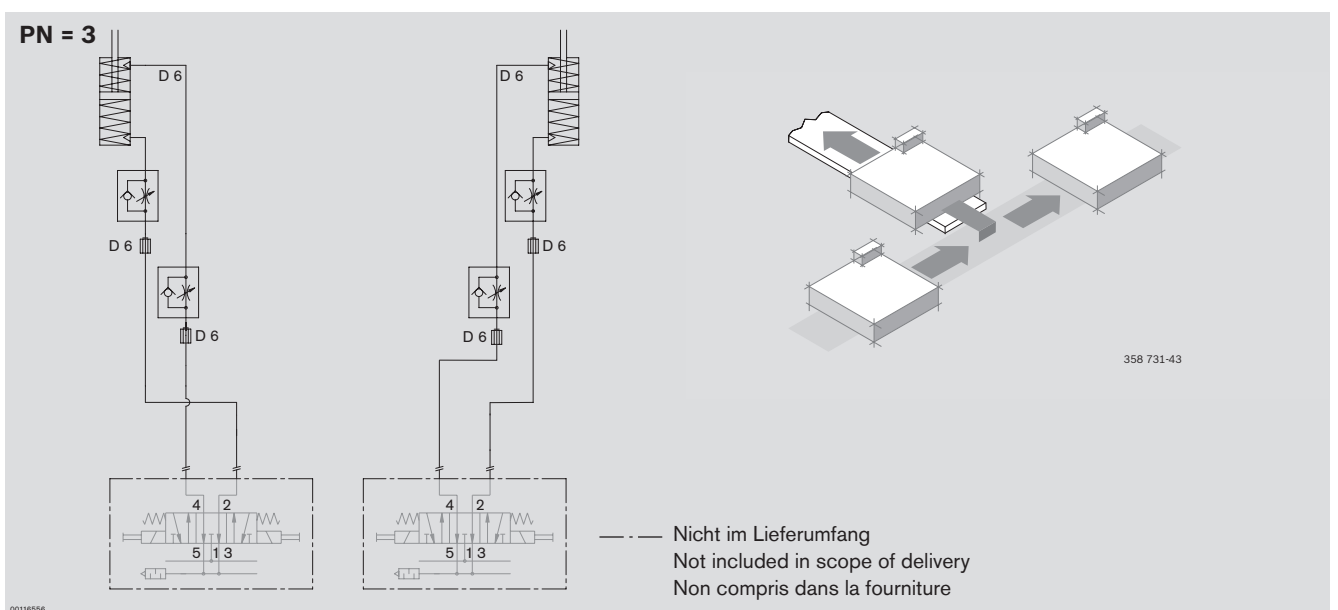
Technische Daten · Technical data · Données techniques



Schaltbild für Einheit mit Pneumatikausrüstung für 2 Stellungen PN = 2, BG 1

Circuit diagram for unit with pneumatic equipment for two positions PN = 2, BG 1

Schéma de commutation pour unité avec équipement pneumatique pour 2 positions PN = 2, BG 1



Schaltbild für Einheit mit Pneumatikausrüstung für 3 Stellungen PN = 3, BG 1

Circuit diagram for unit with pneumatic equipment for three positions PN = 3, BG 1

Schéma de commutation pour unité avec équipement pneumatique pour 3 positions PN = 3, BG 1

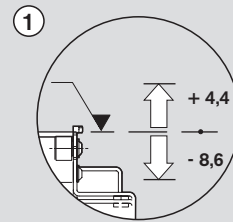
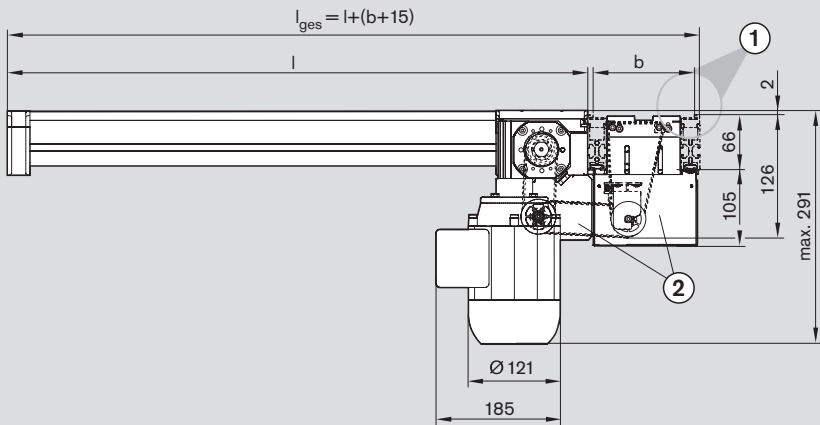
Technische Daten · Technical data · Données techniques

Elektrischer Quertransport EQ 1/TE

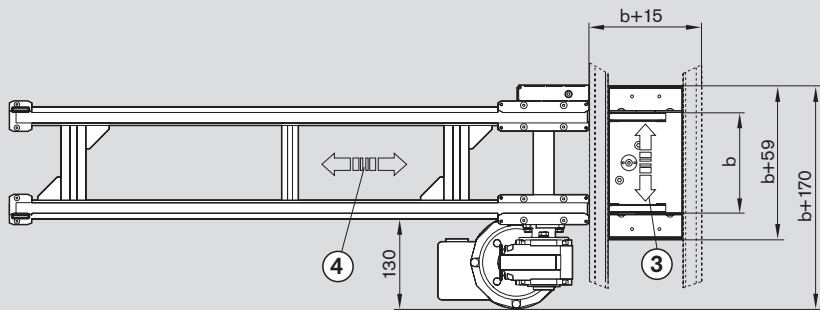
Electrical transverse conveyor

Transport transversal électrique

3 842 998 014



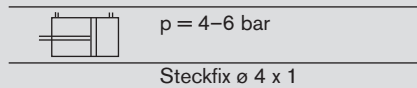
- ① Hub
- ② Schutzkästen
- ③ Förderrichtung Längsstrecke
- ④ Förderrichtung Querstrecke

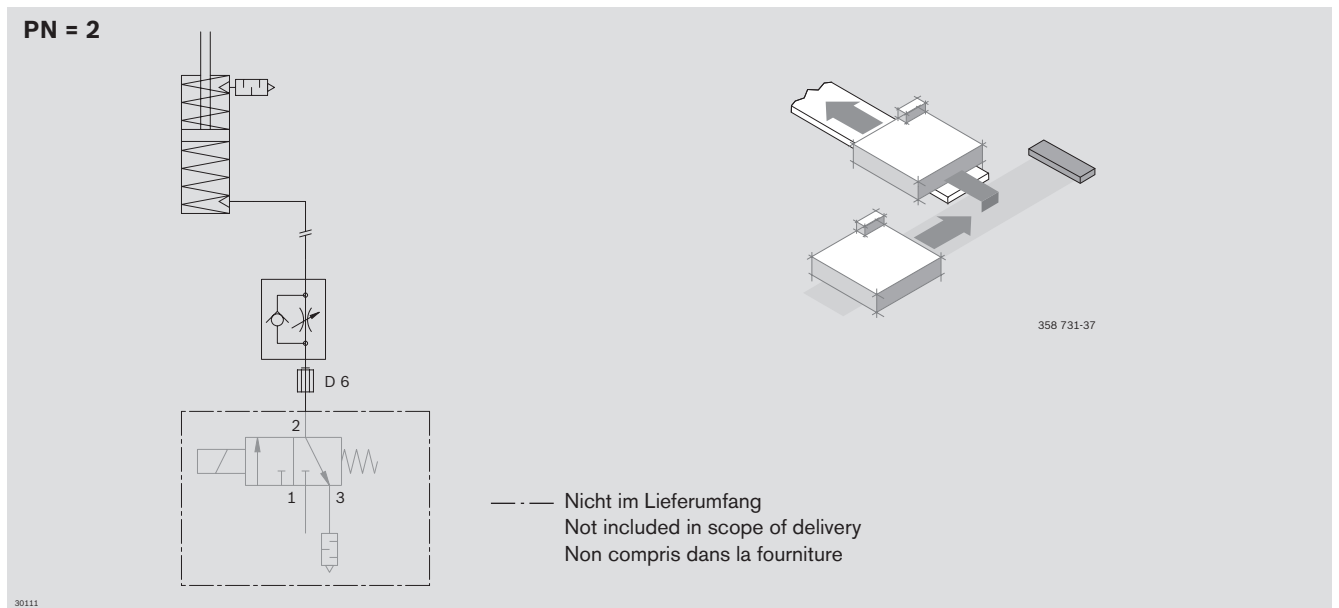


- ① Stroke
- ② Protective housings
- ③ Transport direction of longitudinal conveyor section
- ④ Transport direction of transverse conveyor section

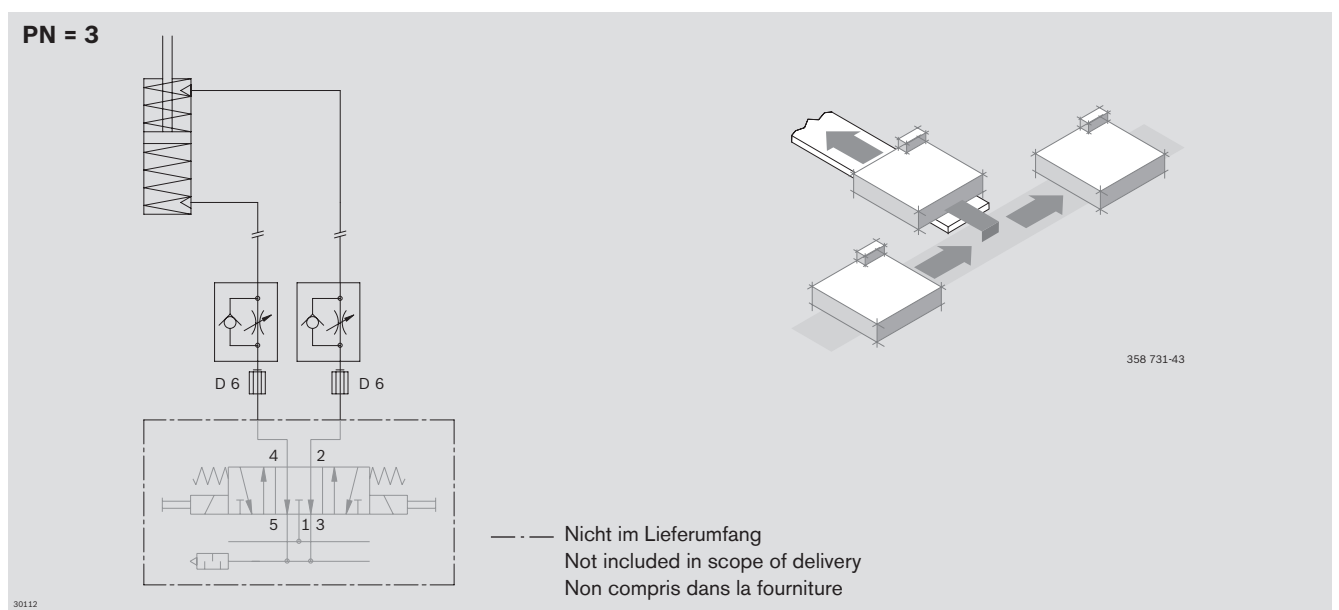
- ① Course
- ② Carters
- ③ Direction de transport de la section longitudinale
- ④ Direction de transport de la section transversale

00126683





Schaltbild für Einheit mit Pneumatikrüstung für 2 Stellungen PN = 2
 Circuit diagram for unit with pneumatic equipment for two positions PN = 2
 Schéma de commutation pour unité avec équipement pneumatique pour 2 positions PN = 2



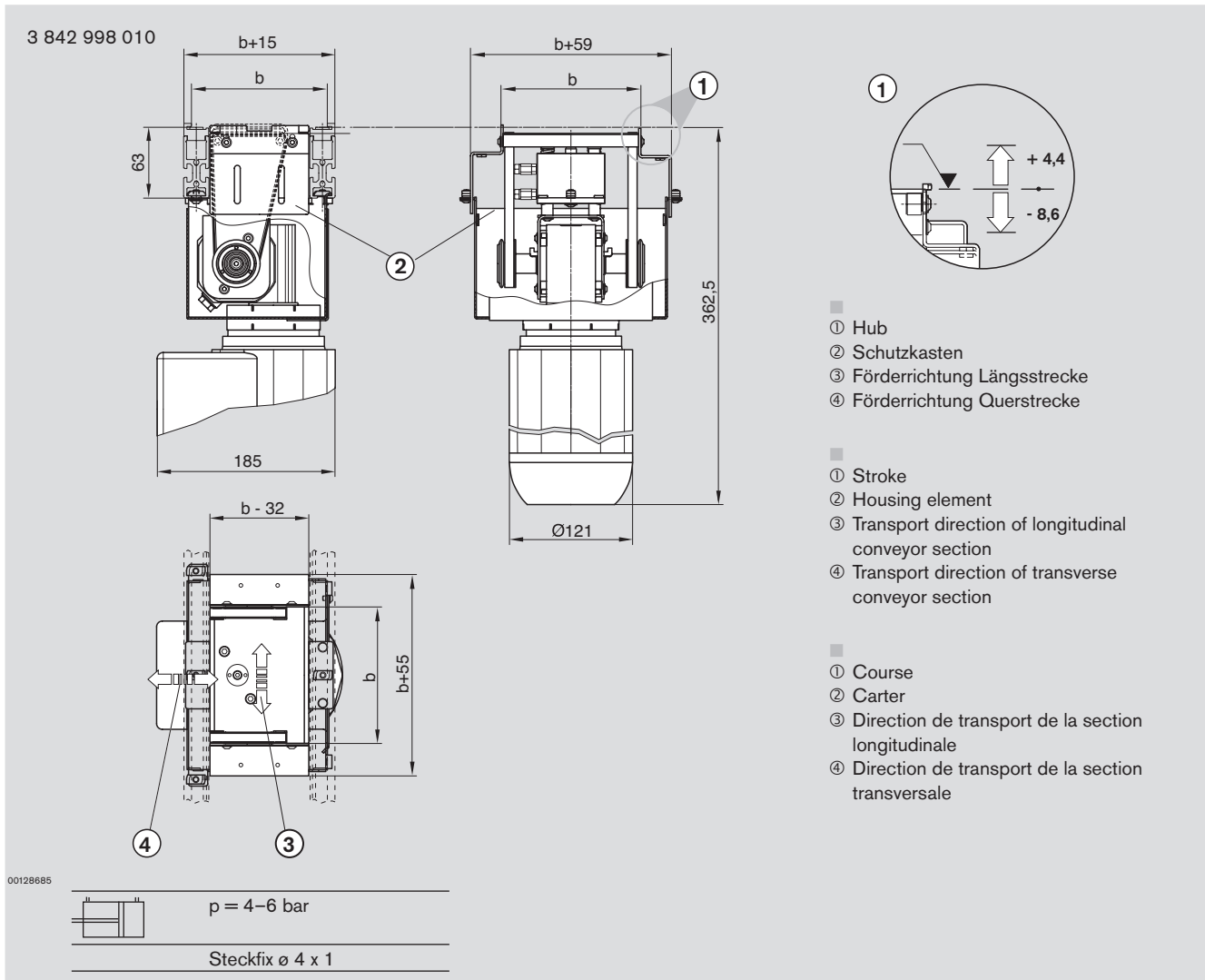
Schaltbild für Einheit mit Pneumatikrüstung für 3 Stellungen PN = 3
 Circuit diagram for unit with pneumatic equipment for three positions PN = 3
 Schéma de commutation pour unité avec équipement pneumatique pour 3 positions PN = 3

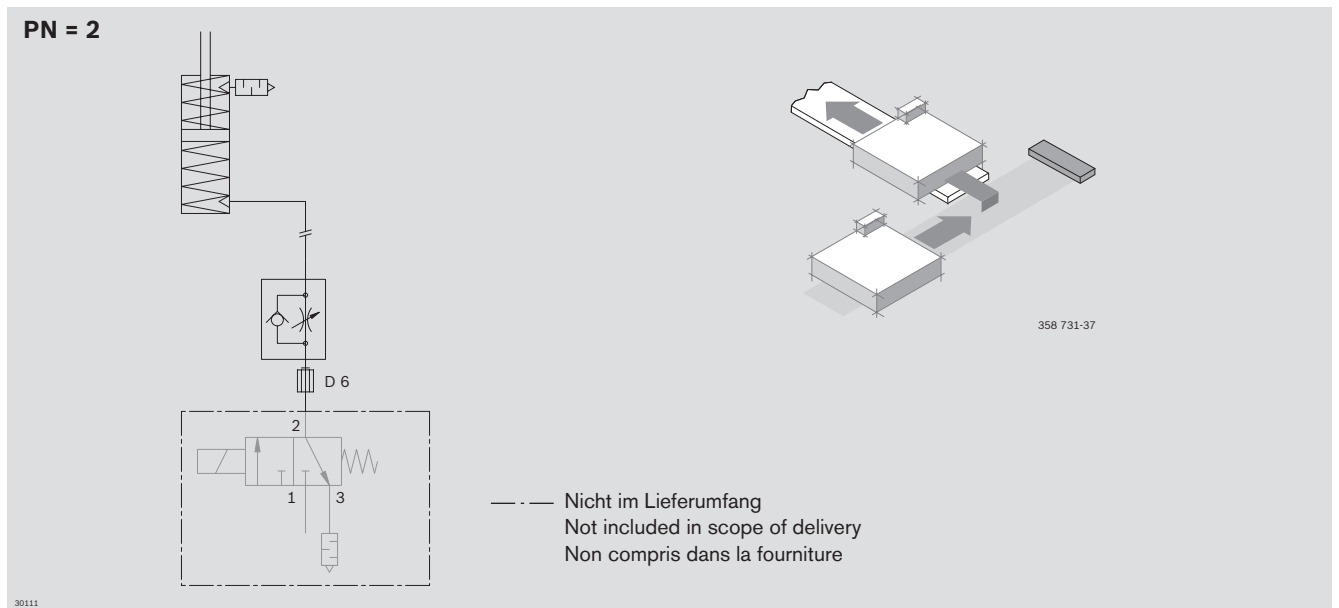
Technische Daten · Technical data · Données techniques

Hub-Quereinheit HQ 1/U

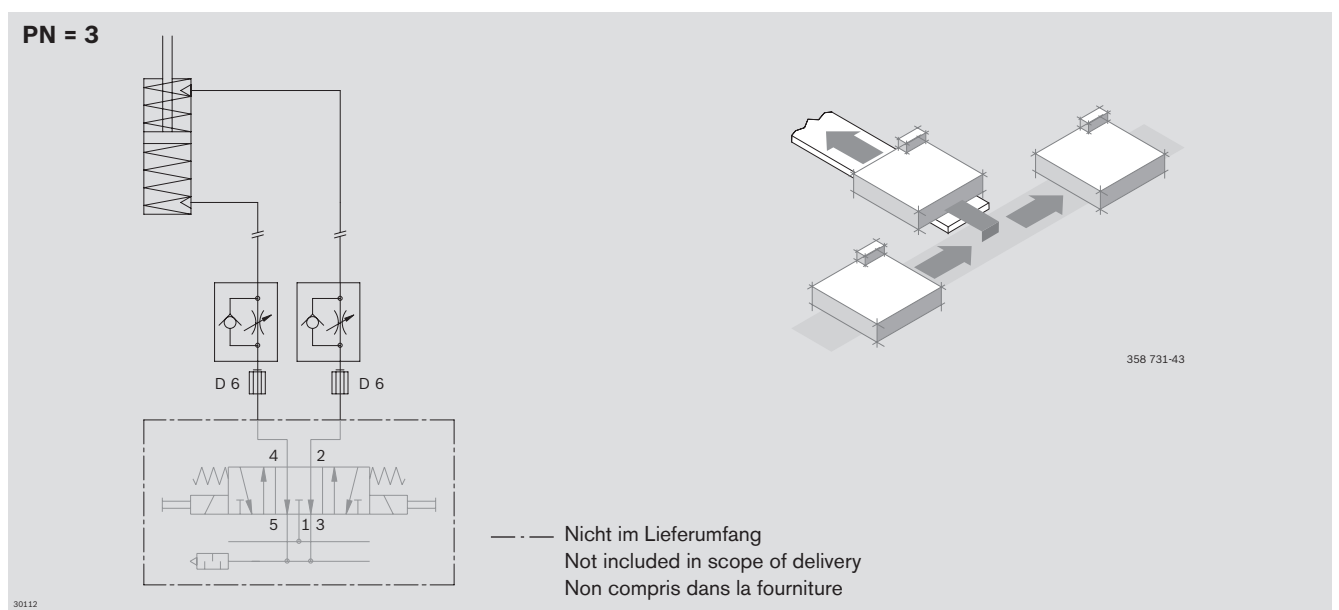
Lift transverse unit

Unité de levée transversale





Schaltbild für Einheit mit Pneumatikrüstung für 2 Stellungen PN = 2
 Circuit diagram for unit with pneumatic equipment for two positions PN = 2
 Schéma de commutation pour unité avec équipement pneumatique pour 2 positions PN = 2



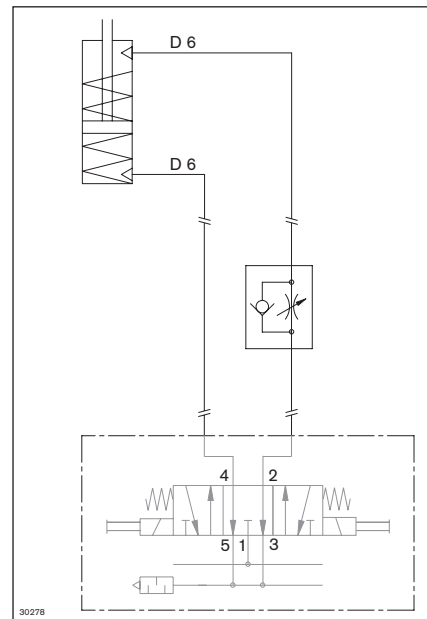
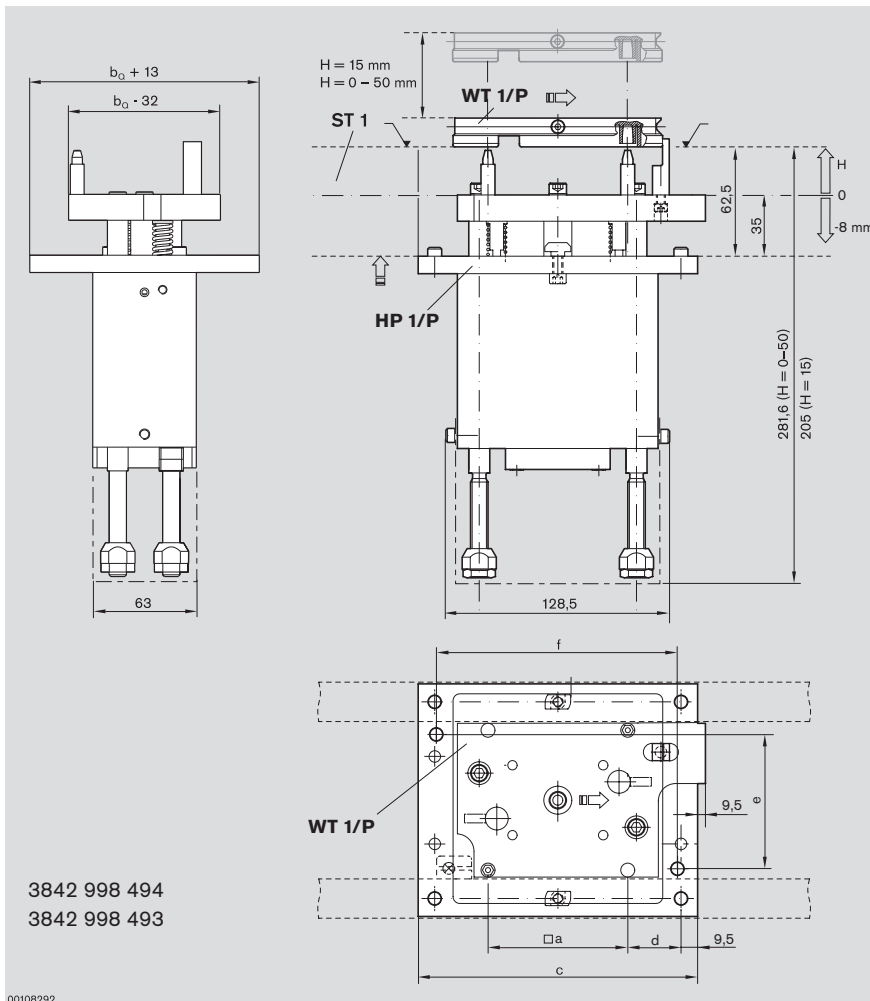
Schaltbild für Einheit mit Pneumatikrüstung für 3 Stellungen PN = 3
 Circuit diagram for unit with pneumatic equipment for three positions PN = 3
 Schéma de commutation pour unité avec équipement pneumatique pour 3 positions PN = 3

Technische Daten · Technical data · Données techniques

Hub- und Positioniereinheit HP 1/P

Lift position unit

Unité de levée et de positionnement



--- Nicht im Lieferumfang
Not included in scope of delivery
Non compris dans la fourniture

F
400 N / 15 Nm WT 1/P ± 0,025 mm

p = 4 - 6 bar
Steckfix Ø 6x1

Minimale WT-Wechselzeiten t
Minimum WT changing times t
Temps minimaux t d'échange de palette

b_{WT} [mm]	v [m/min]	H [mm]	t [s]
80	12	15	1,88
80	12	50	2,75
120	12	15	1,52
120	12	50	2,20
160	12	15	2,23
160	12	50	2,34

b [mm]	a [mm]	c [mm]	d [mm]	e [mm]	f [mm]
80	38	160	51,5	50	141
120	78	160	31,5	70	141
160	118	200	31,5	110	181

Größe WT / WT size / Taille WT
Druck / Pressure / Pression
Abstand / Distance / Distance

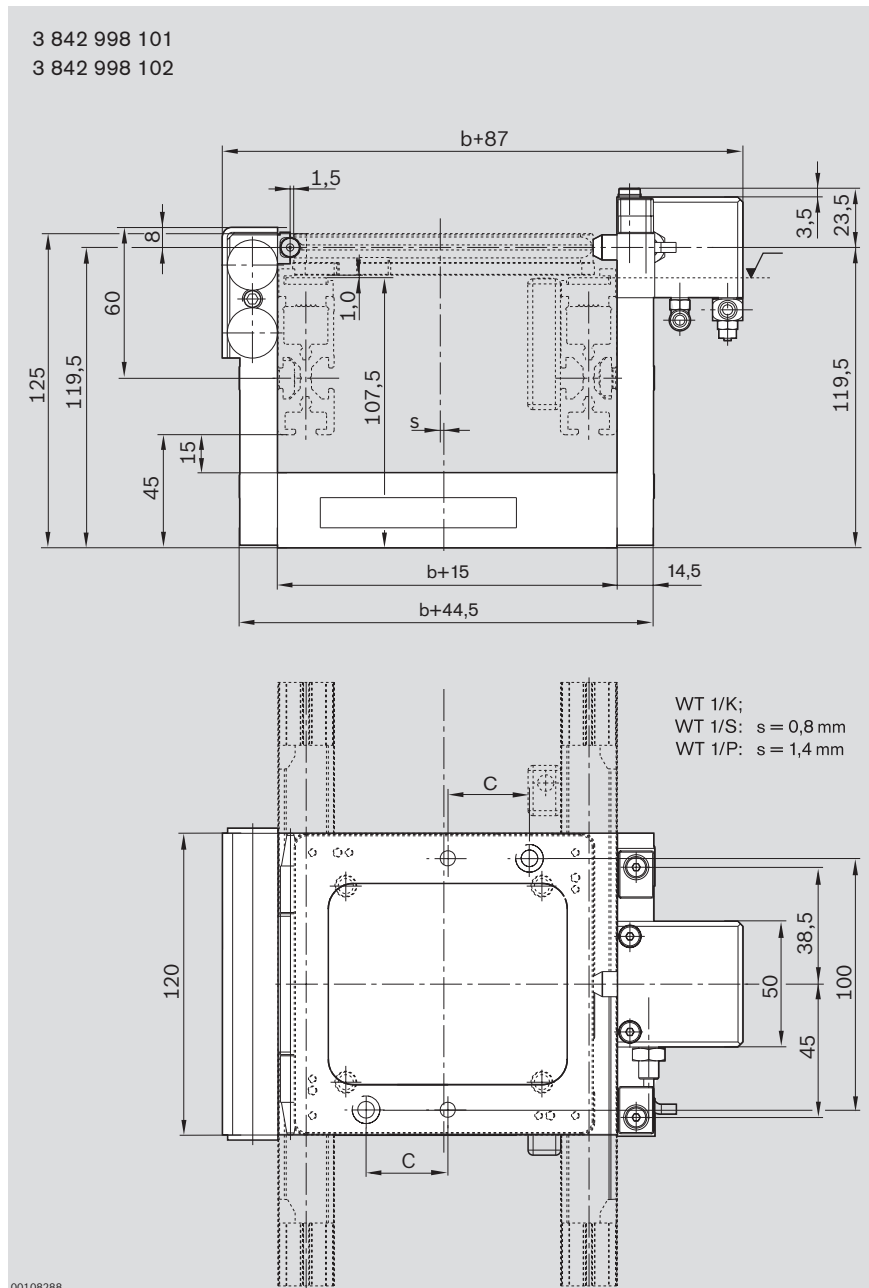
$b_{WT} = 80, 120, 160$ mm
p = 4 bar
VE 1 - HP 1/P
s = 22,7 mm: $b_{WT} = 80$ mm
s = 1,4 mm: $b_{WT} = 120, 160$ mm

Technische Daten · Technical data · Données techniques

Positioniereinheit PE 1/P

Position unit

Unité de positionnement



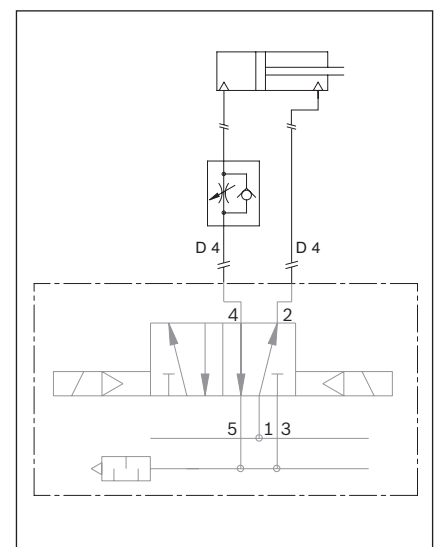
b	c
80	12,5
120	32,5
160	52,5

Hub des WTs = 1,05 mm
 Lift of pallet = 1.05 m
 Levée de la palette porte-pièces = 1,05 mm

Minimale WT-Wechselzeiten t
 Minimum WT changing times t
 Temps minimaux t d'échange de palette

b ¹⁾ [mm]	v [m/min]	t [s]
80	12	0,7
80	18	0,65
120	12	0,9
120	18	0,8
160	12	1,1
160	18	0,95

s = Versatz Mitte Werkstückträger gegenüber Mitte Bandstrecke beim Ausheben
 s = offset of workpiece pallet center compared to belt section center during lifting
 s = déport du milieu de la palette porte pièces par rapport au milieu de la section à bande, lors du soulèvement



F
 100 N / 10 Nm

X | **X**

WT 1/P	± 0,015 mm
WT 1/S	± 0,03 mm
WT 1/K	± 0,4 mm

p = 4 - 6 bar
 Steckfix Ø 4x1

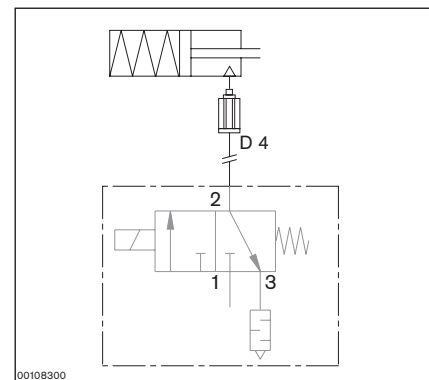
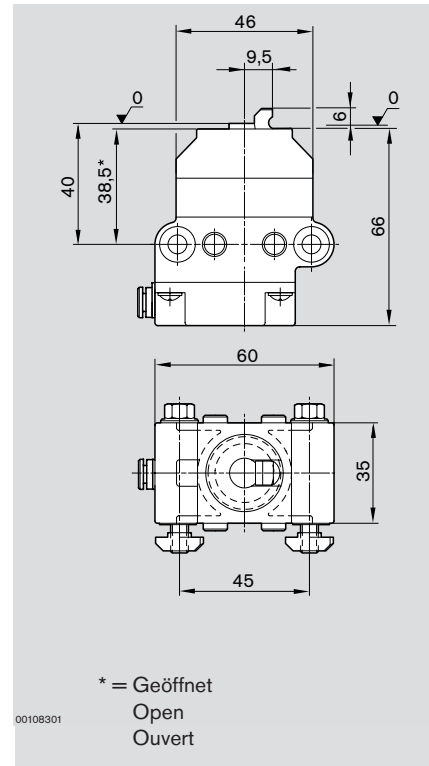
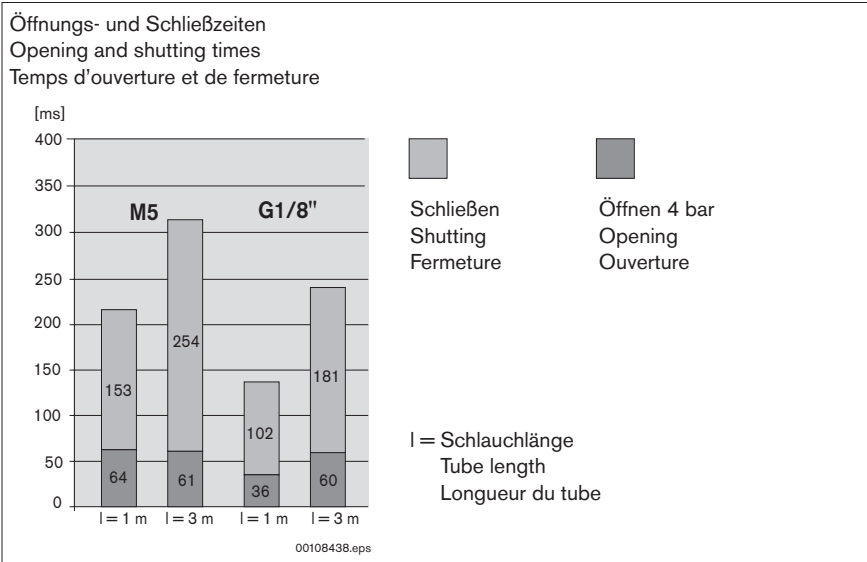
--- Nicht im Lieferumfang
 Not included in scope of delivery
 Non compris dans la fourniture

Technische Daten · Technical data · Données techniques

Vereinzeler VE 1

Stop gate

Séparateur

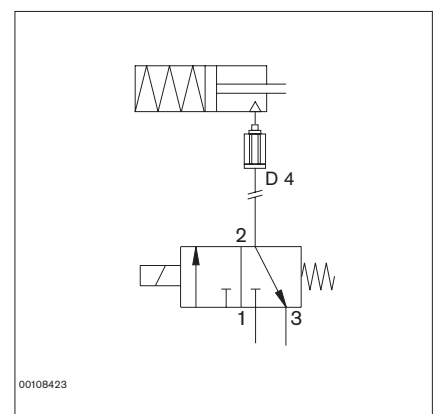
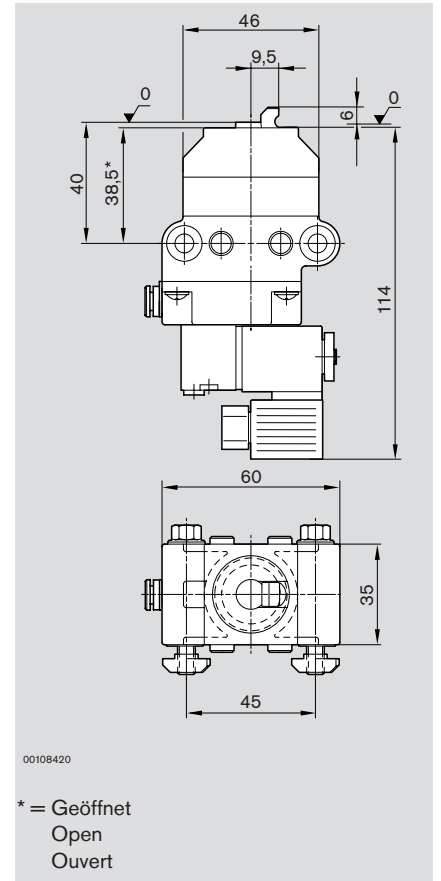
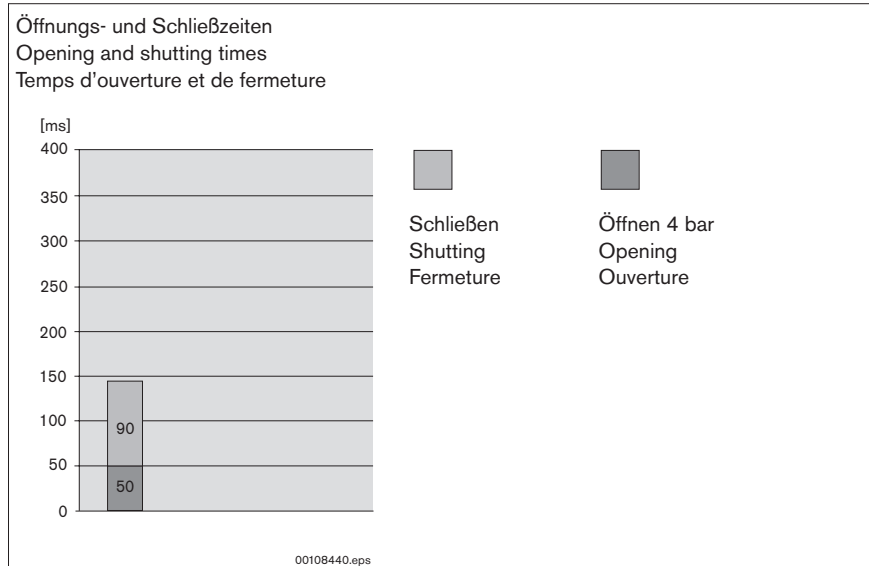


Technische Daten · Technical data · Données techniques

Vereinzeler VE 1/V

Stop gate

Séparateur

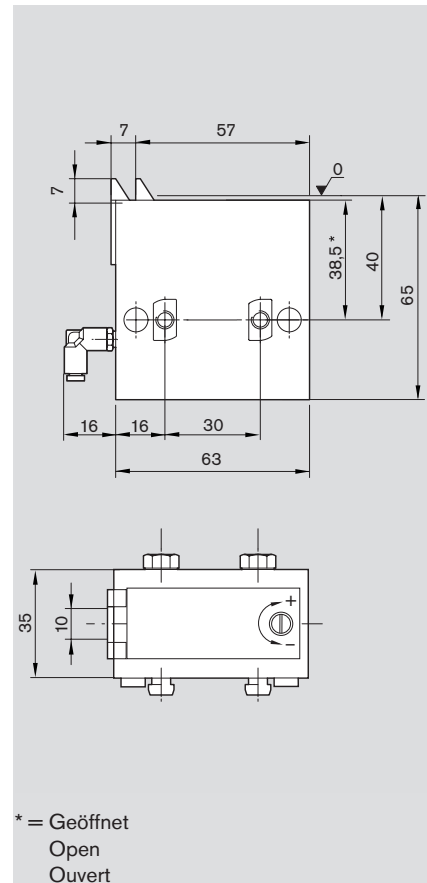
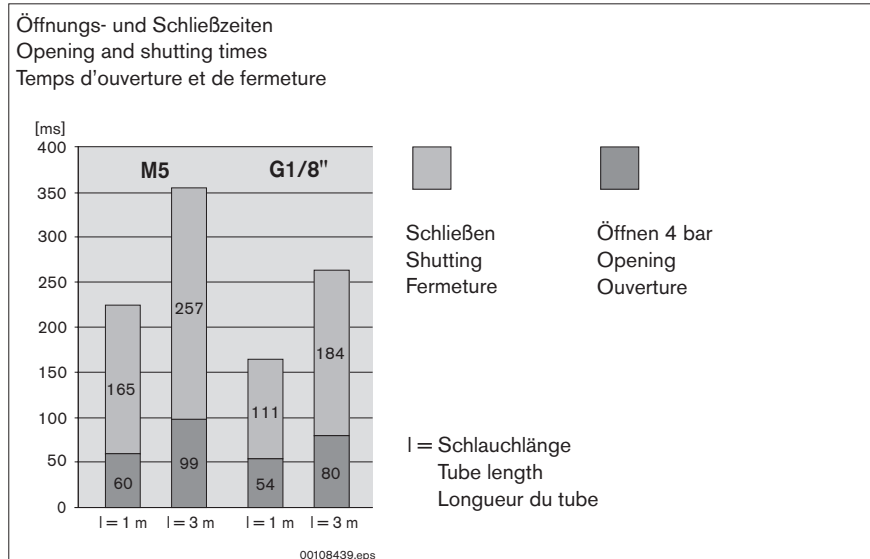


Technische Daten · Technical data · Données techniques

Vereinzeler, gedämpft VE 1/D

Stop gate, damped

Séparateur, amorti

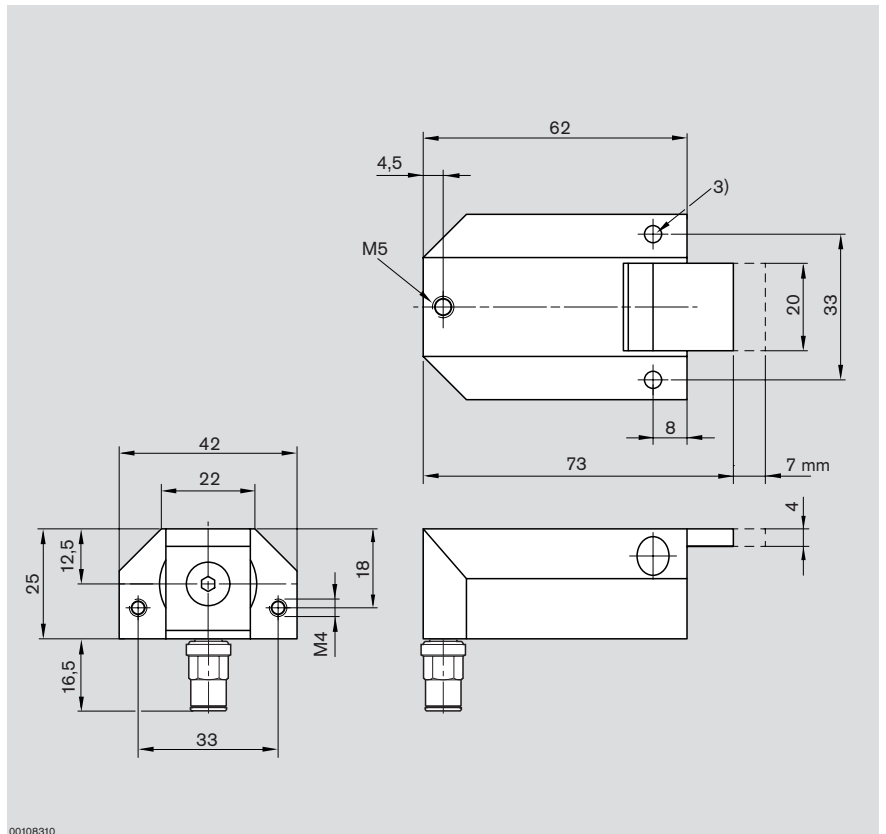
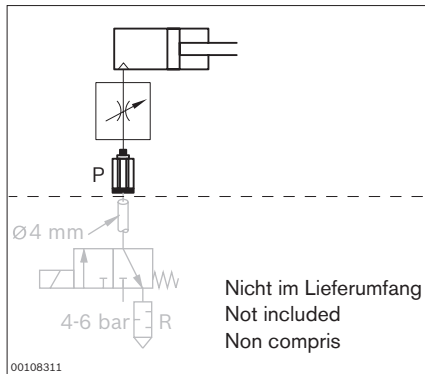


Technische Daten · Technical data · Données techniques

Dämpfer DA 1/A

Damper

Amortisseur

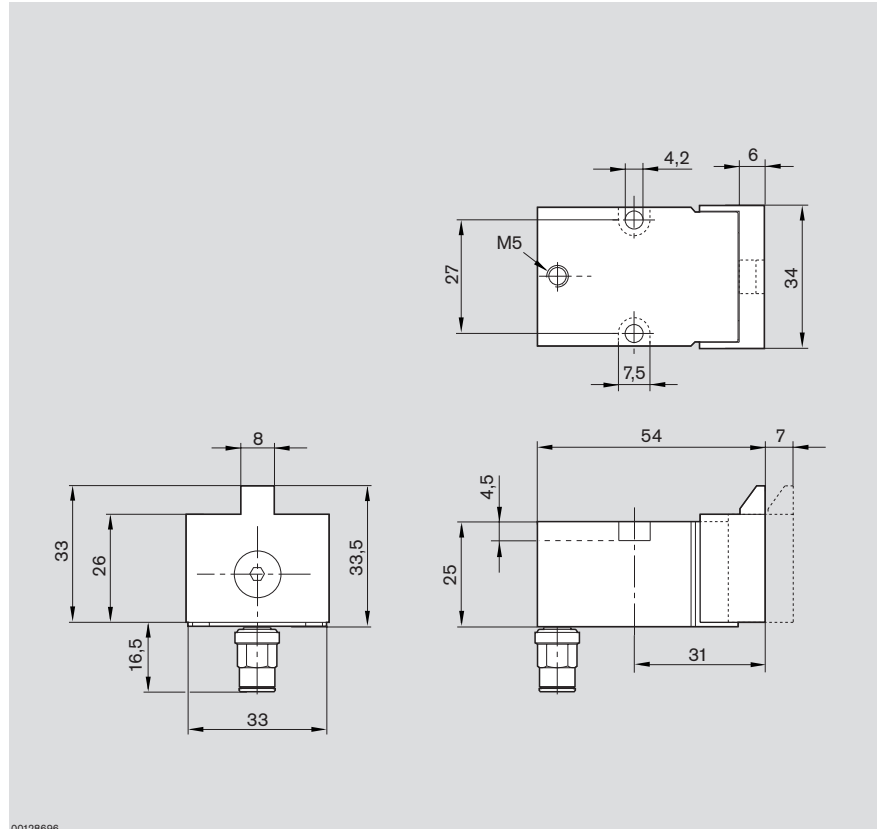
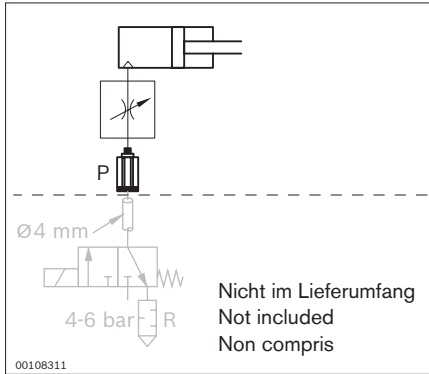


Technische Daten · Technical data · Données techniques

Dämpfer DA 1/B

Damper

Amortisseur



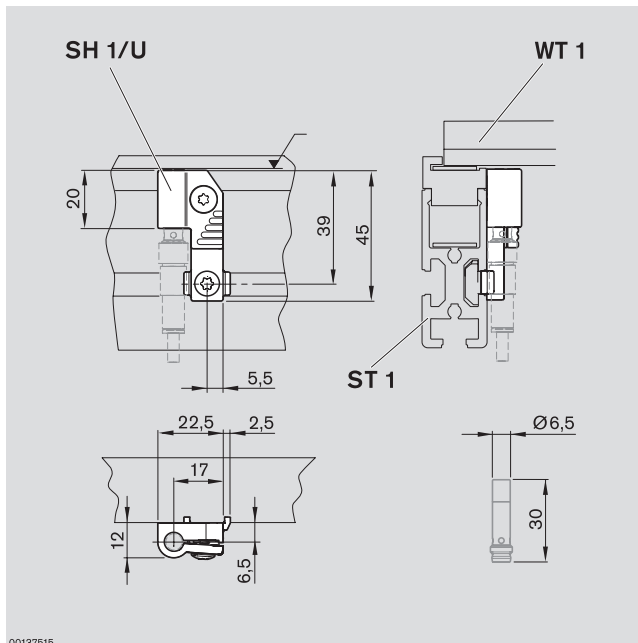
Technische Daten · Technical data · Données techniques

Schalterhalter SH 1/U, SH 1/S

Switch brackets

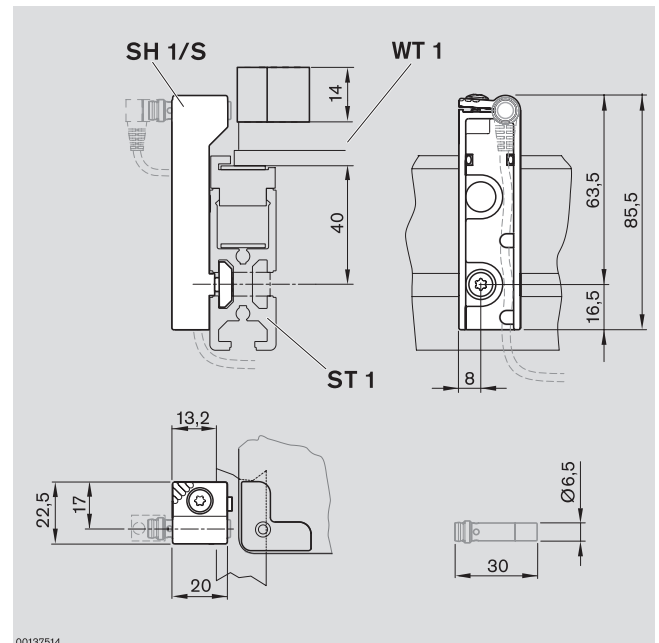
Supports d'interrupteur

SH 1/U



Bedämpfungsbereich ≥ 3 mm
 Exciter zone ≥ 3 mm
 Zone de commutation ≥ 3 mm

SH 1/S



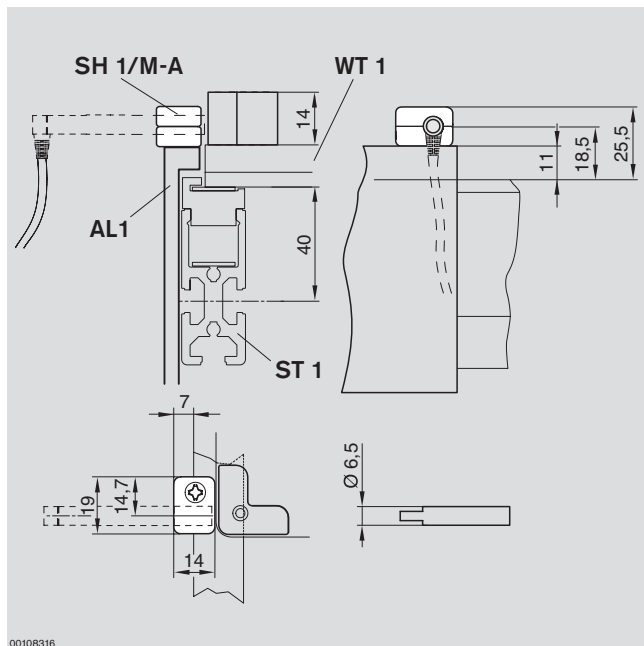
Bedämpfungsbereich ≥ 3 mm
 Exciter zone ≥ 3 mm
 Zone de commutation ≥ 3 mm

Technische Daten · Technical data · Données techniques

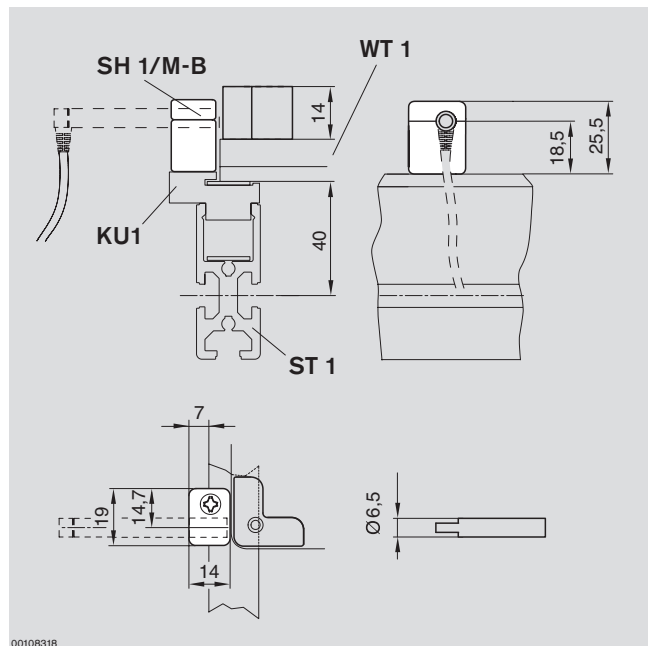
Schalterhalter-Kit SH 1/M-A und SH 1/M-B

Switch bracket kit

Kit de support d'interrupteur



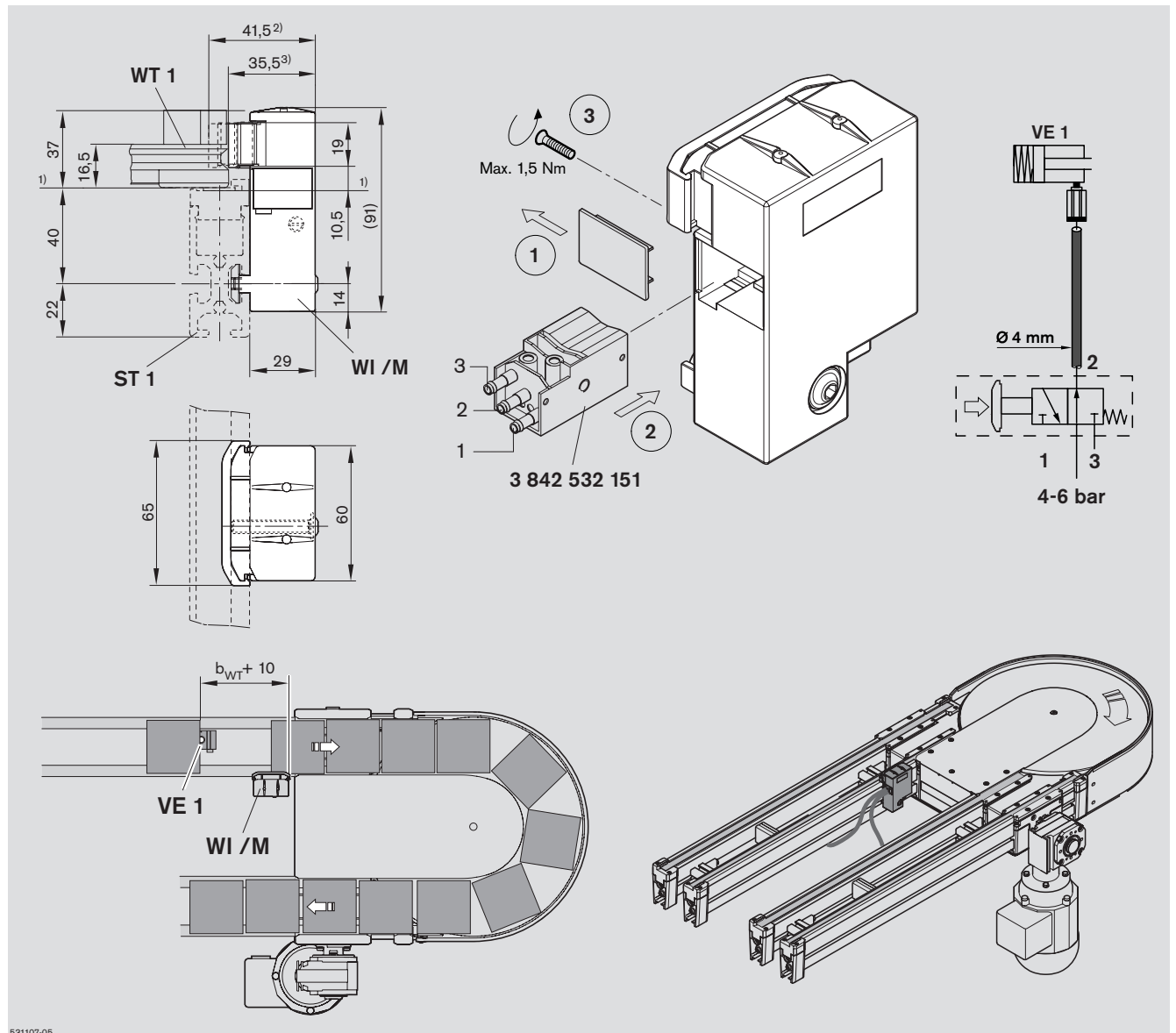
Bedämpfungsbereich ≥ 3 mm
 Exciter zone ≥ 3 mm
 Zone de commutation ≥ 3 mm



Bedämpfungsbereich ≥ 3 mm
 Exciter zone ≥ 3 mm
 Zone de commutation ≥ 3 mm

Technische Daten · Technical data · Données techniques

Wippe WI/M Rocker Bascule



531107-05

Technische Daten · Technical data · Données techniques

Berechnung der Durchlaufzeit

Calculation of pallet passing time

Calculution temps de passage

Durchlaufzeitberechnung für gerade Förderstrecke

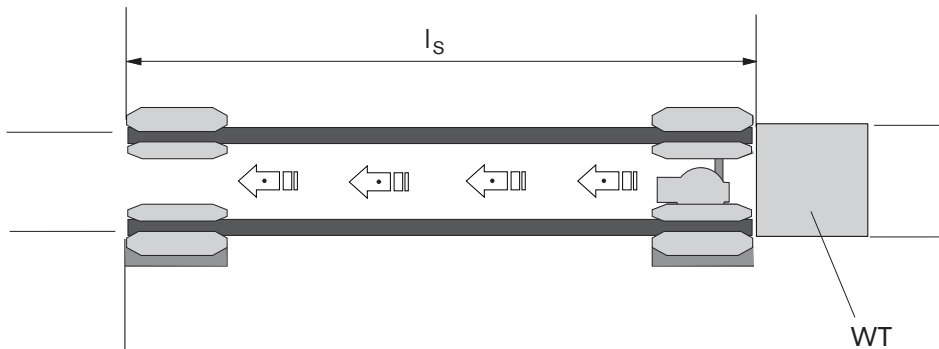
Calculation of pallet passage time for straight conveyor sections

Calculution du temps de passage pour sections droites

Die Durchlaufzeit der Werkstückträger über eine gerade Strecke mit der Länge l lässt sich einfach mit den Angaben zur Streckenlänge und der Fördergeschwindigkeit ermitteln.

The pallet passage time over a straight conveyor section with length l can be easily calculated using the values for section length and conveyor speed.

Le temps de passage sur une section droite de longueur l peut être facilement déterminé avec les valeurs de longueur de section et la vitesse de convoyage.



12.1

$$t_D = \frac{l_S}{v} \cdot \frac{60}{1000} + t_h \text{ [s]}$$

t_D Durchlaufzeit WT
 l_{WT} Länge Werkstückträger
 l_S Streckenlänge
 v Fördergeschwindigkeit (m/min)
 t_h Schlupf (ca. 0,5 sec.)

t_D Pallet passage time
 l_{WT} Length of pallet
 l_S Section length
 v Speed (m/min)
 t_h Slip (approx. 0.5 sec.)

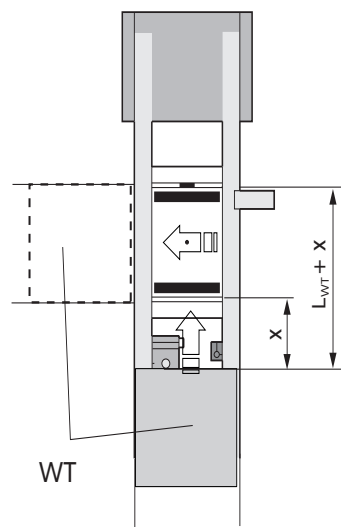
t_D Temps de passage de la palette
 l_{WT} Longueur de la palette
 l_S Longueur de la section
 v Vitesse de convoyage (m/min)
 t_h Glissement (env. 0,5 sec.)

Durchlaufzeitberechnung mit Änderung der Transportrichtung Calculation of pallet passage time including transport direction change Calculution du temps de passage avec changement de la direction de transport

Wird in einem Quertransport von der Längstransportrichtung in die Quertransportrichtung ausgeschleust, kommen die Beruhigungszeit und die Hubzeit der Hub-Quereinheit zur Berechnung der Durchlaufzeit hinzu. Zusammen mit dem Abstand „x“ des Vereinzlers vor dem Quertransport, ergibt sich die Durchlaufzeit im Quertransport zu:

On a transverse conveyor, if the pallet is outfed from a longitudinal onto a transverse conveyor, the quiescence time and the lift time of the lift transverse unit have to be added to the pallet passage time calculation. Together with the distance “x” from the stop gate to the transverse conveyor the pallet passage time in the transverse conveyor is as follows:

Si la palette est éjectée d'une direction longitudinale à une direction transversale sur un transport transversal, la durée de stabilisation et la durée de course de l'unité de levée transversale doivent être ajoutées au temps de passage de la palette. Tenant compte de la distance « x » du séparateur au transport transversal, le temps de passage de la palette pour le transport transversal est donc calculé comme suit :



$$t_D = \frac{2 \cdot l_{WT} + x}{v} \cdot \frac{60}{1000} + t_1 + t_h \text{ [s]}$$

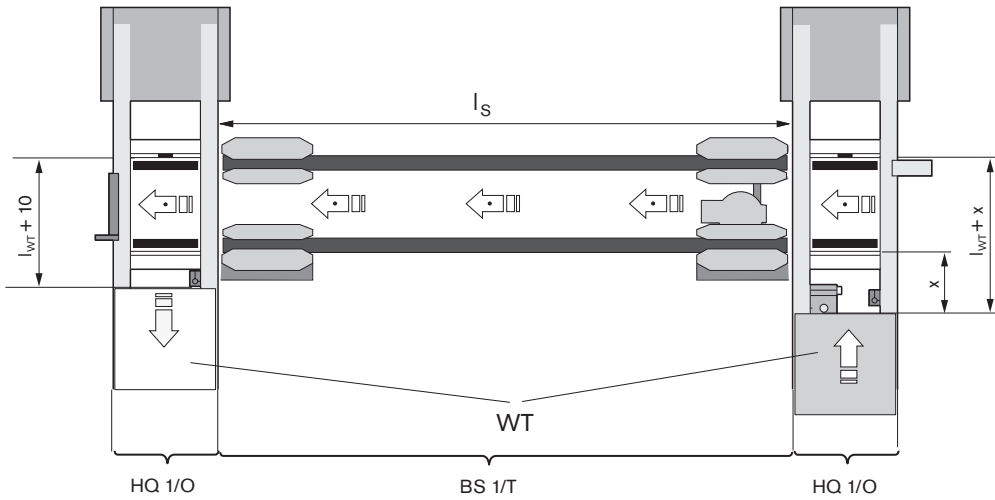
12.2

t_D Durchlaufzeit WT
 l_{WT} Länge Werkstückträger
 x Abstand WT - HQ 1
 v Fördergeschwindigkeit (m/min)
 t_1 Beruhigungszeit (ca. 300 ms)
 t_h Hubzeit HQ (ca. 0,5 sec.)

t_D Pallet passage time
 l_{WT} Length of pallet
 x Distance of pallet from HQ 1
 v Speed (m/min)
 t_1 Quiescence time (approx. 300 ms)
 t_h HQ lift time (approx. 0.5 sec.)

t_D Temps de passage de la palette
 l_{WT} Longueur de la palette
 x Distance entre la palette et la HQ 1
 v Vitesse de convoyage (m/min)
 t_1 Durée de stabilisation (env. 300 ms)
 t_h Durée de course HQ (env. 0,5 sec.)

Durchlaufzeitberechnung für Quertransport mit EQ 1/T
Calculation of pallet passage time for transverse conveyor
Calculution du temps de passage pour transport transversal



$$t_D = \frac{(3 \cdot l_{WT} + x + l_S + 10) \cdot 60}{v \cdot 1000} + t_1 + 2 \cdot t_h \text{ [s]}$$

- t_D Durchlaufzeit WT
- l_{WT} Länge Werkstückträger
- l_S Streckenlänge
- x Abstand WT - EQ 1/T
- v Fördergeschwindigkeit (m/min)
- t_1 Beruhigungszeit (ca. 300 ms)
- t_h Hubzeit HQ (ca. 0,5 sec.)

- t_D Pallet passage time
- l_{WT} Length of pallet
- l_S Section length
- x Distance of pallet from EQ 1/T
- v Speed (m/min)
- t_1 Quiescence time (approx. 300 ms)
- t_h HQ lift time (approx. 0.5 sec.)

- t_D Temps de passage de la palette
- l_{WT} Longueur de la palette
- l_S Longueur de la section
- x Distance entre la palette et le EQ 1/T
- v Vitesse de convoyage (m/min)
- t_1 Durée de stabilisation (env. 300 ms)
- t_h Durée de course HQ (env. 0,5 sec.)

Berechnungsbeispiele für EQ 1/T
Calculation examples for EQ 1/T
Exemples de calcul pour EQ 1/T

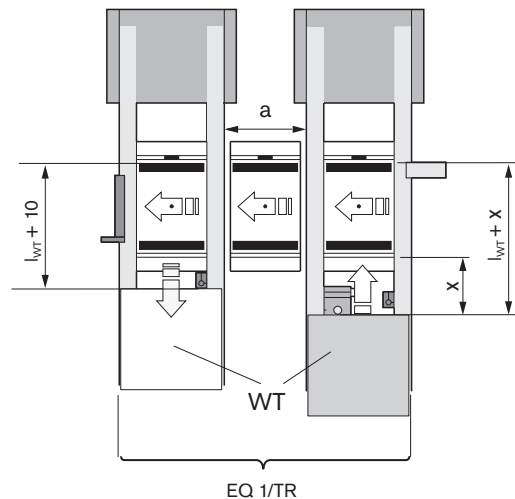
b_{WT} [mm]	l_S [mm]	v [m/min]	t_D [s]
80	320	6	8,00
		9	5,77
		12	4,65
		15	3,98
120	320	6	9,20
		9	6,57
		12	5,25
		15	4,46
160	320	6	10,40
		9	7,37
		12	5,85
		15	4,94

b_{WT} [mm]	l_S [mm]	v [m/min]	t_D [s]
80	500	6	9,80
		9	6,97
		12	5,55
		15	4,70
120	500	6	11,00
		9	7,77
		12	6,15
		15	5,18
160	500	6	12,20
		9	8,57
		12	6,75
		15	5,66

b_{WT} [mm]	l_S [mm]	v [m/min]	t_D [s]
80	1000	6	14,80
		9	10,30
		12	8,05
		15	6,70
120	1000	6	16,00
		9	11,10
		12	8,65
		15	7,18
160	1000	6	17,20
		9	11,90
		12	9,25
		15	7,66

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Durchlaufzeitberechnung für Quertransport EQ 1/TR Calculation of pallet passage time for transverse conveyor Calculution du temps de passage pour transport transversal



$$t_D = \frac{(3 \cdot l_{WT} + x + a + 10) \cdot 60}{v \cdot 1000} + t_1 + 2 \cdot t_h \text{ [s]}$$

t_D Durchlaufzeit WT
 l_{WT} Länge Werkstückträger
 a Streckenabstand
 x Abstand WT - EQ 1/TR
 v Fördergeschwindigkeit (m/min)
 t_1 Beruhigungszeit (ca. 300 ms)
 t_h Hubzeit HQ (ca. 0,5 sec.)

t_D Pallet passage time
 l_{WT} Length of pallet
 a Section distance
 x Distance of pallet from EQ 1/TR
 v Speed (m/min)
 t_1 Quiescence time (approx. 300 ms)
 t_h HQ lift time (approx. 0.5 sec.)

t_D Temps de passage de la palette
 l_{WT} Longueur de la palette
 a Distance entre sections
 x Distance entre la palette et le EQ 1/TR
 v Vitesse de convoyage (m/min)
 t_1 Durée de stabilisation (env. 300 ms)
 t_h Durée de course HQ (env. 0,5 sec.)

Berechnungsbeispiele für EQ 1/T Calculation examples for EQ 1/T Exemples de calcul pour EQ 1/T

b_{WT} [mm]	a [mm]	v [m/min]	t_D [s]	b_{WT} [mm]	a [mm]	v [m/min]	t_D [s]
80	60	9	4,03	80	135	9	4,53
		12	3,35			12	3,73
		15	2,94			15	3,24
120	60	9	4,83	120	135	9	5,33
		12	3,95			12	4,33
		15	3,42			15	3,72
160	60	9	5,63	160	135	9	6,13
		12	4,55			12	4,93
		15	3,90			15	4,20

Durchlaufzeitberechnung für Kurve KE 1/O Calculation of pallet passage time for curve Calculution du temps de passage pour courbe

Die Kurven KE 1 sind nicht staufähig – es muß eine Vereinzlung der Werkstückträger vor dem Kurvendurchlauf stattfinden.

Die Wegstrecken (l1) vom Vereinzler (y1) bis zur Kurve und (l3) vom Kurvenende bis zum Sensor (S2) gehen deshalb in die Berechnung der Durchlaufzeit der Kurve ein.

Abhängig von den am Kurveneingang A und am Kurvenausgang B angebauten Komponenten ergeben sich bestimmte Mindestlängen für l1 und l3.

Accumulation operation is not possible in KE 1 curves – the workpiece pallets must be separated before the curve.

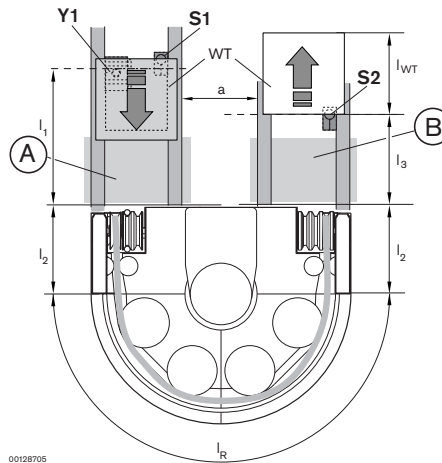
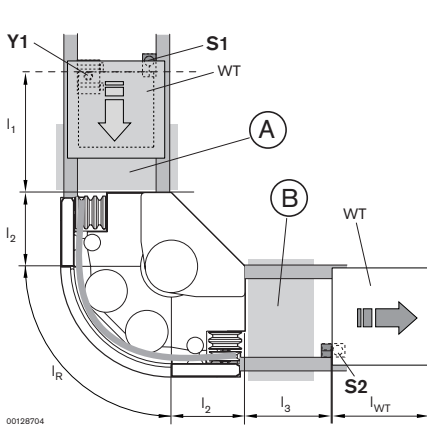
This is why the sections (l1) from the stop gate (y1) to the curve and (l3) from the end of the curve to the sensor (S2) are taken into account when calculating the passage time of the curve.

The calculation of the minimum lengths for l1 and l3 depend on the add-on components positioned at the curve entry A and the curve exit B.

Les courbes KE 1 n'acceptent pas d'accumulation – une séparation des palettes porte-pièces doit avoir lieu avant la traversée de la courbe.

C'est pourquoi les sections (l1) du séparateur (y1) jusqu'à la courbe et (l3) de la fin de la courbe jusqu'au capteur (S2) sont prises en compte dans la calculution du temps de passage de la courbe.

Les longueurs minimales pour l1 et l3 dépendent des composants montés à l'entrée de courbe A et à la sortie de courbe B.



$$t_D = \frac{(2 \cdot l_2 + l_1 + l_3 + l_R + 14) \cdot 60}{v \cdot 1000} + t_h \text{ [s]}$$

- t_D Durchlaufzeit WT
- l_{WT} Länge Werkstückträger
- a Streckenabstand
- v Fördergeschwindigkeit (m/min)
- l_R Kurvenlänge
- l₁ Abstand VE - KE 1/O,
- l₂ Kurveneinlauf (KE 1/O: l2 = 90 mm)
- l₃ Abstand KE 1/O - SH 1
- t_h Schlupf KE (ca. 0,2 sec.)

⊗ Add-on components 11-47

- t_D Pallet passage time
- l_{WT} Length of pallet
- a Section distance
- v Speed (m/min)
- l_R Curve length
- l₁ Distance VE - KE 1/O,
- l₂ Curve start (KE 1/O: l2 = 90 mm)
- l₃ Distance KE 1/O - SH 1
- t_h Slip KE (approx. 0.2 sec.)

⊗ Add-on components 11-47

- t_D Temps de passage de la palette
- l_{WT} Longueur de la palette
- a Distance entre sections
- v Vitesse de convoyage (m/min)
- l_R Longueur de la courbe
- l₁ Distance VE - KE 1/O,
- l₂ Entrée de courbe (KE 1/O : l2 = 90 mm)
- l₃ Distance KE 1/O - SH 1
- t_h Glissement KE (env. 0,2 sec.)

⊗ Composants additionnels 11-47

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Kennwerte für Anbaukomponenten Parameters for add-on components Paramètres pour les composants additionnels

(A)	l_1		
$b_{WT} =$	80	120	160
AS1	290	260	
BS1	80		
BS1/T	170		

(B)	l_3		
$b_{WT} =$	80	120	160
UM1	220		
BS1	45		
BS1/T	135		

	l_R		
$b_{WT} =$	80	120	160
KE 1/0-90	334	397	460
KE 1/0-180	502	628	703
a = 60 mm			
KE 1/0-180	577	703	828
a = 135 mm			

Beispiel: Durchlaufzeit t_D für KE 1/0-90 Example: Pallet passage time t_D for KE 1/0-90 Exemple : Temps de passage t_D pour KE 1/0-90

(A) = AS 1 $\Rightarrow l_1 = 290/260$ mm(B) = UM 1 $\Rightarrow l_3 = 220$ mm

b_{WT} [mm]	l_R [mm]	v [m/min]	t_D [s]
80	334	6	10,6
		9	7,1
		12	5,4
		15	4,4
		18	3,7
120	397	6	10,9
		9	7,3
		12	5,6
		15	4,5
		18	3,8
160	460	6	11,5
		9	7,8
		12	5,9
		15	4,7
		18	4,0

(A) = BS 1 $\Rightarrow l_1 = 80$ mm(B) = BS 1 $\Rightarrow l_3 = 45$ mm

b_{WT} [mm]	l_R [mm]	v [m/min]	t_D [s]
80	334	6	6,7
		9	4,6
		12	3,5
		15	2,8
		18	2,4
120	397	6	7,4
		9	5,0
		12	3,8
		15	3,1
		18	2,6
160	460	6	8,0
		9	5,4
		12	4,1
		15	3,3
		18	2,8

(A) = BS 1/T $\Rightarrow l_1 = 170$ mm(B) = BS 1/T $\Rightarrow l_3 = 135$ mm

b_{WT} [mm]	l_R [mm]	v [m/min]	t_D [s]
80	334	6	8,5
		9	5,8
		12	4,4
		15	3,5
		18	3,0
120	397	6	9,2
		9	6,2
		12	4,7
		15	3,8
		18	3,2
160	460	6	9,8
		9	6,6
		12	5,0
		15	4,0
		18	3,4

■
 (A)Ⓟ Anbaukomponenten 11-47
 l_R Kurvenlänge

■
 (A)Ⓟ Add-on components 11-47
 l_R Curve length

■
 (A)Ⓟ Composants additionnels 11-47
 l_R Longueur de la courbe

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Beispiel: Durchlaufzeit t_D für KE 1/O-180, $a = 60$ mm
Example: Pallet passage time t_D for KE 1/O-180, $a = 60$ mm
Exemple : Temps de passage t_D pour KE 1/O-180, $a = 60$ mm

(A) = AS 1 $\Rightarrow l_1 = 290/260$ mm

(A) = BS 1 $\Rightarrow l_1 = 80$ mm

(A) = BS 1/T $\Rightarrow l_1 = 170$ mm

(B) = UM 1 $\Rightarrow l_3 = 220$ mm

(B) = BS 1 $\Rightarrow l_3 = 45$ mm

(B) = BS 1/T $\Rightarrow l_3 = 135$ mm

b_{WT} [mm]	l_R [mm]	v [m/min]	t_D [s]
80	502	6	12,3
		9	8,2
		12	6,2
		15	5,0
		18	4,2
120	628	6	13,2
		9	8,9
		12	6,7
		15	5,4
		18	4,5
160	753	6	14,5
		9	9,7
		12	7,3
		15	5,9
		18	5,0

b_{WT} [mm]	l_R [mm]	v [m/min]	t_D [s]
80	502	6	8,4
		9	5,7
		12	4,3
		15	3,5
		18	2,9
120	628	6	9,7
		9	6,5
		12	4,9
		15	4,0
		18	3,4
160	753	6	10,9
		9	7,3
		12	5,6
		15	4,5
		18	3,8

b_{WT} [mm]	l_R [mm]	v [m/min]	t_D [s]
80	502	6	10,2
		9	6,9
		12	5,2
		15	4,2
		18	3,5
120	628	6	11,5
		9	7,7
		12	5,8
		15	4,7
		18	4,0
160	753	6	12,7
		9	8,5
		12	6,5
		15	5,2
		18	4,4

■ $\text{\textcircled{A}}\text{\textcircled{B}}$ Anbaukomponenten 11-47
 l_R Kurvenlänge

■ $\text{\textcircled{A}}\text{\textcircled{B}}$ Add-on components 11-47
 l_R Curve length

■ $\text{\textcircled{A}}\text{\textcircled{B}}$ Composants additionnels 11-47
 l_R Longueur de la courbe

Beispiel: Durchlaufzeit t_D für KE 1/O-180, $a = 135$ mm
Example: Pallet passage time t_D for KE 1/O-180, $a = 135$ mm
Exemple : Temps de passage t_D pour KE 1/O-180, $a = 135$ mm

(A) = AS 1 $\Rightarrow l_1 = 290/260$ mm

(A) = BS 1 $\Rightarrow l_1 = 80$ mm

(A) = BS 1/T $\Rightarrow l_1 = 170$ mm

(B) = UM 1 $\Rightarrow l_3 = 220$ mm

(B) = BS 1 $\Rightarrow l_3 = 45$ mm

(B) = BS 1/T $\Rightarrow l_3 = 135$ mm

b_{WT} [mm]	l_R [mm]	v [m/min]	t_D [s]
80	577	6	13,0
		9	8,7
		12	6,6
		15	5,3
		18	4,5
120	703	6	14,0
		9	9,4
		12	7,1
		15	5,7
		18	4,8
160	828	6	15,2
		9	10,2
		12	7,7
		15	6,2
		18	5,2

b_{WT} [mm]	l_R [mm]	v [m/min]	t_D [s]
80	577	6	9,2
		9	6,2
		12	4,7
		15	3,8
		18	3,2
120	703	6	10,4
		9	7,0
		12	5,3
		15	4,3
		18	3,6
160	828	6	11,7
		9	7,8
		12	5,9
		15	4,8
		18	4,0

b_{WT} [mm]	l_R [mm]	v [m/min]	t_D [s]
80	577	6	11,0
		9	7,4
		12	5,6
		15	4,5
		18	3,8
120	703	6	12,2
		9	8,2
		12	6,2
		15	5,0
		18	4,2
160	828	6	13,5
		9	9,0
		12	6,8
		15	5,5
		18	4,6

■ $\text{\textcircled{A}}\text{\textcircled{B}}$ Anbaukomponenten 11-47
 l_R Kurvenlänge

■ $\text{\textcircled{A}}\text{\textcircled{B}}$ Add-on components 11-47
 l_R Curve length

■ $\text{\textcircled{A}}\text{\textcircled{B}}$ Composants additionnels 11-47
 l_R Longueur de la courbe

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Durchlaufzeitberechnung für Kurven KU 1 Calculation of pallet passage time for curves Calculution du temps de passage pour courbes

Im Staubetrieb sind die Kurven KU 1 nicht unmittelbar taktzeitlimitierend.

Die Zeit für den Durchlauf eines einzelnen Werkstückträgers durch die KU 1 ohne Stau ① → ② errechnet sich – analog zur geraden Förderstrecke – über die Streckenlänge.

Für die Kurve KU 1 ergibt sich die Streckenlänge $l_s = (l_1 + l_R + l_2)$.

In accumulation operation, KU 1 curves do not directly limit the cycle time.

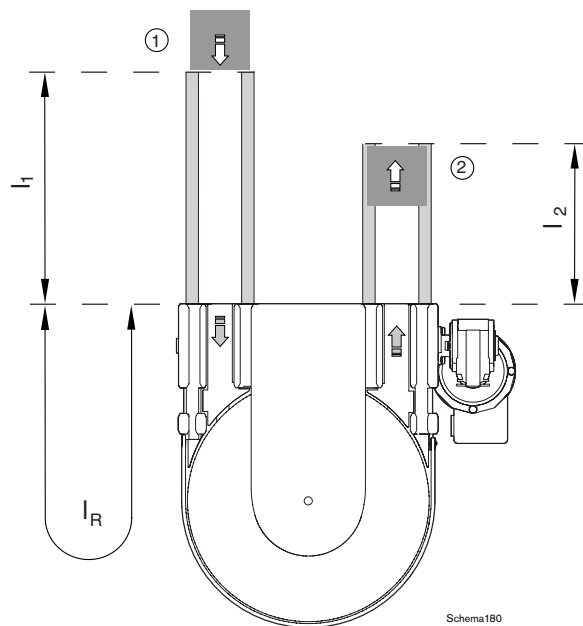
The passage time for a single work-piece pallet through the KU 1 without accumulation ① → ② can be calculated – analog to straight conveyor sections – using the section length.

The section length for the curve KU 1 is $l_s = (l_1 + l_R + l_2)$.

En fonctionnement en accumulation, les courbes KU 1 ne sont pas immédiatement limitantes en temps de cycle.

Le temps de passage d'une palette porte-pièces individuelle à travers la KU 1 sans accumulation ① → ② se calcule – par analogie avec la section de transport droite – sur la longueur de la section.

Pour la courbe KU 1, il en résulte la longueur de section $l_s = (l_1 + l_R + l_2)$.



$$t_D = \frac{(l_1 + l_R + l_2) \cdot 60}{v \cdot 1000} + t_h \text{ [s]}$$

b [mm]	KU 1/90 l_R	KU 1/180 l_R
80	812	1054
120	955	1260
160	1097	1466

t_D Durchlaufzeit WT
 v Fördergeschwindigkeit (m/min)
 l_R Kurvenlänge
 l_1 Länge der Zulaufstrecke
 l_2 Länge der Auslaufstrecke
 b Spurbreite

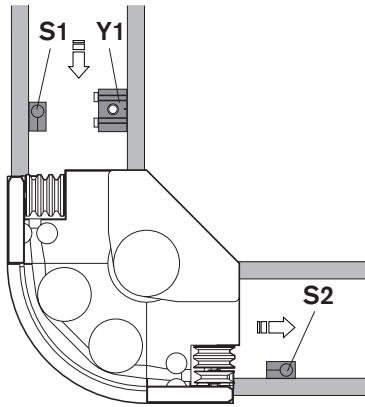
t_D Pallet passage time
 v Speed (m/min)
 l_R Curve length
 l_1 Length of straight section before curve
 l_2 Length of straight section after curve
 b Track width

t_D Temps de passage de la palette
 v Vitesse de convoyage (m/min)
 l_R Longueur de la courbe
 l_1 Longueur de la voie d'entrée
 l_2 Longueur de la voie de sortie
 b Ecartement de voie

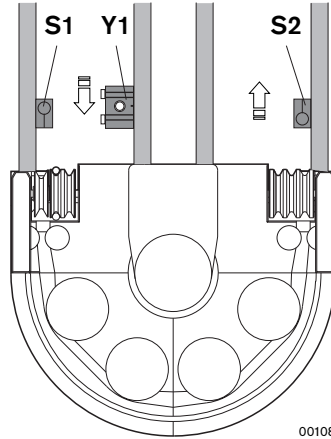
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Funktionspläne Circuit diagrams Schémas de fonctionnement

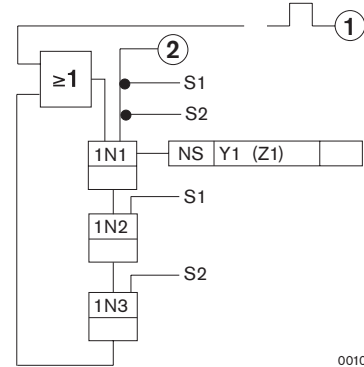
Kurve (Vereinzlung) Curve (separating) Courbe (séparation)



KE 1/90-O



KE 1/180-O



- WT = Werkstückträger
- VE = Vereinzler
- ① = Startimpuls nach Anlaufende

- ② = Freigabe zyklischer Ablauf
- A1 = Freigabe Werkstück bearbeiten

- A2 = Quittieren Werkstück bearbeitet

- S1 = WT hat VE 1 (Z1) passiert
- S2 = Freigabe Kurve
- Y1 = VE 1 öffnen

- WT = Workpiece pallet
- VE = Stop gate
- ① = Start pulse after end of approach

- ② = Enable cyclical sequence
- A1 = Enable workpiece processing

- A2 = Acknowledge workpiece processed

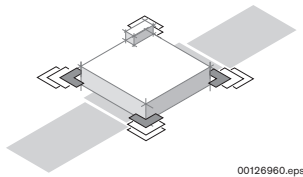
- S1 = WT has passed VE 1 (Z1)
- S2 = Release curve
- Y1 = Open VE 1

- WT = Palette porte-pièces
- VE = Séparateur
- ① = Impulsion de démarrage après la fin de l'approche

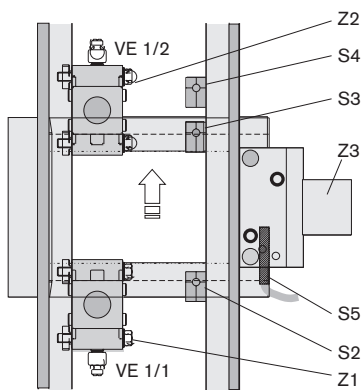
- ② = Autorisation opération cyclique
- A1 = Autorisation traitement de la pièce
- A2 = Confirmation traitement de la pièce
- S1 = Palette a passé VE 1 (Z1)
- S2 = Autorisation courbe
- Y1 = Ouvrir VE 1

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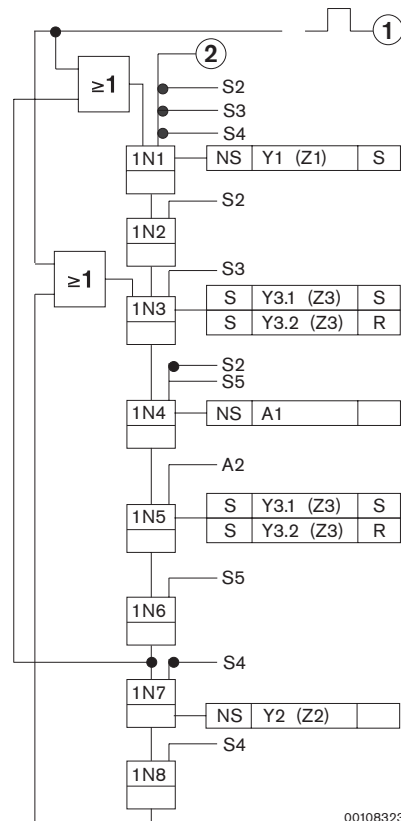
Positionierung PE 1/P (Vereinzelung/Bearbeitung) Positioning (separating/processing) Positionnement (séparation / traitement)



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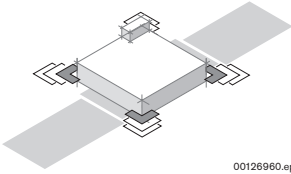
- WT = Werkstückträger
- VE = Vereinzler
- ① = Startimpuls nach Anlaufende
- ② = Freigabe zyklischer Ablauf
- A1 = Freigabe Werkstück bearbeiten
- A2 = Quittieren Werkstück bearbeitet
- S2 = WT arrival, WT nach VE 1/1
- S3 = WT in Station, WT vor VE 1/2
einschaltverzögert 150 – 200 ms
- S4 = Station wird frei
- S5 = WT fixiert
- Y1 = VE 1/1 öffnen
- Y2 = VE 1/2 öffnen
- Y3 = WT-Fixierung

- WT = Workpiece pallet
- VE = Stop gate
- ① = Start pulse after end of approach
- ② = Enable cyclical sequence
- A1 = Enable workpiece processing
- A2 = Acknowledge workpiece processed
- S2 = WT arrival, WT after VE 1/1
- S3 = WT in station, WT before VE 1/2
switch-on delay 150 – 200 ms
- S4 = Station is freed
- S5 = WT fixed
- Y1 = Open VE 1/1
- Y2 = Open VE 1/2
- Y3 = WT fixation

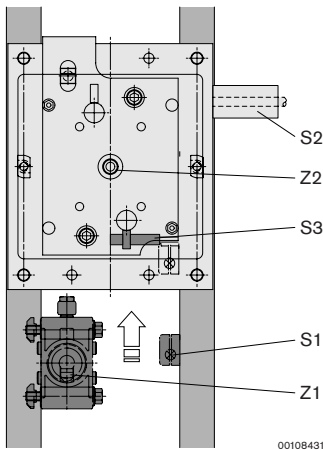
- WT = Palette porte-pièces
- VE = Séparateur
- ① = Impulsion de démarrage après la fin de l'approche
- ② = Autorisation opération cyclique
- A1 = Autorisation traitement de la pièce
- A2 = Confirmation traitement de la pièce
- S2 = Arrivée WT, WT après VE 1/1
- S3 = WT en poste, palette avant VE 1/2
allumage retardé de 150 – 200 ms
- S4 = Poste libre
- S5 = WT fixé
- Y1 = Ouvrir VE 1/1
- Y2 = Ouvrir VE 1/2
- Y3 = Fixation palette porte-pièces

Technische Daten · Technical data · Données techniques

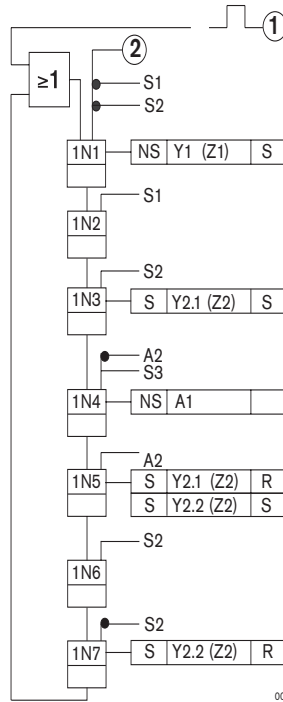
Positionierung HP 1/P (Vereinzelung/Bearbeitung)
Positioning (separating/processing)
Positionnement (séparation / traitement)



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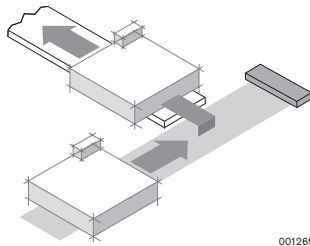
- WT = Werkstückträger
- VE = Vereinzeler
- ① = Startimpuls nach Anlaufende
- ② = Freigabe zyklischer Ablauf
- A1 = Freigabe Werkstück bearbeiten
- A2 = Quittieren Werkstück bearbeitet
- S1 = WT nach VE 1/1
- S2 = WT in Position
- S3 = Hub-Endlage
- Y1 = VE 1/1 öffnen
- Y2 = WT-Hub

- WT = Workpiece pallet
- VE = Stop gate
- ① = Start pulse after end of approach
- ② = Enable cyclical sequence
- A1 = Enable workpiece processing
- A2 = Acknowledge workpiece processed
- S1 = WT after VE 1/1
- S2 = WT in position
- S3 = End position of lift
- Y1 = Open VE 1/1
- Y2 = WT lift

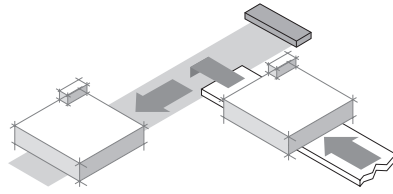
- WT = Palette porte-pièces
- VE = Séparateur
- ① = Impulsion de démarrage après la fin de l'approche
- ② = Autorisation opération cyclique
- A1 = Autorisation traitement de la pièce
- A2 = Confirmation traitement de la pièce
- S1 = WT après VE 1/1
- S2 = WT en position
- S3 = Position de fin de course
- Y1 = Ouvrir VE 1/1
- Y2 = Course de la WT

Technische Daten · Technical data · Données techniques

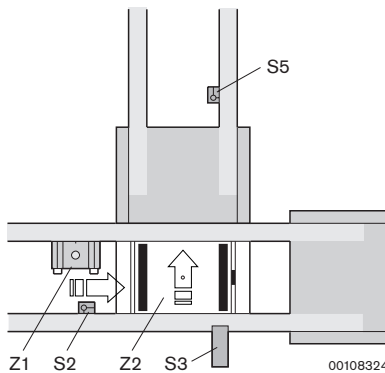
Quertransport (Vereinzelung)
Transverse conveyor (separating)
Transport transversal (séparation)



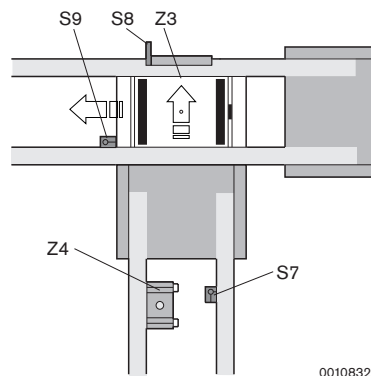
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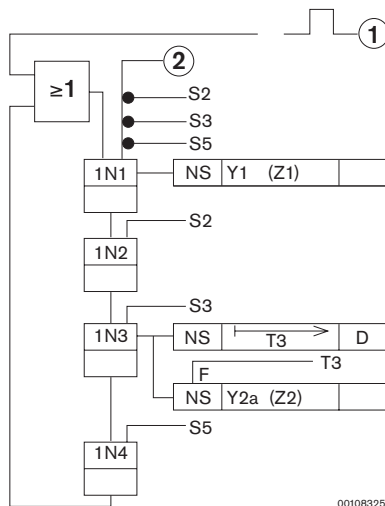


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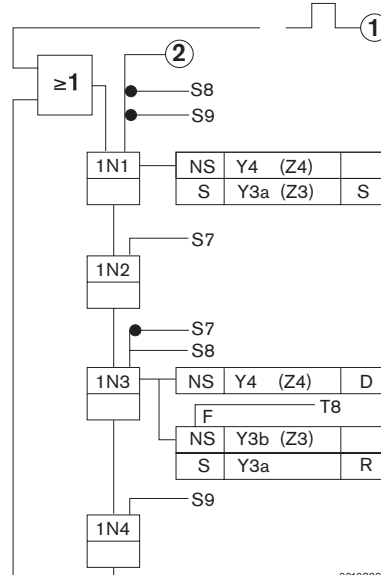


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HQ 1



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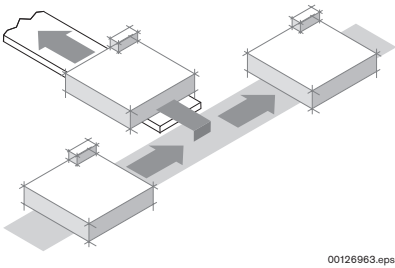
- WT = Werkstückträger
- VE = Vereinzeler
- S ... = Signalgeber
- Y ... = Ventil
- Z ... = Zylinder
- NS = nicht speichern
- ① = Startimpuls nach Anlaufende
- ② = Freigabe zyklischer Ablauf
- S2 = WT nach VE 1/1 (Z 1)
- S3 = WT in Pos. auf EQ1 einschaltverzögert 100...200 ms
- S5 = Freigabe Nebenstrecke
- S7 = WT nach VE 4
- S8 = WT auf EQ 2
- S9 = Freigabe Hauptstrecke 2
- Y1 = VE Hauptstrecke (Z 1)
- Y2 = Hub-Zylinder EQ (Z 2)
- Y3 = Hub-Zylinder EQ (Z 3)
- Y4 = VE Nebenstrecke (Z 4)

- WT = Workpiece pallet
- VE = Stop gate
- S ... = Signalling device
- Y ... = Valve
- Z ... = Cylinder
- NS = Do not save
- ① = Start pulse after end of approach
- ② = Enable cyclical sequence
- S2 = WT after VE 1/1 (Z 1)
- S3 = WT in position on EQ 1 switch-on delay 100 – 200 ms
- S5 = Enable branch section
- S7 = WT after VE 4
- S8 = WT on EQ 2
- S9 = Enable main section 2
- Y1 = VE main section (Z 1)
- Y2 = Lift cylinder EQ (Z 2)
- Y3 = Lift cylinder EQ (Z 3)
- Y4 = VE branch section (Z 4)

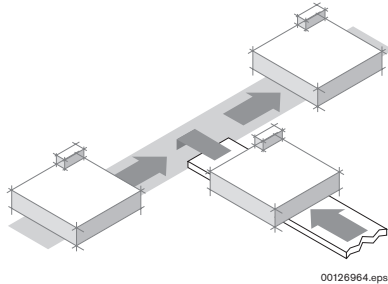
- WT = Palette porte-pièces
- VE = Séparateur
- S ... = Transmetteur de signal
- Y ... = Valve
- Z ... = Vérin
- NS = Ne pas enregistrer
- ① = Impulsion de démarrage après la fin de l'approche
- ② = Autorisation opération cyclique
- S2 = WT après VE 1/1 (Z 1)
- S3 = WT en position sur EQ 1 allumage retardé de 100 – 200 ms
- S5 = Autorisation section secondaire
- S7 = WT après VE 4
- S8 = WT sur EQ 2
- S9 = Autorisation section principale 2
- Y1 = Section principale VE (Z 1)
- Y2 = Vérin de levage EQ (Z 2)
- Y3 = Vérin de levage EQ (Z 3)
- Y4 = Section secondaire VE (Z 4)

Technische Daten · Technical data · Données techniques

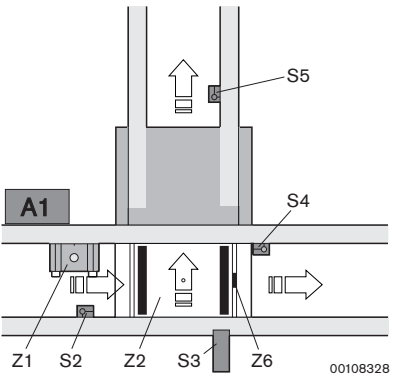
Quertransport (Vereinzelung, Ausschleusen, Einschleusen)
Transverse conveyor (separating, discharging, feeding)
Transport transversal (séparation, éjecter, injecter)



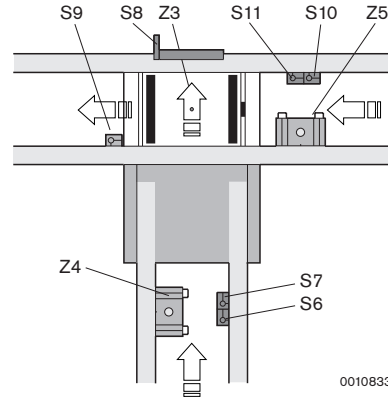
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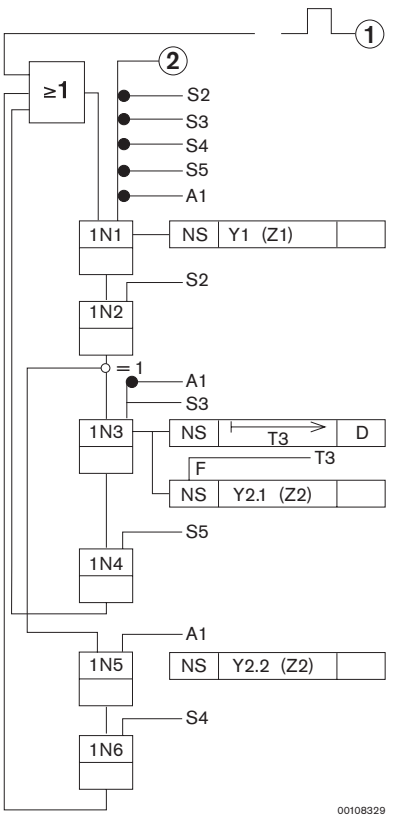
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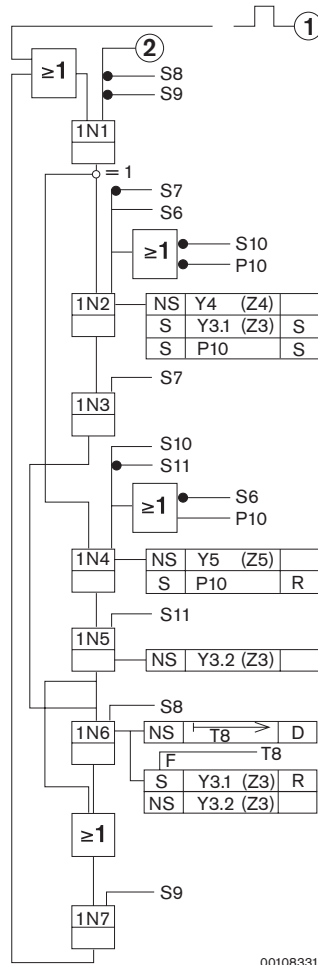
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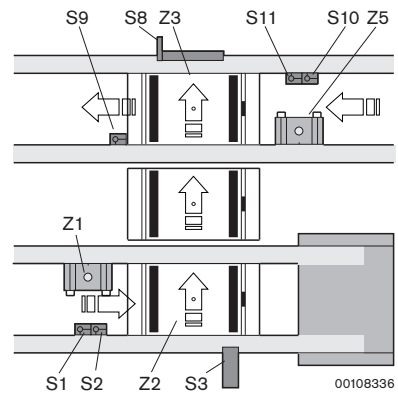
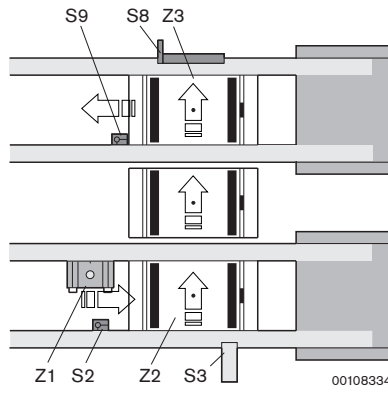
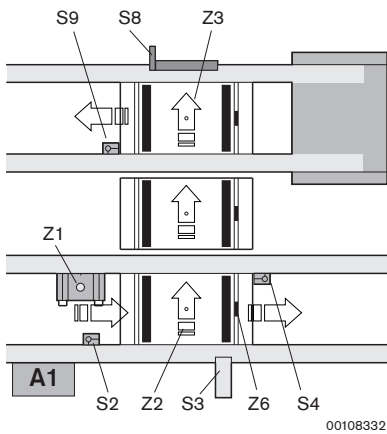
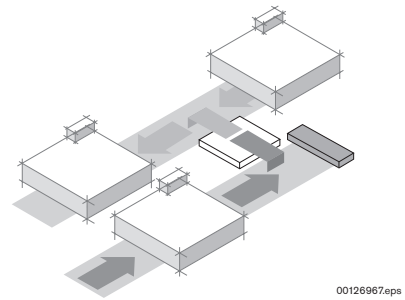
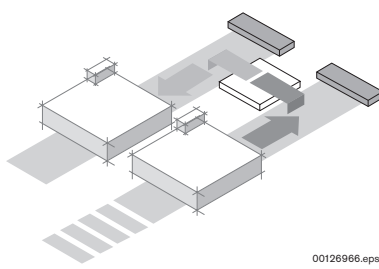
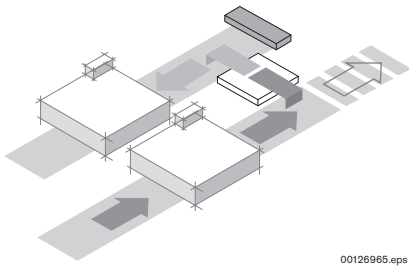
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Technische Daten · Technical data · Données techniques

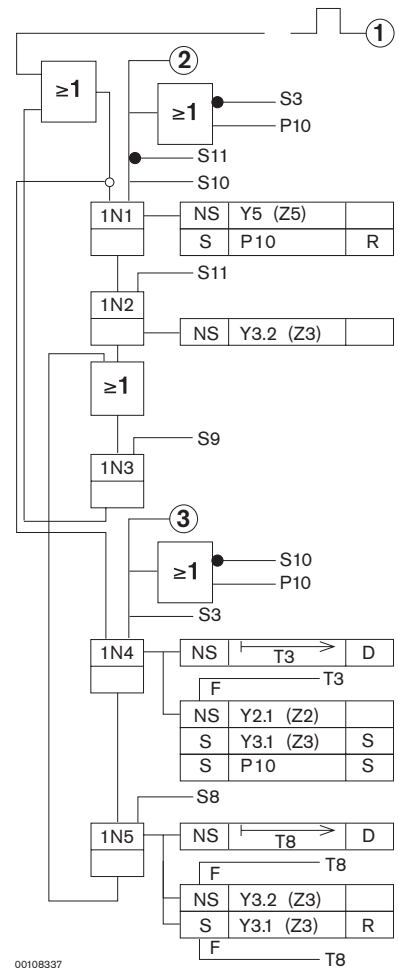
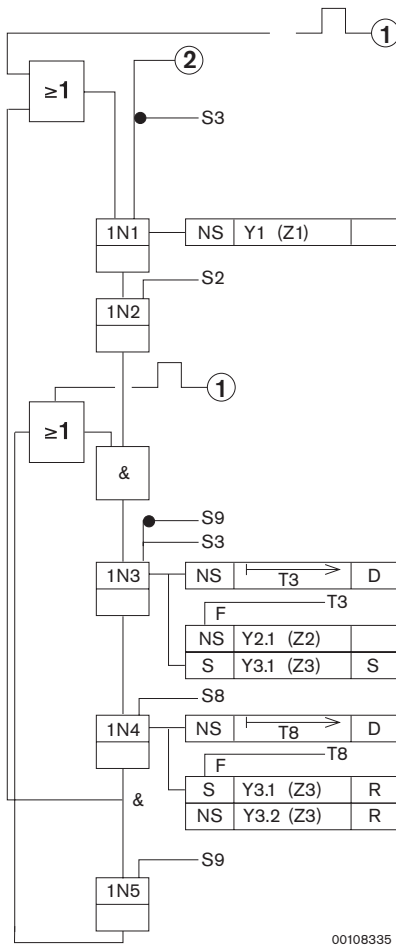
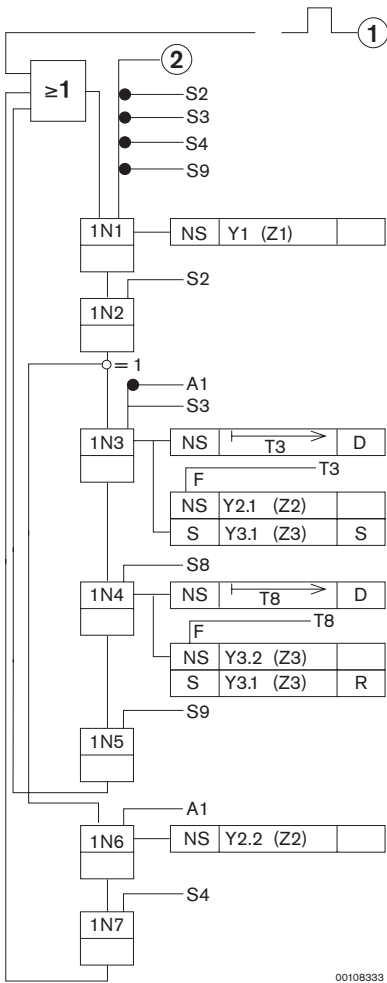
■	WT = Werkstückträger	■	WT = Workpiece pallet	■	WT = Palette porte-pièces
	VE = Vereinzeler		VE = Stop gate		VE = Séparateur
	S ... = Signalgeber		S ... = Signalling device		S ... = Transmetteur de signal
	Y ... = Ventil		Y ... = Valve		Y ... = Valve
	Z ... = Zylinder		Z ... = cylinder		Z ... = Vérin
	HS = Hauptstrecke		HS = Main section		HS = Section principale
	NS = Nebenstrecke		NS = Branch section		NS = Section secondaire
	① = Startimpuls nach Anlaufende		① = Start pulse after end of approach		① = Impulsion de démarrage après la fin de l'approche
②	= Freigabe zyklischer Ablauf	②	= Enable cyclical sequence	②	= Autorisation opération cyclique
S1	= WT in Pos. an VE 1/1 (Z 1)	S1	= WT in position at VE 1/1 (Z 1)	S1	= Palette en position sur VE 1/1 (Z 1)
S2	= WT nach VE 1/1 (Z 1)	S2	= WT after VE 1/1 (Z 1)	S2	= WT après VE 1/1 (Z 1)
S3	= WT in Pos. auf EQ 1 einschaltverzögert 100...200 ms	S3	= WT in position on EQ 1 switch-on delay 100 – 200 ms	S3	= WT en position sur EQ 1 allumage retardé de 100 – 200 ms
S4	= Freigabe Hauptstrecke 1	S4	= Enable main section 1	S4	= Autorisation section principale 1
S5	= Freigabe Nebenstrecke	S5	= Enable branch section	S5	= Autorisation section secondaire
S6	= WT vor VE 4 (Z 4)	S6	= WT before VE 4 (Z 4)	S6	= WT avant VE 4 (Z 4)
S7	= WT nach VE 4	S7	= WT after VE 4	S7	= WT après VE 4
S8	= WT auf EQ 2	S8	= WT on EQ 2	S8	= WT sur EQ 2
S9	= Freigabe Hauptstrecke 2	S9	= Enable main section 2	S9	= Autorisation section principale 2
S10	= WT vor VE 5 (Z 5)	S10	= WT before VE 5 (Z 5)	S10	= WT avant VE 5 (Z 5)
S11	= WT nach VE 5 (Z 5)	S11	= WT after VE 5 (Z 5)	S11	= WT après VE 5 (Z 5)
Y1	= VE Hauptstrecke (Z 1)	Y1	= VE main section (Z 1)	Y1	= Section principale VE (Z 1)
Y2	= Hub-Zylinder EQ (Z 2)	Y2	= Lift cylinder EQ (Z 2)	Y2	= Vérin de levage EQ (Z 2)
Y3	= Hub-Zylinder EQ (Z 2)	Y3	= Lift cylinder EQ (Z 2)	Y3	= Vérin de levage EQ (Z 2)
Y4	= VE Nebenstrecke (Z 4)	Y4	= VE branch section (Z 4)	Y4	= Section secondaire VE (Z 4)
Y5	= VE Hauptstrecke (Z 5)	Y5	= VE main section (Z 5)	Y5	= Section principale VE (Z 5)
Y6	= VE in EQ (Z 6)	Y6	= VE in EQ (Z 6)	Y6	= VE en EQ (Z 6)
P10	= Priorität	P10	= Priority	P10	= Priorité
A1	= Geradeausignal	A1	= Straight-ahead signal	A1	= Signal directionnel

Technische Daten · Technical data · Données techniques

Quertransport EQ 1/TR (Vereinzelung, Ausschleusen, Einschleusen)
Transverse conveyor (separating, discharging, feeding)
Transport transversal (séparation, éjecter, injecter)



EQ 1/TR



Technische Daten · Technical data · Données techniques

■	WT = Werkstückträger	■	WT = Workpiece pallet	■	WT = Palette porte-pièces
	VE = Vereinzeler		VE = Stop gate		VE = Séparateur
	S ... = Signalgeber		S ... = Signalling device		S ... = Transmetteur de signal
	Y ... = Ventil		Y ... = Valve		Y ... = Valve
	Z ... = Zylinder		Z ... = Cylinder		Z ... = Vérin
	HS = Hauptstrecke		HS = Main section		HS = Section principale
	NS = Nebenstrecke		NS = Branch section		NS = Section secondaire
①	= Startimpuls nach Anlaufende	①	= Start pulse after end of approach	①	= Impulsion de démarrage après la fin de l'approche
②	= Freigabe zyklischer Ablauf	②	= Enable cyclical sequence	②	= Autorisation opération cyclique
S1	= WT in Pos. an VE 1/1 (Z 1)	S1	= WT in position at VE 1/1 (Z 1)	S1	= Palette en position sur VE 1/1 (Z 1)
S2	= WT nach VE 1/1 (Z 1)	S2	= WT after VE 1/1 (Z 1)	S2	= WT après VE 1/1 (Z 1)
S3	= WT in Pos. auf EQ 1 einschaltverzögert 100...200 ms	S3	= WT in position on EQ 1 switch-on delay 100 – 200 ms	S3	= WT en position sur EQ 1 allumage retardé de 100 – 200 ms
S4	= Freigabe Hauptstrecke 1	S4	= Enable main section 1	S4	= Autorisation section principale 1
S5	= Freigabe Nebenstrecke	S5	= Enable branch section	S5	= Autorisation section secondaire
S6	= WT vor VE 1/4 (Z 4)	S6	= WT before VE 1/4 (Z 4)	S6	= WT avant VE 1/4 (Z 4)
S7	= WT nach VE 1/4	S7	= WT after VE 1/4	S7	= WT après VE 1/4
S8	= WT auf EQ2	S8	= WT on EQ 2	S8	= WT sur EQ 2
S9	= Freigabe Hauptstrecke 2	S9	= Enable main section 2	S9	= Autorisation section principale 2
S10	= WT vor VE 1/5 (Z 5)	S10	= WT before VE 1/5 (Z 5)	S10	= WT avant VE 1/5 (Z 5)
S11	= WT nach VE 1/5 (Z 5)	S11	= WT after VE 1/5 (Z 5)	S11	= WT après VE 1/5 (Z 5)
Y1	= VE Hauptstrecke (Z 1)	Y1	= VE main section (Z 1)	Y1	= Section principale VE (Z 1)
Y2.1/2.2	= Hub-Zylinder EQ (Z 2)	Y2.1/2.2	= Lift cylinder EQ (Z 2)	Y2.1/2.2	= Vérin de levage EQ (Z 2)
Y3.1/3.2	= Hub-Zylinder EQ (Z 3)	Y3.1/3.2	= Lift cylinder EQ (Z 3)	Y3.1/3.2	= Vérin de levage EQ (Z 3)
Y4	= VE Nebenstrecke (Z 4)	Y4	= VE branch section (Z 4)	Y4	= Section secondaire VE (Z 4)
Y5	= VE Hauptstrecke (Z 5)	Y5	= VE main section (Z 5)	Y5	= Section principale VE (Z 5)
Y6	= VE in EQ (Z 6)	Y6	= VE in EQ (Z 6)	Y6	= VE en EQ (Z 6)
P10	= Priorität	P10	= Priority	P10	= Priorité
A1	= Geradeausignal	A1	= Straight-ahead signal	A1	= Signal directionnel

Technische Daten · Technical data · Données techniques

Motordaten

Motor data

Données des moteurs

Elektrische Anschlussbedingungen der Antriebsmotoren:

Anschluss an Drehstromnetz (L1, L2, L3, PE). Alle Motoren sind mit einem Thermokontakt ausgestattet, der an eine Überlastabschaltung anzuschließen ist und bei der Installation vom Anlagenbauer funktionsgerecht verdrahtet werden muss.

Alle Motoren sind durch die Schutzart IP 55 den Umgebungsbedingungen angepasst.

Electrical connection conditions for drive motors:

Connection to three-phase network (L1, L2, L3, PE). The motors are equipped with thermal contacts which are to be connected to an overload switch-off and to be wired by the system installer according to the technical functions for operation during system set-up.

All motors are adjusted to the ambient conditions via protection type IP 55.

Conditions de raccordement électrique des moteurs d'entraînement :

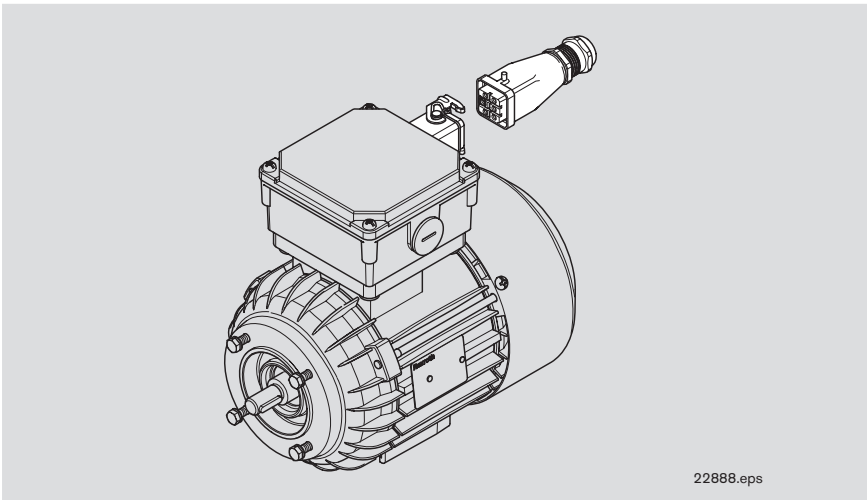
Raccordement au réseau triphasé (L1, L2, L3, PE). Tous les moteurs sont équipés d'un interrupteur de protection de température devant être raccordé à un dispositif de protection contre les surcharges et câblé de manière adaptée par le monteur lors de l'installation.

Tous les moteurs sont adaptés aux conditions ambiantes, car ils disposent du degré de protection IP 55.

Motoranschluss mit Stecker (AT = S) für Motortypen ohne Index, z. B. 734

Motor connection with plug (AT = S) for motor types without index, e.g. 734

Raccordement du moteur par câble (AT = S) pour types de moteur sans index, par ex. 734



22888.eps

Spannungs-/Frequenz-Kombinationen Voltage/frequency combinations Combinaisons tension/fréquence

200 V/50 Hz	220 V/60 Hz
400 V/50 Hz	400 V/60 Hz
	460 V/60 Hz
	575 V/60 Hz
0 ¹⁾ /50 Hz	0 ¹⁾ /60 Hz

¹⁾ ohne Motor, mit Getriebe
(wenn technisch sinnvoll)

¹⁾ without motor, with gears
(if technically practical)

¹⁾ sans moteur, avec réducteur
(si techniquement nécessaire)

Drehstrommotoren

T_U (°C)	P_V / P_N
< 40	1 ¹⁾
45	0,95
50	0,90
55	0,85
60	0,8

¹⁾ Motornennleistung (0,37; 0,25; 0,12 kW)

¹⁾ Rated motor power (0,37; 0,25; 0,12 kW)

¹⁾ Puissance nominale du moteur (0,37; 0,25; 0,12 kW)

Motornennleistung

Die Betriebsumgebungstemperatur T_U beeinflusst die Bemessungsleistung P_N der Getriebemotoren.

Rated motor power

The ambient operating temperature T_U influences the rated power P_N of the gear motors.

Puissance nominale du moteur

La température ambiante de fonctionnement T_U influence la puissance nominale P_N des motoréducteurs.

Technische Daten · Technical data · Données techniques

Motordaten

Motor data

Données des moteurs

■ **Leistungsdaten**
Hinweis:
 Angaben sind typische Werte.
 Änderungen vorbehalten. Verbindliche
 Angaben siehe Motortypschild.
 Bitte beachten Sie die Länder-
 zuordnungen.

■ **Performance data**
Note:
 The data are typical values.
 We reserve the right to make changes.
 See motor type plate for official data.
 Please note the country applicability.

■ **Données de puissance**
Remarque:
 Valeur techniquement possible. Sous réserve
 de modifications. Indications obligatoires,
 voir plaque signalétique du moteur.
 Veuillez noter les affectations de pays.

Spannungsklasse / Voltage class / Indice de tension	A	A	B	D
Schaltung /Circuit /Circuit	Δ	Y	Y	Y
Spannung U bei f = 50 Hz Voltage U at f = 50 Hz Tension U à f = 50 Hz	200 V ±10 %		400 V ±10 %	
Spannung U bei f = 60 Hz Voltage U at f = 60 Hz Tension U à f = 60 Hz	220 V ±10 %	400 V ±10 %	460 V ±10 %	575 V ±10 %
	220 V ±10 %	400 V ±10 %	460 V +10...-12 %	575 V ±10 %

Motortyp Motor type Type de moteur	IE3	Stromaufnahme bei Nennleistung Current consumption at rated power Consomm. de courant pour la puissance nominale				Leistungsfaktor Power factor Facteur de puissance	Leistungsabgabe bei Power output for Puissance utile à	
		I _N [A]	I _N [A]	I _N [A]	I _N [A]		(50Hz) P [kW]	(60Hz) P [kW]
524	x	0,65	0,35	0,32	0,24	0,6	0,09	0,1
614b	-	-	-	0,49	-	0,56	0,12	0,14
624	x	1,15	0,65	0,55	0,45	0,66	0,18	0,22
634	x	1,65	0,9	0,85	0,65	0,6	0,25	0,29
644b	-	-	-	-	0,75	0,6	0,25	0,29
714b	-	1,75	1	0,8	-	0,64	0,25	0,3
716b	-	1,45	0,85	0,6	0,55	0,66 ... 0,68	0,18	0,22
716	x	1,3	0,75	0,6	0,62	0,68	0,18	0,22
734b	-	2,3	1,35	0,95	0,95	0,72 ... 0,77	0,37	0,45
734	x	1,9	1,05	0,95	0,72	0,74	0,37	0,42
734a	x	2,5	1,4	1,3	1	0,66	0,45	0,52
738b	-	1,4	0,8	0,55	0,5	0,60 ... 0,63	0,12	0,14
744b	-	-	-	1,4	-	0,77	0,55	0,68
814b	-	3	1,75	-	1,27	0,68 ... 0,69	0,55	0,64
814	x	3,1	1,7	1,45	1,1	0,69	0,55	0,63
824	x	4,1	2,25	2	1,6	0,66	0,75	0,86

Für Dauerbetrieb und Start- Stop-Betrieb
 mit einer Einschaltdauer bis zu 70%, sowie
 Frequenzumrichterbetrieb geeignet.
 Zulassung für die Komponenten Motor, Kabel
 und Stecker:

■ IE3 Motoren: CE, cURus, CCC
 ■ Motoren mit Index b: CE/CCC (50 Hz),
 CE/cURUS (60 Hz)

Suitable for continuous operation, start-stop
 operation with an operating time of up to 70%
 and frequency converter operation.
 Certification for the motor, cable and plug
 components:

■ IE3 motors: CE, cURus, CCC
 ■ Motors with Index b: CE/CCC (50 Hz),
 CE/cURUS (60 Hz)

Convient à un fonctionnement continu et un
 fonctionnement marche-arrêt avec une durée
 d'enclenchement allant jusqu'à 70 %, ainsi
 qu'à un fonctionnement avec variateur de
 fréquence.

Homologation pour les composants moteur,
 câble et connecteur :
 ■ Moteurs IE3 : CE, cURus, CCC
 ■ Moteurs avec indice b :
 CE/CCC (50 Hz), CE/cURUS (60 Hz)

Technische Daten · Technical data · Données techniques

Transportgeschwindigkeiten v_N

Transportation speeds v_N

Vitesses de transport v_N

Baueinheit Unit Unit	v_N [m/min]	50 Hz v [m/min]	60 Hz v [m/min]	Motortyp Motor type Type de moteur
AS 1	18	19,1	18,3	624
	15	15,3	15,3	624
	12	12,7	11,4	624
	9	9,5	9,2	624
	6	6,4	7,6	624
BS 1 BS 1/T, BS 1/M	18	18,0	18,0	524
	15	15,0	14,4	524
	12	12,0	10,8	524
	9	9,0	9,0	524
	6	6,0	5,7	524
CU 1/90	18	18,0	18,0	524
	15	15,0	14,4	524
	12	12,0	10,8	524
	9	9,0	9,0	524
	6	6,0	5,7	524
KU 1 90°, KU 1 180°	18	18,0	18,0	524
	15	15,0	14,4	524
	12	12,0	10,8	524
	9	9,0	9,0	524
	6	6,0	5,7	524
KU 1 360°	18	18,0	18,0	524
	15	15,0	14,4	524
	12	12,0	10,8	524
	9	9,0	9,0	524
	6	6,0	5,7	524
HQ 1/U, EQ 1/TR	18	18,0	18,0	524
	15	15,0	14,4	524
	12	12,0	10,8	524
	9	9,0	9,0	524
	6	6,0	5,7	524
EQ 1/T EQ 1/TE	18	18,0	18,0	524
	15	15,0	14,4	524
	12	12,0	10,8	524
	9	9,0	9,0	524
	6	6,0	5,7	524

v_N = Nenngeschwindigkeit
 v = Geschwindigkeit des Fördermittels

v_N = nominal speed
 v = speed of conveyor medium

v_N = vitesse nominale
 v = vitesse du convoyeur

Technische Daten · Technical data · Données techniques

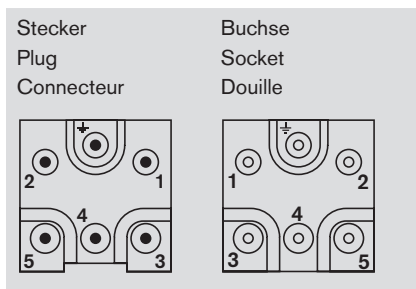
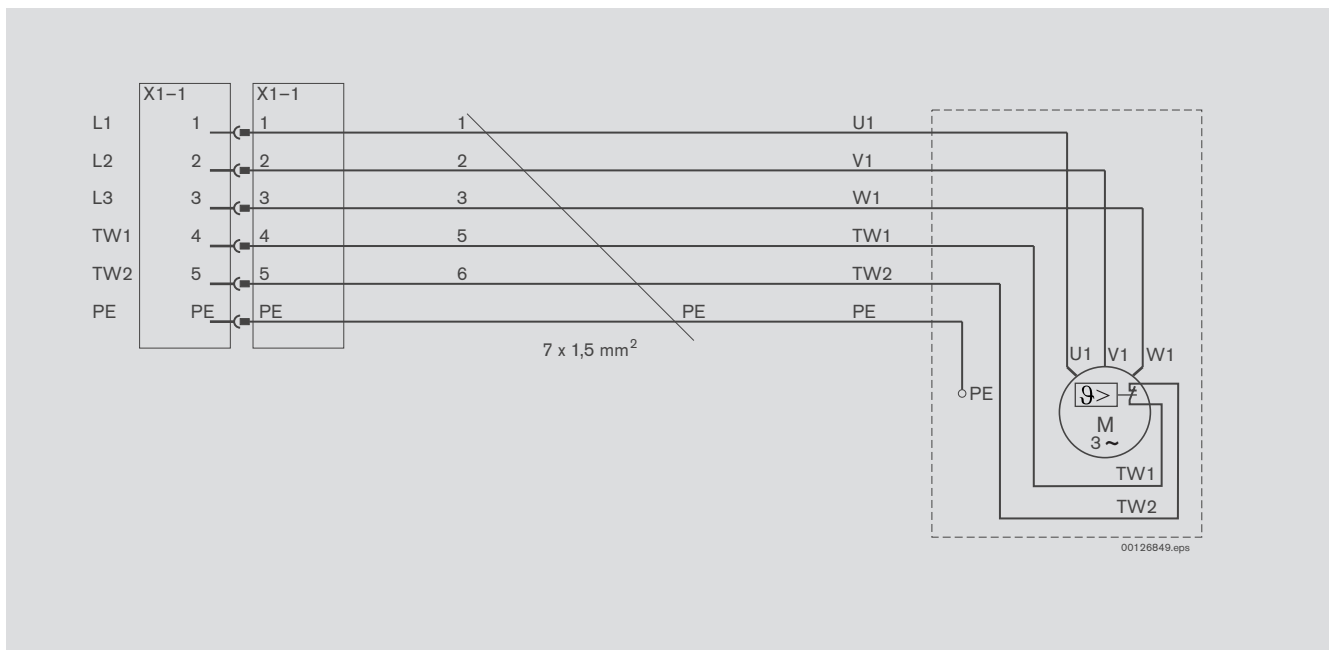
Motoranschluss

Motor connection

Raccordement du moteur

Motoranschluss mit Kabel/Stecker (AT=S)
Motor connection with cable/plug (AT=S)
Raccordement du moteur avec câble/connecteur (AT=S)

Schaltplan
 Circuit diagram
 Schéma de connexions



Technische Daten · Technical data · Données techniques

Motorschutzschalter
Motor protection switch
Disjoncteur-protecteur

Motortyp / Motor type / Type de moteur	50 Hz			60 Hz			Motorschutzschalter / Motor protection switch / Disjoncteur-protecteur			
	Bemessungs- leistung / Rated output / Puissance nominale	Spannung / Voltage / Tension		Bemessungs- leistung / Rated output / Puissance nominale	Spannung / Voltage / Tension		Δ [A]	Y [A]		
		Δ [V]	Y [V]		Δ [V]	Y [V]				
524	0,09	200	N/A	0,10	220	400	0,75	0,43		
		N/A	400		N/A	460			N/A	0,37
		N/A	N/A		N/A	575			N/A	0,30
624	0,18	200	N/A	0,22	220	400	1,30	0,75		
		N/A	400		N/A	460			N/A	0,65
		N/A	N/A		N/A	575			N/A	0,55

Länderzuordnung
Country applicability
Affectation par pays

	Europa Europe Europe	Schweiz Switzerland Suisse	USA USA USA	Kanada Canada Canada	Brasilien Brazil Brésil	Australien Australia Australie	Neuseeland New Zealand Nouvelle- Zélande	Südkorea South Korea Corée du Sud	China China Chine	Indien India Inde
Netzspannung (3x...) Line voltage (3x...) Tension de réseau (3 x ...)	400 V	400 V	480 V ¹⁾	480 V ¹⁾ 575 V	220 V 380 V ³⁾ 440 V ¹⁾	400 V 415 V ²⁾	400 V 415 V ²⁾	220 V 380 V ³⁾ 440 V ¹⁾	380 V ²⁾	415 V ²⁾
Netzspannungstoleranz Line voltage tolerance Tolérance de tension réseau	±10 %	±10 %	±10 %	±10 %	±10 %	±5 %	±5 %			±5 %
Netzfrequenz Line frequency Fréquence réseau	50 Hz	50 Hz	60 Hz	60 Hz	60 Hz	50 Hz	50 Hz	60 Hz	50 Hz	50 Hz

1) ~ 460 V/ 60 Hz

2) ~ 400 V/ 50 Hz

3) ~ 400 V/ 60 Hz

Bestellnummern-Übersicht · Overview of part numbers · Sommaire des références

Bestellnummern-Übersicht

Overview of part numbers

Liste des numéros de référence

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3 842 501 548	8-11, 8-14, 8-17	3 842 553 244	8-10
3 842 501 587	6-7	3 842 553 245	8-10
3 842 501 753	6-7	3 842 557 245	3-14
3 842 502 137	6-7	3 842 992 934	3-14
3 842 513 396	5-13	3 842 992 941	3-16
3 842 516 835	3-17	3 842 992 943	3-14
3 842 518 427	3-15	3 842 996 335	6-5
3 842 521 260	3-18	3 842 996 336	6-5
3 842 521 342	3-15	3 842 998 010	5-11
3 842 521 343	3-15	3 842 998 012	5-5
3 842 521 344	3-15	3 842 998 013	5-7
3 842 521 520	3-14	3 842 998 014	5-9
3 842 522 399	8-4	3 842 998 101	7-5
3 842 522 400	8-3	3 842 998 102	7-5
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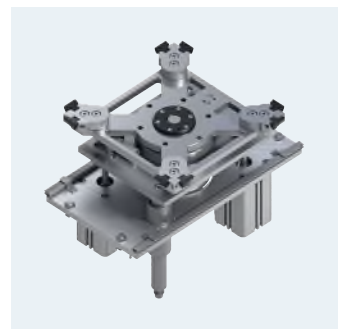
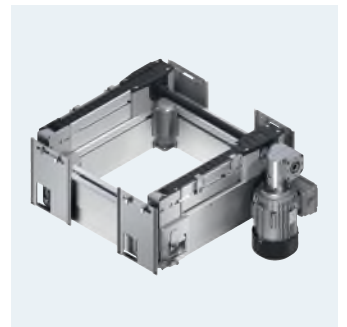
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

TS 2*plus* transfer system

7.0





Symbols



Product features

	Permissible load, single load
	Permissible load, sum of loads
	Conveying level
	Unit with energy-efficient drive available
	Lateral separation
	Central separation
EPA	ESD-protected area

Potential applications

	Suitable for use in clean rooms
	Suitable for use in dry rooms

Additional information

	Positioning accuracy
	Vertical process force

Ordering information

Explanation










Packing unit = minimum order quantity (here: 10 items)

Example: Packing unit contains 10 items, material number 3 842 523 258
 Order 1x 3 842 523 258 = delivery of 1x minimum order quantity 3 842 523 258 = 10 items
 Order 15x 3 842 523 258 = delivery of 2x minimum order quantity 3 842 523 258 = 20 items



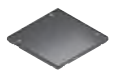
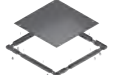



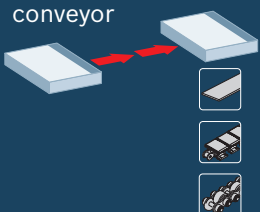




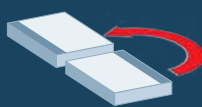




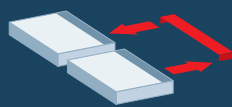











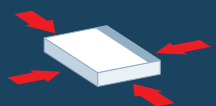













Delivery unit = delivery quantity (here: 16 items)

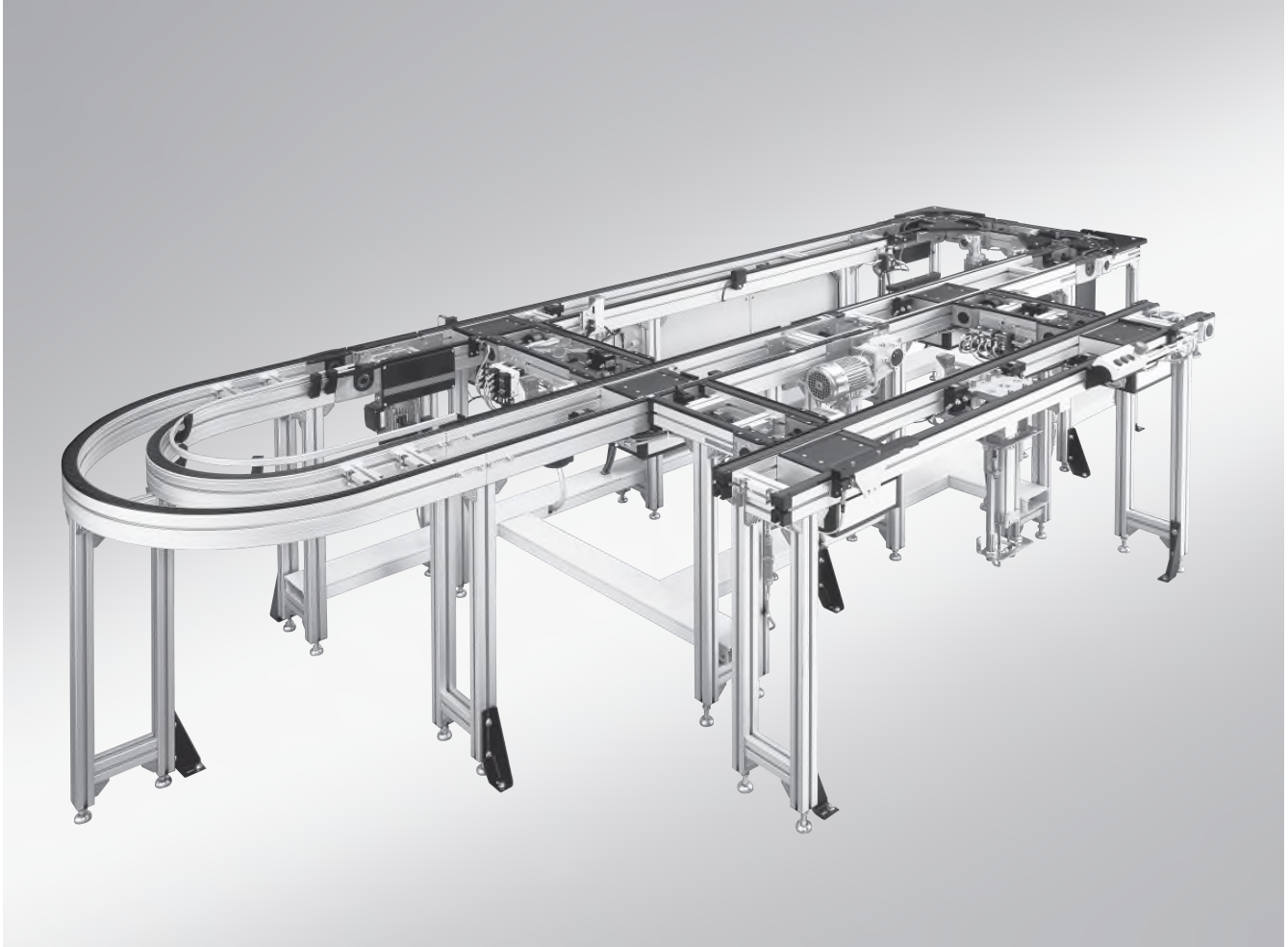
Example: Delivery unit contains 16 items, material number 3 842 532 695
 Order 1x 3 842 532 695 – delivery of 1x delivery quantity 3 842 532 695, SP 2/B, l = 6070 mm = 16 items
 Order 15x 3 842 532 695 – delivery of 15x delivery quantity 3 842 532 695 SP 2/B, l = 6070 mm = 240 items

Conveyor medium

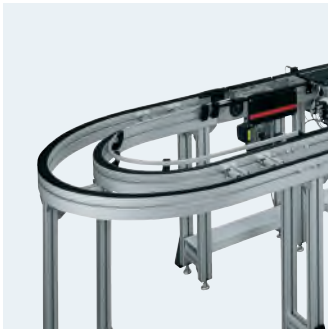
	Belt
	Toothed belt
	Plastic flat top chain
	Plastic accumulation roller chain
	Steel accumulation roller chain
	Vplus accumulation roller chain
	Duplex chain
	Rounded belt
	Specific section load/cm = total workpiece pallet weight/support surface length

TS 2plus system overview

<p>Workpiece pallet</p> 	 <p>See page 2-6</p>	 <p>See page 2-8</p>	 <p>See page 2-12</p>	 <p>See page 2-34</p>	 <p>See page 2-47</p>	 <p>See page 2-50</p>
<p>Longitudinal conveyor</p> 	 <p>See page 3-6</p>	 <p>See page 3-18</p>	 <p>See page 3-24</p>	 <p>See page 3-28</p>	<p>See page 3-55</p>	<p>See page 3-68</p>
<p>Curves</p> 	 <p>See page 4-6</p>	 <p>See page 4-9</p>	 <p>See page 4-24</p>	 <p>See page 4-32</p>		
<p>Transverse conveyor</p> 	 <p>See page 5-4</p>	 <p>See page 5-26</p>	 <p>See page 5-80</p>	 <p>See page 5-82</p>	 <p>See page 5-88</p>	
<p>Leg sets</p> 	 <p>See page 6-6</p>	 <p>See page 6-8</p>	 <p>See page 6-10</p>	 <p>See page 6-16</p>	 <p>See page 6-24</p>	
<p>Positioning and orientation</p> 	 <p>See page 7-5</p>	 <p>See page 7-8</p>	 <p>See page 7-27</p>	 <p>See page 7-44</p>	 <p>See page 7-52</p>	 <p>See page 7-56</p>
<p>Transportation control</p> 	 <p>See page 8-4</p>	 <p>See page 8-40</p>	 <p>See page 8-60</p>	 <p>See page 8-88</p>	 <p>See page 8-106</p>	 <p>See page 8-131</p>

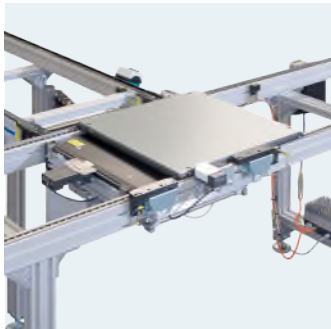


TS 2plus transfer system	1
Workpiece pallet	2
Longitudinal conveyor	3
Curves	4
Transverse conveyor	5
Leg sets	6
Positioning and orientation	7
Transportation control	8
Identification systems	9
MTpro planning software	10
Technical data	11
Material number overview	12
Index	13



TS 2*plus* transfer system

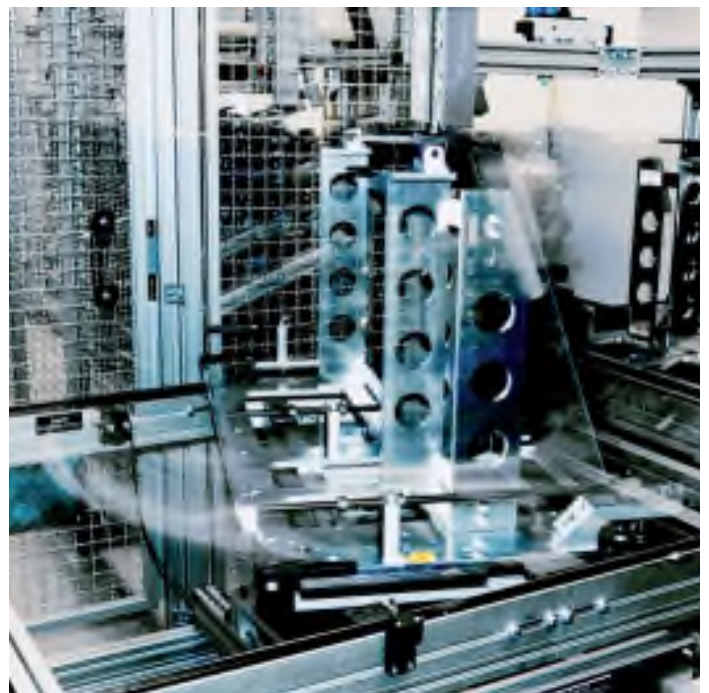
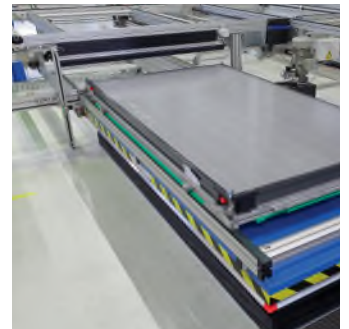
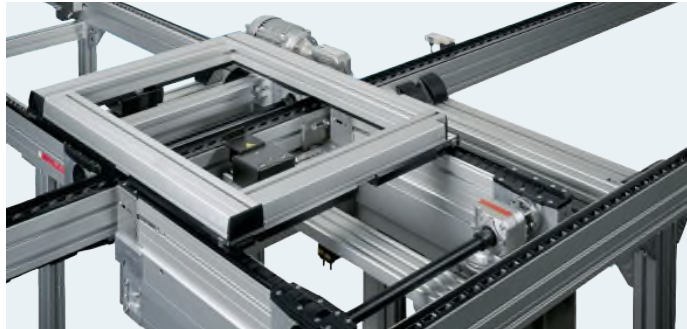
Features	1-2
Operating principle	1-3
Design ideas	1-16
Identification and data tag systems	1-18
Energy efficiency – Rexroth 4EE	1-19



TS 2plus features

The Rexroth TS 2plus transfer system is designed for the transportation of workpiece pallets weighing up to 240 kg and is a good all-rounder in economical production. It is a diverse modular system that meets the requirements of a wide range of different products.

TS 2plus features standardized modular units, that can be combined in many ways to create a single system. This permits a wide range of variants to be constructed and tailor made for individual requirements. The modular design permits the cost-effective use of ratio potentials in production. All components are of robust design and can therefore be reused for mounting future product generations.



Diverse, sturdy, adaptable

Due to the large number of modular components incorporated in the system, it can be adapted to suit specific production conditions and individual layouts without requiring any extra parts:

- ▶ Four types of conveyor media (polyamide belts, toothed belts, flat top chains and accumulation roller chains) which can be combined together to meet the needs of the assembly process
- ▶ Workpiece pallets dimensions (from 160 x 160 mm up to 1200 x 1200 mm) specifically designed for the product sizes
- ▶ A high maximum load of up to 240 kg per workpiece pallet

Special TS 2plus units

Apart from the different types of conveyor media, the TS 2plus also provides an abundance of specific components for curves, transverse conveyors, positioning units and drive units. The time and effort spent on planning and designing can be reduced to a minimum using predefined macro modules.

Material combinations that can be ordered from the catalog have been optimized for standard operation with TS 2plus. For special applications, additional material combinations are available. Your Rexroth representative will be pleased to support you in choosing an appropriate solution where required.

Operating principle

On an assembly line, a transfer system transports workpieces from one station to another. Two constantly moving belts, toothed belts, flat top chains, accumulation roller chains or round belts convey the workpiece pallets (WT) by means of friction. The workpiece pallets hold the workpieces. All workpiece finishing takes place on the workpiece pallets. Information about destination and processing stage are carried in the workpiece pallet memory. The stop gate (VE) stops the workpiece pallet at the stations (areas for

manual work or automatic stations), while the conveyor medium continues moving. Several workpiece pallets can build up in front of individual stations to form small buffers. Once a processing stage is completed at the station, the workpiece pallet is released to travel on to the next work station. The pneumatic stop gate is opened, either manually or with a station control. At the end of the assembly process the workpiece is removed from the workpiece pallet.

In a few steps for the best solution

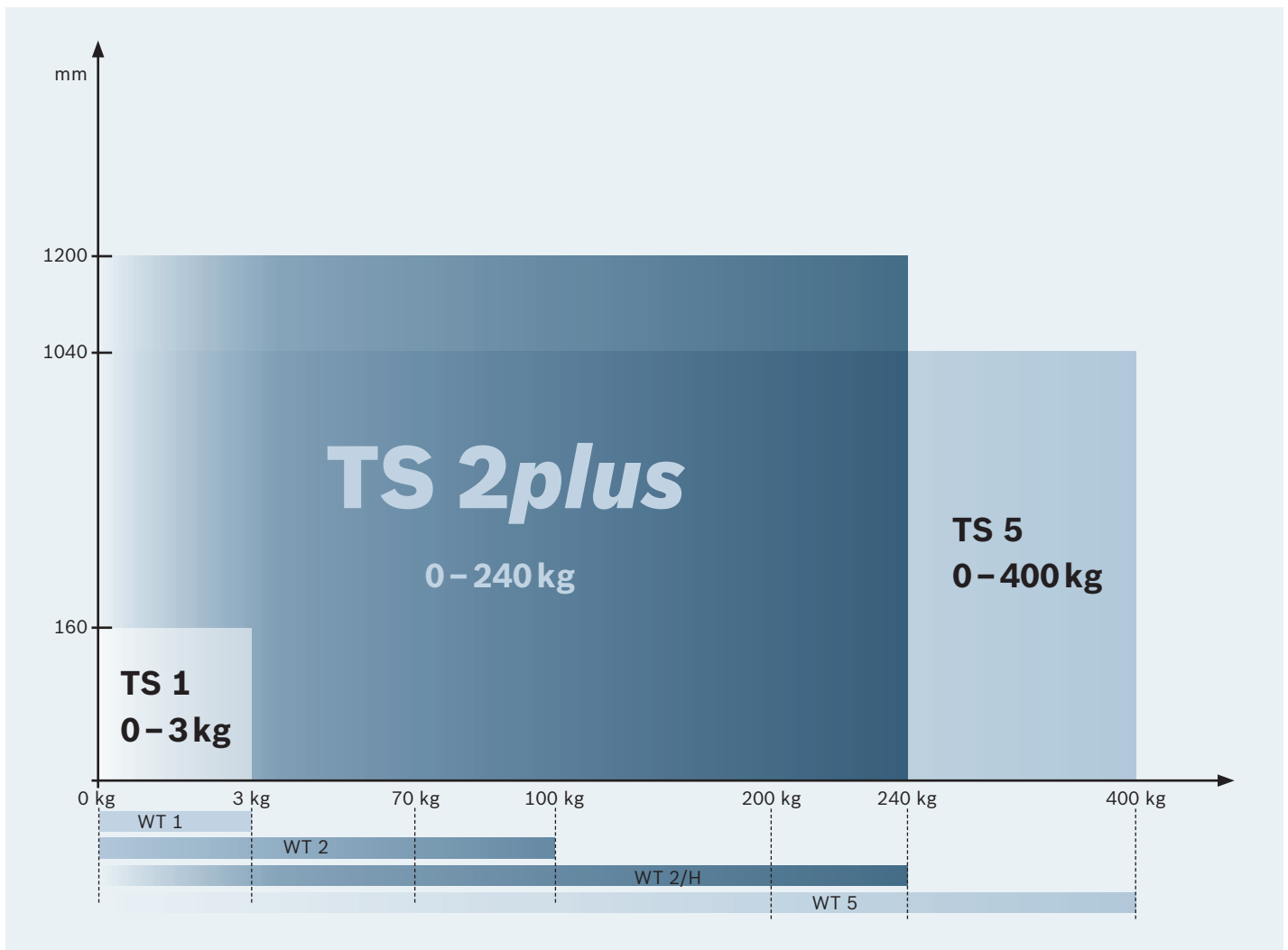


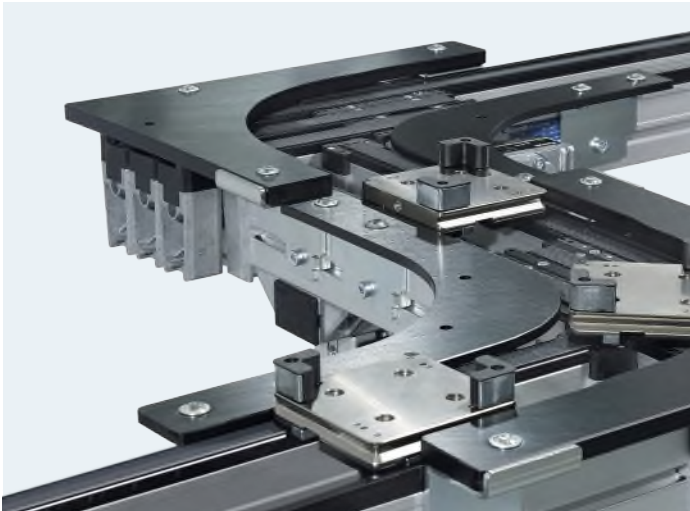
Operating principle

1. Choice of system

To ensure the most economical operation possible, an assembly line requires precise forward planning. Later conversions must be as simple and cost-effective to execute as possible in order to be able to respond to future market requirements. The key factors when selecting a suitable transfer system are the weight and quality of the workpieces to be conveyed as well as the particular production environment.

The flexible modular TS 2plus transfer system from Rexroth covers a very wide range of requirements: With the wide range of mutually compatible units and macro modules permit a large variety of layouts with manual and automatic processing stations to be created. Solutions for maximum positioning accuracy or for especially heavy workpieces can be implemented easily using standard components. The future-proof TS 2plus transfer systems are designed for high availability, even under the harshest conditions.

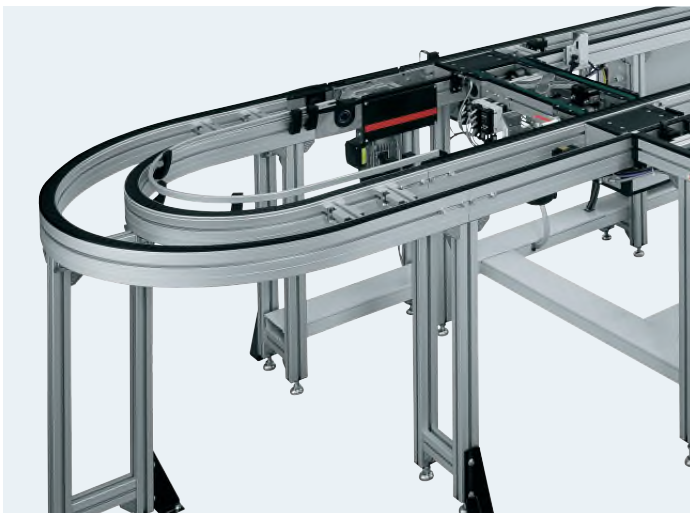




TS 1

TS 1 **0–3kg**

The TS 1 transfer system is specifically tailored to small, lightweight products and assemblies, which require high positioning accuracy and repeatability.



TS 2*plus*

TS 2*plus* **0–240kg**

In the automotive industry and the electronics industry, household appliances and electronics manufacturing: With their diverse system components, TS 2*plus* assembly lines are suitable for use in a wide range of industries.



TS 5

TS 5 **0–400kg**

The roller conveyor of the TS 5 transfer system conveys loads of up to 400 kg, over long distances where necessary, while its robust construction make it especially suitable for harsh environments.

Operating principle

2. Transported product

Workpiece pallet (WT)

The workpiece pallet (WT) transports the workpiece from one processing station to the next on the transfer system. Rexroth workpiece pallets are available in several versions for different applications: The complete plastic WT 2/E handles the transportation and positioning of lighter workpieces. The more robust WT 2 and WT 2/H models, with their steel or aluminum carrying plates, are also suitable for medium and heavy loads.

The WT 2 series workpiece pallets can be configured from components for the individual workpieces. A selection of various frame modules and carrying plates is available for this purpose.

Because the workpiece pallets must be loaded as centrally as possible for optimal transportation, it is advisable to choose larger sized carrying plates for heavier workpieces or for those with uneven weight distribution.

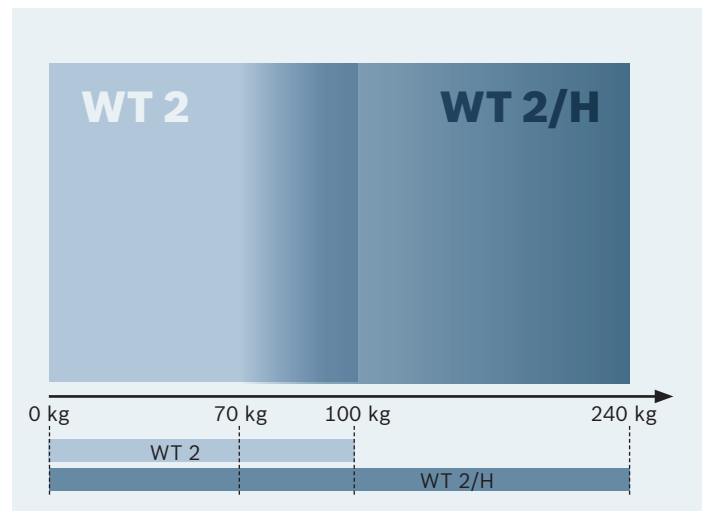
Permitted weights

The WT total weight is limited for each WT size so that the permitted surface pressure is not exceeded.

The WT total weight results from the following:

- ▶ Workpiece pallet mass
- ▶ Workpiece pallet load (workpiece, pick-up, etc.)
- ▶ Weight of the special equipment (data storage, etc.)

For workpiece pallets that are not square, please note that the permissible WT total weight (m_G) may be different for longitudinal conveyors and transverse conveyors and the shorter side is the determining factor for the maximum WT load.



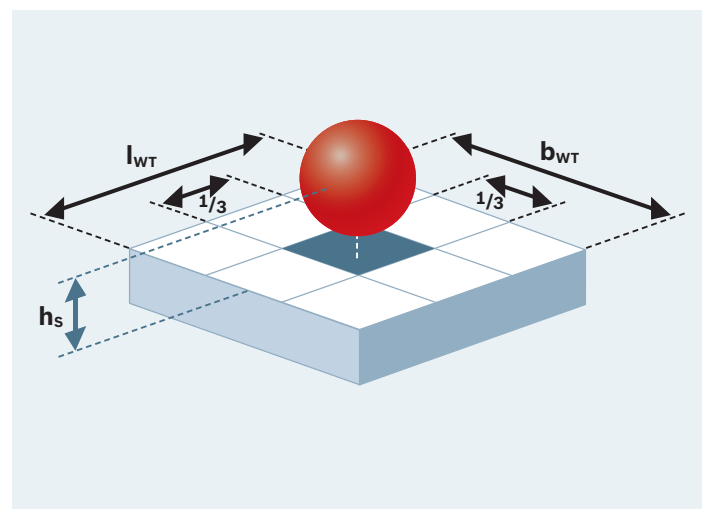
Permissible gravity center position

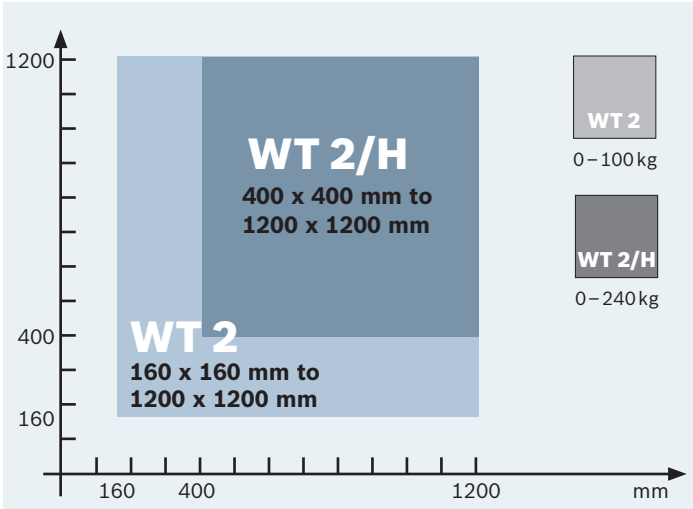
When separating pallets or changing directions, it is important to observe the position of the gravity center load on the workpiece pallet to ensure that the acceleration forces can be absorbed without any interferences.

Generally we recommend that:

- ▶ the load should be positioned in the center of the workpiece pallet
- ▶ the center of gravity should not exceed a height h_s of $1/2 b_{WT}$ (with $b_{WT} \leq l_{WT}$).

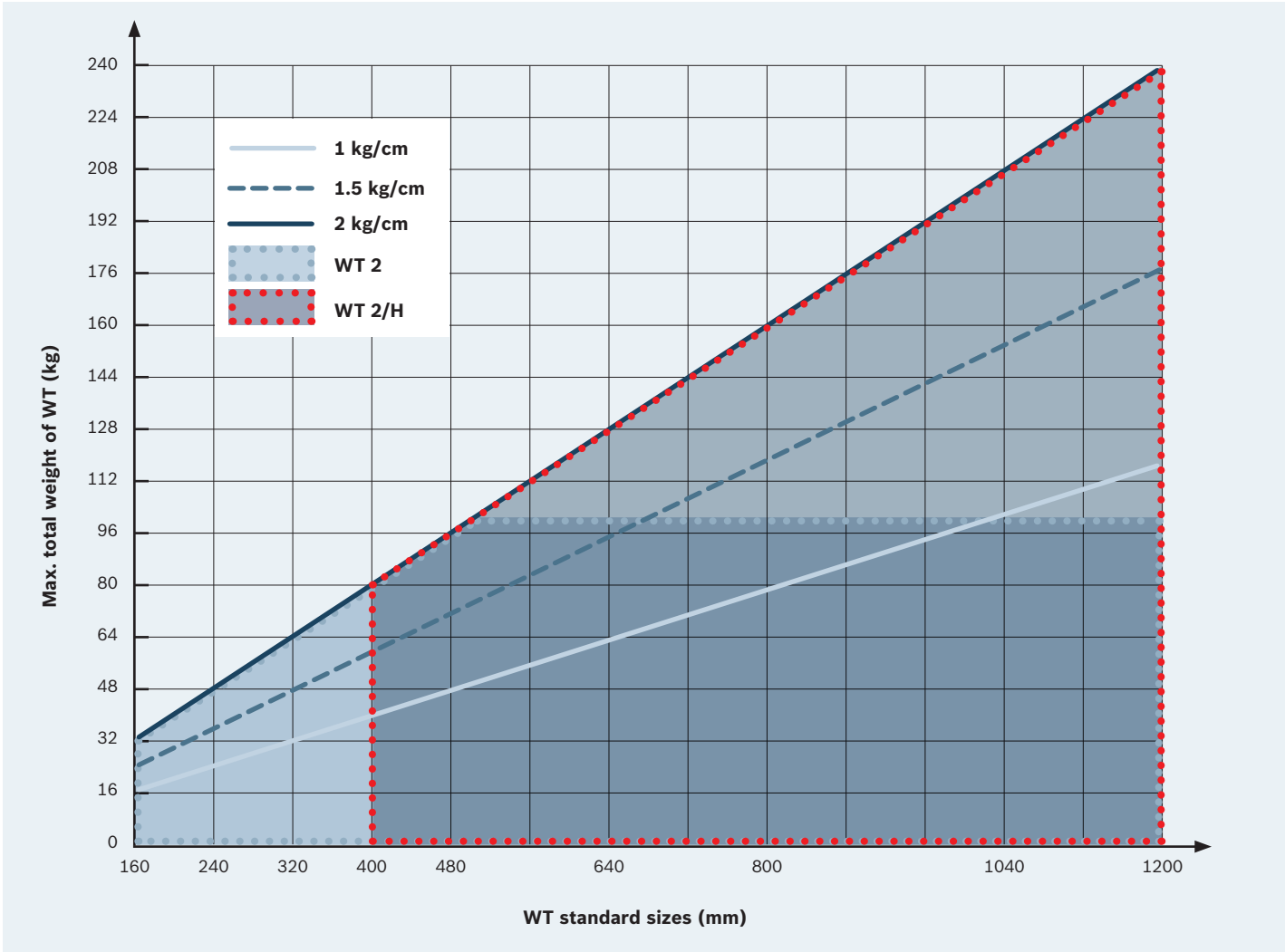
The specified performance data relate to the illustrated gravity center position.





Available workpiece pallet (WT) dimensions

Workpiece pallets with a surface from 160 x 160 mm up to 1200 x 1200 mm (WT 2) or with a surface from 400 x 400 mm up to 1200 x 1200 mm (WT 2/H) allow for correct adaptation to the particular workpiece geometry. If necessary, a number of workpieces can be accommodated on a single workpiece pallet (WT).



Operating principle

3. Layout planning

When planning the system layout, it is very important to take into account the individual requirements, targets and priorities of the company. A very flexible system is often required for complex assembly procedures. This may be due to:

- ▶ frequent product alterations
- ▶ cycle problems due to different models
- ▶ differences in the work involved at each station
- ▶ frequent product alterations
- ▶ great fluctuation in number of workpieces

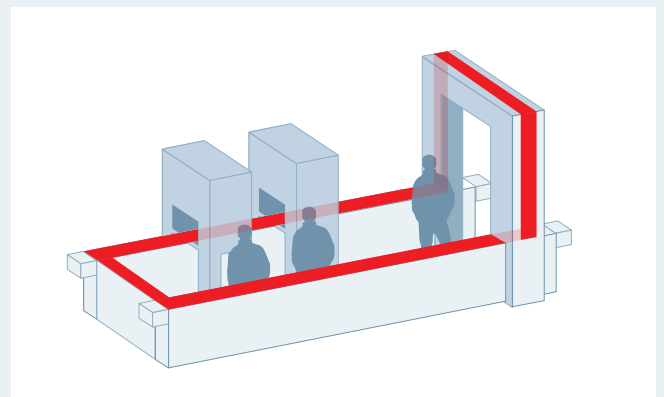
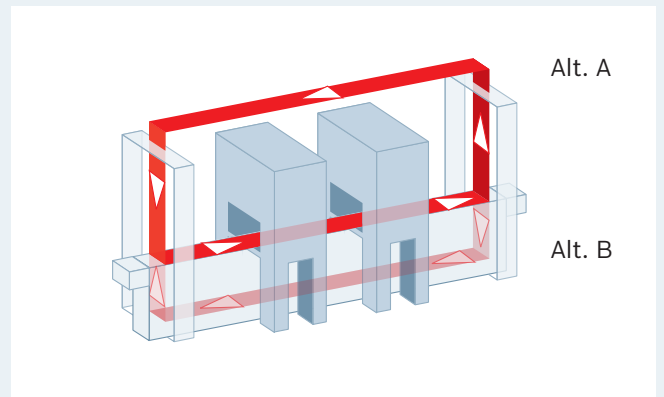
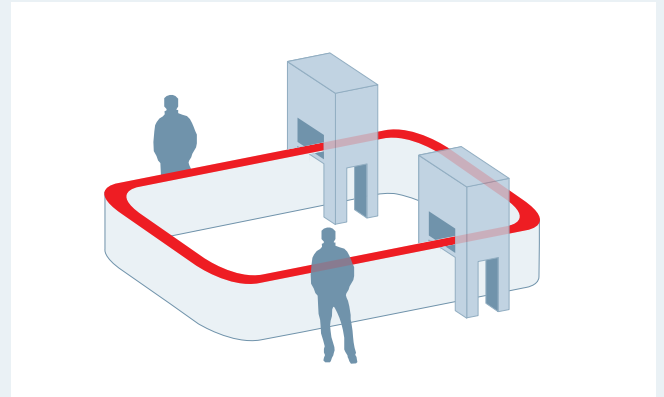
In cases like this, it is practical to transfer the workpiece pallet off the main conveyor (main circuit) into a shunt system which is independent of the main cycle. The term main circuit is used to describe workplaces or stations arranged in series.

A shunt is when workpiece pallets are directed out of the main circuit for processing independently of the main cycle, and then reintegrated in the main circuit.

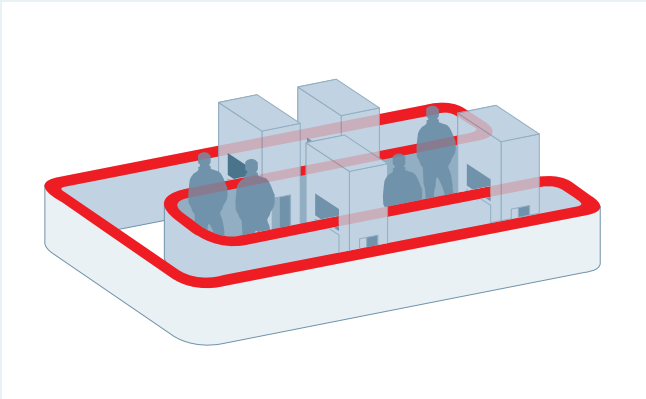


System layouts

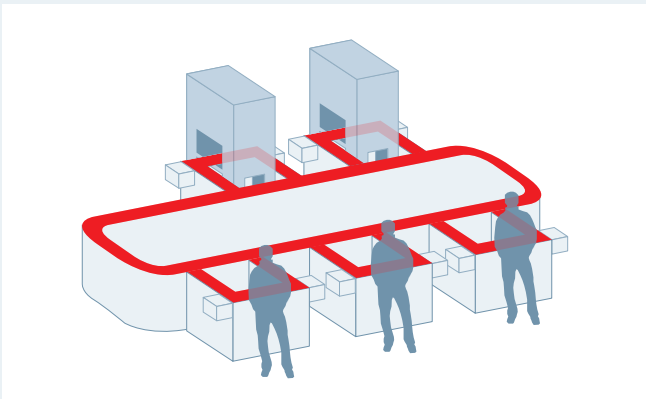
Main circuit



◀ Rectangular circuit

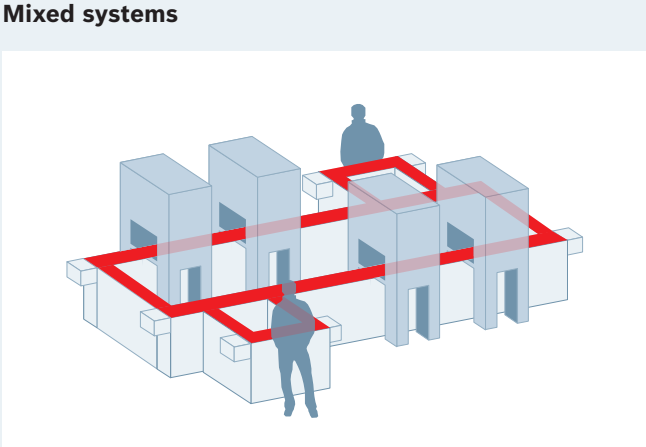


◀ U-shape



◀ Production line construction (with lift*)
* Our partners can advise you about lifts.

◀ Parallel workplaces



◀ U-shape (with lift)
*Our partners can advise you about lifts.

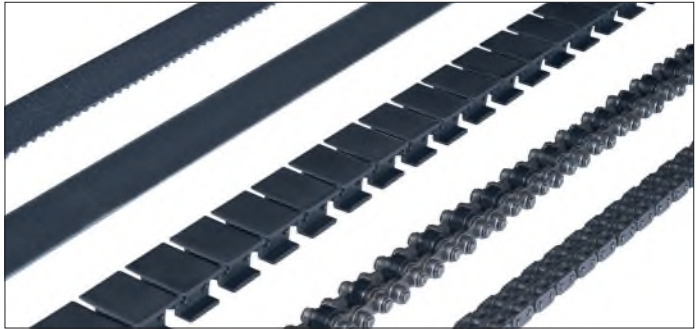
◀ Rectangular circuits with parallel workplaces

Operating principle























4. Conveyor media


The load carrying capacity of a workpiece pallet results from the

- ▶ combination of conveyor medium, glide profiles, and workpiece pallet wear pad as well as
- ▶ the surface length on the conveyor medium.



Toothed belts, belts, plastic flat top chains, roller chains, duplex chains (from left to right)

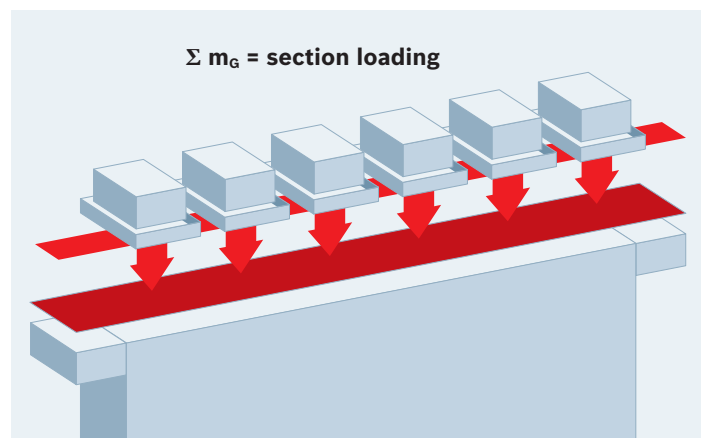
	Standard wear pad 				Special wear pad 			
Conveyor medium								
Steel glide profile								
Plastic glide profile								

 Specific section load/cm = overall workpiece pallet mass / support surface length

Permitted section loading

When designing the conveyor sections, it is important to ensure that the **sum of the total weights of all workpiece pallets**, which re on the conveyor section in accumulation operation at one time, **is less than the permitted load for the conveyor section.**

The permitted section loading in accumulation is specified on individual drive modules and belt sections. If the permitted section loading for the conveyor section is exceeded, the section must be divided into several individual sections.



Operating principle

5. Combination of conveyor media, glide profiles and components

Assignment of weight classes – products

Workpiece pallet	WT 2 ≤ 400 mm	WT 2	WT 2-H	WT 2-H
Typical total weights of the WT in the application	Load 0 – 30 kg	Load 30 – 100 kg	Load 30 – 100 kg	Load 100 – 240 kg
Lift positioning unit (HP)/ positioning unit (PE)	PE 2 (F ≤ 30 kg)			
		PE 2/X (F ≤ 100 kg)	PE 2/H (F ≤ 240 kg)	PE 2/H (F ≤ 240 kg)
	HP 2/L (F ≤ 40 kg)	HP 2/L (F ≤ 40 kg)		
	HP 2 (F ≤ 110 kg)	HP 2 (F ≤ 110 kg)		
	PE 2/XX (F ≤ bel)	PE 2/XX (F ≤ bel)	PE 2/XX (F ≤ bel)	PE 2/XX (F ≤ bel)
	PE 2/XP (F ≤ 100 kN)			
Stop gate (VE)	VE 2 (F ≤ 200 kg)	VE 2 (F ≤ 200 kg)	VE 2/D100-H	VE 2/D100-H
	VE 2/L (F ≤ 200 kg)	VE 2/L (F ≤ 200 kg)	VE 2/D250-H	VE 2/D250-H
	VE 2/M (F ≤ 200 kg)	VE 2/M (F ≤ 200 kg)		
	VE 2/S (F ≤ 140 kg)	VE 2/S (F ≤ 140 kg)		
	VE 2/X (F ≤ 450 kg)	VE 2/X (F ≤ 450 kg)		
	VE 2/D-60 (F ≤ 60 kg)	VE 2/D-60 (F ≤ 60 kg)		
	VE 2/D-175 (F ≤ 100 kg)	VE 2/D-175 (F ≤ 100 kg)		
	VE 2/D-200 (F ≤ 200 kg)	VE 2/D-200 (F ≤ 200 kg)		
Damper (DA)	DA 2/10 (F ≤ 20 kg)			
	DA 2/30 (F ≤ 60 kg)			
	DA 2/100 (F ≤ 100 kg)	DA 2/100 (F ≤ 100 kg)		
			DA 2/100-H (F ≤ 100 kg)	DA 2/100-H (F ≤ 100 kg)
			DA 2/250-H (F ≤ 240 kg)	DA 2/250-H (F ≤ 240 kg)
		DA 2/150-E	DA 2/150-E	
Switch bracket (SH)	SH 2/S	SH 2/S		
	SH 2/ST	SH 2/ST		
	SH 2/S-H	SH 2/S-H	SH 2/S-H	SH 2/S-H
	SH 2/U	SH 2/U		
	SH 2/UV	SH 2/UV		
	SH 2/U-H	SH 2/U-H		
	SH 2/SF	SH 2/SF		
Rocker (WI)	WI 2	WI 2		

Operating principle

6. Ambient conditions

Materials used, resistance to media

Rexroth transfer systems are manufactured with high-quality materials to ensure continuous use. They are resistant to lubricating and cleansing agents that are common in an industrial environment.

However, we cannot guarantee that the products contained in this catalog are resistant to all combinations of testing liquids, gases, or solvents. Please contact your Rexroth representative if you have any doubts.



Environmental conditions – climatic

The transfer systems have been designed for stationary use in a location that is protected from the elements.

Operating temperature

+5 ... +40 °C
-5 ... +60 °C with 20%
less load

Storage temperature

-25 °C ... +70 °C

Relative humidity

5 ... 85%, non-condensing
1 ... 2% (dry room) on request

Air pressure

> 84 kPa as appropriate
Installation altitude < 1400 m above mean sea level.
Load values are reduced by 15% when the system is set up at a location that is over 1400 m above sea level.

Environmental conditions – biological

Avoid molds, fungi, rodents, and other vermin.

Environmental conditions – chemical

Do not set up near industrial systems with chemical emissions.

Environmental conditions – physical

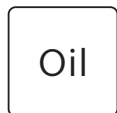
Do not set up near sources of shavings, sand or dust.
Do not set up in areas that are regularly jarred by high forces caused by, e.g., presses, heavy machinery, etc.





Suitability for electrostatically sensitive areas

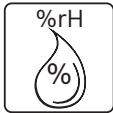
Almost all of the components and parts in Rexroth transfer systems are ESD-compatible or available in ESD-compatible design. They can thus principally be used in EPA (ESD-protected areas). We do, however, recommend that you contact your Rexroth representative.



Use in oily environments

For applications where process-related oil can enter the transfer system, we recommend using chains as the conveyor medium (accumulation roller chains, *Vplus* chains or flat top chains). We do, however, recommend that you contact your Rexroth representative.





Use in dry rooms

TS 2plus has been tested and approved with all conveyor media for use in dry rooms with a relative humidity of 1 ... 2%, e.g., for the production of Li-Ion battery cells. Your Rexroth representative will be pleased to advise you about this.



Use in cleanrooms

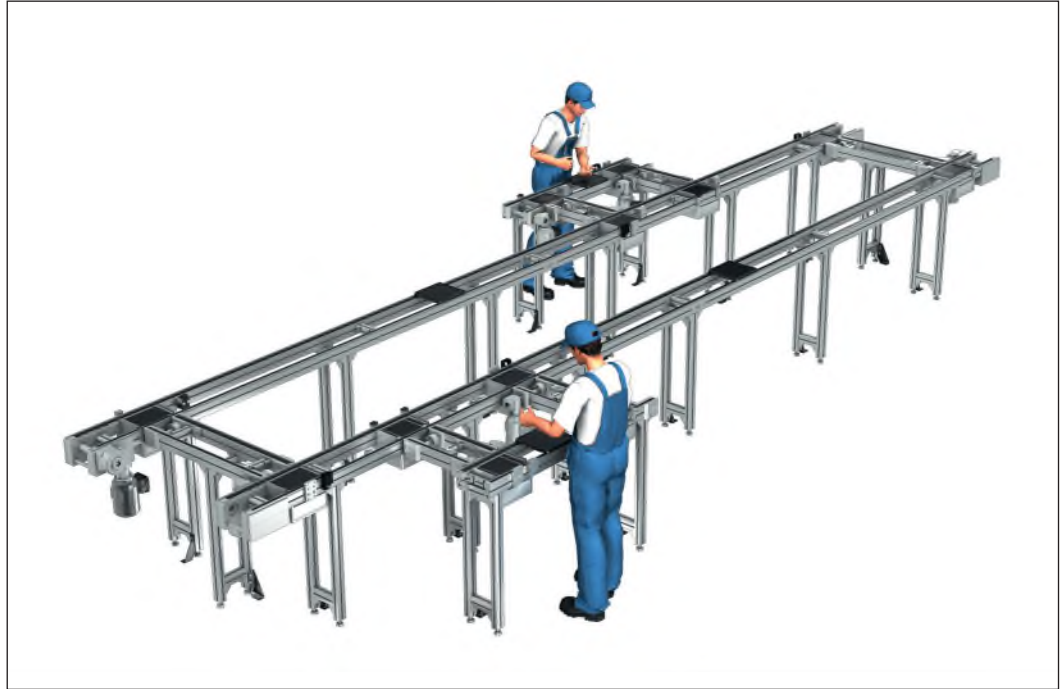
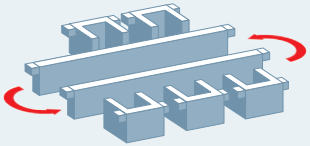
Almost all the components have been approved by the IPA^{*)} for use in clean rooms and for clean room class 7 according to DIN EN ISO 14644-1. Please note that some clean room-compatible components have been specially modified. Please contact your Rexroth representative if you require clean room components.

^{*)} Fraunhofer Institute for Manufacturing Engineering and Automation, Stuttgart, Germany

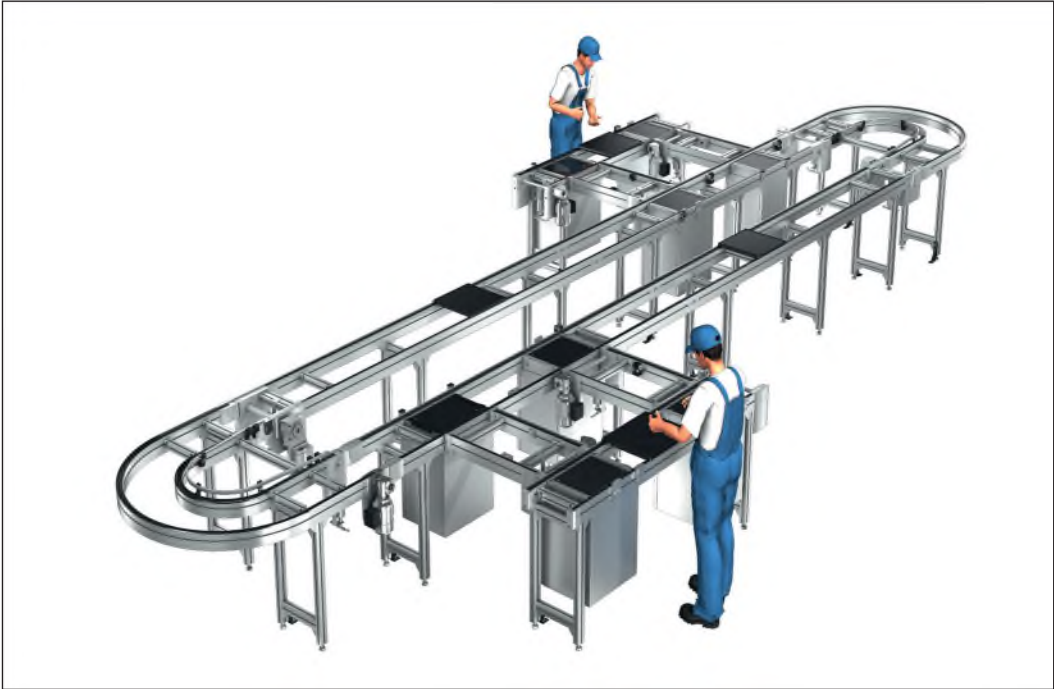
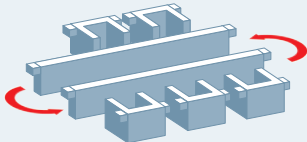
Design ideas

Systems

Layout example with
240 x 240 mm workpiece
pallets, conveyor
medium: belts,
toothed belts



Layout example with
640 x 640 mm workpiece
pallets, conveyor
medium: accumulation
roller chain, flat
top chain



Identification and data tag systems

Identification and data storage systems store all product and process-related data directly on the workpiece pallet and enable local or central data processing. Identification and data tag systems are used to control numerous production and transport systems in assembly technology applications.

Data related to objects is the basis for

- ▶ for targeted control of processes and processing steps
- ▶ infeeding or outfeeding workpiece pallets according to type or variant when manufacturing product variants on flexible assembly systems.



ID 15



ID 40



ID 200



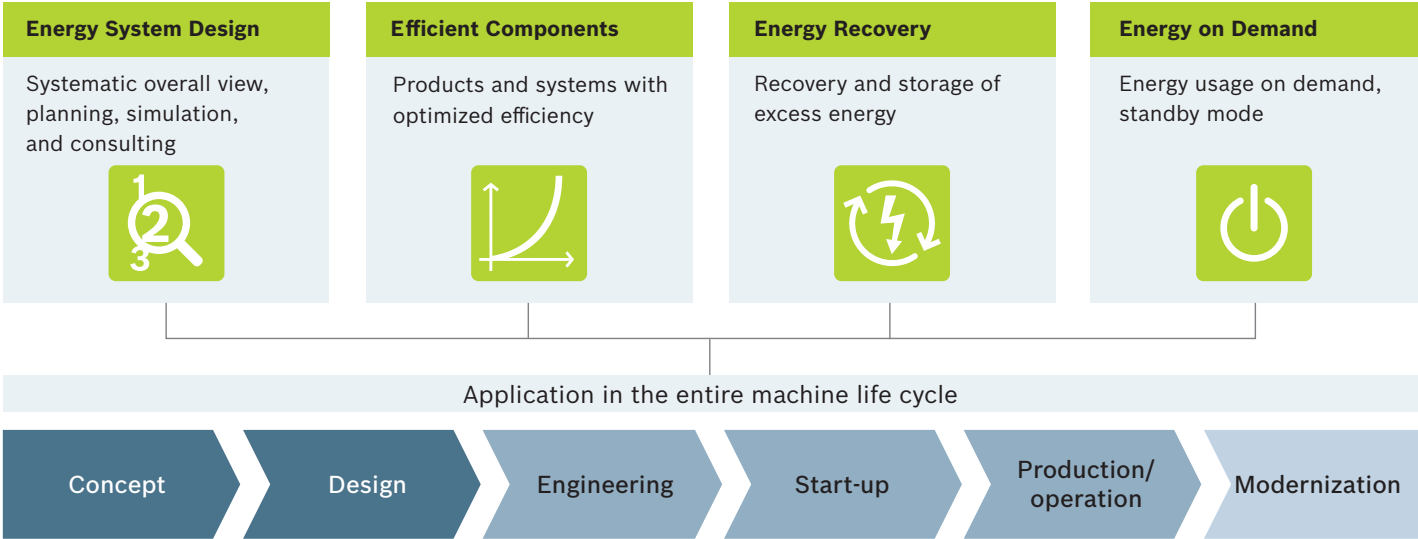
Energy efficiency – Rexroth 4EE



Energy efficiency – a key factor for corporate success

From an economic point of view, energy efficiency and reduced emissions lower operating costs and offer a competitive edge in the fiercely competitive global market. In addition, they help support compliance with environmental standards.

All potentials for optimization are used effectively when not only the details of a system but the system as a whole is optimized. The 4EE system features four levers:



Efficient system layout

To achieve high energy efficiency, the system must be examined as a whole as early as in the planning phase. The TS 2plus modular system offers numerous modules, all of which enable you to implement a transfer system tailored precisely to the particular application. This effectively prevents over-dimensioning and high energy losses from the outset.



Energy-efficient modules

The TS 2plus modules are equipped with particularly energy-efficient drives. The efficiency of most of the motors already exceed future requirements. The interplay of friction-optimized materials, e.g., on slide rails, friction-minimizing gear oils and numerous further design details ensures perfect coordination in the overall system.



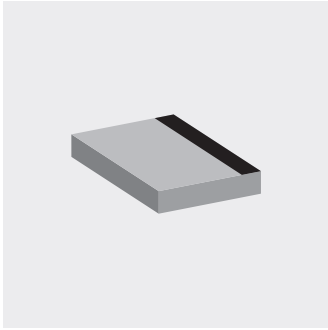
Energy use on demand

Minimal energy consumption requires the ability to be able to switch off system components on demand. The majority of motors in the TS 2plus system are designed for start-stop operation and frequency converter operation.



Worldwide approval

For international use, most of the motors feature CE, cURus and CCC approvals.

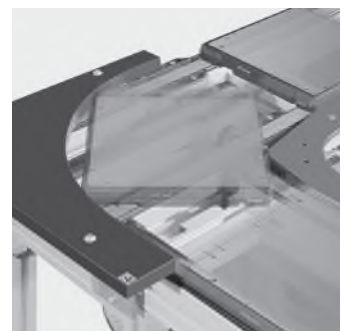


Workpiece pallets

2

Workpiece pallet selection

2-2



Workpiece pallet selection

The workpiece pallet (WT) is used in the transfer system to convey the workpiece through the processing stations.

To guarantee an optimal transport, it should be loaded in the center.

Workpiece pallet applications

- ▶ Integrated positioning bushings enable defined positioning of the incoming workpiece in the processing station
- ▶ Optionally available data tags can provide work-related information during processing. This information can be evaluated on-site and also updated

Various WT workpiece pallets are available:

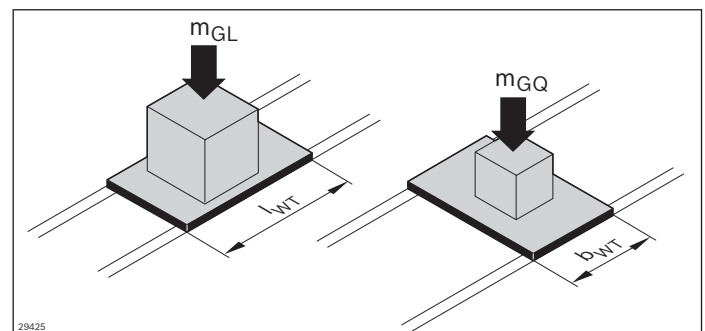
- ▶ The WT 2/E is an especially inexpensive, light-weight workpiece pallet with an all-plastic design that can be used for simple conveying and positioning tasks (see p. 2-6)
- ▶ The WT 2 is a sturdy and universally applicable workpiece pallet with a steel or aluminum carrying plate (see p. 2-8)
- ▶ The WT-2 components enable individual configuration of the WT using various frame modules and carrying plates, including those provided by the customer (see p 2-12)
Total weight of workpiece pallets up to 100 kg
- ▶ The WT 2/H with aluminum carrying plate for applications with total weights up to 240 kg (see p 2-34)
- ▶ WT 2/F with an aluminum frame profile design can be used for large workpieces. Grooves throughout the frame profile make it easier to install parts holders (see p. 2-47). Total weight of workpiece pallets up to 100 kg
- ▶ WT 2/F-H with the same aluminum carrying plate, but in the heavy duty version up to 240 kg (see p 2-50)

Size, combination with conveyor medium

The permitted total weight m_a of a workpiece pallet results from the

- ▶ combination of conveyor medium, glide profiles, and workpiece pallet wear pad as well as
- ▶ the surface length on the conveyor medium (see p. 1-10)

The surface length on the conveyor medium may vary in longitudinal and transverse conveying with non-square pallets. The shorter side of the workpiece pallet determines the maximum permitted total weight.



The following estimated parameters can be used:

- ▶ **Conveyor media belt and toothed belt:** A surface load of up to 1 kg/cm is permissible on workpiece pallets with PA wear pads.
- ▶ **Conveyor medium flat top chain:** PA wear pads on the workpiece pallets are recommended in the combination with a plastic flat top chain. This permits surface loads of up to 1 kg/cm in the standard design with plastic glide profiles in the section profile. Bearing loads of 1.5 kg/cm are possible with the optionally available version with steel glide profiles.
- ▶ **Conveyor medium accumulation roller chain:** In conjunction with PE wear pads on the workpiece pallets, the standard design with plastic glide profiles in the section profile permits surface loads of up to 1.5 kg/cm. The optionally available version with steel glide profiles and the accumulation roller chain with steel rollers can tolerate surface loads of 2 kg/cm

When WT 2/E, WT 2 and WT 2/F workpiece pallets are used, the VE 2/... stop gates are mounted directly on the section for lateral separation.

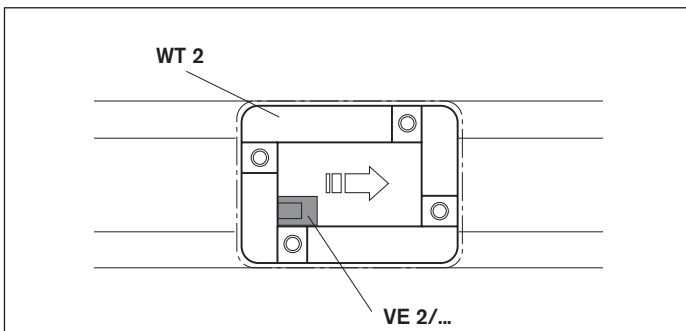
The WT 2/E, WT 2 and WT 2/F are used up to 100 kg.

When WT 2/H and WT 2/F-H are used, the VE 2/D...-H stop gates are mounted by a cross strut for central separation. WT 2/H or WT 2/F-H are used for heavy duty versions up to workpiece pallet total weights of 240 kg.

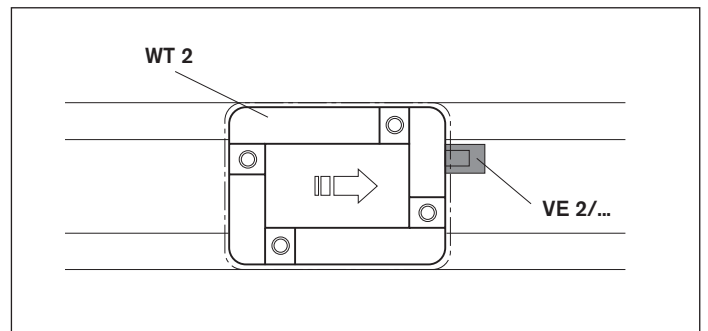
All VE 2/... (without VE 2/...-H) can be used for lateral separation.

All VE 2/D...-H can be used for central separation.

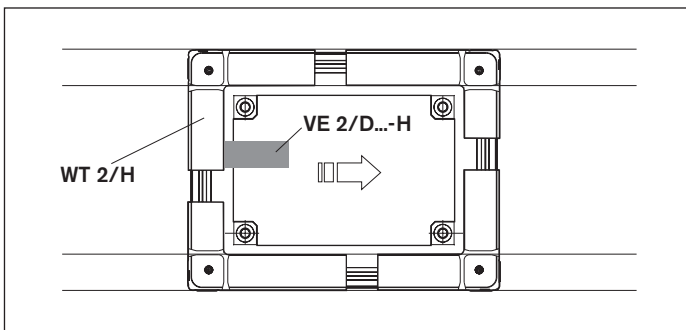
Mounting in rear right position in the direction of transport, on the **inside** of the workpiece pallet surface



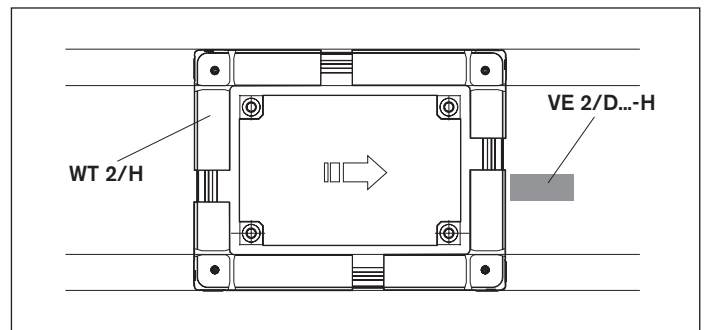
Mounting in front left position in the direction of transport, on the **outside** of the workpiece pallet surface



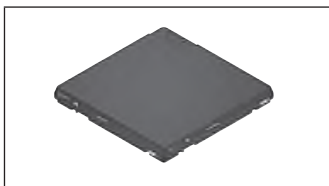
Mounting inside the workpiece pallet surface



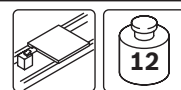
Mounting outside the workpiece pallet surface



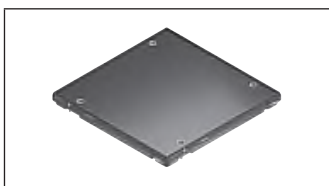
The size and position of the positioning bushings is different for the workpiece pallets for lateral separation compared to the types for central separation. This must be considered when selecting the positioning units. For more information, see also the table on p. 1-11



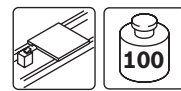
WT 2/E workpiece pallet



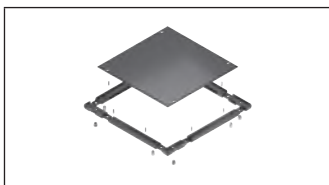
2-6



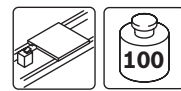
WT 2 workpiece pallet



2-8



Components for WT 2 workpiece pallets



2-12



WT 2/H workpiece pallets



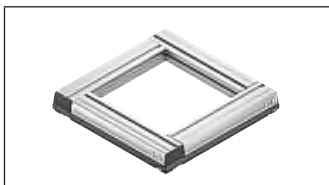
2-34



Components for WT 2/H workpiece pallets



2-40



WT 2/F workpiece pallets



2-47

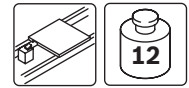


WT 2/F-H workpiece pallet



2-50

WT 2/E workpiece pallet



- ▶ Integrated positioning bushings for a positioning accuracy of ± 0.3 mm
- ▶ Prepared for the installation of mobile data tags from the ID 10, ID 40 and ID 200 identification systems
- ▶ Not suitable for accumulation roller chains
- ▶ A standard size with the dimensions
 $b_{WT} \times l_{WT} = 240 \times 240$ mm
- ▶ Material: All-plastic polyamide version (PA 6)

WT 2/E is a cost-effective workpiece pallet with an all-plastic design, suitable for applications with low loads from

above and on the joints of up to 0.5 kg/cm.

Accessories

Recommended accessories

- ▶ ID 40 attachment kit 3842532630 (see RFID systems catalog)

Delivery notes

Scope of delivery

- ▶ Workpiece pallet, complete

Condition on delivery

- ▶ Fully assembled

Ordering information

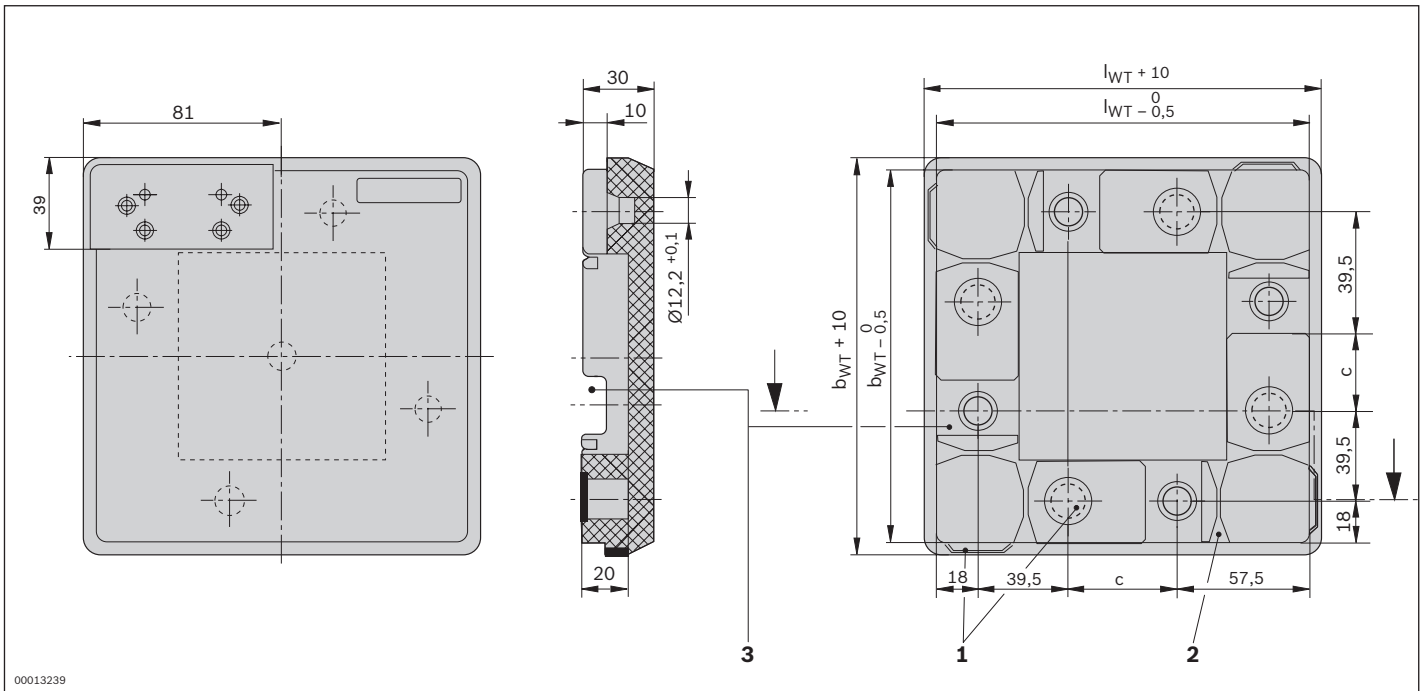
Product designation	Material number
WT 2/E workpiece pallet	3842352171

Technical data

Material number		3842352171	
Features			
Plate thickness	d_{PI}	mm	10
Flatness	\square	mm	1
Workpiece pallet mass	m_{WT}	kg	1.6

2

Dimensions



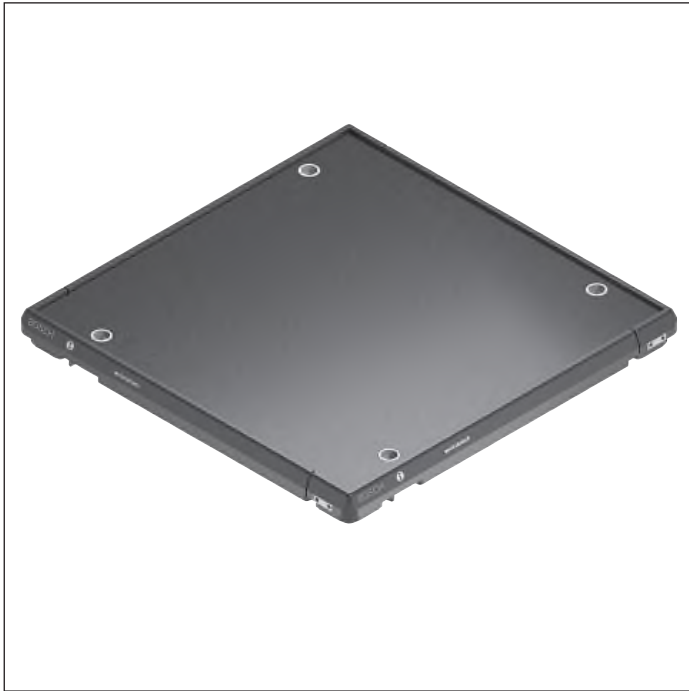
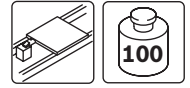
00013239

No production drawing

- 1 Exciter plate
- 2 Guide groove
- 3 Stop gate aperture

Width of workpiece pallet b_{WT} (mm)	Length of workpiece pallet l_{WT} (mm)	Workpiece pallet mass m_{WT} (kg)	Dimension c (mm)
240	240	1.6	125

WT 2 workpiece pallet, fully assembled



- ▶ Suitable for belt, toothed belt, and flat top chain
- ▶ Robust workpiece pallet with high rigidity
- ▶ Integrated positioning bushings
- ▶ Prepared for installation of mobile data tags from the ID 15, ID 40 and ID 200 identification systems
- ▶ Not suitable for accumulation roller chains
- ▶ Plastic frame modules with universal steel carrying plate
- ▶ 15 standard sizes
- ▶ Suitable for use in an EPA
- ▶ Material:
 - Frame module with polyamide (PA) wear pad
 - Steel carrying plate (4.8 mm)

WT 2 is a sturdy workpiece pallet with high rigidity in a composite plastic-steel construction used to pick up and convey workpieces in the TS 2plus transfer system. From size 400 x 400 mm, the workpiece pallet plates are

executed as standard with two or four additional threaded holes for reinforcing bolts. Number given in carrying plate table on page 2-27.

Delivery notes

Scope of delivery

- ▶ Carrying plate
- ▶ Frame modules
- ▶ Connection elements
- ▶ Positioning bushings

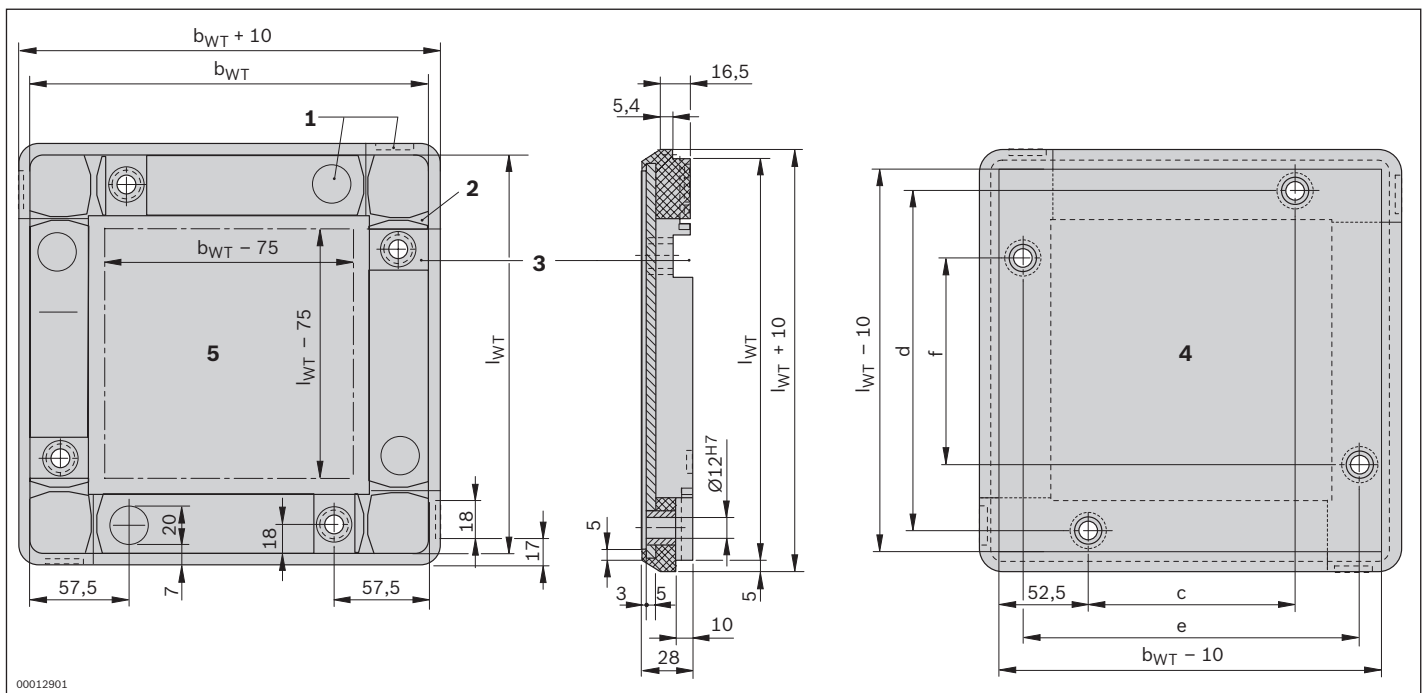
Condition on delivery

- ▶ Fully assembled

Ordering information

Product designation	Workpiece pallet $b_{WT} \times l_{WT}$	Material number
WT 2 workpiece pallet	160 x 160	0842090030
WT 2 workpiece pallet	160 x 240	0842090032
WT 2 workpiece pallet	160 x 320	0842090034
WT 2 workpiece pallet	240 x 240	0842090039
WT 2 workpiece pallet	240 x 320	0842090041
WT 2 workpiece pallet	240 x 400	0842090043
WT 2 workpiece pallet	320 x 320	0842090048
WT 2 workpiece pallet	320 x 400	0842090050
WT 2 workpiece pallet	320 x 480	0842090051
WT 2 workpiece pallet	400 x 400	0842090080
WT 2 workpiece pallet	400 x 480	0842090081
WT 2 workpiece pallet	400 x 640	0842090083
WT 2 workpiece pallet	480 x 480	0842090086
WT 2 workpiece pallet	480 x 640	0842090088
WT 2 workpiece pallet	640 x 640	3842523405


Dimensions

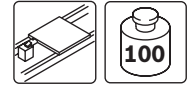


No production drawing

- 1 Exciter plate
- 2 Guide groove
- 3 Stop gate aperture
- 4 Top clearance
- 5 Bottom clearance

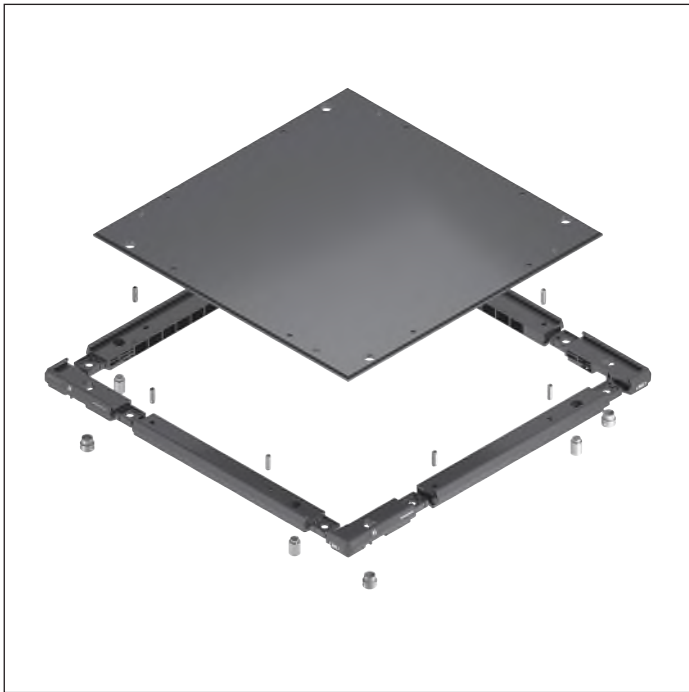
2-10 **TS 2plus 7.0** | Workpiece pallets
 WT 2 workpiece pallet, fully assembled

Width of workpiece pallet b_{WT} (mm)	Length of workpiece pallet l_{WT} (mm)	Plate thickness d_{PI} (mm)	Flatness  (mm)	Plate mass m_{PI} (kg)	Workpiece pallet mass m_{WT} (kg)	Dimension c (mm)	Dimension d (mm)	Dimension e (mm)	Dimension f (mm)
160	160	4.8	0.3	0.9	1.2	45	124	124	45
160	240	4.8	0.3	1.3	1.8	45	204	124	125
160	320	4.8	0.3	1.8	2.3	45	284	124	205
240	240	4.8	0.3	2.0	2.5	125	204	204	125
240	320	4.8	0.5	2.7	3.3	125	284	204	205
240	400	4.8	0.5	3.4	4.1	125	364	204	285
320	320	4.8	0.5	3.6	4.4	205	284	284	205
320	400	4.8	0.6	4.6	5.4	205	364	284	285
320	480	4.8	0.6	5.5	6.4	205	444	284	365
400	400	4.8	0.6	5.9	6.6	285	364	364	285
400	480	4.8	0.6	7.0	8.0	285	444	364	365
400	640	4.8	0.8	9.3	11.0	285	604	364	525
480	480	4.8	0.8	8.3	9.7	365	444	444	365
480	640	4.8	1.0	11.4	12.4	365	604	444	525
640	640	4.8	1.0	15.3	16.3	525	604	604	525



Components for WT 2 workpiece pallets

To fulfill special needs, the workpiece pallets can also be individually configured in a design where the carrying plate is assembled by the customer. In addition to frame modules with different wear pads, various carrying plates, positioning bushings and all the necessary fastening elements are available.



Frame modules

- ▶ PA frame modules are the basic solution for use on belts, toothed belts, and plastic flat top chains
- ▶ PA wear pads are required for use on conveyor medium accumulation roller chains and duplex chains
- ▶ Reinforced (PA or PE) for workpiece pallet total weights > 50 kg and conveyor speeds > 12 m/min

Carrying plates

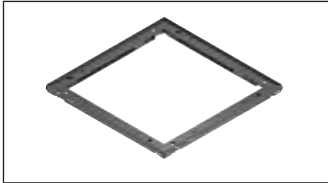
- ▶ Steel carrying plates with a thickness of 4.8 mm for workpiece pallets up to medium size High stability allows for easy integration of your own workpiece supports
- ▶ Aluminum carrying plates with a thickness of 8 mm or 12.7 mm are a light and rigid alternative for medium and large workpiece pallets

Positioning bushings

- ▶ For defined pick-up of the workpiece pallet in the positioning units

Accessories

- ▶ Dowel pins to connect the extension modules to the carrying plate
- ▶ Bolts in combination with reinforced frame modules for large workpiece pallets (from 400 x 400 mm) and weights over 50 kg to max. 100 kg.



Frame modules, standard/reinforced



2-47



Positioning bushings

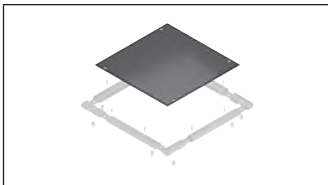


2-22



Bolts

2-25



Carrying plates



2-26

Standard frame module

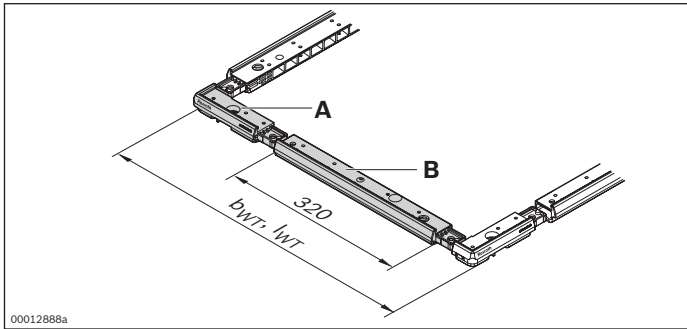


- ▶ Corner modules with standard side lengths of 160 to 400 mm
- ▶ Frame extension module, 320 mm
- ▶ Material:
 - Corner/extension module (PA) with PA (= polyamide) wear pad
 - or
 - Corner/extension module (PA) with PE (= polyethylene) wear pad
- ▶ Reinforced frame modules are required for total weights $m_G > 50$ kg and for conveyor speeds $v_N > 12$ m/min
- ▶ Can be combined with WT 2 carrying plates

Frame modules are used for self-assembly of workpiece pallets. The PA basic solution is suitable for use on the belt/toothed belt and flat top chain conveyor media.

Frame modules with PE wear pads are required for use on the duplex chain and accumulation roller chain conveyor media. The PE pad is not suitable for accumulation operation on ESD flat top chains.

Ordering information



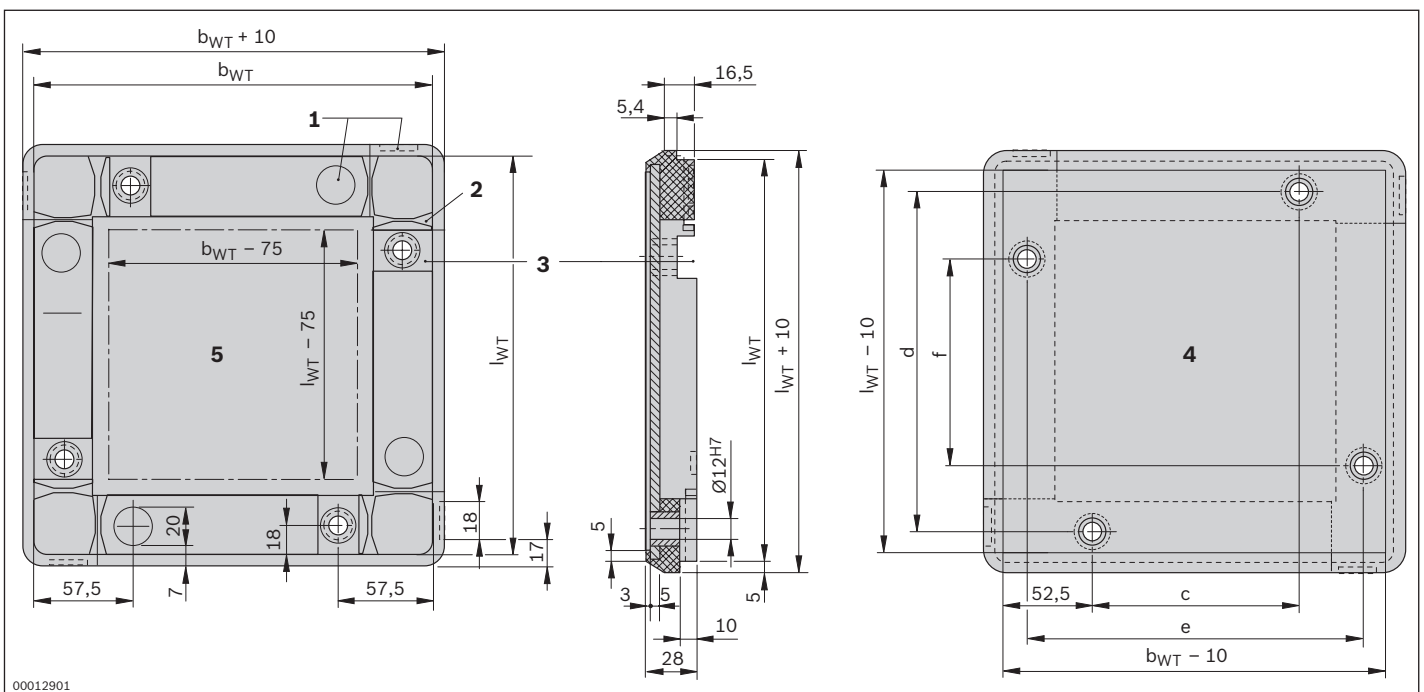
A Corner module
B Extension module

Product designation	b_{WT}, l_{WT} (mm)	Material number
Standard frame module, corner module (PA)	160	3842174301
Standard frame module, corner module (PA)	240	3842174302
Standard frame module, corner module (PA)	320	3842174303
Standard frame module, corner module (PA)	400	3842174304
Standard frame module, corner module (PA+PE) ¹	160	3842526760
Standard frame module, corner module (PA+PE)	240	3842526761
Standard frame module, corner module (PA+PE)	320	3842526762
Standard frame module, corner module (PA+PE)	400	3842526763

¹ No exciter plate for position sensing from below with inductive sensors is included. Only lateral position sensing is possible with this design.

Product designation	l (mm)	Material number
Standard frame module, extension module (PA)	320	3842513458
Standard frame module, extension module (PA+PE)	320	3842526764

Dimensions



- 1 Exciter plate
- 2 Guide groove
- 3 Stop gate aperture

- 4 Top clearance
- 5 Bottom clearance

2-16 **TS 2plus 7.0** | Workpiece pallets
Standard frame module

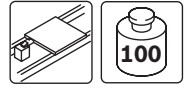
Width of workpiece pallet b_{WT} (mm)	Length of workpiece pallet l_{WT} (mm)	Plate mass m_{PI}^1 (kg)	Plate mass m_{PI}^2 (kg)	Plate mass m_{PI}^3 (kg)	Dimension c (mm)	Dimension d (mm)	Dimension e (mm)	Dimension f (mm)
160	160	0.9			45	124	124	45
160	240	1.4			45	204	124	125
240	240	2.1			125	204	204	125
160	320	1.8			45	284	124	205
240	320	2.8			125	284	204	205
320	320	4.3	2.1		205	284	284	205
240	400	4.1	2.0		125	364	204	285
320	400	5.3	3.7		205	364	284	285
400	400	6.6	3.4	5.3	285	364	364	285
320	480	6.4	3.2	5.1	205	444	284	365
400	480	7.0	4.0	6.4	285	444	364	365
480	480	9.3	4.9	7.7	365	444	444	365
400	640	10.4	5.4	8.6	285	604	364	525
480	640	12.3	6.5	10.3	365	604	444	525
640	640	16.3	8.7	13.8	525	604	604	525
400	800			10.8	285	764	364	685
480	800			12.9	365	764	444	685
640	800			17.3	525	764	604	685
800	800			21.7	685	764	764	685
640	1040			22.5	525	1004	604	925
800	1040			28.2	685	1004	764	925
800	1200			36.0	685	1164	764	1085
1040	1040			40.6	925	1004	1004	925
1040	1200			46.9	925	1164	1004	1085
1200	1200			54.1	1085	1164	1164	1085

¹ 4.8 mm steel

² 8.0 mm aluminum

³ 12.7 mm aluminum

Reinforced frame module



2



- ▶ For self-assembly of workpiece pallets from 400 x 400 mm. Required for workpiece pallet total weights $m_G > 50$ kg and for conveyor speeds $v_N > 12$ m/min
- ▶ Corner module, 400 mm
- ▶ Frame extension module, 320 mm
- ▶ Wide variety of workpiece pallet sizes possible through combinations of standard modules
- ▶ Material:
 - Corner/extension module (PA) with PA (= polyamide) wear pad
 - or
 - Corner/extension module (PA) with PE (= polyethylene) wear pad
- ▶ Can be combined with WT 2 carrying plates

Reinforced frame modules are used for self-assembly of workpiece pallets with dimensions from 400 x 400 mm. Required for workpiece pallet total weights > 50 kg or for conveyor speeds $v_N > 12$ m/min. The PA basic solution for use on conveyor media belts/

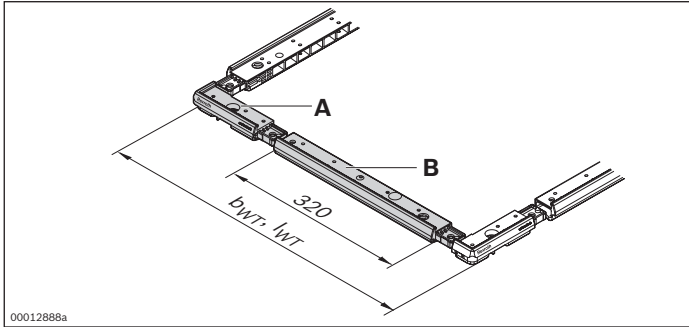
toothed belts is suitable for use on the belt/toothed belt and plastic flat top chain conveyor media. Frame modules with PE wear pads are required for use on the duplex chain and accumulation roller chain conveyor media.

Accessories

Required accessories

- ▶ Bolt, see p. 2-25

Ordering information

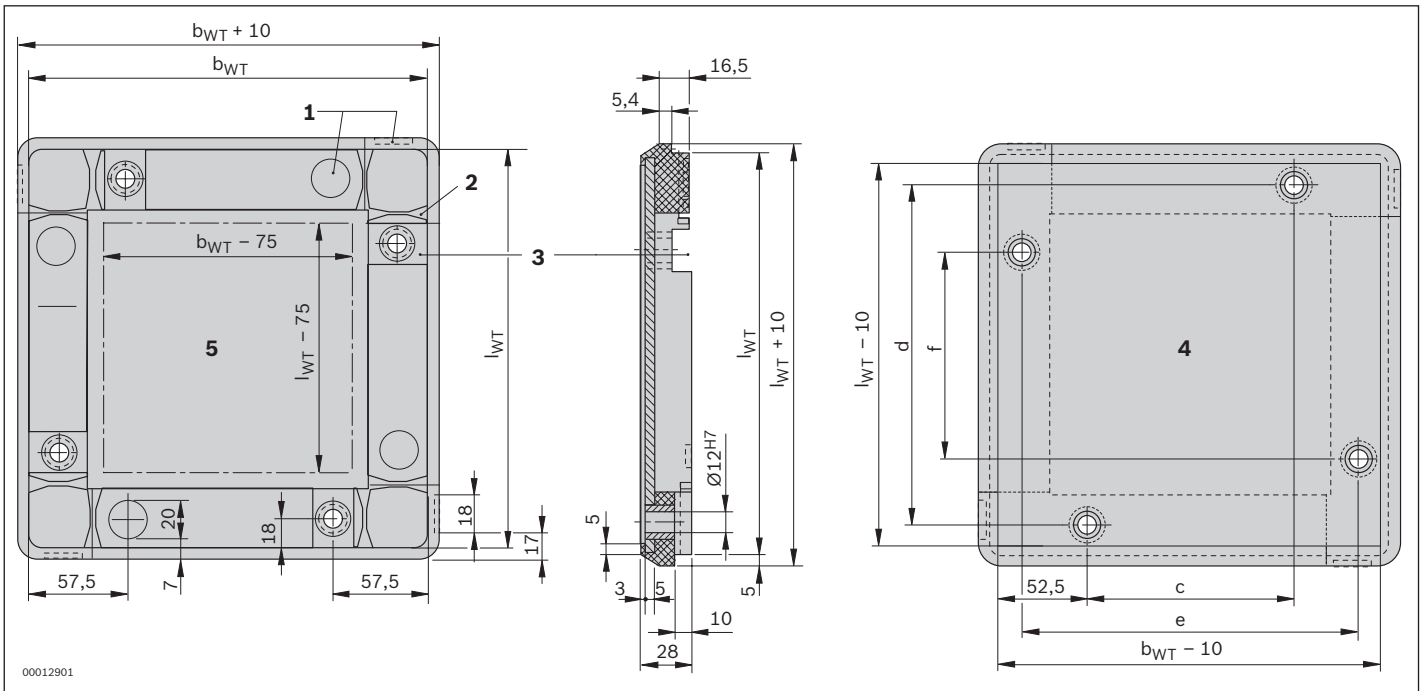


A Corner module
B Extension module

Product designation	b_{WT}, l_{WT} (mm)	Material number
Reinforced frame module, corner module (PA)	400	3842525998
Reinforced frame module, corner module (PA+PE)	400	3842528292

Product designation	l (mm)	Material number
Reinforced frame module, extension module (PA)	320	3842525999
Reinforced frame module, extension module (PA+PE)	320	3842528293

Dimensions



- 1 Exciter plate
- 2 Guide groove
- 3 Stop gate aperture
- 4 Top clearance
- 5 Bottom clearance

Width of workpiece pallet b_{WT} (mm)	Length of workpiece pallet l_{WT} (mm)	Plate mass m_{PI}^1 (kg)	Plate mass m_{PI}^2 (kg)	Plate mass m_{PI}^3 (kg)	Dimension c (mm)	Dimension d (mm)	Dimension e (mm)	Dimension f (mm)
160	160	0.9			45	124	124	45
160	240	1.4			45	204	124	125
240	240	2.1			125	204	204	125
160	320	1.8			45	284	124	205
240	320	2.8			125	284	204	205
320	320	4.3	2.1		205	284	284	205
240	400	4.1	2.0		125	364	204	285
320	400	5.3	3.7		205	364	284	285
400	400	6.6	3.4	5.3	285	364	364	285
320	480	6.4	3.2	5.1	205	444	284	365
400	480	7.0	4.0	6.4	285	444	364	365
480	480	9.3	4.9	7.7	365	444	444	365
400	640	10.4	5.4	8.6	285	604	364	525
480	640	12.3	6.5	10.3	365	604	444	525
640	640	16.3	8.7	13.8	525	604	604	525
400	800			10.8	285	764	364	685
480	800			12.9	365	764	444	685
640	800			17.3	525	764	604	685
800	800			21.7	685	764	764	685
640	1040			22.5	525	1004	604	925
800	1040			28.2	685	1004	764	925
800	1200			36.0	685	1164	764	1085
1040	1040			40.6	925	1004	1004	925
1040	1200			46.9	925	1164	1004	1085
1200	1200			54.1	1085	1164	1164	1085

¹ 4.8 mm steel

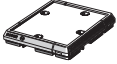
² 8.0 mm aluminum

³ 12.7 mm aluminum

WT 2: Components


WT 2: Frame modules with PA wear pad – parts list

For $m_G \leq 50$ kg or $v_N \leq 12$ m/min workpiece pallets



b_{WT} (mm)	l_{WT} (mm)	3842174301	3842174302	3842174303	3842174304	3842513458
160	160	4				
160	240	2	2			
160	320	2		2		
240	240		4			
240	320		2	2		
240	400		2		2	
320	320			4		
320	400			2	2	
320	480	2		2		2
400	400				4	
400	480	2			2	2
400	640			2	2	2
400	800	2			2	4
480	480	4				4
480	640	2		2		4
480	800	4				6
640	640			4		4
640	800	2		2		6
640	1040			2	2	6
800	800	4				8
800	1040	2			2	8
800	1200	2	2			10
1040	1040				4	8
1040	1200		2		2	10
1200	1200		4			12

For $m_G > 50$ kg and $v_N > 12$ m/min workpiece pallets



b_{WT} (mm)	l_{WT} (mm)	3842174301	3842174302	3842174303	3842174304	3842513458	3842525998 ¹⁾	3842525999 ¹⁾
320	480	2		2				2
400	400						4	
400	480	2					2	2
400	640			2			2	2
400	800	2				2	2	2
480	480	4						4
480	640	2		2				4
480	800	4				2		4
640	640			4				4
640	800	2		2		2		4
640	1040			2	2	2		4
800	800	4				4		4
800	1040	2			2	4		4
800	1200	2	2			6		4
1040	1040				4	4		4
1040	1200		2		2	6		4
1200	1200		4			8		4

* Reinforced module

¹ With the 160 mm frame module with PE wear pad (3842526760), no exciter plate is included for sensing with inductive sensors from below. Only lateral position sensing is possible with this design.

Positioning bushing



- ▶ For supporting the workpiece pallet in positioning units
- ▶ Used to mount frame modules and carrying plates
- ▶ Positioning bushings increase the empty weight of the workpiece pallet
- ▶ Material: Steel, hardened
- ▶ Can be combined with frame modules of the WT 2 workpiece pallet

Accessories

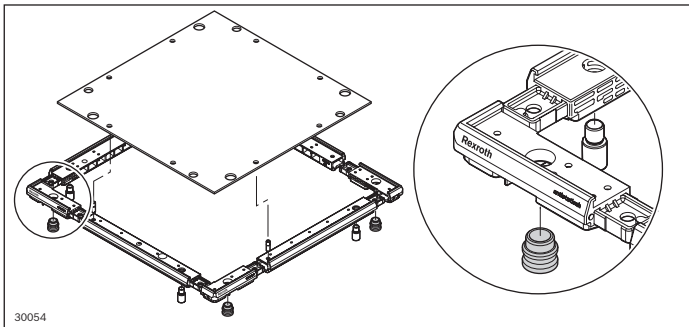
Required mounting accessories

- ▶ Press-fit mandrel, see p. 2-23

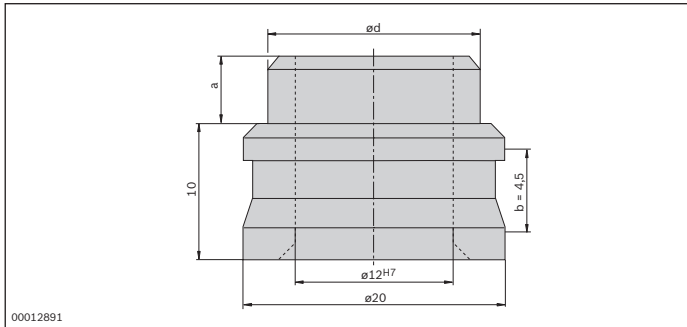
Ordering information

Product designation	Delivery unit	Material number
D20 x 4.8 positioning bushing	1	3842174341
D20 x 8 positioning bushing	1	3842524614
D20 x 12.7 positioning bushing	1	3842524615

Technical data



Dimensions



Dimension must correspond to the WT plate thickness.

Note: The dimension 12H7 refers to the state before press-fitting. After press-fitting with the mandrel the dimension 12H7 is guaranteed to be in the "b" range.

Material number	Dimension a (mm)	Lower dimension for a A _U (mm)	Dimension d (mm)	Upper dimension for d A _O (mm)	Lower dimension for d A _U (mm)
3842174341	4.8	-0.1	16	+0.034	+0.024
3842524614	8	-0.1	16	+0.05	+0.04
3842524615	12.7	-0.1	16	+0.05	+0.04

Press-fit mandrel



- ▶ Material: Steel, hardened
- ▶ Can be combined with positioning bushings of the WT 2 workpiece pallet

The press-fit mandrel is used when mounting the pallet for pressing the positioning bushings into the carrying plate.

Accessories

Required accessories

- ▶ Positioning bushing, see p. 2-22

Ordering information

Product designation	Material number
Press-fit mandrel	3842525846

Dowel pin



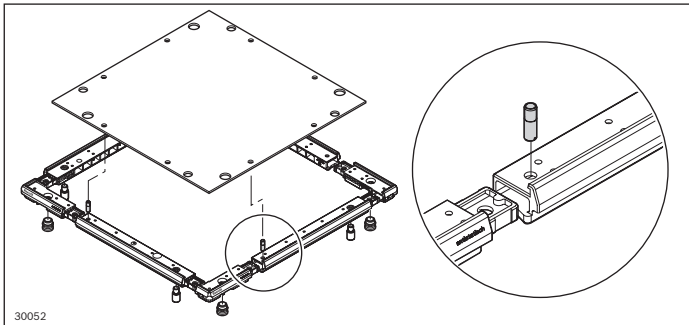
- ▶ To connect the carrying plate and the standard frame extension module, two dowel pins are required
- ▶ To connect the carrying plate and the reinforced frame extension module, one dowel pin is required
- ▶ Material: Steel
- ▶ Can be combined with frame modules of the WT 2 workpiece pallet

The dowel pin is used to connect the carrying plate and the frame extension module.

Ordering information

Product designation	Packaging unit	Material number
Dowel pin	100	3842532812

Technical data



Bolts



- ▶ For absorbing the stop forces on the stop gate
- ▶ Material: steel; galvanized
- ▶ Can be combined with reinforced frame modules of the WT 2 workpiece pallet

All WT plates from $b_{WT} \times l_{WT} = 400 \times 400$ mm are equipped with four threaded bores for reinforcement bolts as standard. An exception is the 480 x 320 mm WT plate,

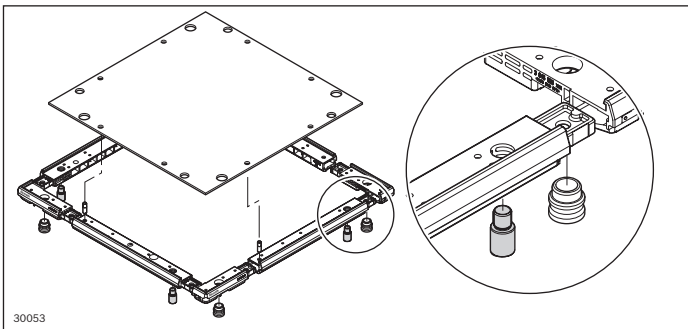
which is executed with only two threaded bores.

Ordering information

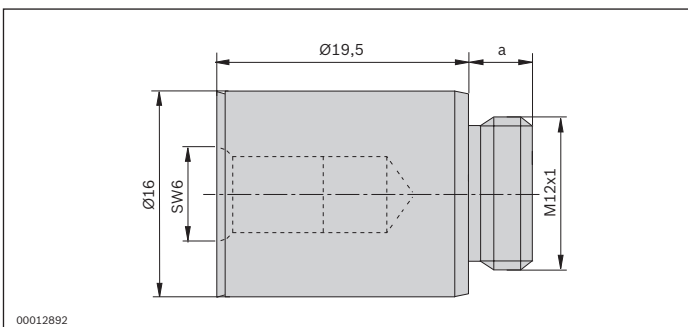
Product designation	Dimension a* (mm)	Lower dimension for a A_U (mm)	Delivery unit	Material number
Bolt, D16 a = 4.8	4.8	-0.2	1	3842525803
Bolt, D16 a = 8	8	-0.2	1	3842525804
Bolt, D16 a = 12.7	12.7	-0.2	1	3842525805




* The dimension must correspond to the plate thickness.

Technical data

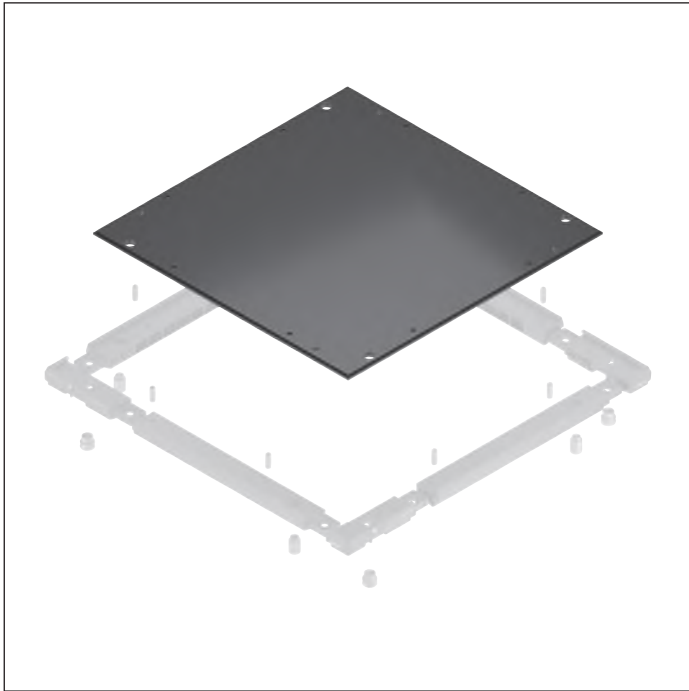


Dimensions



	Dimension a (mm)
	4.8
	8
	12.7




Carrying plate



- ▶ For self-assembly of workpiece pallets for product pick-up
- ▶ Completely drilled and ready for assembly
- ▶ 15 standard sizes in steel, 4.8 mm thick, with KTL (cataphoretic primer) coating
- ▶ 10 standard sizes in aluminum, 8 mm thick
- ▶ 13 standard sizes in aluminum, 12.7 mm thick
- ▶ You will find drilling plans for identification and data storage systems in the RFID systems catalog
- ▶ Can be combined with frame modules of the WT 2 workpiece pallet

Carrying plates are used for self-assembly of WT 2 workpiece pallets using frame modules and mounting elements.

Ordering information

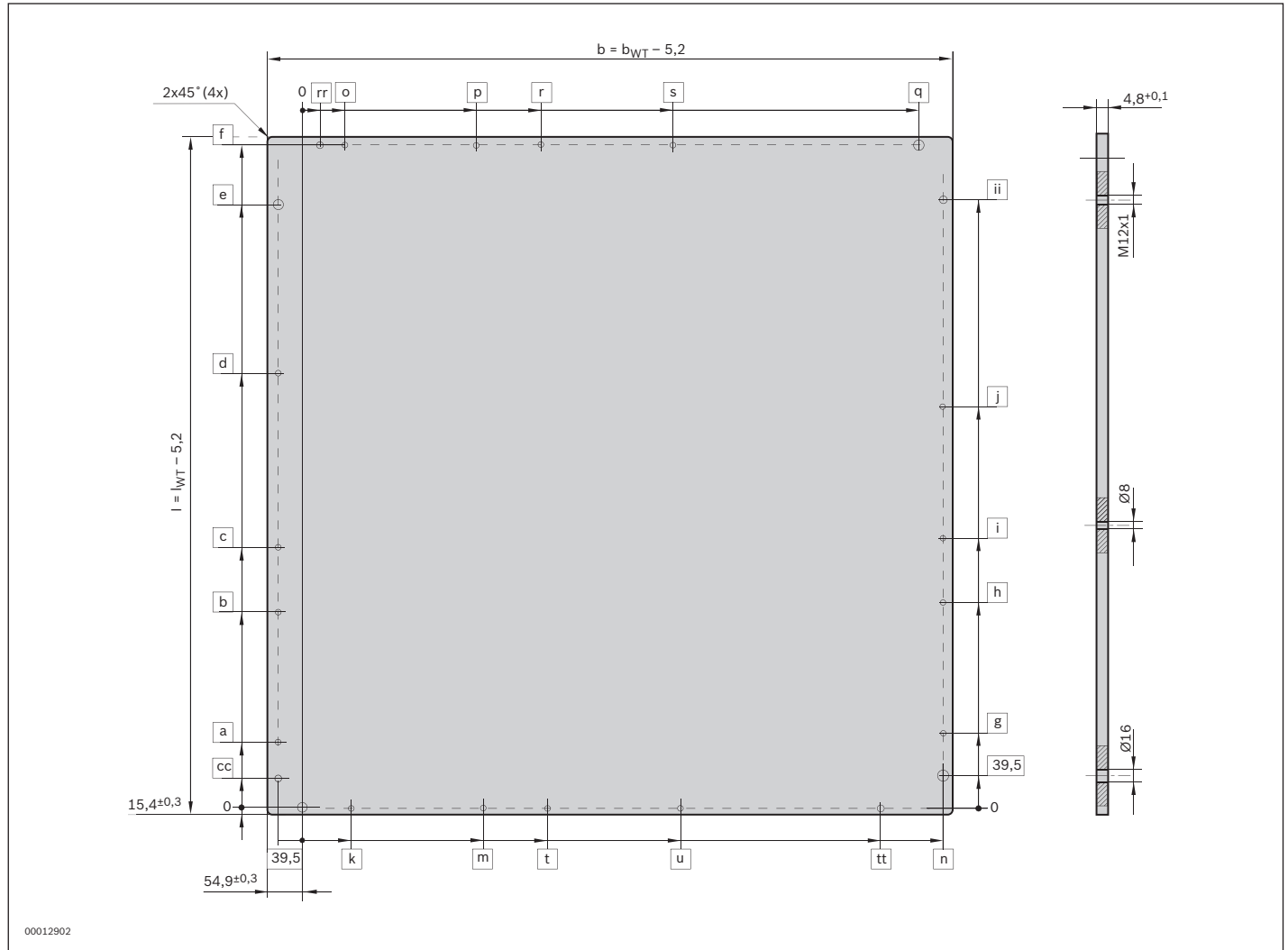
Width of work-piece pallet b _{WT} (mm)	Length of work-piece pallet l _{WT} (mm)	Plate thickness d _{PI} (mm)	Flat-ness  (mm)	Plate mass m _{PI} (kg)	Material number, steel	Plate thickness d _{PI} (mm)	Flat-ness  (mm)	Plate mass m _{PI} (kg)	Material number, aluminum	Plate thickness d _{PI} (mm)	Flat-ness  (mm)	Plate mass m _{PI} (kg)	Material number, aluminum
160	160	4.8	0.3	0.9	3842174311								
160	240	4.8	0.3	1.4	3842174313								
240	240	4.8	0.3	2.1	3842174321								
160	320	4.8	0.3	1.8	3842174315								
240	320	4.8	0.5	2.8	3842174323								
320	320	4.8	0.5	4.3	3842174331	8.0	0.5	2.1	3842524595				
240	400	4.8	0.5	4.1	3842174325	8.0	0.5	2.0	3842524594				
320	400	4.8	0.6	5.3	3842174333	8.0	0.6	3.7	3842524596				
400	400	4.8	0.6	6.6	3842174375²	8.0	0.6	3.4	3842524598²	12.7	0.6	5.3	3842538307²
320	480	4.8	0.6	6.4	3842174334	8.0	0.6	3.7	3842524597¹	12.7	0.6	5.1	3842538346¹
400	480	4.8	0.6	7.0	3842174376²	8.0	0.6	4.0	3842524599²	12.7	0.6	6.4	3842538308²
480	480	4.8	0.8	9.3	3842174381²	8.0	0.8	4.9	3842524602²	12.7	0.8	7.7	3842538309²
400	640	4.8	0.8	10.4	3842174378¹	8.0	0.8	5.4	3842524600²	12.7	0.8	8.6	3842538310²
480	640	4.8	1.0	12.3	3842174383²	8.0	1.0	6.5	3842524603²	12.7	1.0	10.3	3842538311²
640	640	4.8	1.0	16.3	3842523381²	8.0	1.0	8.7	3842524605²	12.7	1.0	13.8	3842538312²
400	800									12.7	1.0	10.8	3842524601²
480	800									12.7	1.0	12.9	3842524604²
640	800									12.7	1.0	17.3	3842524606²
800	800									12.7	1.0	21.7	3842524608²
640	1040									12.7	1.2	22.5	3842524607²
800	1040									12.7	1.2	28.2	3842524609²
800	1200									12.7	1.2	36.0	3842548684
1040	1040									12.7	1.2	40.6	3842548685
1040	1200									12.7	1.2	46.9	3842548686
1200	1200									12.7	1.2	54.1	3842548687

¹ With two threaded bores for reinforcing bolts


² With four threaded bores for reinforcing bolts

Dimensions

Steel carrying plate (4.8 mm)



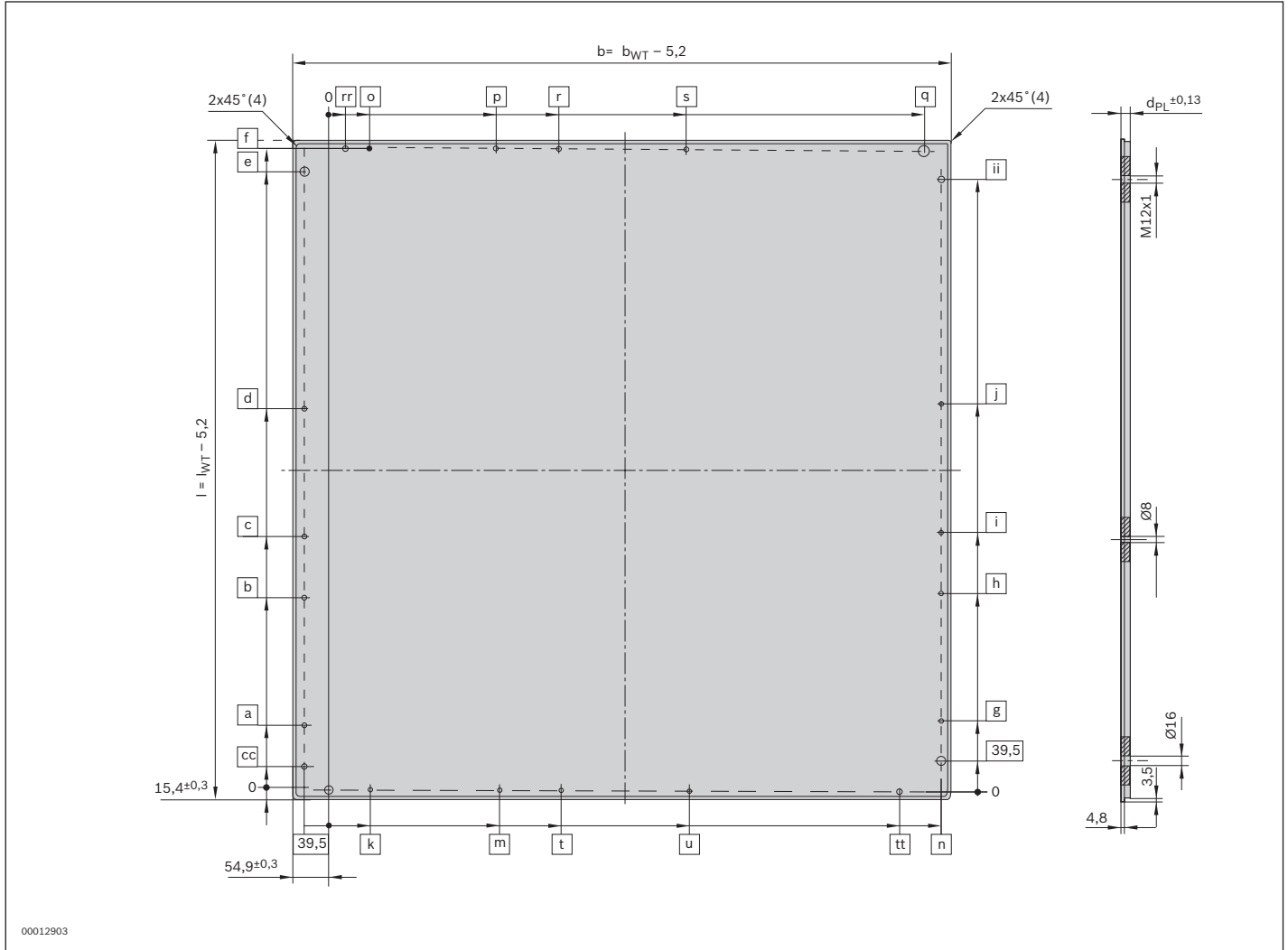
No production drawing

Width of workpiece pallet b_{WT} (mm)	Length of workpiece pallet l_{WT} (mm)	Flat-ness  (mm)	a	b	c	cc	d	e	f	g	h	i	ii	j	k
160	160	0.3						84.5	124						
160	240	0.3						164.5	204						
160	320	0.3						244.5	284						
240	240	0.3						164.5	204						
240	320	0.5						244.5	284						
240	400	0.5						324.5	364						
320	320	0.5						244.5	284						
320	400	0.6						324.5	364						
320	480	0.6	108.5	323.5				404.5	444	120.5	335.5				
400	400	0.6				59.5		324.5	364					304.5	
400	480	0.6	108.5	323.5		59.5		404.5	444	120.5	335.5			384.5	
400	640	0.8	108.5	323.5		59.5		564.5	604	280.5	495.5			544.5	
480	480	0.8	108.5	323.5		59.5		404.5	444	120.5	335.5			384.5	81
480	640	1.0	108.5	323.5		59.5		564.5	604	280.5	495.5			544.5	81
640	640	1.0	108.5	323.5		59.5		564.5	604	280.5	495.5			544.5	241


Width of workpiece pallet b_{WT} (mm)	Length of workpiece pallet l_{WT} (mm)	m	n	o	p	q	r	rr	s	t	tt	u	Material number
160	160		84.5			45							3842174311
160	240		84.5			45							3842174313
160	320		84.5			45							3842174315
240	240		164.5			125							3842174321
240	320		164.5			125							3842174323
240	400		164.5			125							3842174325
320	320		244.5			205							3842174331
320	400		244.5			205							3842174333
320	480		244.5			205							3842174334
400	400		324.5			285		20			265		3842174375
400	480		324.5			285		20			265		3842174376
400	640		324.5			285		20			265		3842174378
480	480	296	404.5	69	284	365		20			345		3842174381
480	640	296	404.5	69	284	365		20			345		3842174383
640	640	456	564.5	69	284	525		20			505		3842523381

Dimensions

Aluminum carrying plate (8 mm)

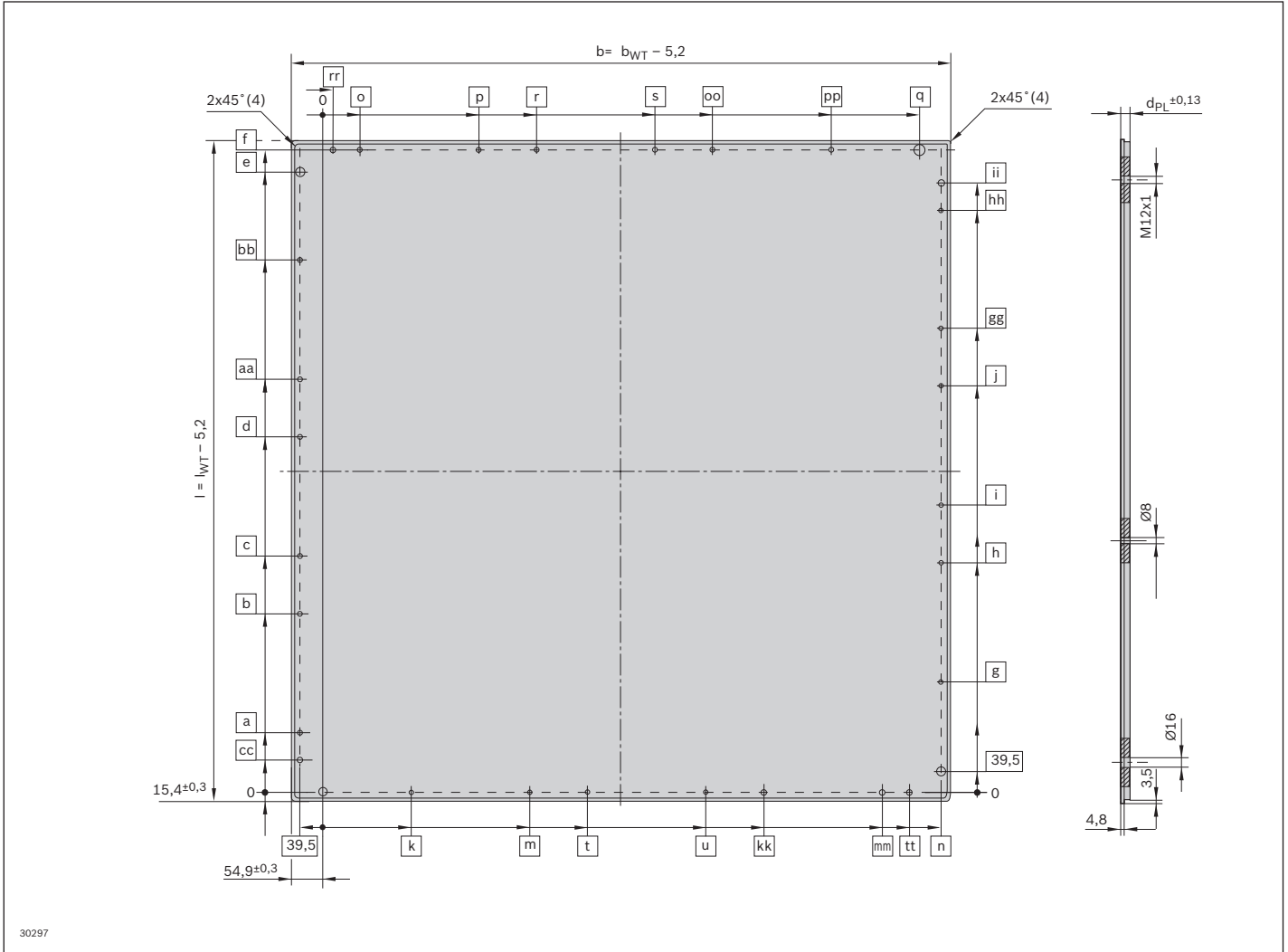


No production drawing

Width of workpiece pallet b_{WT} (mm)	Length of workpiece pallet l_{WT} (mm)	Flat-ness  (mm)	a	b	c	cc	d	e	f	g	h	i	ii	j	k
240	400	0.5						324.5	364						
320	320	0.5						244.5	284						
320	400	0.6						324.5	364						
320	480	0.6	108.5	323.5		59.5		404.5	444	120.5	335.5		384.5		
400	400	0.6				59.5		324.5	364				304.5		
400	480	0.6	108.5	323.5		59.5		404.5	444	120.5	335.5		384.5		
400	640	0.8	108.5	323.5		59.5		564.5	604	280.5	495.5		544.5		
480	480	0.8	108.5	323.5		59.5		404.5	444	120.5	335.5		384.5		81
480	640	1.0	108.5	323.5		59.5		564.5	604	280.5	495.5		544.5		81
640	640	1.0	108.5	323.5		59.5		564.5	604	280.5	495.5		544.5		241

b_{WT} (mm)	l_{WT} (mm)	m	n	o	p	q	r	rr	s	t	tt	u	d_{PI}	Material number
240	400	164.5				125							8.0	3842524594
320	320	244.5				205							8.0	3842524595
320	400	244.5				205							8.0	3842524596
320	480	244.5				205							8.0	3842524597
400	400	324.5				285		20		265			8.0	3842524598
400	480	324.5				285		20		265			8.0	3842524599
400	640	324.5				285		20		265			8.0	3842524600
480	480	296	404.5	69	284	365		20		345			8.0	3842524602
480	640	296	404.5	69	284	365		20		345			8.0	3842524603
640	640	296	404.5	69	284	525		20		505			8.0	3842524605

Aluminum carrying plate (12.7 mm) dimensions



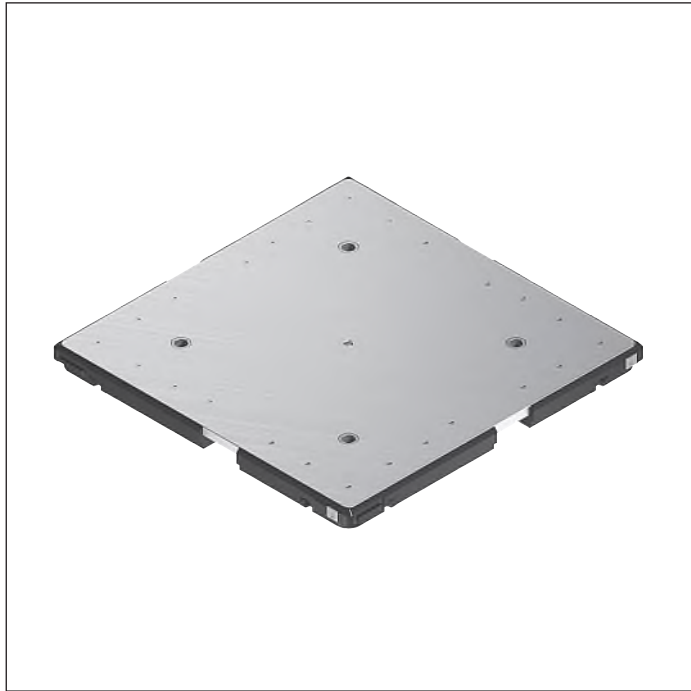
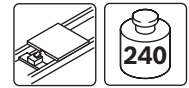
No production drawing

Width of workpiece pallet b_{WT} (mm)	Length of workpiece pallet l_{WT} (mm)	Flatness \square (mm)	a	b	c	cc	d	aa	bb	e	f	g	h
320	480	0.6	108.5	323.5		59.5				404.5	444	120.5	335.5
400	400	0.6				59.5				324.5	364		
400	480	0.6	108.5	323.5		59.5				404.5	444	120.5	335.5
400	640	0.8	108.5	323.5		59.5				564.5	604	280.5	495.5
400	800	1.0	108.5	323.5	428.5	59.5	643.5			724.5	764	120.5	335.5
480	480	0.8	108.5	323.5		59.5				404.5	444	120.5	335.5
480	640	1.0	108.5	323.5		59.5				564.5	604	280.5	495.5
480	800	1.0	108.5	323.5	428.5	59.5	643.5			724.5	764	120.5	335.5
640	640	1.0	108.5	323.5		59.5				564.5	604	280.5	495.5
640	800	1.0	108.5	323.5	428.5	59.5	643.5			724.5	764	120.5	335.5
640	1040	1.2	108.5	323.5	428.5	59.5	643.5			964.5	1004	360.5	575.5
800	800	1.0	108.5	323.5	428.5	59.5	643.5			724.5	764	120.5	335.5
800	1040	1.2	108.5	323.5	428.5	59.5	643.5			964.5	1004	360.5	575.5
800	1200	1.2	108.5	323.5	428.5	59.5	643.5	748.5	963.5	1124.5	1164	200.5	415.5
1040	1040	1.2	108.5	323.5	428.5	59.5	643.5			964.5	1004	360.5	575.5
1040	1200	1.2	108.5	323.5	428.5	59.5	643.5	748.5	963.5	1124.5	1164	200.5	415.5
1200	1200	1.2	108.5	323.5	428.5	59.5	643.5	748.5	963.5	1124.5	1164	200.5	415.5

b_{WT} (mm)	l_{WT} (mm)	i	ii	j	k	gg	hh	m	n	o	p	q	r
320	480		384.5						244.5			205	
400	400		304.5						324.5			285	
400	480		384.5						324.5			285	
400	640		544.5						324.5			285	
400	800	440.5	704.5	655.5					324.5			285	
480	480		384.5		81			296	404.5	69	284	365	
480	640		544.5		81			296	404.5	69	284	365	
480	800	440.5	704.5	655.5	81			296	404.5	69	284	365	
640	640		544.5		241			296	404.5	69	284	525	
640	800	440.5	704.5	655.5	241			456	564.5	69	284	525	
640	1040	680.5	944.5	895.5	241			456	564.5	69	284	525	
800	800	440.5	704.5	655.5	81			296	724.5	69	284	685	389
800	1040	680.5	944.5	895.5	81			296	724.5	69	284	685	389
800	1200	520.5	1104.5	735.5	81	840.5	1055.5	296	724.5	69	284	685	389
1040	1040	680.5	944.5	895.5	321			536	964.5	69	284	925	389
1040	1200	520.5	1104.5	735.5	321	840.5	1055.5	536	964.5	69	284	925	389
1200	1200	520.5	1104.5	735.5	161	840.5	1055.5	376	1124.5	69	284	1085	389

b_{WT} (mm)	l_{WT} (mm)	rr	s	t	tt	u	kk	mm	oo	pp	d_{PI}	Material number
320	480										12.7	3842538346
400	400	20			265						12.7	3842538307
400	480	20			265						12.7	3842538308
400	640	20			265						12.7	3842538310
400	800	20			265						12.7	3842524601
480	480	20			345						12.7	3842538309
480	640	20			345						12.7	3842538311
480	800	20			345						12.7	3842524604
640	640	20			505						12.7	3842538312
640	800	20			505						12.7	3842524606
640	1040	20			505						12.7	3842524607
800	800	20	604	401	665	616					12.7	3842524608
800	1040	20	604	401	665	616					12.7	3842524609
800	1200	20	604	401	665	616					12.7	3842548684
1040	1040	20	604	641	905	856					12.7	3842548685
1040	1200	20	604	641	905	856					12.7	3842548686
1200	1200	20	604	481	1065	696	801	1016	709	924	12.7	3842548687

WT 2/H workpiece pallet



- ▶ Workpiece pallet for especially high maximum permitted total weight up to 240 kg (2 kg/cm length) in combination with accumulation roller chain conveyor medium
- ▶ Fully assembled or as a kit for self-assembly
- ▶ PE wear pads for quiet operation and low wear
- ▶ Integrated stop damper, ensures quiet running onto other workpiece pallets
- ▶ 17 standard sizes
- ▶ For workpiece pallet dimensions $l_{WT} \times b_{WT} = 400 \times 400$ mm up to 1200×1200 mm
- ▶ Special dimensions on request
- ▶ Universal aluminum carrying plate with two carrying plate thicknesses:
 - d = 12.70 mm
 - d = 19.05 mm
- ▶ Suitable for use in an EPA
- ▶ Material:
 - Aluminum carrying plate
 - Corner module and slider with PE (= polyethylene) wear pad

Pick-up and transportation of workpieces in the TS 2plus transfer system.

Accessories

Recommended accessories

- ▶ 2x WT 2/H (LE 2) positioning bushing kit, see p. 2-46
Positioning bushings are required when using a PE 2/H positioning unit

Delivery notes

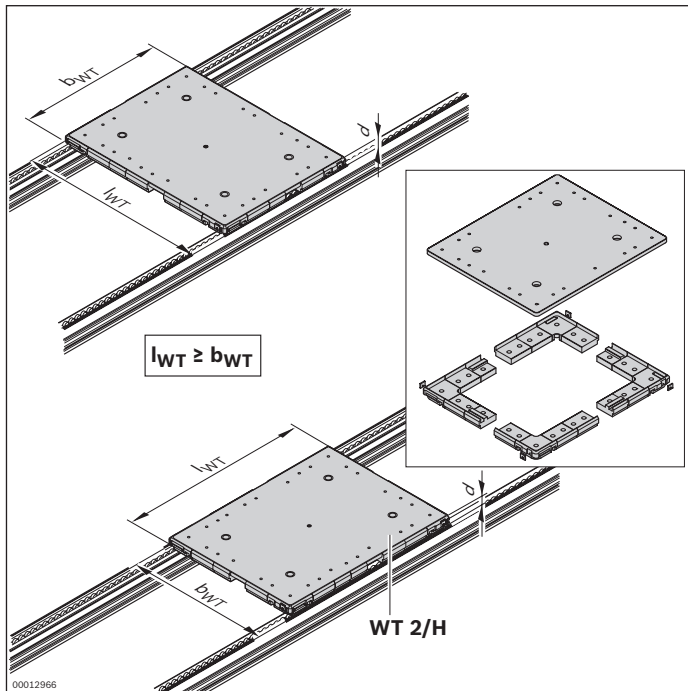
Scope of delivery

- ▶ Carrying plate
- ▶ Corner module
- ▶ Wear pads
- ▶ Damping elements

Condition on delivery

- ▶ Assembled (MT = 1)
- ▶ Kit, not assembled (MT = 0)

Ordering information



Material number		3842998751 ¹	3842998755 ²
b _{WT} (mm)	Width of workpiece pallet	400; 480; 640; 800; 1040; 1200	
l _{WT} (mm)	Length of workpiece pallet	400; 480; 640; 800; 1040; 1200	
b _{WT} x l _{WT} (mm x mm)	Combination options	400 x 400; 480; 640; 800; 480 x 480; 640; 800; 640 x 640; 800; 1040; 1200; 800 x 800; 1040; 1200; 1040 x 1040; 1200; 1200 x 1200	
MT	Kit 0 = not assembled 1 = assembled	0; 1	

¹) Plate thickness 12.7 mm
²) Plate thickness 19.05 mm

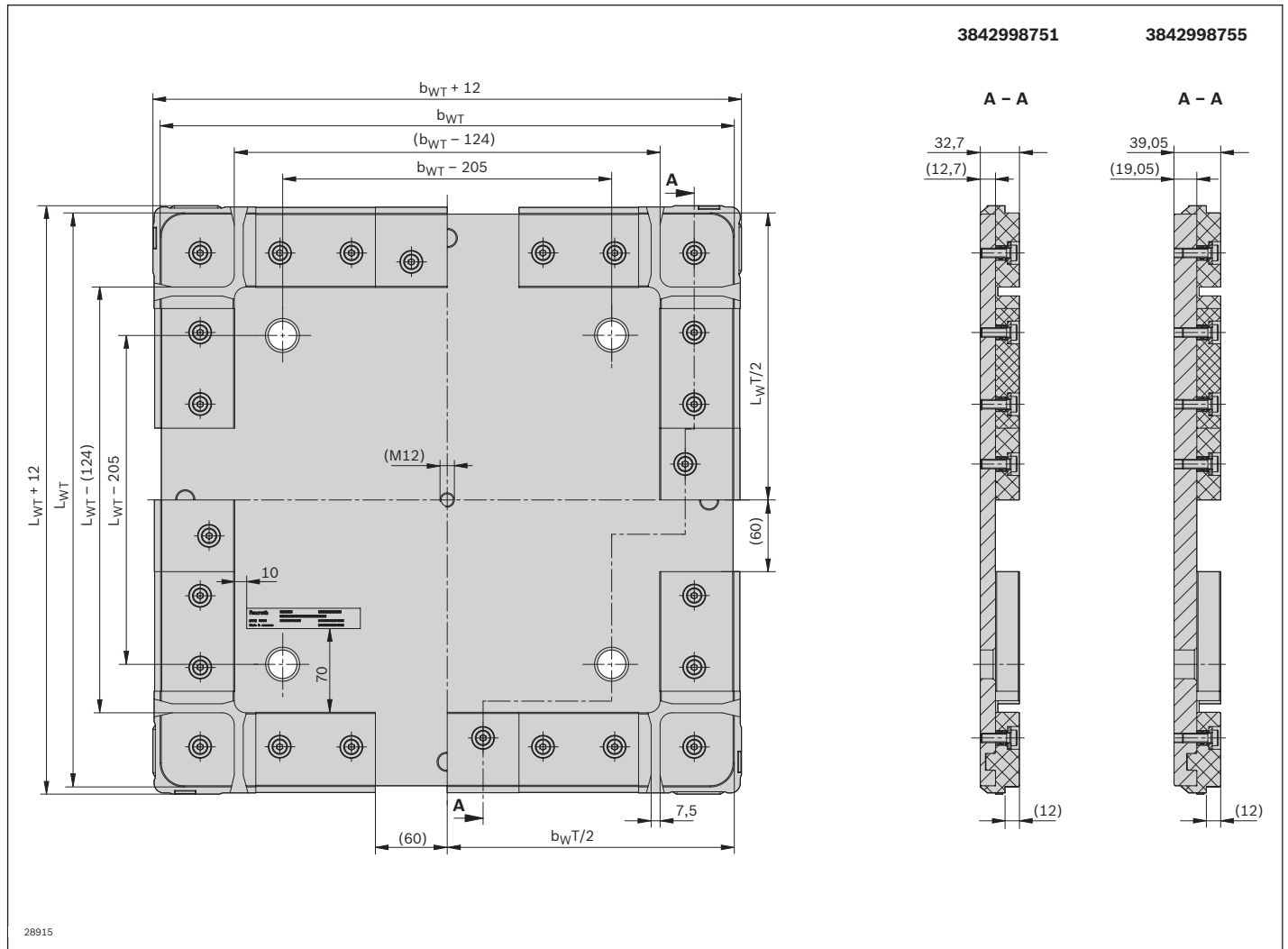
Technical data

Material number			3842998751	3842998755
Load				
Max. total weight of workpiece pallet	m _G	kg	240	240
Plate thickness	d _{PI}	mm	12.7	19.05

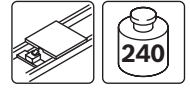
Width of workpiece pallet b _{WT} (mm)	Length of workpiece pallet l _{WT} (mm)	Workpiece pallet mass		Flatness	
		3842998751 ¹ m _{WT} (kg)	3842998751 ¹ (mm)	3842998755 ² m _{WT} (kg)	3842998755 ² (mm)
400	400	6.9	0.4	9.6	0.4
400	480	8.2	0.6	11.5	0.6
400	640	10.9	0.8	15.2	0.8
400	800	13.5	1.0	18.9	1.0
480	480	9.8	0.6	13.7	0.6
480	640	12.9	0.8	18.1	0.8
480	800	16.0	1.0	22.5	1.0
640	640	16.8	0.8	23.7	0.8
640	800	20.7	1.0	29.4	1.0
640	1040	26.6	1.2	37.9	1.2
640	1200	30.6	1.2	43.6	1.2
800	800	25.6	1.0	36.5	1.0
800	1040	32.8	1.2	46.9	1.2
800	1200	37.6	1.2	53.9	1.2
1040	1040	41.9	1.2	60.3	1.2
1040	1200	48.1	1.2	69.3	1.2
1200	1200	55.1	1.2	79.6	1.2

¹) Plate thickness 12.7 mm
²) Plate thickness 19.05 mm

Dimensions



No production drawing



Components for WT 2/H workpiece pallets

To fulfill special needs, the workpiece pallets can also be individually configured in a design where the carrying plate is assembled by the customer. In addition to frame modules, various carrying plates, positioning bushings, and all the necessary fastening elements are available.



WT 2/H workpiece pallet mounting kit

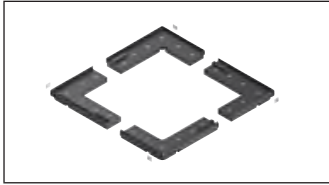
- ▶ Suitable for WT 2/H aluminum carrying plates and high WT bearing loads
- ▶ PE wear pads for quiet operation and low wear
- ▶ Suitable for accumulation roller chains

Carrying plates

- ▶ Aluminum carrying plates with a thickness of 12.70 mm or 19.05 mm are a light and rigid alternative for large workpiece pallets

Positioning bushings

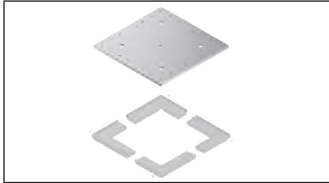
- ▶ For defined pick-up of the workpiece pallet in the positioning units



WT 2/H workpiece pallet mounting kit



2-40



Carrying plate



2-42

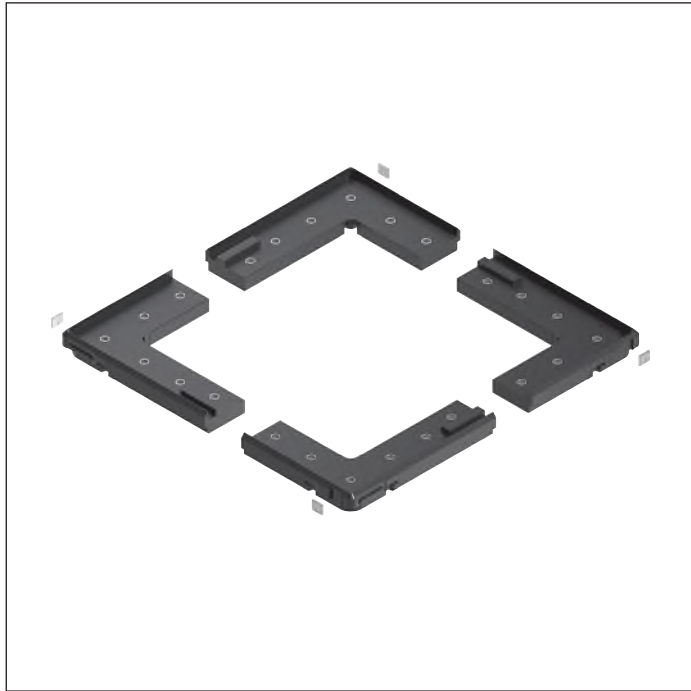
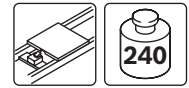


WT 2/H positioning bushing kit



2-46

WT 2/H workpiece pallet kit



- ▶ Workpiece pallet kit without carrying plate for self-assembly or for adaptation to specific customer requirements
- ▶ PE wear pads for quiet operation and low wear
- ▶ Integrated stop damper, ensures quiet running onto other workpiece pallets
- ▶ 17 standard sizes
- ▶ For workpiece pallet dimensions
 $b_{WT} \times l_{WT} = 400 \times 400 \text{ mm}$ up to $1200 \times 1200 \text{ mm}$
- ▶ Special dimensions on request
- ▶ Suitable for use in an EPA
- ▶ Material: PE (= polyethylene) wear pad

Accessories

Recommended accessories

- ▶ 2x WT 2/H (LE 2) positioning bushing kit, see p. 2-46
Positioning bushings are required when using a PE 2/H positioning unit

Delivery notes

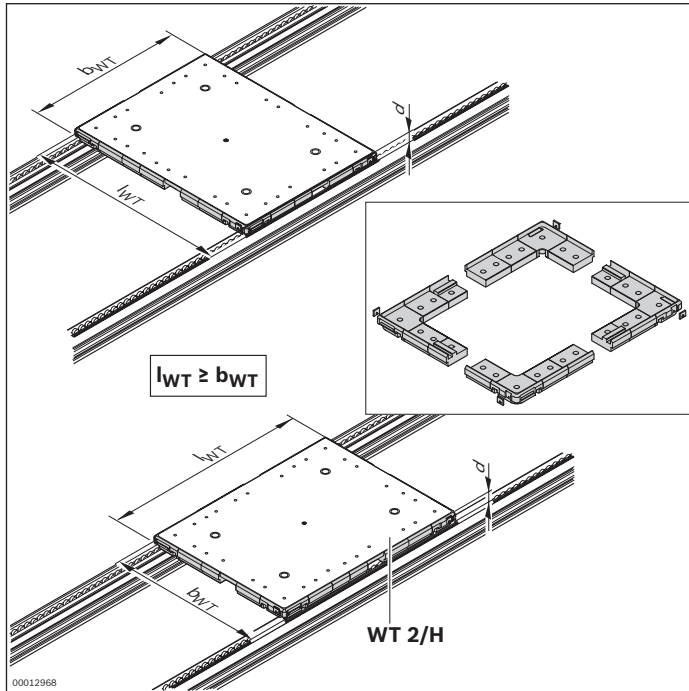
Scope of delivery

- ▶ Corner module
- ▶ Glider with PE wear pads
- ▶ Damping elements

Condition on delivery

- ▶ Parts kit without carrying plate
- ▶ Not assembled

Ordering information



Material number		3842998756
b _{WT} (mm)	Width of workpiece pallet	400; 480; 640; 800; 1040; 1200
l _{WT} (mm)	Length of workpiece pallet	400; 480; 640; 800; 1040; 1200
b _{WT} x l _{WT} (mm x mm)	Combination options	400 x 400; 480; 640; 800; 480 x 480; 640; 800 640 x 640; 800; 1040; 1200; 800 x 800; 1040; 1200 1040 x 1040; 1200 1200 x 1200

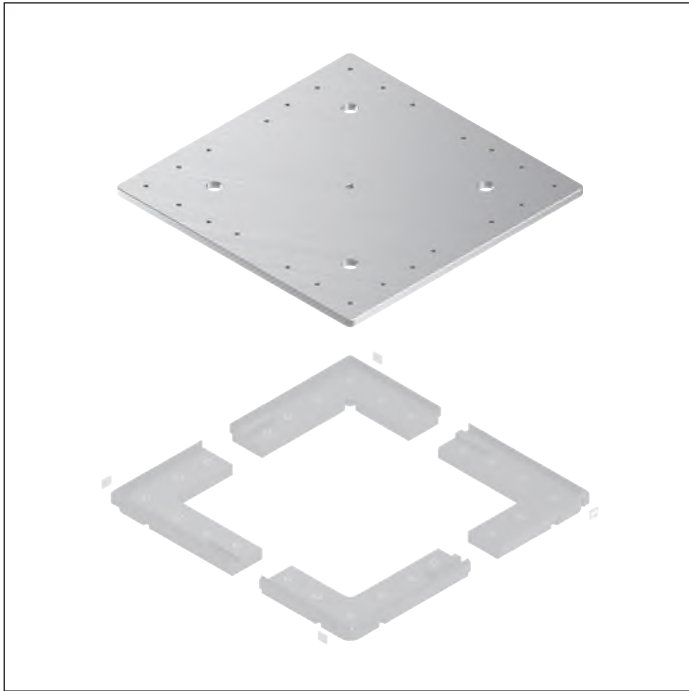
Technical data

Material number		3842998756
Load		
Max. total weight of workpiece pallet	m _G	kg 240

Dimensions

Width of workpiece pallet b _{WT} (mm)	Length of workpiece pallet l _{WT} (mm)	Frame module weight m (kg)
400	400	1.7
400	480	1.9
400	640	2.4
400	800	2.8
480	480	2.2
480	640	2.6
480	800	3.1
640	640	3.0
640	800	3.5
640	1040	4.1
640	1200	4.6
800	800	4.0
800	1040	4.6
800	1200	5.0
1040	1040	5.2
1040	1200	5.7
1200	1200	6.1

Carrying plate

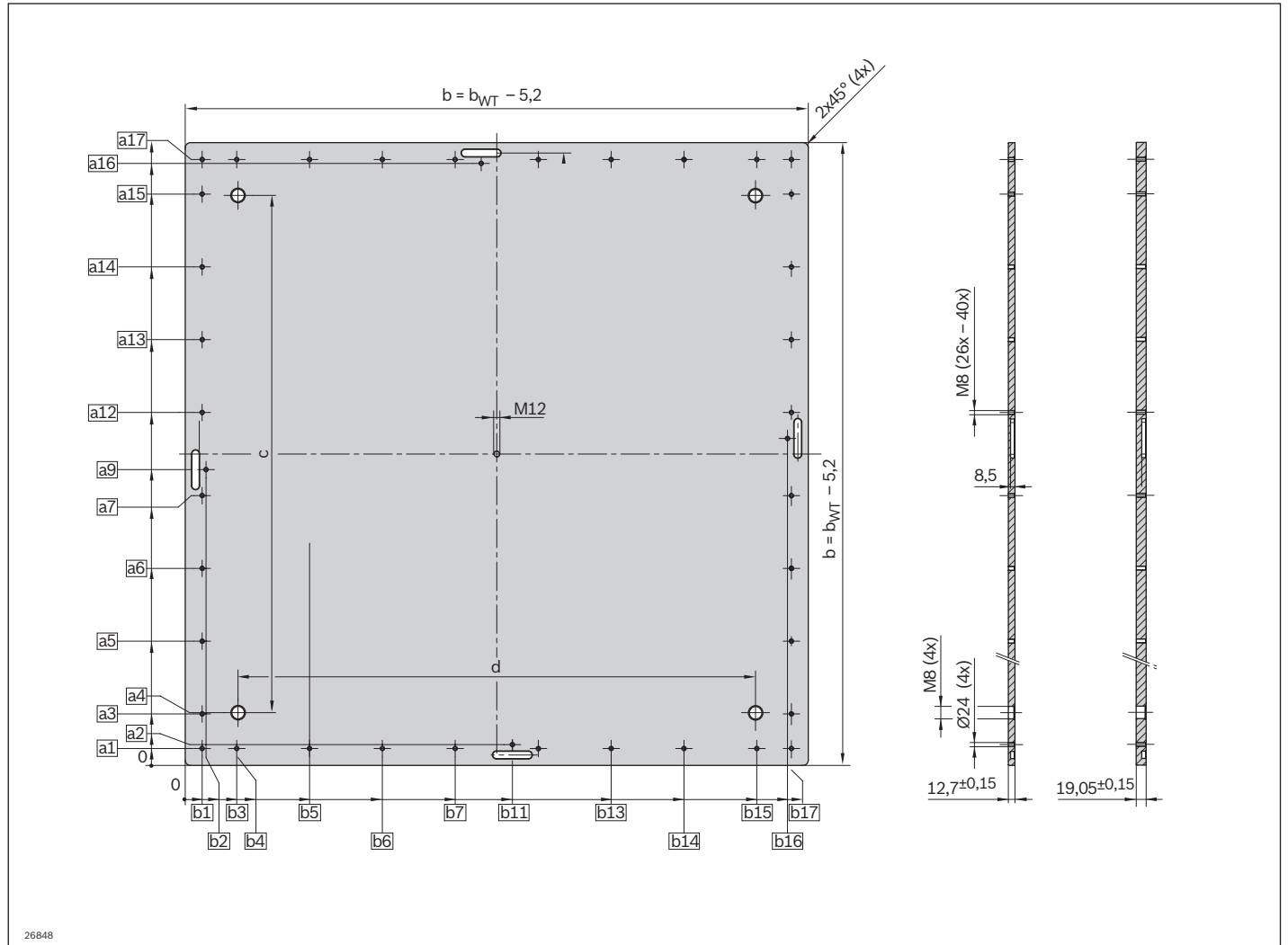


- ▶ Aluminum carrying plates for high loads with large workpiece pallets
- ▶ For workpiece pallet self-assembly for product support or for adaptation to specific customer requirements
- ▶ Completely drilled and ready for assembly
- ▶ 17 standard sizes
- ▶ Universal aluminum carrying plate with two carrying plate thicknesses:
 - d = 12.70 mm
 - d = 19.05 mm
- ▶ Can be combined with WT 2/H workpiece pallet kit

Width of workpiece pallet b_{WT} (mm)	Length of workpiece pallet l_{WT} (mm)	Plate thickness d_{PI} (mm)	Flatness \square (mm)	Plate mass m_{PI} (kg)	Material number	Plate thickness d_{PI} (mm)	Flatness \square (mm)	Plate mass m_{PI} (kg)	Material number
400	400	12.7	0.4	5.2	3842548420				
400	480	12.7	0.6	6.3	3842548421				
400	640	12.7	0.8	8.5	3842548422				
400	800	12.7	1.0	10.7	3842548440				
480	480	12.7	0.6	7.6	3842548688				
480	640	12.7	0.8	10.3	3842548689				
480	800	12.7	1.0	12.9	3842548691				
640	640	12.7	0.8	13.8	3842548690				
640	800	12.7	1.0	17.3	3842548692				
640	1040	12.7	1.2	22.5	3842548694				
640	1200	12.7	1.2	26.0	3842548697				
800	800	12.7	1.0	21.6	3842548693				
800	1040	12.7	1.2	28.2	3842548695				
800	1200	12.7	1.2	32.6	3842548698				
1040	1040	12.7	1.2	36.7	3842548696				
1040	1200	12.7	1.2	42.2	3842548699				
1200	1200	12.7	1.2	49.0	3842548405				
400	400					19.05	0.4	7.9	3842548424
400	480					19.05	0.6	9.5	3842548425
400	640					19.05	0.8	12.8	3842548426
400	800					19.05	1.0	16.1	3842548439
480	480					19.05	0.6	11.5	3842548407
480	640					19.05	0.8	15.4	3842548408
480	800					19.05	1.0	19.4	3842548410
640	640					19.05	0.8	20.7	3842548409
640	800					19.05	1.0	25.9	3842548411
640	1040					19.05	1.2	33.8	3842548413
640	1200					19.05	1.2	39.1	3842548416
800	800					19.05	1.0	32.5	3842548412
800	1040					19.05	1.2	42.3	3842548414
800	1200					19.05	1.2	48.9	3842548417
1040	1040					19.05	1.2	55.2	3842548415
1040	1200					19.05	1.2	63.7	3842548418
1200	1200					19.05	1.2	73.5	3842548419

Dimensions

Aluminum carrying plate



No production drawing

Width of workpiece pallet b _{WT} (mm)	Length of workpiece pallet l _{WT} (mm)	Dimension a1 (mm)	Dimension a2 (mm)	Dimension a3 (mm)	Dimension a4 (mm)	Dimension a5 (mm)	Dimension a6 (mm)	Dimension a7 (mm)	Dimension a9 (mm)	Dimension a12 (mm)	Dimension a13 (mm)	Dimension a14 (mm)	Dimension a15 (mm)	Dimension a16 (mm)	Dimension a17 (mm)	Dimension c (mm)
400	400	32.5	40.0	109.0	101.5				169.0				289.0	358.0	365.5	195.0
400	480	32.5	40.0	99.0	101.5			159.0	209.0	319.0			379.0	438.0	445.5	295.0
400	640	32.5	40.0	99.0	101.5			239.0	289.0	399.0			539.0	598.0	605.5	435.0
400	800	32.5	40.0	99.0	101.5	209.0		319.0	369.0	479.0	589.0		699.0	758.0	765.5	595.0
480	480	32.5	40.0	99.0	101.5			159.0	209.0	319.0			379.0	438.0	445.5	275.0
480	640	32.5	40.0	99.0	101.5			239.0	289.0	399.0			539.0	598.0	605.5	435.0
480	800	32.5	40.0	99.0	101.5	209.0		319.0	369.0	479.0	589.0		699.0	758.0	765.5	595.0
640	640	32.5	40.0	99.0	101.5			239.0	289.0	399.0			539.0	598.0	605.5	435.0
640	800	32.5	40.0	99.0	101.5	209.0		319.0	369.0	479.0	589.0		699.0	758.0	765.5	595.0
640	1040	32.5	40.0	99.0	101.5	269.0		439.0	489.0	599.0	769.0		939.0	998.0	1005.5	835.0
640	1200	32.5	40.0	99.0	101.5	239.0	379.0	519.0	569.0	679.0	819.0	959.0	1099.0	1158.0	1165.5	995.0
800	800	32.5	40.0	99.0	101.5	209.0		319.0	369.0	479.0	589.0		699.0	758.0	765.5	595.0
800	1040	32.5	40.0	99.0	101.5	269.0		439.0	489.0	599.0	769.0		939.0	998.0	1005.5	835.0
800	1200	32.5	40.0	99.0	101.5	239.0	379.0	519.0	569.0	679.0	819.0	859.0	1099.0	1158.0	1165.5	995.0
1040	1040	32.5	40.0	99.0	101.5	269.0		439.0	489.0	599.0	769.0		939.0	998.0	1005.5	835.0
1040	1200	32.5	40.0	99.0	101.5	239.0	379.0	519.0	569.0	679.0	819.0	859.0	1099.0	1158.0	1165.5	995.0
1200	1200	32.5	40.0	99.0	101.5	239.0	379.0	519.0	569.0	679.0	819.0	859.0	1099.0	1158.0	1165.5	995.0

Width of workpiece pallet b _{WT} (mm)	Length of workpiece pallet l _{WT} (mm)	Dimension b1 (mm)	Dimension b2 (mm)	Dimension b3 (mm)	Dimension b4 (mm)	Dimension b5 (mm)	Dimension b6 (mm)	Dimension b7 (mm)	Dimension b11 (mm)	Dimension b13 (mm)	Dimension b14 (mm)	Dimension b15 (mm)	Dimension b16 (mm)	Dimension b17 (mm)	Dimension d (mm)
400	400	32.5	40.0	109.0	101.5				229.0			289.0	358.0	365.5	195.0
400	480	32.5	40.0	109.0	101.5				229.0			289.0	358.0	365.5	195.0
400	640	32.5	40.0	109.0	101.5				229.0			289.0	358.0	365.5	195.0
400	800	32.5	40.0	109.0	101.5				229.0			289.0	358.0	365.5	195.0
480	480	32.5	40.0	99.0	101.5			159.0	269.0			379.0	438.0	445.5	275.0
480	640	32.5	40.0	99.0	101.5			159.0	269.0			379.0	438.0	445.5	275.0
480	800	32.5	40.0	99.0	101.5			159.0	269.0			379.0	438.0	445.5	275.0
640	640	32.5	40.0	99.0	101.5			239.0	349.0			539.0	598.0	605.5	435.0
640	800	32.5	40.0	99.0	101.5			239.0	349.0			539.0	598.0	605.5	435.0
640	1040	32.5	40.0	99.0	101.5			239.0	349.0			539.0	598.0	605.5	435.0
640	1200	32.5	40.0	99.0	101.5			239.0	349.0			539.0	598.0	605.5	435.0
800	800	32.5	40.0	99.0	101.5	209.0		319.0	429.0	589.0		699.0	758.0	765.5	595.0
800	1040	32.5	40.0	99.0	101.5	209.0		319.0	429.0	589.0		699.0	758.0	765.5	595.0
800	1200	32.5	40.0	99.0	101.5	209.0		319.0	429.0	589.0		699.0	758.0	765.5	595.0
1040	1040	32.5	40.0	99.0	101.5	269.0		439.0	549.0	769.0		939.0	998.0	1005.5	835.0
1040	1200	32.5	40.0	99.0	101.5	269.0		439.0	549.0	769.0		939.0	998.0	1005.5	835.0
1200	1200	32.5	40.0	99.0	101.5	239.0	379.0	519.0	629.0	819.0	959.0	1099.0	1158.0	1165.5	995.0

WT 2/H positioning bushing kit



- ▶ For defined pick-up of the workpiece pallet in positioning units
- ▶ Material: Steel
- ▶ Can be combined with WT 2/H workpiece pallet carrying plates

Accessories

Required accessories

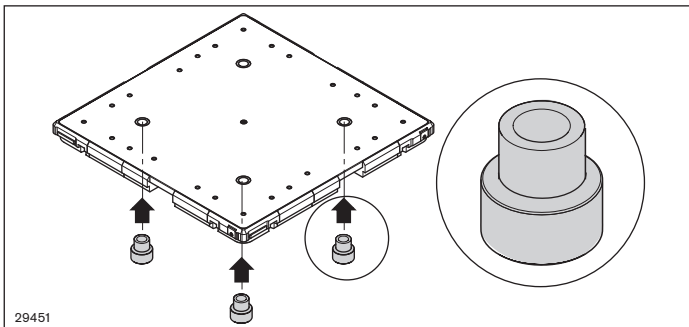
- ▶ Positioning bushings are required when using a PE 2/H positioning unit

Ordering information

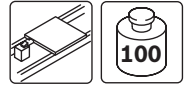
Product designation	Delivery unit	Material number
WT 2/H positioning bushing kit	2	3842531354

Technical data

Material number		3842531354
Features		
Mass	kg	0.6



WT 2/F frame workpiece pallet



2



- ▶ Frame workpiece pallet, fully assembled or as a kit for self-assembly
- ▶ Low weight and high stability thanks to aluminum frame construction
- ▶ Especially suitable for low-cost transportation of large products
- ▶ Continuous standard grooves to easily fasten cross struts and workpiece supports
- ▶ Integrated positioning bushings
- ▶ Various wear pads for use on all conveyor media
- ▶ PA wear pads (LS = 0) for use on belts, toothed belts, or flat top chains
- ▶ PE wear pads (LS = 1) for use on accumulation roller chains

Delivery notes

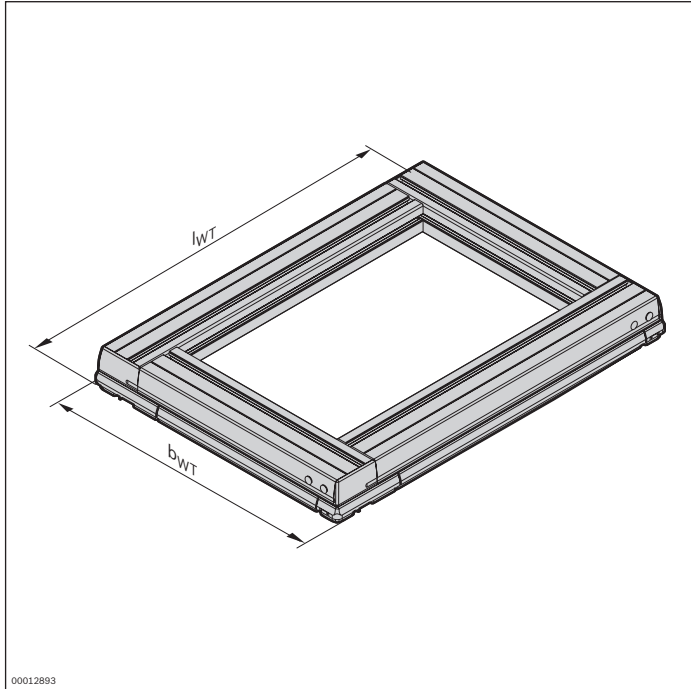
Scope of delivery

- ▶ Frame modules
- ▶ Connection elements
- ▶ Positioning bushings

Condition on delivery

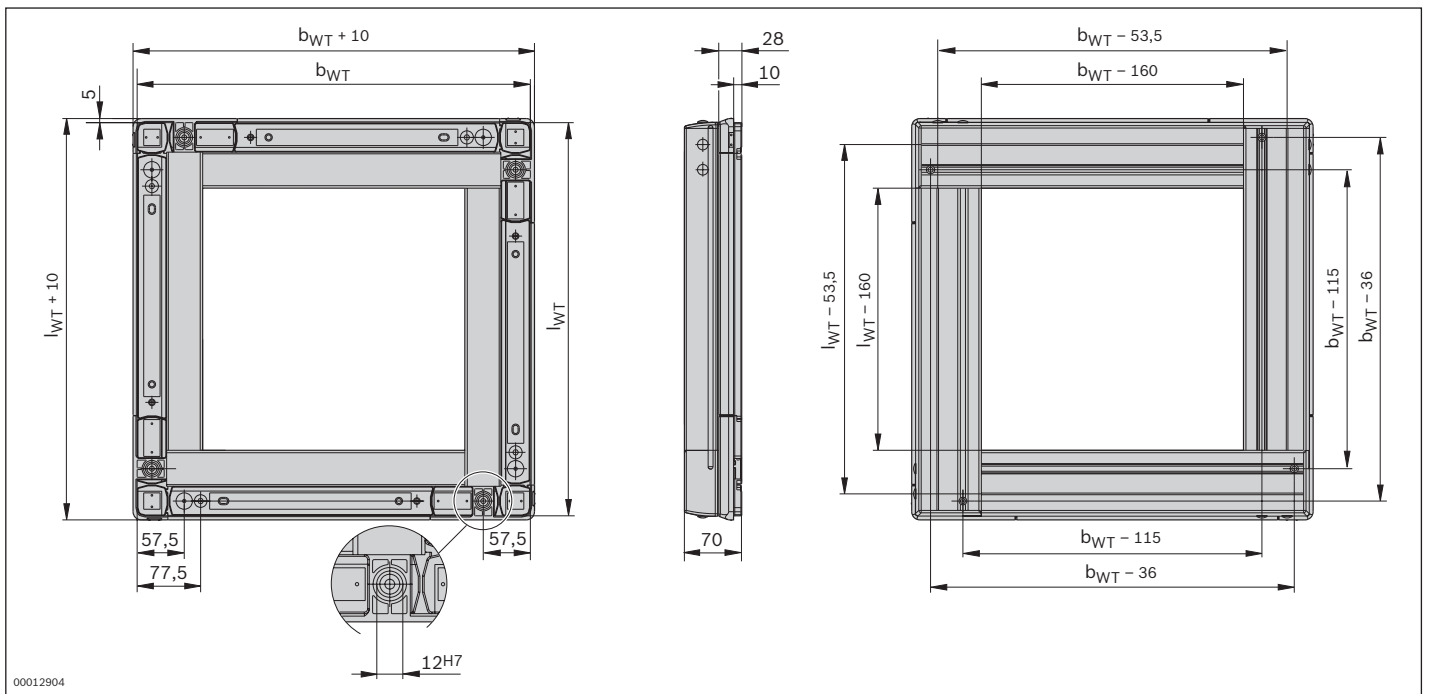
- ▶ Assembled (MT = 1)
- ▶ Kit, not assembled (MT = 0)

Ordering information



Material number		3842999941
b _{WT} (mm)	Width of workpiece pallet	400; 480; 640; 800
l _{WT} (mm)	Length of workpiece pallet	400; 480; 640; 800; 1040
b _{WT} x l _{WT} (mm x mm)	Combination options	400 x 400; 480; 640; 800; 480 x 480; 640; 800 640 x 640; 800; 1040; 1200; 800 x 800; 1040; 1200 1040 x 1040; 1200 1200 x 1200
MT	Kit 0 = not assembled 1 = assembled	0; 1
LS	Wear pad 0 = PA 1 = PE	0; 1

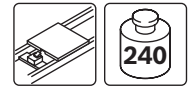
Dimensions



No production drawing

Width of workpiece pallet b_{WT} (mm)	Length of workpiece pallet l_{WT} (mm)	Workpiece pallet mass m_{WT} (kg)
400	400	6.6
400	480	7.1
400	640	8.9
400	800	10.8
480	480	7.7
480	640	9.4
480	800	11.4
640	640	11.2
640	800	12.5
640	1040	15.0
640	1200	16.8
800	800	13.9
800	1040	16.0
800	1200	18.4
1040	1040	19.1
1040	1200	20.7
1200	1200	22.2

WT 2/F-H frame workpiece pallet



- ▶ Frame workpiece pallet for especially high maximum permitted total weight up to 240 kg (2 kg/cm length) in combination with accumulation roller chain conveyor medium
- ▶ Fully assembled or unassembled as a kit
- ▶ Low weights and high stability thanks to aluminum frame construction
- ▶ Standard grooves to easily fasten cross struts and workpiece supports
- ▶ PE wear pads for quiet operation and low wear
- ▶ Integrated stop damper, ensures quiet running onto other workpiece pallets
- ▶ For workpiece pallet dimensions
 $b_{WT} \times l_{WT} = 400 \times 400 \text{ mm}$ up to $1200 \times 1200 \text{ mm}$
- ▶ Special dimensions on request
- ▶ Suitable for use in an EPA
- ▶ Material:
Frame module with PE (= polyethylene) wear pad

Pick-up and transportation of workpieces in the TS 2plus transfer system.

Accessories

Recommended accessories

- ▶ 2x WT 2/F-H (LE 2) positioning bushing kits, see p. 2-53

Delivery notes

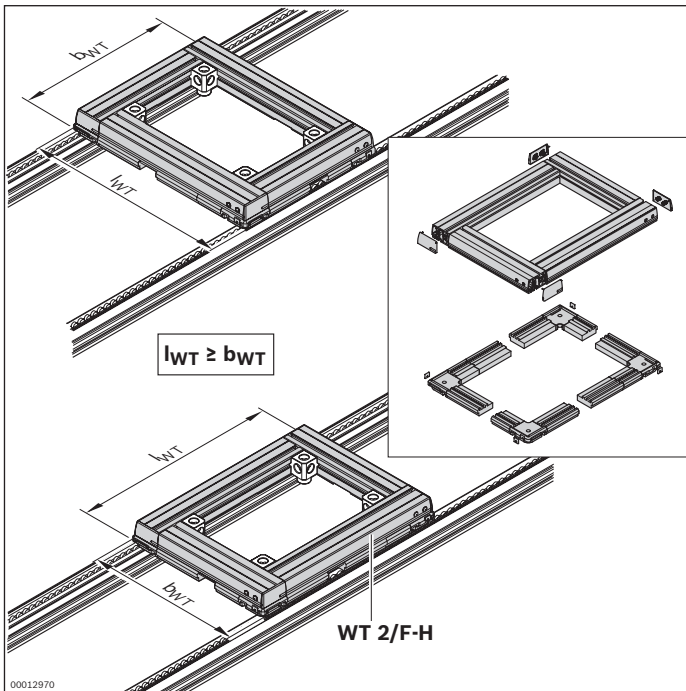
Scope of delivery

- ▶ Corner module
- ▶ Wear pads
- ▶ Damping elements
- ▶ Frame modules
- ▶ Bracket caps

Condition on delivery

- ▶ Assembled (MT = 1)
- ▶ Kit, not assembled (MT = 0)

Ordering information



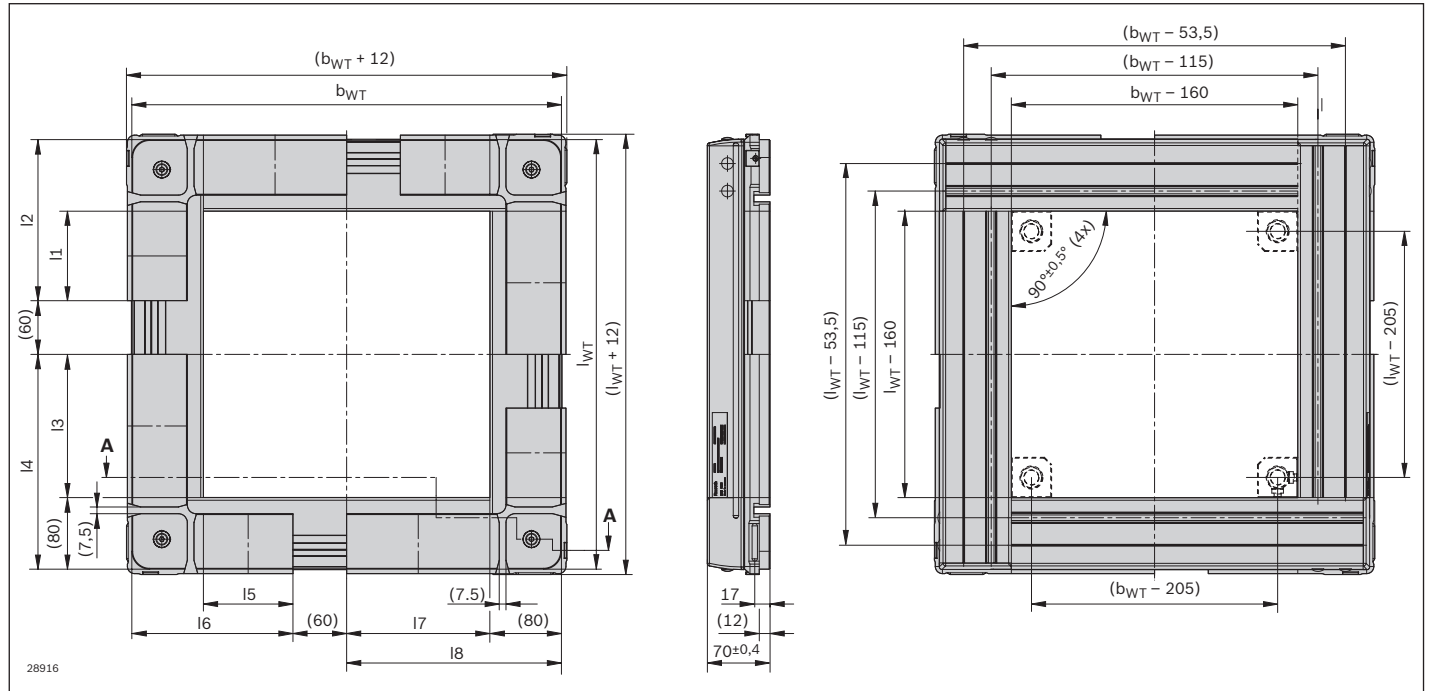
Material number		3842998757
b _{WT} (mm)	Width of workpiece pallet	400; 480; 640; 800; 1040; 1200
l _{WT} (mm)	Length of workpiece pallet	400; 480; 640; 800; 1040; 1200
b _{WT} x l _{WT} (mm x mm)	Combination options	400 x 400; 480; 640; 800; 480 x 480; 640; 800; 640 x 640; 800; 1040; 1200; 800 x 800; 1040; 1200; 1040 x 1040; 1200; 1200 x 1200
MT	Kit 0 = not assembled 1 = assembled	0; 1

2

Technical data

Material number		3842998757
Load		
Max. total weight of workpiece pallet	m _G	kg 240

Dimensions



No production drawing

Width of workpiece pallet b_{WT} (mm)	Length of workpiece pallet l_{WT} (mm)	Workpiece pallet mass m_{WT} (kg)	Dimension l1 (mm)	Dimension l2 (mm)	Dimension l3 (mm)	Dimension l4 (mm)	Dimension l5 (mm)	Dimension l6 (mm)	Dimension l7 (mm)	Dimension l8 (mm)
400	400	7.3	60	140	120	200	60	140	120	200
400	480	8.2	100	180	160	240	60	140	120	200
400	640	10.1	180	260	240	320	60	140	120	200
400	800	11.9	260	340	320	400	60	140	120	200
480	480	9.1	100	180	160	240	100	180	160	240
480	640	11.0	180	260	240	320	100	180	160	240
480	800	12.8	260	340	320	400	100	180	160	240
640	640	12.8	180	260	240	320	180	260	240	320
640	800	14.7	260	340	320	400	180	260	240	320
640	1040	17.4	380	460	440	520	180	260	240	320
640	1200	19.3	460	540	520	600	180	260	240	320
800	800	16.5	260	340	320	400	260	340	320	400
800	1040	19.3	380	460	440	520	260	340	320	400
800	1200	21.1	460	540	520	600	260	340	320	400
1040	1040	22.0	380	460	440	520	380	460	440	520
1040	1200	23.9	460	540	520	600	380	460	440	520
1200	1200	25.7	460	540	520	600	460	540	520	600

WT 2/F-H positioning bushing kit



- ▶ Positioning bushings are used for defined support of the workpiece pallet in positioning units
- ▶ Material: Steel
- ▶ Can be combined with the WT 2/F-H frame module

Accessories

Required accessories

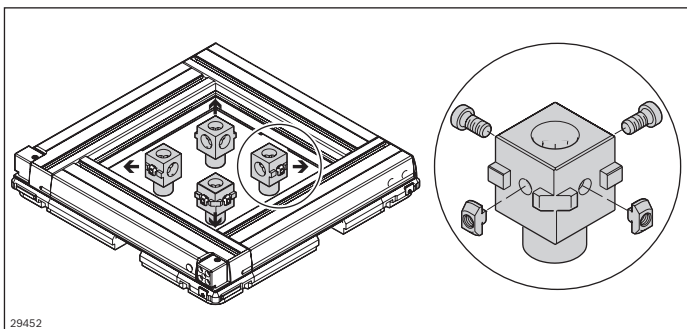
- ▶ Positioning bushings are required when using a PE 2/H positioning unit

Ordering information

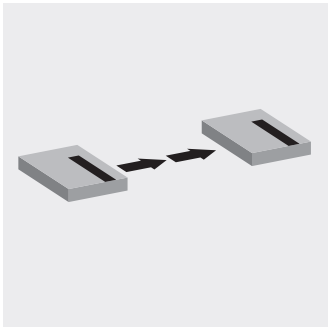
Product designation	Delivery unit	Material number
WT 2/F-H positioning bushing kit	2	3842530529

Technical data

Material number	3842530529	
Features		
Mass	kg	1.3



29452

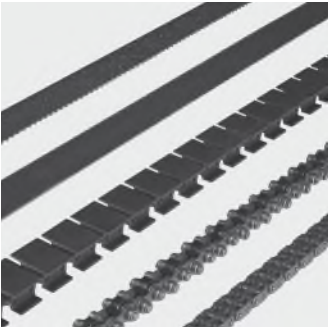


Longitudinal conveyor

3

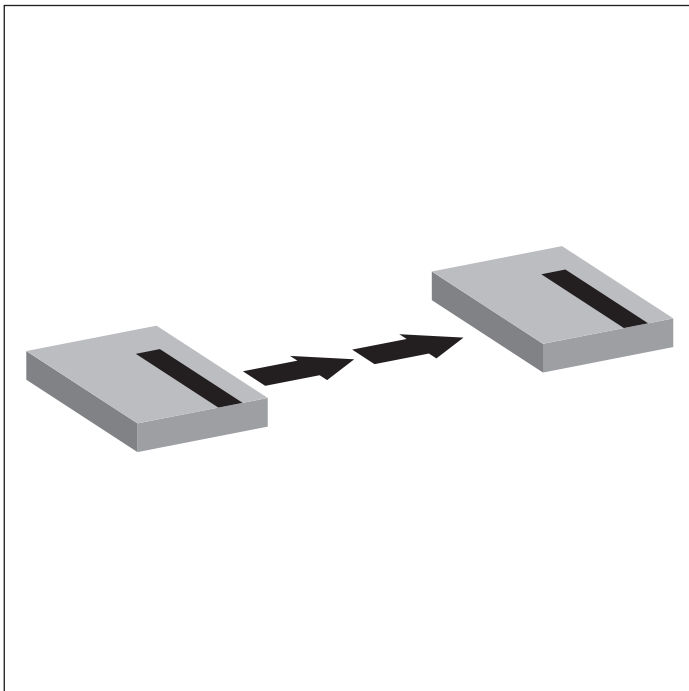
Conveyor media selection

3-2



Conveyor media selection

Belts, toothed belts, flat top chains, and accumulation roller chains are available conveyor belts for longitudinal conveying.



Belts/toothed belts

All toothed belts and the belt are suitable for use in EPAs (ESD-protected areas). The belt has been designed for loads of up to 250 kg and is pretensioned with a special device and then bonded to form a continuous belt. It is mainly used in systems with light conveying loads and section lengths of over 2 m.

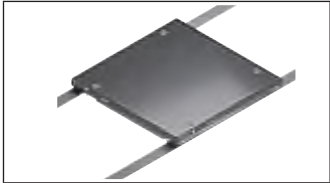
Belt sections with toothed belts are available for shorter sections. The workpiece pallet is conveyed on the back side, which has been reinforced with fabric. A change to the conveying direction (reversible operation) is also possible.

Flat top chain

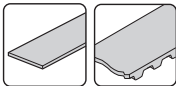
Plastic flat top chains have wear-free polyamide caps on each chain link which reduce friction and help the system run more quietly. A marked cap is available for the chain joint. A design that is also flexible on the side enables use of the plastic flat top chain in curves. It is mainly used in systems with medium conveying loads.

Accumulation roller chain

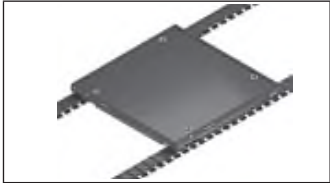
The roller elements of the accumulation roller chain allow the chain to lightly roll underneath the workpiece pallet when pallets accumulate. It is mainly used to convey heavy loads in rough environments. Both types of chains are closed using a master link to create an endless chain (1 master link each in scope of delivery).



Belt and toothed belt conveyor medium



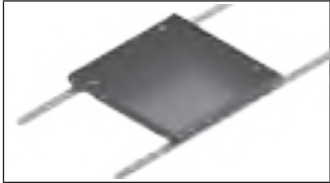
3-4



Flat top chain conveyor medium



3-50



Accumulation roller chain conveyor medium



3-120



Vplus accumulation roller chain conveyor medium

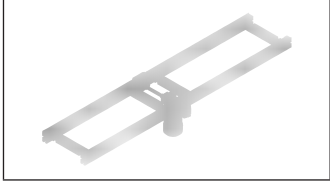


3-192



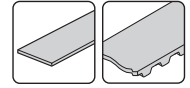
LG 2/H lift gate

3-226

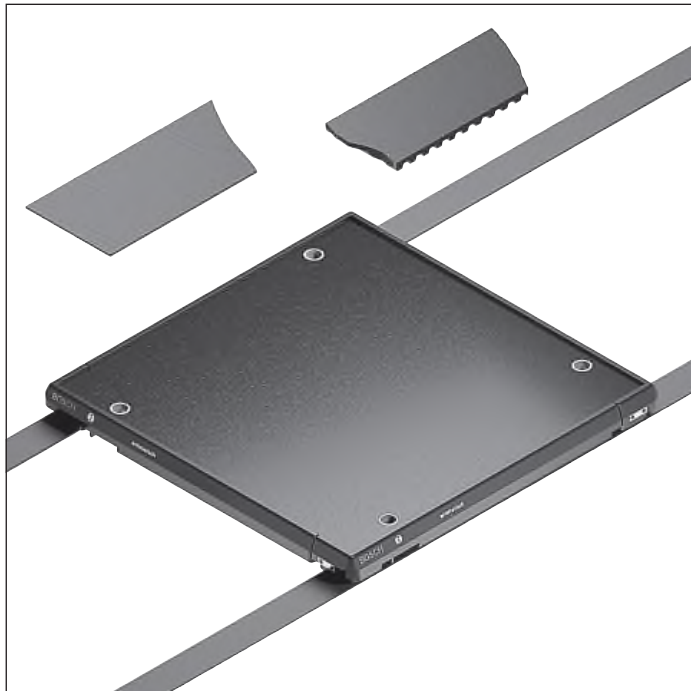


Connection kits

3-236



Belt and toothed belt conveyor medium



The belt and toothed belt conveyor media are suitable for conveying small and medium-sized workpiece pallets in clean, dry environments. The high flexibility and flat design of the conveyor media allow for narrow conveyor trenches between section profiles.

Whereas the belt is an especially economical conveyor medium, primarily utilized on longer section segments, the toothed belt is suitable for shorter section segments and/or driving neighboring modules without their own drives.

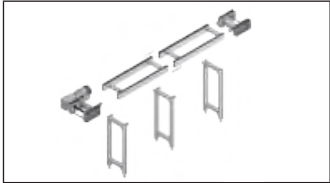
The conveyor media, or the modules equipped with these media, are used for assembly of lightweight products, e.g., electrical household appliances. Features such as a low risk of drawing-in and low profile construction height, as well as quiet operation, facilitate use at manual assembly stations. A surface load of up to 1 kg/cm is permissible on workpiece pallets with PA wear pads.



BS 2 belt sections



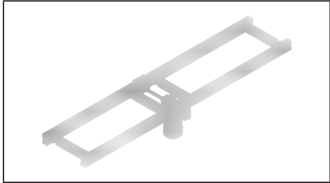
3-6



Parts for AS 2, UM 2, ST 2 conveyor units



3-16



Connection kits

3-236

BS 2 belt section



- ▶ Ready for operation conveyor section with own drive
- ▶ Accumulation operation possible
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Reversible operation possible
- ▶ Right, left or central motor mounting (central from track width of 240 mm)
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request

The belt section is a ready for operation conveyor section with own drive for the transportation of workpiece pallets in the longitudinal direction or for the transverse conveying

of the workpiece pallet between parallel conveyor sections in connection with two HQ 2 lift transverse units.

Accessories

Recommended accessories

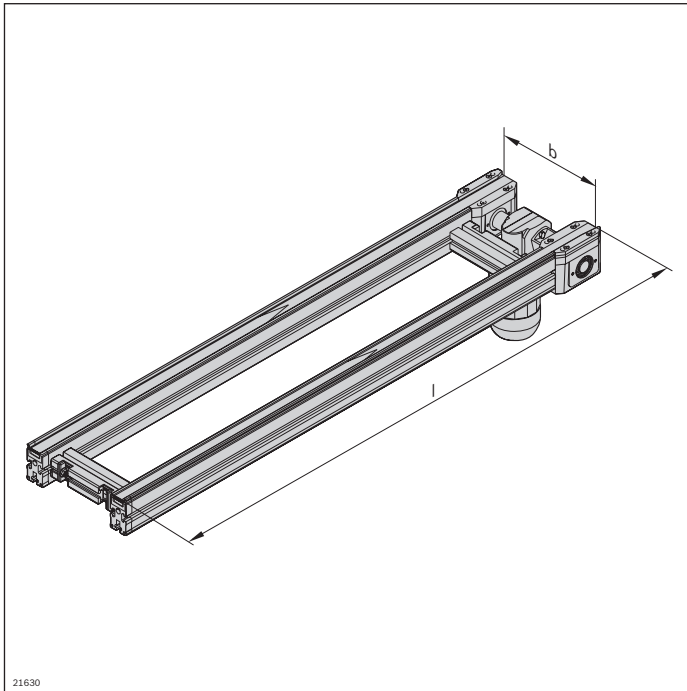
- ▶ Connection kit, see page 3-236
- ▶ SZ 2 leg sets, see page 6-2

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842999716
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200 160 ... 1200 ¹⁾
l (mm)	Length	240 ... 6000 ²⁾
v _N (m/min)	Nominal speed	0 ³⁾ ; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M ⁴⁾

¹⁾ Individual width variants available
²⁾ l is rounded in accordance with the toothed belt pitch
³⁾ v_N = 0: without motor or gear
⁴⁾ When MA = M and b = 160 mm, the max. section load is only 30 kg

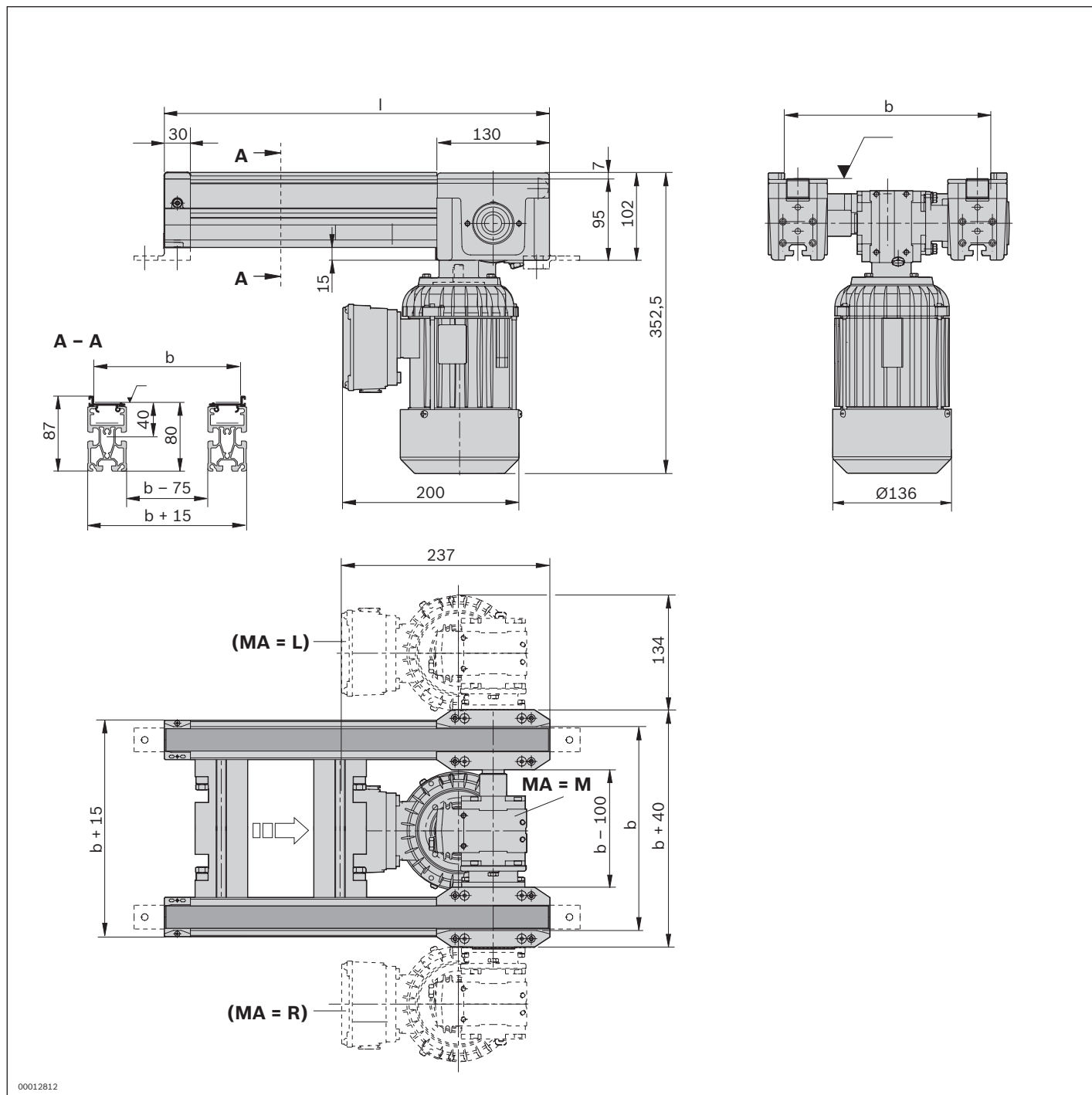
Technical data

Material number		3842999716
Load		
Max. section load in accumulation operation	kg	60 ⁵⁾
Features		
ESD		Yes
Material specification		Section profile: Aluminum, natural; anodized Guide profile: polyamide Glide profile: polyamide
Dimensions		
Length	l	mm 240 ... 6000

⁵⁾ When MA = M and b = 160 mm, the max. section load is only 30 kg

3

Dimensions



BS 2/M belt section



- ▶ Functional operation conveyor complete with drive
- ▶ Accumulation operation possible
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Reversible operation possible
- ▶ Right, left or central motor mounting (central from track width of 240 mm)
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request

The belt section is a conveyor section that is ready for operation with own drive for the transportation of workpiece pallets. It is suitable for all installation situations

in which the motor cannot be fitted to the end of the belt section.

Accessories

Recommended accessories

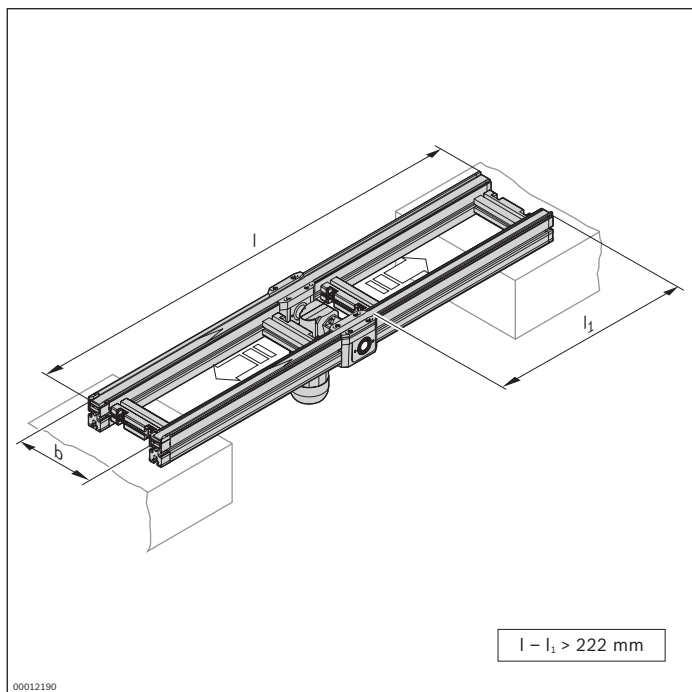
- ▶ Connection kit, see page 3-236
- ▶ SZ 2/... leg sets, see page 6-2

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842999717
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200 160 ... 1200 ¹
l (mm)	Length	310 ... 6000 ²
l ₁ (mm)	Length	90 ... 5770
v _N (m/min)	Nominal speed	0 ³ ; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M ⁴

¹) Individual width variants available

²) l is rounded in accordance with the toothed belt pitch
l - l₁ > 222 mm

³) v_N = 0: without motor or gear

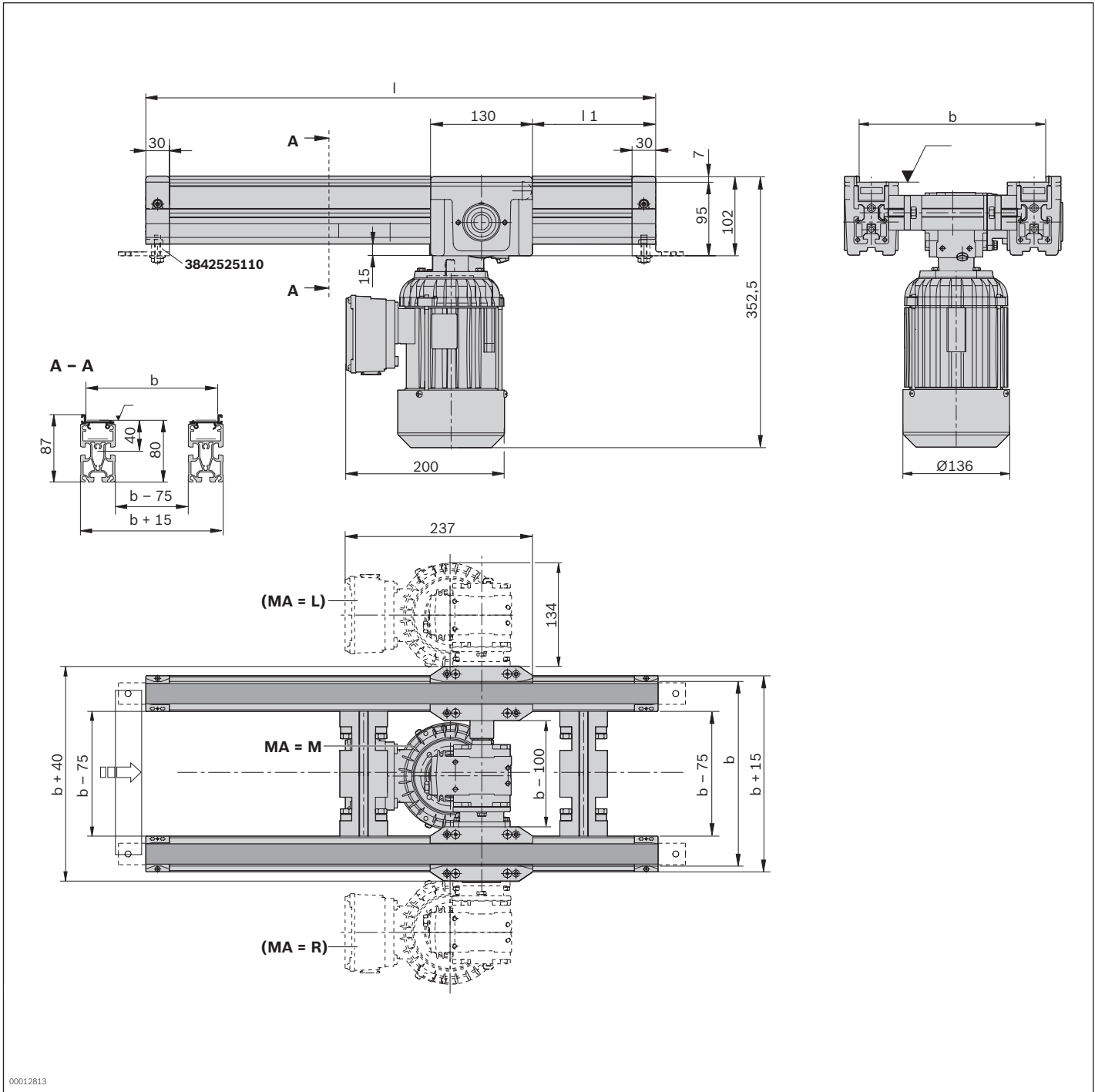
⁴) When MA = M and b = 160 mm, the max. section load is only 30 kg

Technical data

Material number		3842999717
Load		
Max. section load in accumulation operation	kg	60 ⁵
Features		
ESD		Yes
Material specification		Section profile: Aluminum, natural; anodized Guide profile: Polyamide Glide profile: Polyamide
Dimensions		
Length	l	mm
		310 ... 6000

⁵ When MA = M and b = 160 mm, the max. section load is only 30 kg

Dimensions



00012813

Transmission drive



- ▶ Timing belt side drive for gear motors that must be constructed set lower so that they can be driven over
- ▶ Suitable for flange mounted gears, flange diameter 120 mm (B5 version with worm gear) and hollow shaft, diameter 20 mm
- ▶ Designed for Spiroplan SEW, WAF20, WAF30 or WAF37 right-angle gear motors and SAF37 worm gear motors
- ▶ Reversible operation possible
- ▶ Suitable for mounting to BS 2 and BS 2/M belt sections
- ▶ Maximum transferable torque (on the gear output):
 $m_{\max} = 12 \text{ Nm}$
- ▶ Only suspended mounting of the gear motor is permitted

For mounting larger third-party motors for the transmission of higher drive torques (maximum section loads of the belt section must not be exceeded).

Accessories

Required accessories

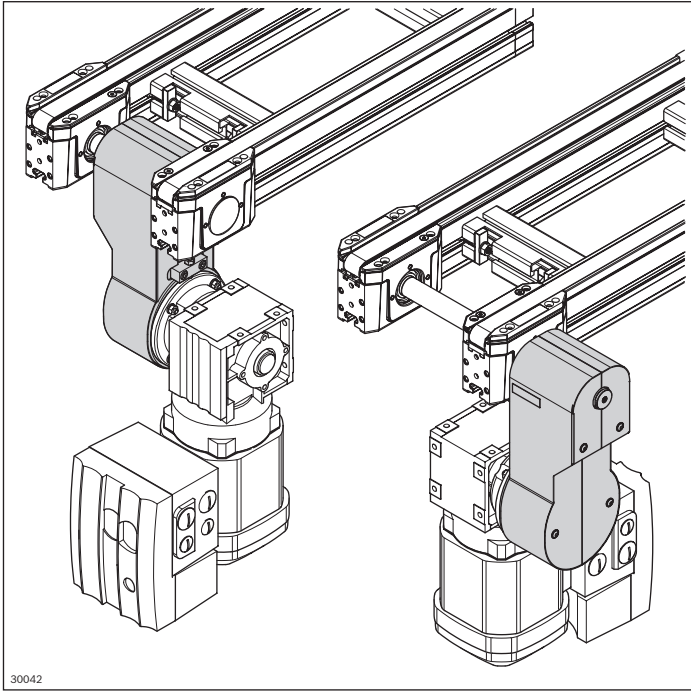
- ▶ BS 2 (see p. 3-6) or BS 2/M (see p. 3-9) belt section
- ▶ Gear motor
- ▶ Torque support (to be supplied by the operator)

Delivery notes

Condition on delivery

- ▶ Unassembled in parts
- ▶ Bearing already press-fitted
- ▶ Including adapter set and additional hexagonal shaft

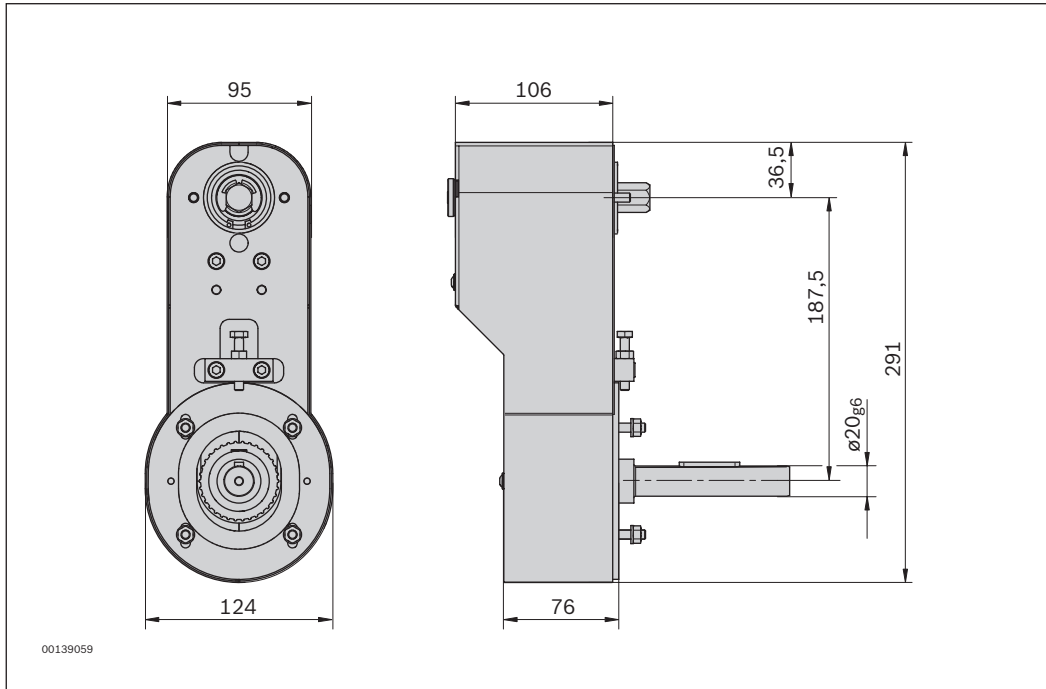
Ordering information



30042

Product designation		Material number
Transmission drive		3842542550
Technical data		Material number
Material number		3842542550
Load		
Maximum transferable torque	Nm	12
Features		
ESD		Yes

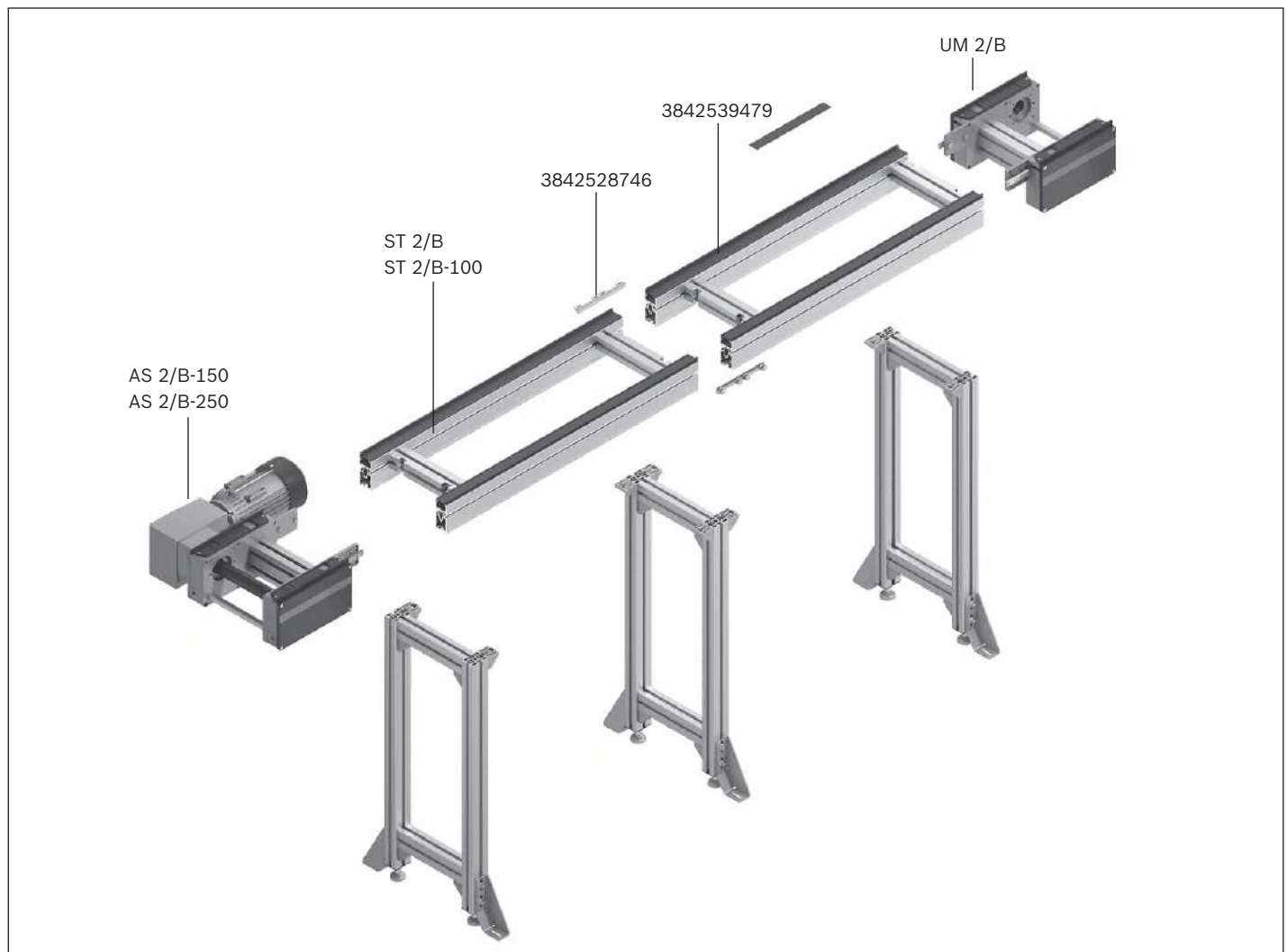
Dimensions





Conveyor units

Parts for belt conveyor medium



A conveyor unit is a complete unit used for linear conveying of workpiece pallets. It consists of:

- ▶ AS 2/B-... drive module, see p. 3-18
- ▶ UM 2/B return unit, see p. 3-24
- ▶ ST 2/... section, see p. 3-28
- ▶ SZ 2/... leg sets, see page 6-2

The UM 2/B and AS 2/B may be set up right next to each other, which allows for conveyor unit combinations.

The drive module is designed for section loads up to $m_G = 150$ kg or up to $m_G = 250$ kg per conveyor unit.



AS 2/B drive module



3-18



UM 2/B return unit



3-24



ST 2/B section, components



3-28

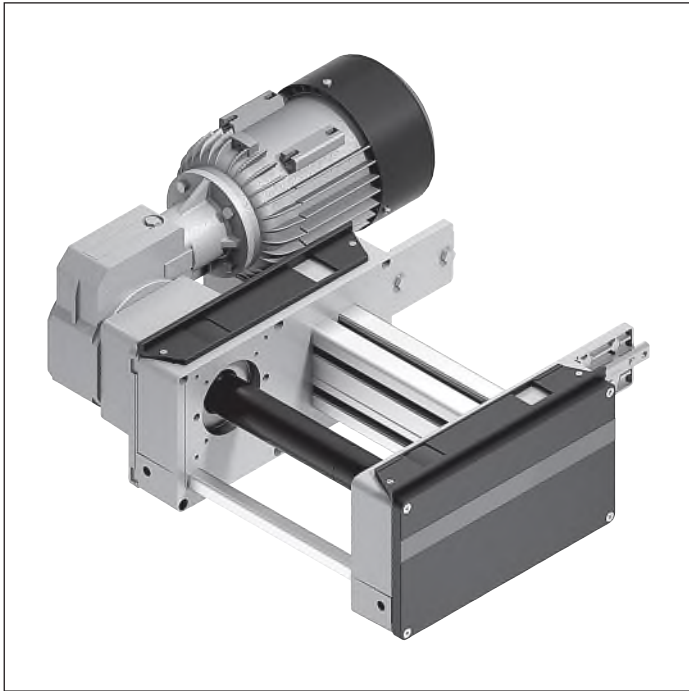


Belt conveyor medium, accessories



3-45

AS 2/B-150 drive module



- ▶ Conveyor medium: Belt (suitable for use in an EPA)
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request
- ▶ Accumulation operation possible

The AS 2/B-... drive module drives the conveyor medium belt in self-built conveyor section elements with section,

return unit and conveyor belt or serves as a transverse section.

Accessories

Required accessories

- ▶ RB 2 roller track (3842532822, see p. 3-27) with adjacent longitudinal sections and workpiece pallet lengths of < 320 mm
- ▶ RB 2/UM 2 roller track set (3842558657 see p. 5-88) for use in transverse sections with adjacent longitudinal sections

Delivery notes

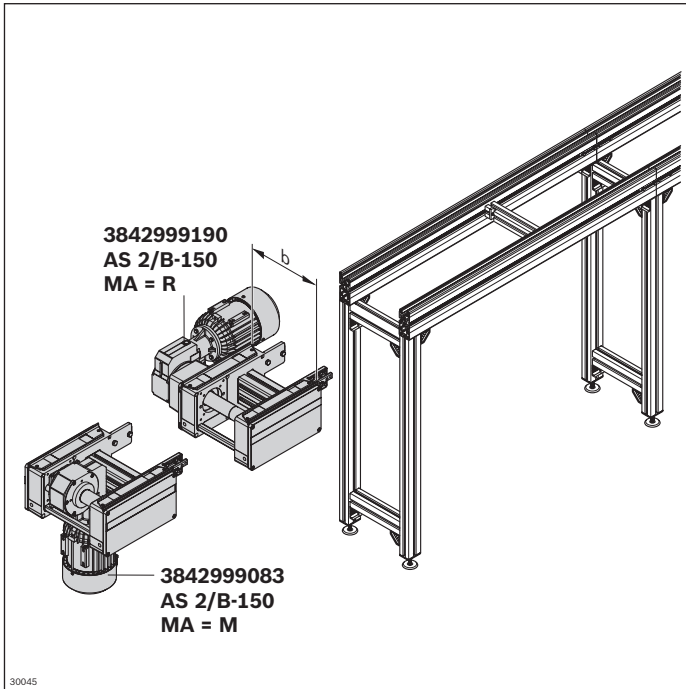
Scope of delivery

- ▶ AS 2/B-150 drive module
- ▶ Includes fastening material to mount on the ST 2 conveyor section, as well as to mount on an adjacent return unit.

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842999083	3842999190
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200	160 ... 1200 ¹
v _N (m/min)	Nominal speed	0 ² ; 6; 9; 12; 15 ³ ; 18	
U (V)	Voltage	See motor data, p. 11-24ff	
f (Hz)	Frequency	See motor data, p. 11-24ff	
AT	Motor connection	S; K	
	S = cable/plug K = terminal box		
MA	Motor mounting	R ⁴ ; L ⁴ ; M	
	R = right L = left M = center		

¹) Individual width variants available

²) v_N = 0: without motor or gear

³) Not possible at f = 60 Hz

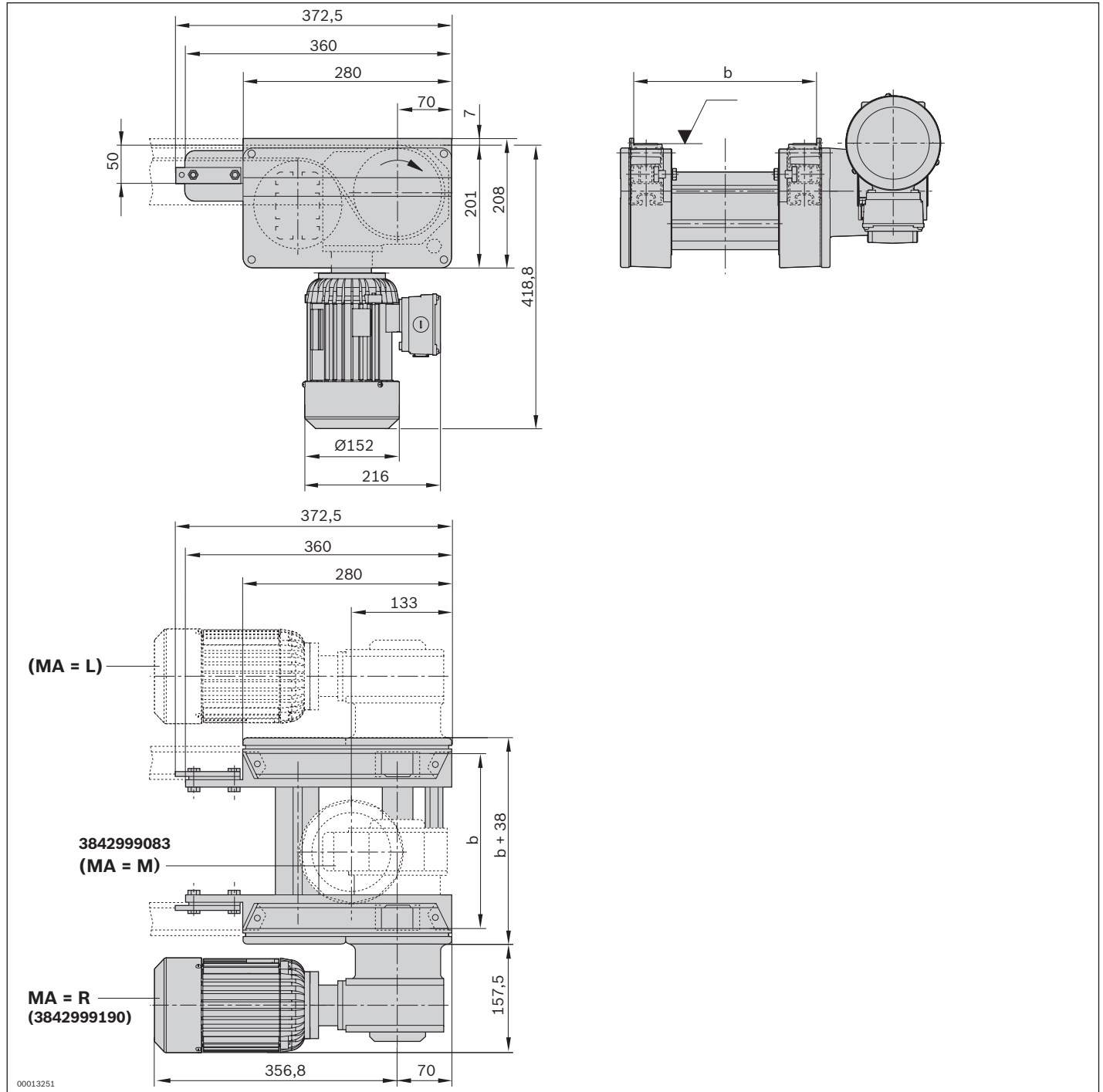
⁴) The following applies to 3842999190: MA = R; L

Technical data

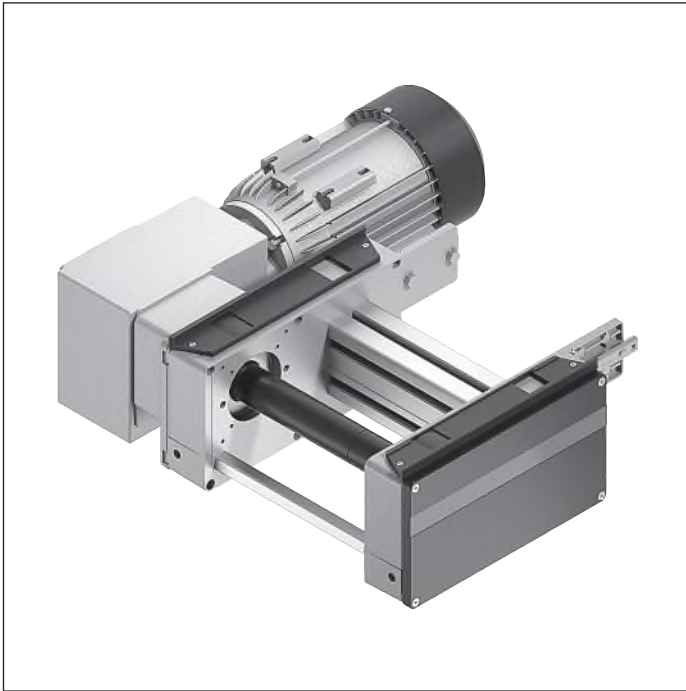
Material number		3842999083	3842999190
Motor mounting		MA = M	MA = R, L
Load			
Max. section load in accumulation operation	kg	150	150
Features			
ESD		Yes	Yes
Additional information			
Required conveyor medium length*	l _{AS} mm	660	660

* Formula for calculating the conveyor medium, see p. 3-46

Dimensions



AS 2/B-250 drive module



- ▶ Conveyor medium: Belt (suitable for use in an EPA)
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request
- ▶ Accumulation operation possible

3

The AS 2/B-... drive module drives the conveyor medium belt in self-built conveyor section elements with section,

return unit and conveyor belt or serves as a transverse section.

Accessories

Required accessories

- ▶ RB 2 roller track (3842532822, see p. 3-27) with adjacent longitudinal sections and workpiece pallet lengths of < 320 mm
- ▶ RB 2/UM 2 roller track set (3842558657 see p. 5-88) for use in transverse sections with adjacent longitudinal sections

Delivery notes

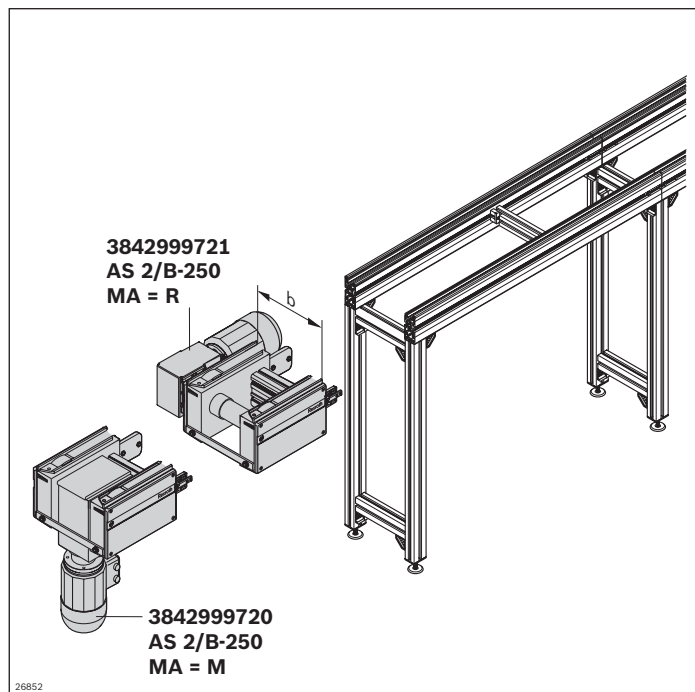
Scope of delivery

- ▶ AS 2/B-250 drive module
- ▶ Includes fastening material to mount on the ST 2 conveyor section, as well as to mount on an adjacent return unit.

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842999720	3842999721
b (mm)	Track width in direction of transport	160; 240 ¹⁾ ; 320; 400; 480; 640; 800; 1040; 1200	240 ... 1200 ²⁾
v _N (m/min)	Nominal speed	0 ³⁾ ; 6; 9; 12; 15; 18	
U (V)	Voltage	See motor data, p. 11-24ff	
f (Hz)	Frequency	See motor data, p. 11-24ff	
AT	Motor connection	S; K	
	S = cable/plug K = terminal box		
MA	Motor mounting	R ⁴⁾ ; L ⁴⁾ ; M ¹⁾	
	R = right L = left M = center		

¹⁾ The following applies to 3842999720: MA = M and b ≥ 240 mm

²⁾ Individual width variants available

³⁾ v_N = 0: without motor or gear

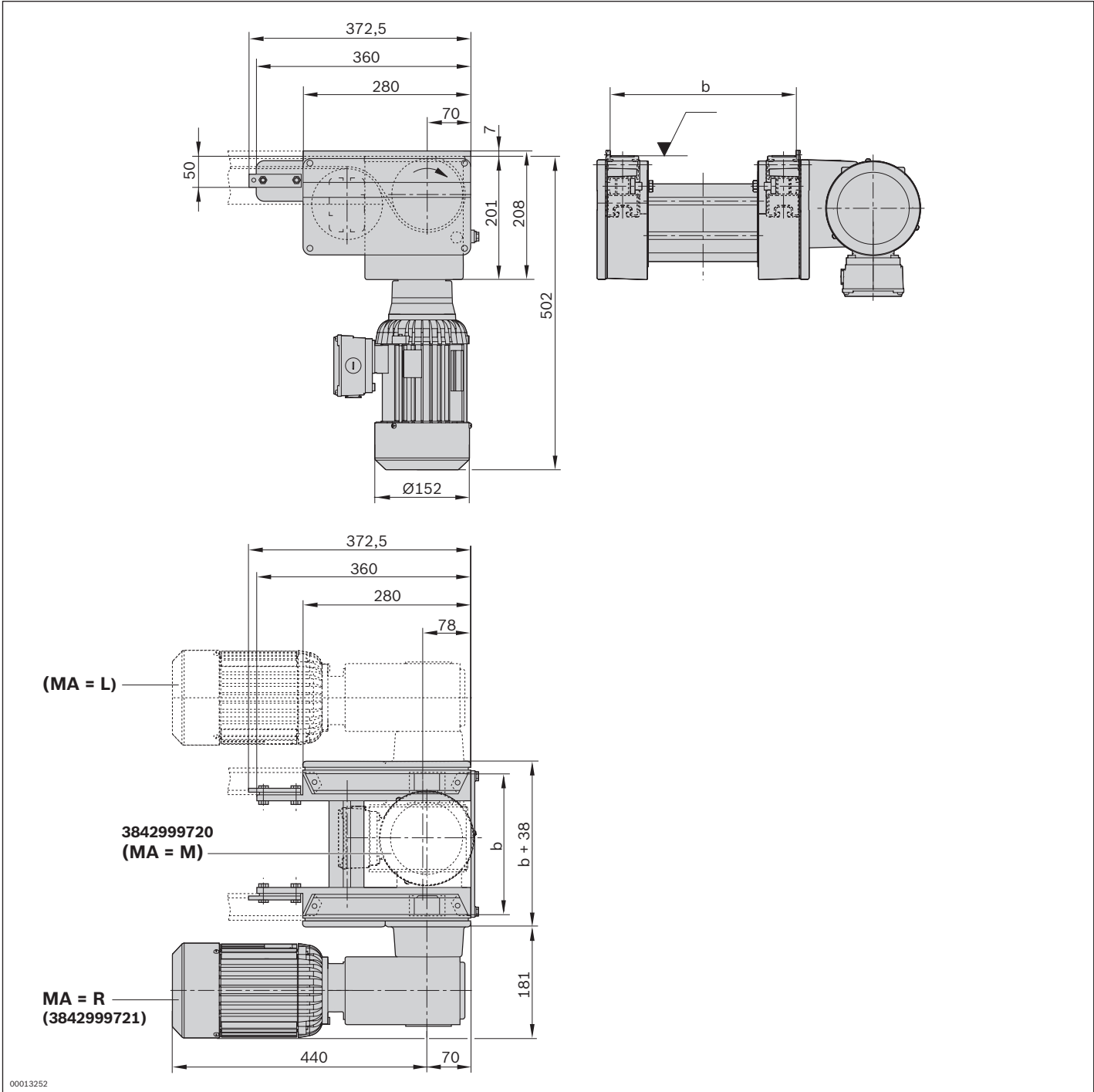
⁴⁾ The following applies to 3842999721: MA = R; L

Technical data

Material number		3842999720	3842999721
Motor mounting		MA = M	MA = R, L
		for b ≥ 240 mm	
Load			
Max. section load in accumulation operation	kg	250	250
Features			
ESD		Yes	Yes
Additional information			
Required conveyor medium length*	l _{AS}	660	660

* Formula for calculating the conveyor medium, see p. 3-46

Dimensions



UM 2/B return unit



- ▶ Conveyor medium: Belt (suitable for use in an EPA)
- ▶ For use in conjunction with all AS 2/B drive modules
- ▶ Max. permissible section load up to 250 kg in accumulation operation per conveyor unit

The return unit is used for constructing conveyor units. It guides the conveyor medium at the end of the conveyor unit back to the drive module.

Delivery notes

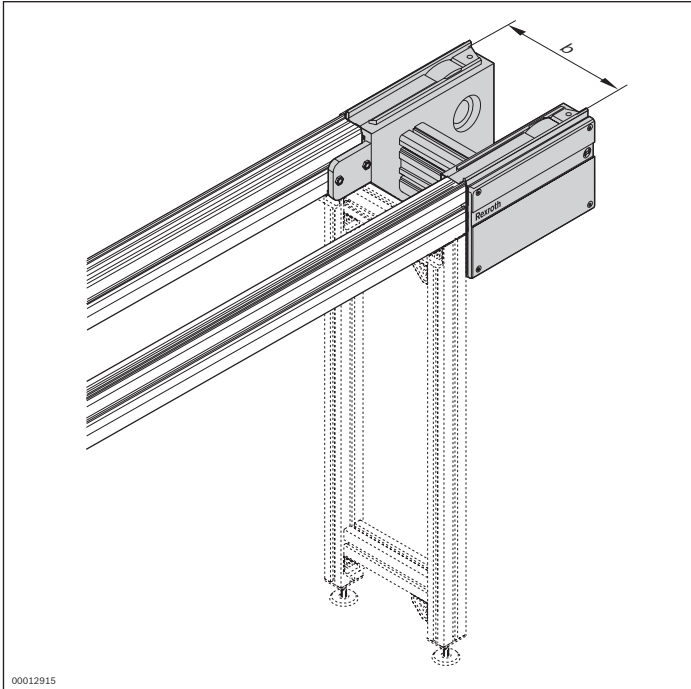
Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor section

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number	3842999090	
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200
		160 ... 1200 ¹

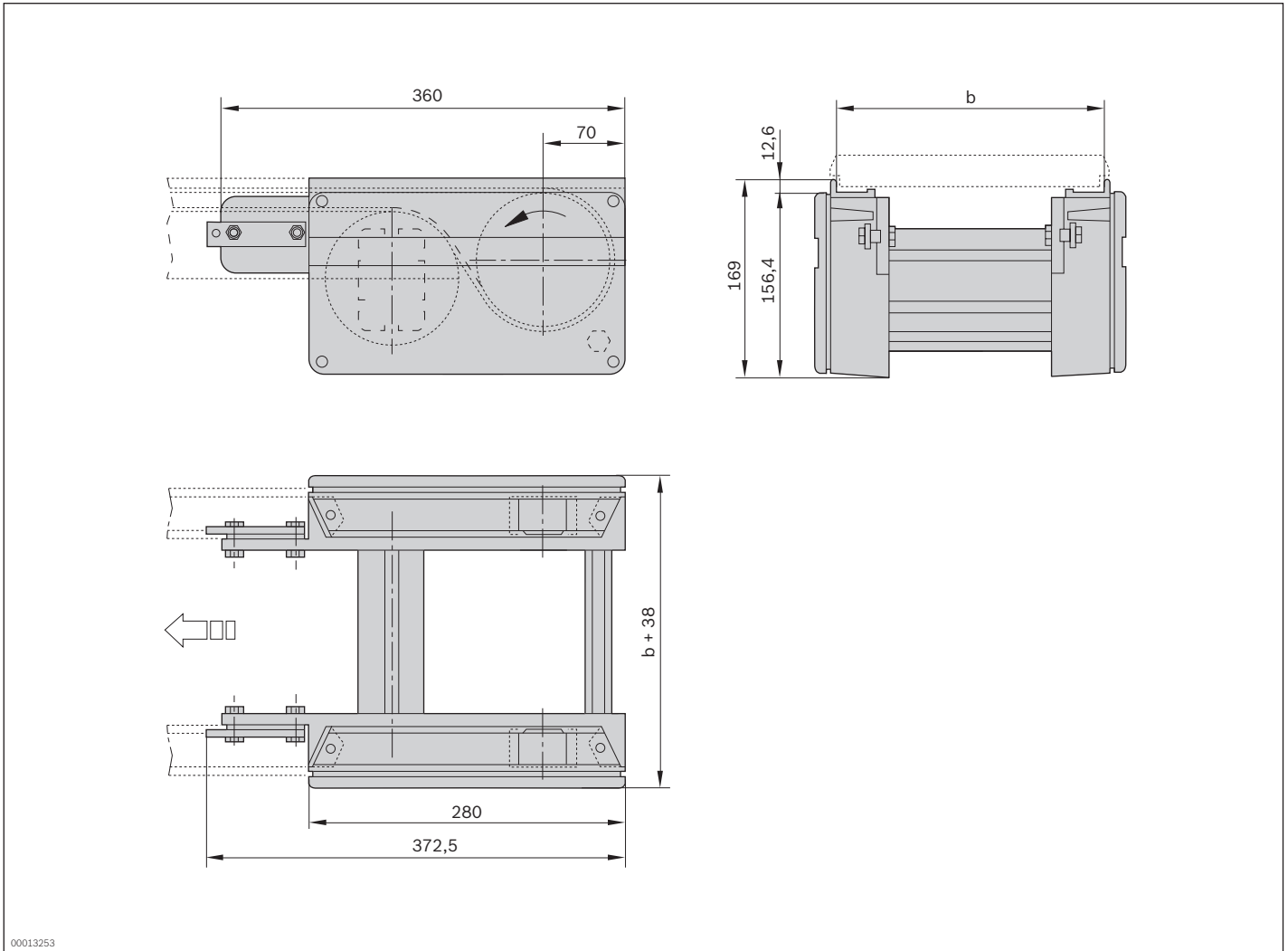
¹ Individual width variants available

Technical data

Material number	3842999090		
Features			
ESD	Yes		
Additional information			
Required conveyor medium length*	l_{UM}	mm	660

* Formula for calculating the conveyor medium, see p. 3-46

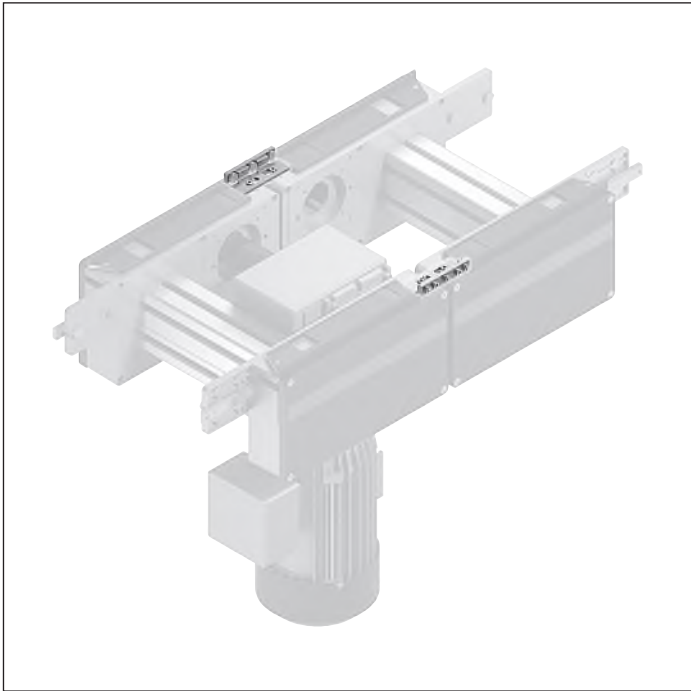
Dimensions



RB 2 roller track



3



- ▶ It is used to support the workpiece pallets at the transition point between a conveyor unit and another adjacent conveyor unit. Necessary for workpiece pallets with $l_{WT} < 320$ mm.
- ▶ Universal design

Delivery notes

Scope of delivery

- ▶ Incl. fastening material

Condition on delivery

- ▶ Fully assembled

Ordering information

Product designation	Packaging unit	Material number
RB 2 roller track	2	3842532822

Technical data

Material number	3842532822
Features	
ESD	Yes
Material specification	Roller carrier: Aluminum Rollers: Steel; hardened

ST 2/B section, ST 2/B-100 section



- ▶ For conveyor unit self-assembly
- ▶ Easy insertion of the guide profile into the section profile
- ▶ Easily replaceable when worn out
- ▶ Conveyor medium: Belt (suitable for use in an EPA)



The section is used for self-construction of conveyor units in conjunction with the AS 2/B drive module and the UM 2/B return unit.

Accessories

Recommended accessories

- ▶ SZ 2 leg sets, see page 6-2
- ▶ Profile connector, see p. 3-40
- ▶ Cross connector, see p. 3-41

Delivery notes

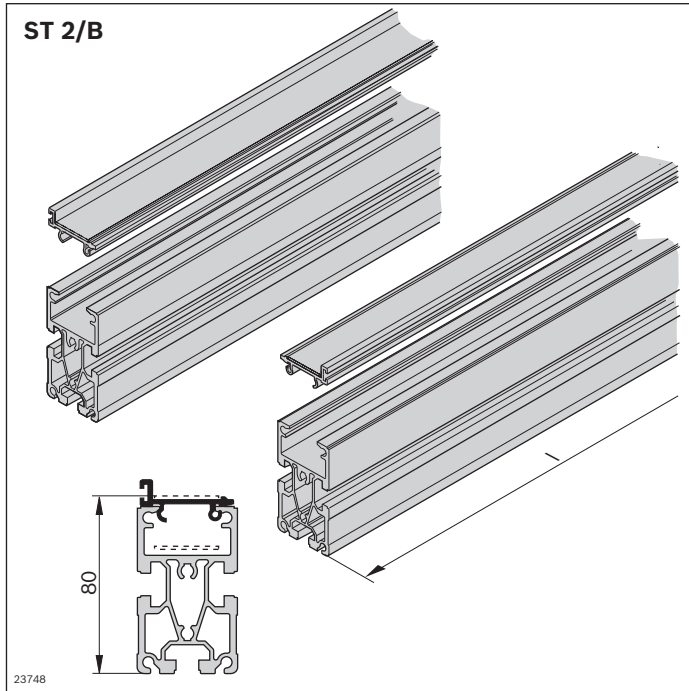
Scope of delivery

- ▶ ST 2/B: 2x SP 2/B section profile, 2x FP 2/B guide profile
- ▶ ST 2/B-100: 2x SP 2/B-100 section profile, 2x FP 2/B guide profile

Condition on delivery

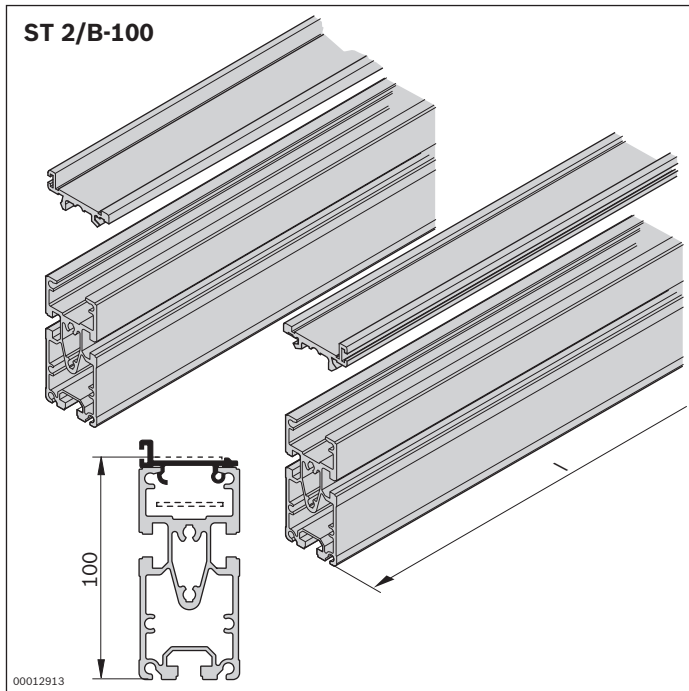
- ▶ Not assembled

Ordering information



ST 2/B section

Material number		3842992650
l (mm)	Length	60 ... 6000
h (mm)	Height to conveying level	80



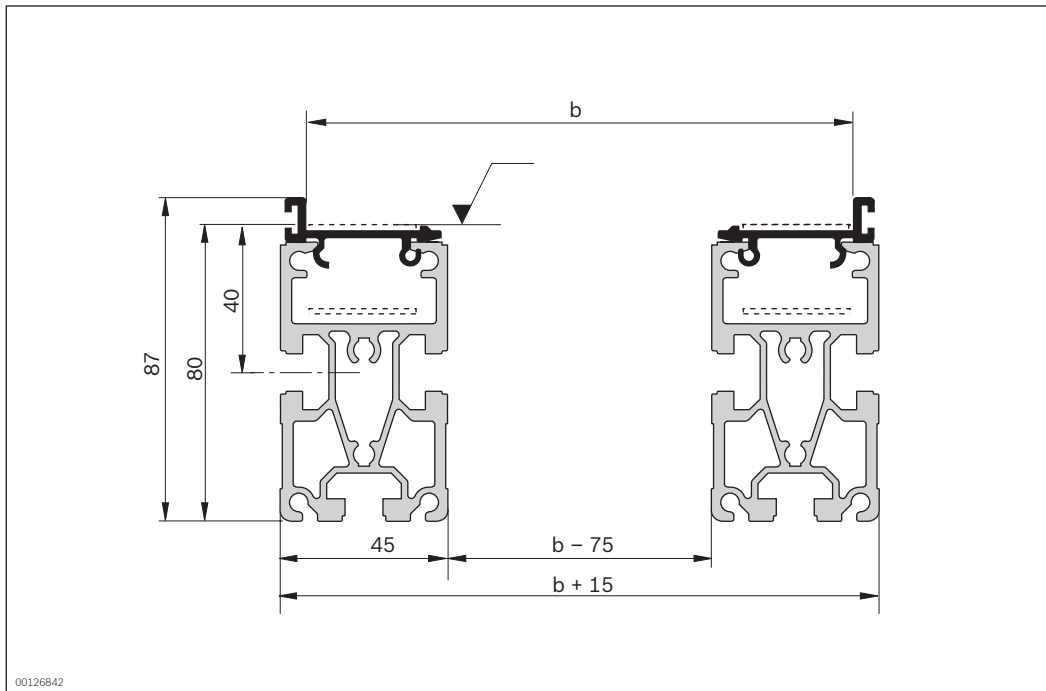
ST 2/B-100 section

Material number		3842994927
l (mm)	Length	60 ... 6000
h (mm)	Height to conveying level	100

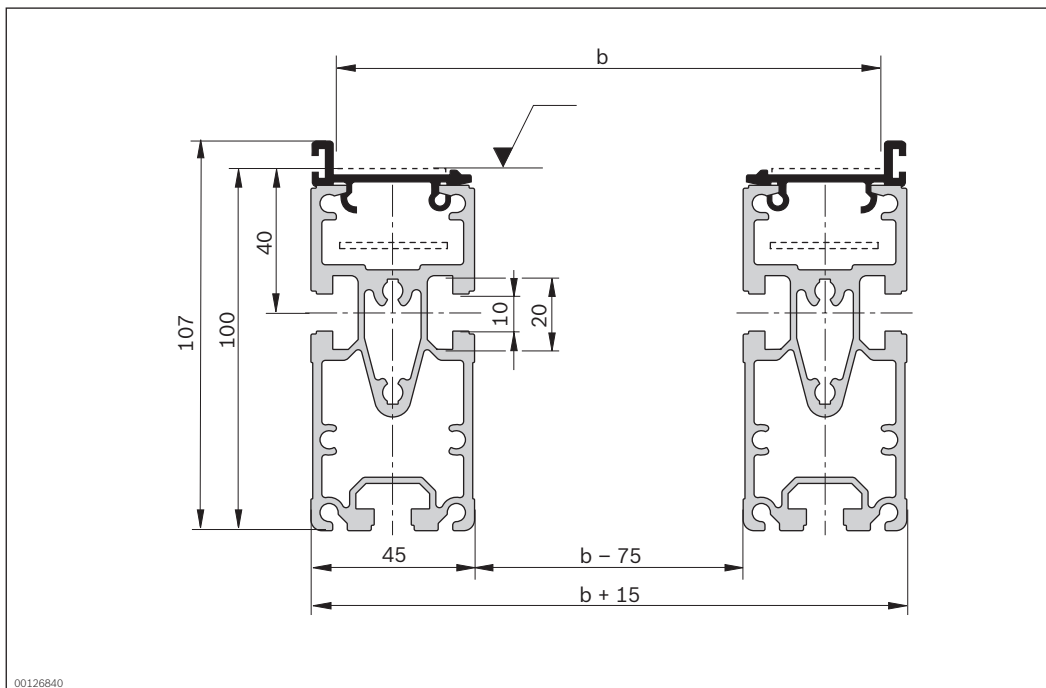
Technical data

Material number		3842992650	3842994927
Product designation		ST 2/B section	ST 2/B-100 section
Features			
ESD		Yes	Yes
Material specification		Section profile: Aluminum; anodized Guide profile: polyamide	Section profile: Aluminum; anodized Guide profile: polyamide
Dimensions			
Length	l	mm	60 ... 6000
Height to conveying level	h	mm	80
			100

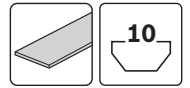
Dimensions
ST 2/B



ST 2/B-100



SP 2/B section profile



3



- ▶ Used for self-construction of low-profile conveyor units and the conveyor media belt
- ▶ For use in conjunction with all AS 2/B drive modules, UM 2/B return units and FP 2/B guide profiles
- ▶ Longitudinal grooves for easy mounting
- ▶ ST 2/B to be used in sections

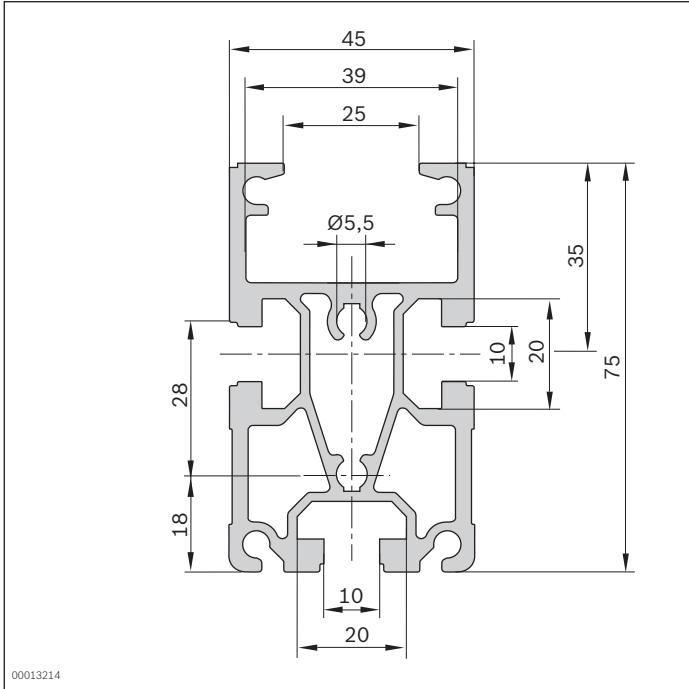
Ordering information

Product designation	l (mm)	Delivery unit	Material number
SP 2/B 16 x 6070 mm section profile	6070	16	3842532695
SP 2/B section profile	60 ... 6000		3842992884

Technical data

Material number		3842532695		3842992884	
Load					
Moment of inertia	I_x	cm ⁴	49.6	49.6	
	I_y	cm ⁴	25.8	25.8	
Moment of resistance	W_x	cm ³	12.1	12.1	
	W_y	cm ³	11.5	11.5	
Features					
Material specification			Aluminum, natural; anodized	Aluminum, natural; anodized	
Mass	m	kg/m	2.8	2.8	
Dimensions					
Length	l	mm	6070		
Length	l	mm	60 ... 6000		
Profile surface	A	cm ²	10.4	10.4	

Dimensions



SP 2/B-50 section profile



- ▶ Used for self-construction of low-profile conveyor units and the conveyor media belt
- ▶ For use in conjunction with all AS 2/B drive modules, UM 2/B return units and FP 2/B guide profiles
- ▶ Longitudinal grooves for easy mounting
- ▶ Suitable for installation at manual workplaces

3

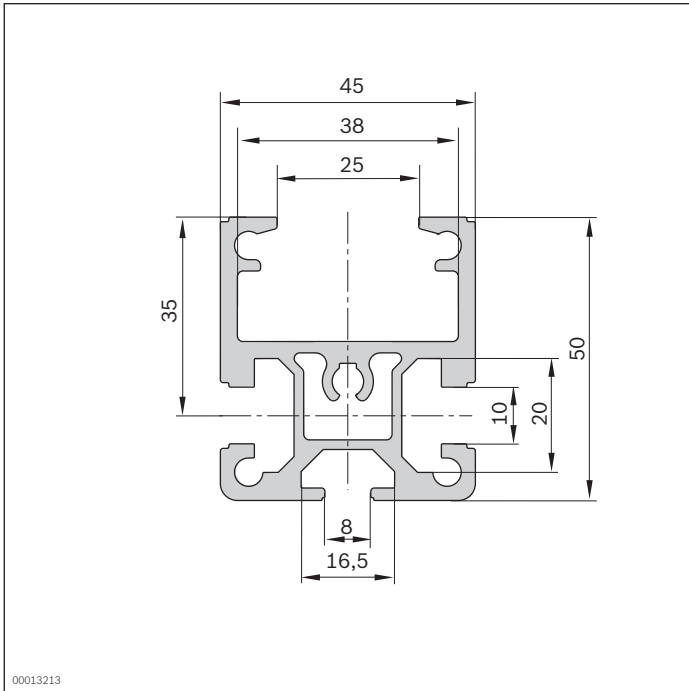
Ordering information

Product designation	l (mm)	l (mm)	Delivery unit	Material number
SP 2/B-50 20 x 6070 mm section profile	6070		20	3842532697
SP 2/B-50 section profile		60 ... 6000		3842992903

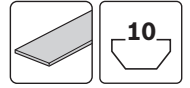
Technical data

Material number		3842532697		3842992903	
Load					
Moment of inertia	I_x	cm ⁴	46.2	46.2	
	I_y	cm ⁴	16.9	16.9	
Moment of resistance	W_x	cm ³	5.3	5.3	
	W_y	cm ³	7.5	7.5	
Features					
Material specification			Aluminum, natural; anodized	Aluminum, natural; anodized	
Mass	m	kg/m	1.9	1.9	
Dimensions					
Length	l	mm	6070		
Length	l	mm	60 ... 6000		
Profile surface	A	cm ²	6.9	6.9	

Dimensions



SP 2/BH section profile



- ▶ Used for self-construction of low-profile conveyor units and the conveyor media belt
- ▶ For use in conjunction with all AS 2/B drive modules, UM 2/B return units and FP 2/B guide profiles
- ▶ Longitudinal grooves for easy mounting
- ▶ In tough design

3

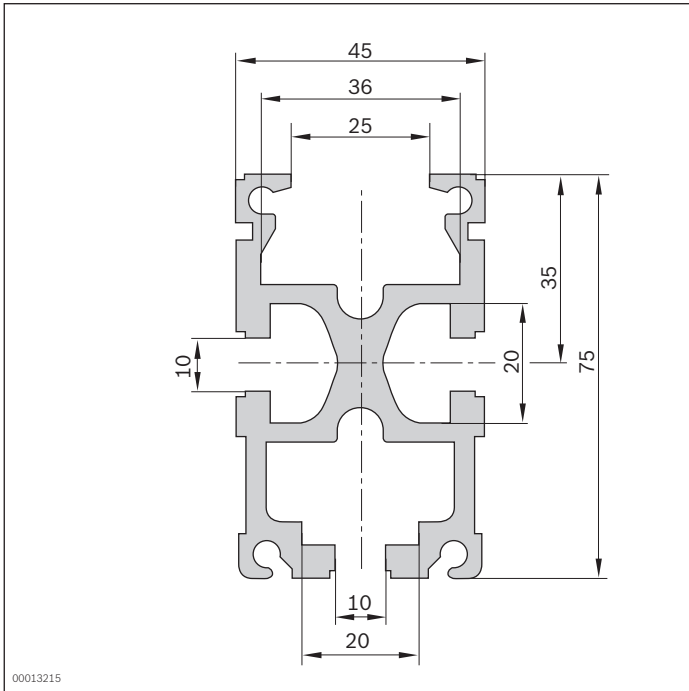
Ordering information

Product designation	l (mm)	l (mm)	Delivery unit	Material number
SP 2/BH 16 x 6070 mm section profile	6070		16	3842532696
SP 2/BH section profile		60 ... 6000		3842990409

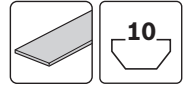
Technical data

Material number		3842532696		3842990409	
Load					
Moment of inertia	I_x	cm ⁴	53.7	53.7	
	I_y	cm ⁴	28.6	28.6	
Moment of resistance	W_x	cm ³	14.0	14.0	
	W_y	cm ³	13.8	13.8	
Features					
Material specification			Aluminum, natural; anodized	Aluminum, natural; anodized	
Mass	m	kg/m	3.3	3.3	
Dimensions					
Length	l	mm	6070		
Length	l	mm	60 ... 6000		
Profile surface	A	cm ²	12.4	12.4	

Dimensions



SP 2/B-100 section profile



3



- ▶ Used for self-construction of conveyor units with a height of 100 mm and the conveyor medium belt
- ▶ For use in conjunction with all AS 2/B drive modules, UM 2/B return units and FP 2/B guide profiles
- ▶ Longitudinal grooves for easy mounting
- ▶ For use in assembly systems with mixed conveyor media, e.g., belt and flat top chain

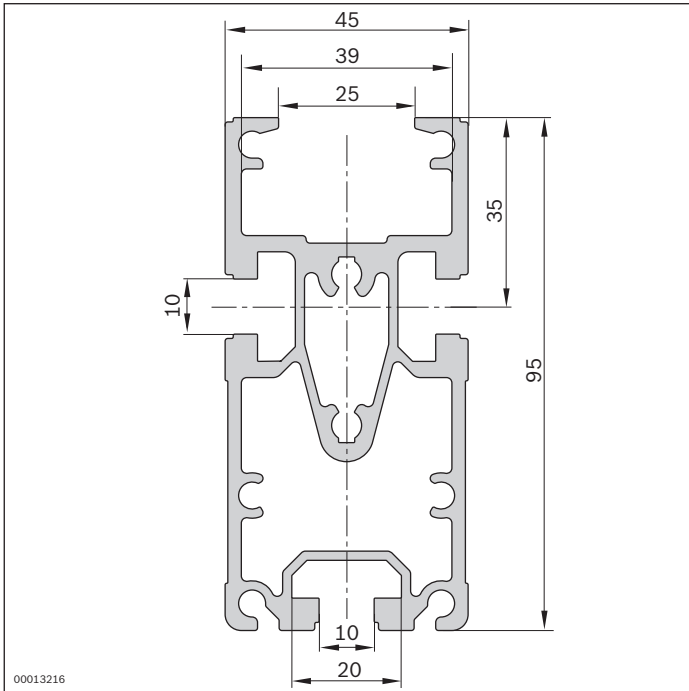
Ordering information

Product designation	l (mm)	l (mm)	Delivery unit	Material number
SP 2/B-100 16 x 6070 mm section profile	6070		16	3842532608
SP 2/B-100 section profile		60 ... 6000		3842993259

Technical data

Material number		3842532608		3842993259	
Load					
Moment of inertia	I_x	cm ⁴	95.1	95.1	
	I_y	cm ⁴	30.4	30.4	
Moment of resistance	W_x	cm ³	20.0	20.0	
	W_y	cm ³	13.5	13.5	
Features					
Material specification			Aluminum, natural; anodized	Aluminum, natural; anodized	
Mass	m	kg/m	3.2	3.2	
Dimensions					
Length	l	mm	6070		
Length	l	mm	60 ... 6000		
Profile surface	A	cm ²	11.9	11.9	

Dimensions



FP 2/B guide profile



3



- ▶ For belt guide
- ▶ For clipping onto the SP 2/B section profiles

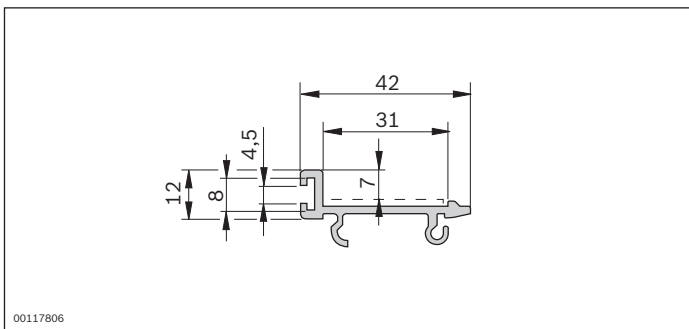
Ordering information

Product designation	l (mm)	Delivery unit	Material number
FP 2/B guide profile	6000	16	3842532675

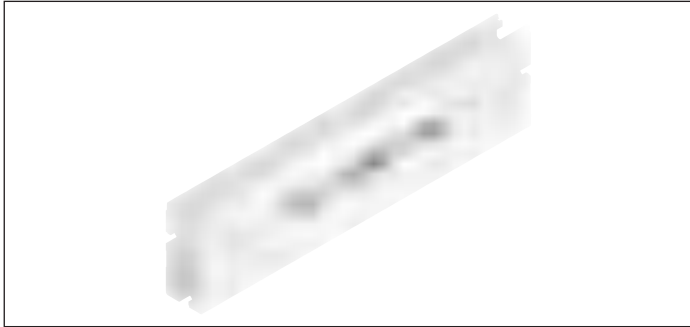
Technical data

Material number	3842532675		
Features			
ESD	Yes		
Material specification	Plastic, PA (suitable for use in an EPA)		
Dimensions			
Length	l	mm	6000

Dimensions



Profile connector



- ▶ For the end-to-end connecting of two profiles SP 2/...
Two profile connectors are required for each profile joint
- ▶ For conveyor unit self-assembly
- ▶ For use in conjunction with all AS 2/B drive modules,
UM 2/B return units and SP 2/B section profiles

Delivery notes

Scope of delivery

- ▶ Profile connector, screws

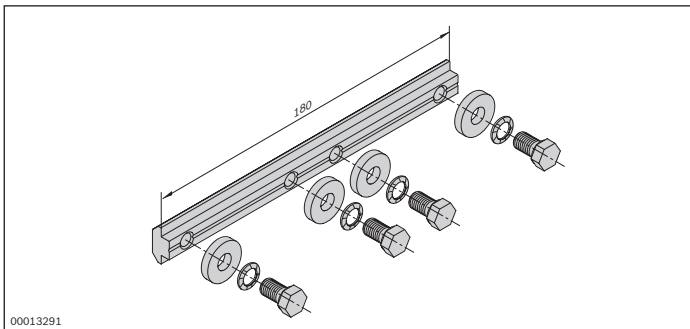
Ordering information

Product designation	Material number
Profile connector	3842528746

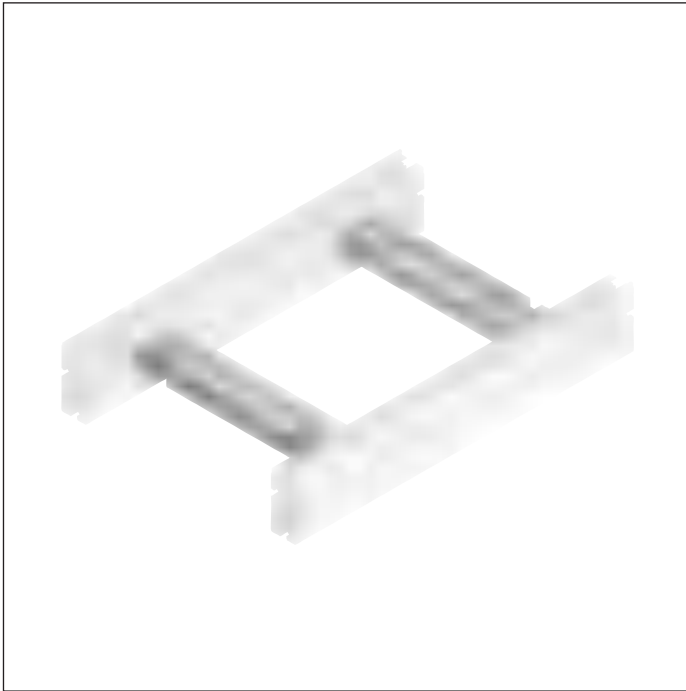
Technical data

Material number	3842528746
Features	
Material specification	Steel; galvanized

Dimensions



QV 2 cross connector



- ▶ For conveyor unit self-assembly
- ▶ For connecting section profiles and defining the track width
- ▶ Can be combined with all SP 2 section profiles

3

Formula for calculating the number of cross connectors needed

$$A_{QV} = (l/2000 \text{ mm}) + 1$$

A_{QV} = Number of cross connectors

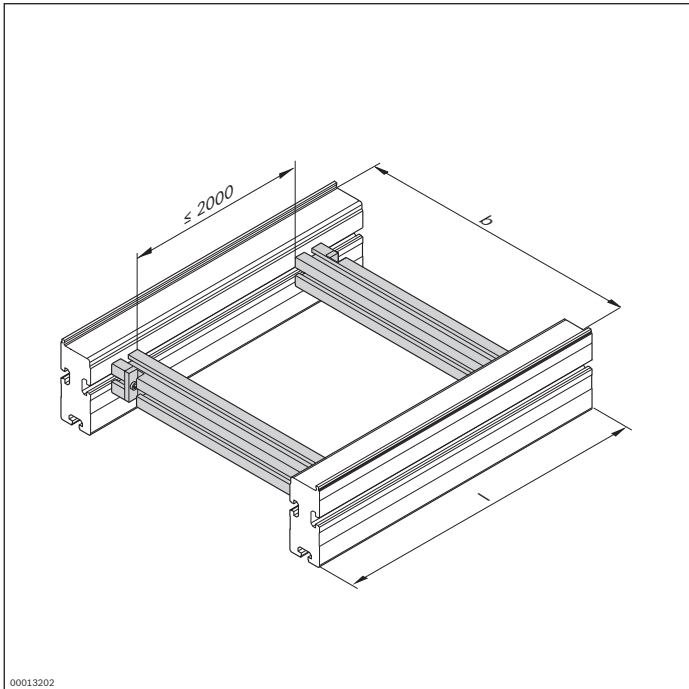
l = section length

Delivery notes

Scope of delivery

- ▶ 45x60 strut profile, finished
- ▶ 2x fastening material to mount on an ST 2 section

Ordering information



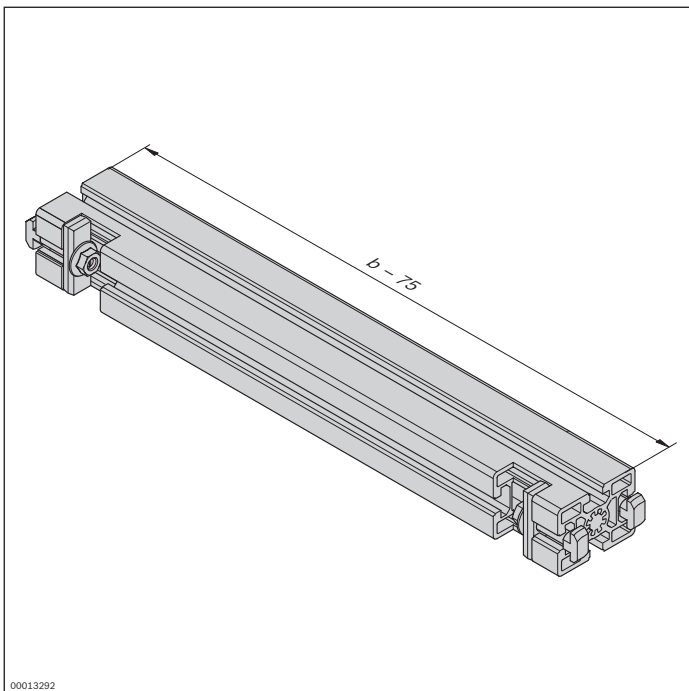
Material number		3842994635
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200
		160 ... 1200 ¹

¹ Individual width variants available

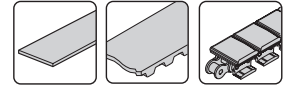
Technical data

Material number	3842994635
Features	
Material specification	Aluminum, natural; anodized

Dimensions



Scraper



3



- ▶ To scrape small parts from the conveyor medium
- ▶ For use with workpiece pallets with a minimum weight of 3 kg
- ▶ Conveyor media: Belt, toothed belt and flat top chain
- ▶ May be mounted on the right side (R) or left side (L)
- ▶ Reversible operation is not possible on sections with scrapers

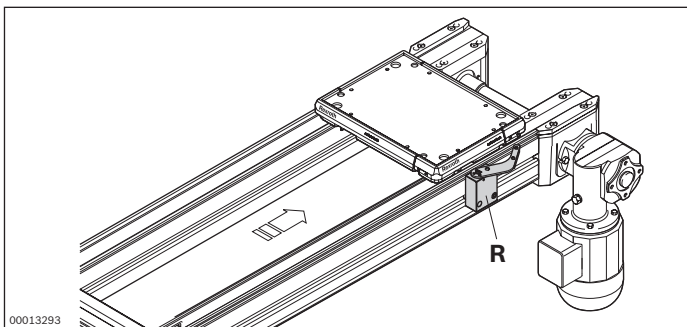
Delivery notes

Scope of delivery

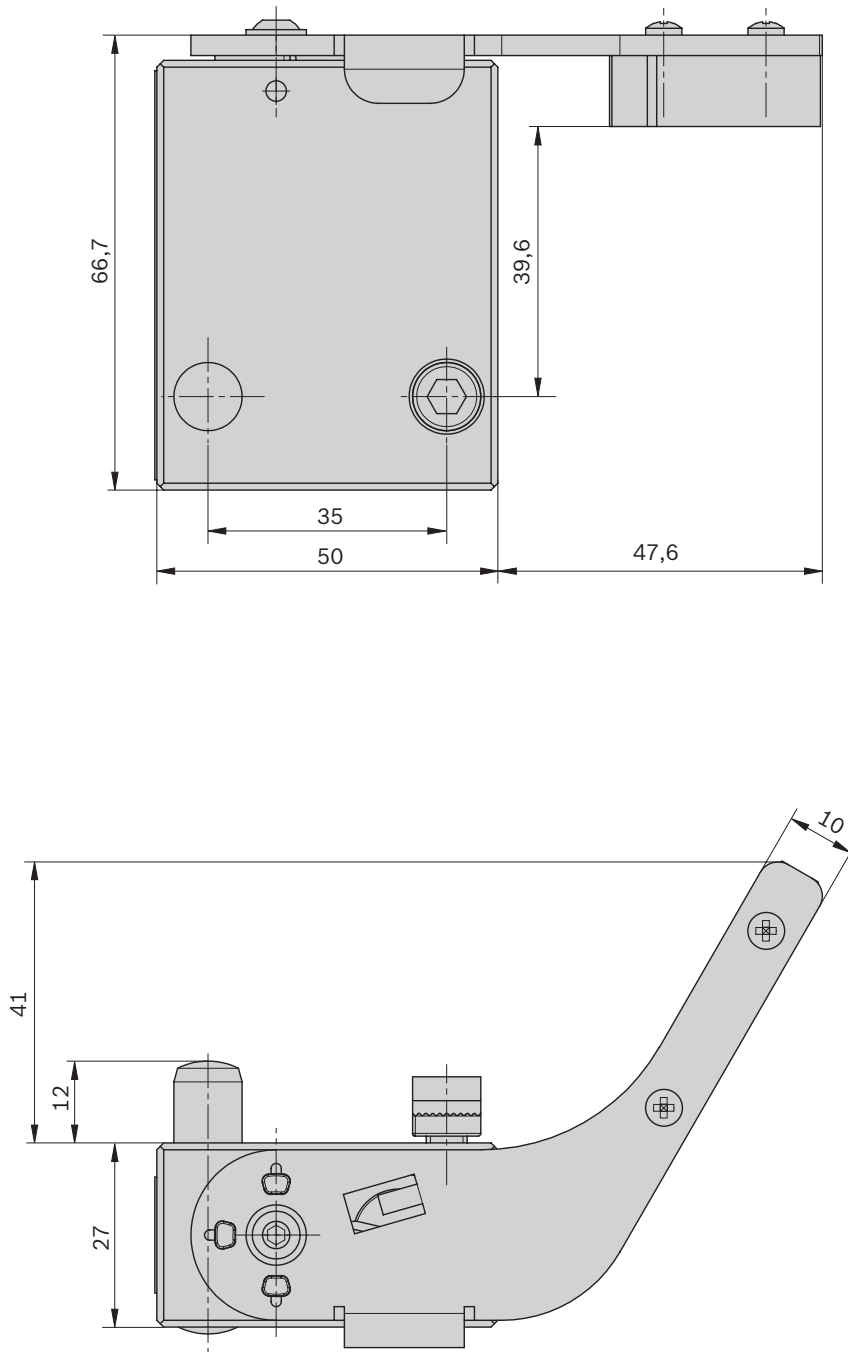
- ▶ 1x scraper, right or left, including fastening material

Ordering information

Product designation	Material number
Scraper, right	3842532679
Scraper, left	3842532680



Dimensions

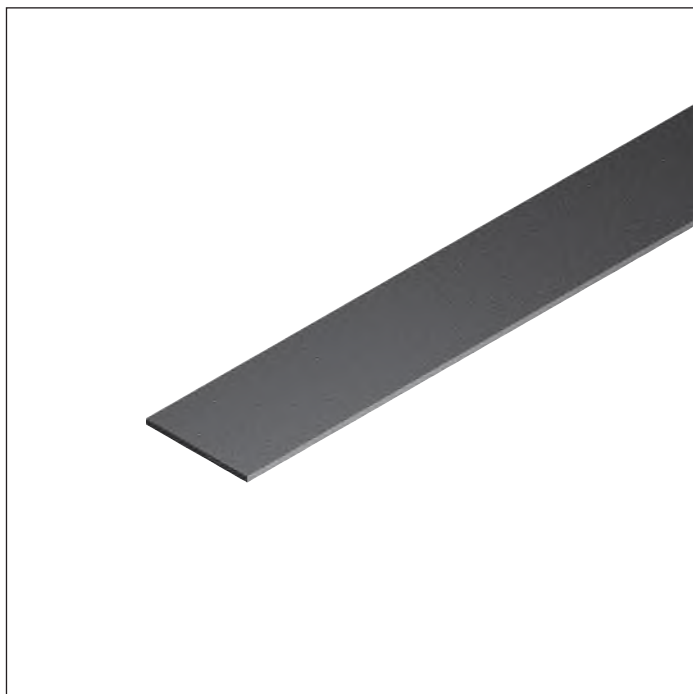


27630

GT 2 belt



3



The belt used as a conveyor medium transports the workpiece pallets into the transfer system. The belts are pretensioned during installation and bonded to form a

continuous belt. A belt assembly tool kit is used for jointing, tensioning and bonding.

Accessories

Required accessories

- ▶ Belt mounting tool kit, see p. 3-48
- ▶ Glue, see p. 3-47

Ordering information

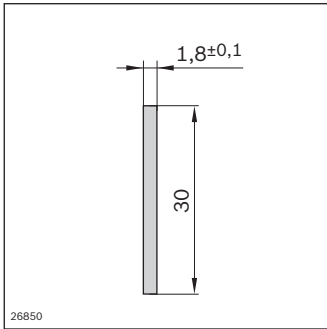
Product designation	l (m)	l (m)	Material number
GT 2 belt	250		3842539479
GT 2 belt		1 ... 250 ¹	3842992811

¹ Order and delivery are only possible up to the next full meter

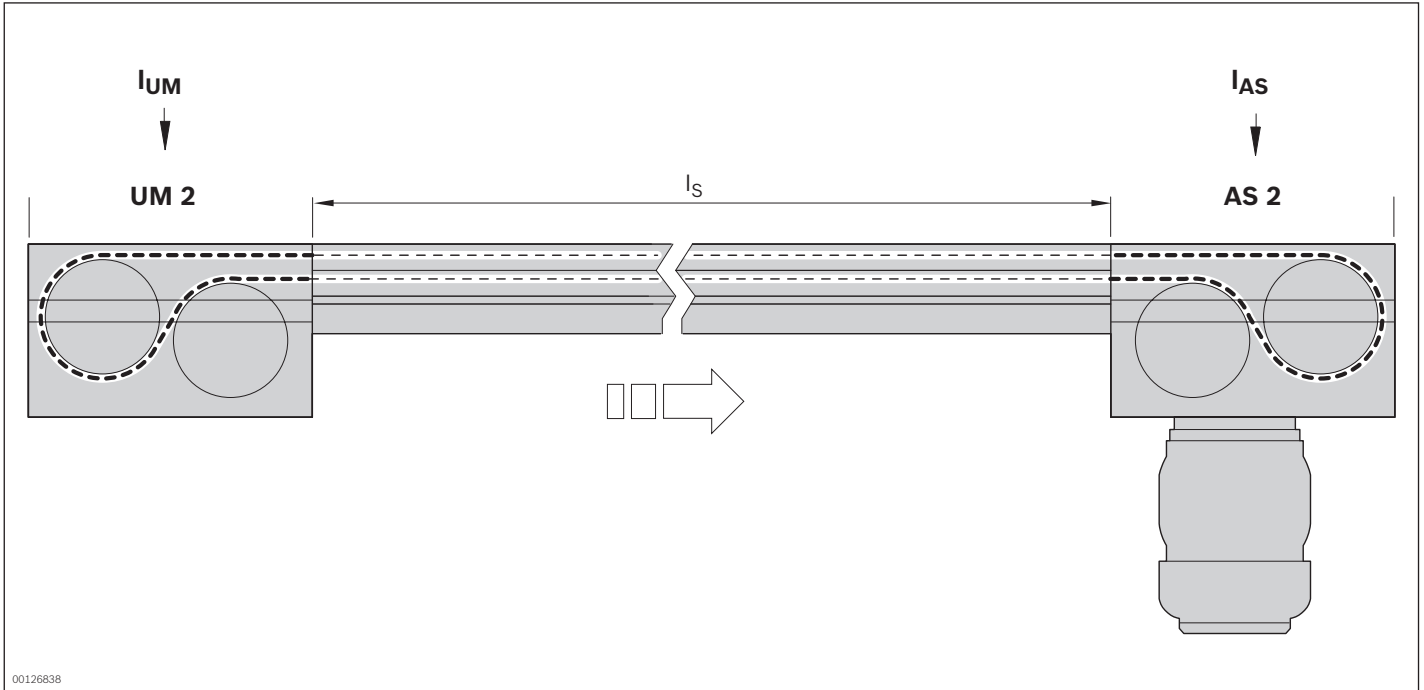
Technical data

Material number	3842539479		3842992811
Features			
ESD		Yes	Yes
Material specification		Polyamide (PA)	Polyamide (PA)
Dimensions			
Length	l	m	250
Length	l	m	1 ... 250

Dimensions



Calculating the required length of the conveyor medium



The required belt length is determined using the following formula.

Note: A pretensioning factor F is required for the belt, see the "Pretensioning factor F for belts" overview.

$$l_B = ((2 \times l_s + l_{AS} + l_{UM}) \times F) + 60$$

l_B = Length of belt

l_s = Length of section

l_{AS} = Length of the conveyor medium at the drive module

l_{UM} = Length of the conveyor medium at the return unit

F = pretensioning factor

Pretensioning factor F for belt

With BS 2, when $l_s \leq 4000$ mm, F = 0.98

With BS 2, when $l_s > 4000$ mm, F = 0.975

With AS 2/B-250, F = 0.965

Length of the conveyor medium for belt

l_{UM} = 660 mm

l_{AS} = 660 mm

Belt expansion

at $l_s \leq 4000$ mm, = 2%

at $l_s > 4000$ mm = 2.5%

at AS 2/B-250, = 3,5%

Glue



3

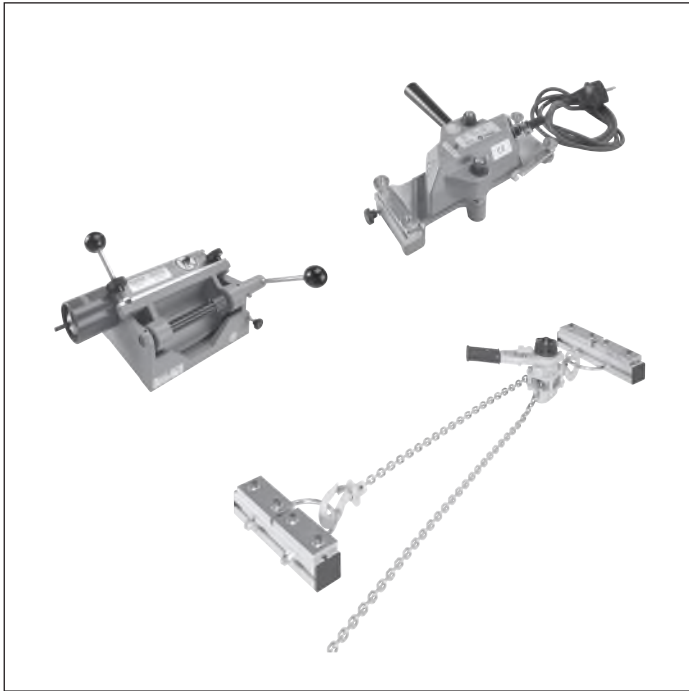


- ▶ Used for bonding belts
- ▶ For use in connection with the belt assembly tool kit
- ▶ For industrial use only
- ▶ Follow the safety instructions

Ordering information

Product designation	Material number
Glue, 50 ml	3842315106

Belt assembly tool



- ▶ Skiving device for reducing belts at connection points
- ▶ Heat press to glue the belt ends thermally
- ▶ Belt pretensioning device

The belt assembly tool is used to join the ends of belts for section lengths $l > 2000$ mm.

Accessories

Required accessories

- ▶ Glue, see p. 3-47

Delivery notes

Scope of delivery

- ▶ Skiving device
- ▶ Heating press
- ▶ Pretensioning device
- ▶ Abrasive belt
- ▶ Brush

Recommended accessories

- ▶ Second heating press for the simultaneous bonding of adjacent belts

Ordering information

Product designation	Material number
Heating press, single	3842315101
Belt mounting tool kit	3842532810



Flat top chain conveyor medium



The flat top chain conveys primarily medium and large-sized workpiece pallets in environments with low to moderate production emissions.

The arcing capacity of the plastic flat top chain permits continuous drive combinations with curve arcs (see p. 4-32).

PA wear pads on the workpiece pallets are recommended in the combination with the plastic flat top chain. This permits in the standard design with plastic glide profiles in the section profile surface loads of up to 1 kg/cm, whereas the optionally available version with steel glide profiles can tolerate surface loads of up to 1.5 kg/cm.

A particularly robust combination can be created from the HD profiles in combination with steel glide profiles and steel guide profile.

Reversible operation is not permitted with the flat top chain conveyor medium.

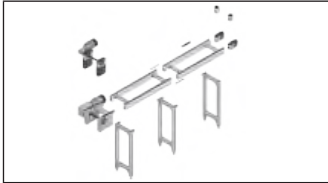
If flat top chains are used, the LU2 automatic lubrication unit is highly recommended.



Single-track CS/C section, BS 2/C belt sections



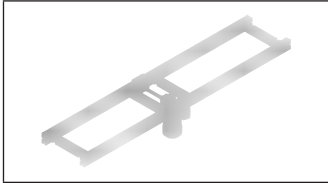
3-52



**Parts for AS 2/..., UM 2/..., ST 2...
conveyor units**



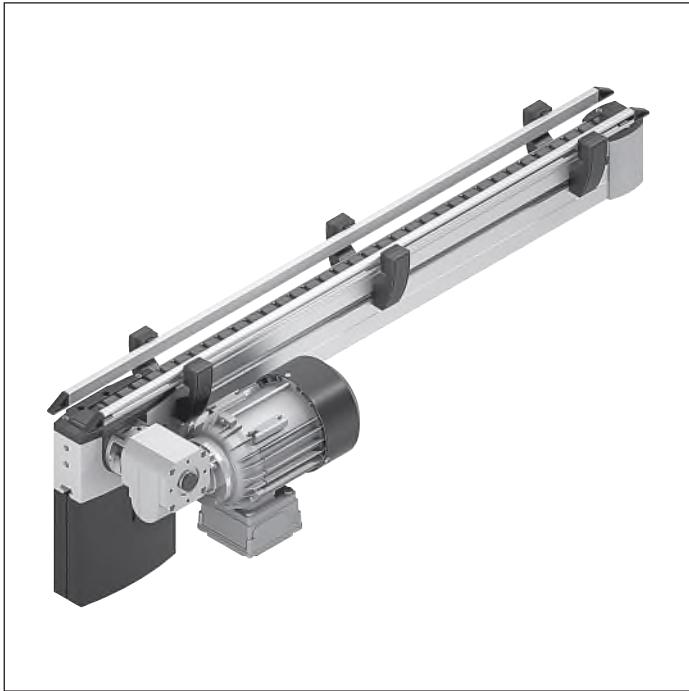
3-66



Connection kits

3-236

Single-track CS/C section



- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Motor mounting right or left
- ▶ Conveyor medium: plastic flat top chain (with KA = A suitable for use in an EPA)
- ▶ Special models on request
- ▶ Reversible operation is possible for $l \leq 2000$ mm and environments without small parts

The single-track CS/C section is a conveyor section that is ready for operation with own drive for the transportation of

small parts for mounting and assembly workstations.

Accessories

Recommended accessories

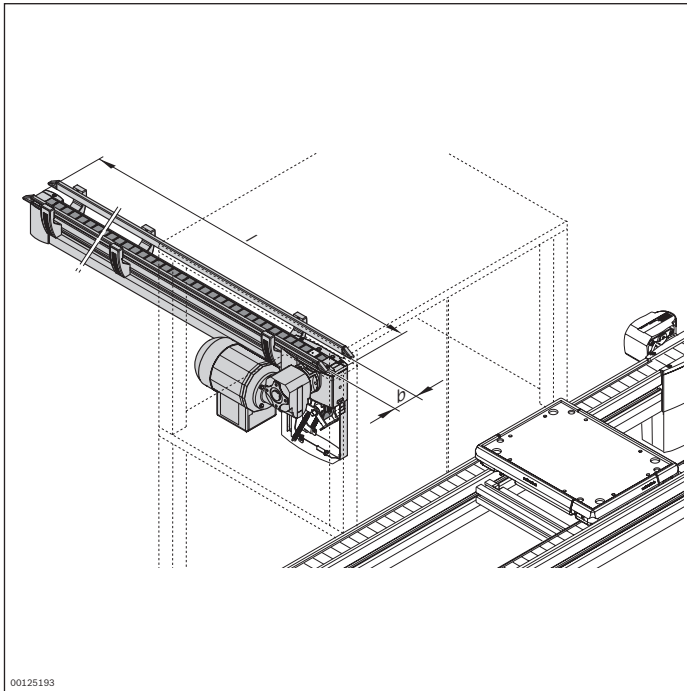
- ▶ Connection kits, see page 3-236
- ▶ SZ 2 leg sets, see page 6-2
- ▶ LU 2 automatic lubrication unit, see p. 3-84

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998277
b (mm)	Track width in direction of transport	42; 52; 62; 72
l (mm)	Length	350 ... 6000
v _N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left	R; L
KA	Chain version Chain in standard version (KA = N) Chain suitable for use in an EPA (KA = A)	N; A

3

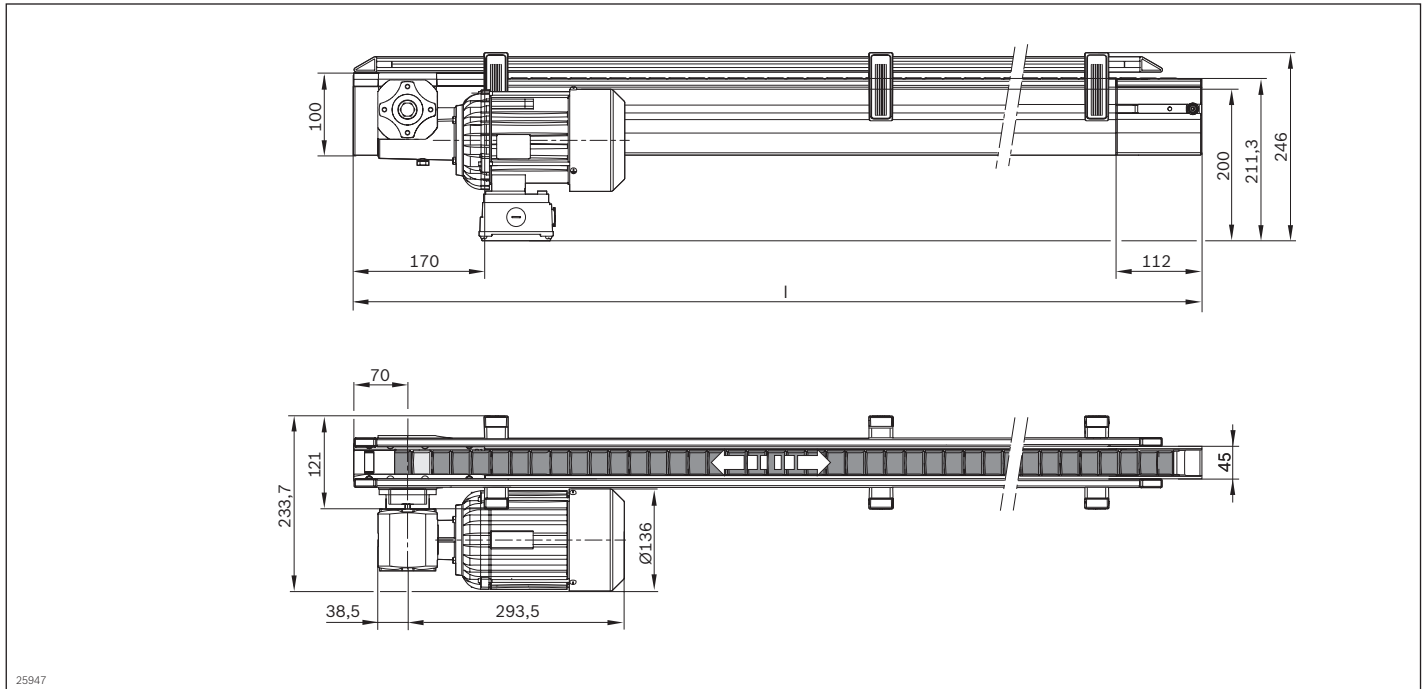
Technical data

Material number		3842998277	
Load			
Max. section load in accumulation operation	kg	at l = 2001 ... 6000 mm 100	at l = 350 ... 2000 mm 70
Features			
ESD			yes, with KA = A*
Max. operating temperature	T	°C	+40
Dimensions			
Length	l	mm	350 ... 6000

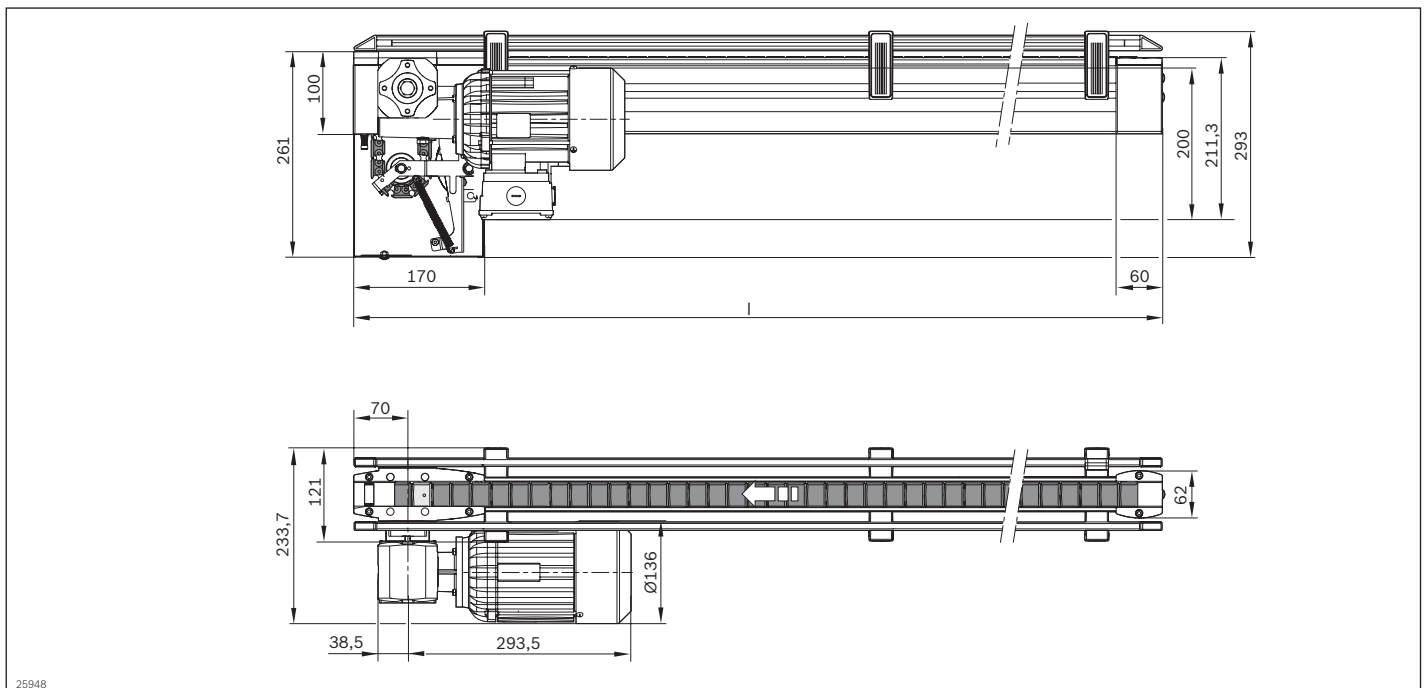
* Chain suitable for use in an EPA (KA = A)

3-54 **TS 2plus 7.0** | Longitudinal conveyor
Single-track CS/C section

Dimensions
CS/C ≤ 2000 mm



CS/C > 2000 mm



BS 2/C-100 belt section



- ▶ Functional operation conveyor complete with drive
- ▶ Longitudinal conveying of the workpiece pallet on conveyor sections of up to 6000 mm
- ▶ Transverse conveyor between parallel conveyor sections
- ▶ Conveyor medium: plastic flat top chain (with KA = A suitable for use in an EPA)
- ▶ Right, left or central motor mounting (central from track width of 240 mm)
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request
- ▶ Reversible operation not permitted
- ▶ Use with medium accumulation loads
- ▶ The LU 2 automatic lubrication unit is highly recommended

The belt section is a ready for operation conveyor section with own drive for the transportation of workpiece pallets in the longitudinal direction or for the transverse conveying

of the workpiece pallet between parallel conveyor sections in connection with two HQ 2 lift transverse units.

Accessories

Recommended accessories

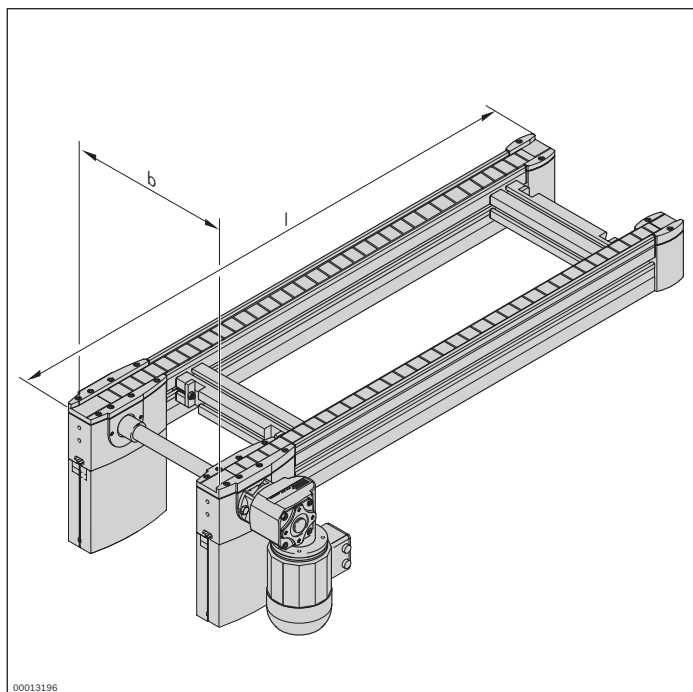
- ▶ Connection kits, see page 3-236
- ▶ SZ 2 leg sets, see page 6-2
- ▶ LU 2 automatic lubrication unit, see p. 3-84

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842999917
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200 160 ... 1200 ¹
l (mm)	Length	300 ... 6000
v _N (m/min)	Nominal speed	0 ² ; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M ³
KA	Chain version Chain in standard version (KA = N) Chain suitable for use in an EPA (KA = A)	N; A

¹⁾ Individual width variants available

²⁾ v_N = 0; without motor or gear

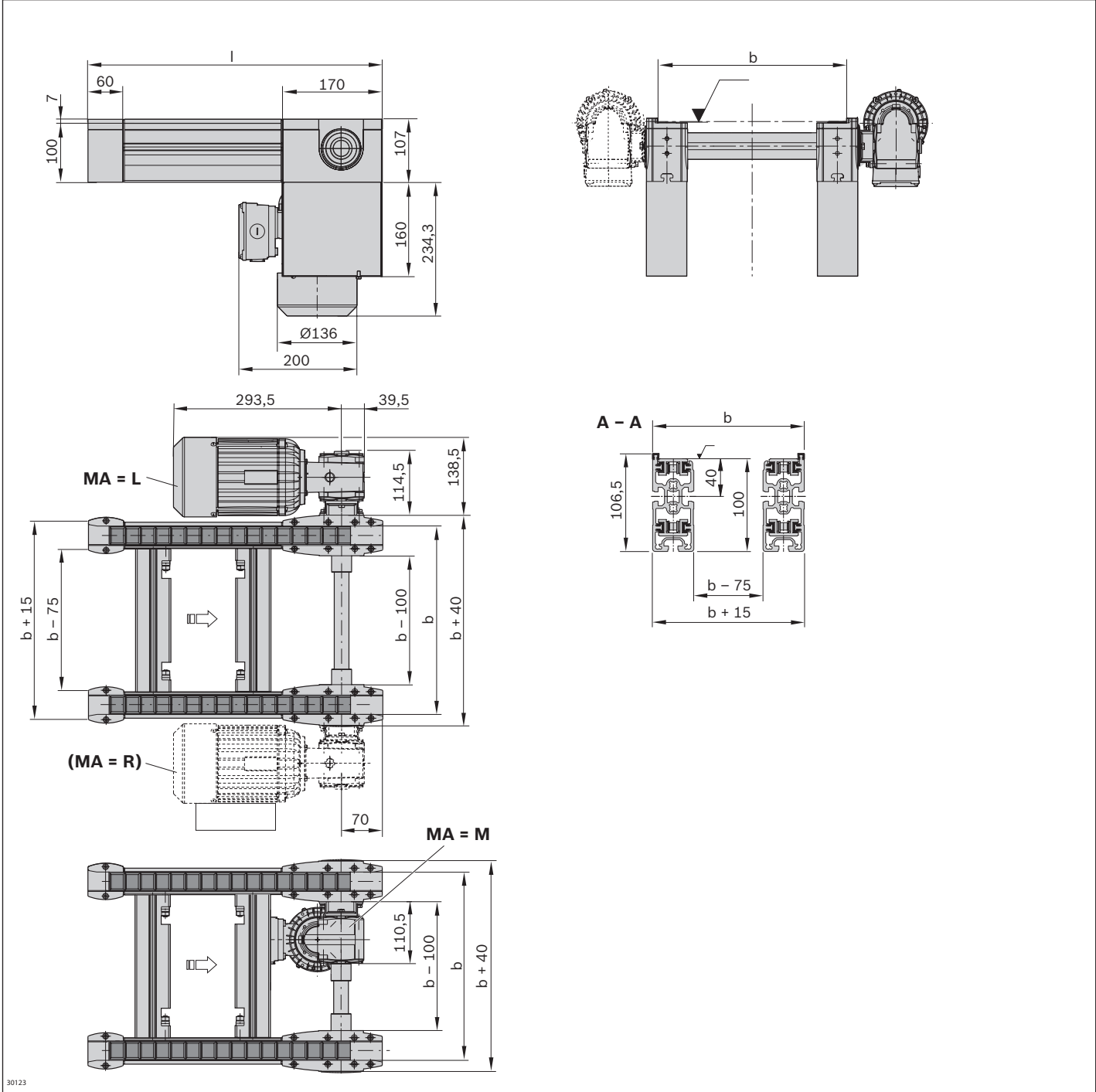
³⁾ MA = M only for b ≥ 240 mm

Technical data

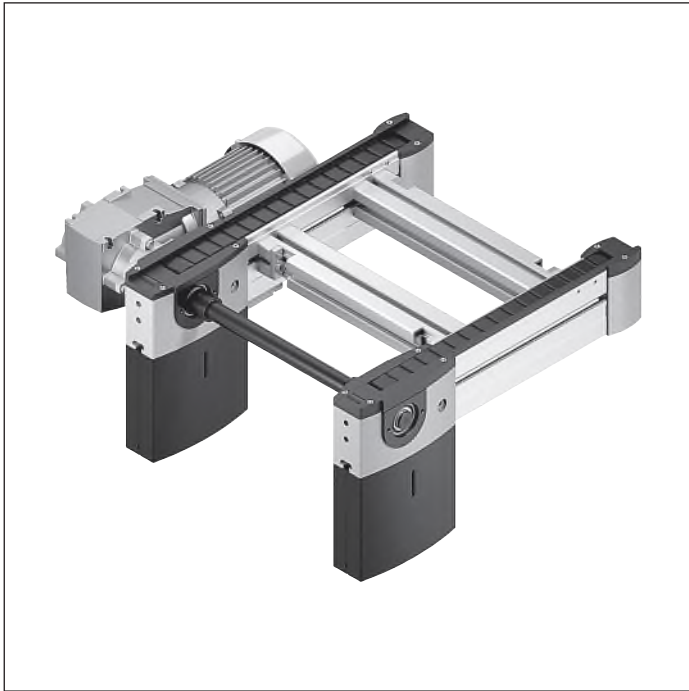
Material number		3842999917
Load		
Max. section load in accumulation operation	kg	100
Features		
ESD		yes, with KA = A*
Material specification		Section profile: Aluminum, natural; anodized Guide profile: Polyamide Glide profile: Polyamide
Max. operating temperature	T	°C
		+40
Dimensions		
Length	l	mm
		300 ... 6000

* Chain suitable for use in an EPA (KA = A)

Dimensions



BS 2/C-250 belt section



- ▶ Functional operation conveyor complete with drive
- ▶ Longitudinal conveying of the workpiece pallet on conveyor sections of up to 6000 mm
- ▶ Transverse conveying between parallel conveyor sections in conjunction with lift transverse units
- ▶ Conveyor medium: plastic flat top chain (with KA = A suitable for use in an EPA)
- ▶ Motor mounting right or left
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request
- ▶ Reversible operation not permitted
- ▶ Use with medium accumulation loads
- ▶ The LU 2 automatic lubrication unit is highly recommended

The belt section is a ready for operation conveyor section with own drive for the transportation of workpiece pallets in the longitudinal direction or for the transverse conveying

of the workpiece pallet between parallel conveyor sections in connection with two HQ 2 lift transverse units.

Accessories

Recommended accessories

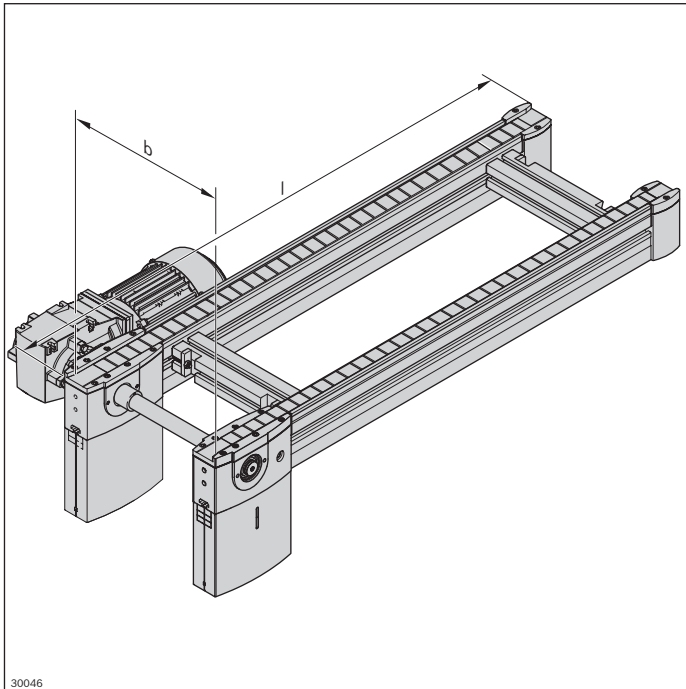
- ▶ Connection kits, see page 3-236
- ▶ SZ 2 leg sets, see page 6-2
- ▶ LU 2 automatic lubrication unit, see p. 3-84

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842999985
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200
l (mm)	Length	300 ... 6000
v_N (m/min)	Nominal speed	0 ¹⁾ ; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting ²⁾ R = right L = left	R; L
KA	Chain version Chain in standard version (KA = N) Chain suitable for use in an EPA (KA = A)	N; A

¹⁾ $v_N = 0$: without motor or gear

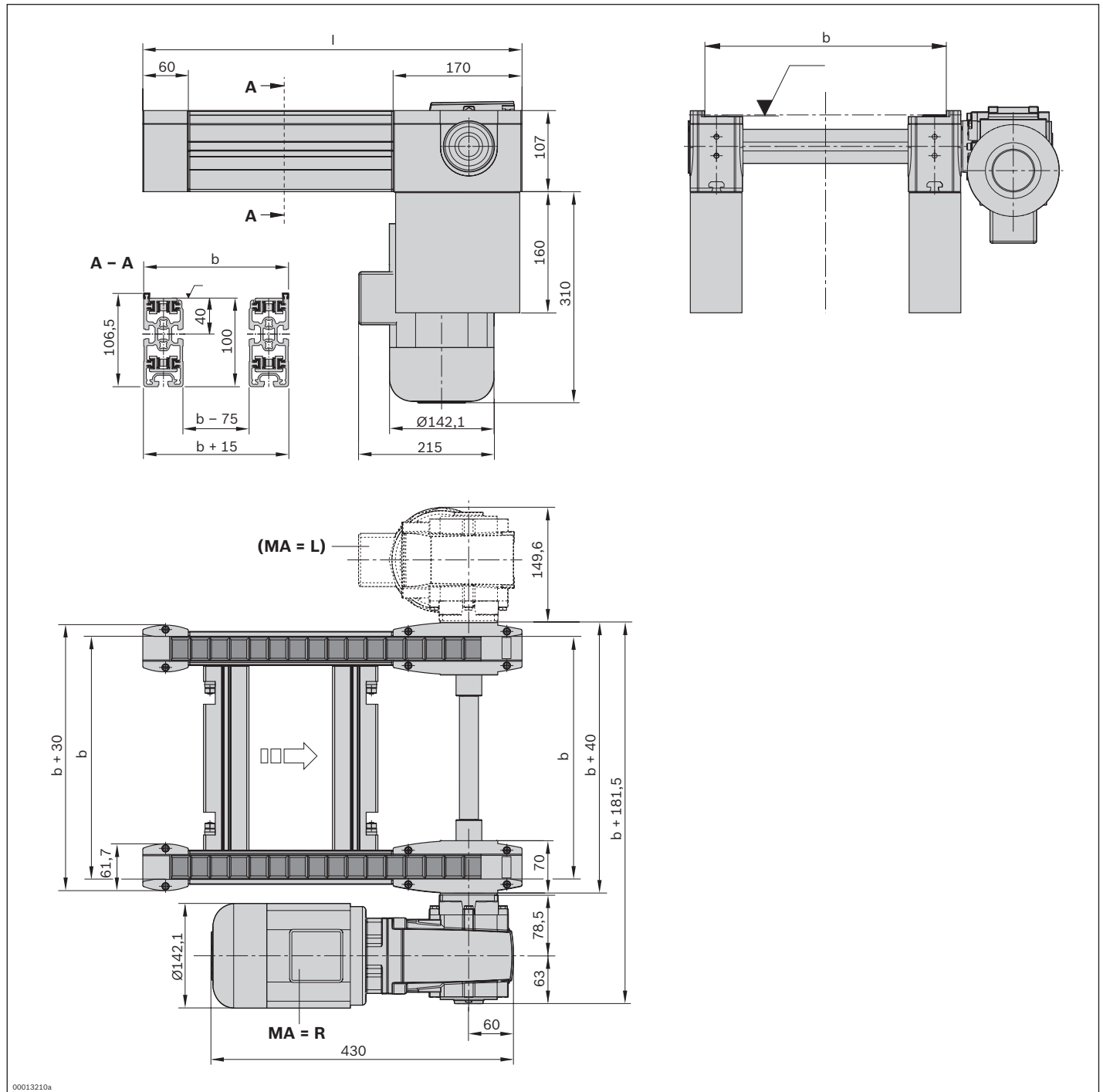
²⁾ Geometry does not permit MA = M

Technical data

Material number		3842999985
Load		
Max. section load in accumulation operation	kg	250
Features		
ESD		yes, with KA = A*
Material specification		Section profile: Aluminum, natural; anodized Guide profile: Polyamide Glide profile: Polyamide
Max. operating temperature	T	°C
		+40
Dimensions		
Length	l	mm
		300 ... 6000

* Chain suitable for use in an EPA (KA = A)

Dimensions



00013210a

BS 2/C-H belt section



- ▶ Functional operation conveyor complete with drive
- ▶ Sturdy design for especially heavy-duty systems
- ▶ Longitudinal conveying of the workpiece pallet on conveyor sections of 6000 mm
- ▶ Transverse conveying between parallel conveyor sections in conjunction with lift transverse units
- ▶ Conveyor medium: plastic flat top chain (with KA = A suitable for use in an EPA)
- ▶ Motor mounting right, left or central
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request
- ▶ Stainless steel workpiece pallet lateral guide
- ▶ Reversible operation not permitted
- ▶ Profile width: 50 mm
- ▶ Use with high accumulation loads
- ▶ The LU 2 automatic lubrication unit is highly recommended

The belt section is a ready for operation conveyor section with own drive for the transportation of workpiece pallets in the longitudinal direction or for the transverse conveying

of the workpiece pallet between parallel conveyor sections in connection with two HQ 2 lift transverse units.

Accessories

Recommended accessories

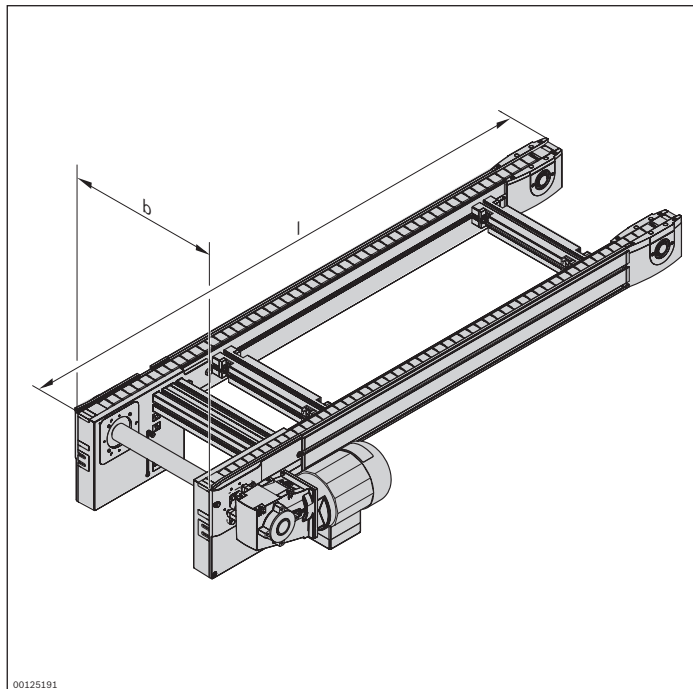
- ▶ Connection kits, see page 3-236
- ▶ SZ 2/...-H leg sets, see p. 6-2
- ▶ LU 2 automatic lubrication unit, see p. 3-84

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998239
b (mm)	Track width in direction of transport	400 ... 1200
l (mm)	Length	650 ... 6000
v_N (m/min)	Nominal speed	0 ¹⁾ ; 6; 9; 12; 15; 18 ²⁾
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M
KA	Chain version Chain in standard version (KA = N) Chain suitable for use in an EPA (KA = A)	N; A
GP	Glide profile Corrosion-resistant steel (GP = 1) Plastic (GP = 0)	0; 1

¹⁾ $v_N = 0$: without motor or gear

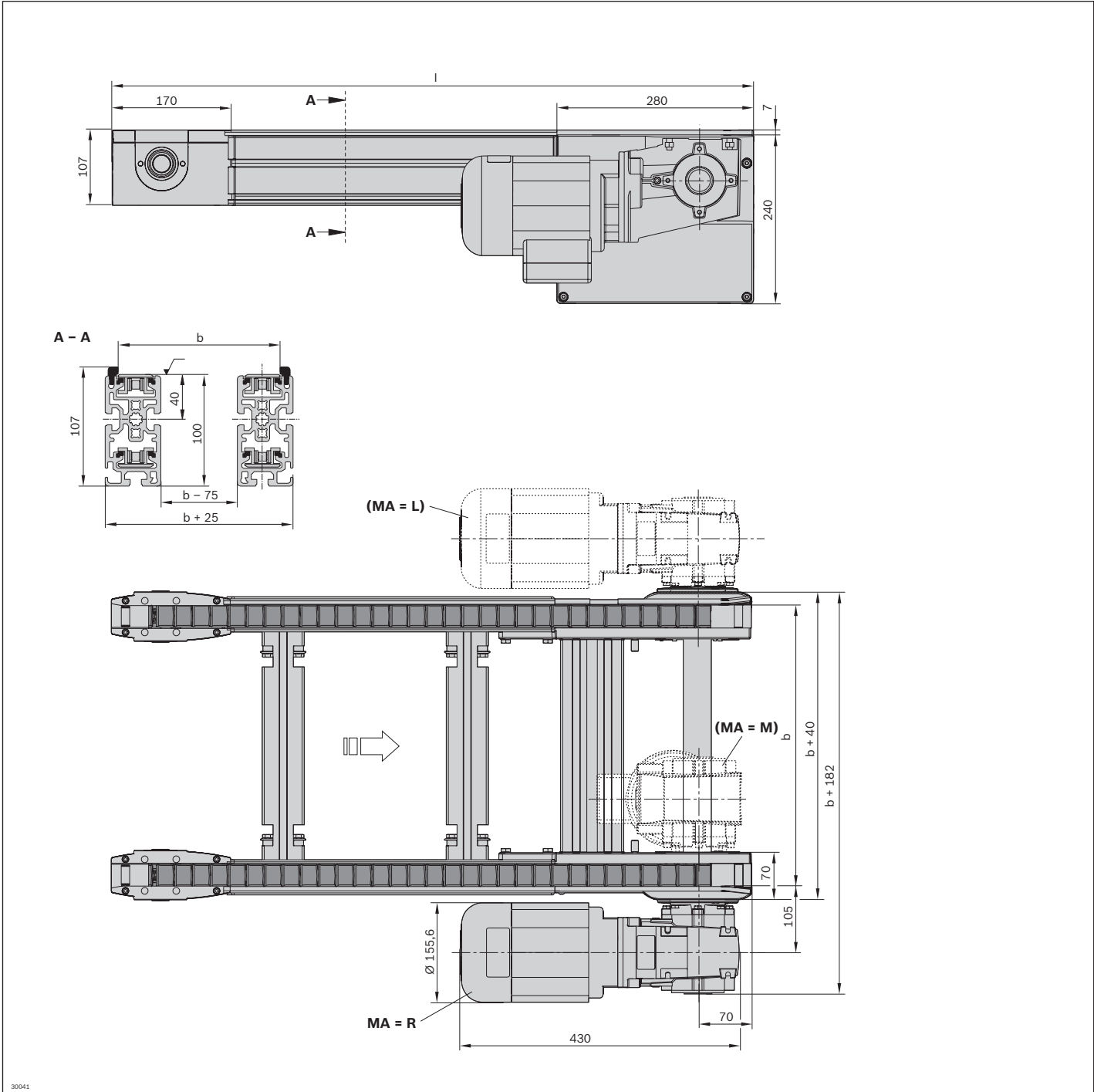
²⁾ Not possible if $f = 60$ Hz

Technical data

Material number		3842998239
Load		
Max. section load in accumulation operation	kg	400
Features		
ESD		yes, with KA = A*
Material specification		Section profile: Aluminum, natural; anodized Lateral guide: Stainless steel glide profile: Steel/plastic; corrosion-resistant
Dimensions		
Length	l	mm
		650 ... 6000

* Chain suitable for use in an EPA (KA = A)

Dimensions



BS 2/C+R connection belt



- Conveyor medium: Toothed belt (suitable for use in an EPA)

The head-to-head connection of the drive and return heads results in short, non-driven sections. The connection belt is

used to bridge these > 180 mm conveyor trenches by using short $l_{WT} < 320$ mm workpiece pallets.

Delivery notes

Condition on delivery

- Fully assembled

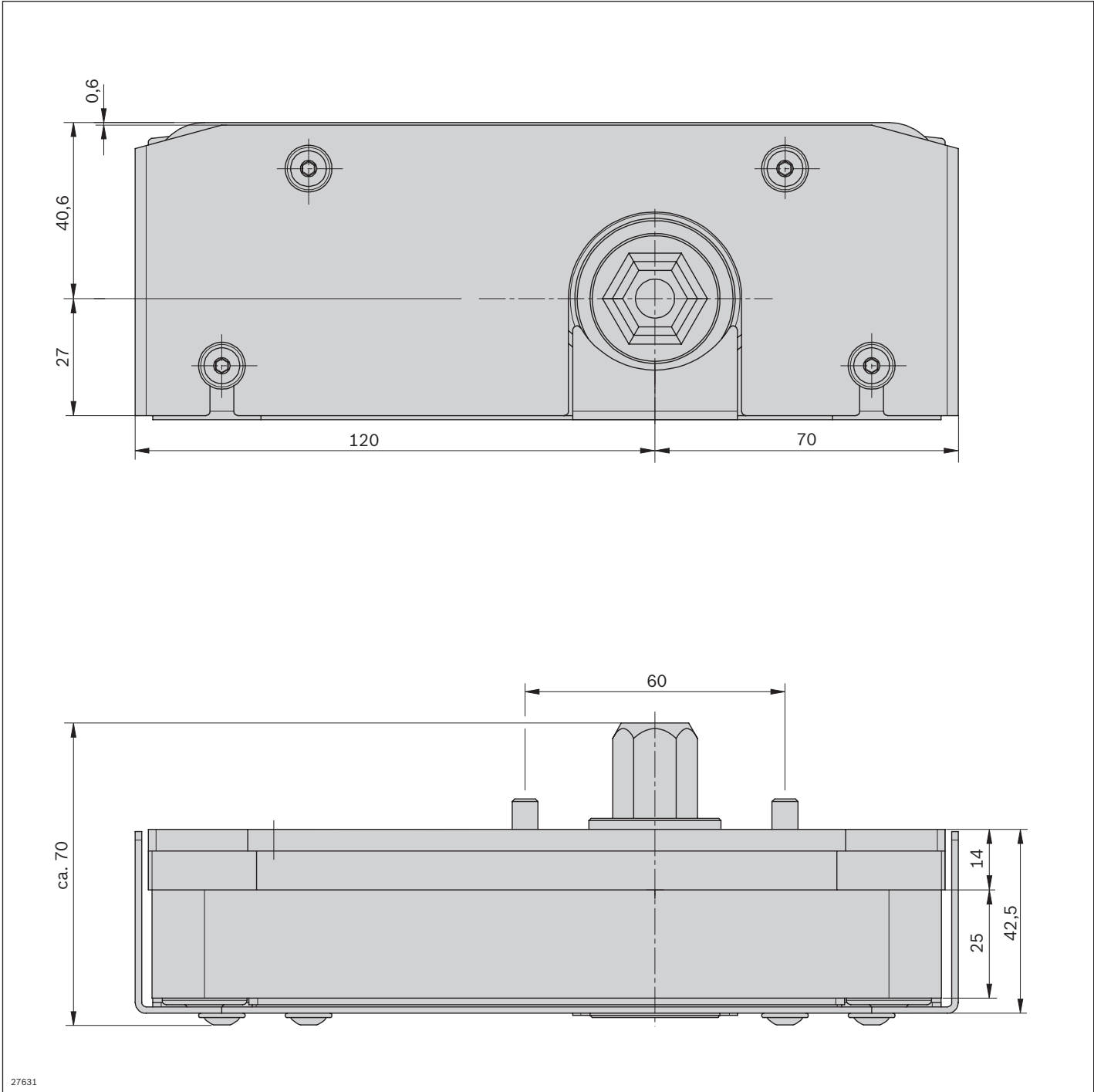
Ordering information

Product designation	Material number
Connection belt, left	3842528480
Connection belt, right	3842539096

Technical data

Material number	3842528480	3842539096
Features		
ESD	Yes	Yes

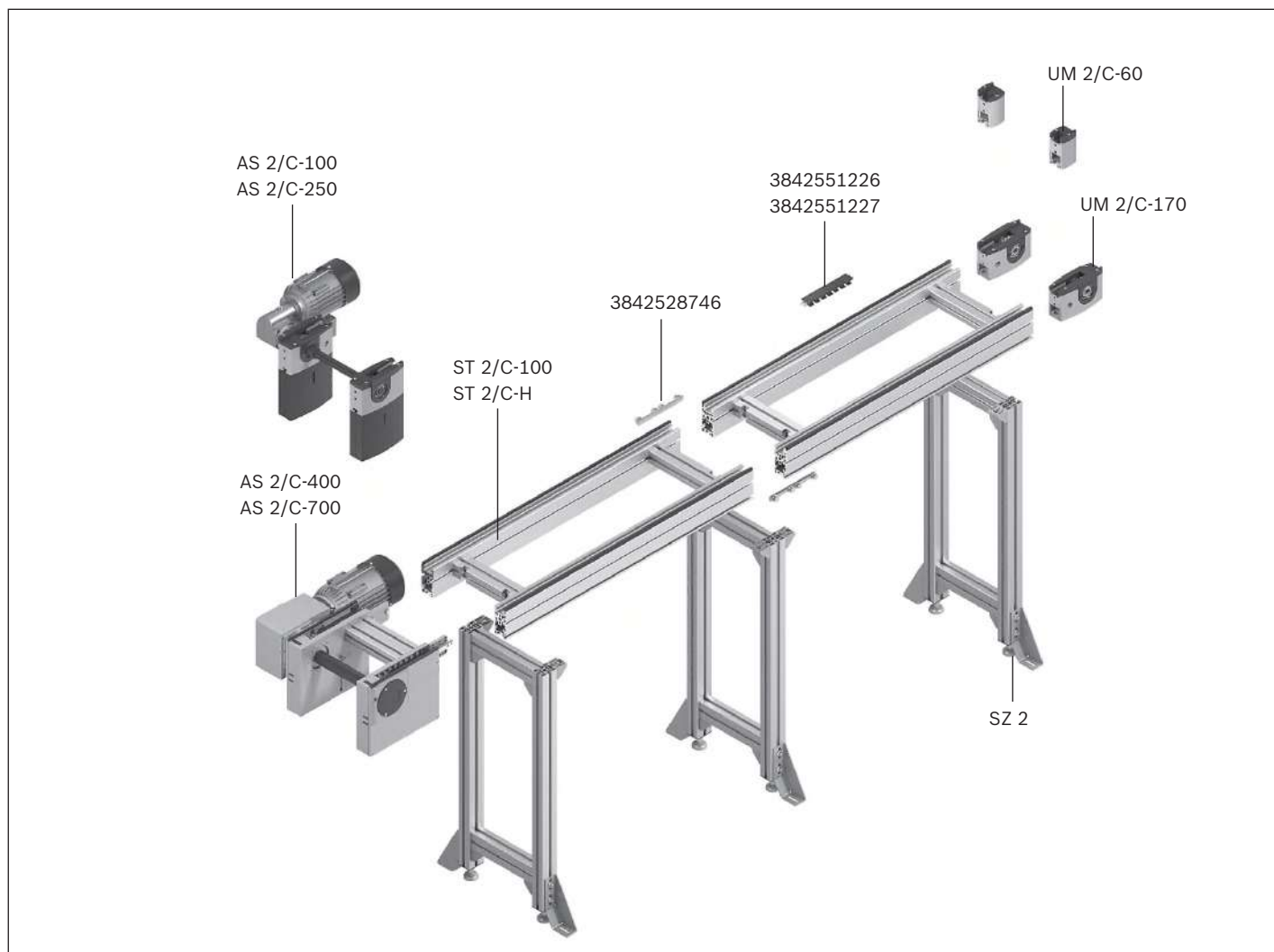
Dimensions



27631

Conveyor units

Parts for flat top chain conveyor medium



A conveyor unit is a complete unit used for linear conveying of workpiece pallets. It consists of:

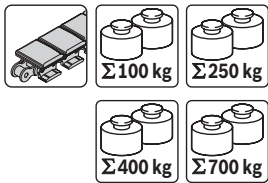
- ▶ AS 2/C drive module, see p. 3-68
- ▶ UM 2/C return unit, see p. 3-80
- ▶ ST 2/... section, see p. 3-86
- ▶ SZ 2/... leg sets, see p. 6-2
- ▶ QV 2 cross connector, see p. 3-108
- ▶ Flat top chain, see p. 3-116

The UM 2/C and AS 2/C-... may be set up right next to each other, which allows for conveyor unit combinations.

Drive modules for loads up to $m_G = 100$ kg; 250 kg; 400 kg; or up to $m_G = 700$ kg per conveyor unit.



AS 2/C drive module



3-68



UM 2/C return unit



3-80



ST 2/C section, components



3-86

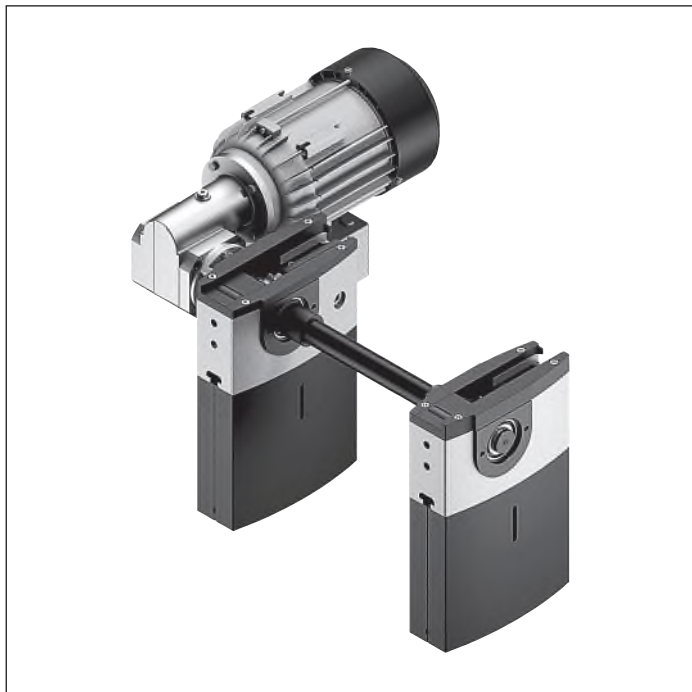


Flat top chain conveyor medium



3-116

AS 2/C-100 drive module



- ▶ Drive for conveyor unit self-assembly
- ▶ Conveyor medium: flat top chain (with KA = A suitable for use in an EPA)
- ▶ Right, left or central motor mounting (central from track width of 240 mm)
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request
- ▶ Reversible operation not permitted
- ▶ Use with medium accumulation loads
- ▶ The LU 2 automatic lubrication unit is highly recommended

The AS 2/C-... drive module drives the flat top chain conveyor medium in self-built conveyor section elements

with section, return unit and flat top chain.

Accessories

Recommended accessories

- ▶ Connection kits, see page 3-236
- ▶ LU 2 automatic lubrication unit, see p. 3-84

Delivery notes

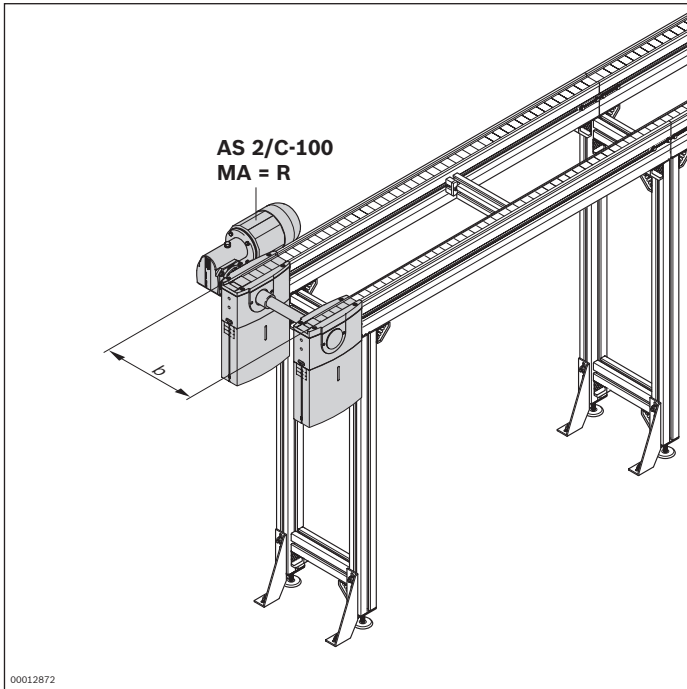
Scope of delivery

- ▶ Includes fastening material to mount on the ST 2 conveyor section, as well as to mount on an adjacent return unit.

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998053
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200 160 ... 1200 ¹⁾
v _N (m/min)	Nominal speed	0 ²⁾ ; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M ³⁾

¹⁾ Individual width variants available

²⁾ v_N = 0: without motor or gear

³⁾ MA = M only when b ≥ 240 mm

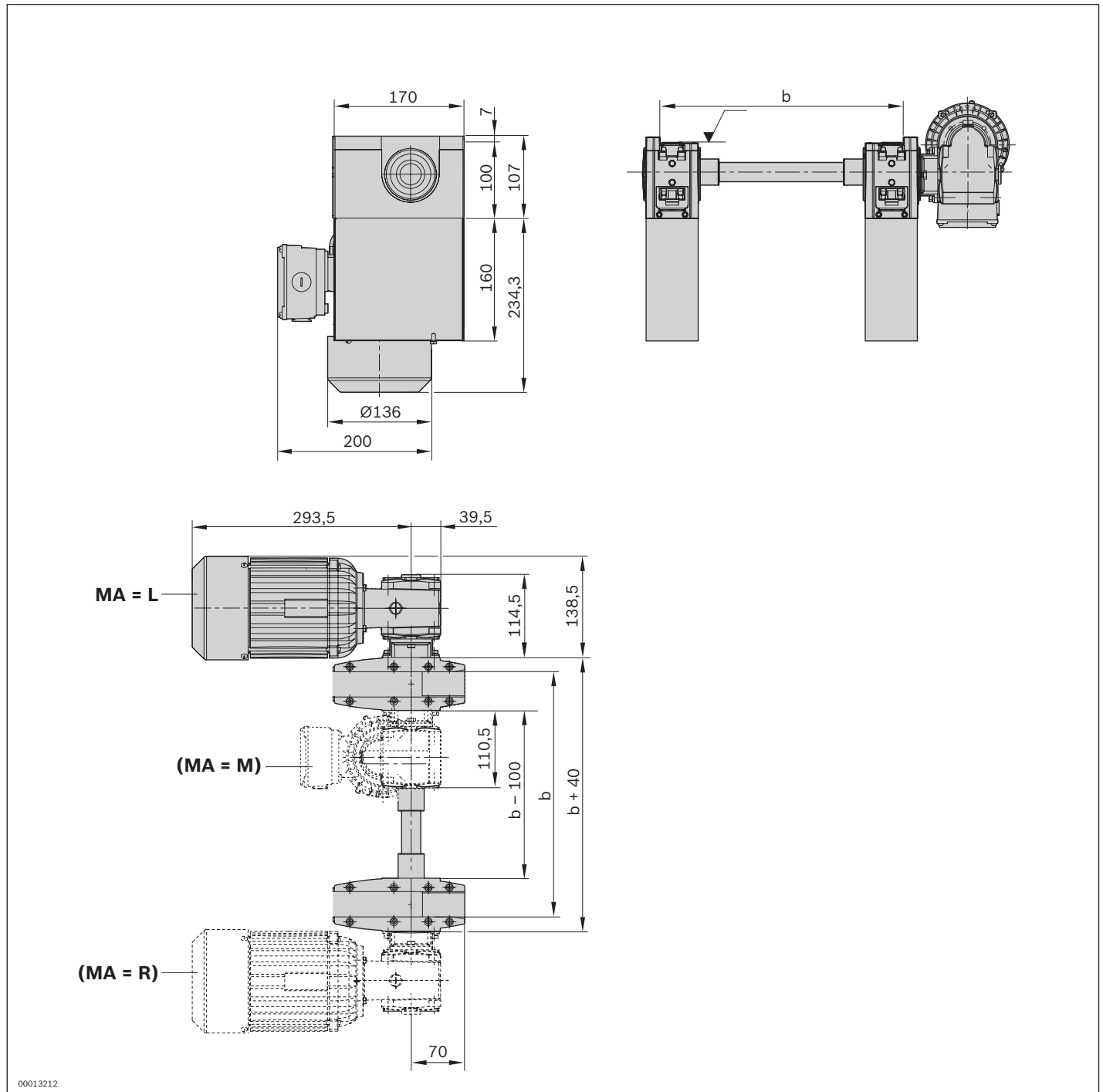
Technical data

Material number		3842998053
Load		
Max. section load in accumulation operation	kg	100
Features		
ESD		yes, with KA = A [*]
Additional information		
Required conveyor media length**	l _{AS}	mm 475

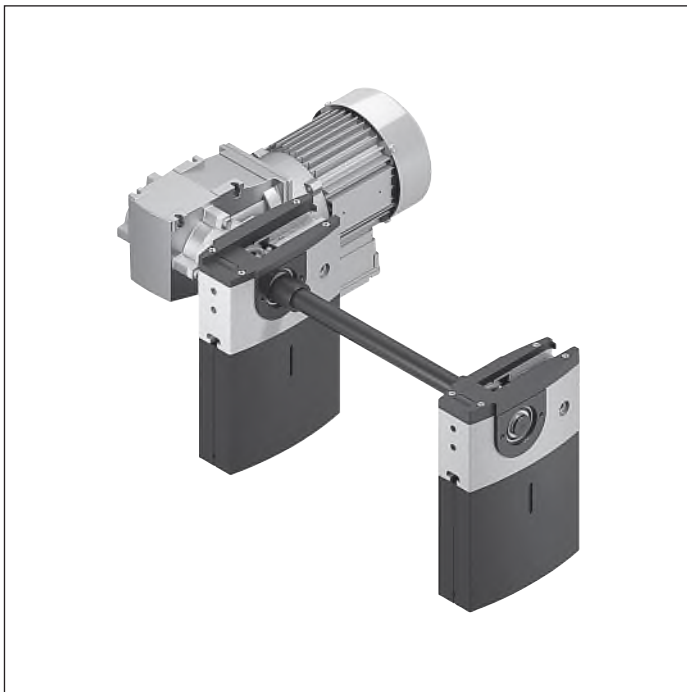
^{*} Chain suitable for use in an EPA (KA = A)

** Formula for calculating the conveyor medium, see p. 3-117

Dimensions



AS 2/C-250 drive module



The AS 2/C-... drive module drives the flat top chain conveyor medium in self-built conveyor section elements

Accessories

Recommended accessories

- ▶ Connection kits, see page 3-236
- ▶ LU 2 automatic lubrication unit, see p. 3-84

Delivery notes

Scope of delivery

- ▶ Includes fastening material to mount on the ST 2 conveyor section, as well as to mount on an adjacent return unit.

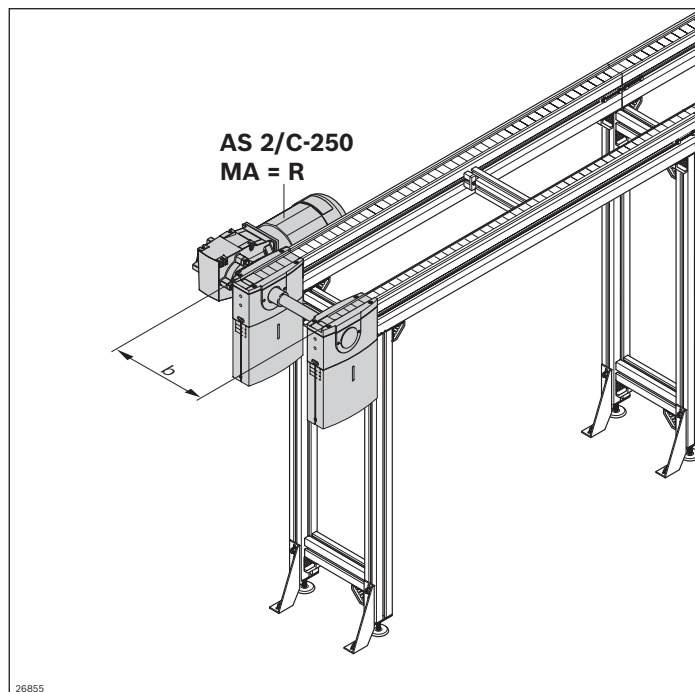
- ▶ Drive for conveyor unit self-assembly
- ▶ Conveyor medium: flat top chain (with KA = A suitable for use in an EPA)
- ▶ Motor mounting right or left
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request
- ▶ Reversible operation not permitted
- ▶ Use with medium accumulation loads
- ▶ The LU 2 automatic lubrication unit is highly recommended

with section, return unit and flat top chain.

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998087
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200 160 ... 1200 ¹⁾
v _N (m/min)	Nominal speed	0 ²⁾ ; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left	R; L

¹⁾ Individual width variants available

²⁾ v_N = 0: without motor or gear

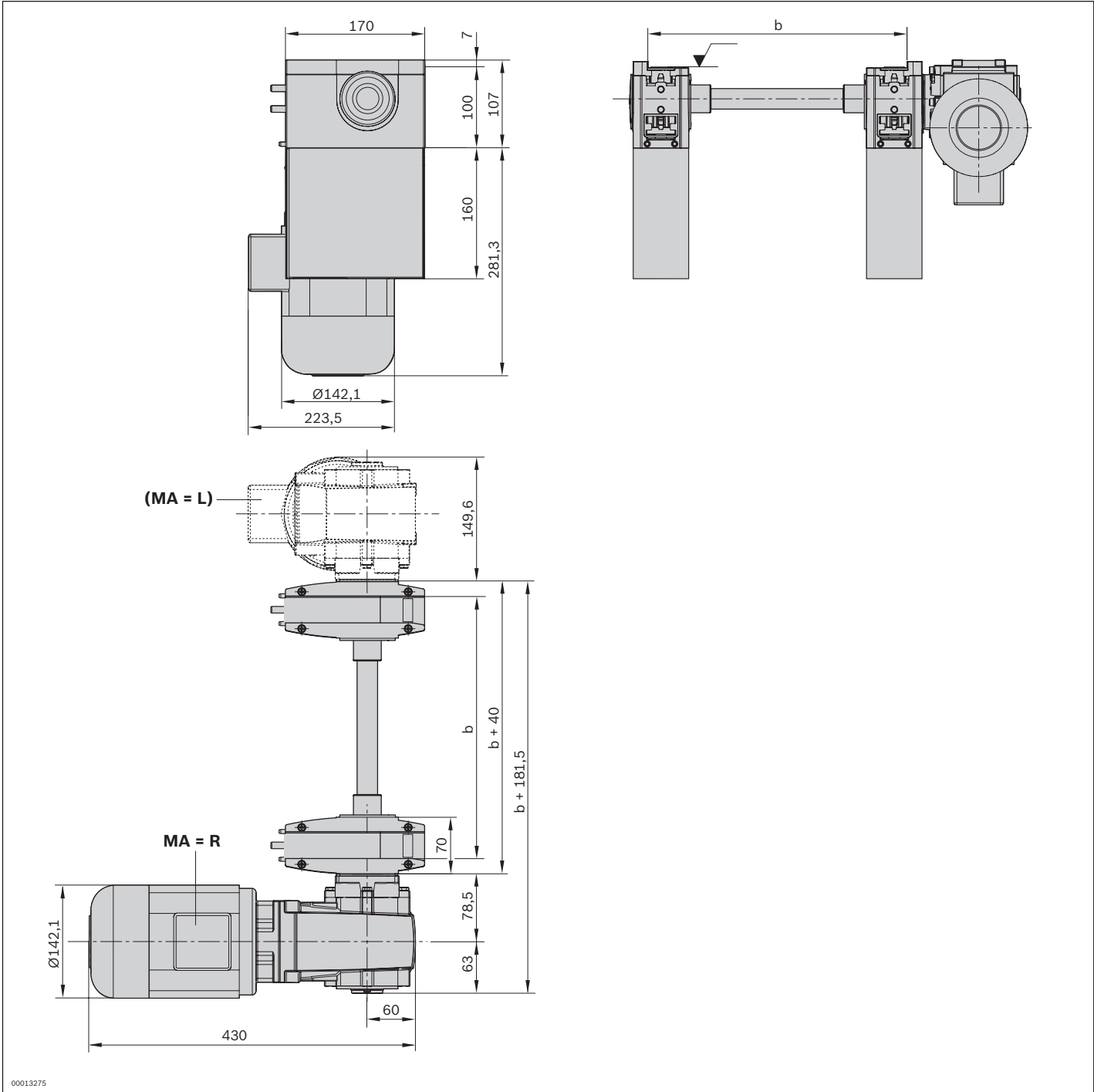
Technical data

Material number		3842998087
Load		
Max. section load in accumulation operation	kg	250
Features		
ESD		yes, with KA = A [*]
Additional information		
Required conveyor media length** l _{AS}	mm	475

^{*} Chain suitable for use in an EPA (KA = A)

^{**} Formula for calculating the conveyor medium, see p. 3-117

Dimensions



AS 2/C-400 drive module



- ▶ Drive for conveyor unit self-assembly
- ▶ Conveyor medium: flat top chain (with KA = A suitable for use in an EPA)
- ▶ Right, left or central motor mounting (central from track width of 240 mm)
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request
- ▶ Reversible operation not permitted
- ▶ Use with medium accumulation loads
- ▶ The LU 2 automatic lubrication unit is highly recommended

The AS 2/C-... drive module drives the flat top chain conveyor medium in self-built conveyor section elements

with section, return unit and flat top chain.

Accessories

Recommended accessories

- ▶ Connection kits, see page 3-236
- ▶ LU 2 automatic lubrication unit, see p. 3-84

Delivery notes

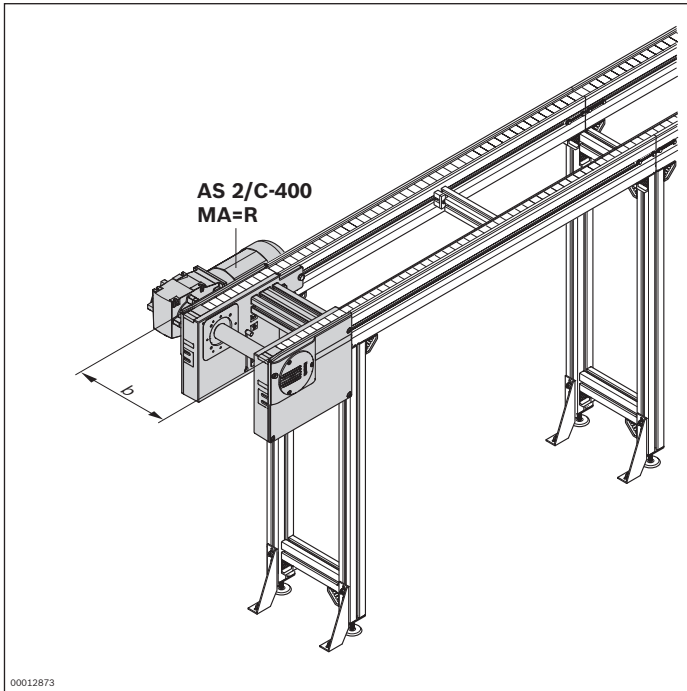
Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor section

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998038
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200 160 ... 1200 ¹
v _N (m/min)	Nominal speed	0 ² ; 6; 9; 12; 15; 18 ³
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M ⁴

- ¹⁾ Individual width variants available
- ²⁾ v_N = 0: without motor or gear
- ³⁾ Not possible if f = 60 Hz
- ⁴⁾ MA = M only when b ≥ 240 mm

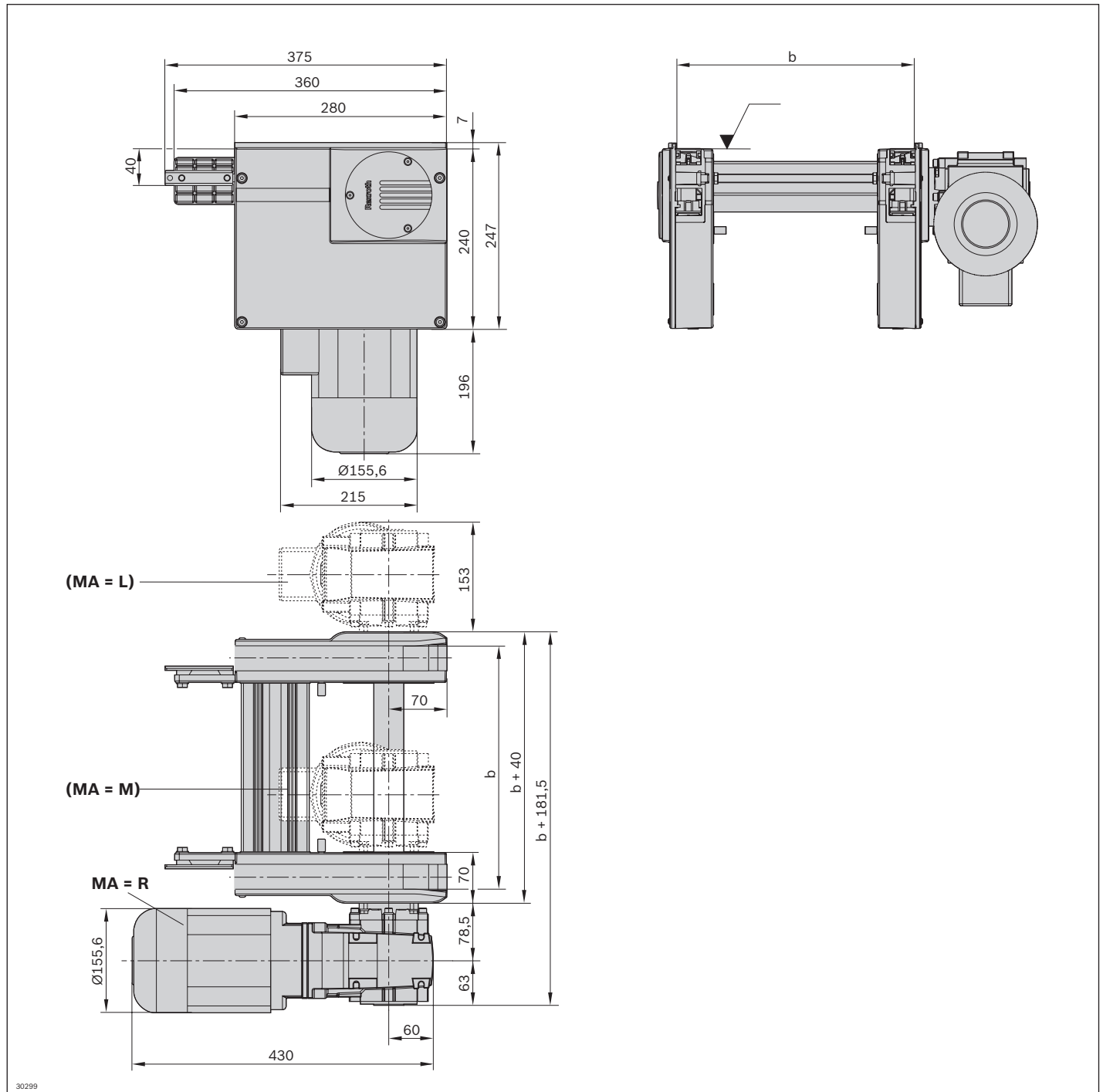
Technical data

Material number		3842998038
Load		
Max. section load in accumulation operation	kg	400
Features		
ESD		yes, with KA = A [*]
Additional information		
Required conveyor medium length**	l _{AS}	mm 625

^{*} Chain suitable for use in an EPA (KA = A)

** Formula for calculating the conveyor medium, see p. 3-117

Dimensions



AS 2/C-700 drive module



- ▶ Drive for conveyor unit self-assembly
- ▶ Conveyor medium: flat top chain (with KA = A suitable for use in an EPA)
- ▶ Right, left or central motor mounting (central from track width of 240 mm)
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request
- ▶ Reversible operation not permitted
- ▶ Use with high accumulation loads
- ▶ The LU 2 automatic lubrication unit is highly recommended

The AS 2/C-... drive module drives the flat top chain conveyor medium in self-built conveyor section elements

with section, return unit and flat top chain.

Accessories

Recommended accessories

- ▶ Connection kits, see page 3-236
- ▶ LU 2 automatic lubrication unit, see p. 3-84

Delivery notes

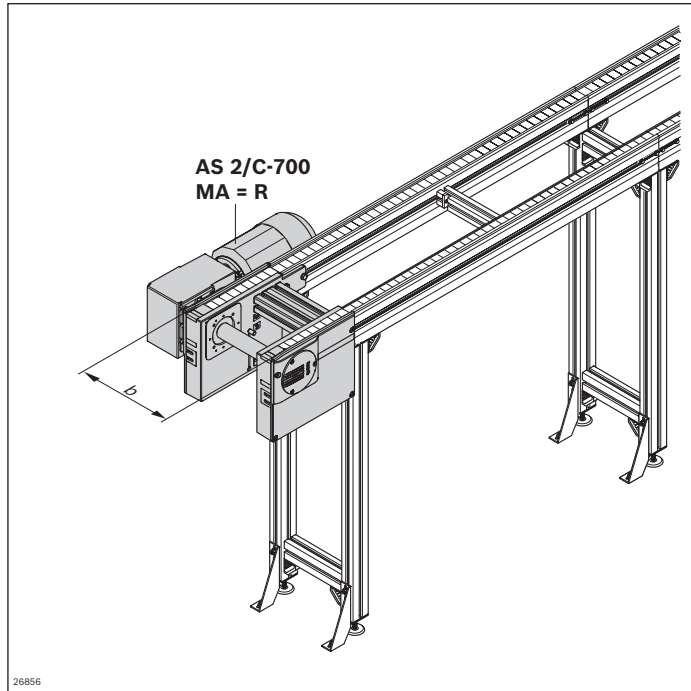
Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor section

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998039
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200 160 ... 1200 ¹
v _N (m/min)	Nominal speed	0 ² ; 6; 9; 12; 15; 18 ³
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M ⁴

¹) Individual width variants available

²) v_N = 0: without motor or gear

³) Reduced load to 600 kg

⁴) MA = M only when b ≥ 240 mm

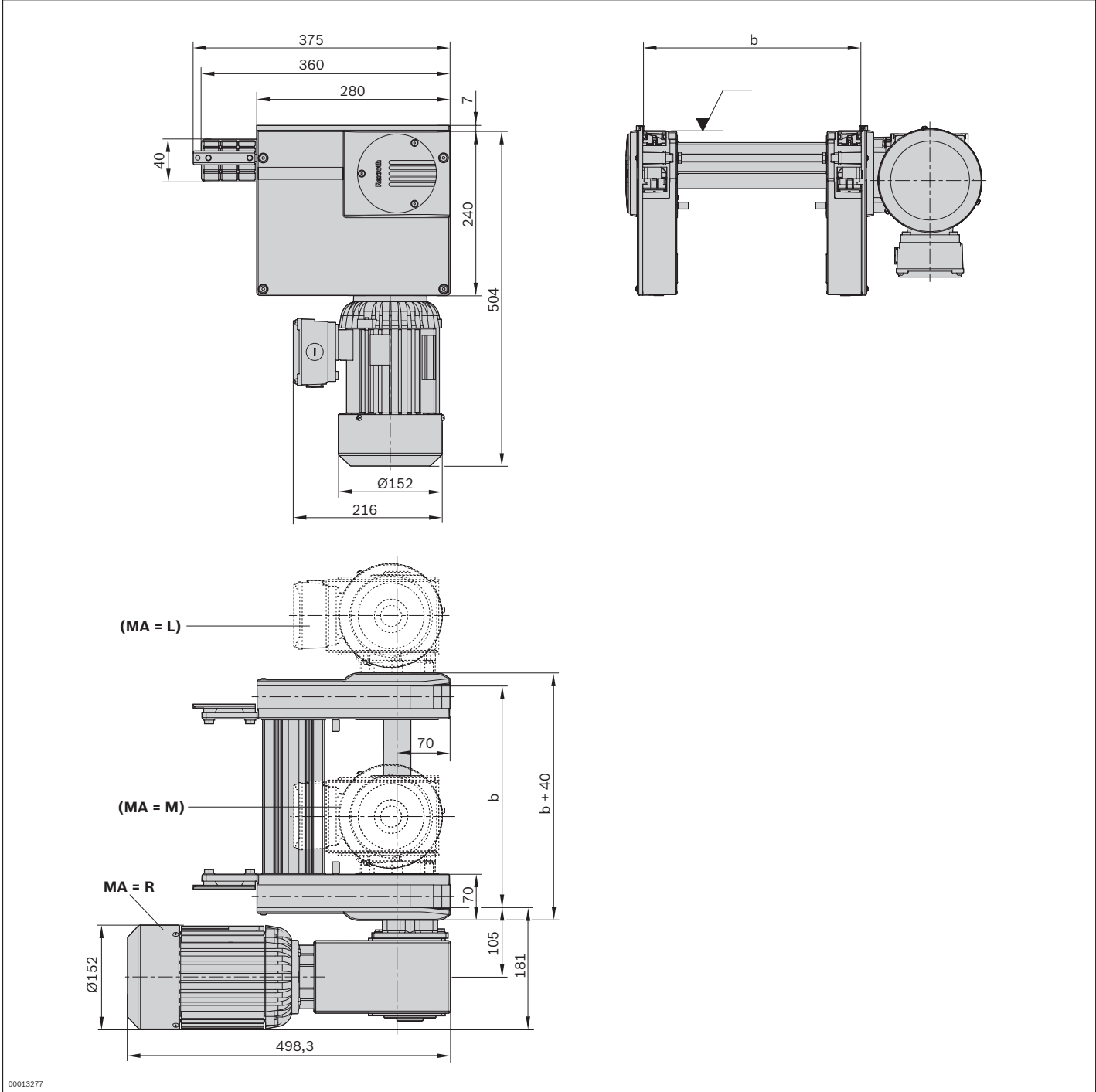
Technical data

Material number		3842998039
Load		
Max. section load in accumulation operation	kg	700
Features		
ESD		yes, with KA = A*
Additional information		
Required conveyor medium length**	l _{AS}	mm 625

* Chain suitable for use in an EPA (KA = A)

** Formula for calculating the conveyor medium, see p. 3-117

Dimensions



UM 2/C-60 return unit



- ▶ Conveyor medium: flat top chain (suitable for use in an EPA)
- ▶ For use with all AS 2/C drive modules
- ▶ Version with sliding piece for return unit
- ▶ Recommended for sections up to $l = 6000$ mm

The return unit is used for constructing conveyor units. It guides the conveyor medium at the end of the conveyor unit back to the drive module.

Accessories

Required accessories

- ▶ Connection kits, see page 3-236

Delivery notes

Scope of delivery

- ▶ One pair of return heads
- ▶ Incl. all fastening material to mount on ST 2 conveyor section

Condition on delivery

- ▶ Fully assembled

Ordering information

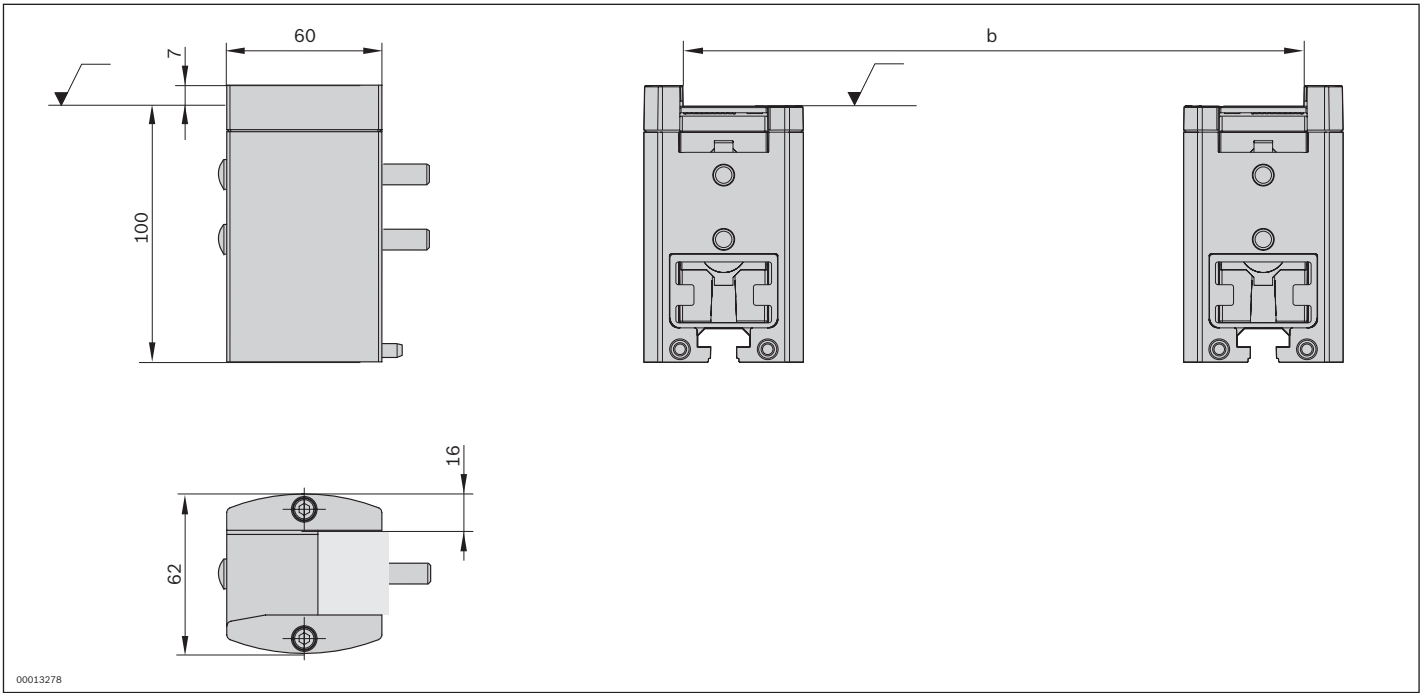
Product designation	Material number
UM 2/C-60 return unit	3842528802

Technical data

Material number	3842528802		
Features			
ESD	Yes		
Additional information			
Required conveyor medium length*	l_{UM}	mm	150

* Formula for calculating the conveyor medium, see p. 3-117

Dimensions



UM 2/C-170 return unit



- ▶ Conveyor medium: flat top chain (suitable for use in an EPA)
- ▶ For use with all AS 2/C drive modules
- ▶ Version with pinion for return unit
- ▶ Recommended for sections of $l > 6000$ mm

The return unit is used for constructing conveyor units. It guides the conveyor medium at the end of the conveyor unit back to the drive module.

Accessories

Required accessories

- ▶ Connection kits, see page 3-236

Delivery notes

Scope of delivery

- ▶ One pair of return heads
- ▶ Incl. all fastening material to mount on ST 2 conveyor section

Condition on delivery

- ▶ Fully assembled

Ordering information

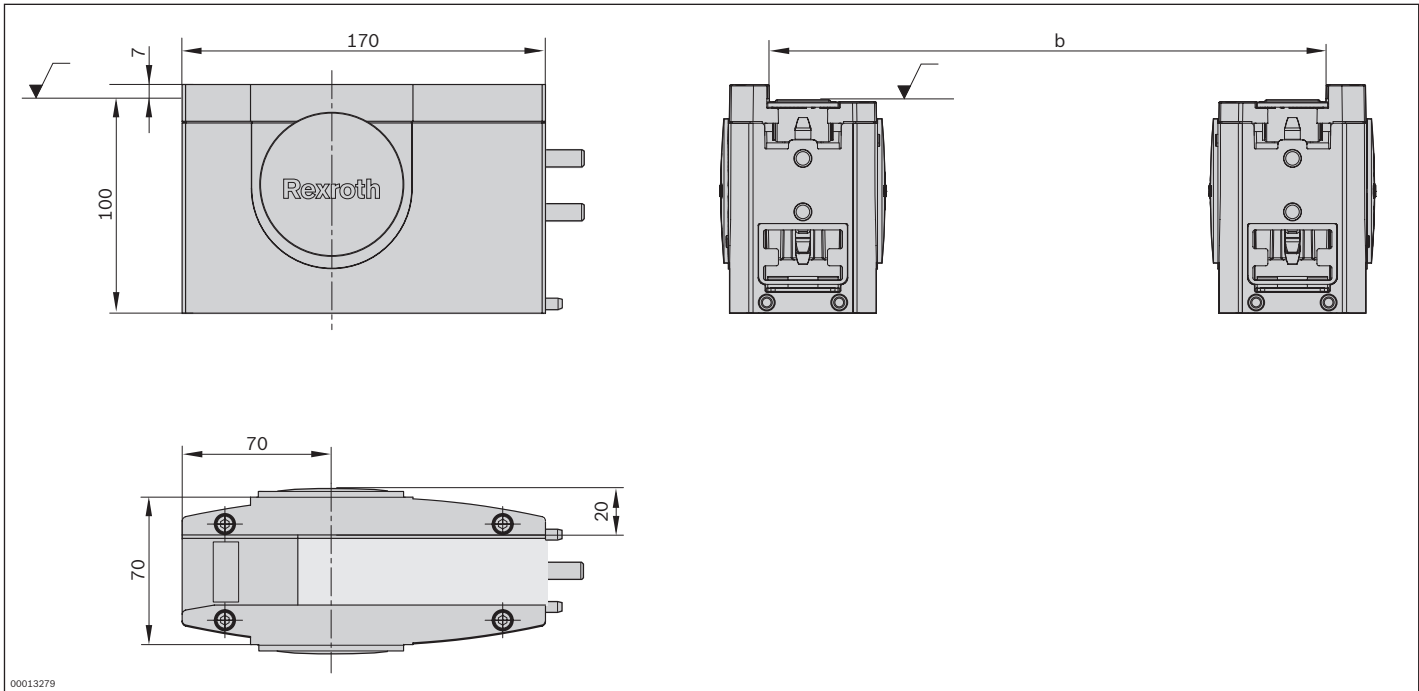
Product designation	Material number
UM 2/C-170 return unit	3842528806

Technical data

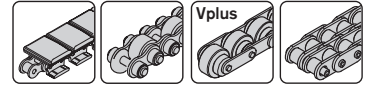
Material number	3842528806		
Features			
ESD	Yes		
Additional information			
Required conveyor medium length*	l_{UM}	mm	310

* Formula for calculating the conveyor medium, see p. 3-117

Dimensions



LU 2 automatic lubrication unit



- ▶ Modular design consisting of LU 2 automatic lubrication unit, LC 2 oil container and adapter set
- ▶ LU 2 automatic lubrication unit with drive, compressed air connection to drive module and fastening material
- ▶ LC 2 lubricant container with Structovis GHD from Klüber; contains: 0.25 l (must be ordered separately)
- ▶ Specific adapter sets with compatible lubrication pins for different drive modules
- ▶ Adjustment of lubrication amount to be distributed per metering process on the LU 2 automatic lubrication unit. The metering process is actuated by an external PLC.
- ▶ Designed for lubricating one belt section or conveyor unit respectively
- ▶ Use of the LU 2 automatic lubrication unit is highly recommended for flat top chains

Increasing the system service life through continuous and maintenance-free lubrication of flat top chains, accumulation roller chains, and duplex chains during operation.

For preventing dry running.

Accessories

Required accessories

- ▶ LC 2 lubricant container, see p. 3-85
- ▶ Adapter set, see p. 3-85

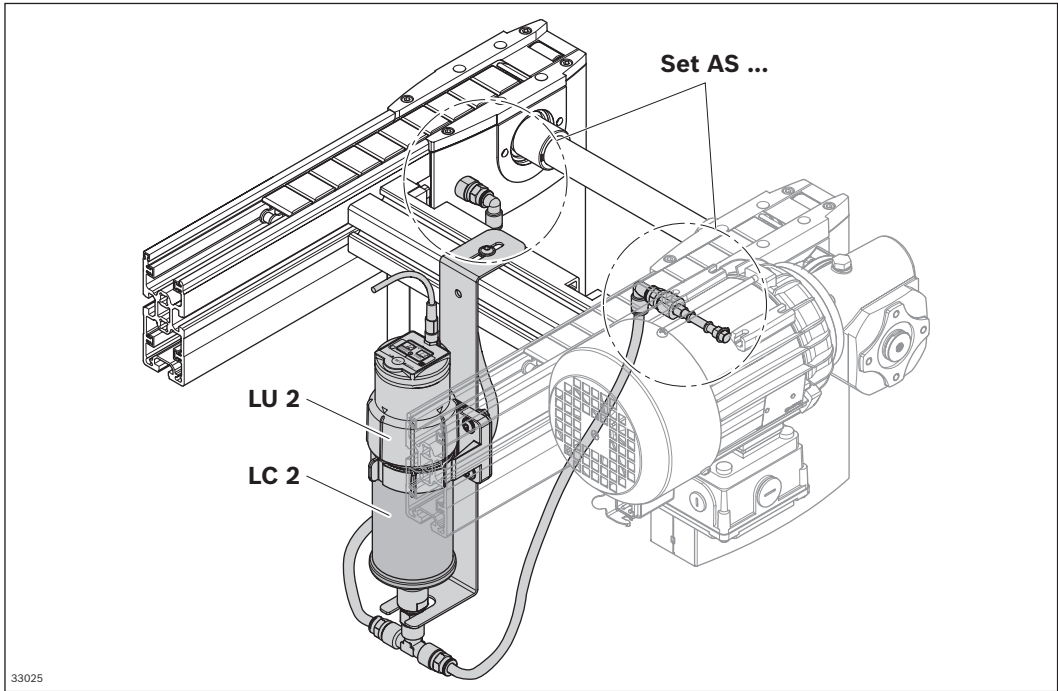
Delivery notes

Condition on delivery

- ▶ Not assembled, fastening material enclosed
- ▶ LC 2 lubricant container and adapter set as ordered

Suitable for use with all belt sections and conveyor units; lubrication unit on the drive module.

Reduction of lubricant consumption thanks to exact metering and pinpoint application to the chain links.



Ordering information

Product designation	Packaging unit	Material number
LU 2 automatic lubrication unit	1	3842543482
LC 2 lubricant container	4	3842543469

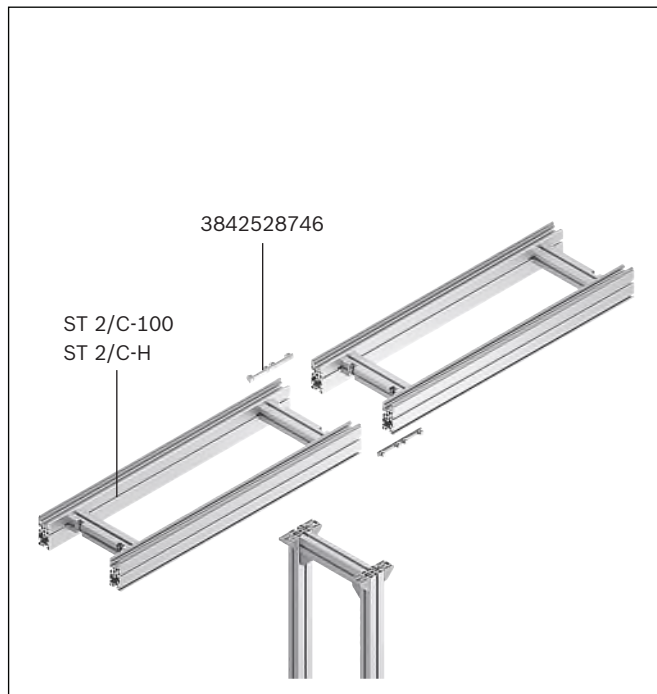
Product designation	Packaging unit	Material number
Adapter set for AS 2/C-100 AS 2/C-250 BS 2/C	1	3842543483
Adapter set for AS 2/C-400 (assembly on UM2/C-170 when b = 160 mm) AS 2/C-700 (assembly on UM2/C-170 when b = 160 mm) BS 2/C-H (assembly on UM2/C-170, UM 2/R-170 when b = 160 mm)	1	3842543484
Adapter set for AS 2/R-300 AS 2/R-700 BS 2/R BS 2/R-H with RV = 1*	1	3842543485
Adapter set for AS 2/R-1200 (assembly on UM2/R-170 when b = 160 mm) AS 2/R-2200 (assembly on UM2/R-170 when b = 160 mm) BS 2/R-H with RV = 0 (assembly on UM2/C-170, UM 2/R-170 when b = 160 mm)	1	3842543486
Adapter set for AS 2/R-V-1200 (assembly on UM2/R-170 when b = 160 mm) AS 2/R-V-2200 (assembly on UM2/R-170 when b = 160 mm) BS 2/R-V-1200 (assembly on UM2/R-170 when b = 160 mm)	1	3842543487
Adapter set for HQ 2/U-H	1	3842548578

* Assembly on UM return unit

Technical data

Material number	3842543482		
Features			
ESD			Yes
Max. operating temperature	T	°C	+40

Section, section profiles



Sections can be individually configured for special requirements by selecting various section, glide, and guide profiles.

Depending on the load spectrum of the conveyor medium, stainless steel or plastic glide profiles can be inserted in the section profile. Use of steel glide profiles increases resistance to wear and temperature. This opens up new areas of application for the TS 2plus.

The proven SP 2/C-100 profiles are primarily suitable for medium loads in simple system layouts.

Especially suited for high strains and loads, the new, sturdy SP 2/C-H section profiles have been developed for flat top chains. In addition to a more robust profile cross section and improvements to details (integrated cable duct), the use of stainless steel in the guide profile enhances the system. An adapter plate not only enables visually attractive mounting of the SP 2/C-H section profiles on the drive modules in the TS 2plus, it also securely keeps the glide profiles (sliding guides) from shifting.

ST 2/C-100 section



3



- ▶ For conveyor unit self-assembly
- ▶ For use in conjunction with all AS 2/C drive modules and UM 2/C return units
- ▶ Conveyor medium: plastic flat top chain
- ▶ GP 2 plastic glide profile
- ▶ Pre-assembled unit for quick setup

The section is used to construct conveyor units with plastic flat top chains in connection with the AS 2/C drive modules

and UM 2/C return units

Accessories

Required accessories

- ▶ Cross connector, see p. 3-108

Delivery notes

Scope of delivery

- ▶ 2x SP 2/C section profiles with assembled FP 2 and GP 2 guide profiles and glide profiles
- ▶ 8x blocking bolts

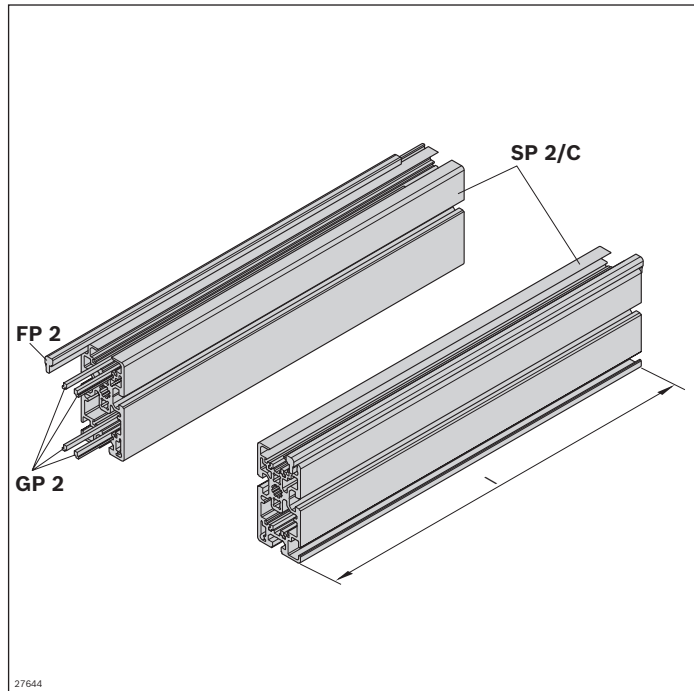
Recommended accessories

- ▶ SZ 2 leg sets, see page 6-2
- ▶ Profile connector, see p. 3-107
- ▶ Cross connector, see p. 3-108

Condition on delivery

- ▶ Fully assembled

Ordering information

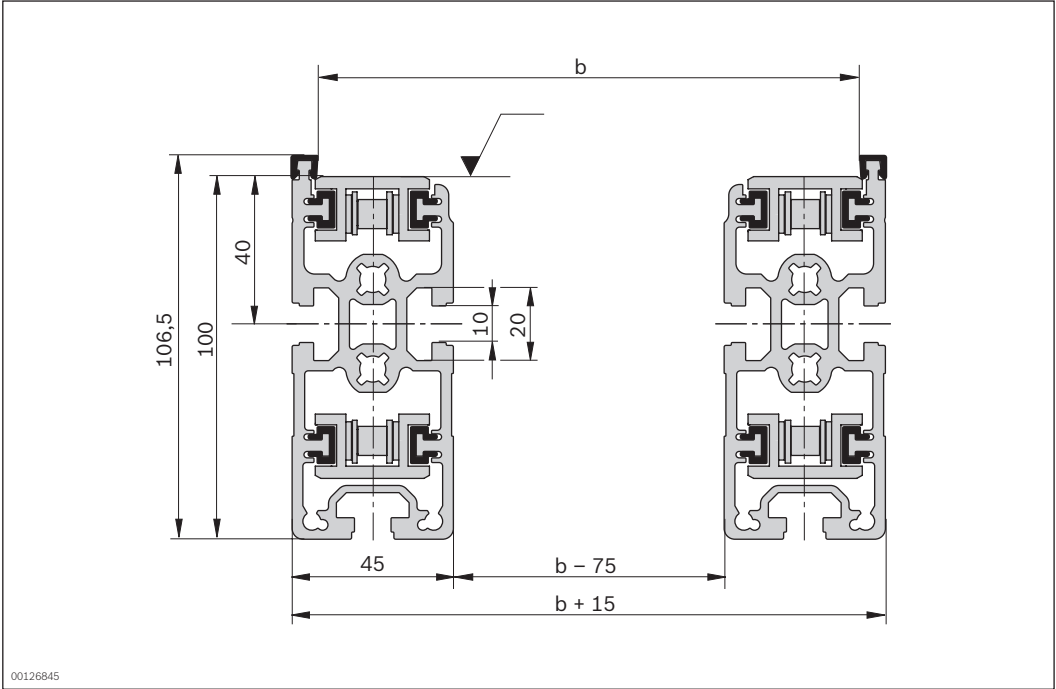


Material number	3842994890	
l (mm)	Length	60 ... 6000

Technical data

Material number	3842994890		
Features			
Material specification	Section profile: Aluminum; anodized FP 2 guide profile: polyamide GP 2 glide profile: polyamide		
Max. operating temperature	T	°C	+40
Dimensions			
Length	l	mm	60 ... 6000

Dimensions



00126845

Blocking bolts



- ▶ To prevent the plastic glide profiles from moving in a longitudinal direction
- ▶ Installation at the beginning of the section in the conveying direction
- ▶ Included in delivery of all ST 2/C sections

Note: Not required for all ST 2/C-H sections.

Blocking bolts prevent the plastic glide profiles from moving in a longitudinal direction.

Accessories

Recommended accessories

- ▶ Drilling template (3842538972, see p.) 3-118

Delivery notes

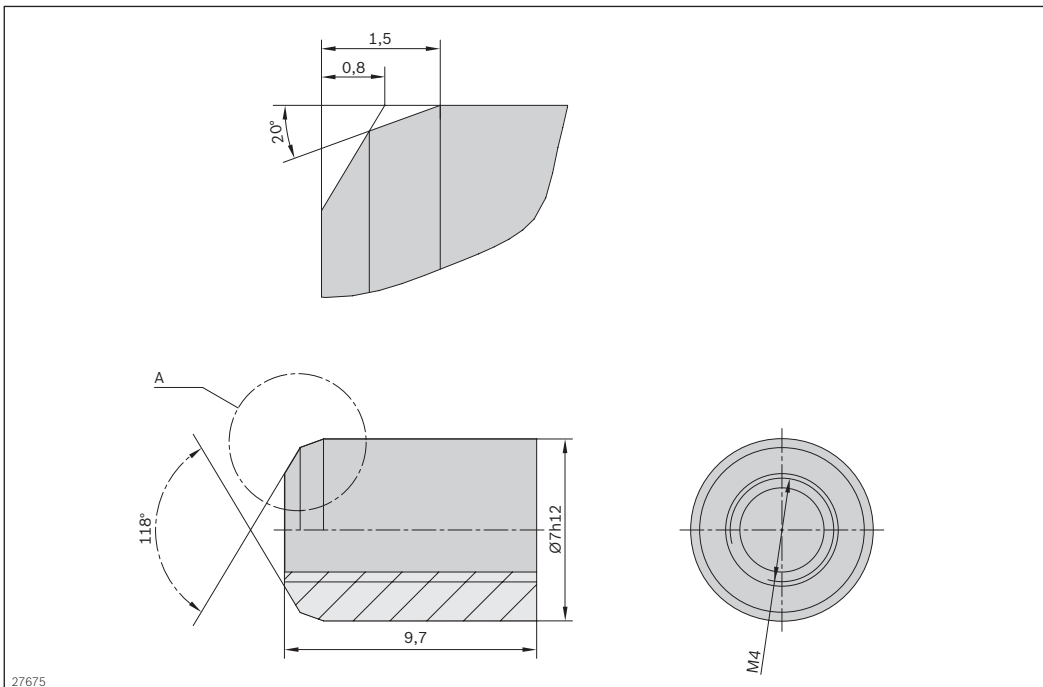
Scope of delivery

- ▶ Set consisting of 8x blocking bolts

Ordering information

Product designation	Packaging unit	Material number
Blocking bolts	Set	3842537353

Dimensions



27675

ST 2/C-H section



3



- ▶ For conveyor unit self-assembly
- ▶ For use with all AS 2/C drive modules and UM 2/C return units
- ▶ Section profile (50 mm wide) in especially sturdy design for section loads of up to 30% higher
- ▶ Conveyor medium: plastic flat top chain
- ▶ Optional steel or plastic GP 2 glide profiles

The section is used to construct heavy-duty conveyor units with plastic flat top chains in connection with the AS 2/C

drive modules and UM 2/C return units

Accessories

Required accessories

- ▶ ST 2/C-H adapter plate kit, see p. 3-102
- ▶ If GP = 0, then adapter plates are to be fitted between each section joint.

Delivery notes

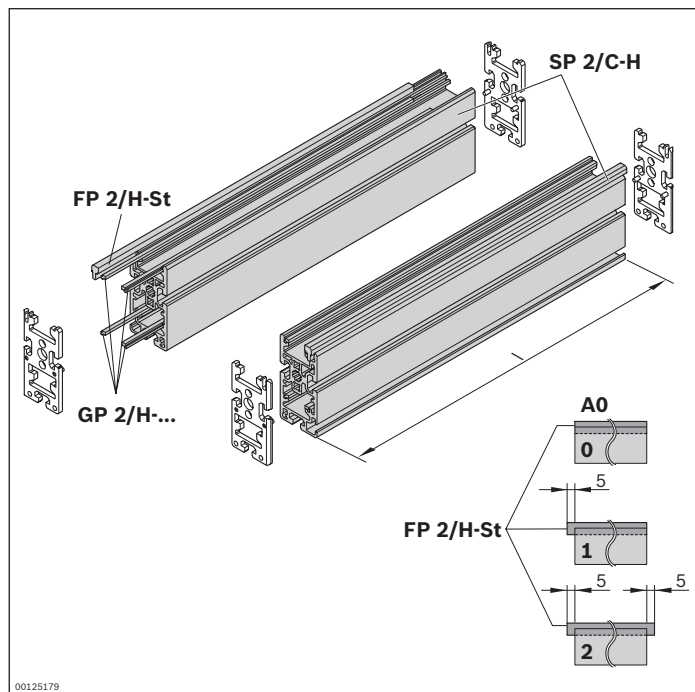
Scope of delivery

- ▶ 2x SP 2/C-H section profiles with assembled FP 2/H-St and GP 2/H guide profiles and glide profiles

Recommended accessories

- ▶ SZ 2/... leg sets, see page 6-2
- ▶ Profile connector, see p. 3-107
- ▶ Cross connector, see p. 3-108
- ▶ Cover rail for cable duct, see p. 3-94

Ordering information

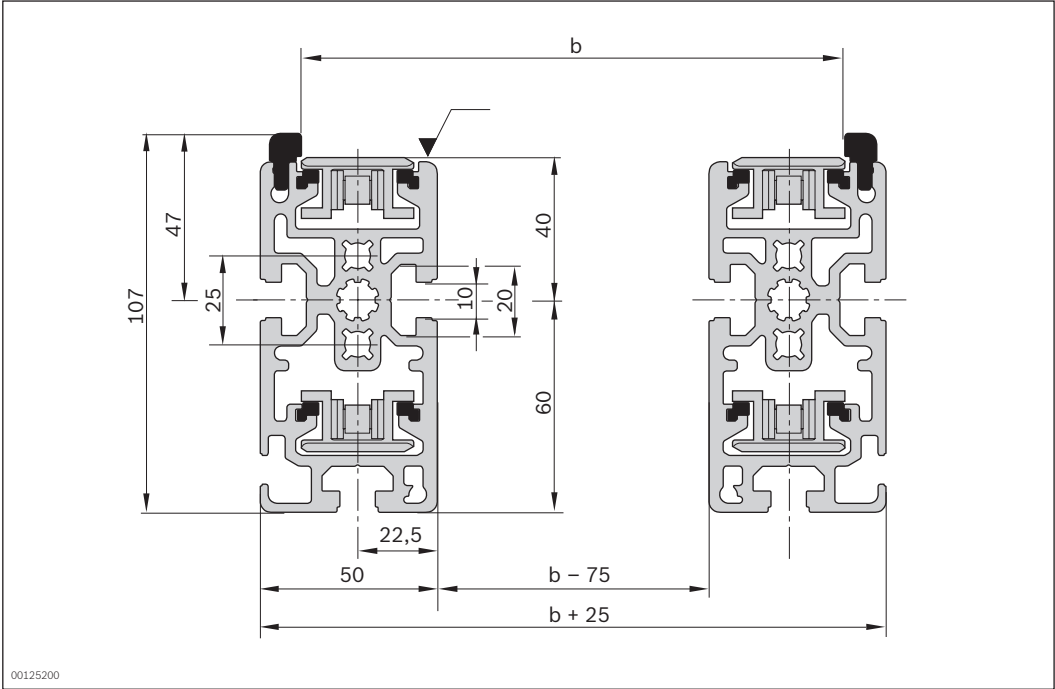


Material number		3842994973
l (mm)	Length	200 ... 6000
AO	Installation location Plastic glide profile AO = 2 Steel glide profile AO = 0; 1; 2	0; 1; 2
GP	Glide profile Corrosion-resistant steel (GP = 1) Plastic (GP = 0)	0; 1

Technical data

Material number		3842994973
Features		
Material specification		Section profile: Aluminum; anodized Guide profile: Steel; corrosion-resistant Glide profile: Plastic or steel; corrosion-resistant
Max. operating temperature	T	°C +40
Dimensions		
Length	l	mm 200 ... 6000

Dimensions



00125200

Cover rail for cable duct



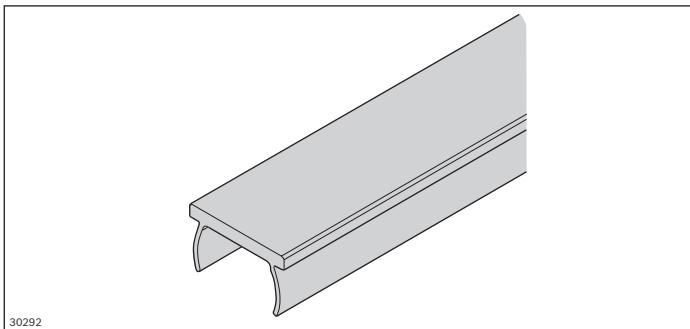
- ▶ To prevent dirt from entering the profile slot
- ▶ For fixing cables in position
- ▶ Flush with profile

Ordering information

Product designation	Packaging unit	Material number
Cover rail for cable duct	10	3842523258

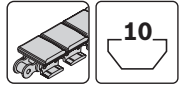
Technical data

Material number	3842523258		
Features			
Material specification	Aluminum, natural; anodized		
Dimensions			
Length	l	mm	2000



30292

SP 2/C-100 section profile



3



- ▶ For conveyor unit self-assembly for profile construction heights of 100 mm
- ▶ For use in conjunction with all AS 2/C drive modules, UM 2/C return units, FP 2 guide profiles and GP 2 glide profiles
- ▶ Longitudinal grooves for easy mounting
- ▶ For conveyor units with a height to conveying level of 100 mm

The section profile is used to set up conveyor units with the flat top chain conveyor medium. Additional blocking bolts

prevent the glide profiles from moving in a longitudinal direction.

Accessories

Required accessories

- ▶ GP 2 glide profile, see p. 3-97
- ▶ FP 2 guide profile, see p. 3-97
- ▶ Blocking bolts, see p. 3-90

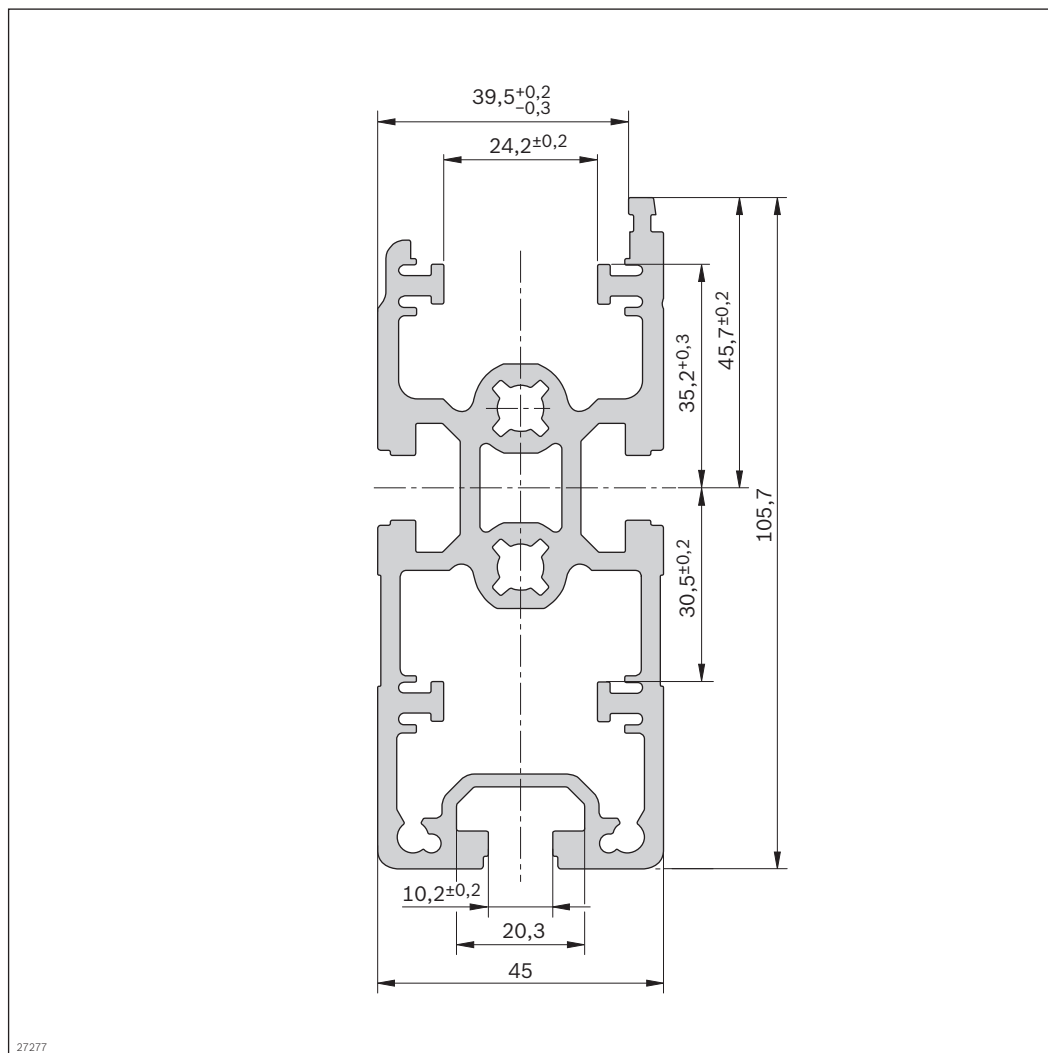
Ordering information

Product designation	l (mm)	Delivery unit	Material number
SP 2/C-100 16 x 6070 mm section profile	6070	16	3842532609

Technical data

Material number		3842532609	
Load			
Moment of inertia	I_x	cm ⁴	128.0
	I_y	cm ⁴	37.0
Moment of resistance	W_x	cm ³	24.6
	W_y	cm ³	16.4
Features			
Material specification			Aluminum; anodized
Mass	m	kg/m	4.0
Dimensions			
Length	l	mm	6070
Profile surface	A	cm ²	15.0

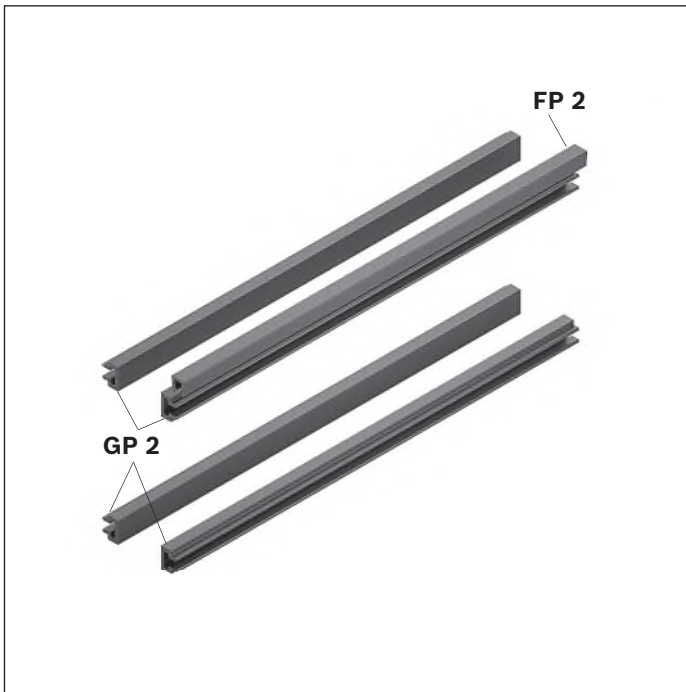
Dimensions





FP 2 guide profile set, GP 2 glide profile

3



- ▶ For conveyor unit self-assembly
- ▶ Used in conjunction with ST 2/C section profiles, AS 2/C drive modules and UM 2 /C return units
- ▶ FP 2 guide profile for laterally guiding the workpiece pallet; slid onto the SP 2/C-100 section profile
- ▶ GP 2 glide profile for guiding the top flat chain; slid onto the SP 2/C-100 section profile

The guide profile is used for lateral guidance of the workpiece pallet. The glide profile is used to guide the flat top chain. Both profiles are pushed onto the section profile.

Additional blocking bolts prevent the glide profiles from moving in a longitudinal direction.

Accessories

Required accessories

- ▶ Blocking bolts, see p. 3-90

Delivery notes

Scope of delivery

- ▶ 16x FP 2 guide profile (L = 6000 mm)
- ▶ 64x GP 2 glide profiles (L = 6000 mm)

Ordering information

Product designation	l (mm)	Material number
FP 2 guide profile set, GP 2 glide profile	6000	3842529933

Technical data

Material number	3842529933		
Features			
ESD			Yes
Material specification			Guide profile: Plastic; PA (suitable for use in an EPA) Glide profile: Plastic; PA (suitable for use in an EPA)
Max. operating temperature	T	°C	+40
Dimensions			
FP 2 length	l	mm	6000
GP 2 length	l	mm	6000

Blocking bolts



- ▶ To prevent the plastic glide profiles from moving in a longitudinal direction
- ▶ Installation at the beginning of the section in the conveying direction
- ▶ Included in delivery of all ST 2/C-100 sections

Note: Not required for all ST 2/C-H sections.

Blocking bolts prevent the plastic glide profiles from moving in a longitudinal direction.

Accessories

Recommended accessories

- ▶ Drilling template (3842538972, see p.) 3-118

Delivery notes

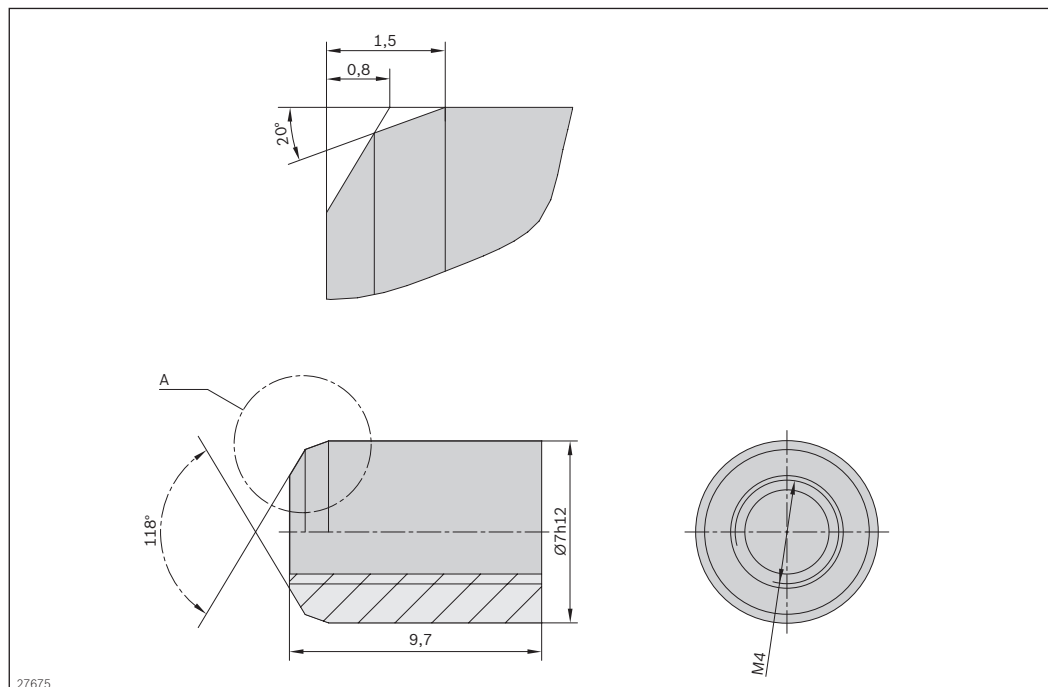
Scope of delivery

- ▶ Set consisting of 8x blocking bolts

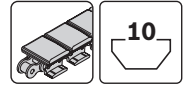
Ordering information

Product designation	Packaging unit	Material number
Blocking bolts	Set	3842537353

Dimensions



SP 2/C-H section profile



3



- ▶ For conveyor unit self-assembly
- ▶ In especially sturdy design for particularly heavy-duty sections
- ▶ For use with all AS 2/C drive modules, FP 2/H guide profiles and GP 2/H glide profiles
- ▶ Longitudinal grooves for easy mounting
- ▶ For conveyor units with a height to conveying level of 100 mm
- ▶ For heavy-duty conveyor unit assembly
- ▶ Profile width: 50 mm

The section profile is used to set up conveyor units with the flat top chain conveyor medium.

Accessories

Required accessories

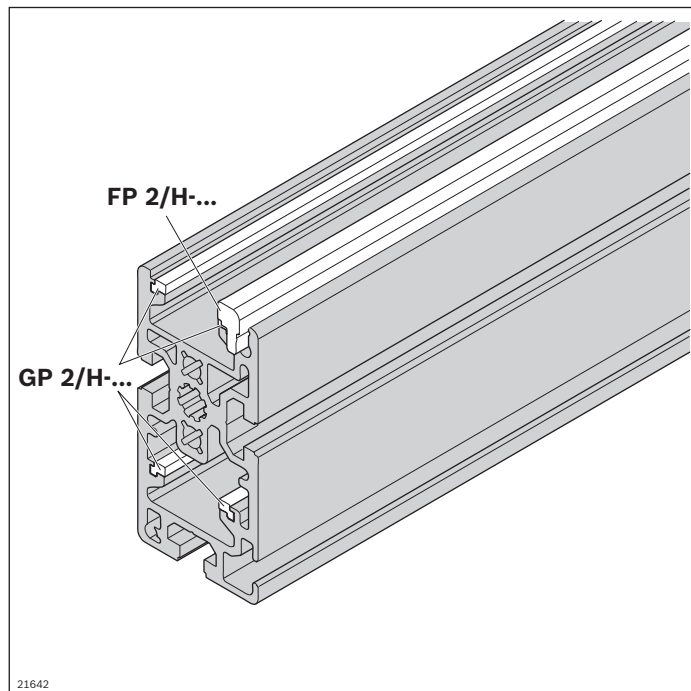
- ▶ FP 2/H-St guide profile, see p. 3-104
- ▶ GP 2/H-St glide profile, see p. 3-105
- ▶ GP 2/H-Kst glide profile, see p. 3-106
- ▶ ST 2/C-H adapter plate kit, see p. 3-102
- ▶ Cover rail for cable duct, see p. 3-164

Ordering information

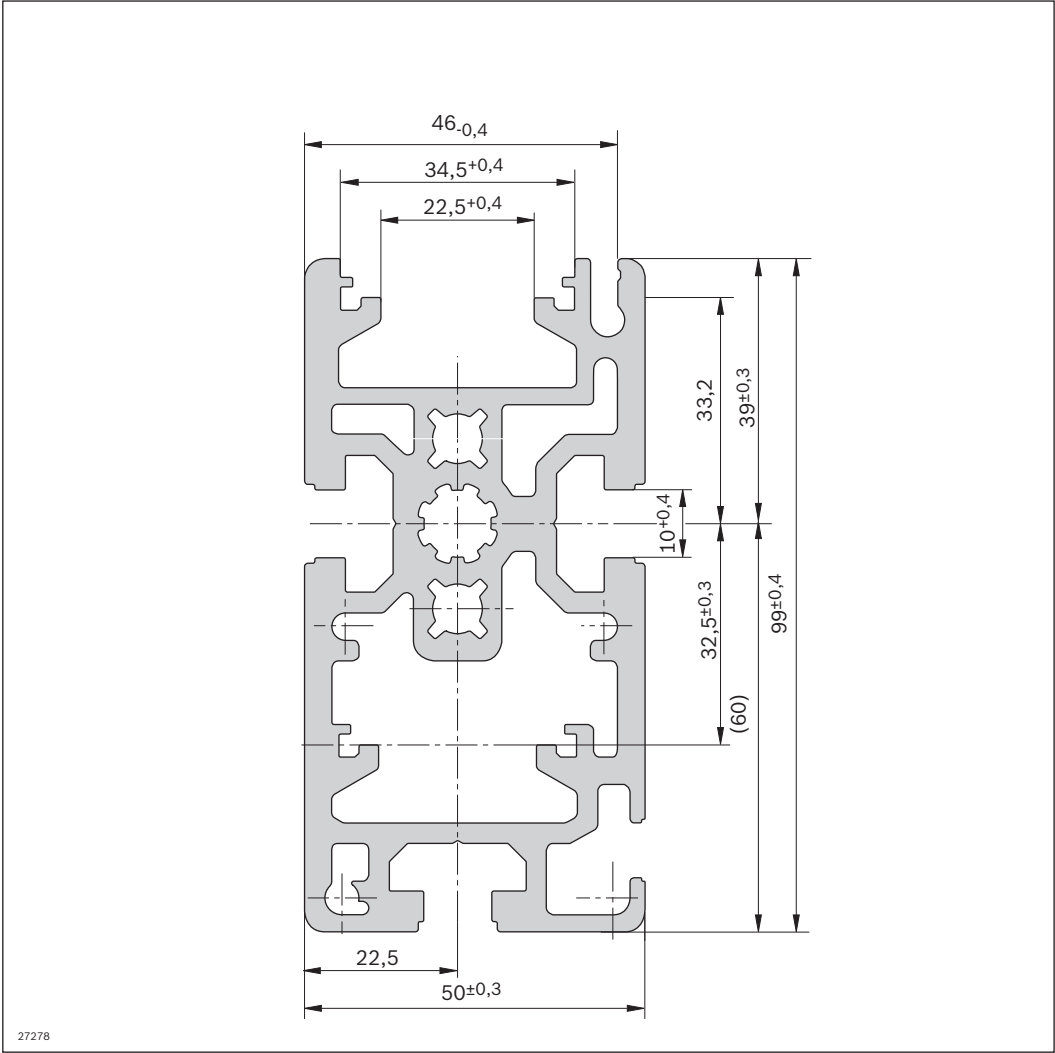
Product designation	l (mm)	Material number
SP 2/C-H 12 x 6000 mm section profile	6070	3842536793

Technical data

Material number		3842536793	
Load			
Moment of inertia	I_x	cm ⁴	156.8
	I_y	cm ⁴	54.9
Moment of resistance	W_x	cm ³	31.9
	W_y	cm ³	21.4
Features			
Material specification		Aluminum; anodized	
Mass	m	kg/m	5.3
Dimensions			
Length	l	mm	6070
Profile surface	A	cm ²	19.3



Dimensions



ST 2/C-H adapter plate kit



- ▶ Front end plate
- ▶ For connecting SP 2/C-H section profiles and AS 2/C drive modules;
for connecting SP 2/C-H profiles and UM 2/C return units;
and between section profiles if GP 2 plastic glide profiles are used

The adapter plates are used as front covers and for connecting section profiles and drive modules, or between section profiles and return units.

The adapter plates are also suitable for use between section profiles where GP 2 plastic glide profiles are used.

Delivery notes

Scope of delivery

- ▶ 2x left adapter plate
- ▶ 2x right adapter plate

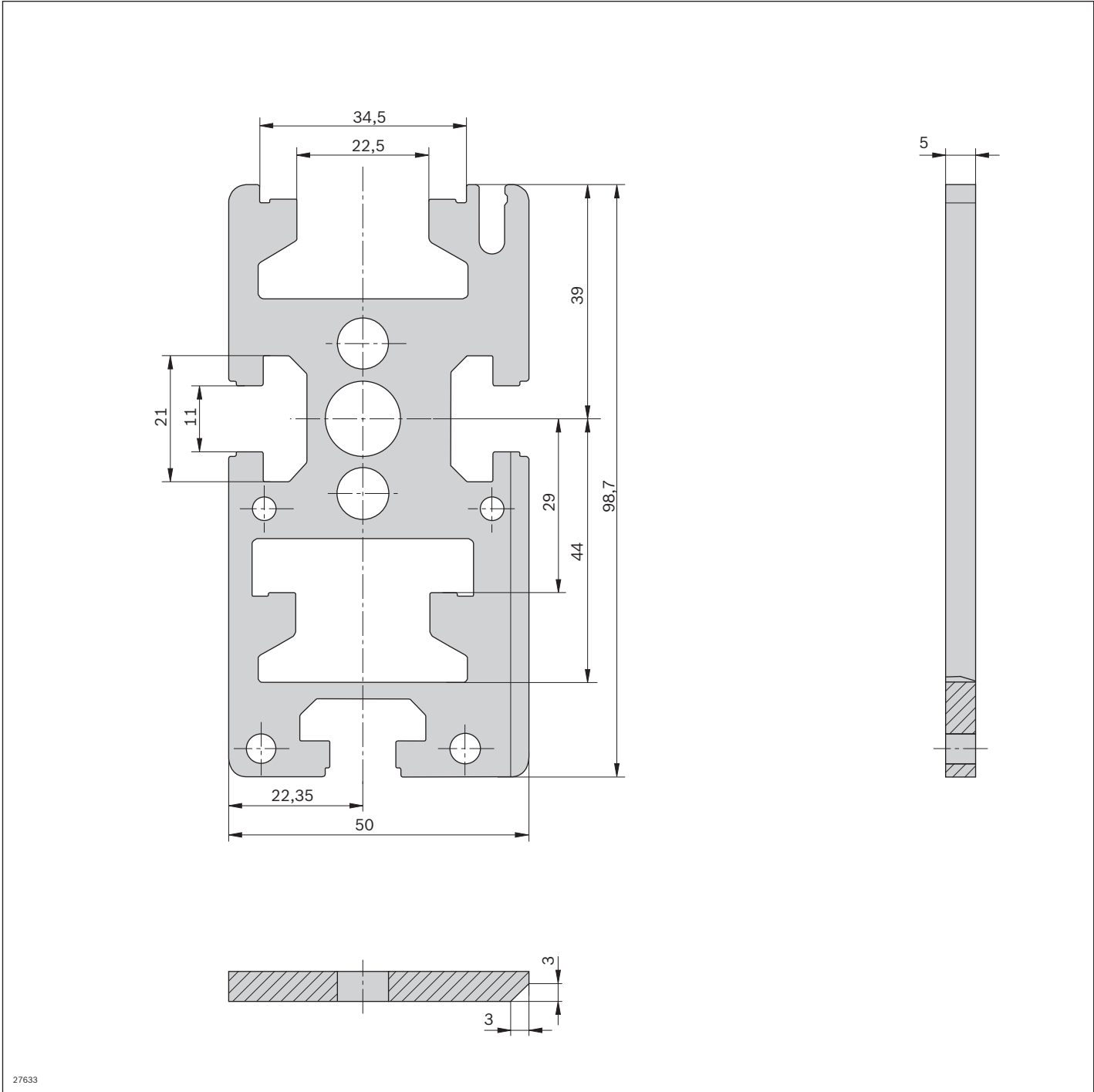
Ordering information

Product designation	Packaging unit	Material number
ST 2/C-H adapter plate kit	4	3842536801

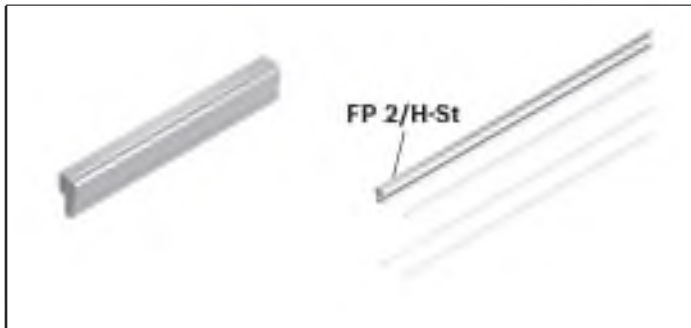
Technical data

Material number	3842536801
Features	
Material specification	Steel; corrosion-resistant

Dimensions



FP 2/H-St guide profile



- ▶ For lateral guidance of the workpiece pallet
- ▶ For conveyor unit self-assembly
- ▶ For sliding onto SP 2/C-H or SP 2/R-H section profiles
- ▶ Robust version in corrosion-resistant steel

Accessories

Required accessories

- ▶ SP 2/C-H section profile, see p. 3-99, or SP 2/R-H, see p. 3-169

Delivery notes

Scope of delivery

- ▶ 24x rods (l = 3000 mm)

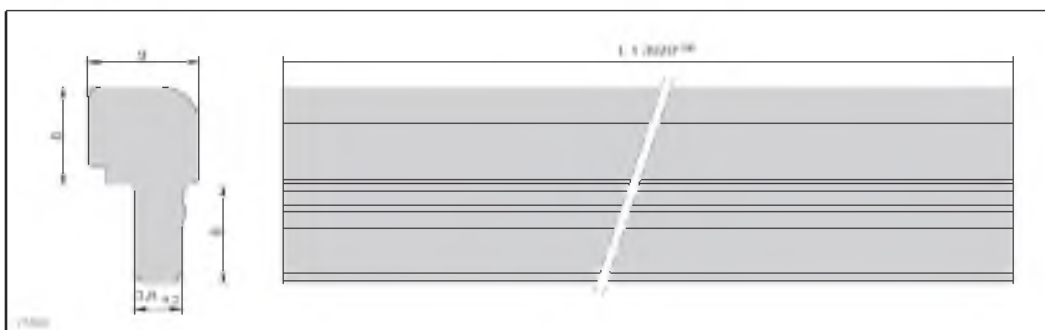
Ordering information

Product designation	l (mm)	Delivery unit	Material number
FP 2/H-St guide profile	3000	24	3842537890

Technical data

Material number	3842537890		
Features			
ESD	Yes		
Material specification	Steel; corrosion-resistant		
Dimensions			
Length	l	mm	3000

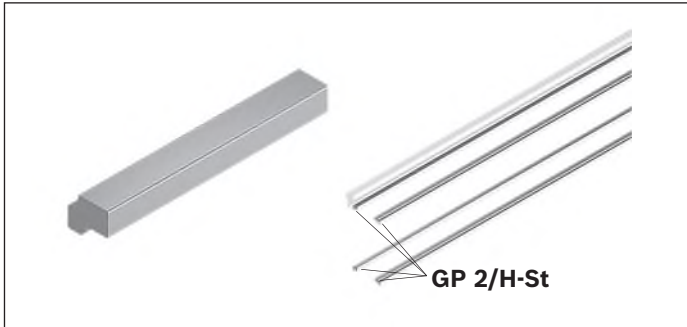
Dimensions



GP 2/H-St glide profile



3



- ▶ For conveyor unit self-assembly
- ▶ For guiding the flat top chain or accumulation roller chain
- ▶ In especially sturdy design with corrosion-resistant steel for particularly heavy-duty sections
- ▶ For sliding onto SP 2/C-H or SP 2/R-H section profiles
- ▶ For use with all AS 2/C drive modules, UM 2/C return units and SP 2/C section profiles

Accessories

Required accessories

- ▶ SP 2/C-H section profile, see p. 3-99, or SP 2/R-H, see p. 3-169

Delivery notes

Scope of delivery

- ▶ 48x rods (l = 3000 mm)

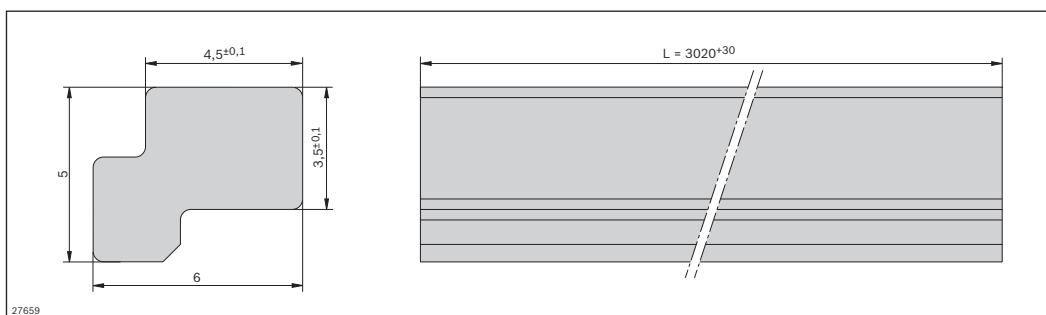
Ordering information

Product designation	l (mm)	Delivery unit	Material number
GP 2/H-St glide profile	3000	48	3842537888

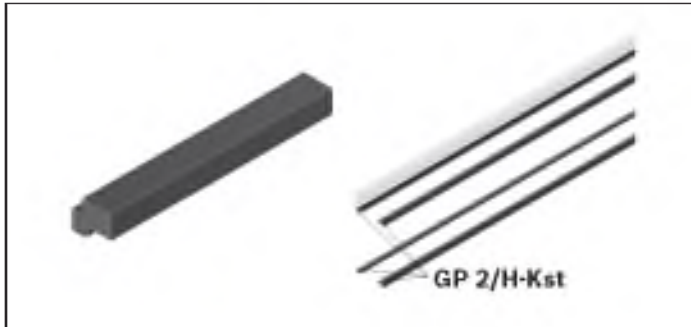
Technical data

Material number	3842537888		
Features			
ESD	Yes		
Material specification	Steel; corrosion-resistant		
Dimensions			
Length	l	mm	3000

Dimensions



GP 2/H-Kst glide profile



- ▶ For conveyor unit self-assembly
- ▶ For guiding the flat top chain or the accumulation roller chain
- ▶ For sliding onto SP 2/C-H or SP 2/R-H section profiles
- ▶ For use with all AS 2/C drive modules, UM 2/C return units and SP 2/C section profiles

Accessories

Required accessories

- ▶ SP 2/C-H section profile, see p. 3-99, or SP 2/R-H, see p. 3-169

Delivery notes

Scope of delivery

- ▶ 48x rods (l = 3000 mm)

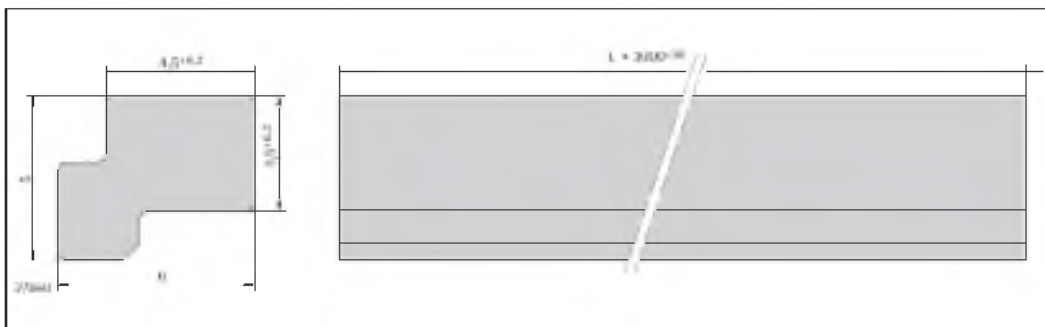
Ordering information

Product designation	l (mm)	Delivery unit	Material number
GP 2/H-Kst glide profile	3000	48	3842537889

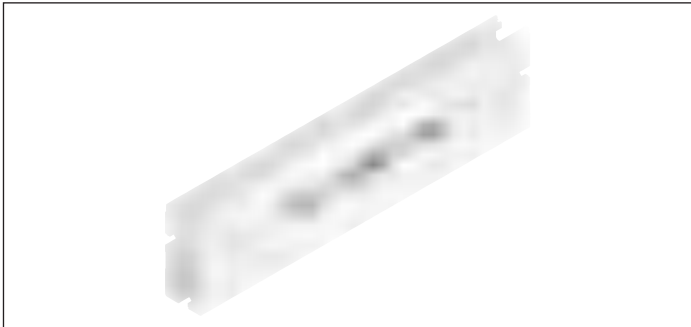
Technical data

Material number	3842537889		
Features			
ESD	Yes		
Material specification	Plastic; PA (suitable for use in an EPA)		
Dimensions			
Length	l	mm	3000

Dimensions



Profile connector



- ▶ For connecting two SP 2 profiles end to end
Two profile connectors are recommended for each profile joint
- ▶ For conveyor unit self-assembly
- ▶ For use with all AS 2/C drive modules, UM 2/C return units and SP 2/C section profiles

Delivery notes

Scope of delivery

- ▶ Profile connector, screws

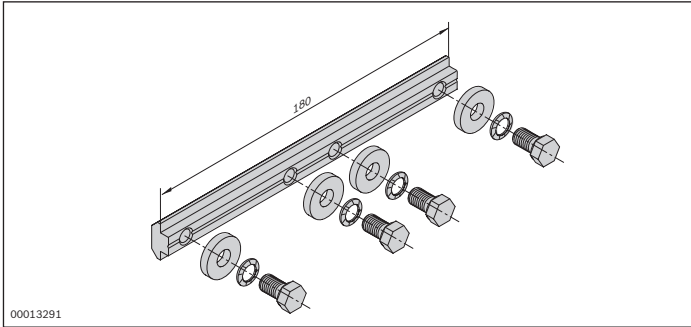
Ordering information

Product designation	Material number
Profile connector	3842528746

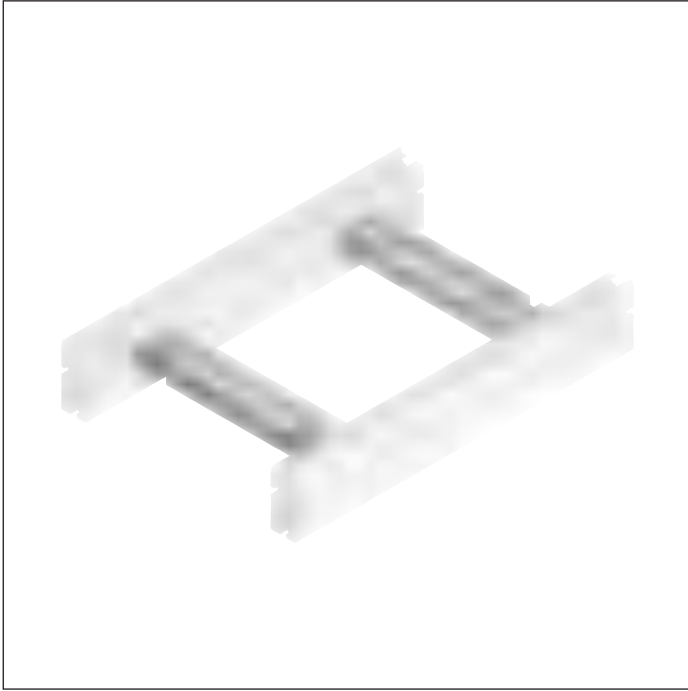
Technical data

Material number	3842528746
Features	
Material specification	Steel; galvanized

Dimensions



QV 2 cross connector



- ▶ For conveyor unit self-assembly
- ▶ For connecting section profiles and defining the track width
- ▶ Can be combined with all SP 2 section profiles.

Formula for calculating the number of cross connectors needed

$$A_{QV} = (l/2000 \text{ mm}) + 1$$

A_{QV} = number of cross connectors

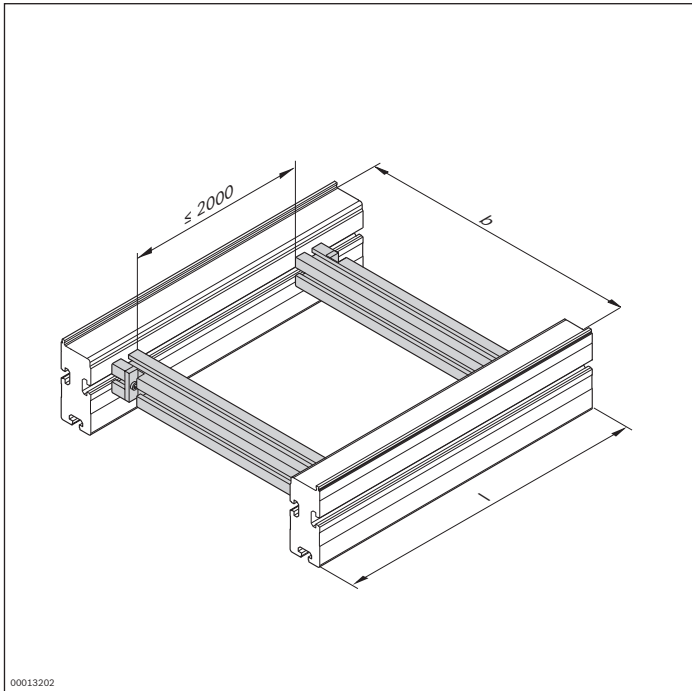
l = section length

Delivery notes

Scope of delivery

- ▶ 45x60 strut profile, finished
- ▶ 2x fastening material to mount on an ST 2 section

Ordering information



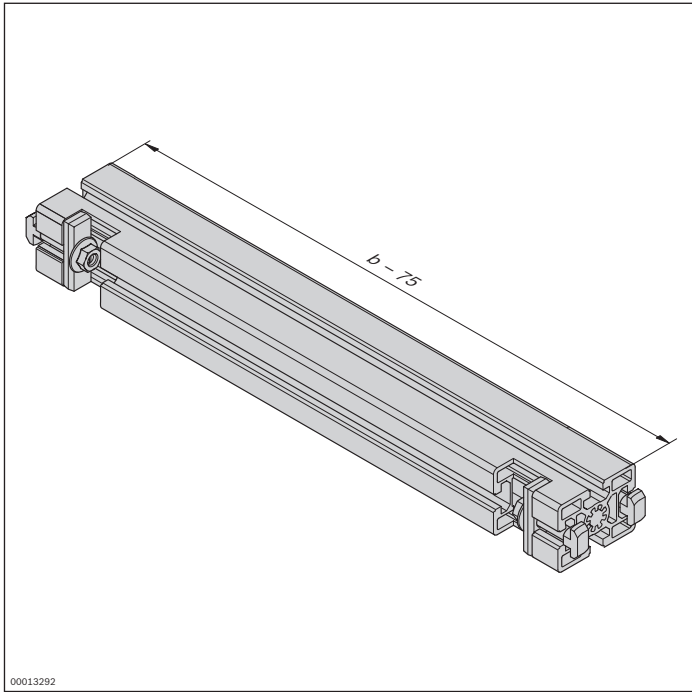
Material number	3842994635
b (mm)	Track width in direction of transport
	160; 240; 320; 400; 480; 640; 800; 1040; 1200
	160 ... 1200 ¹

¹ Individual width variants available

Technical data

Material number	3842994635
Features	
Material specification	Aluminum, natural; anodized

Dimensions



QV 2-H cross connector



- ▶ For heavy-duty conveyor unit self-assembly
- ▶ For connecting section profiles and defining the track width
- ▶ Can be combined with all SP 2 section profiles

QV 2-H cross connectors are particularly suitable for connections between section profiles in heavy-duty systems.

Formula for calculating the number of cross connectors needed

$$A_{QV} = (l/2000 \text{ mm}) + 1$$

A_{QV} = number of cross connectors

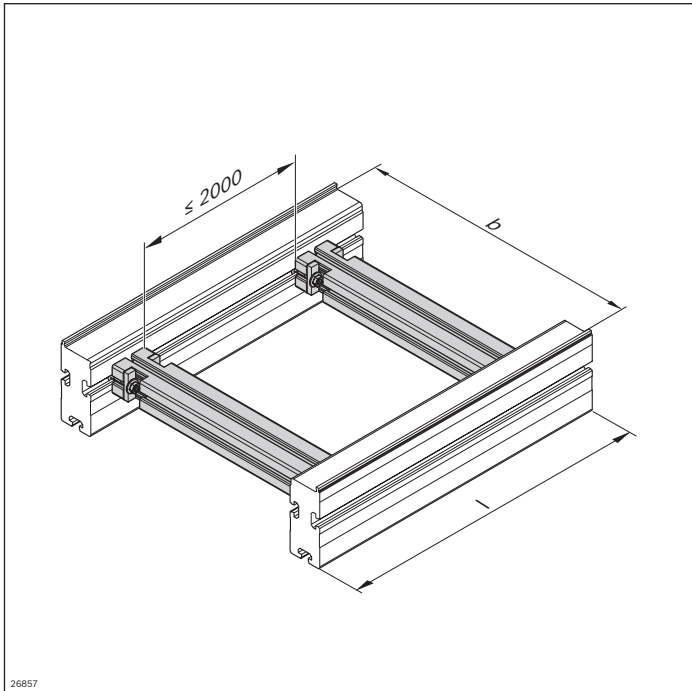
l = section length

Delivery notes

Scope of delivery

- ▶ 45x60 strut profile, finished
- ▶ 4x fastening material to mount on an ST 2 section

Ordering information



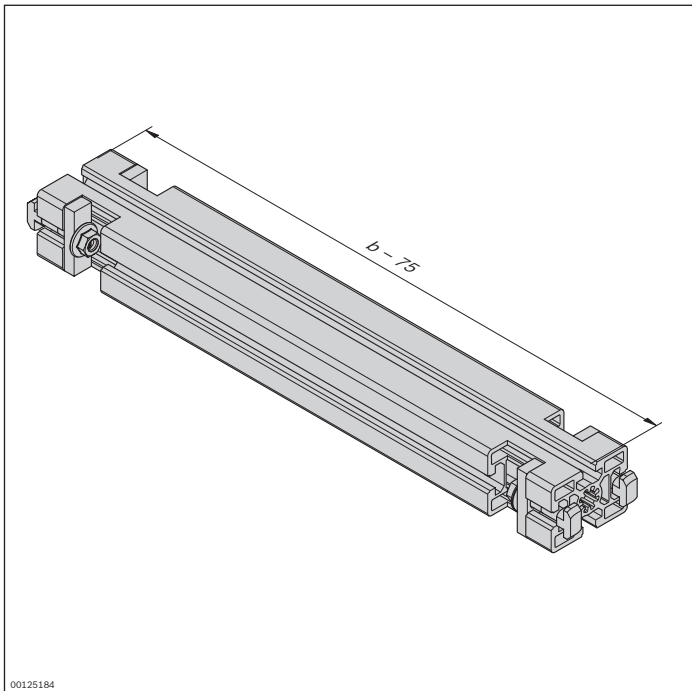
Material number	3842993052	
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200
		160 ... 1200 ¹

¹ Individual width variants available

Technical data

Material number	3842993052
Features	
Material specification	Aluminum, natural; anodized

Dimensions



ST 2/...-W maintenance section



- ▶ For maintenance use (assembly, disassembly or lubrication)
- ▶ Two removable side covers each
- ▶ Suitable for flat top chains

The maintenance section is a section element with removable caps. It is used for maintenance (assembly,

disassembly, lubrication) of the flat top chain conveyor medium.

Delivery notes

Scope of delivery

- ▶ 2x maintenance section elements, 400 mm long
- ▶ Incl. 8x profile connectors

Ordering information

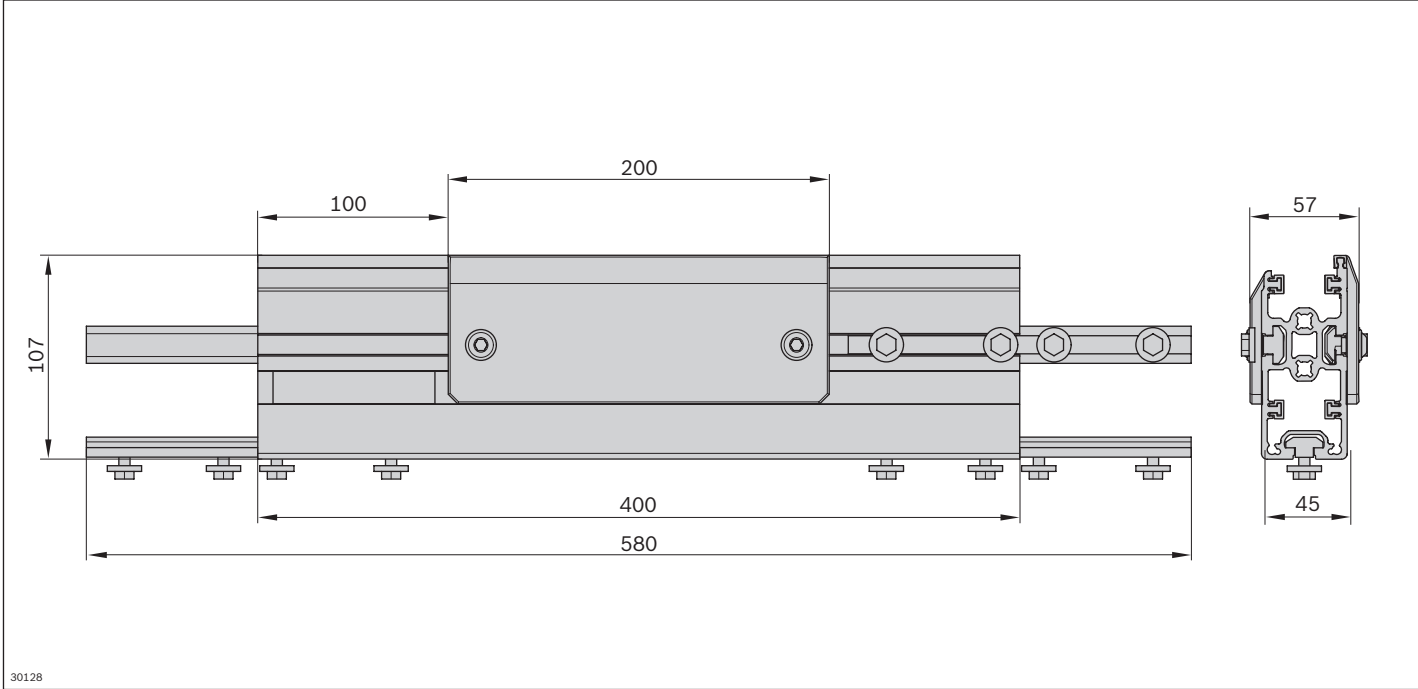
Product designation	Material number
ST 2/C-W maintenance section	3842532777
ST 2/C-H-W maintenance section	3842537310

Technical data

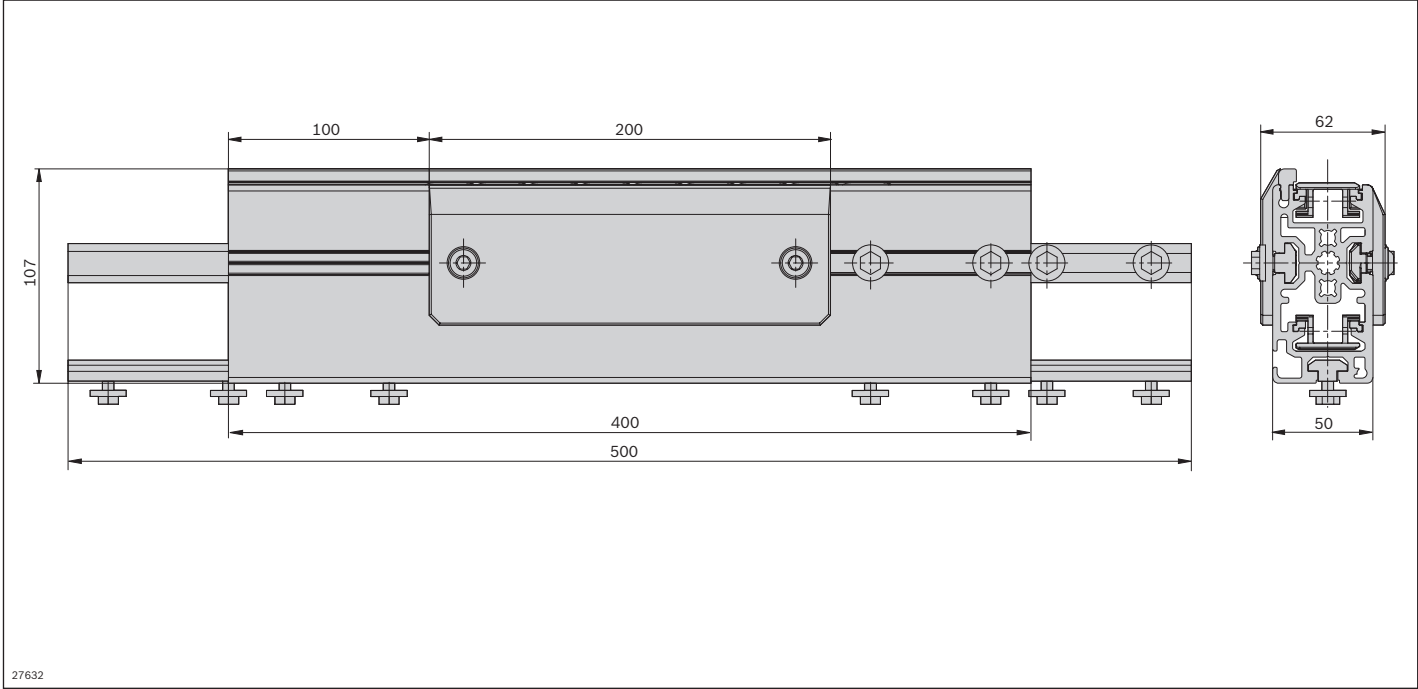
Material number	3842532777	3842537310
Features		
ESD	Yes	Yes
Material specification	Section profile: Aluminum, natural; anodized Side cover: PE	Section profile: Aluminum, natural; anodized Side cover: PE
Dimensions		
Length	400	400

Dimensions

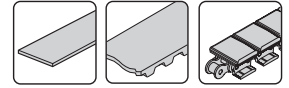
ST 2/C-W maintenance section



ST 2/C-H-W maintenance section



Scraper



- ▶ To scrape small parts from the conveyor medium
- ▶ For use with workpiece pallets with a minimum weight of 3 kg
- ▶ Conveyor media: Belt, toothed belt and flat top chain
- ▶ May be mounted on the right side (R) or left side (L)
- ▶ Reversible operation is not possible on sections with scrapers

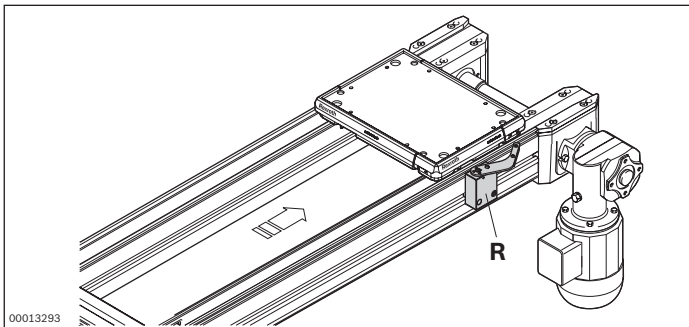
Delivery notes

Scope of delivery

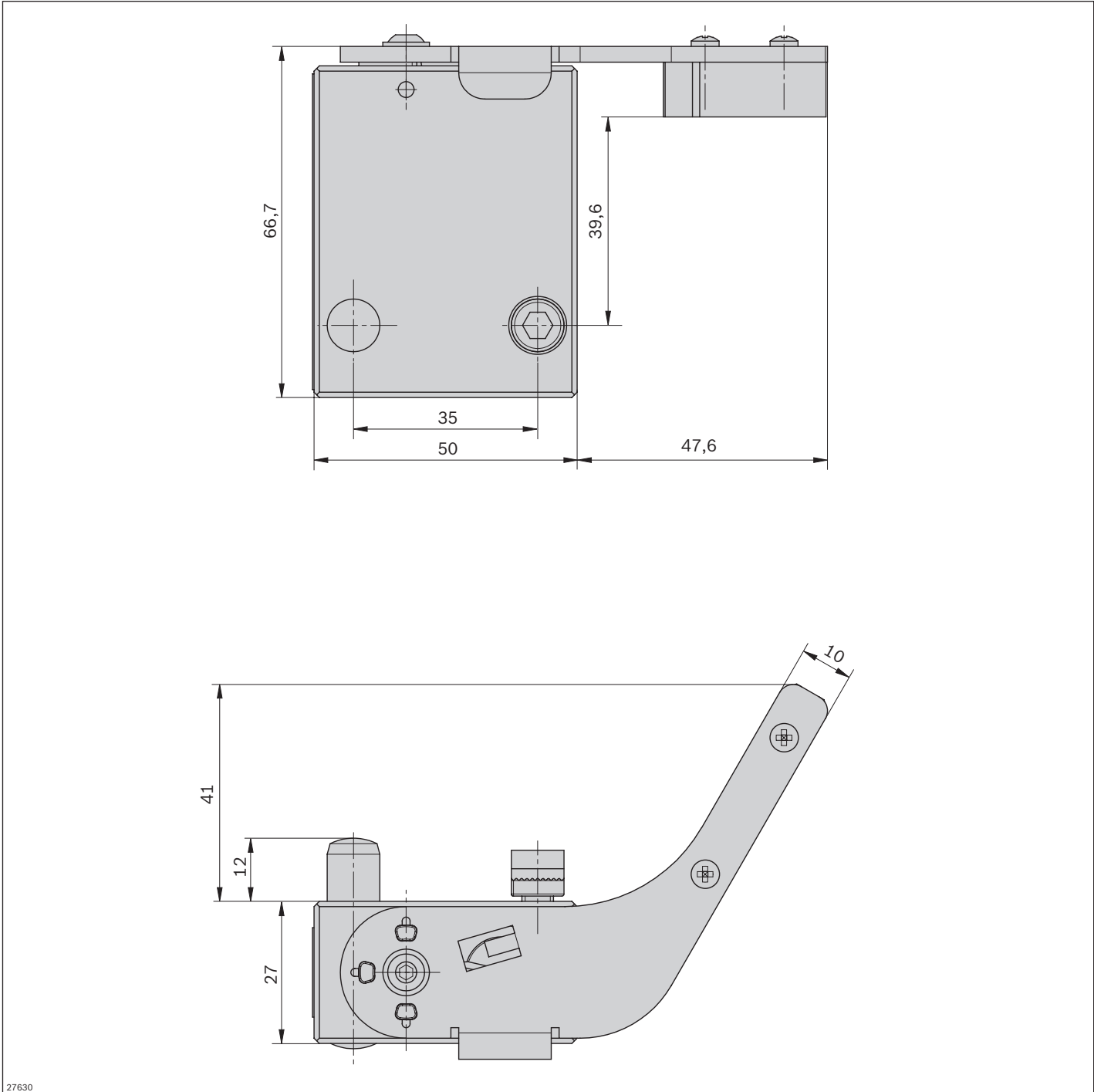
- ▶ 1x scraper, right or left, including fastening material

Ordering information

Product designation	Material number
Scraper, right	3842532679
Scraper, left	3842532680

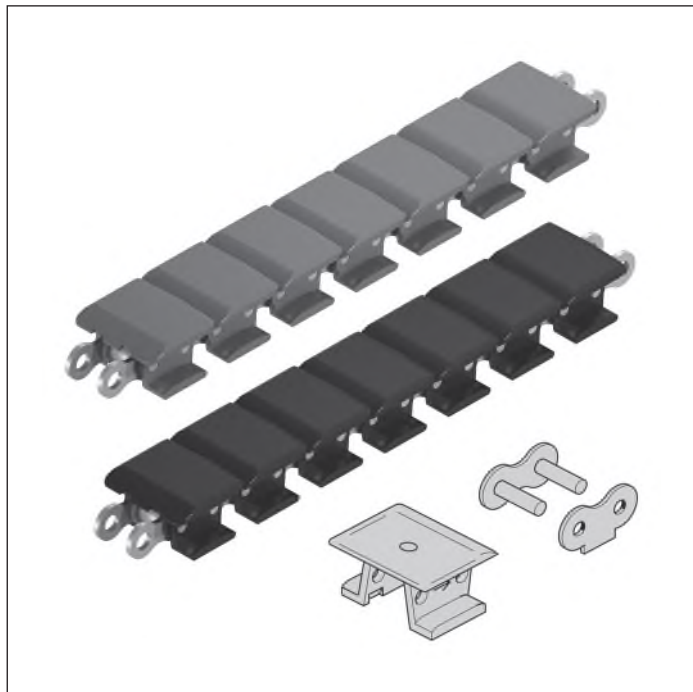


Dimensions



27630

Plastic flat top chain Master link



- ▶ Conveyor medium for use with conveyor unit self-assembly
- ▶ For use with ST 2/C sections and ST 2/C-H sections
- ▶ Delivered in units of up to 12000 mm. Lengths of $l > 12000$ mm can be produced by connecting several flat top chains using a master link
- ▶ Nickel-plated steel base chain version
- ▶ Steel chain with PA66 polyamide support caps

Note:

- ▶ The plastic flat top chain, which is also suitable for use in an EPA, cannot be used in curves and curve arcs
- ▶ Accumulation operation with workpiece pallets fitted with PE wear pads not recommended as this increases wear
- ▶ The plastic flat top chain is not permitted for use with steel GP glide profiles

Conveyor medium for the workpiece pallets in the TS 2plus system in conjunction with ST 2/C and ST 2/C-H conveyor sections.

Accessories

Recommended accessories

- ▶ Additional master link, 3842551234
- ▶ Tool for flat top chain, see p. 3-118

Delivery notes

Scope of delivery

- ▶ Plastic flat top chain ($l = 12000$ mm; black), incl. 1x master link
- ▶ ESD plastic flat top chain ($l = 12000$ mm; gray), incl. 1x master link
- ▶ Master link, incl. 1x ESD flat top (gray) with hole

Ordering information

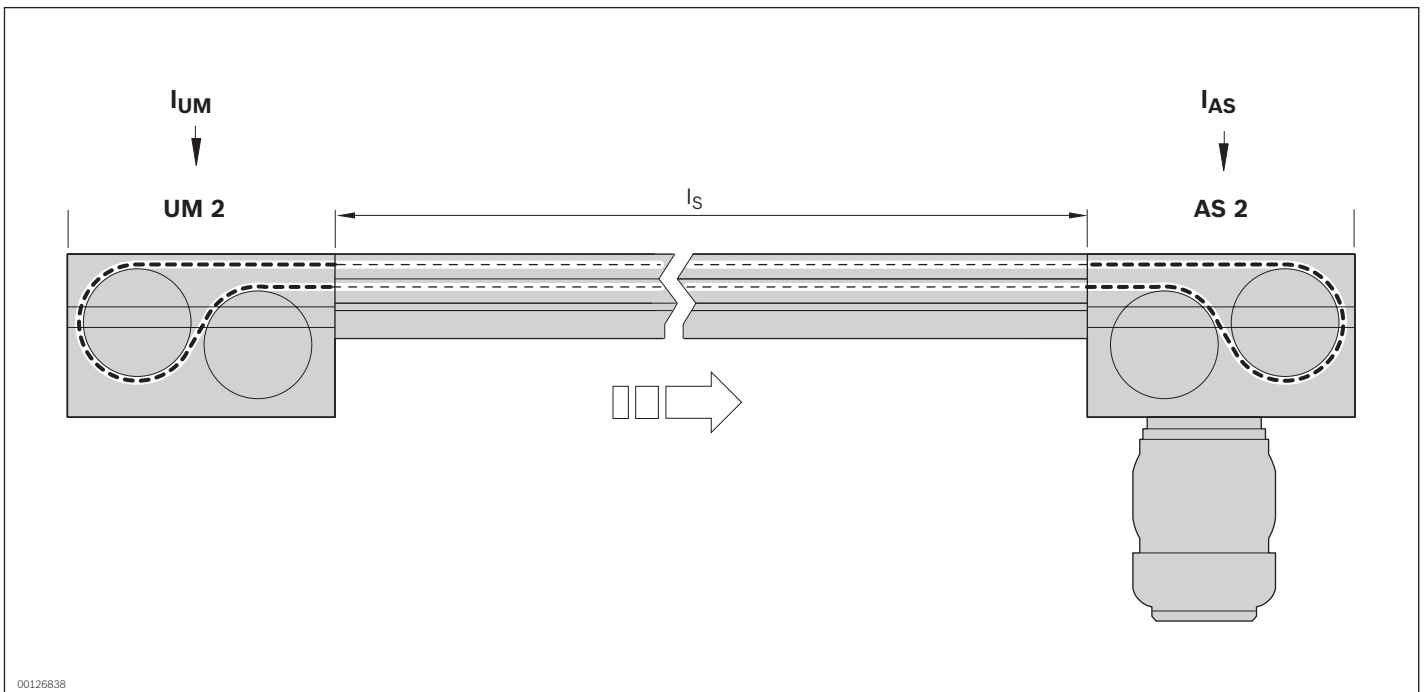
Product designation	Material number
Plastic flat top chain	3842551226
ESD plastic flat top chain	3842551227
Master link*	3842551234

* Can be used on both plastic flat top chains

Technical data

Material number	3842551226	3842551227	3842551234
Features			
ESD	No	Yes	Yes
Material specification	Base chain: Steel; nickel-plated Flat chain: PA66	Base chain: Steel; nickel-plated Flat chain: PA66 (suitable for use in an EPA)	Steel; nickel-plated
Dimensions			
Length	l	mm	12000
			12000

Dimensions



The required chain length is determined using the following formula.

$$l_C = 2 \times l_S + l_{AS} + l_{UM}$$

Length of the conveyor medium for flat top chain

$l_{UM\ 2/C-170} = 310\text{ mm}$

$l_{UM\ 2/C-60} = 150\text{ mm}$

$l_{AS} = 625\text{ mm}$

l_C = length of flat top chain

l_S = length of the section profile

l_{AS} = length of the conveyor medium in the drive module

l_{UM} = length of the conveyor medium at the return unit

Chain breaker



► For disassembling plastic flat top chains

Ordering information

Product designation	Material number
Chain breaker for plastic flat top chain	8981010510

Drilling template for blocking bolts

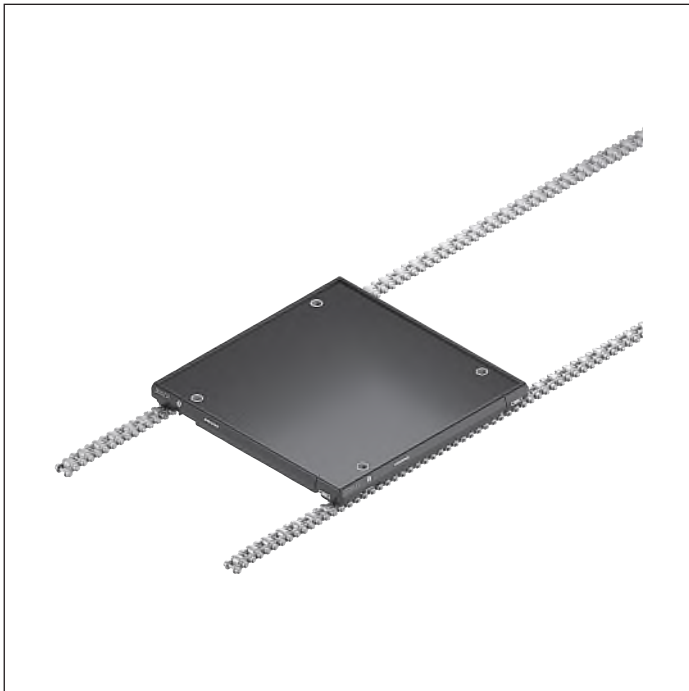


Ordering information

Product designation	Material number
Drilling template for blocking bolts	3842538972



Accumulation roller chain conveyor medium



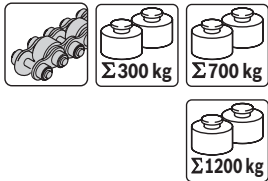
The accumulation roller chain is suitable for large, heavy workpiece pallets. Stress occurring due to media such as test oils or production emissions does not affect functional reliability. The accumulation rollers do not only reduce the accumulation pressure on stop gates, but also enable a quick return to the transport speed following work at a processing station.

In conjunction with PE wear pads on the workpiece pallets, the standard design with plastic glide profiles in the section profile permits surface loads of up to 1.5 kg/cm, whereas the optionally available version with steel glide profiles and accumulation roller chain with steel rollers can tolerate surface loads up to 2 kg/cm.

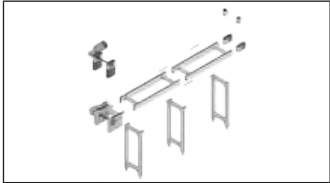
The new HD profiles equipped with steel glide profiles and steel guide profile provide a particularly sturdy, low-maintenance combination.



BS 2/R belt sections



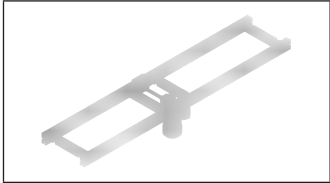
3-122



Parts for AS 2/..., UM 2/..., ST 2... conveyor units



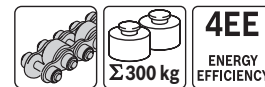
3-134



Connection kits

3-236

BS 2/R-300 belt section



- ▶ Conveyor section ready to use
- ▶ Conveyor medium: Accumulation roller chain (suitable for use in an EPA)
- ▶ Reversible operation possible for $l \leq 2000$ mm and accumulation roller chains without small parts protection
- ▶ Chain tensioner for reversible operation contained in drive head
- ▶ Motor mounting right, left or central (central from track width of 240 mm)
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request

The belt section is a ready for operation conveyor section with own drive for the transportation of workpiece pallets in the longitudinal direction or for the transverse conveying of the workpiece pallet between parallel conveyor sections in connection with two HQ 2 lift transverse units.

Note: With short, light workpiece pallets ($l_{WT} = 160, 240$), it may be necessary to ensure that conveyor trenches are traversable by installing the included acceleration element. When doing so, note the following:
Avoid accumulation above the acceleration element.
Accumulation above the acceleration element causes severe roller wear and shortens the service life of the chain.

Accessories

Recommended accessories

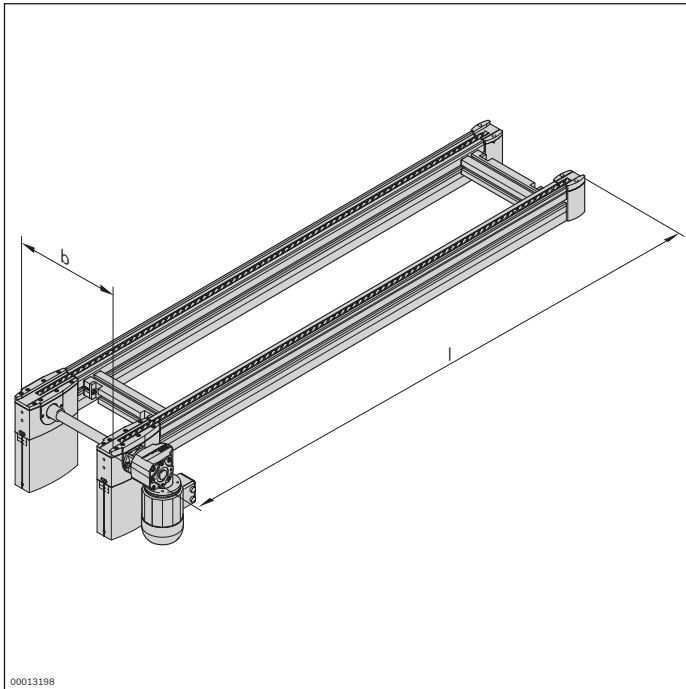
- ▶ Connection kits, see page 3-236
- ▶ SZ 2/... leg sets, see page 6-2
- ▶ LU 2 automatic lubrication unit, see p. 3-152

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842999904
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200 160 ... 1200 ¹
l (mm)	Length	300 ... 6000
v _N (m/min)	Nominal speed	0 ² ; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M ³
RV	Reversible operation No reversible operation (RV = 0) Reversible operation (RV = 1)	0; 1
GP	Corrosion-resistant steel glide profile (GP = S) Plastic (GP = K)	K; S
KT	Chain type Accumulation roller chain with PA accumulation rollers (KT = 1) Accumulation roller chain with steel accumulation rollers (KT = 2) Accumulation roller chain with PA accumulation rollers and small parts protection (KT = 3) Accumulation roller chain with steel accumulation rollers and small parts protection (KT = 4)	1; 2; 3; 4

¹ Individual width variants available

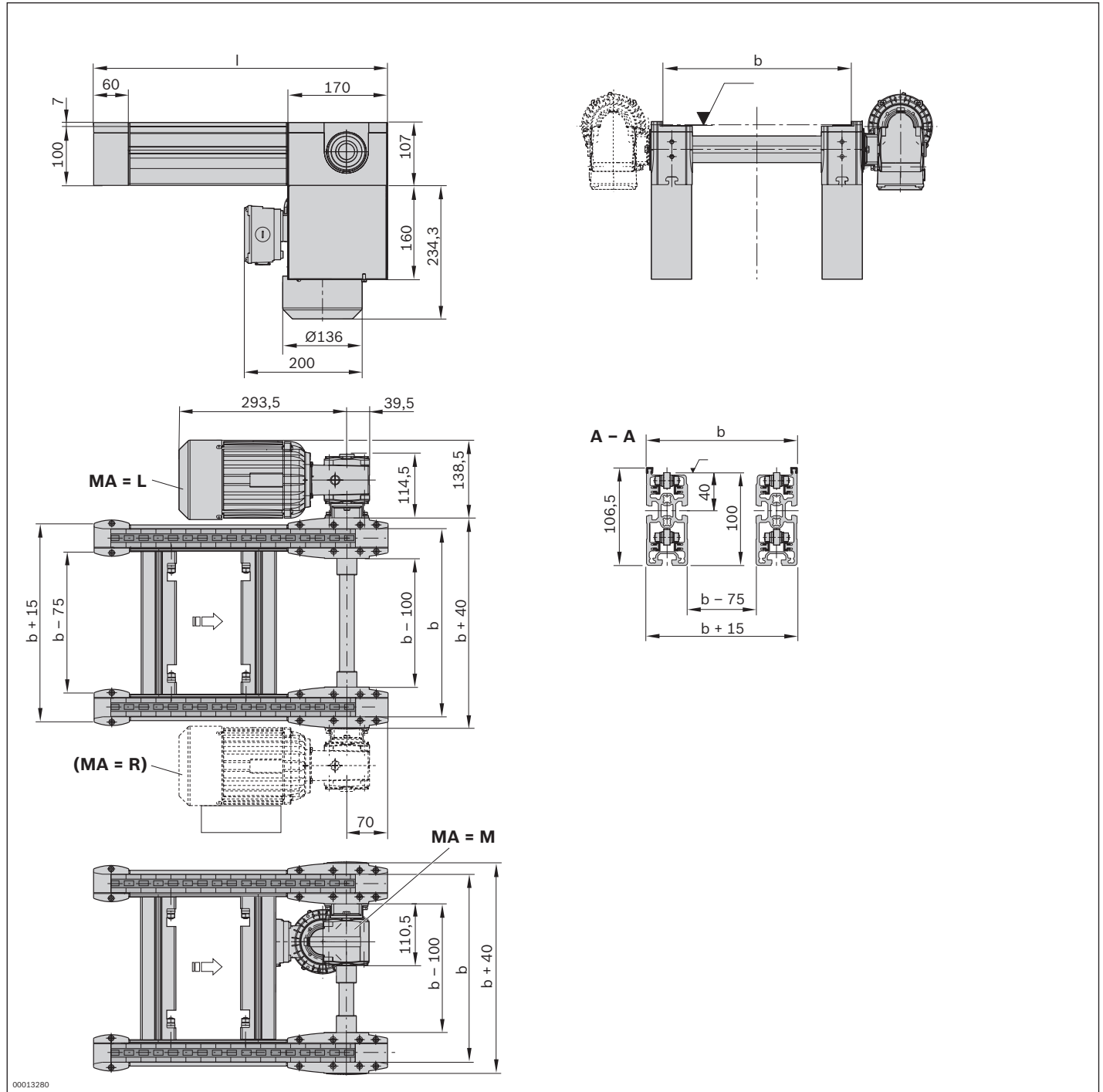
² v_N = 0: without motor or gear

³ MA = M only when b ≥ 240 mm

Technical data

Material number		3842999904
Load		
Max. section load in accumulation operation	kg	300
Features		
ESD		Yes
Material specification		Section profile: Aluminum, natural; anodized Glide profile Polyamide or steel; corrosion-resistant Chain: Polyamide or steel accumulation rollers Small parts protection: Polyamide
Max. operating temperature	T	°C
		+40
Dimensions		
Length	l	mm
		300 ... 6000

Dimensions



BS 2/R-700 belt section



- ▶ Conveyor medium: Accumulation roller chain (suitable for use in an EPA)
- ▶ Reversible operation not permitted
- ▶ Motor mounting right or left
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request

3

The belt section is a ready-to-use conveyor section with built-in drive for the transportation of workpiece pallets in the longitudinal direction or for the transverse conveying of the workpiece pallet between parallel conveyor sections in connection with two HQ 2 lift transverse units.

Note: With short, light workpiece pallets ($l_{WT} = 160, 240$), it may be necessary to ensure that conveyor trenches are traversable by installing the included acceleration element. When doing so, note the following:
Avoid accumulation above the acceleration element.
Accumulation above the acceleration element causes severe roller wear and shortens the service life of the chain.

Accessories

Recommended accessories

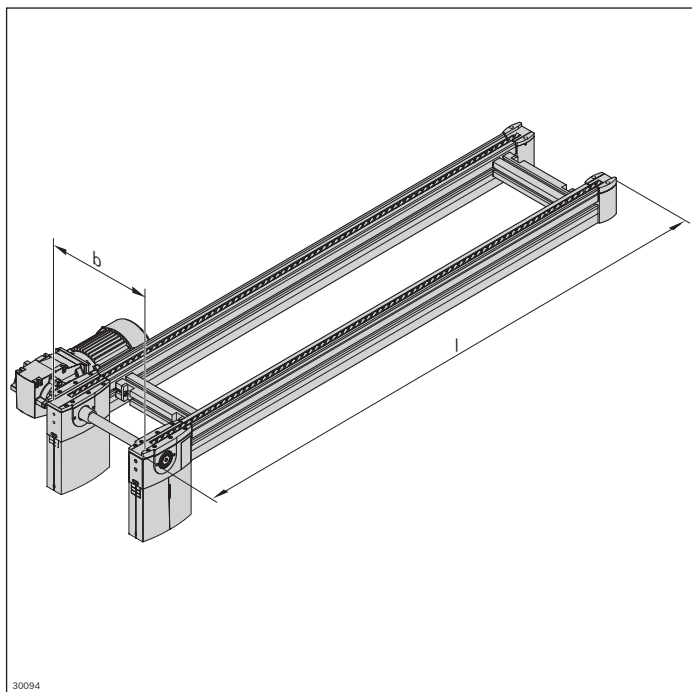
- ▶ Connection kits, see page 3-236
- ▶ SZ 2/... leg sets, see page 6-2
- ▶ LU 2 automatic lubrication unit, see p. 3-152

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



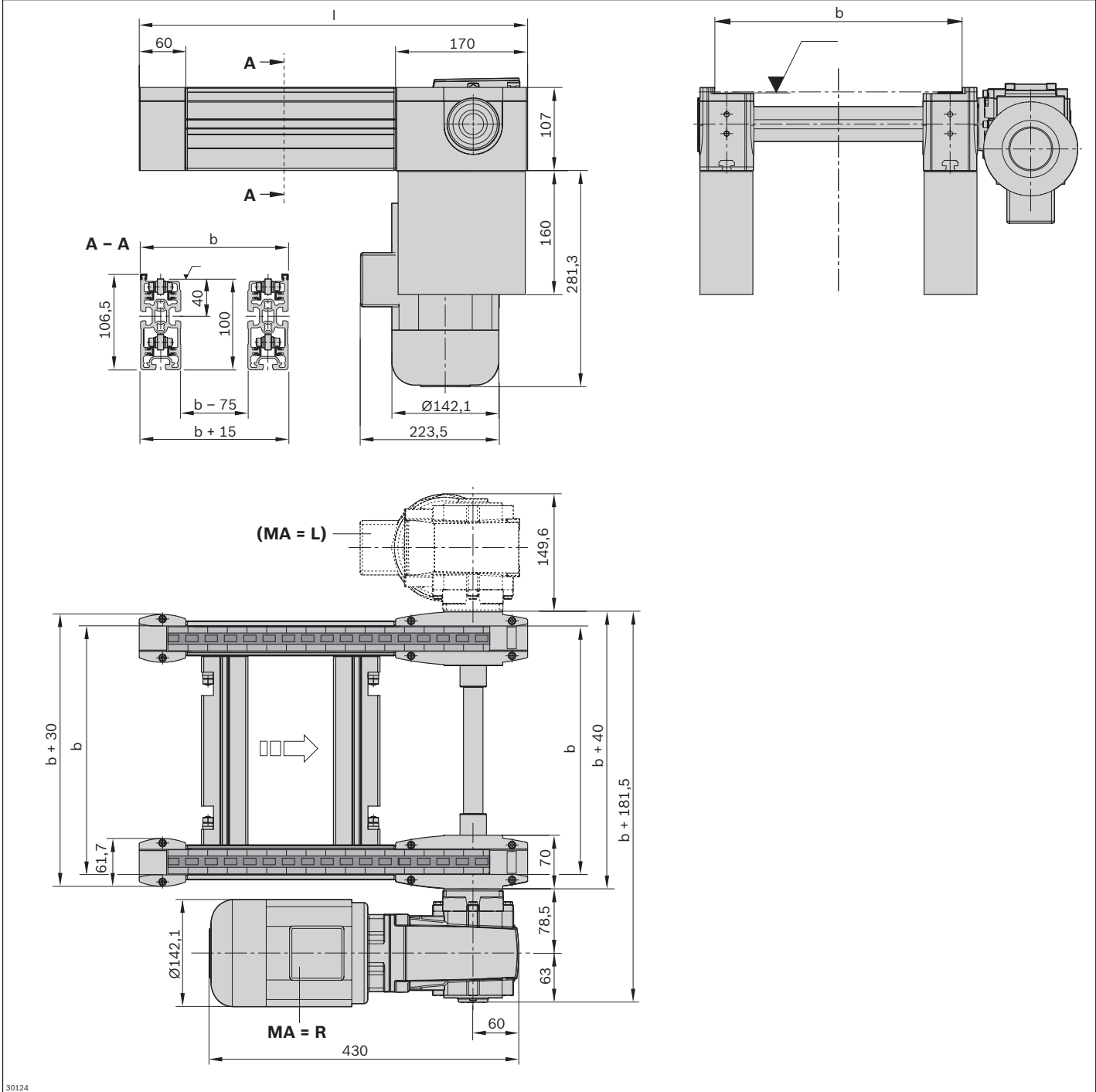
Material number		3842998096
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200; 160 ... 1200
l (mm)	Length	300 ... 6000
v_N (m/min)	Nominal speed	0 ¹⁾ ; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left	R; L
GP	Corrosion-resistant steel glide profile (GP = S) Plastic (GP = K)	K; S
KT	Chain type Accumulation roller chain with PA accumulation rollers (KT = 1) Accumulation roller chain with steel accumulation rollers (KT = 2) Accumulation roller chain with PA accumulation rollers and small parts protection (KT = 3) Accumulation roller chain with steel accumulation rollers and small parts protection (KT = 4)	1; 2; 3; 4

¹⁾ $v_N = 0$: without motor or gear

Technical data

Material number		3842998096
Load		
Max. section load in accumulation operation	kg	700
Features		
ESD		Yes
Material specification		Section profile: Aluminum, natural; anodized Glide profile Polyamide or steel; corrosion-resistant Chain: Polyamide or steel accumulation rollers Small parts protection: Polyamide
Max. operating temperature	T	°C
		+40
Dimensions		
Length	l	mm
		300 ... 6000

Dimensions



30124

BS 2/R-H belt section



- ▶ Conveyor section ready to use
- ▶ Sturdy design for especially heavy-duty systems
- ▶ Conveyor medium: Accumulation roller chain (suitable for use in an EPA)
- ▶ Reversible operation possible for $l \leq 2000$ mm and accumulation roller chains without small parts protection
- ▶ Chain tensioner for reversible operation is mounted on the return unit at $RV = 1$
- ▶ Motor mounting right, left or central
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Profile width: 50 mm
- ▶ Special models on request

The belt section is a ready-to-use conveyor section with built-in drive for the transportation of workpiece pallets in the longitudinal direction or for the transverse conveying of

the workpiece pallet between parallel conveyor sections in connection with two HQ 2 lift transverse units.

Accessories

Recommended accessories

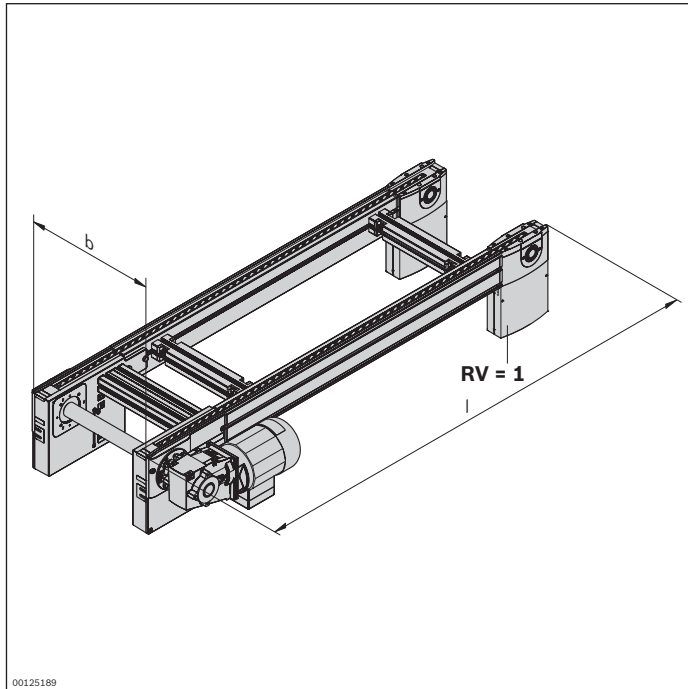
- ▶ Connection kits, see page 3-236
- ▶ SZ 2/... leg sets, see page 6-2
- ▶ LU 2 automatic lubrication unit, see p. 3-152

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998238
b (mm)	Track width in direction of transport	400 ... 1200
l (mm)	Length	650 ... 6000
v_N (m/min)	Nominal speed	0 ¹⁾ ; 6; 9; 12; 15; 18 ²⁾
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M
RV	Reversible operation No reversible operation (RV = 0) Reversible operation (RV = 1)	0, 1 ³⁾
GP	Corrosion-resistant steel glide profile (GP = S) Plastic (GP = K)	0; 1
KT	Chain type Accumulation roller chain with PA accumulation rollers (KT = 1) Accumulation roller chain with steel accumulation rollers (KT = 2) Accumulation roller chain with PA accumulation rollers and small parts protection (KT = 3) Accumulation roller chain with steel accumulation rollers and small parts protection (KT = 4)	1; 2; 3; 4

¹⁾ $v_N = 0$: without motor or gear

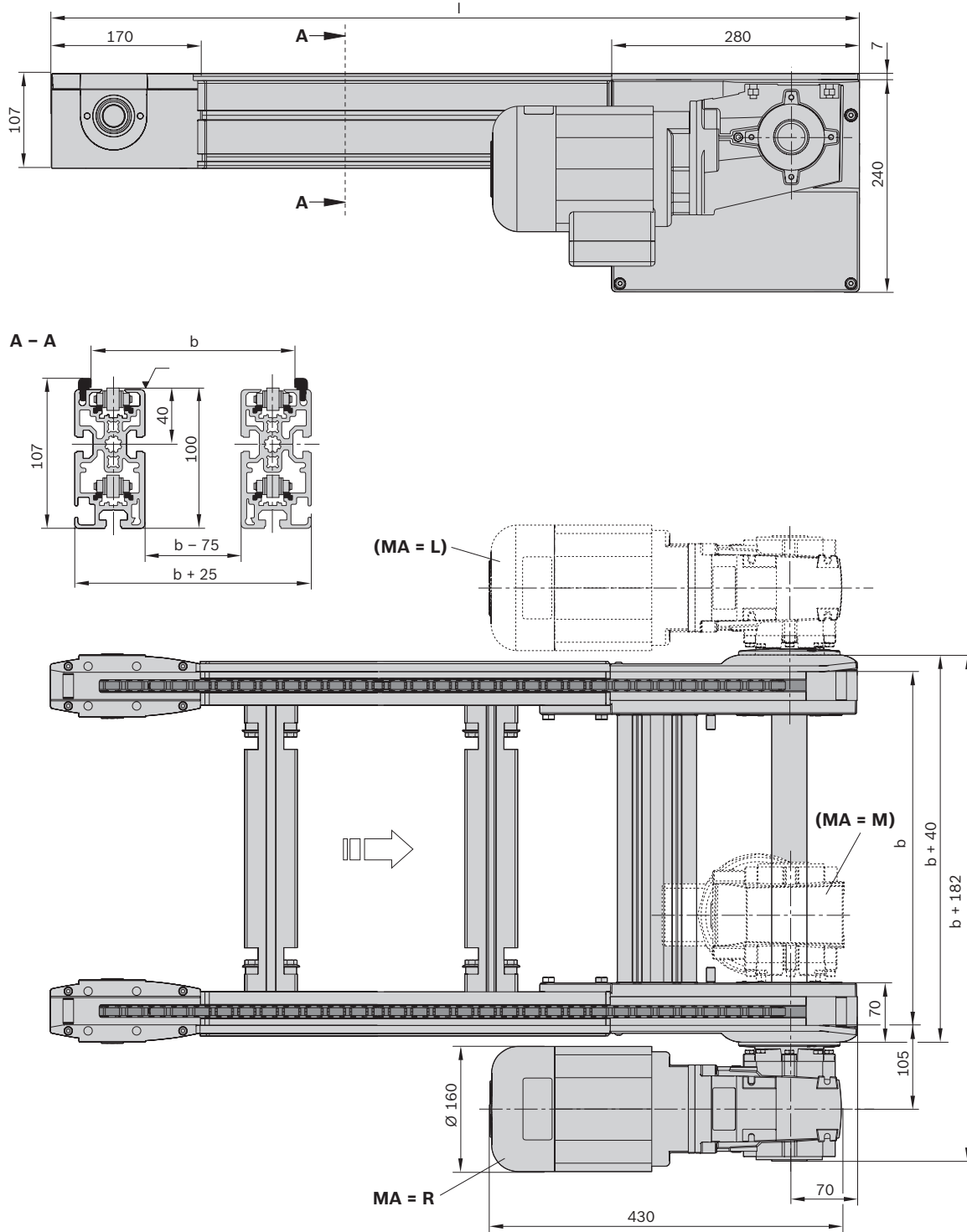
²⁾ Not possible if $f = 60$ Hz

³⁾ RV = 1 possible when $l \leq 2000$ mm and section loads < 400 kg;
no reversible operation for chains with small parts protection (KT = 3, 4)

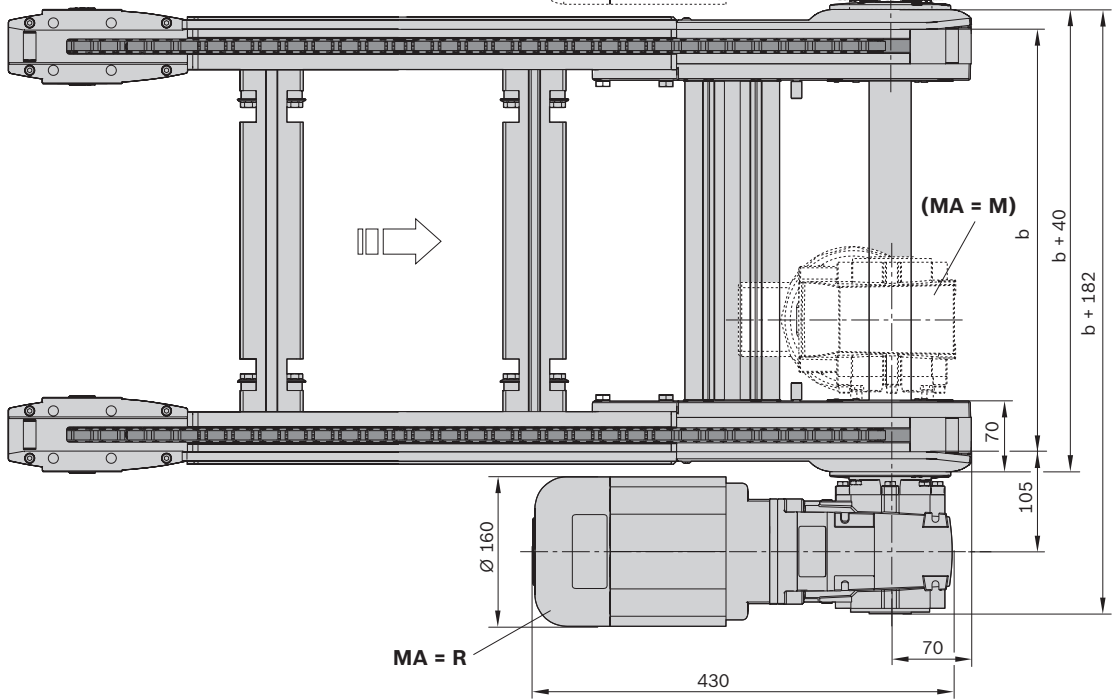
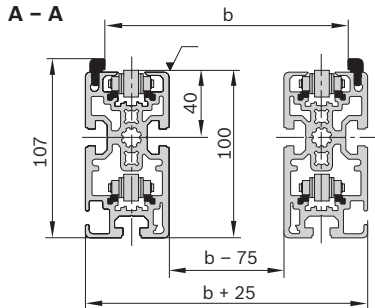
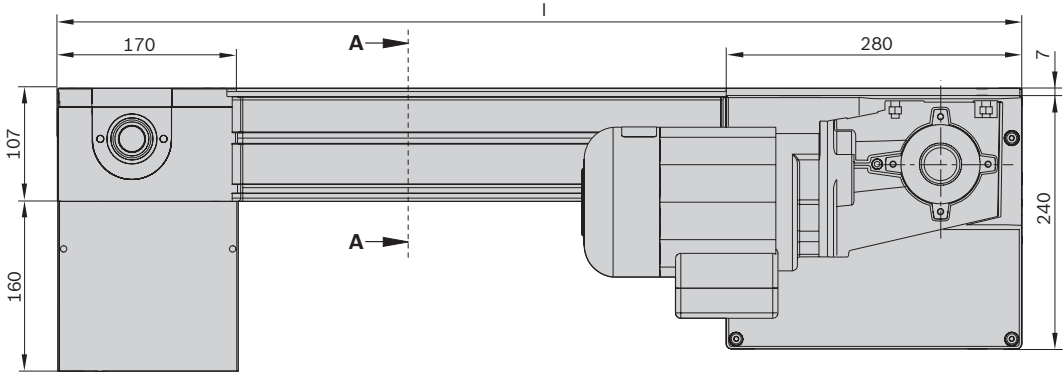
Technical data

Material number		3842998238
Load		
Max. section load in accumulation operation	kg	1200
Features		
ESD		Yes
Material specification		Section profile: Aluminum, natural; anodized Glide profile Polyamide or steel; corrosion-resistant Chain: Polyamide or steel accumulation rollers Small parts protection: Polyamide
Dimensions		
Length	l	mm 650 ... 6000

BS 2/R-H belt section dimensions



BS 2/R-H belt section dimensions with chain tensioner



BS 2/C+R connection belt



- Conveyor medium: Toothed belt (suitable for use in an EPA)

The head-to-head connection of the drive and return heads results in short, non-driven sections. The connection belt is

used to bridge these > 180 mm conveyor trenches by using short $l_{WT} < 320$ mm workpiece pallets.

Delivery notes

Condition on delivery

- Fully assembled

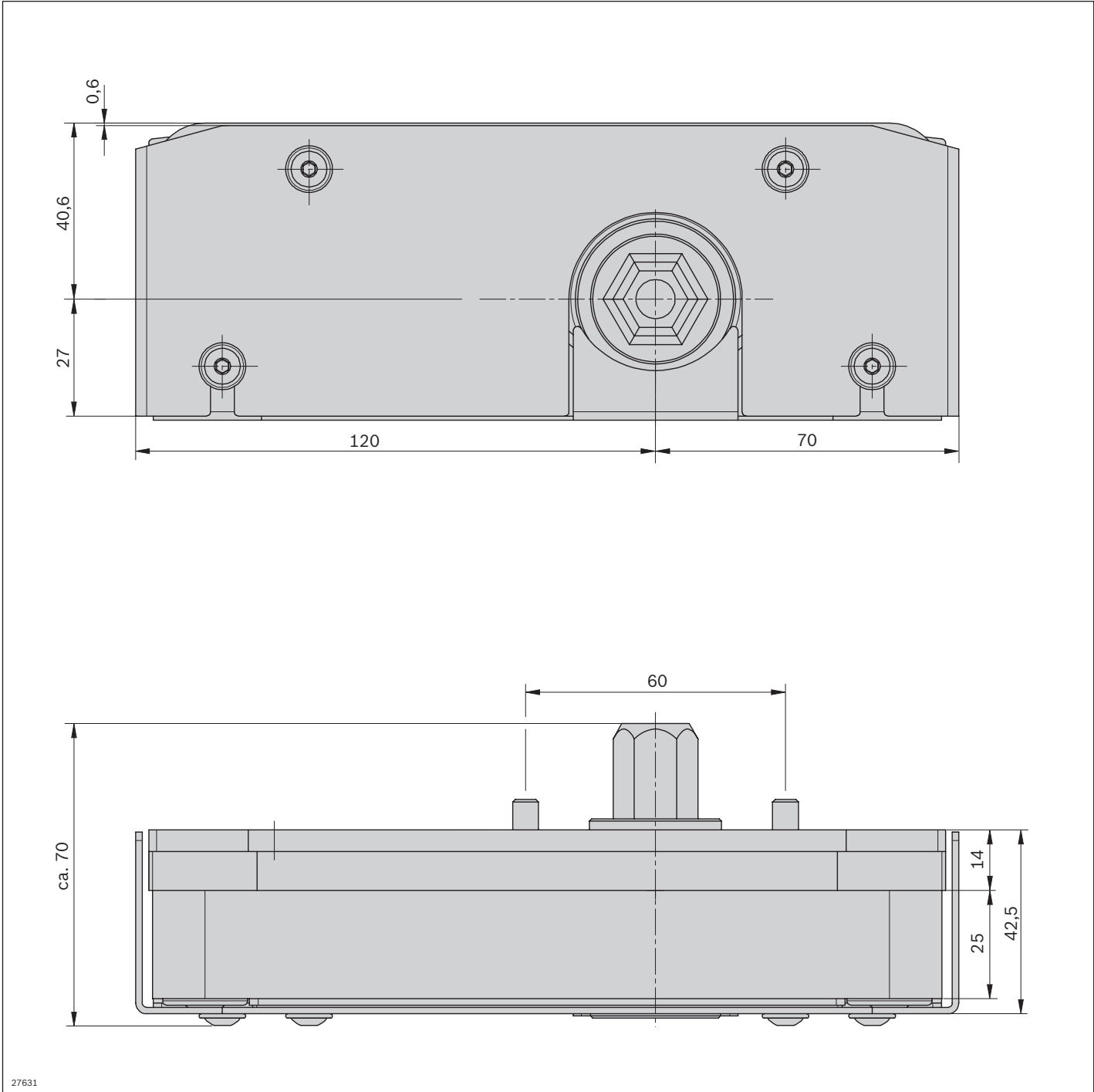
Ordering information

Product designation	Material number
Connection belt, left	3842528480
Connection belt, right	3842539096

Technical data

Material number	3842528480	3842539096
Features		
ESD	Yes	Yes

Dimensions

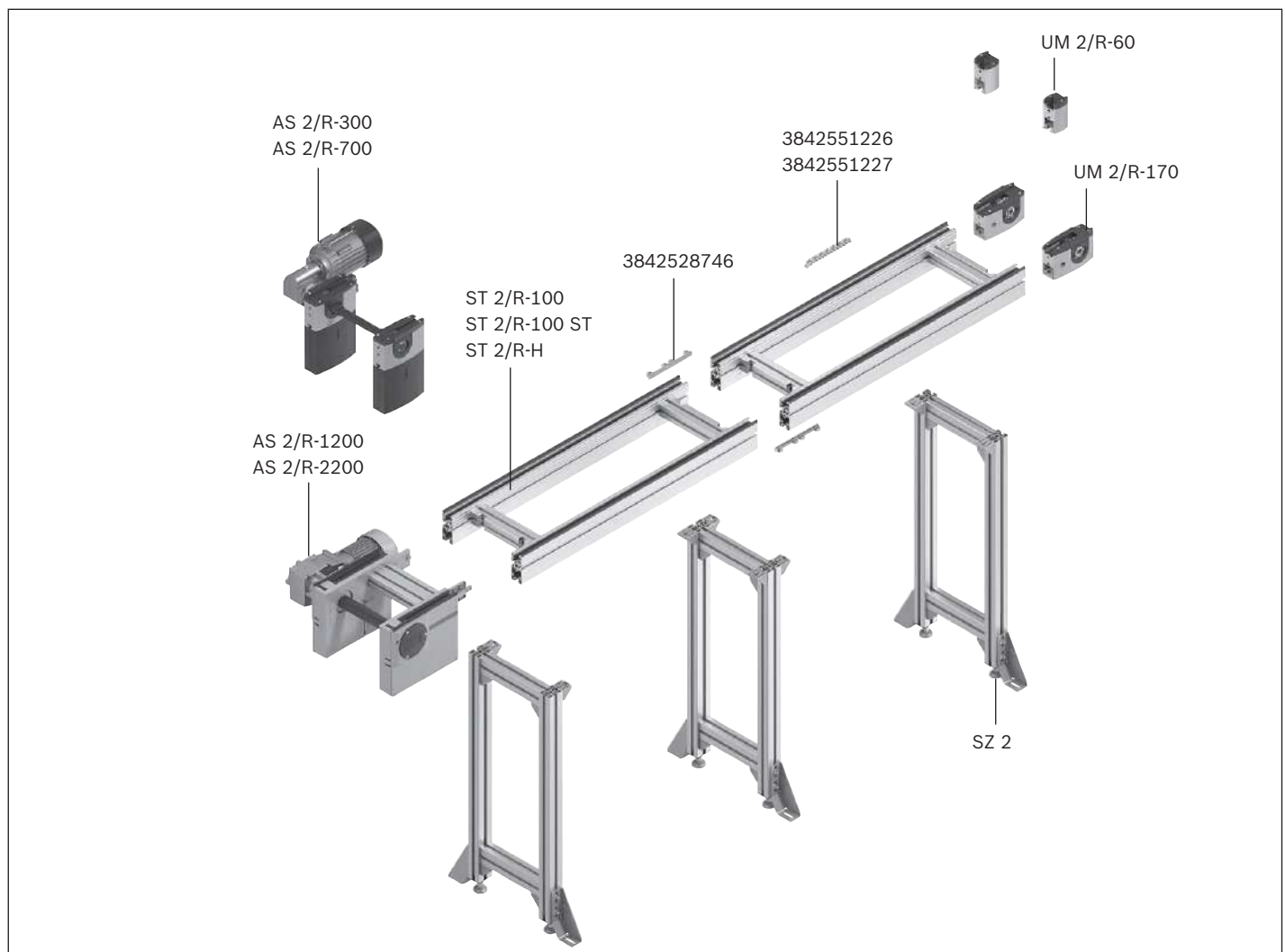


27631



Conveyor units

Accumulation roller chain conveyor medium



A conveyor unit is a complete unit used for linear conveying of workpiece pallets. It consists of:

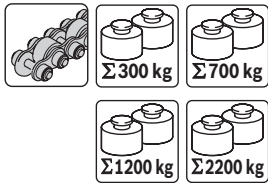
- ▶ AS 2/R drive module, see p. 3-136
- ▶ UM 2/R return unit, see p. 3-148
- ▶ ST 2/R... sections, see p. 3-154
- ▶ SZ 2/... leg sets, see p. 6-2

The UM 2/R and AS 2/R may be set up right next to each other, which allows for conveyor unit combinations.

Drive modules for loads up to $m_G = 300$ kg; 700 kg; 1200 kg, or up to $m_G = 2200$ kg per conveyor unit.



AS 2/R drive module



3-136



UM 2/R return unit



3-148



ST 2/R section, components



3-154



Accumulation roller chain conveyor medium, accessories



3-183

AS 2/R-300 drive module



- ▶ For conveyor unit self-assembly
- ▶ For use with UM 2 return units and ST 2 sections
- ▶ Conveyor medium: Accumulation roller chain (suitable for use in an EPA)
- ▶ Reversible operation possible for $l \leq 2000$ mm and accumulation roller chains without small parts protection
- ▶ Right, left or central motor mounting (central from track width of 240 mm)
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request

The AS 2/R... drive module drives the accumulation roller chain conveyor medium in self-built conveyor section

elements with section, return unit and accumulation roller chain.

Accessories

Recommended accessories

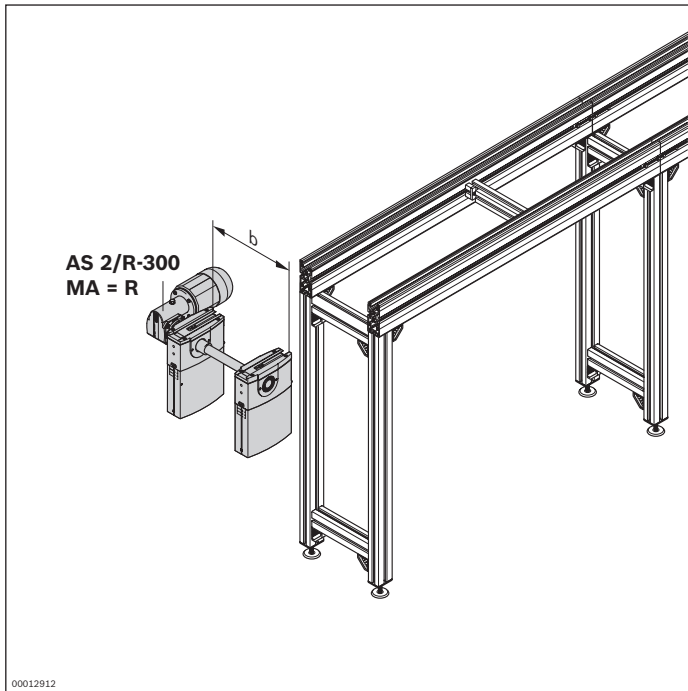
- ▶ LU 2 automatic lubrication unit, see p. 3-152

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998052
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200 160 ... 1200 ¹
v_N (m/min)	Nominal speed	0 ² ; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M ³
RV	Reversible operation No reversible operation (RV = 0) Reversible operation (RV = 1)	0; 1 ⁴

¹) Individual width variants available

²) $v_N = 0$: without motor or gear

³) MA = M only when $b \geq 240$ mm

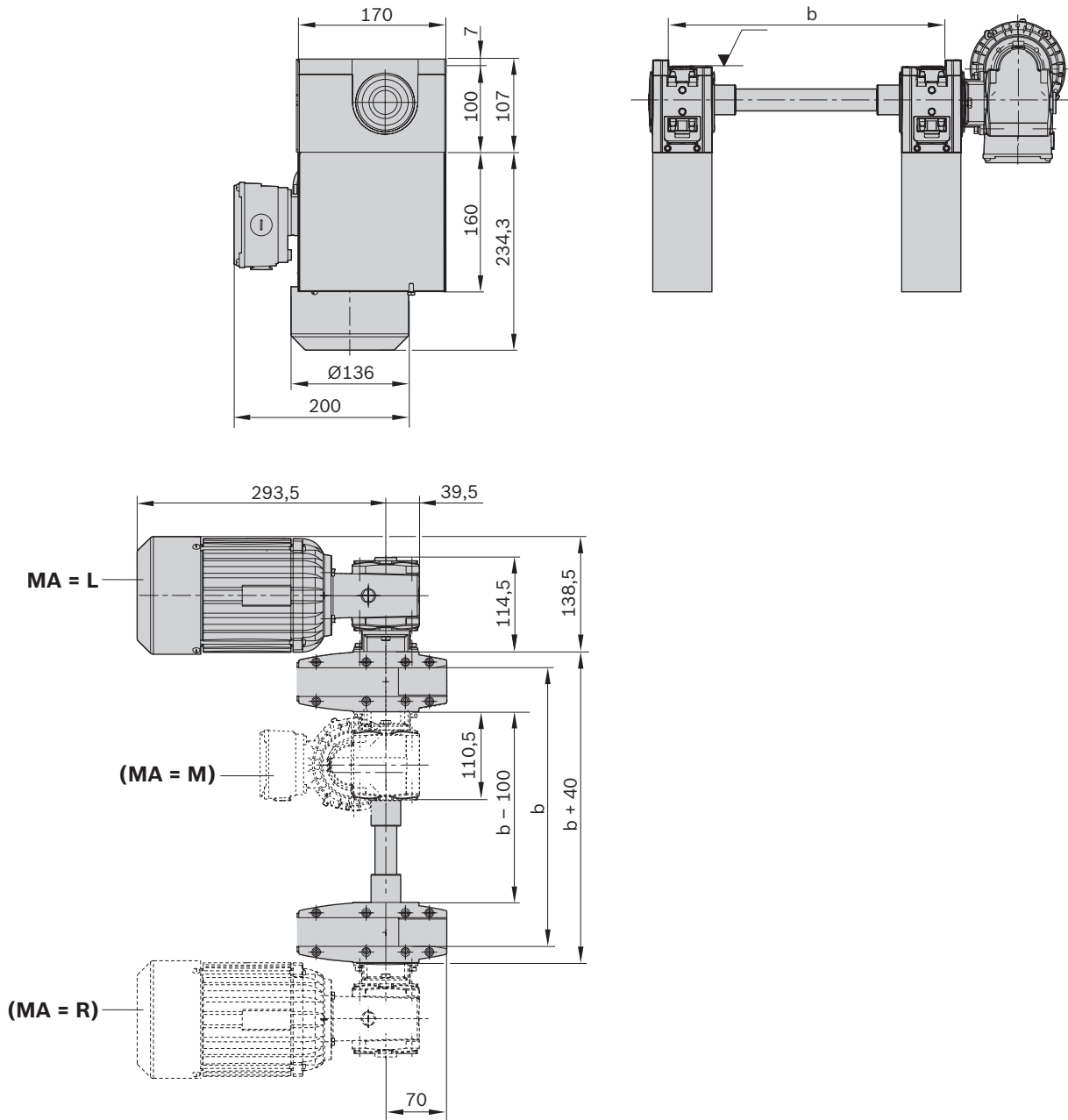
⁴) RV = 1 possible when $l \leq 2000$ mm; no reversible operation for chains with small parts protection (KT = 3, 4)

Technical data

Material number		3842998052
Load		
Max. section load in accumulation operation	kg	300
Features		
ESD		Yes
Additional information		
Required conveyor medium length*	l_{AS}	mm 475

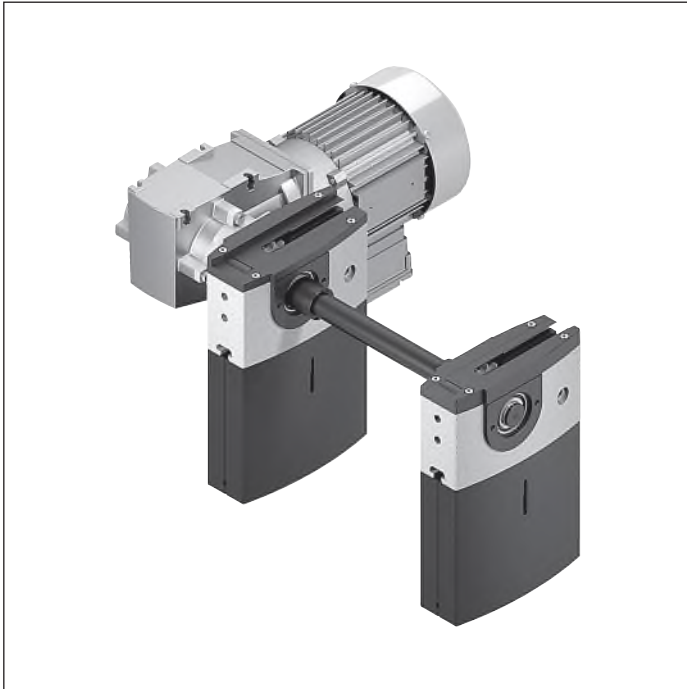
* Formula for calculating the conveyor medium, see p. 3-184/3-186

Dimensions



00013212

AS 2/R-700 drive module



- ▶ For conveyor unit self-assembly
- ▶ For use with UM 2 return units and ST 2 sections
- ▶ Conveyor medium: Accumulation roller chain (suitable for use in an EPA)
- ▶ Motor mounting right or left
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request

The AS 2/R... drive module drives the accumulation roller chain conveyor medium in self-built conveyor section

elements with section, return unit and accumulation roller chain.

Accessories

Recommended accessories

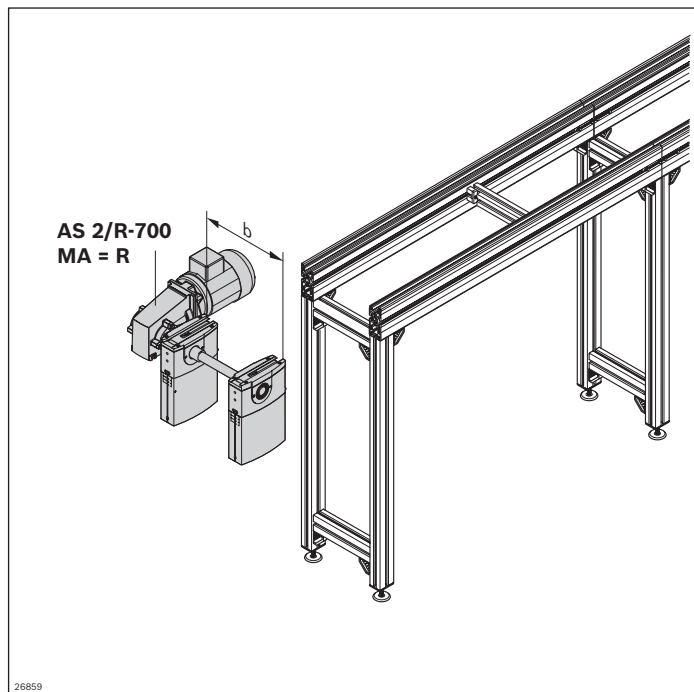
- ▶ LU 2 automatic lubrication unit, see p. 3-152

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998072
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200 160 ... 1200 ¹⁾
v _N (m/min)	Nominal speed	0 ²⁾ ; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left	R; L

¹⁾ Individual width variants available

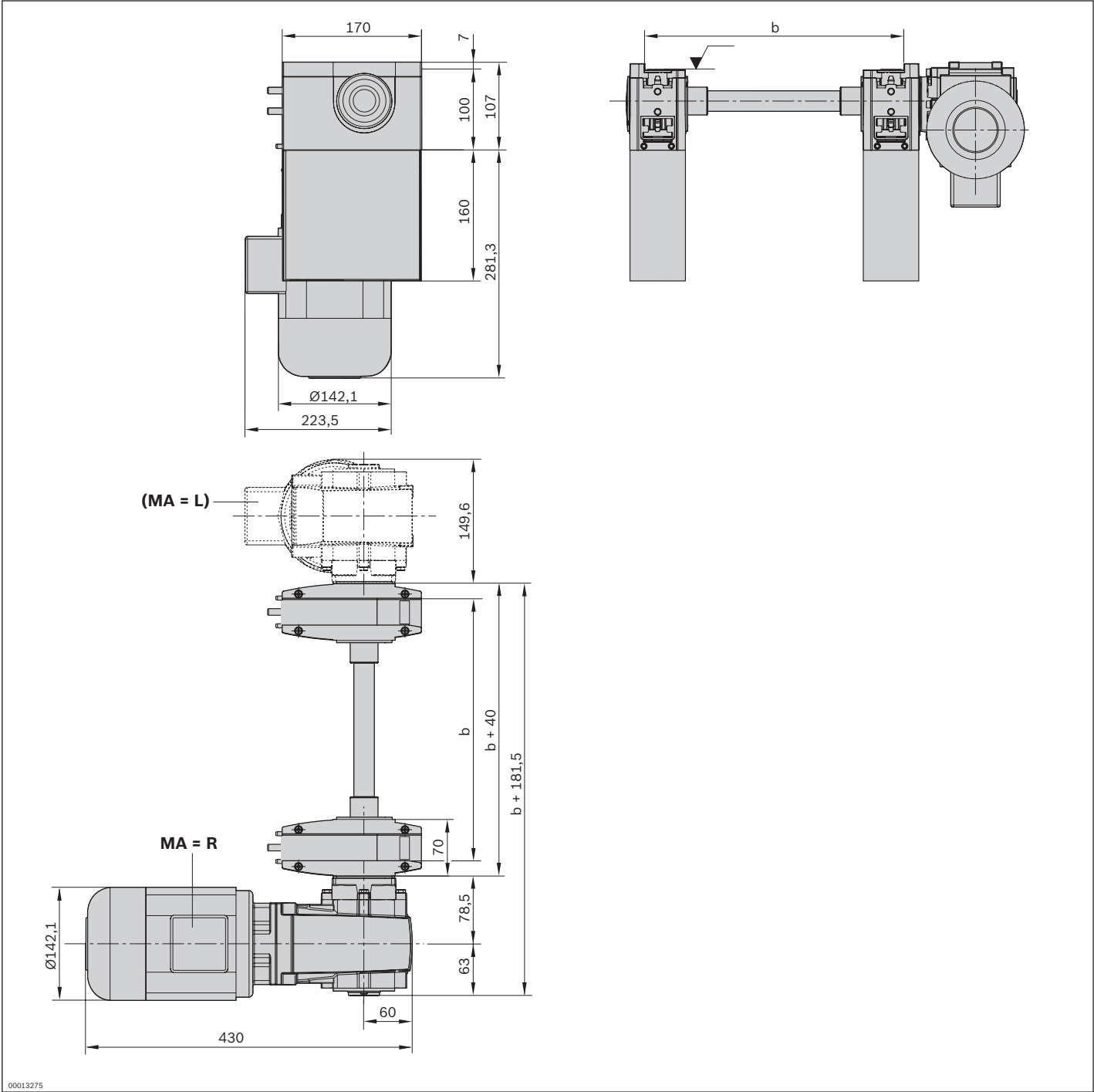
²⁾ v_N = 0: without motor or gear

Technical data

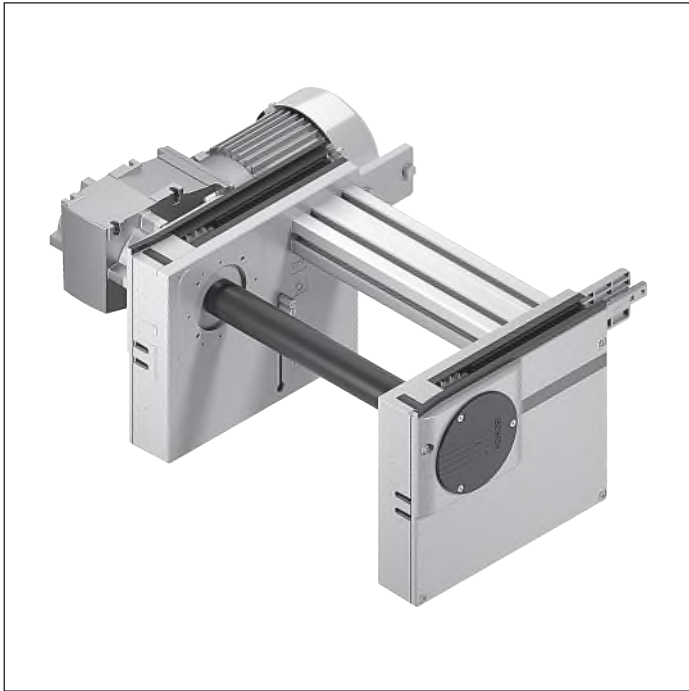
Material number		3842998072
Load		
Max. section load in accumulation operation	kg	700
Features		
ESD		Yes
Additional information		
Required conveyor medium length* I _{AS}	mm	475

* Formula for calculating the conveyor medium, see p. 3-184/3-186

Dimensions



AS 2/R-1200 drive module



- ▶ For conveyor unit self-assembly
- ▶ For use with UM 2 return units and ST 2 sections
- ▶ Conveyor medium: Accumulation roller chain (suitable for use in an EPA)
- ▶ Right, left or central motor mounting (central from track width of 240 mm)
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request

The AS 2/R... drive module drives the accumulation roller chain conveyor medium in self-built conveyor section

elements with section, return unit and accumulation roller chain.

Accessories

Recommended accessories

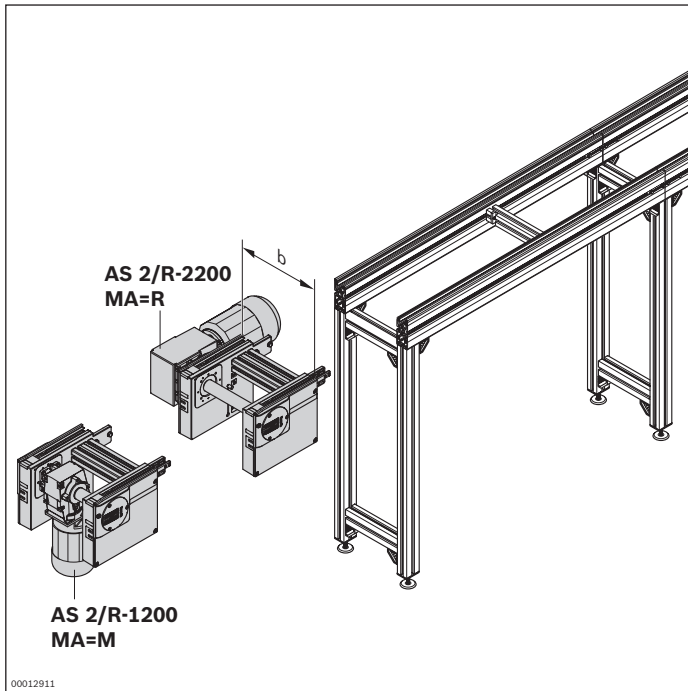
- ▶ LU 2 automatic lubrication unit, see p. 3-152

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998040
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200 160 ... 1200 ¹
v _N (m/min)	Nominal speed	0 ² ; 6; 9; 12; 15; 18 ³
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M ⁴

¹⁾ Individual width variants available

²⁾ v_N = 0: without motor or gear

³⁾ Not possible if f = 60 Hz

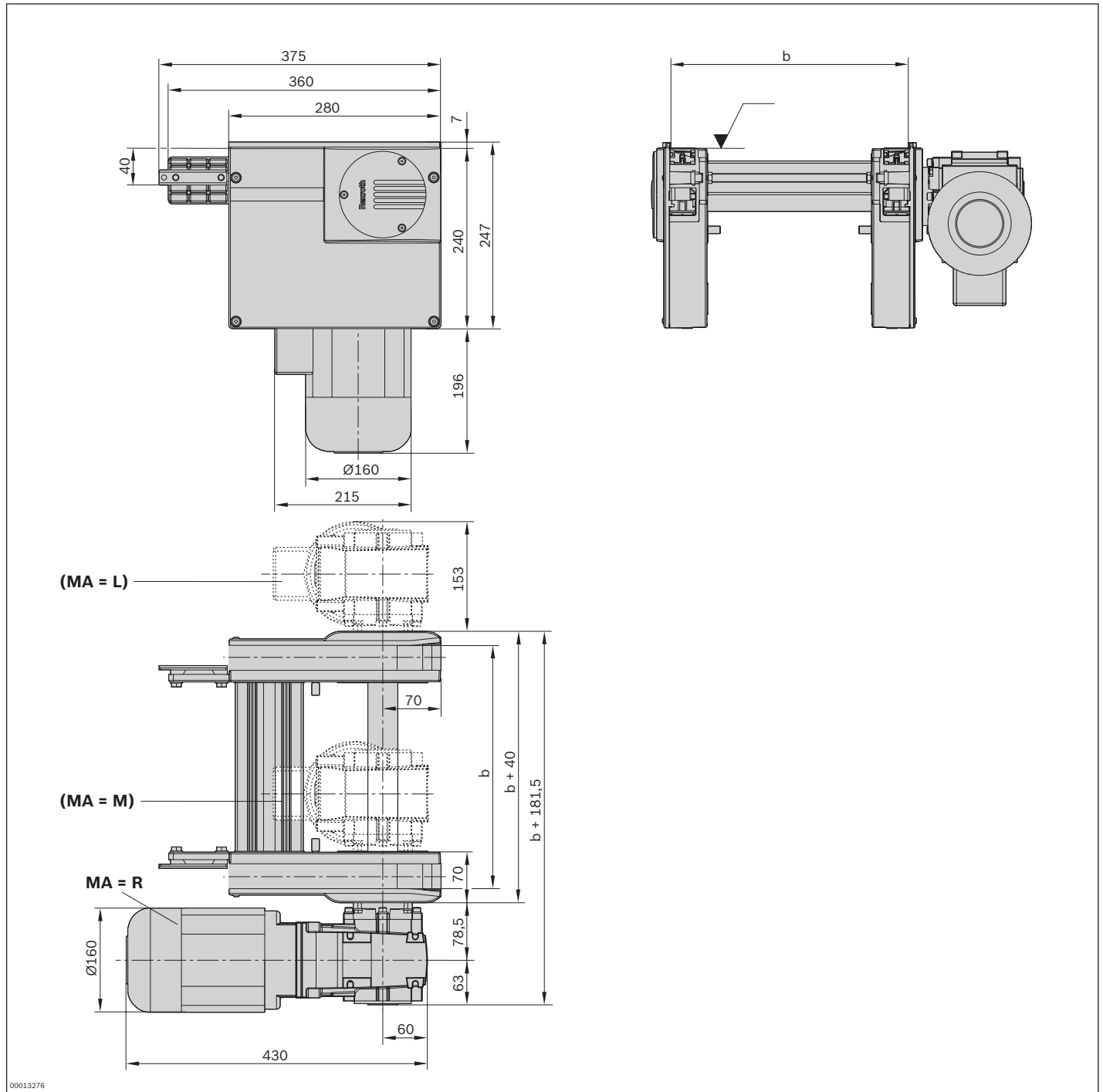
⁴⁾ MA = M when b ≥ 240 mm

Technical data

Material number		3842998040
Load		
Max. section load in accumulation operation	kg	1200
Features		
ESD		Yes
Additional information		
Required conveyor medium length*	l _{AS}	mm 625

* Formula for calculating the conveyor medium, see p. 3-184/3-186

Dimensions



AS 2/R-2200 drive module



- ▶ For conveyor unit self-assembly
- ▶ For use with UM 2 return units and ST 2 sections
- ▶ Conveyor medium: Accumulation roller chain (suitable for use in an EPA)
- ▶ Right, left or central motor mounting (central from track width of 240 mm)
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request

The AS 2/R... drive module drives the accumulation roller chain conveyor medium in self-built conveyor section

elements with section, return unit and accumulation roller chain.

Accessories

Recommended accessories

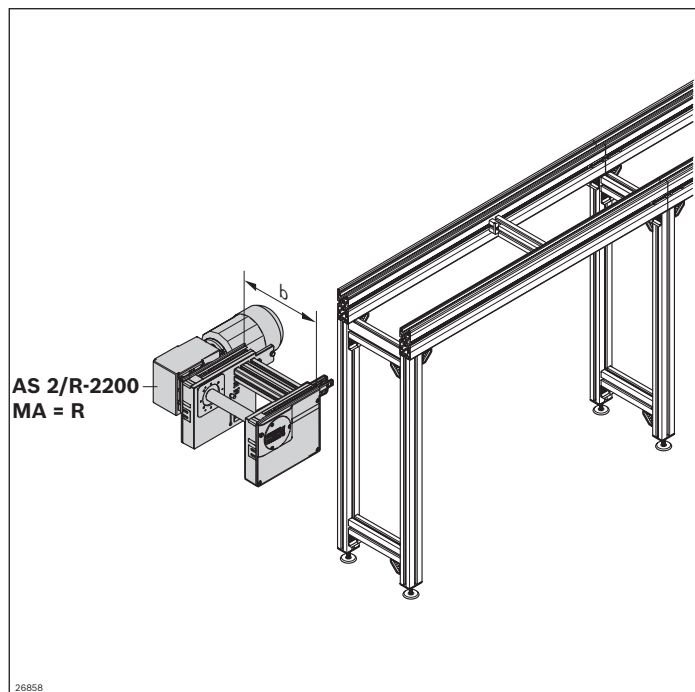
- ▶ LU 2 automatic lubrication unit, see p. 3-152

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998041
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200 160 ... 1200 ¹
v _N (m/min)	Nominal speed	0 ² ; 6; 9; 12; 15; 18 ³
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M ⁴

¹) Individual width variants available

²) v_N = 0: without motor or gear

³) Reduced load to 1800 kg

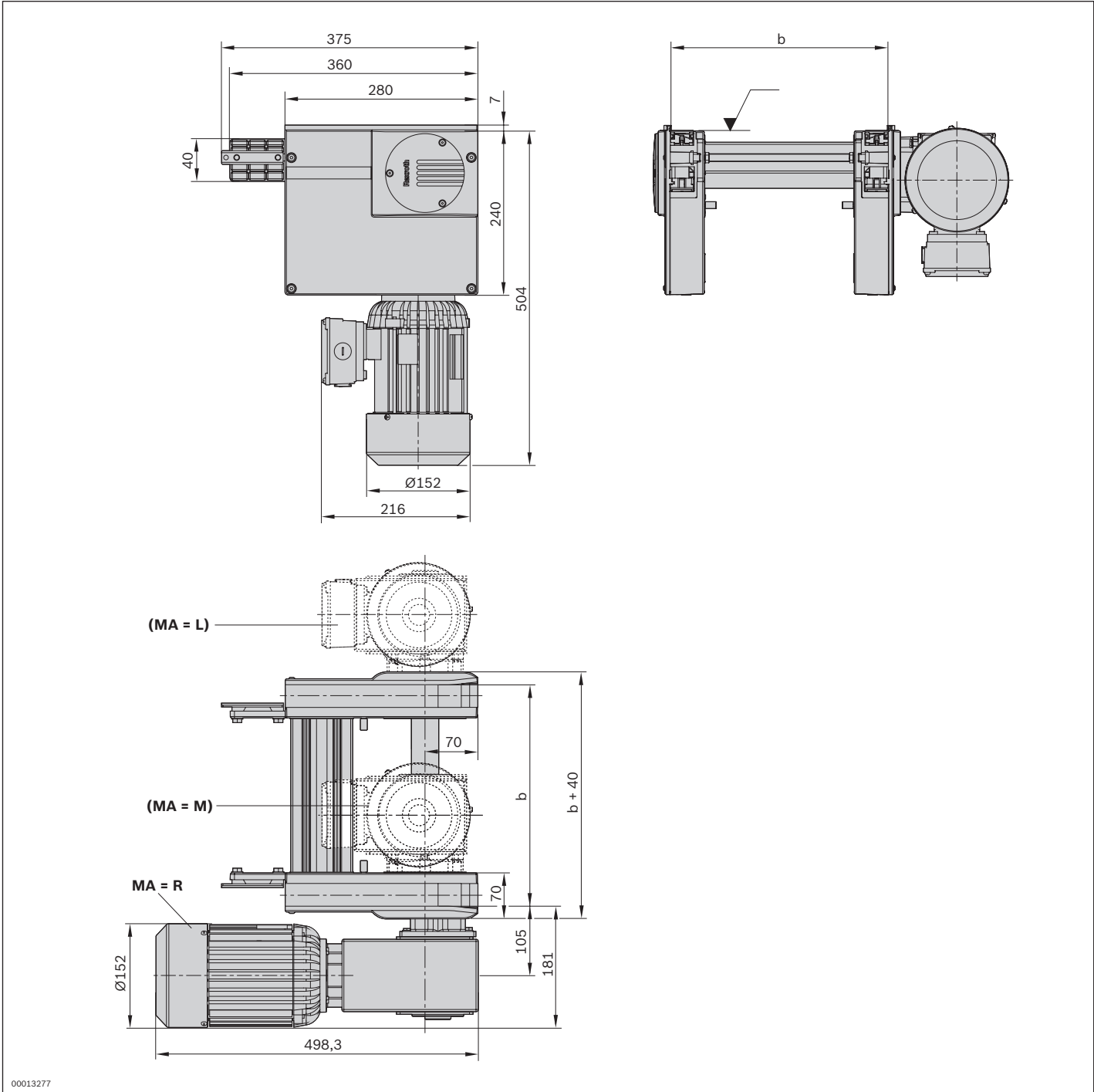
⁴) MA = M only when b ≥ 240 mm

Technical data

Material number		3842998041
Load		
Max. section load in accumulation operation	kg	2200
Features		
ESD		Yes
Additional information		
Required conveyor medium length*	l _{AS} mm	625

* Formula for calculating the conveyor medium, see p. 3-184/3-186

Dimensions



UM 2/R-60 return unit



- ▶ For conveyor unit self-assembly
- ▶ Conveyor medium: Accumulation roller chain (suitable for use in an EPA)
- ▶ For use in conjunction with all AS 2/R-... and ST 2/... sections
- ▶ Version with sliding piece for return
Recommended for sections up to $l = 6000$ mm

The return unit is used for constructing conveyor units. It guides the conveyor medium at the end of the conveyor unit back to the drive module.

Delivery notes

Scope of delivery

- ▶ One pair of return heads
- ▶ Incl. all fastening material to mount on an ST 2/R conveyor section

Condition on delivery

- ▶ Fully assembled

Ordering information

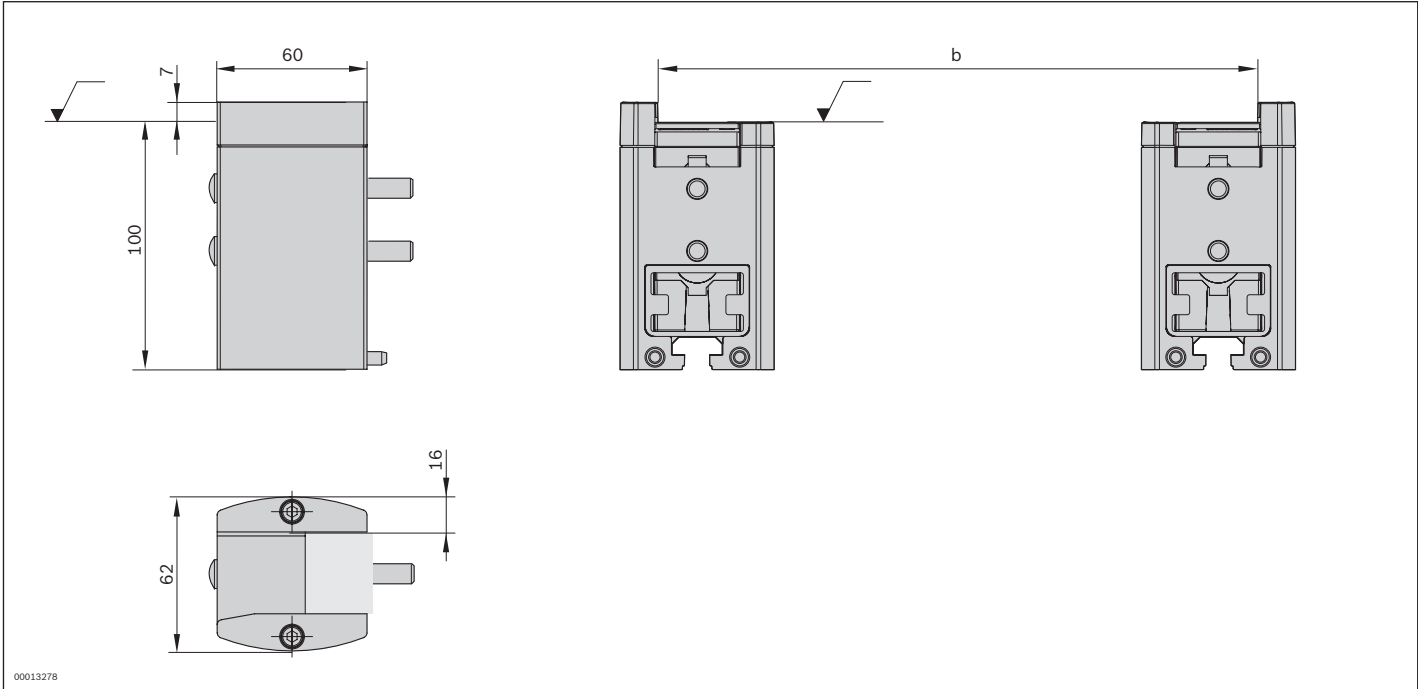
Product designation	Material number
UM 2/R-60 return unit	3842528803

Technical data

Material number	3842528803		
Features	ESD		
			Yes
Additional information	Required conveyor medium length*		
	l_{UM}	mm	150

* Formula for calculating the conveyor medium, see p. 3-184/3-186

Dimensions



UM 2/R-170 return unit



- ▶ For conveyor unit self-assembly
- ▶ Conveyor medium: Accumulation roller chain (suitable for use in an EPA)
- ▶ For use in conjunction with all AS 2/R-... and ST 2/... sections
- ▶ Version with pinion for return unit recommended for sections of $l \geq 6000$ mm or for sections of any length for reversible operation

The return unit is used for constructing conveyor units. It guides the conveyor medium at the end of the conveyor unit back to the drive module.

Delivery notes

Scope of delivery

- ▶ One pair of return heads
- ▶ Incl. all fastening material to mount on an ST 2/R conveyor section

Condition on delivery

- ▶ Fully assembled

Ordering information

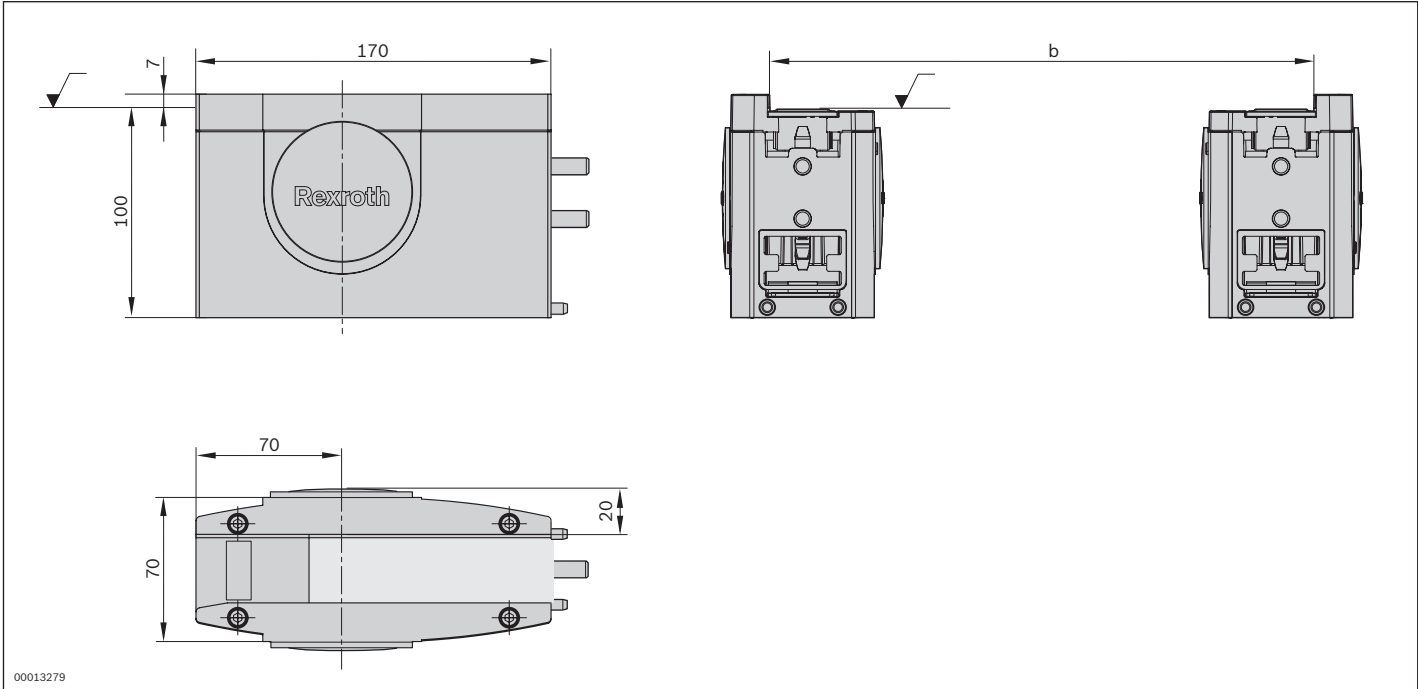
Product designation	Material number
UM 2/R-170 return unit	3842528807

Technical data

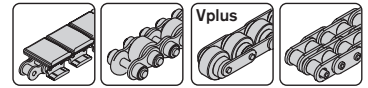
Material number	3842528807
Features	
ESD	Yes
Additional information	
Required conveyor medium length*	l_{UM} mm 310

* Formula for calculating the conveyor medium, see p. 3-184/3-186

Dimensions



LU 2 automatic lubrication unit



- ▶ Modular design consisting of LU 2 automatic lubrication unit, LC 2 oil container and adapter set
- ▶ LU 2 automatic lubrication unit with drive, compressed air connection to drive module and fastening material
- ▶ LC 2 lubricant container with Structovis GHD from Klüber; contains: 0.25 l (must be ordered separately)
- ▶ Specific adapter sets with compatible lubrication pins for different drive modules
- ▶ Adjustment of lubrication amount to be distributed per metering process on the LU 2 automatic lubrication unit. The metering process is actuated by an external PLC.
- ▶ Designed for lubricating one belt section or conveyor unit respectively
- ▶ Use of the LU 2 automatic lubrication unit is highly recommended for flat top chains

Increasing the system service life through continuous and maintenance-free lubrication of flat top chains, accumulation roller chains, and duplex chains during operation.

For preventing dry running.

Suitable for use with all belt sections and conveyor units; lubrication unit on the drive module.

Reduction of lubricant consumption thanks to exact metering and pinpoint application to the chain links.

Accessories

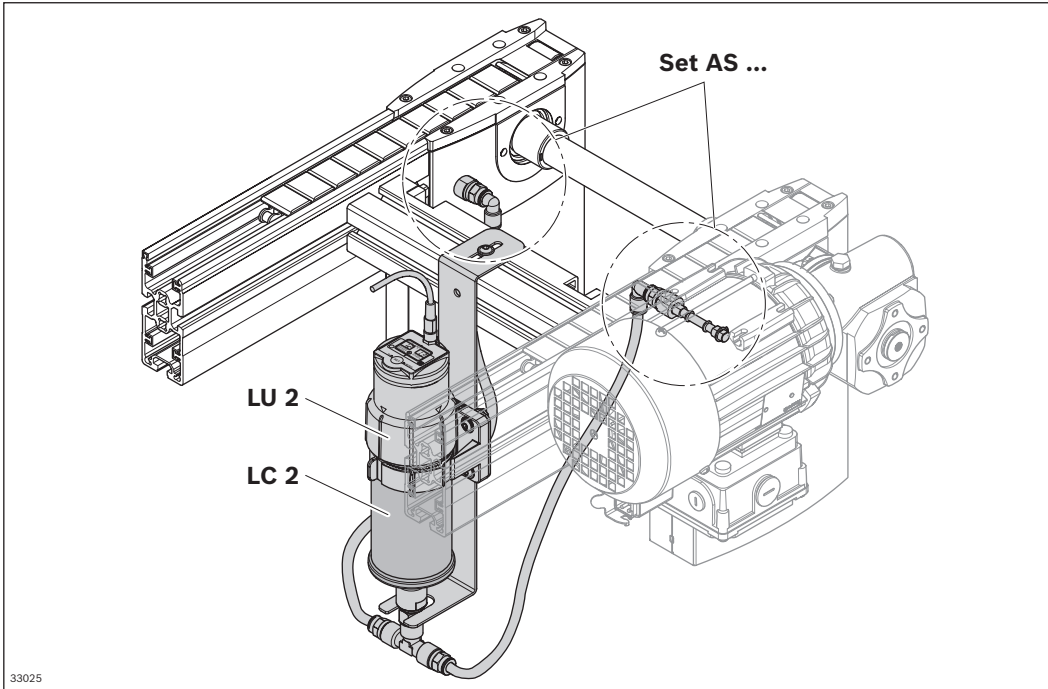
Required accessories

- ▶ LC 2 lubricant container, see p. 3-153
- ▶ Adapter set, see p. 3-153

Delivery notes

Condition on delivery

- ▶ Not assembled, fastening material enclosed
- ▶ LC 2 lubricant container and adapter set as ordered



Ordering information

Product designation	Packaging unit	Material number
LU 2 automatic lubrication unit	1	3842543482
LC 2 lubricant container	4	3842543469

Product designation	Packaging unit	Material number
Adapter set for AS 2/C-100 AS 2/C-250 BS 2/C	1	3842543483
Adapter set for AS 2/C-400 (assembly on UM2/C-170 when b = 160 mm) AS 2/C-700 (assembly on UM2/C-170 when b = 160 mm) BS 2/C-H (assembly on UM2/C-170, UM 2/R-170 when b = 160 mm)	1	3842543484
Adapter set for AS 2/R-300 AS 2/R-700 BS 2/R BS 2/R-H with RV = 1*	1	3842543485
Adapter set for AS 2/R-1200 (assembly on UM2/R-170 when b = 160 mm) AS 2/R-2200 (assembly on UM2/R-170 when b = 160 mm) BS 2/R-H with RV = 0 (assembly on UM2/C-170, UM 2/R-170 when b = 160 mm)	1	3842543486
Adapter set for AS 2/R-V-1200 (assembly on UM2/R-170 when b = 160 mm) AS 2/R-V-2200 (assembly on UM2/R-170 when b = 160 mm) BS 2/R-V-1200 (assembly on UM2/R-170 when b = 160 mm)	1	3842543487
Adapter set for HQ 2/U-H	1	3842548578

* Assembly on UM return unit

Technical data

Material number	3842543482		
Features			
ESD			Yes
Max. operating temperature	T	°C	+40

Section, section profiles



Sections can be individually configured for special requirements by selecting various section, glide, and guide profiles.

Depending on the load spectrum of the conveyor medium, stainless steel or plastic glide profiles can be inserted in the section profile. Use of steel glide profiles increases resistance to wear and temperature. This opens up new areas of application for the TS 2plus.

The proven SP 2/R-100 profiles are primarily suitable for medium to high loads in simple system layouts.

Especially suited for high strains and loads, the new, sturdy SP 2/R-H section profiles have been developed for accumulator roller chains. In addition to a more robust profile cross section and improvements to details (integrated cable duct), the use of stainless steel in the guide profile enhances the system. An adapter plate not only enables visually attractive mounting of the SP 2/R-H section profiles with drive modules in the TS 2plus, it also securely keeps the glide profiles (sliding guides) from shifting.

ST 2/R-100 section



- ▶ For conveyor unit self-assembly
- ▶ For use in conjunction with AS 2/R drive modules and UM 2/R return units
- ▶ GP 2 plastic glide profile
- ▶ Pre-assembled unit for quick setup

3

The section is used for the construction of conveyor units in conjunction with the AS 2/R drive modules and the UM 2/R return units.

Accessories

Recommended accessories

- ▶ SZ 2/... leg sets, see page 6-2
- ▶ Cross connector, see p. 3-216
- ▶ Profile connector, see p. 3-215

Delivery notes

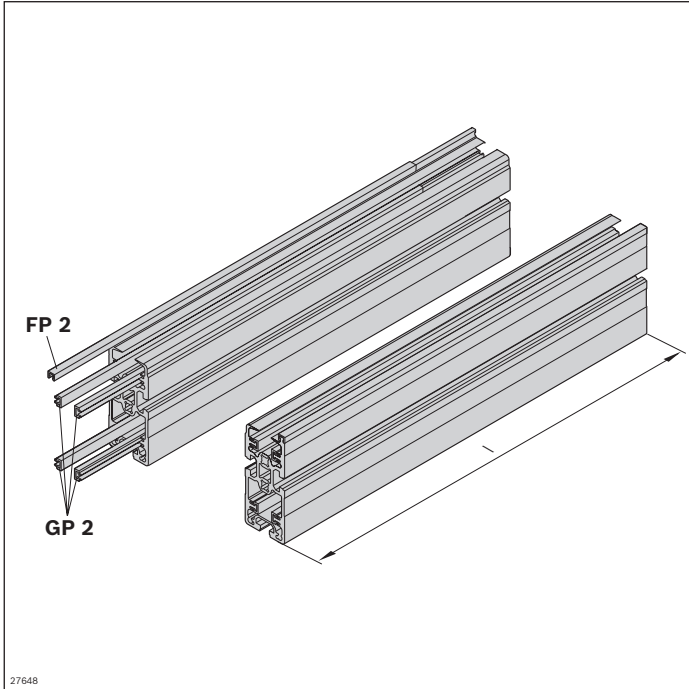
Scope of delivery

- ▶ 2x SP 2/R section profiles with assembled FP 2 and GP 2 guide profiles and glide profiles

Condition on delivery

- ▶ Fully assembled

Ordering information

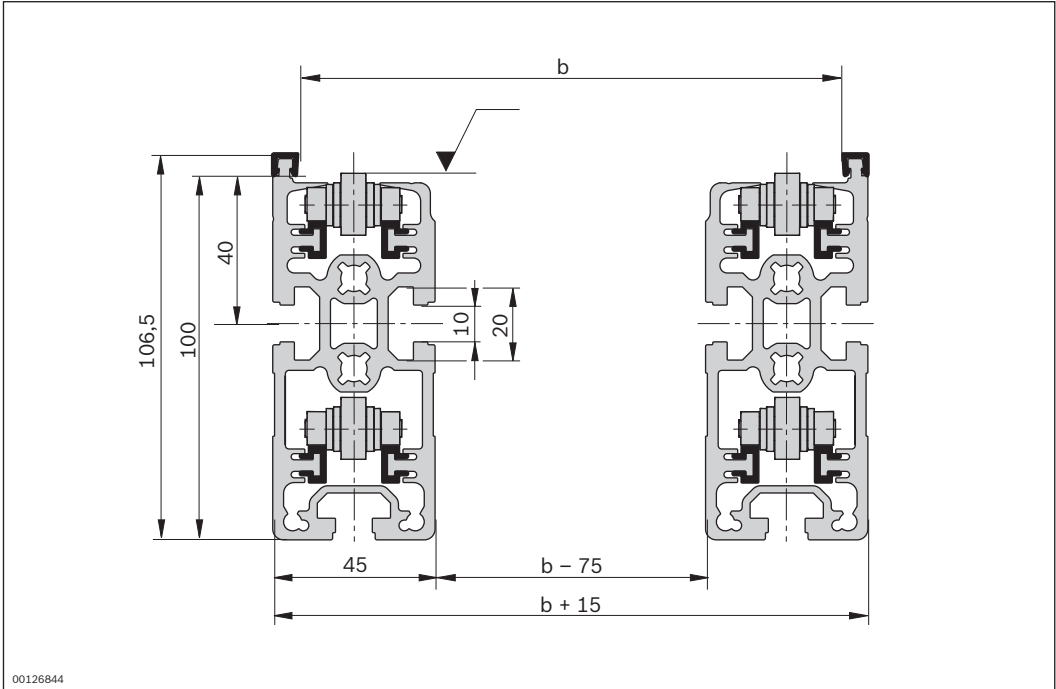


Material number	3842994889	
l (mm)	Length	60 ... 6000

Technical data

Material number	3842994889		
Features			
Material specification	Glide profile: Polyamide (PA) Guide profile: Polyamide Section profile: Aluminum, natural; anodized		
Max. operating temperature	T	°C	+40
Dimensions			
Length	l	mm	60 ... 6000

Dimensions



00126844

ST 2/R-100 ST section



- ▶ For conveyor unit self-assembly for higher section loads
- ▶ For use in conjunction with AS 2/R drive modules and UM 2/R return units

The section is used for the construction of conveyor units in conjunction with the AS 2/R drive modules and the UM 2/R return units.

Accessories

Recommended accessories

- ▶ SZ 2/... leg sets, see page 6-2
- ▶ Cross connector, see p. 3-216
- ▶ Profile connector, see p. 3-215

Delivery notes

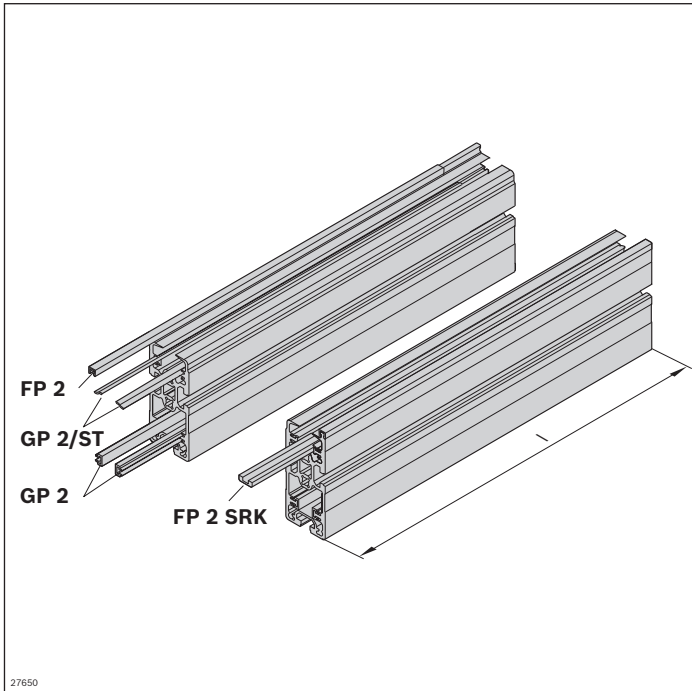
Scope of delivery

- ▶ 2x SP 2/R section profiles with assembled FP 2, FP 2 SRK and GP 2/ST guide profiles and glide profiles

Condition on delivery

- ▶ Fully assembled

Ordering information

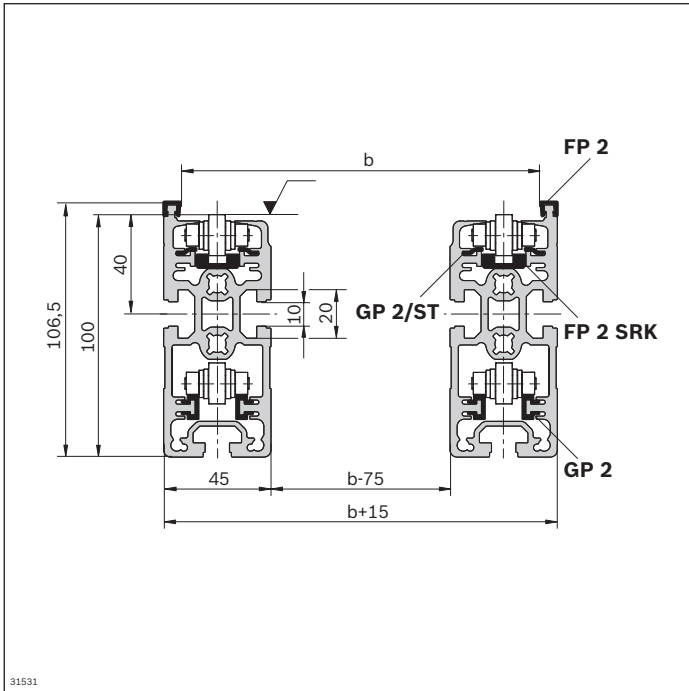


Material number	3842994907		
l (mm)	Length	60 ... 6000	

Technical data

Material number	3842994907		
Features			
Material specification	GP 2/ST glide profile Steel GP 2 glide profile: PA 12 Guide profile FP 2: PA 12 Accumulation roller chain FP 2 chain guide profile: PE Section profile: Aluminum, natural; anodized		
Max. operating temperature	T	°C	+40
Dimensions			
Length	l	mm	60 ... 6000

Dimensions



ST 2/R-H section



- ▶ For conveyor unit self-assembly
- ▶ For use in conjunction with AS 2/R drive modules and UM 2/R return units
- ▶ Section profile in especially sturdy design for section loads of up to 30% higher
- ▶ Optional steel or plastic GP 2 glide profiles

3

The section is used for the construction of heavy-duty conveyor units in conjunction with the AS 2/R drive modules and the UM 2/R return units.

Accessories

Required accessories

- ▶ ST 2/R-H adapter plate kit, see p. 3-171 If GP = 0, then adapter plates are to be fitted between each section joint

Delivery notes

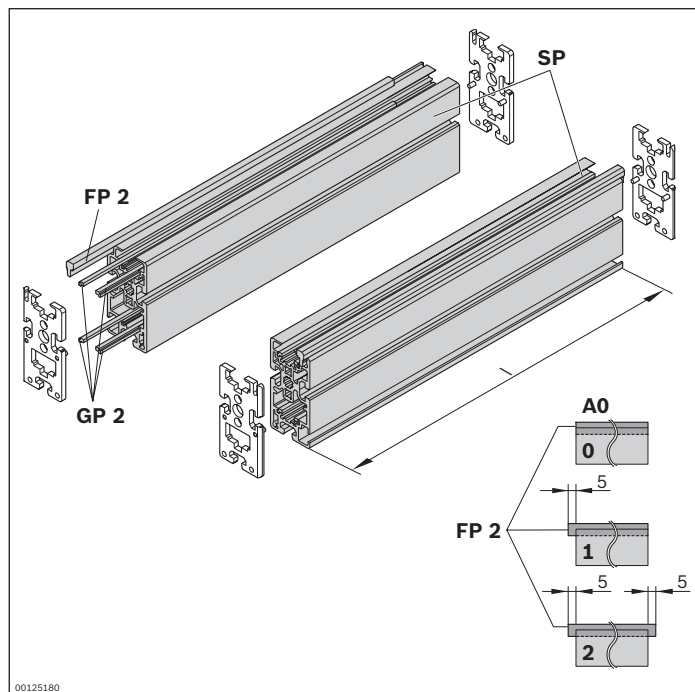
Scope of delivery

- ▶ 2x SP 2/R-H section profiles with assembled FP 2 and GP 2 guide profiles and glide profiles

Recommended accessories

- ▶ SZ 2/...-H leg sets, see p. 6-2
- ▶ Cross connector, see p. 3-216
- ▶ Profile connector, see p. 3-215
- ▶ Cover rail for cable duct, see p. 3-213

Ordering information

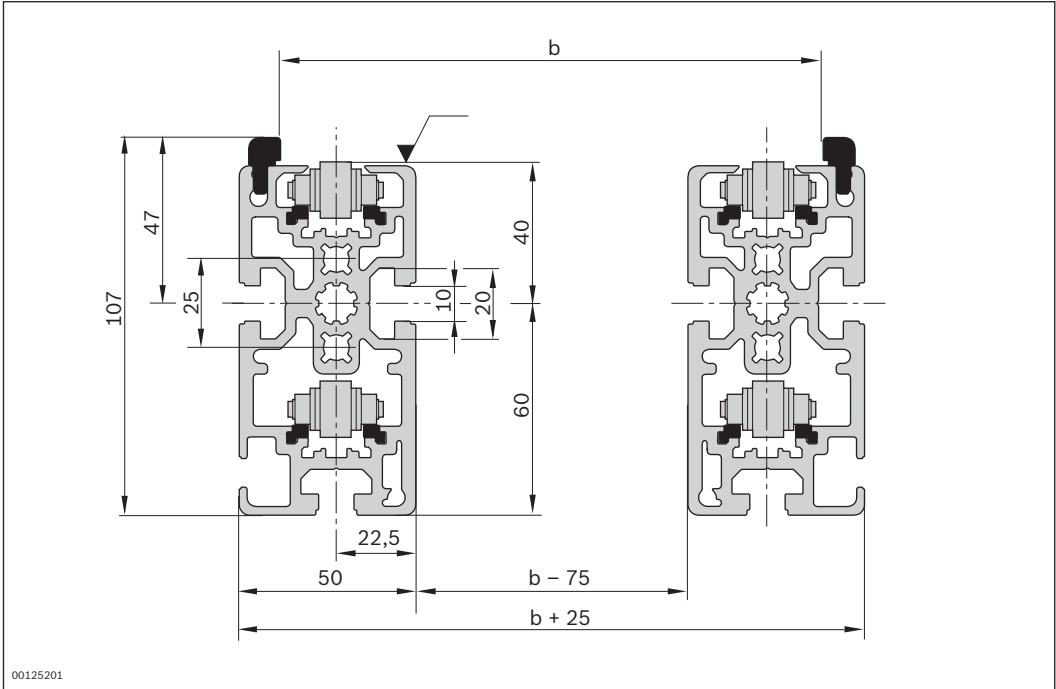


Material number		3842994972
l (mm)	Length	200 ... 6000
AO	Installation location Plastic glide profile AO = 2 Steel glide profile AO = 0; 1; 2	0; 1; 2
GP	Glide profile Corrosion-resistant steel (GP = 1) Plastic (GP = 0)	0; 1

Technical data

Material number		3842994972
Features		
Material specification		Section profile: Aluminum, natural; anodized Guide profile: Steel; corrosion-resistant Glide profile: Plastic or steel; corrosion-resistant
Dimensions		
Length	l	mm 200 ... 6000

Dimensions



00125201

Cover rail for cable duct



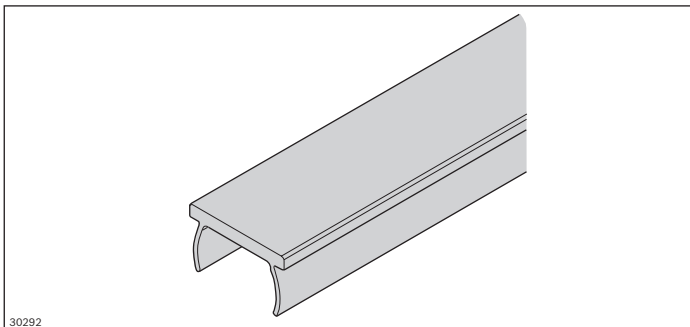
- ▶ To prevent dirt from entering the profile slot
- ▶ For fixing cables in position
- ▶ Flush with profile

Ordering information

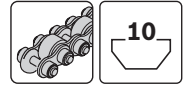
Product designation	Packaging unit	Material number
Cover rail for cable duct	10	3842523258

Technical data

Material number	3842523258		
Features			
Material specification	Aluminum, natural; anodized		
Dimensions			
Length	l	mm	2000



SP 2/R-100 section profile



- ▶ For conveyor unit self-assembly
- ▶ For use with all AS 2/R drive modules, UM 2/R return units, FP 2 guide profiles and GP 2 glide profiles
- ▶ Longitudinal grooves for easy mounting

3

The section profile is used to set up conveyor units with the accumulation roller chain conveyor medium.

Accessories

Required accessories

- ▶ FP 2 guide profile, see p. 3-167
- ▶ GP 2 glide profile, see p. 3-167

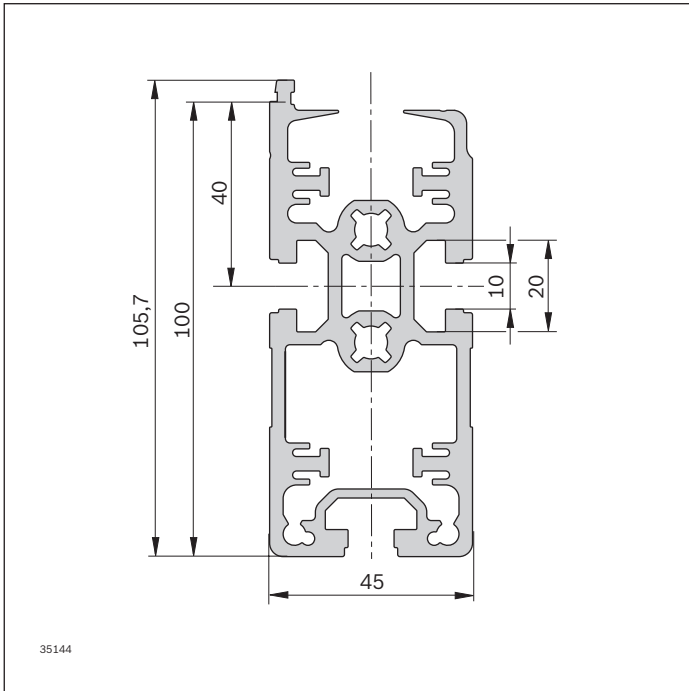
Ordering information

Product designation	l (mm)	Delivery unit	Material number
SP 2/R-100 16 x 6070 mm section profile	6070	16	3842529931

Technical data

Material number		3842529931	
Load			
Moment of inertia	I_x	cm ⁴	144.0
	I_y	cm ⁴	40.1
Moment of resistance	W_x	cm ³	27.7
	W_y	cm ³	17.8
Features			
Material specification			Aluminum, natural; anodized
Mass	m	kg/m	4.4
Dimensions			
Length	l	mm	6070
Profile surface	A	cm ²	16.4

Dimensions





FP 2 guide profile/GP 2 glide profile set

3



- ▶ For conveyor unit self-assembly
- ▶ For use with ST 2/R section profiles, AS 2/R drive modules and UM 2 /R return units
- ▶ FP 2 guide profile for laterally guiding the workpiece pallet; slid onto SP 2/R-100 section profile
- ▶ GP 2 glide profile for guiding the top flat chain; slid onto SP2/R-100 section profile

The guide profile is used for lateral guidance of the workpiece pallet. The glide profile is used to guide the

accumulation roller chain. Both profiles are pushed onto the section profile.

Delivery notes

Scope of delivery

- ▶ 16x FP 2 guide profile (L = 6000 mm)
- ▶ 64x GP 2 glide profiles (L = 6000 mm)

Ordering information

Product designation	l (mm)	Material number
FP 2 guide profile/GP 2 glide profile set	6000	3842529933

Technical data

Material number		3842529933
Features		
ESD		Yes
Material specification		Guide profile: Plastic; PA (suitable for use in an EPA) Glide profile: Plastic; PA (suitable for use in an EPA)
Max. operating temperature	T	°C
		+40
Dimensions		
FP 2 length	l	mm
		6000
GP 2 length	l	mm
		6000

Accumulation roller chain FP guide profile/GP 2/ST glide profile set



- ▶ For conveyor unit self-assembly
- ▶ Used in conjunction with ST 2/R section profiles, AS 2/R drive modules and UM 2 /R return units
- ▶ GP 2/ST glide profile for supporting the accumulation roller chain; enables higher permissible loads in conjunction with an accumulation roller chain with steel rollers
- ▶ Accumulation roller chain guide profile for lateral guiding of the accumulation roller chain in conjunction with GP 2/ST glide profile

Accessories

Required accessories

- ▶ FP 2 guide profile, see p. 3-167
- ▶ GP 2 glide profile, see p. 3-167

Ordering information

Product designation	l (mm)	Material number
Accumulation roller chain FP guide profile/GP 2/ST glide profile set	2000	3842532676
	3000	

Technical data

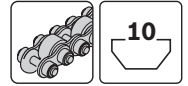
Material number	3842532676		
Features			
ESD	Yes		
Material specification	Accumulation roller chain guide profile PE Glide profile: Steel; corrosion-resistant		
Dimensions			
Accumulation roller chain FP guide profile length	l	mm	2000
GP 2/ST length	l	mm	3000

Delivery notes

Scope of delivery

- ▶ 24x accumulation roller chain FP guide profile (l = 2000 mm)
- ▶ 32x GP 2/ST glide profile (l = 3000 mm)

SP 2/R-H section profile



3



- ▶ For conveyor unit self-assembly for higher section loads in the 100 mm construction height
- ▶ For use with all AS 2/R drive modules, UM 2/R return units, FP 2/H guide profiles, GP 2/H glide profiles and SP 2/R section profiles
- ▶ Longitudinal grooves for easy mounting
- ▶ Extruded aluminum profile with an especially sturdy design
- ▶ Integrated cable duct at the profile base

The section profile is used for constructing conveyor units with 100 mm construction height and with the

accumulation roller chain and guide profile conveyor media.

Accessories

Required accessories

- ▶ Cover rail for cable duct, see p. 3-164
- ▶ FP 2/H-St guide profile, see p. 3-173

- ▶ GP 2/H-St and GP 2/H-Kst glide profiles, see p. 3-174/3-175
- ▶ ST 2/R-H adapter plate kit, see p. 3-171

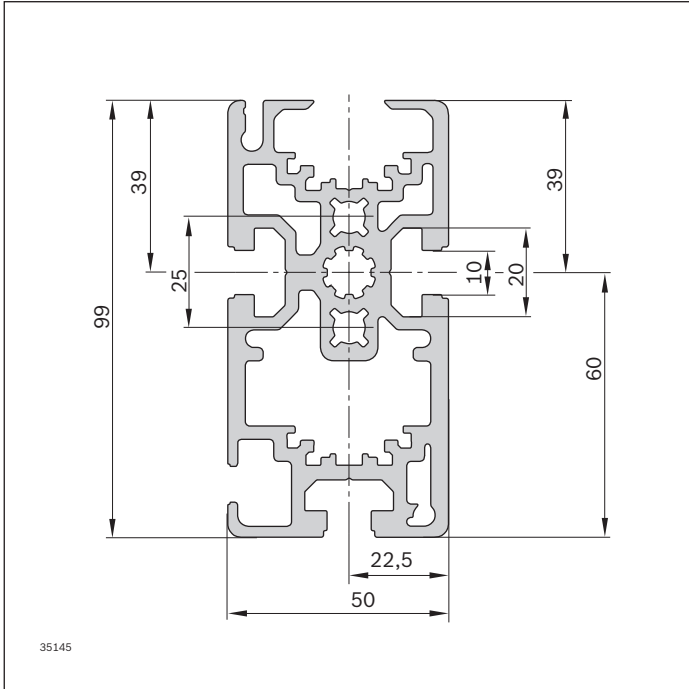
Ordering information

Product designation	l (mm)	Delivery unit	Material number
SP 2/R-H 12 x 6070 mm section profile	6070	12	3842536792

Technical data

Material number		3842536792	
Load			
Moment of inertia	I_x	cm ⁴	155.6
	I_y	cm ⁴	51.3
Moment of resistance	W_x	cm ³	31.6
	W_y	cm ³	19.8
Features			
Material specification		Aluminum; anodized	
Mass	m	kg/m	5.2
Dimensions			
Length	l	mm	6070
Profile surface	A	cm ²	19.0

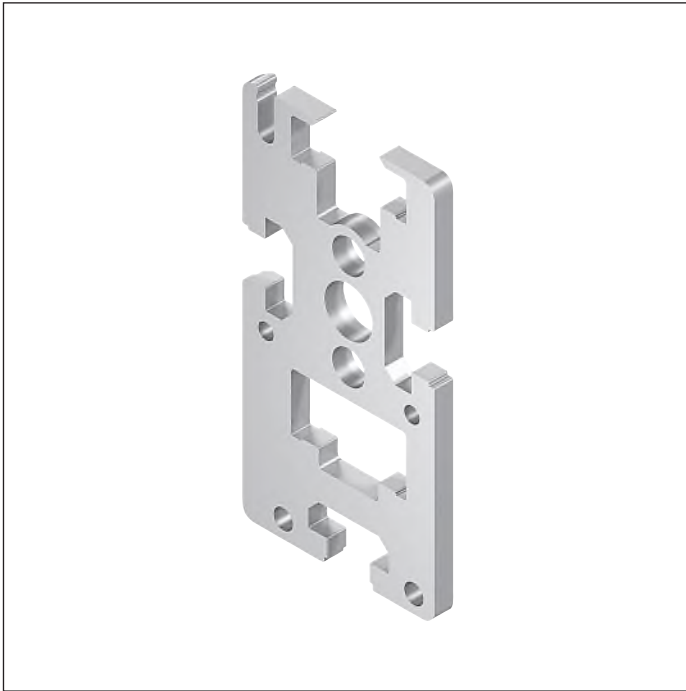
Dimensions



ST 2/R-H adapter plate kit



3



- ▶ Front end plate
- ▶ For connecting SP 2/R-H section profiles and AS 2/R drive modules;
for connecting SP 2/R-H profiles and UM 2/R return units;
and between section profiles if GP 2 plastic glide profiles are used

The adapter plates are used as front covers and for connecting section profiles and drive modules, or between section profiles and return units.

The adapter plates are also suitable for use between section profiles where GP 2 plastic glide profiles are used.

Delivery notes

Scope of delivery

- ▶ 2x left adapter plate
- ▶ 2x right adapter plate

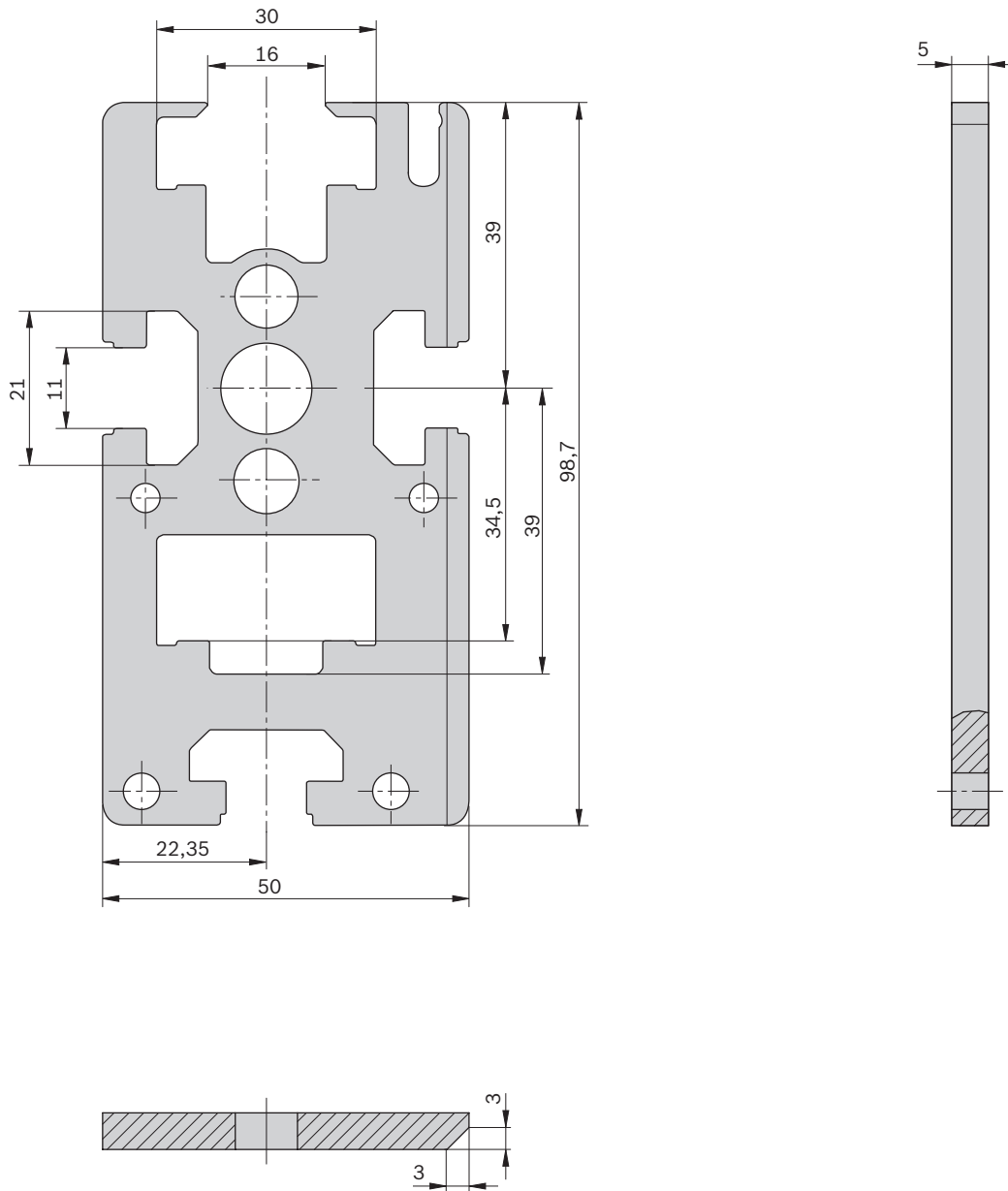
Ordering information

Product designation	Packaging unit	Material number
ST 2/R-H adapter plate kit	4	3842536800

Technical data

Material number	3842536800
Features	
ESD	Yes
Material specification	Steel; corrosion-resistant

Dimensions

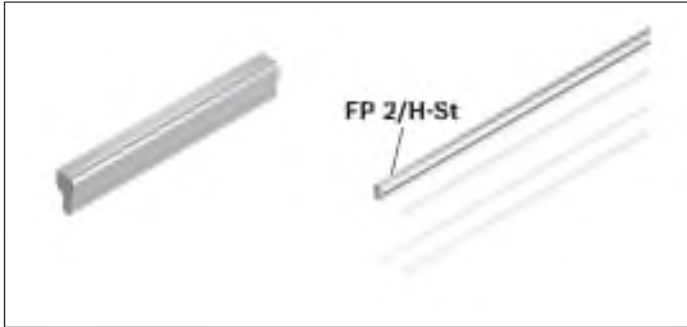


27634



FP 2/H-St guide profile

3



- ▶ For lateral guidance of the workpiece pallet
- ▶ For conveyor unit self-assembly
- ▶ For press-fitting onto SP 2/C-H or SP 2/R-H section profiles
- ▶ Robust version in corrosion-resistant steel

Accessories

Required accessories

- ▶ SP 2/C-H section profile, see p. 3-99, or SP 2/R-H, see p. 3-169

Delivery notes

Scope of delivery

- ▶ 24x rods (l = 3000 mm)

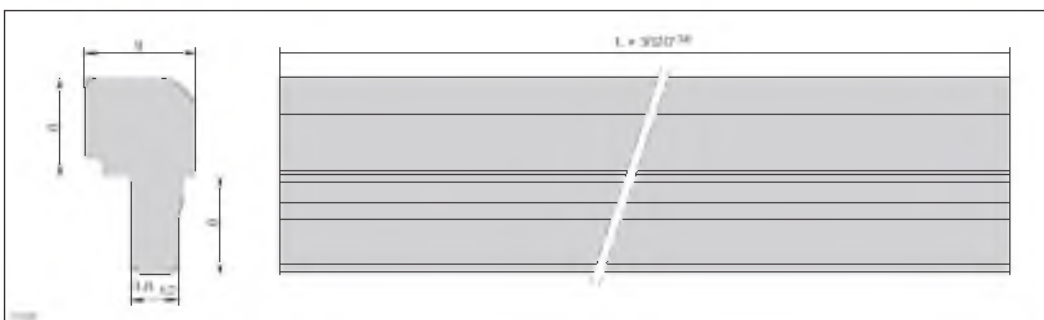
Ordering information

Product designation	l (mm)	Delivery unit	Material number
FP 2/H-St guide profile	3000	24	3842537890

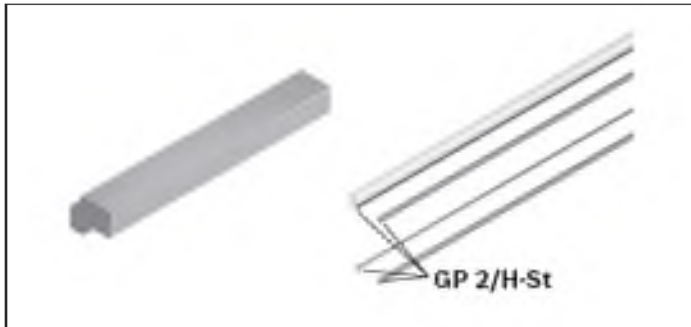
Technical data

Material number	3842537890		
Features			
ESD	Yes		
Material specification	Steel; corrosion-resistant		
Dimensions			
Length	l	mm	3000

Dimensions



GP 2/H-St glide profile



- ▶ For conveyor unit self-assembly
- ▶ For guiding the flat top chain or accumulation roller chain
- ▶ In especially sturdy design with corrosion-resistant steel for particularly heavy-duty sections
- ▶ For sliding onto SP 2/C-H or SP 2/R-H section profiles
- ▶ For use with all AS 2/R drive modules, UM 2/R return units and SP 2/R section profiles

Accessories

Required accessories

- ▶ SP 2/C-H section profile, see p. 3-99, or SP 2/R-H, see p. 3-169

Delivery notes

Scope of delivery

- ▶ 48x rods (l = 3000 mm)

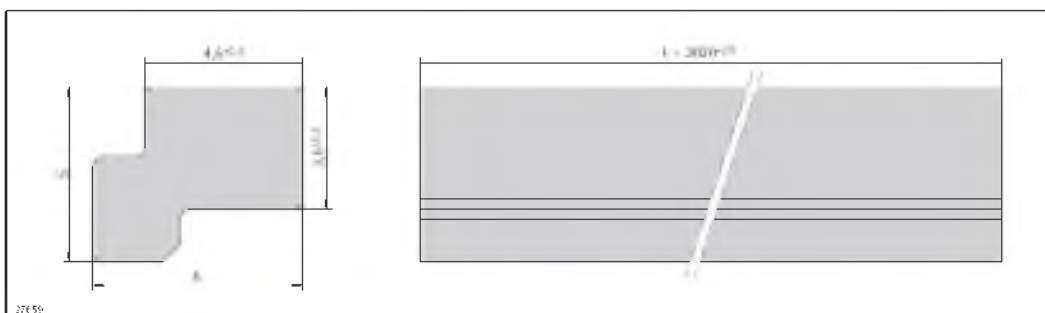
Ordering information

Product designation	l (mm)	Delivery unit	Material number
GP 2/H-St glide profile	3000	48	3842537888

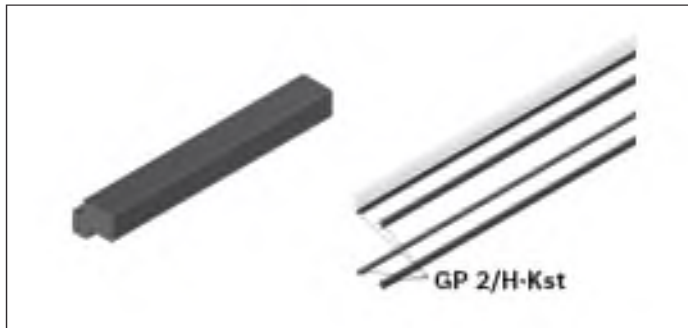
Technical data

Material number	3842537888		
Features			
ESD	Yes		
Material specification	Steel; corrosion-resistant		
Dimensions			
Length	l	mm	3000

Dimensions



GP 2/H-Kst glide profile



- ▶ For conveyor unit self-assembly
- ▶ For guiding the flat top chain or the accumulation roller chain
- ▶ For sliding onto SP 2/C-H or SP 2/R-H section profiles
- ▶ Used with all AS 2/R drive modules, UM 2/R return units and SP 2/R section profiles

3

Accessories

Required accessories

- ▶ SP 2/C-H section profile, see p. 3-99, or SP 2/R-H, see p. 3-169

Delivery notes

Scope of delivery

- ▶ 48x rods (l = 3000 mm)

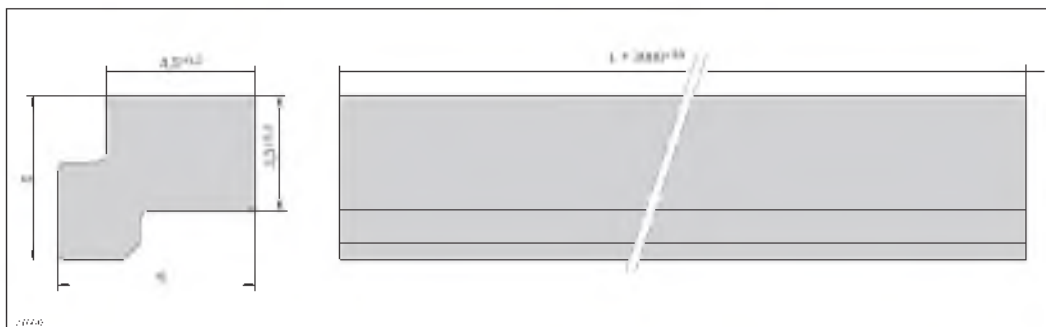
Ordering information

Product designation	l (mm)	Delivery unit	Material number
GP 2/H-Kst glide profile	3000	48	3842537889

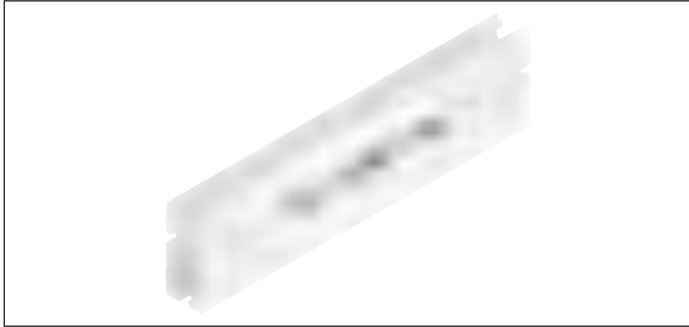
Technical data

Material number	3842537889		
Features			
ESD	Yes		
Material specification	Plastic; PA (suitable for use in an EPA)		
Dimensions			
Length	l	mm	3000

Dimensions



Profile connector



- ▶ For the end-to-end connecting of two profiles SP 2/...
Two profile connectors are recommended for each profile joint
- ▶ For conveyor unit self-assembly
- ▶ For use with all AS 2/R drive modules, UM 2/R return units and SP 2/R section profiles

Delivery notes

Scope of delivery

- ▶ Profile connector, screws

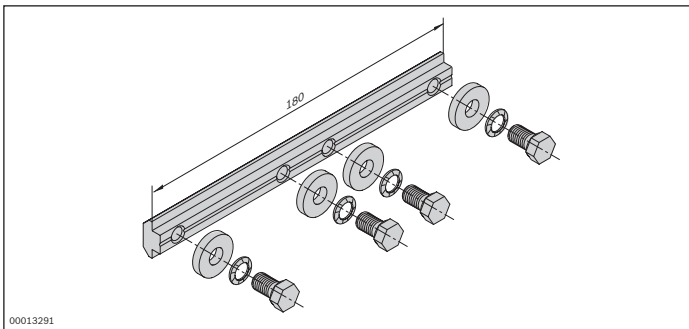
Ordering information

Product designation	Material number
Profile connector	3842528746

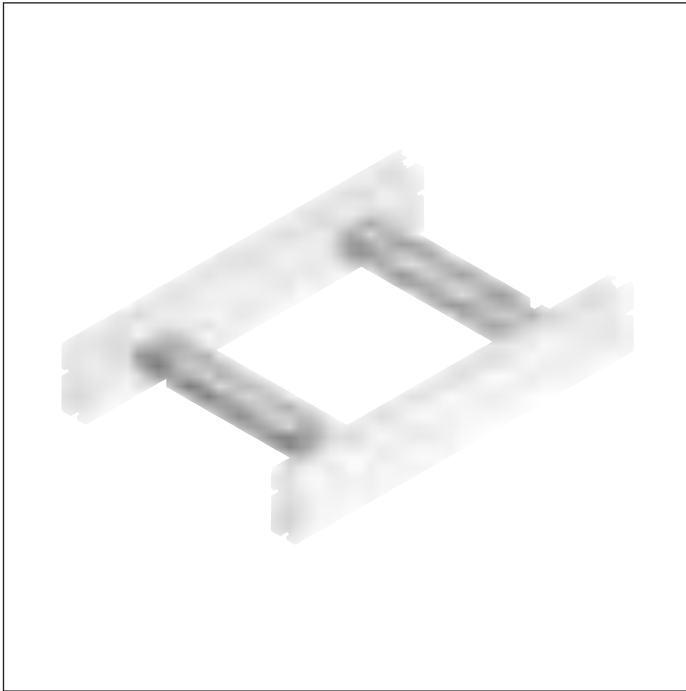
Technical data

Material number	3842528746
Features	
Material specification	Steel; galvanized

Dimensions



QV 2 cross connector



- ▶ For conveyor unit self-assembly
- ▶ For connecting section profiles and defining the track width
- ▶ Can be combined with all SP 2/... section profiles

3

The cross connectors serve to connect the conveyor section profiles.

Formula for calculating the number of cross connectors needed

$$A_{QV} = (l/2000 \text{ mm}) + 1$$

A_{QV} = number of cross connectors

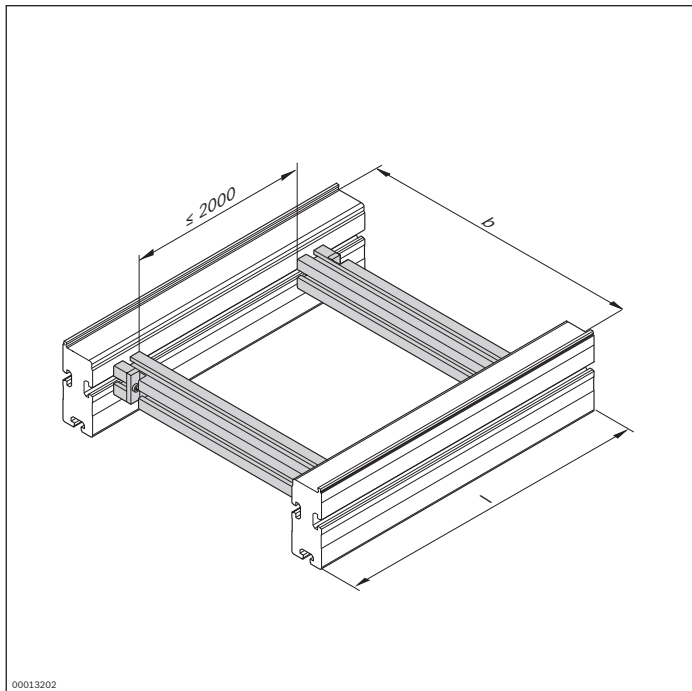
l = section length

Delivery notes

Scope of delivery

- ▶ 45x60 strut profile, finished
- ▶ 2x fastening material to mount on an ST 2 section

Ordering information



00013202

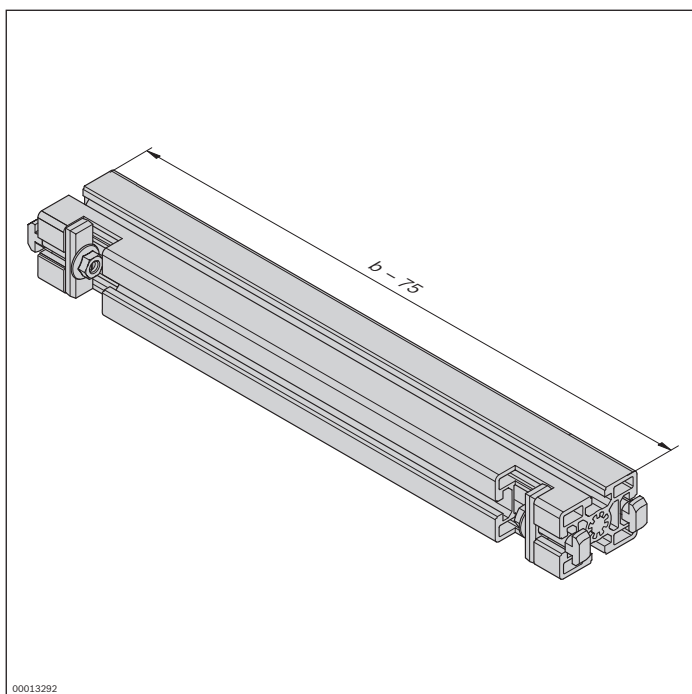
Material number	3842994635	
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200
		160 ... 1200 ¹

¹ Individual width variants available

Technical data

Material number	3842994635
Features	
Material specification	Aluminum, natural; anodized

Dimensions



00013292

QV 2-H cross connector



- ▶ For heavy-duty conveyor unit self-assembly
- ▶ For connecting section profiles and defining the track width
- ▶ Can be combined with all SP 2 section profiles

3

QV 2-H cross connectors are particularly suitable for connections between section profiles in heavy-duty systems.

Formula for calculating the number of cross connectors needed

$$A_{QV} = (l/2000 \text{ mm}) + 1$$

A_{QV} = number of cross connectors

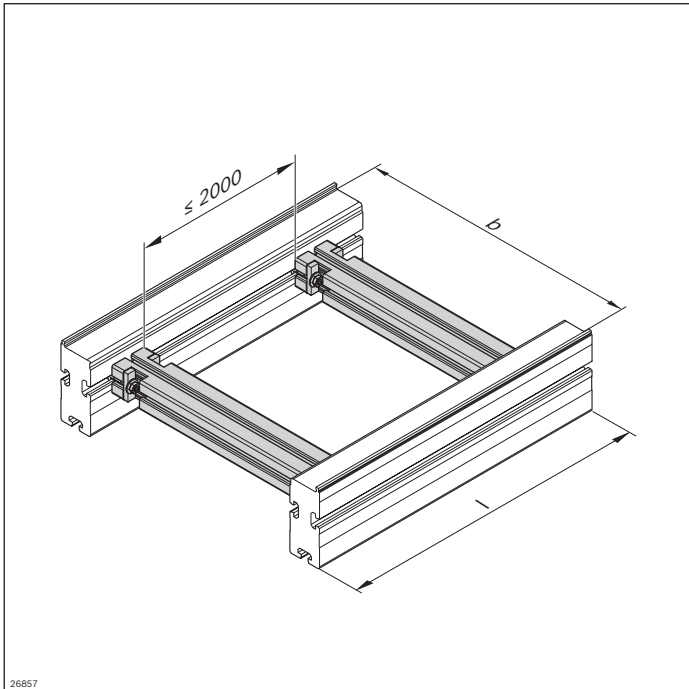
l = section length

Delivery notes

Scope of delivery

- ▶ 45x60 strut profile, finished
- ▶ 4x fastening material to mount on an ST 2 section

Ordering information



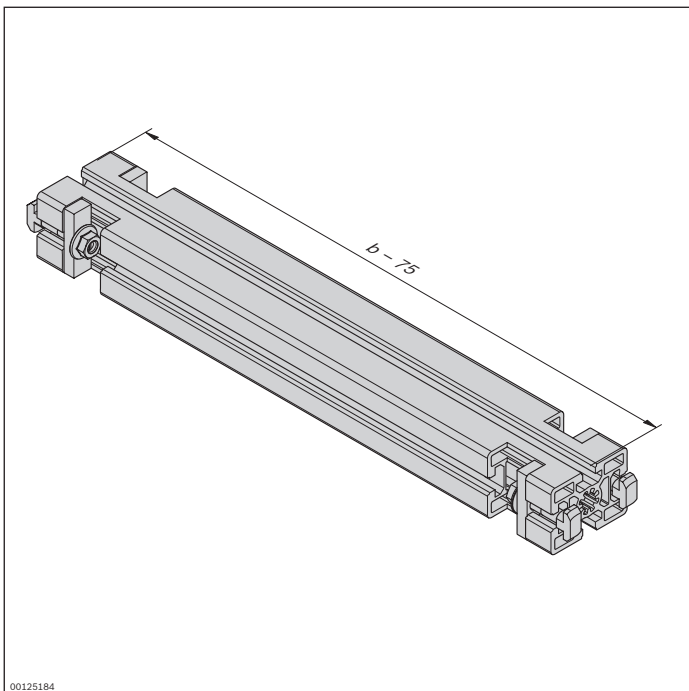
Material number	3842993052	
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200
		160 ... 1200 ¹

¹ Individual width variants available

Technical data

Material number	3842993052
Features	
Material specification	Aluminum, natural; anodized

Dimensions



ST 2/R-...-W maintenance section



- ▶ For maintenance use (assembly, disassembly or lubrication)
- ▶ Two removable side covers each
- ▶ Suitable for accumulation roller chains
- ▶ ST 2/R-W suitable for ST 2/R section profiles
- ▶ ST 2/R-H-W suitable for ST 2/R-H section profiles

The maintenance section is a section element with removable caps. It is used for maintenance (assembly,

disassembly, lubrication) of the accumulation roller chain conveyor medium.

Delivery notes

Scope of delivery

- ▶ 2x maintenance section elements consisting of ST 2/R-100 section profiles, FP 2/R guide profiles and GP 2/R glide profiles
- ▶ 4x side cover
- ▶ 8x profile connector
- ▶ Incl. fastening material

Ordering information

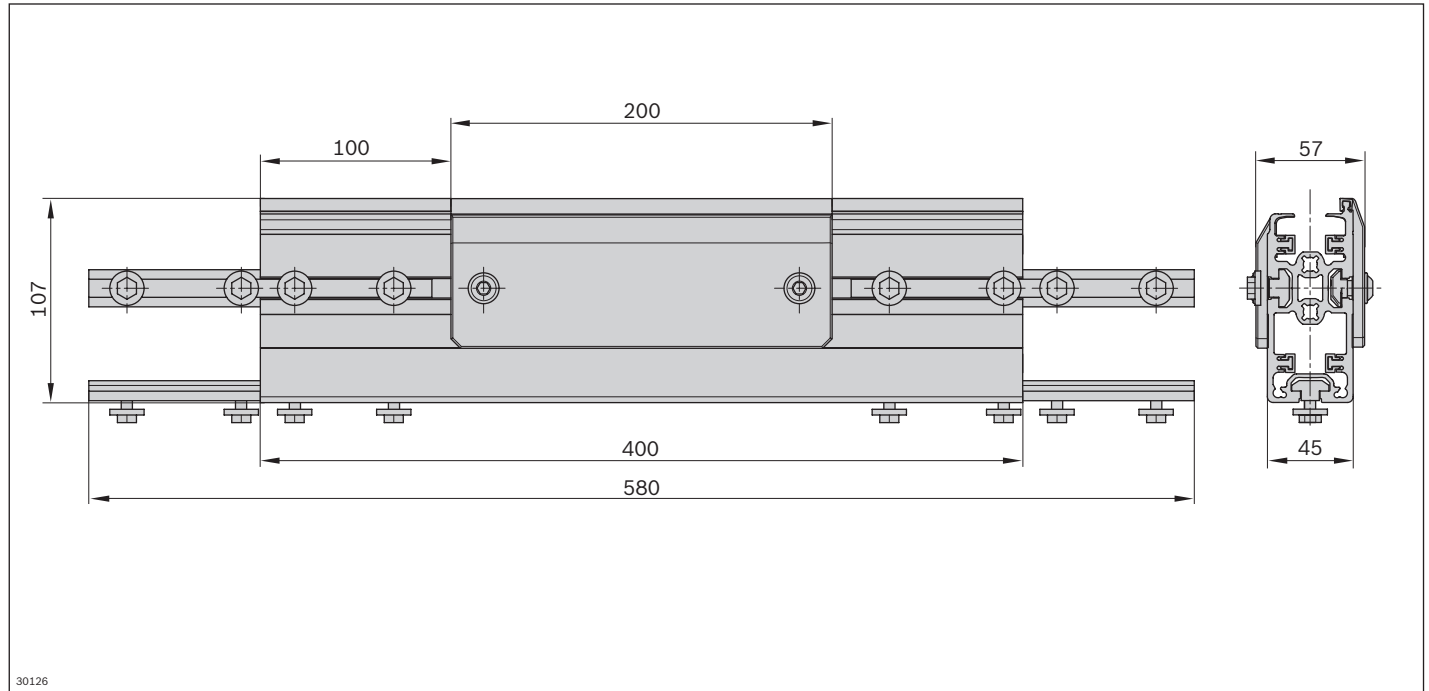
Product designation	Delivery unit	Material number
ST 2/R-W maintenance section	2	3842532778
ST 2/R-H-W maintenance section	2	3842537319

Technical data

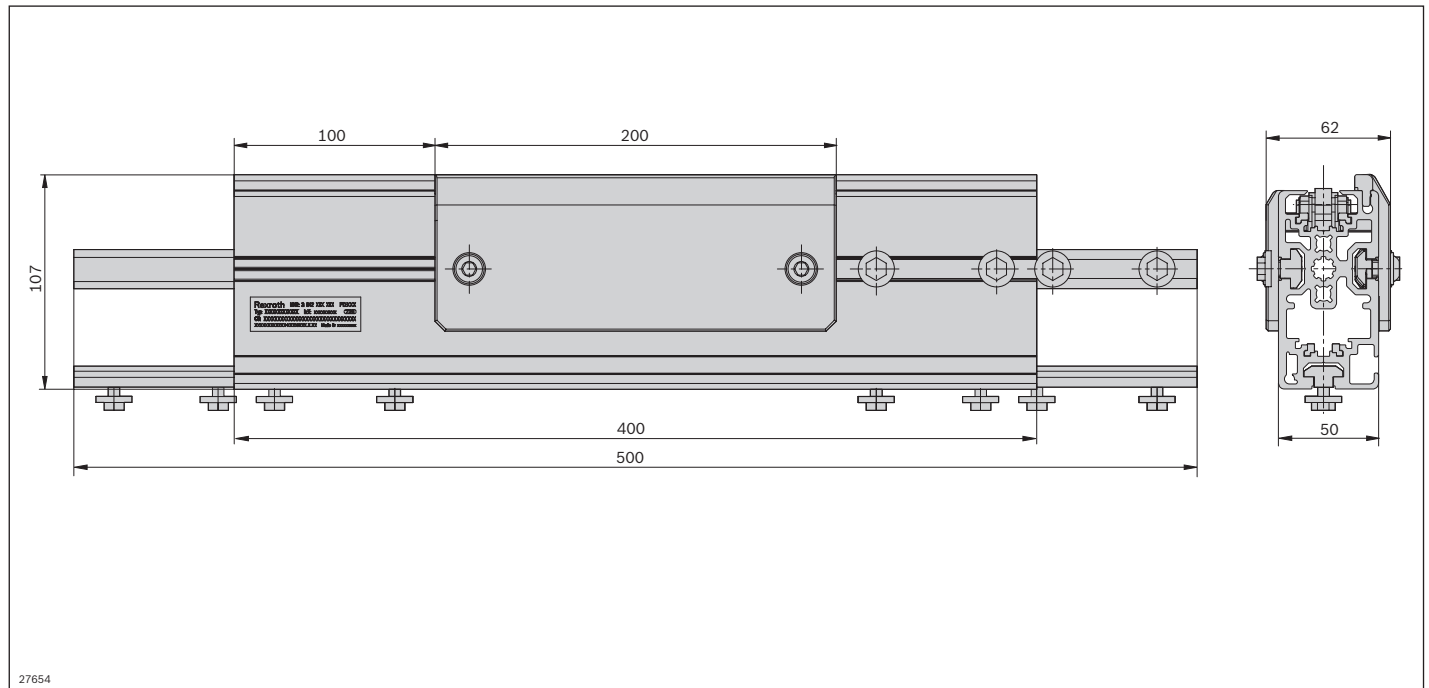
Material number	3842532778	3842537319
Features		
ESD	Yes	Yes
Material specification	Section profile: Aluminum, natural; anodized Side cover: Polyethylene	Section profile: Aluminum, natural; anodized Side cover: Polyethylene
Dimensions		
Length	l	mm
	400	400

Dimensions

ST 2/R-W maintenance section



ST 2/R-H-W maintenance section



Accumulation roller chain with PA accumulation rollers



3



- ▶ Conveyor medium for the workpiece pallets
- ▶ For conveyor unit self-assembly
- ▶ For use in conjunction with ST 2/R and ST 2/R-H conveyor units
- ▶ Delivered in units of 12000 mm. Lengths of $l > 12000$ mm can be produced by connecting several accumulation roller chains using master links.
- ▶ Chains are available with small parts protection (= filler pieces in the accumulation roller chain prevent small parts from pinching)

Note: Reversible operation is not possible in conjunction with small parts protection.

- 1 Accumulation roller chain with PA accumulation rollers
- 2 Accumulation roller chain with PA accumulation rollers and small parts protection

Delivery notes

Scope of delivery

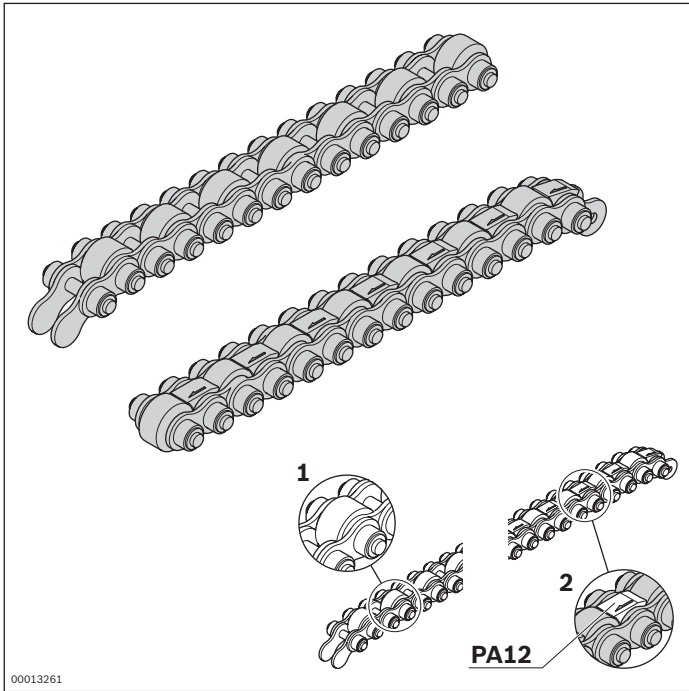
- ▶ Units up to 12000 mm, incl. 1x master link

Ordering information

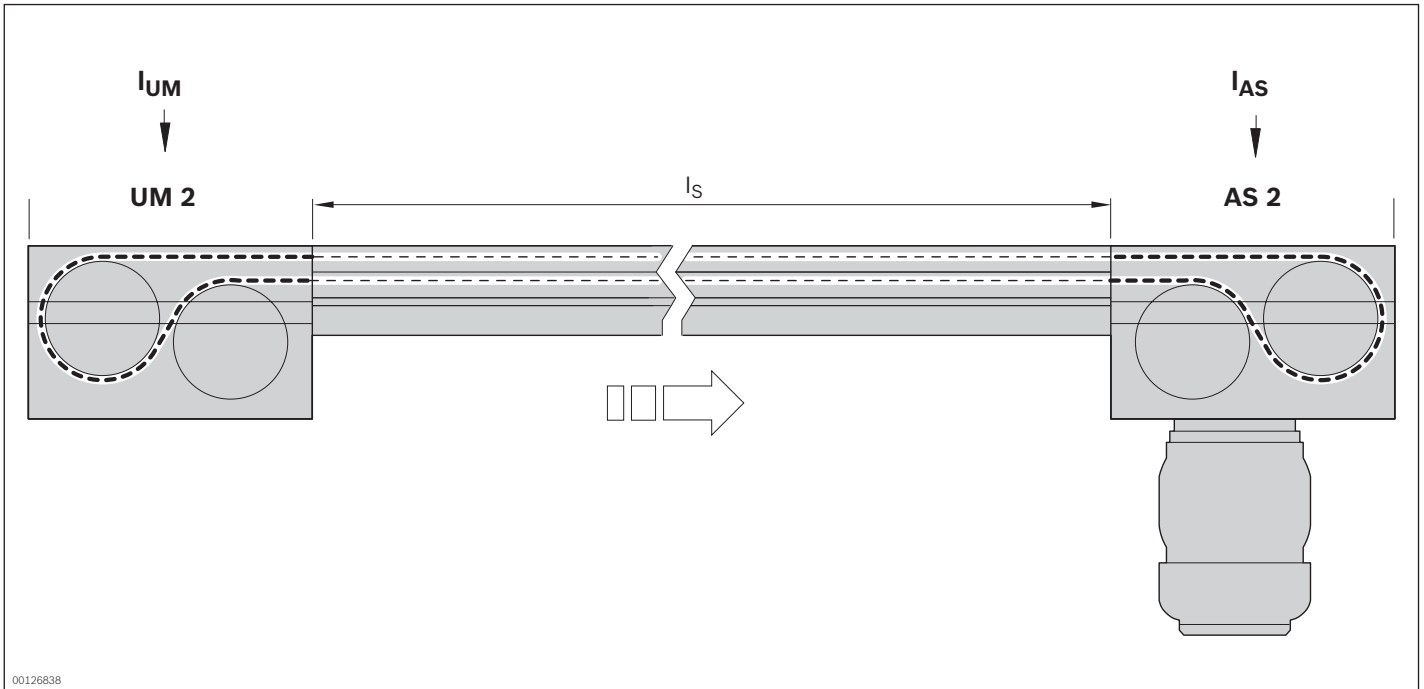
Product designation	Material number
Accumulation roller chain with PA accumulation rollers	3842523918
Accumulation roller chain with PA accumulation rollers and small parts protection	3842536268

Technical data

Material number	3842523918	3842536268
Features		
ESD	Yes	Yes
Material specification	Accumulation roller chains: PA 12	Accumulation roller chains: PA 12 Small parts protection: PA 12
Dimensions		
Length	l	mm
	12000	12000



Dimensions



The required chain length is determined using the following formula.

$$l_R = 2 \times l_S + l_{AS} + l_{UM}$$

- l_R = length of accumulation roller chain
- l_S = length of the section profile
- l_{AS} = length of the conveyor medium in the drive module
- l_{UM} = length of the conveyor medium at the return unit

Length of the conveyor medium for accumulation roller chain

- $l_{UM\ 2/C-170} = 310\text{ mm}$
- $l_{UM\ 2/C-60} = 150\text{ mm}$
- $l_{AS} = 625\text{ mm}$

Accumulation roller chain with steel accumulation rollers



3



- ▶ Conveyor medium for the workpiece pallets
- ▶ For conveyor unit self-assembly
- ▶ For use in conjunction with ST 2/R and ST 2/R-H conveyor units
- ▶ Delivered in units of 12000 mm. Lengths of $l > 12,000$ mm can be produced by connecting several accumulation roller chains using master links.
- ▶ Chains are available with small parts protection (= filler pieces in the accumulation roller chain prevent small parts from pinching)

Note: Reversible operation is not possible in conjunction with small parts protection.

- 1 Accumulation roller chain with steel accumulation rollers
- 2 Accumulation roller chain with steel accumulation rollers and small parts protection

Delivery notes

Scope of delivery

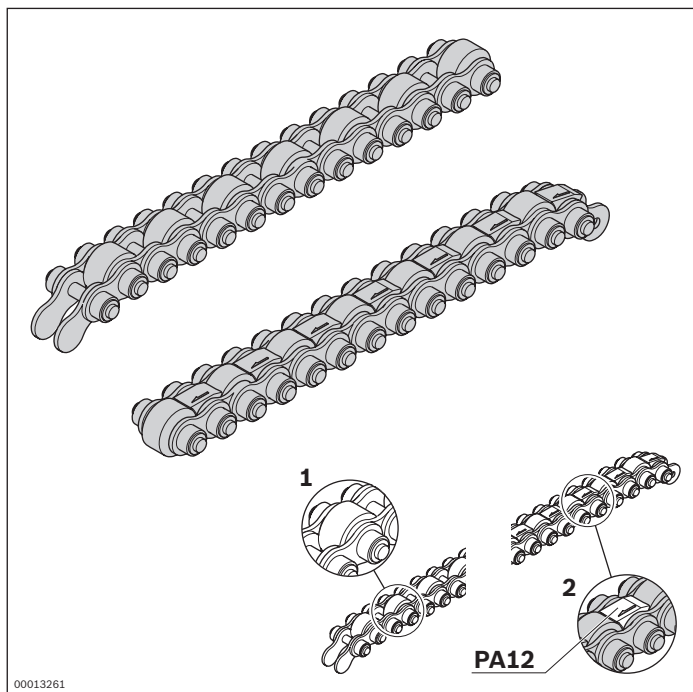
- ▶ Units up to 12000 mm, incl. 1x master link

Ordering information

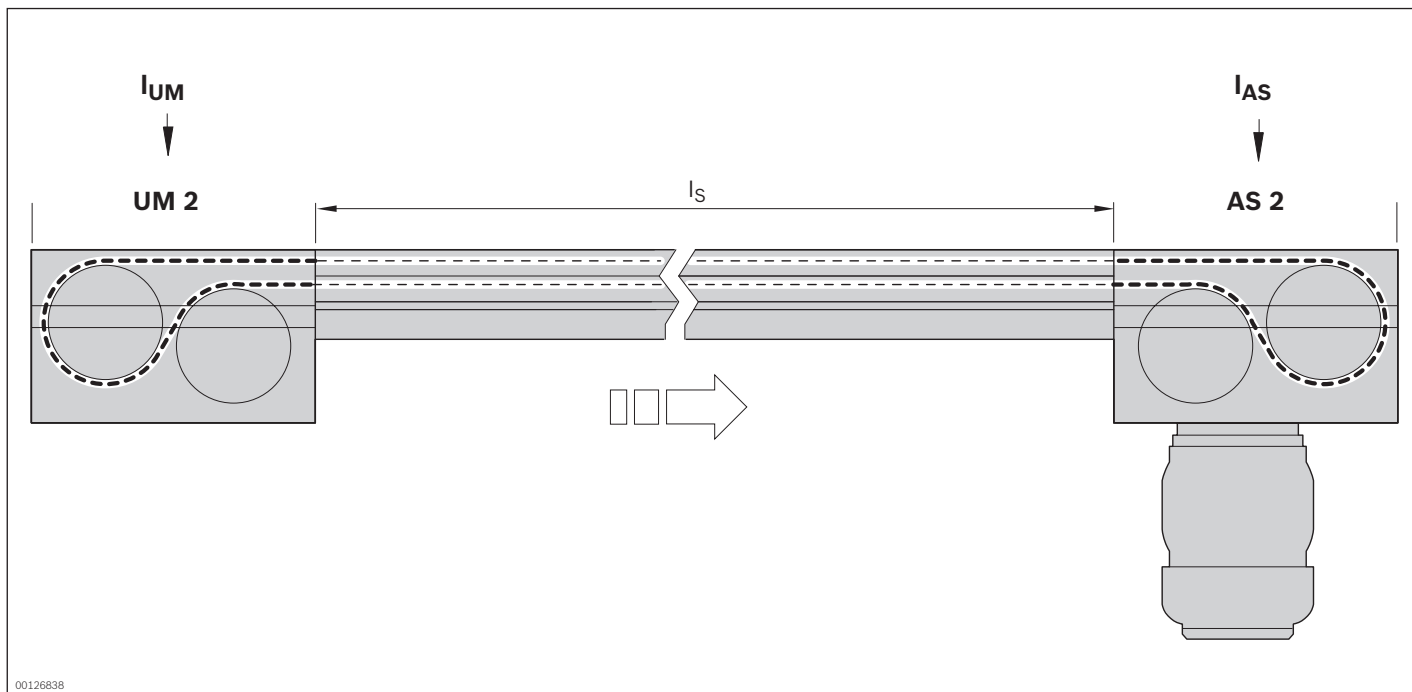
Product designation	Material number
Accumulation roller chain with steel accumulation rollers	3842530864
Accumulation roller chain with steel accumulation rollers and small parts protection	3842536270

Technical data

Material number	3842530864	3842536270
Features		
ESD	Yes	Yes
Material specification	Accumulation roller chains: Steel	Accumulation roller chains: Steel Small parts protection: PA 12 (suitable for use in an EPA)
Dimensions		
Length	l	mm
	12000	12000



Dimensions



The required chain length is determined using the following formula.

$$l_R = 2 \times l_S + l_{AS} + l_{UM}$$

l_R = length of accumulation roller chain

l_S = length of the section profile

l_{AS} = length of the conveyor medium in the drive module

l_{UM} = length of the conveyor medium at the return unit

Length of the conveyor medium for accumulation roller chain

$l_{UM\ 2/C-170} = 310\text{ mm}$

$l_{UM\ 2/C-60} = 150\text{ mm}$

$l_{AS} = 625\text{ mm}$

Master link for accumulation roller chain



- ▶ For locking the accumulation roller chain after insertion in conveyor section element
- ▶ Suitable for all accumulation roller chains except the *Vplus* accumulation roller chain

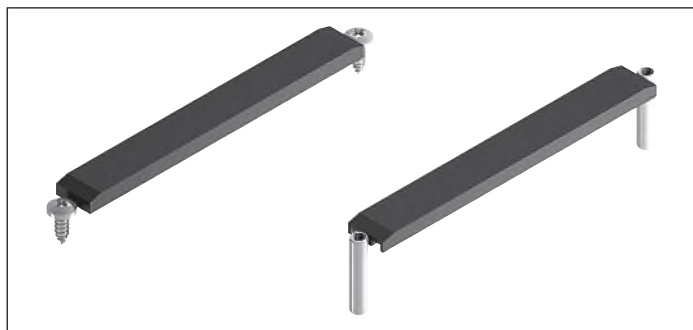
Ordering information

Product designation	Material number
Master link for accumulation roller chain	3842530417

Technical data

Material number	3842530417
Features	
ESD	Yes
Material specification	Accumulation roller chains: Steel Small parts protection: PA 12 (suitable for use in an EPA)

Acceleration element



The support wheels of the chain elements are lifted and roll frictionally engaged between the acceleration element and

- ▶ For accelerated transport of a workpiece pallet to a stop gate
- ▶ The acceleration element is used in conjunction with the accumulation roller chain conveyor medium with steel rollers.
- ▶ Accumulation operation not permitted
- ▶ Installation in sections after the stop gate
- ▶ Suitable for retrofitting

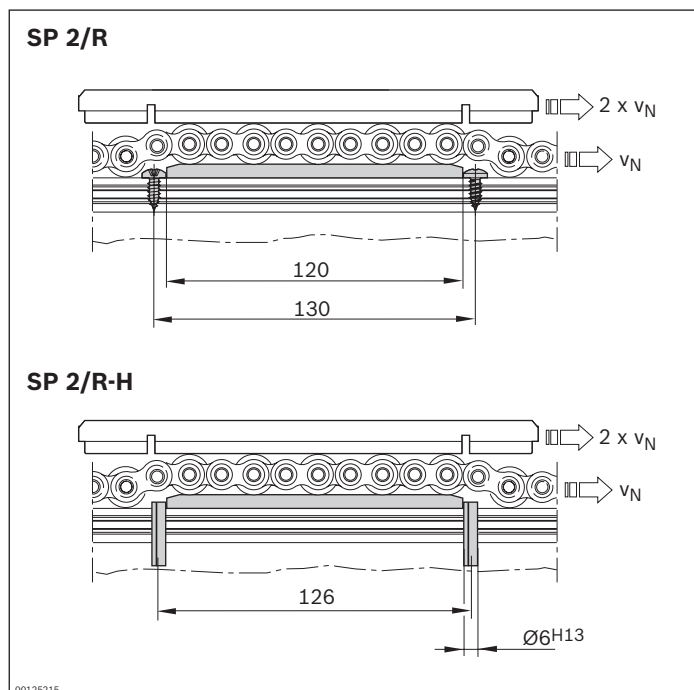
the workpiece pallet with a peripheral speed of $v_U = 2 \times v_N$. This may be limited in oily environments.

Delivery notes

Condition on delivery

- ▶ Not assembled

Ordering information



Technical data

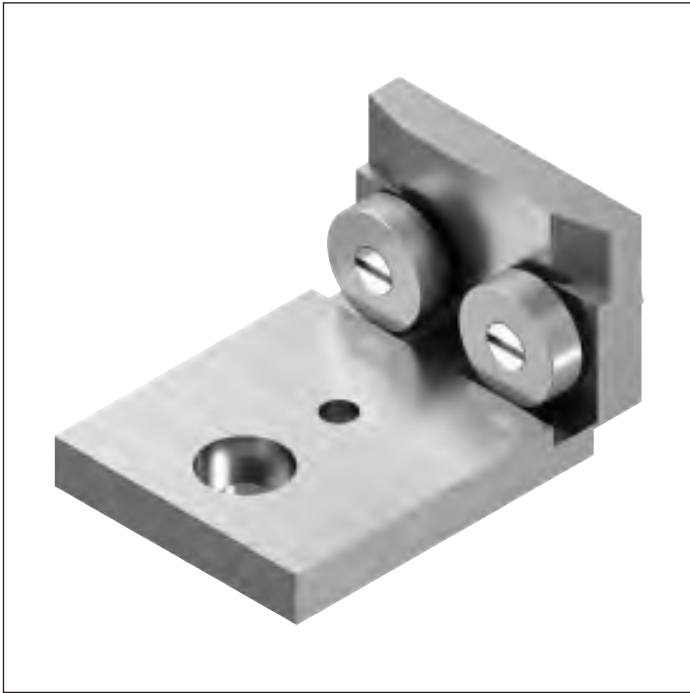
Material number	3842536382	3842537615
Features		
ESD	Yes	Yes
Material specification	PE; abrasion-resistant	PE; abrasion-resistant

Product designation	Packaging unit	Material number
SP 2/R acceleration element	2	3842536382

Product designation	Packaging unit	Material number
SP 2/R-H acceleration element	2	3842537615 ¹

¹ Use with WT 2/F on request

RB 2/UM roller track set



- ▶ Mounted roller section for mounting on AS 2/B or UM 2/B for transverse conveying
- ▶ Additional workpiece pallet support on the front transition from AS 2/B to UM 2/B or from AS 2/B or UM 2/B to a lift transverse unit
- ▶ One set is required for each AS 2/B or UM 2/B
- ▶ Required for workpiece pallet lengths of 160 mm; recommended for longer lengths
- ▶ Without drive
- ▶ Reversible operation possible
- ▶ Can be combined with WT 2/E, WT 2, WT 2/F

Delivery notes

Scope of delivery

- ▶ Set (containing 2x roller track, 2x guide profile, 2x fastening kit)

Condition on delivery

- ▶ Fully assembled

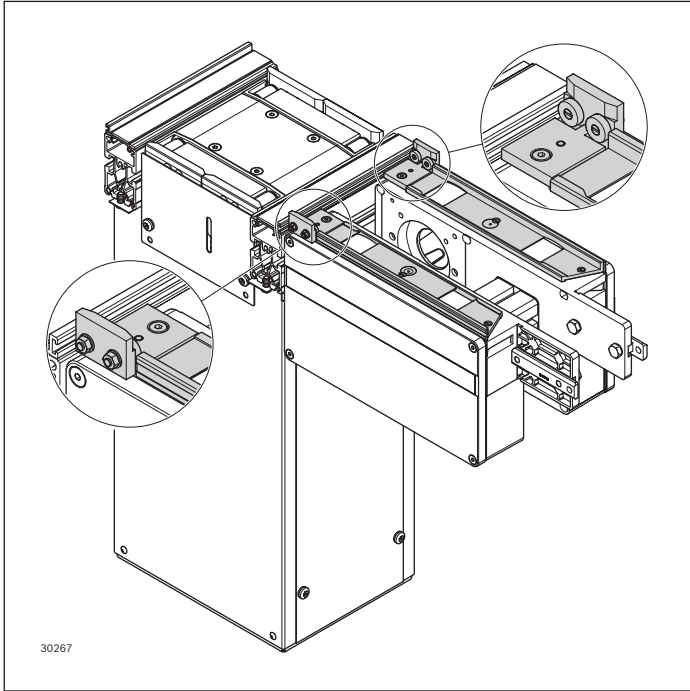
Ordering information

Product designation	Packaging unit	Material number
RB 2/UM 2 roller track set	Set	3842558657

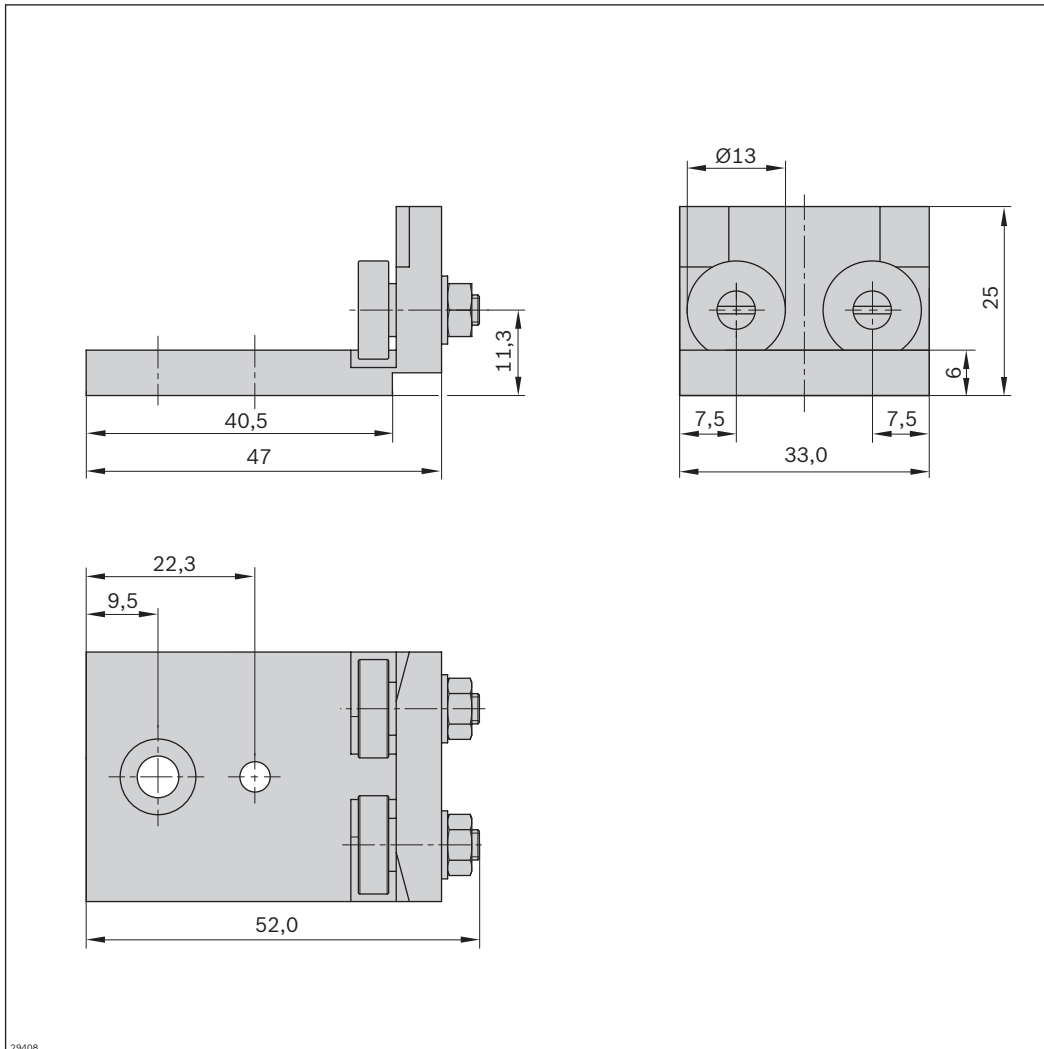
Technical data

Material number	3842558657
Features	
Material specification	Track: Aluminum Rollers: Steel

3-190 **TS 2plus 7.0** | Longitudinal conveyor
RB 2/UM roller track set



Dimensions



29408

Chain breaker for accumulation roller chain



3



- ▶ Makes it easier to open and disassemble the accumulation roller chain
- ▶ Turning the thread pin pushes out a chain bolt and the chain can be removed

The thread pin has a hexagonal fixture acting as a lever arm for a size 13 hexagonal wrench. Grooves are provided for

the exact positioning of the chain links.

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information

Product designation	Material number
Chain breaker for accumulation roller chain	8981010511

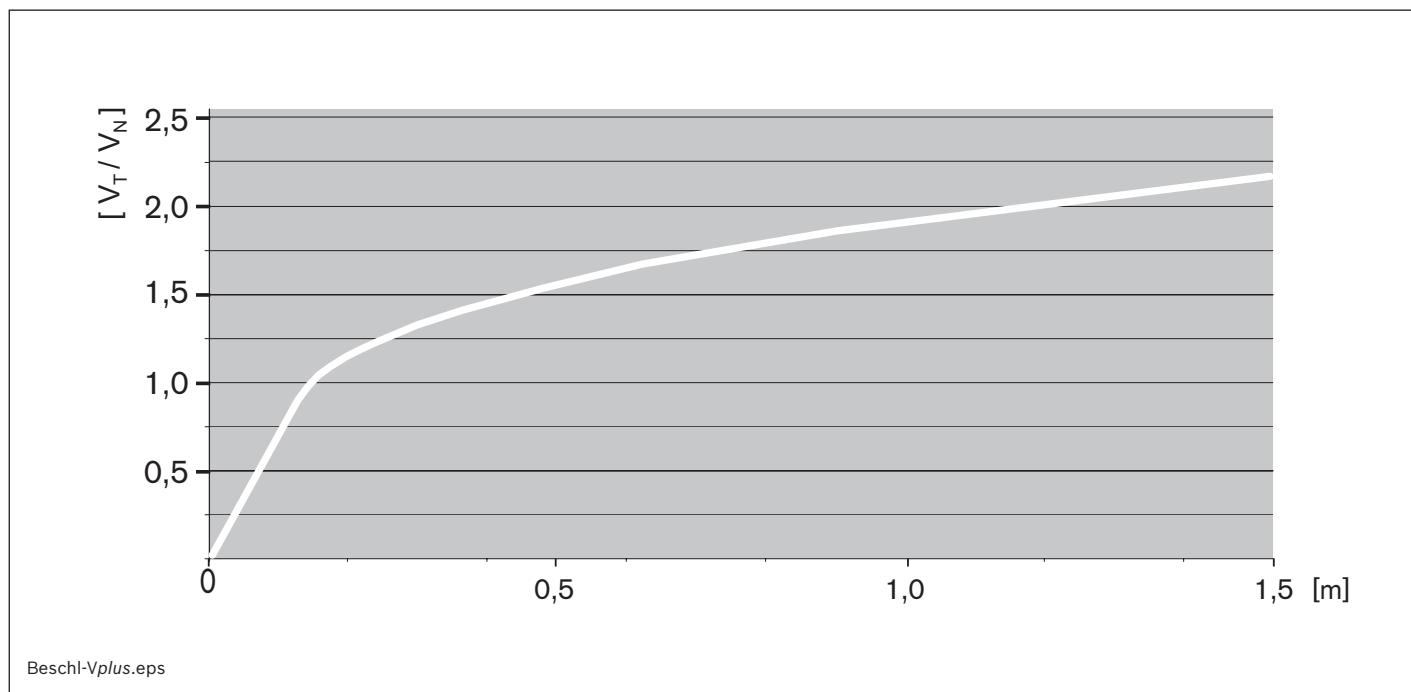
Technical data

Material number	8981010511
Features	
Material specification	Steel; hardened

Vplus accumulation roller chain



Vplus accumulation roller chain – transportation speed over distance



v_N Nominal speed
 v_T Max. transportation speed

With the Vplus accumulation roller chain, the workpiece pallet attains conveying speeds to the factor of 2.5 higher than the nominal chain speed.

Smoother running and less wear can thus be achieved by using drives with lower chain speeds with the Vplus accumulation roller chain.

Another benefit of the Vplus accumulation roller chain is the acceleration effect: after each processing station, the conveying speed is picked up quickly without requiring any additional internal elements.

As a rule, dampened stop gates and dampers are recommended.

If conveying speeds over 18 m/min are to be attained with the Vplus chain, the resulting higher dynamic loads on the entire system must be taken into account. Please contact your Rexroth specialist if in any doubt.

Workpiece pallets with PE wear pads must be used on the Vplus accumulation roller chain. The maximum permissible section load is 1.5 kg/cm.

Vplus planning advice 3-193

Vplus planning advice



The Vplus accumulation roller chain can mathematically reach a transportation speed that is 2.5 times the nominal speed of the conveyor medium.

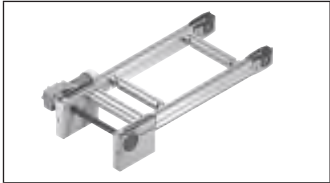
In practice:

- The weight of the workpiece pallet
- The lubrication and wear of the chain
- The length of the acceleration section

Can cause transportation speeds that are typically up to 2.5 times the nominal speed of the conveyor medium.

The system must be adjusted to the significantly higher kinetic energy of the workpiece pallet:

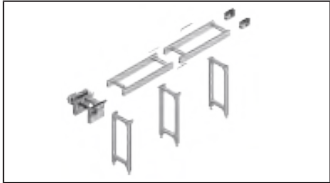
- Dampers and dampened stop gates must be designed for the mathematical transportation speed.
- Before entering a curve, ensure that the transportation speed is max. 18 m/min.



BS 2/R-V belt sections



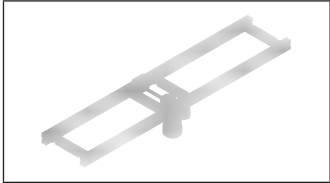
3-196



**Parts for AS 2/..., UM 2/..., ST 2...
conveyor units**



3-200



Connection kits

3-236

BS 2/R-V-1200 belt section



- ▶ Functional operation conveyor complete with drive for high workpiece pallet speeds
- ▶ Sturdy design for especially heavy-duty systems
- ▶ Conveyor medium: *Vplus* accumulation roller chain (suitable for use in an EPA)
- ▶ Reversible operation possible for $l \leq 2000$ mm and accumulation roller chains without small parts protection
- ▶ Motor mounting right, left or central
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request

The belt section is a ready-to-use conveyor section with built-in drive for the transportation of workpiece pallets in the longitudinal direction or for the transverse conveying of the workpiece pallet between parallel conveyor sections in connection with two HQ 2 lift transverse units.

Note: On the *Vplus* chain, the workpiece pallet attains a speed up to the factor of 2.5 higher than that of the chain. Special requirements must therefore be observed for chain speeds > 9 m/min!

Accessories

Recommended accessories

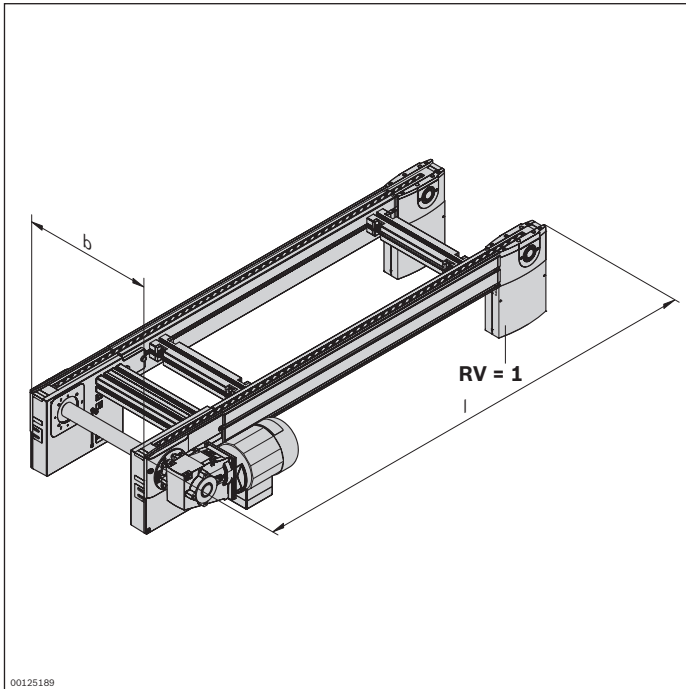
- ▶ Connection kits, see page 3-236
- ▶ SZ 2/...-H leg sets, see p. 6-2
- ▶ LU 2 automatic lubrication unit, see p. 3-152

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998492
b (mm)	Track width in direction of transport	400 ... 1200
l (mm)	Length	650 ... 6000
v_N (m/min)	Nominal speed of the chain	0 ¹⁾ ; 6; 9; 12; 15; 18 ²⁾
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M
RV	Reversible operation No reversible operation (RV = 0) Reversible operation (RV = 1)	0; 1
KT	Chain type Accumulation roller chain with steel accumulation rollers (KT = 2) Accumulation roller chain with steel accumulation rollers and small parts protection (KT = 4)	2; 4

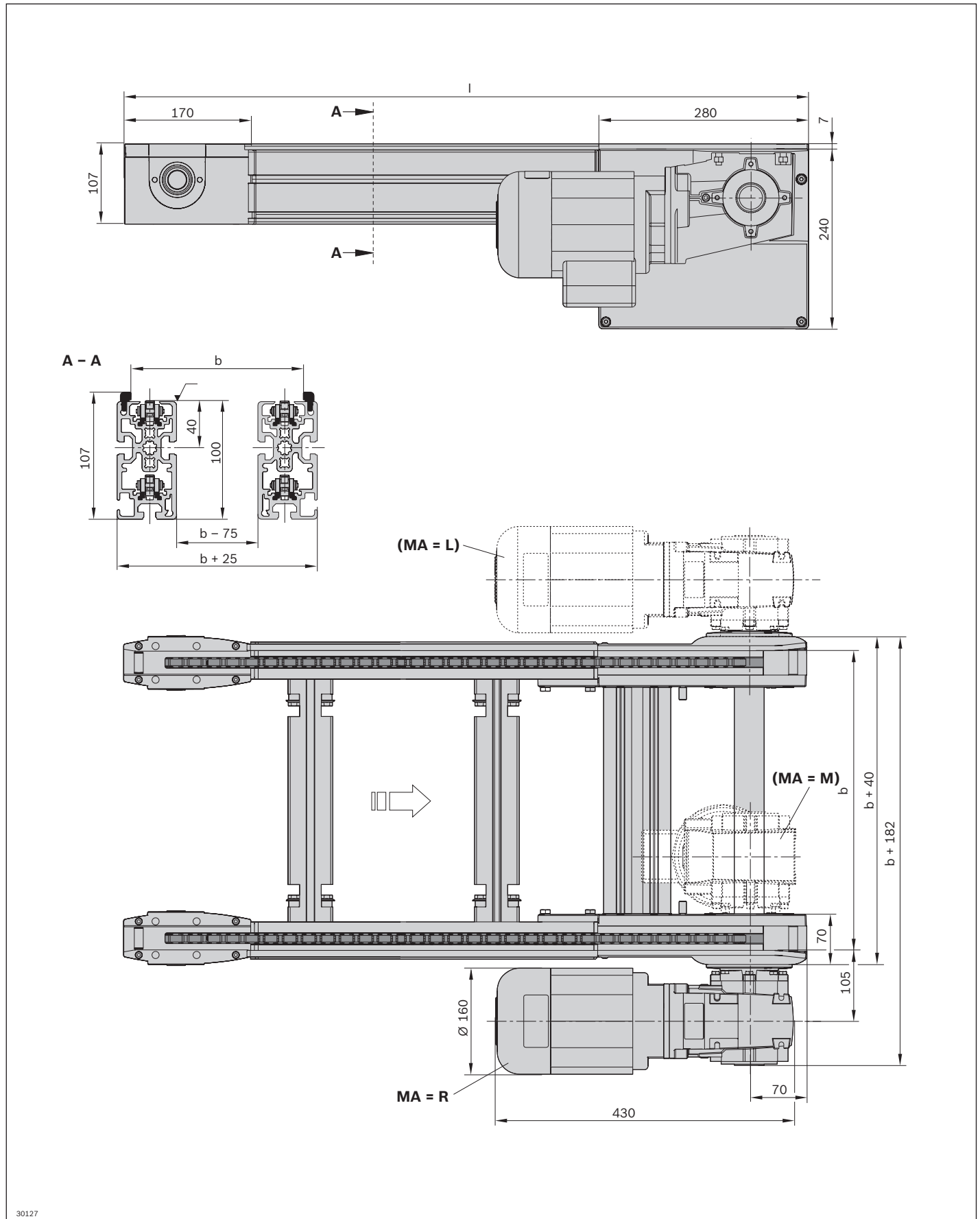
¹⁾ $v_N = 0$: without motor or gear

²⁾ Not possible if $f = 60$ Hz

Technical data

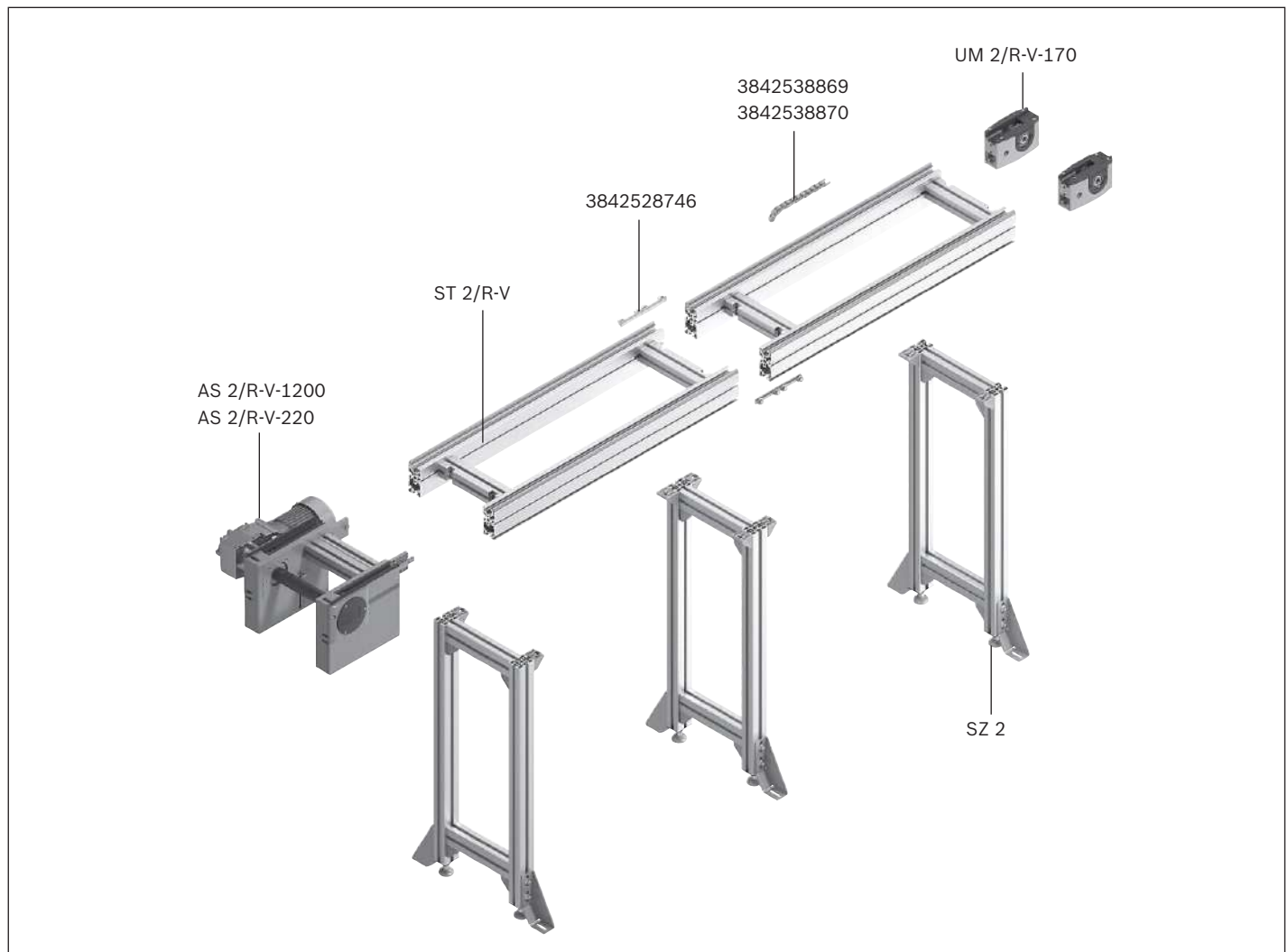
Material number		3842998492
Load		
Max. section load in accumulation operation	kg	1200
Features		
ESD		Yes
Material specification		Glide profile: Steel; corrosion-resistant Small parts protection: Steel
Dimensions		
Length	l	mm 650 ... 6000

Dimensions





Conveyor units *Vplus* accumulation roller chain conveyor medium



A conveyor unit is a complete unit used for linear conveying of workpiece pallets. It consists of:

- ▶ AS 2/R-V drive module, see p. 3-202
- ▶ UM 2/R-V return unit, see p. 3-208
- ▶ ST 2/R-V... sections, see p. 3-210
- ▶ SZ 2/... leg sets, see p. 6-2
- ▶ QV 2... cross connector, see p. 3-216
- ▶ *Vplus* accumulation roller chain, see p. 3-192

The UM 2/R-V and AS 2/R-V may be set up right next to each other, which allows for conveyor unit combinations.

The drive modules are designed for section loads up to $m_G = 2200$ kg per conveyor unit.



AS 2/R-V drive module



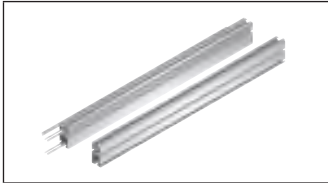
3-202



UM 2/R-V-170 return unit



3-208



ST 2/R-V section, components



3-210

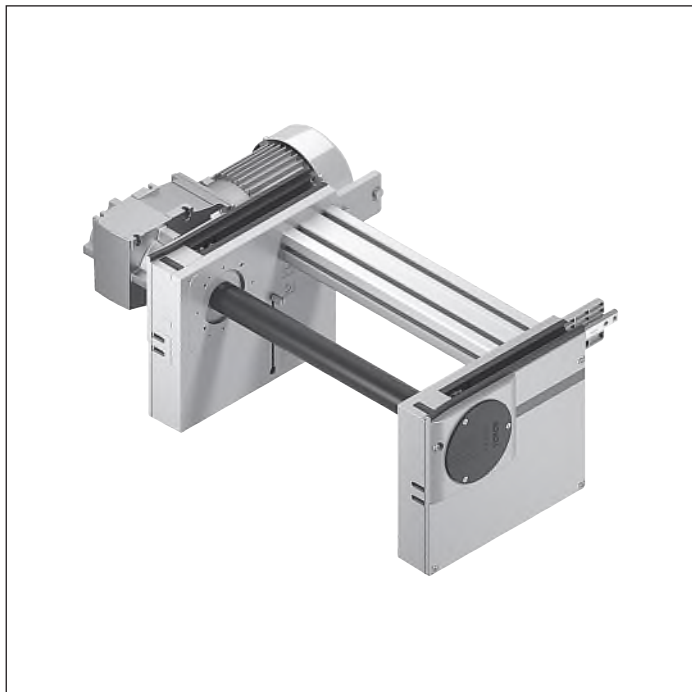
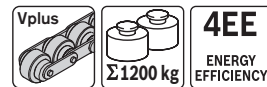


Accumulation roller chain conveyor medium, accessories



3-222

AS 2/R-V-1200 drive module



- ▶ For conveyor unit self-assembly
- ▶ For use in conjunction with ST 2/R-V sections and ST 2/R-V-170 return units
- ▶ Conveyor medium: *Vplus* accumulation roller chain (suitable for use in an EPA)
- ▶ Motor mounting right, left or central
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request

The AS 2/R-V-1200 drive module drives the conveyor medium *Vplus* accumulation roller chain in self-built conveyor sections with sections, return units and *Vplus* accumulation roller chains.

Note: On the *Vplus* chain, the workpiece pallet attains a speed up to the factor of 2.5 higher than that of the chain. Special requirements must therefore be observed for chain speeds > 9 m/min!

Accessories

Recommended accessories

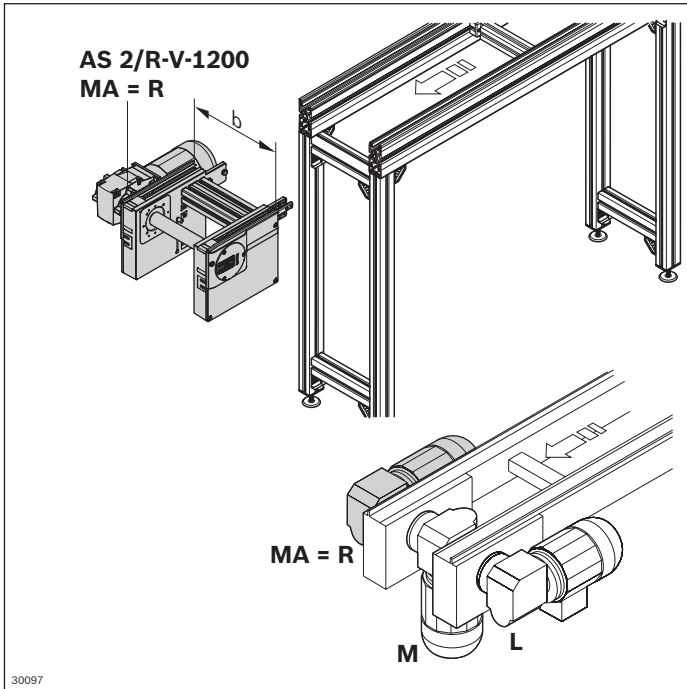
- ▶ LU 2 automatic lubrication unit, see p. 3-152

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998233
b (mm)	Track width in direction of transport	400; 480; 640; 800; 1040; 1200 400 ... 1200 ¹
v _N (m/min)	Nominal speed of the chain	0 ² ; 6; 9; 12; 15; 18 ³
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M

¹ Individual width variants available

² v_N = 0: without motor or gear

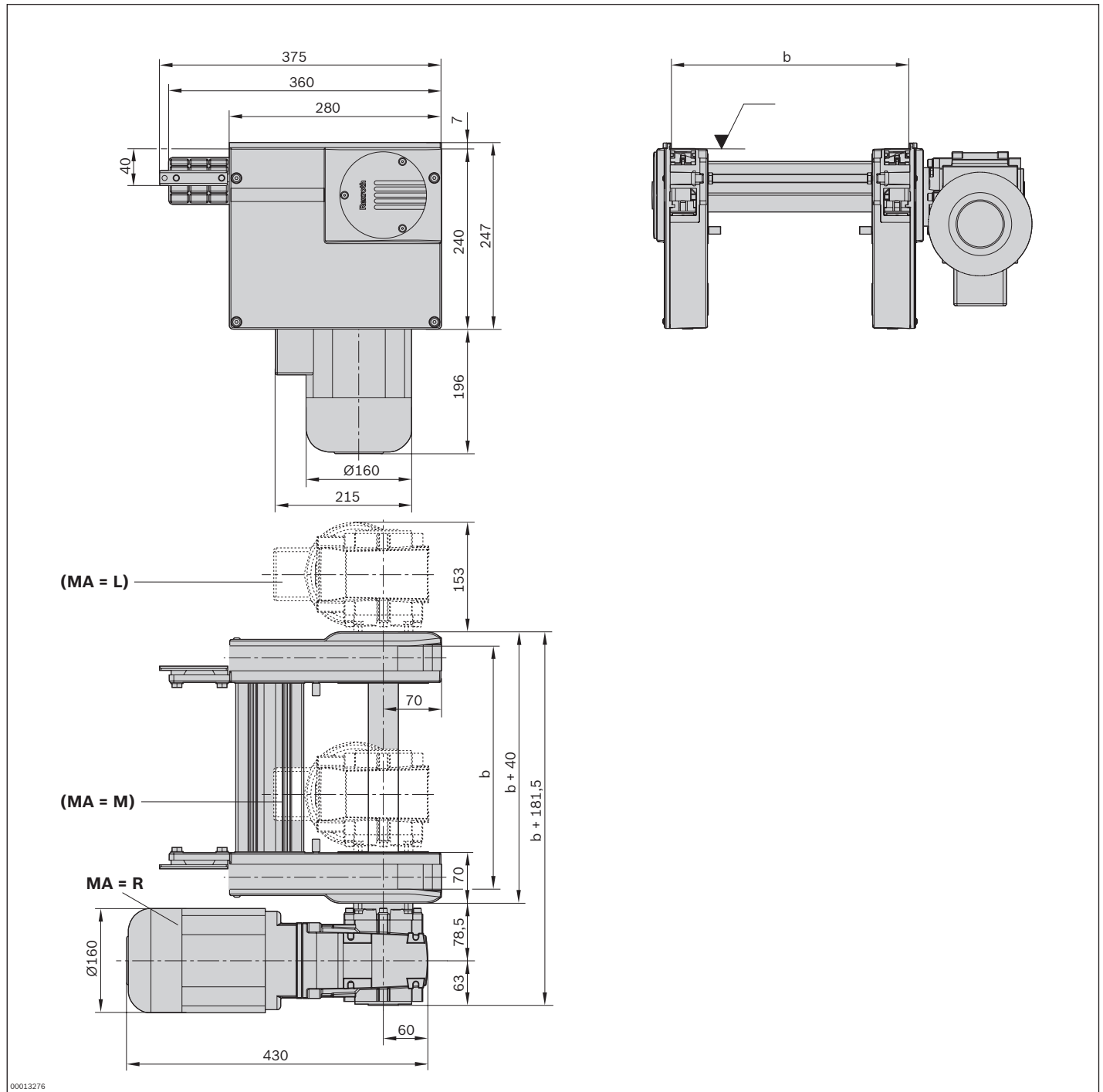
³ Not possible if f = 60 Hz

Technical data

Material number		3842998233
Load		
Max. section load in accumulation operation	kg	1200
Features		
ESD		Yes
Additional information		
Required conveyor medium length*	l _{AS}	mm 625

* Formula for calculating the conveyor medium, see p. 3-223

Dimensions



AS 2/R-V-2200 drive module



- ▶ Conveyor medium: *Vplus* accumulation roller chain (suitable for use in an EPA)
- ▶ Motor mounting right, left or central
- ▶ Motor connection: optionally with cable/plug or terminal box
- ▶ Special models on request

The AS 2/R-V-2200 drive module drives the conveyor medium *Vplus* accumulation roller chain in self-built conveyor sections with section, return unit and *Vplus* accumulation roller chain.

Note: On the *Vplus* chain, the workpiece pallet attains a speed up to the factor of 2.5 higher than that of the chain. Special requirements must therefore be observed for chain speeds > 9 m/min!

Accessories

Recommended accessories

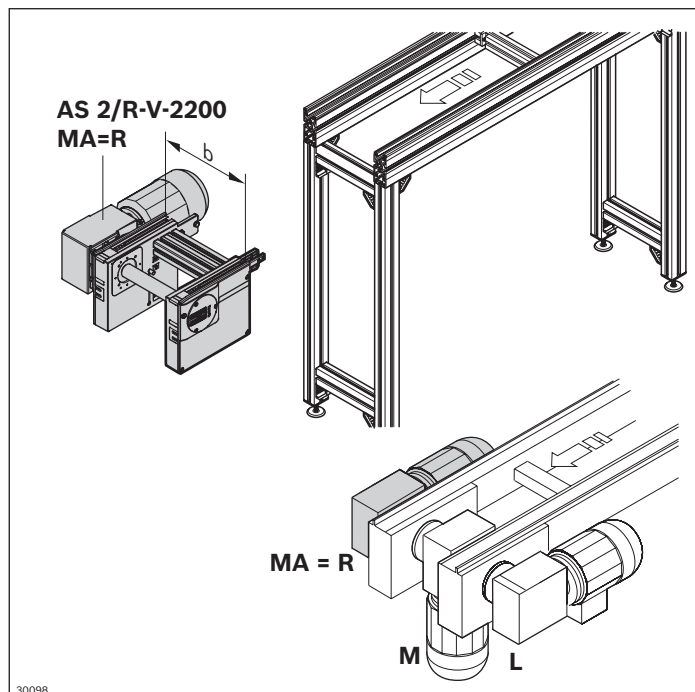
- ▶ LU 2 automatic lubrication unit, see p. 3-152

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998234
b (mm)	Track width in direction of transport	400; 480; 640; 800; 1040; 1200 400 ... 1200 ¹
v _N (m/min)	Nominal speed of the chain	0 ² ; 6; 9; 12; 15; 18 ³
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M

¹) Individual width variants available

²) v_N = 0: without motor or gear

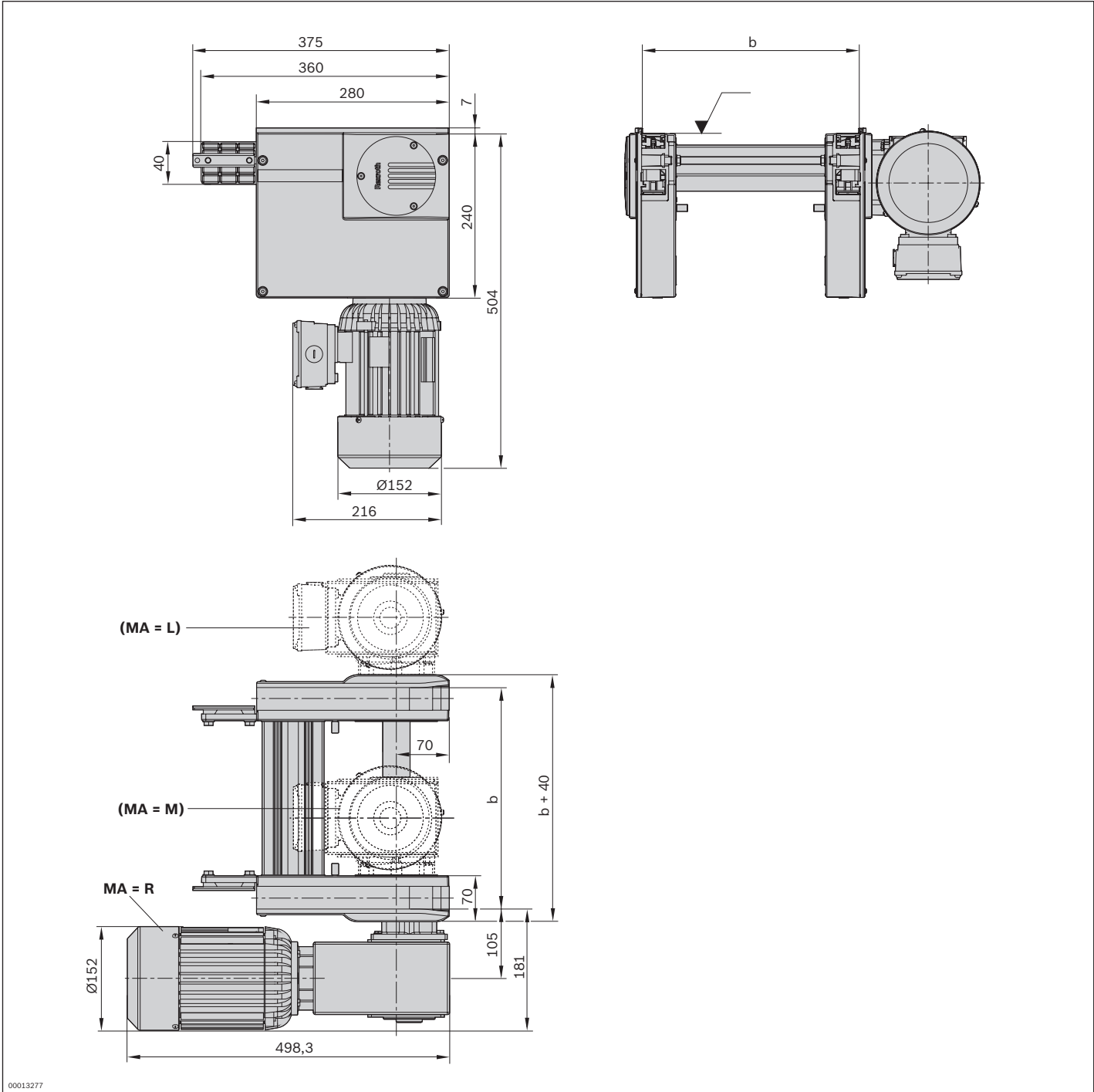
³) Reduced load to 1800 kg

Technical data

Material number		3842998234
Load		
Max. section load in accumulation operation	kg	2200
Features		
ESD		Yes
Additional information		
Required conveyor medium length*	l _{AS}	mm 625

* Formula for calculating the conveyor medium, see p. 3-223

Dimensions



UM 2/R-V-170 return unit



- ▶ Conveyor medium: *Vplus* accumulation roller chain (suitable for use in an EPA)
- ▶ For use with all AS 2/R-V drive modules
- ▶ Version with pinion for return unit
- ▶ Reversible operation possible

The return unit is used for constructing conveyor units. It guides the conveyor medium at the end of the conveyor unit back to the drive module.

Note: On the *Vplus* chain, the workpiece pallet attains a speed up to the factor of 2.5 higher than that of the chain. Special requirements must therefore be observed for chain speeds > 9 m/min!

Delivery notes

Scope of delivery

- ▶ One pair of return heads
- ▶ Incl. all fastening material to mount on the ST 2 section

Condition on delivery

- ▶ Fully assembled

Ordering information

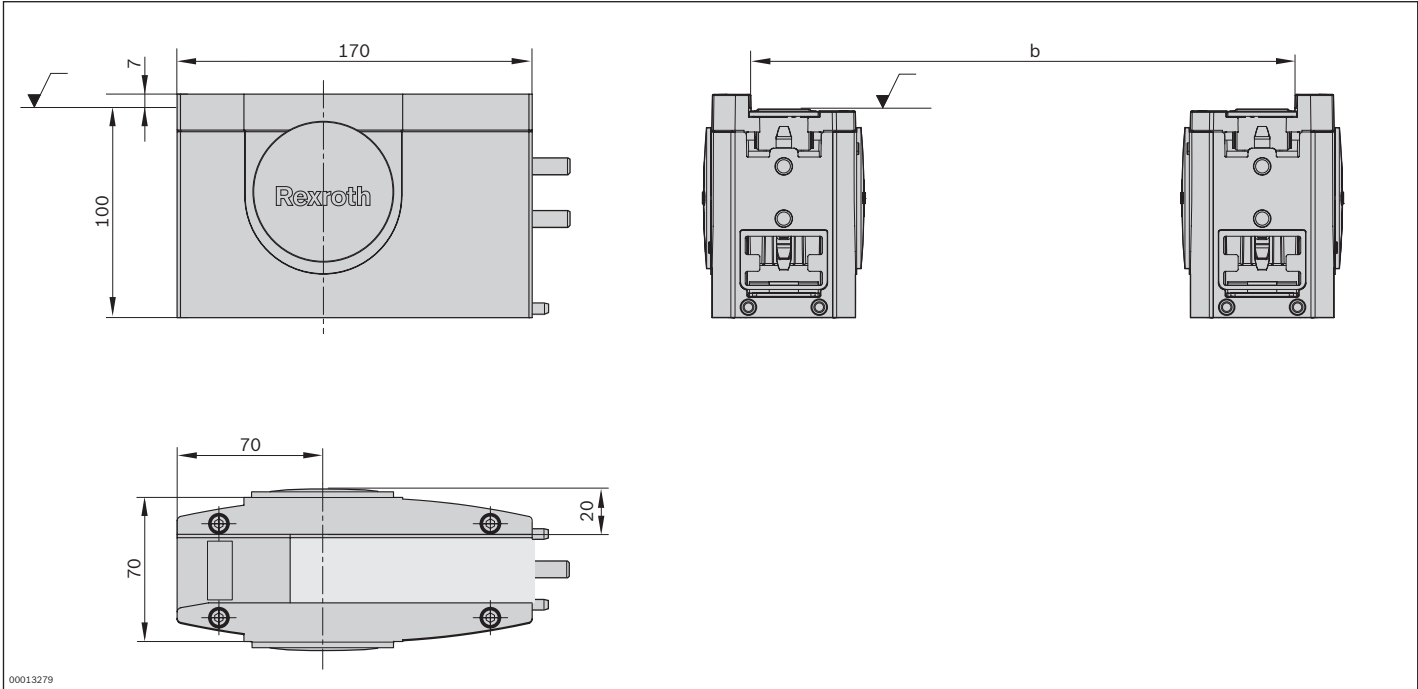
Product designation	Material number
UM 2/R-V-170 return unit	3842536803

Technical data

Material number	3842536803		
Features			
ESD	Yes		
Additional information			
Required conveyor medium length*	l_{UM}	mm	310

* Formula for calculating the conveyor medium, see p. 3-223

Dimensions



00013279

ST 2/R-V section



- ▶ Section profile in especially sturdy design for section loads of up to 30% higher

The section is used for the construction of conveyor units in conjunction with the *Vplus* accumulation roller chain with the AS 2/R-V drive module and the UM 2/R-V return unit

Accessories

Required accessories

- ▶ Adapter plate kit, see p. 3-214

Delivery notes

Scope of delivery

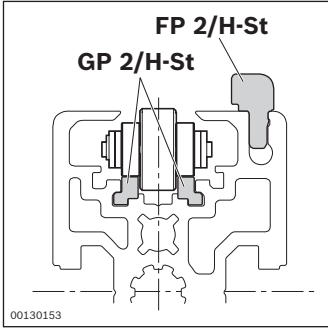
- ▶ 2x SP 2/R-H section profile
- ▶ 2x FP 2/H-St guide profile
- ▶ 4x GP 2/H-St glide profile (in a different mounting position)

Recommended accessories

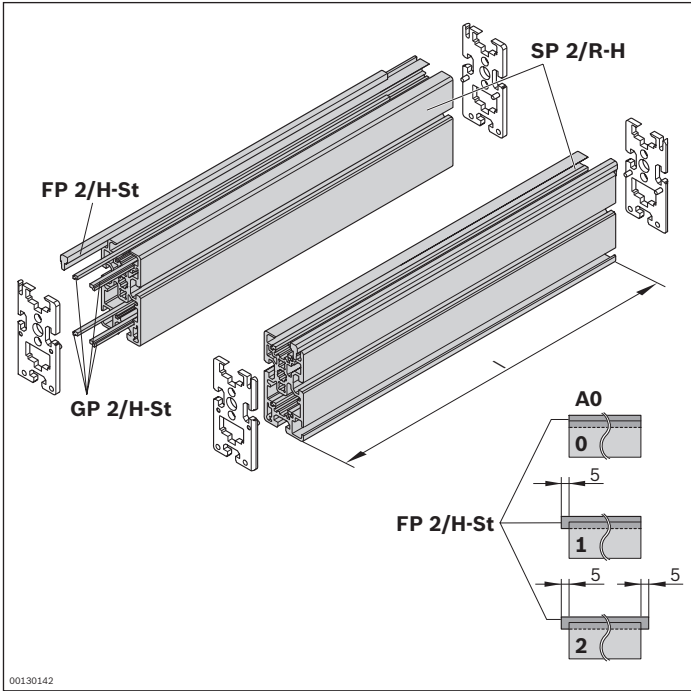
- ▶ SZ 2/...-H leg sets, see p. 6-2
- ▶ Cross connector, see p. 3-216
- ▶ Profile connector, see p. 3-215

Condition on delivery

- ▶ Fully assembled



Ordering information

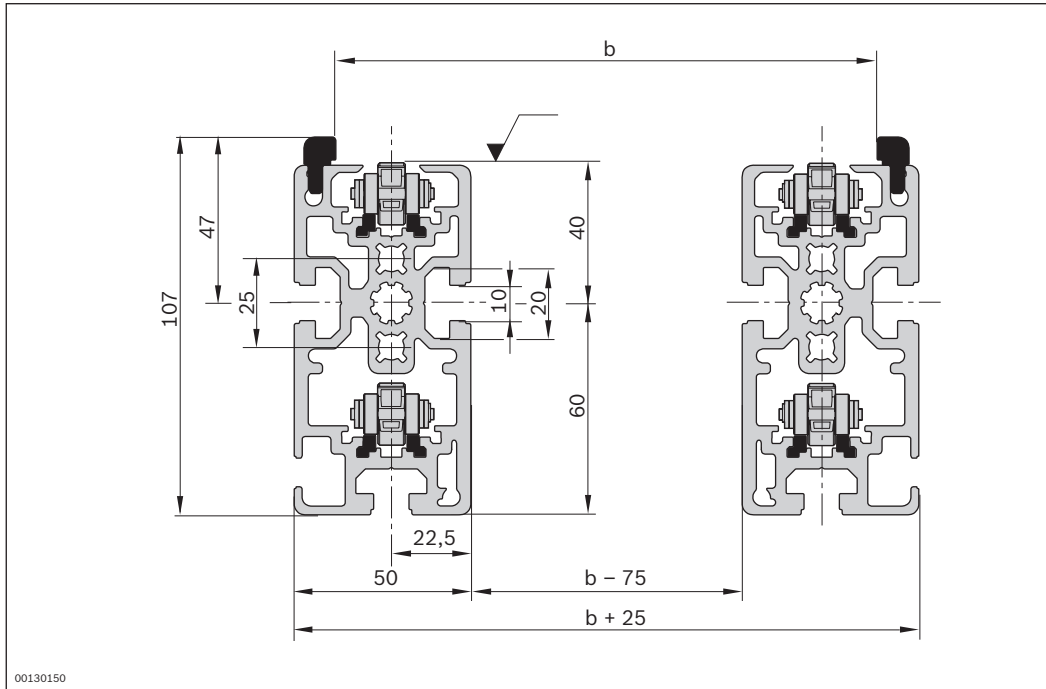


Material number		3842995000
I (mm)	Length	200 ... 6000
AO	Installation location Steel glide profile AO = 0; 1; 2	0; 1; 2
GP	Glide profile corro- sion-resistant steel (GP = 1)	1

Technical data

Material number		3842995000
Features		
ESD		Yes
Material specification		Section profile: Aluminum; anodized Guide profile: Steel; corrosion-resistant Glide profile: Steel; corrosion-resistant
Dimensions		
Length	I	mm 200 ... 6000

Dimensions



Cover rail for cable duct



3



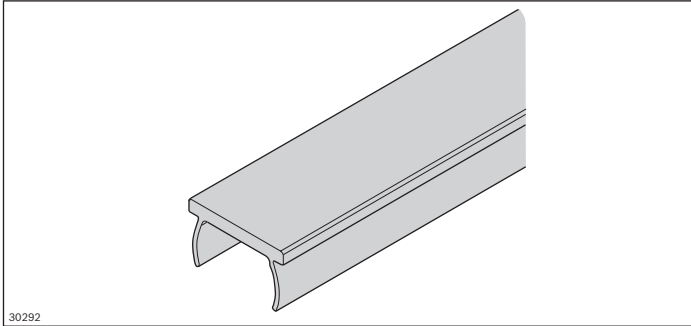
- ▶ To prevent dirt from entering the profile slot
- ▶ For fixing cables in position
- ▶ Flush with profile

Ordering information

Product designation	Packaging unit	Material number
Cover rail for cable duct	10	3842523258

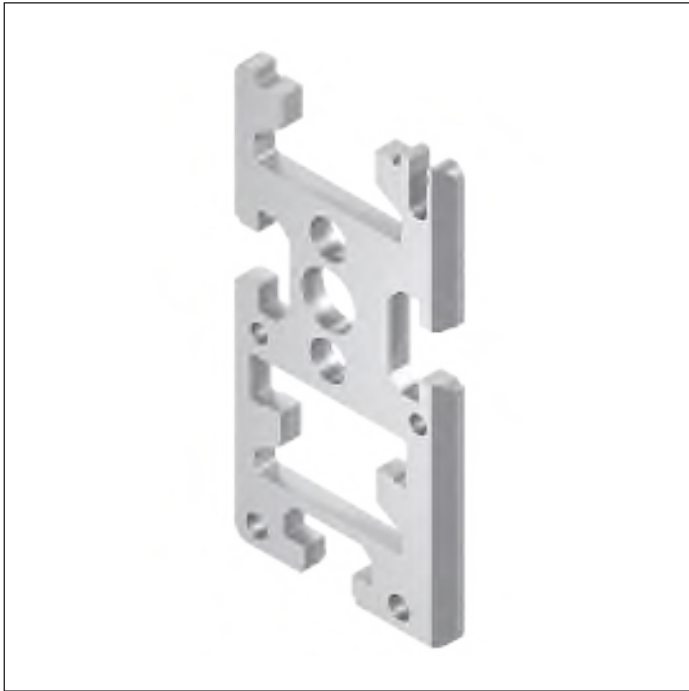
Technical data

Material number	3842523258		
Features			
Material specification	Aluminum, natural; anodized		
Dimensions			
Length	l	mm	2000



30292

ST 2/R-V adapter plate kit



- ▶ Front end plate
- ▶ For connecting SP 2/R-H section profiles and AS 2/R-V drive modules, for connecting SP 2/R-H section profiles and UM 2/R-V-170 return units; and between section profiles if GP 2 plastic glide profiles are used

The adapter plates are used as front covers and for connecting section profiles and drive modules, or between section profiles and return units.

The adapter plates are also suitable for use between section profiles where GP 2 plastic glide profiles are used.

Delivery notes

Scope of delivery

- ▶ 2x left adapter plate
- ▶ 2x right adapter plate

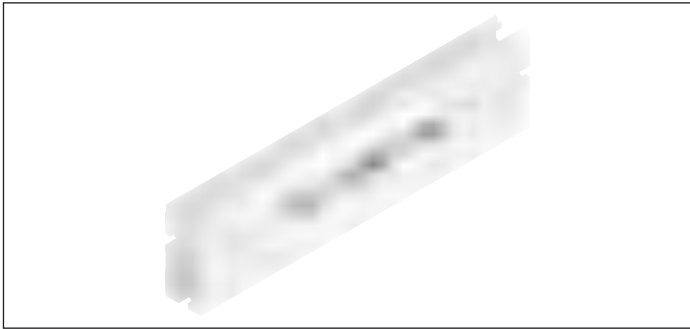
Ordering information

Product designation	Packaging unit	Material number
ST 2/R-V adapter plate kit	4	3842536802

Technical data

Material number	3842536802
Features	
ESD	Yes
Material specification	Steel; corrosion-resistant

Profile connector



- ▶ For the end-to-end connecting of two profiles SP 2/...
Two profile connectors are recommended for each profile joint
- ▶ For conveyor unit self-assembly
- ▶ For use with all AS 2/R-V drive modules, UM 2/R-V return units and SP 2/R-H section profiles

Delivery notes

Scope of delivery

- ▶ Profile connector, screws

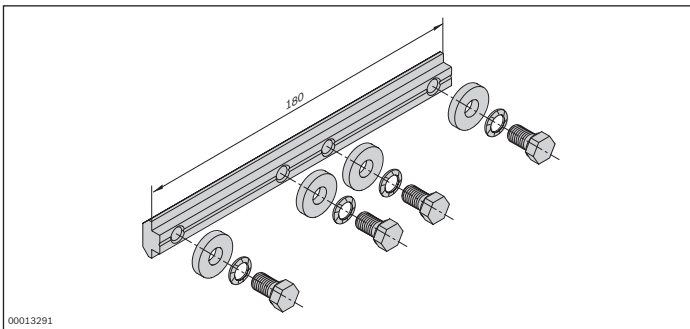
Ordering information

Product designation	Material number
Profile connector	3842528746

Technical data

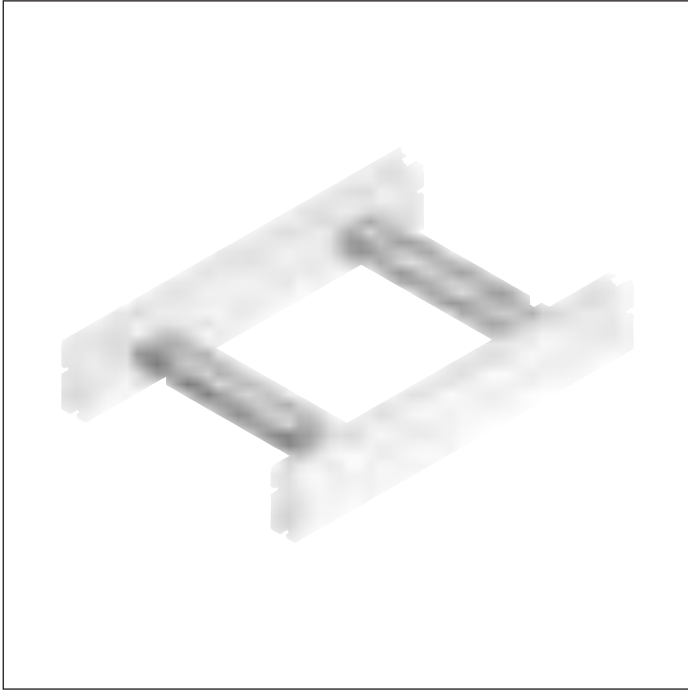
Material number	3842528746
Features	
Material specification	Steel; galvanized

Dimensions



00013291

QV 2 cross connector



- ▶ For conveyor unit self-assembly
- ▶ For connecting section profiles and defining the track width
- ▶ For use with all AS 2/R-V drive modules, UM 2/R-V return units and SP 2/R-H section profiles

The cross connectors serve to connect the conveyor section profiles.

Formula for calculating the number of cross connectors needed

$$A_{QV} = (l/2000 \text{ mm}) + 1$$

A_{QV} = number of cross connectors

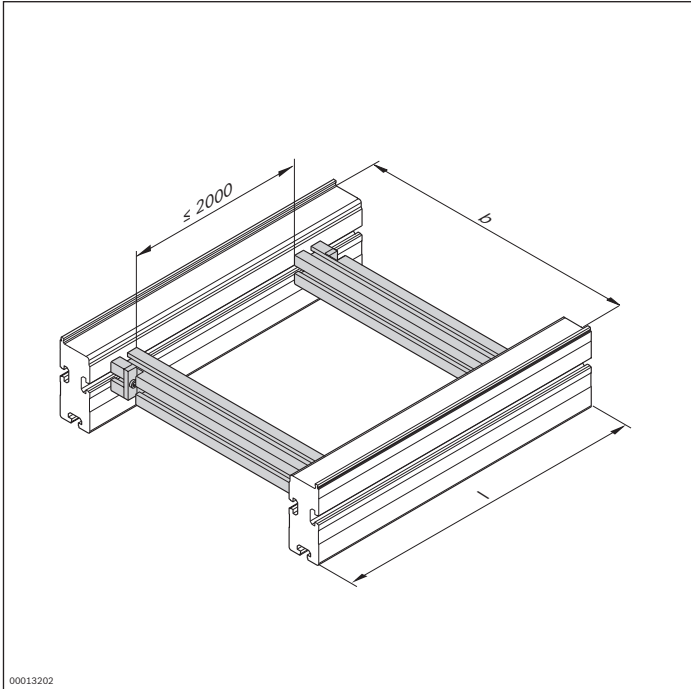
l = section length

Delivery notes

Scope of delivery

- ▶ 45x60 strut profile, finished
- ▶ 2x fastening material to mount on an ST 2 section

Ordering information



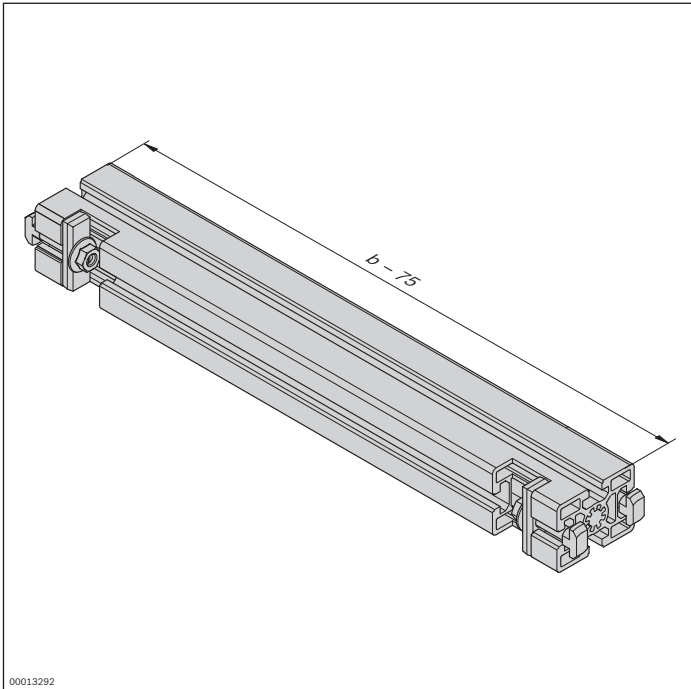
Material number		3842994635
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200
		160 ... 1200 ¹

¹ Individual width variants available

Technical data

Material number	3842994635
Features	
Material specification	Aluminum, natural; anodized

Dimensions



QV 2-H cross connector



- ▶ For heavy-duty conveyor unit self-assembly
- ▶ For connecting section profiles and defining the track width
- ▶ For use with all AS 2/R-V drive modules, UM 2/R-V return units and SP 2/R-H section profiles

QV 2-H cross connectors are particularly suitable for connections between section profiles in heavy-duty systems.

Formula for calculating the number of cross connectors needed

$$A_{QV} = (l/2000 \text{ mm}) + 1$$

A_{QV} = number of cross connectors

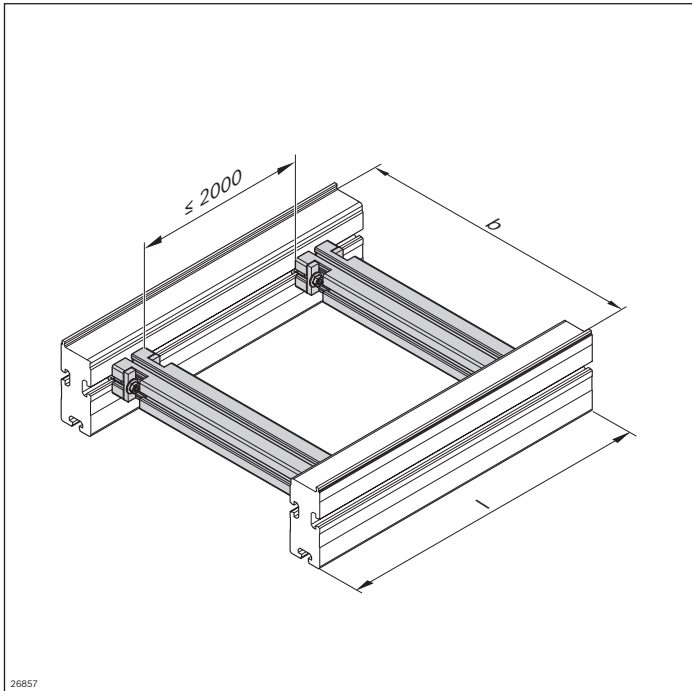
l = section length

Delivery notes

Scope of delivery

- ▶ 45x60 strut profile, finished
- ▶ 4x fastening material to mount on an ST 2 section

Ordering information



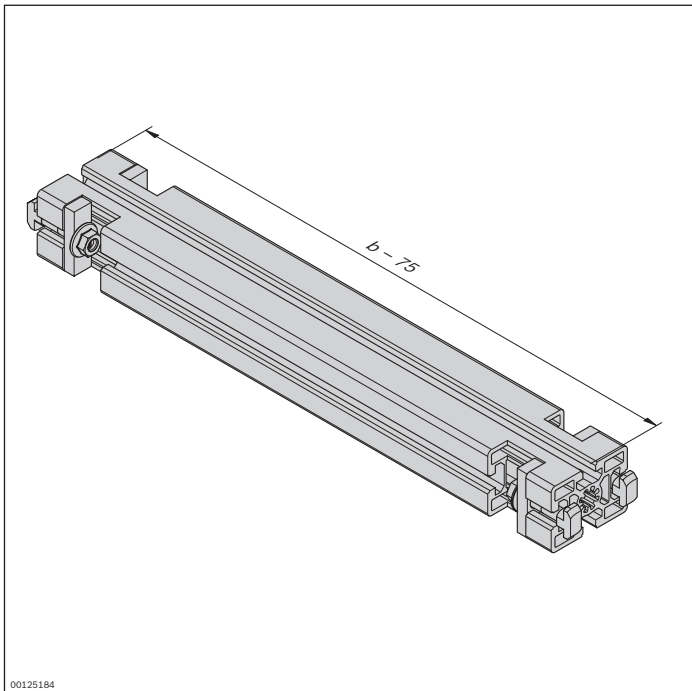
Material number	3842993052
b (mm)	Track width in direction of transport
	160; 240; 320; 400; 480; 640; 800; 1040; 1200
	160 ... 1200 ¹

¹ Individual width variants available

Technical data

Material number	3842993052
Features	
Material specification	Aluminum, natural; anodized

Dimensions



ST 2/R-V-W maintenance section



- ▶ For maintenance use (assembly, disassembly or lubrication)
- ▶ Two removable side covers each
- ▶ Suitable for *Vplus* accumulation roller chains
- ▶ Suitable for SP 2/R-H section profiles

The maintenance section is a section element with removable caps. It is used for maintenance (assembly,

disassembly, lubrication) of the *Vplus* accumulation roller chain.

Delivery notes

Scope of delivery

- ▶ 2x maintenance section element consisting of ST 2/R-H section profile, FP 2/H-ST guide profile and GP 2/H-Kst glide profile
- ▶ 4x side cover
- ▶ 8x profile connector
- ▶ Fastening material

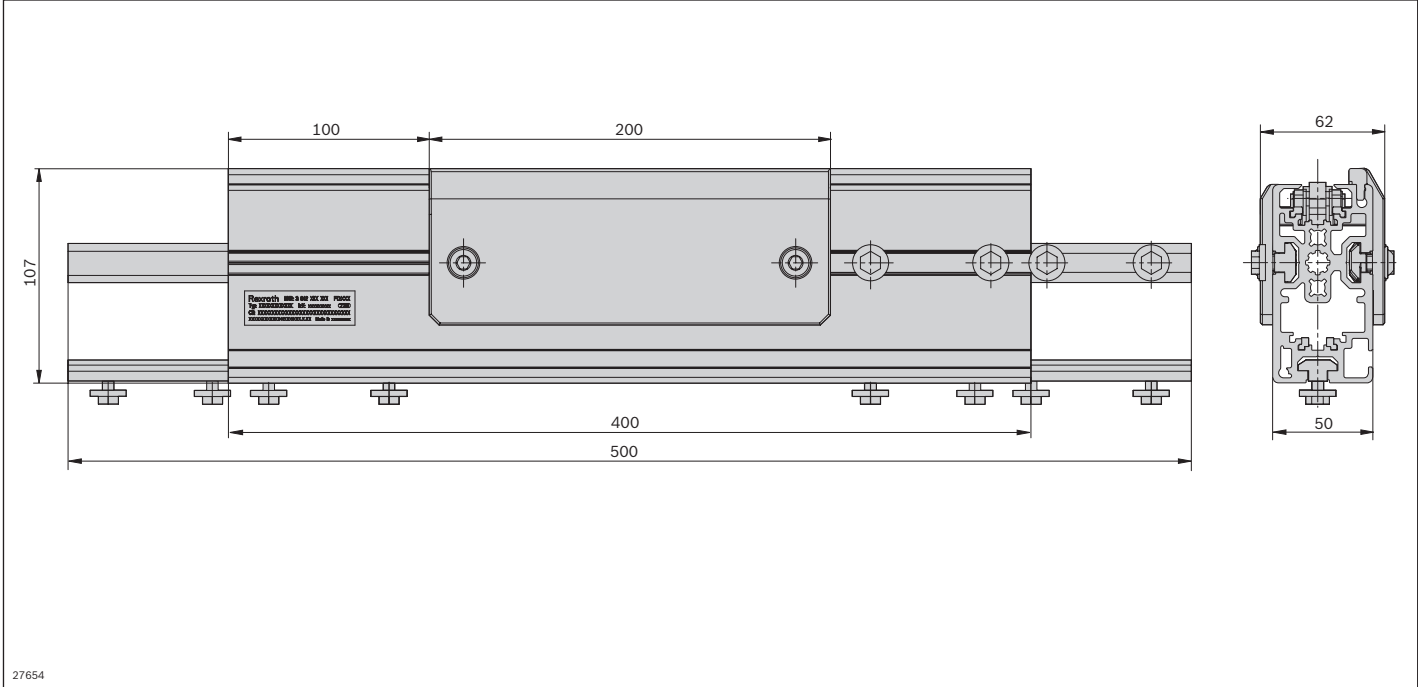
Ordering information

Product designation	Material number
ST 2/R-V-W maintenance section	3842537320

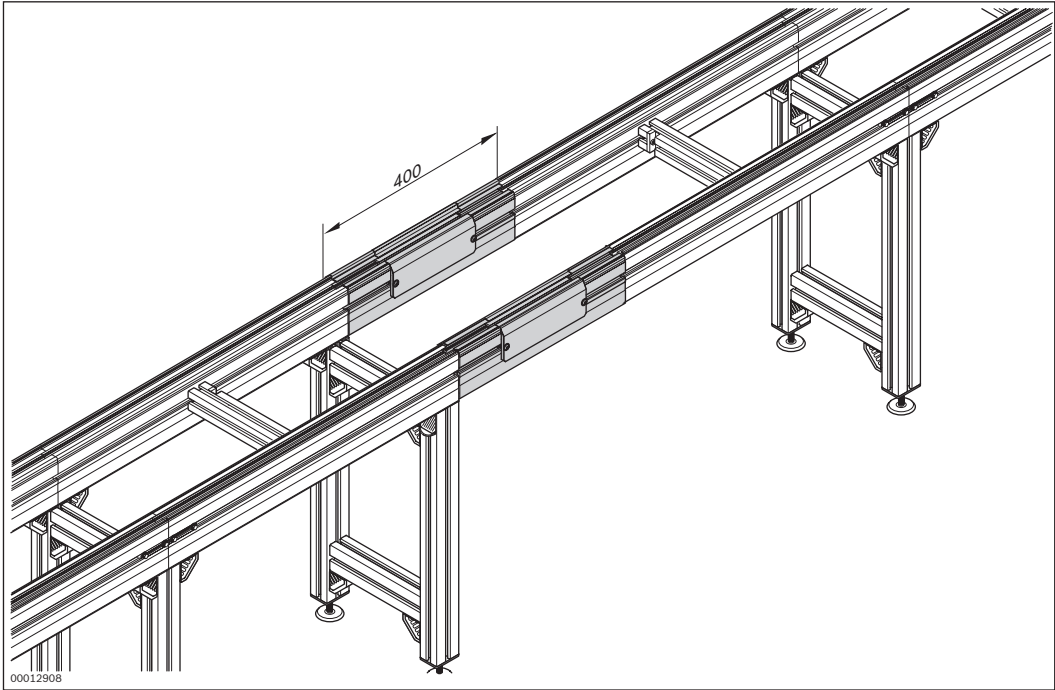
Technical data

Material number	3842537320
Features	
ESD	Yes
Material specification	Section profile: Aluminum, natural; anodized Side cover: Polyethylene
Dimensions	
Length	l mm 400

Dimensions
ST 2/R-V-W maintenance section



3



Vplus accumulation roller chain



- ▶ Conveyor medium for the workpiece pallets in the TS *2plus* system
- ▶ For conveyor unit self-assembly
- ▶ Can be combined with ST 2/R-V and ST 2/R-H conveyor units
- ▶ Delivered in units of 12000 mm. Lengths of l > 12000 mm can be produced by connecting several accumulation roller chains using master links.
- ▶ Chains are available with small parts protection (= filler pieces in the *Vplus* accumulation roller chain prevent small parts from pinching)

Note: Reversible operation is not possible in conjunction with small parts protection.

- 1 Accumulation roller chain with steel accumulation rollers
- 2 Accumulation roller chain with steel accumulation rollers and small parts protection

Note: On the *Vplus* accumulation roller chain, the workpiece pallet can attain a speed up to a

factor of 2.5 higher than that of the chain. Special requirements must therefore be observed for chain speeds > 9 m/min!

Delivery notes

Scope of delivery

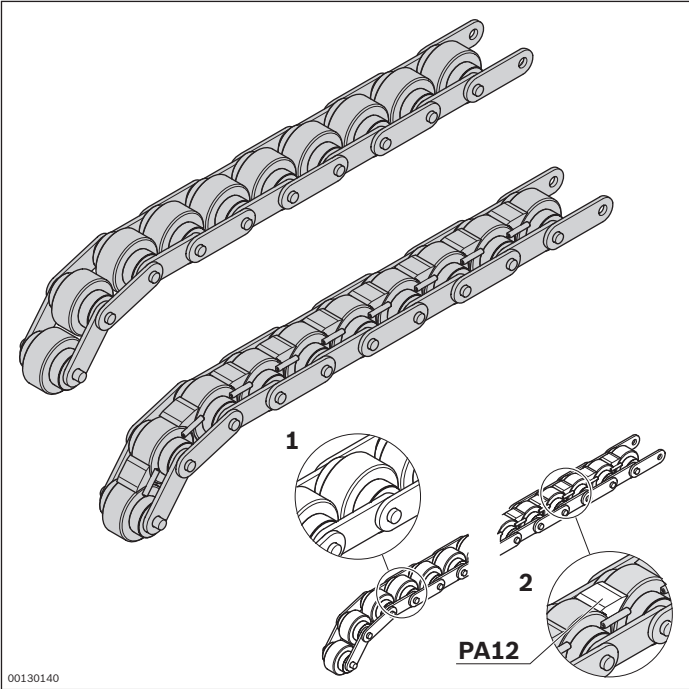
- ▶ Units up to 12000 mm, incl. 1x master link

Ordering information

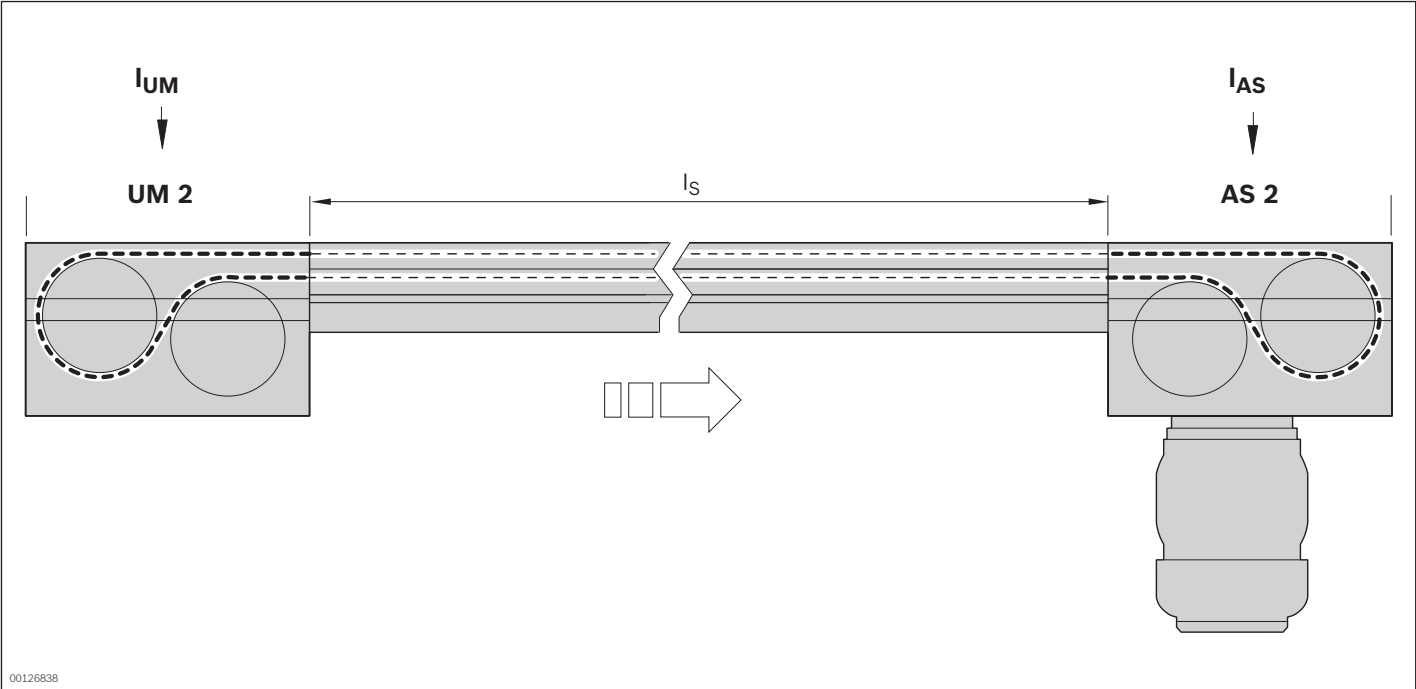
Product designation	Material number
<i>Vplus</i> accumulation roller chain with steel accumulation rollers	3842538869
<i>Vplus</i> accumulation roller chains with steel accumulation rollers and small parts protection	3842538870

Technical data

Material number	3842538869	3842538870
Features		
ESD	Yes	Yes
Material specification	Rollers: Steel	Rollers: Steel Small parts protection: PA 12 (suitable for use in an EPA)
Dimensions		
Length	l	mm
	12000	12000



Dimensions



The required chain length is determined using the following formula.

$$l_R = 2 \times l_S + l_{AS} + l_{UM}$$

- l_R = length of accumulation roller chain
- l_S = length of the section profile
- l_{AS} = length of the conveyor medium in the drive module
- l_{UM} = length of the conveyor medium at the return unit

Length of the conveyor medium for accumulation roller chain

- $l_{UM\ 2/C-170} = 310\text{ mm}$
- $l_{UM\ 2/C-60} = 150\text{ mm}$
- $l_{AS} = 625\text{ mm}$

Master link for *Vplus* accumulation roller chain



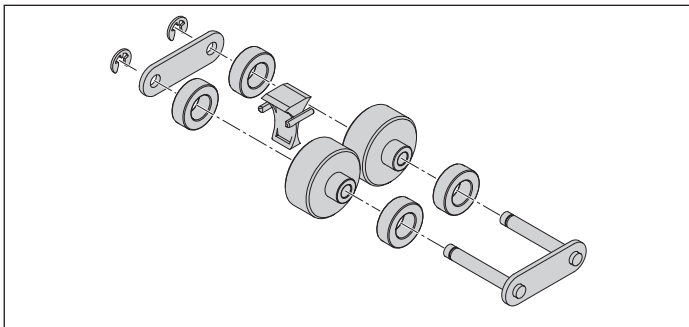
- ▶ To close the *Vplus* accumulation roller chain after insertion in conveyor section element
- ▶ Only suitable for *Vplus* accumulation roller chains

Ordering information

Product designation	Material number
Master link for <i>Vplus</i> accumulation roller chain	3842538872

Technical data

Material number	3842538872
Features	
ESD	Yes



Chain breaker for *Vplus* accumulation roller chain



3



- ▶ For disassembly of *Vplus* accumulation roller chains
- ▶ Makes it easier to open and disassemble the *Vplus* accumulation roller chain.
- ▶ Turning the thread pin pushes out a chain bolt and the chain can be removed

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information

Product designation	Material number
Chain breaker for <i>Vplus</i> accumulation roller chain	3842539357

LG 2/H lift gate



- ▶ Can be used for BS 2, BS 2/C-100, BS 2/R-300 belt sections and for combinations of section ST 2/C-H (ST 2/R-H), drive AS 2/C-100 (AS 2/R-300) and return unit UM 2/C-60 (UM 2/R-60)
- ▶ From width $b = 240$ mm up to $b = 1200$ mm
- ▶ For passage width (A) 600 ... 1800 mm
- ▶ In open position (85°), locked
- ▶ Mechanical unlocking, optionally with pneumatic unlocking (PN kit)
- ▶ Safety switch in off position
- ▶ Can be used as transverse section

Note:

- ▶ The length of the belt section (l_{BS}) is the passage width plus 500 mm
- ▶ The total required space of the LG 2/H is the passage width plus 535 mm

Accessories

Required accessories

- ▶ 1x BS 2 belt section, see p. 3-6, or conveyor unit
- ▶ 2x SZ 2 leg set, see p. 6-6
- ▶ 2x 4 45x60 strut profile, see p. 3-232
- ▶ 16x 45x45 bracket, see p. 3-232
- ▶ 2x foundation bracket, see p. 3-231 and 6-28

Recommended accessories

- ▶ PN kit, see p. 3-232

Delivery notes

Scope of delivery

- ▶ Mounting kit with gas pressure springs, attachment kit, locking and safety switch

Condition on delivery

- ▶ Not assembled

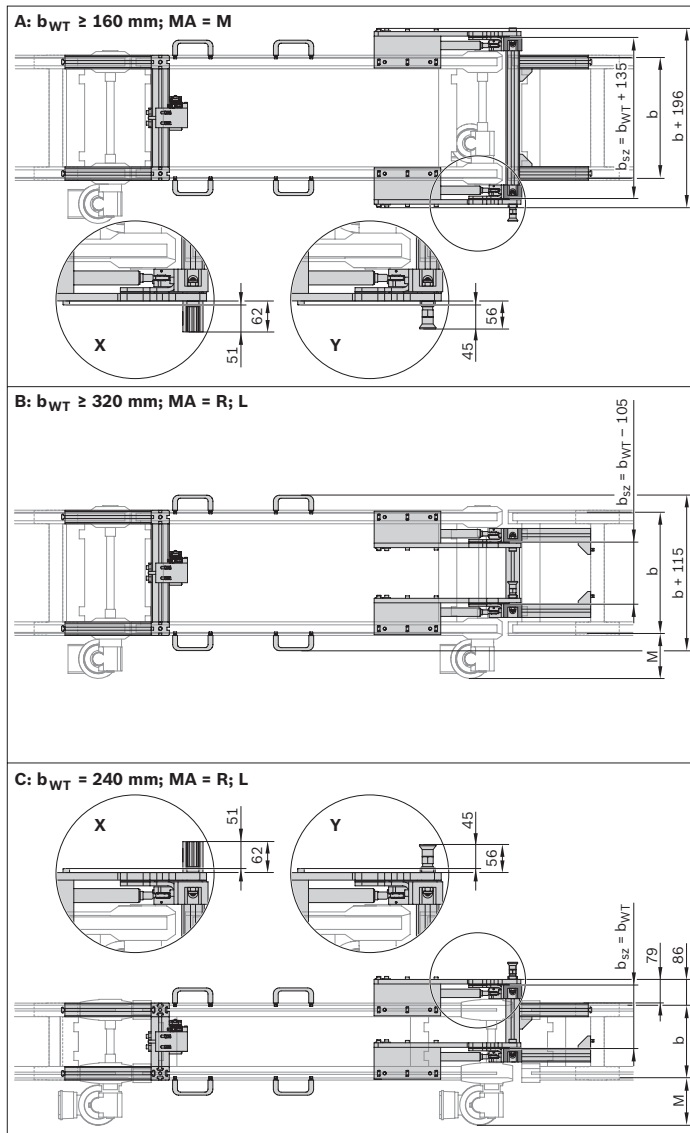


The LG 2/H lift gate provides access or passage to the inner spaces of a belt section (BS). Manually tilting the belt section can open it from 0° to 85° or close it from 85° to

0°. The effort required to do this is reduced with the aid of a gas pressure spring.

Overall width of the different lift gate assembly variants

Lift gate interfering contours



The following applies to the BS 2: When MA = M and b = 160 mm, the max. section load is only 30 kg

The total width results from the belt section width (b), the motor width (M) and other interfering contours (e.g., locking bolts for unlocking, etc.). The requirements for other interfering contours are specified in the dimension drawings on the left. In addition, the workpiece pallet width need not be taken into account.

Overall width/obtruding parts

Belt section	M (mm)
B BS 2	154.0
BS 2/C-100	158.5
BS 2/R-300	158.5
ST 2/C-H	158.5
ST 2/R-H	158.5
C BS 2	154.0
BS 2/C-100	158.5
BS 2/R-300	158.5
ST 2/C-H	158.5
ST 2/R-H	158.5

Passage width A

If both plates are mounted outside of the belt section, the minimum width of the workpiece pallet is $b_{WT} = 240$ mm.

Passage width B

If both plates are mounted in the center of the belt section, the minimum width of the workpiece pallet is $b_{WT} = 320$ mm.

For mounting a locking bolt (not included) or mounting the PN locking mechanism $b_{WT} = 320$ mm.

Passage width C

If one plate is mounted in outside or inside of the belt section, the minimum width of the workpiece pallet is $b_{WT} = 240$ mm.

Selection of the LG 2/H mounting kit for the belt section type

- ▶ 1. Select the appropriate table for your belt section type.
- ▶ 2. Determine the LG 2/H mounting kit reference number, which can be worked out from the workpiece pallet width b_{WT} and the feed width ($A = l_{BS} - 500$)

- ▶ 3. Use this reference number from the "LG 2/H mounting kit" table to identify the correct mounting kit (see p. 4)

Note:

- ▶ The length of the belt section (l_{BS}) is the passage width plus 500 mm
- ▶ The total required space of the LG 2/H is the passage width plus 535 mm

BS 2

Passage width A	Width of workpiece pallet b_{WT}									
	160	240	320	400	480	640	800	1040	1200	
600	1	1	1	1	1	1	1	1	1	1
700	1	1	1	1	1	1	1	1	1	1
800	1	1	1	1	1	1	1	1	1	1
900	1	1	1	1	1	1	1	1	1	1
1000	1	1	1	1	1	1	2	2	2	2
1100	1	1	1	1	1	2	2	2	2	2
1200	1	1	1	2	2	2	2	2	2	2
1300	2	2	2	2	2	2	2	2	2	2
1400	2	2	2	2	2	2	2	2	2	2
1500	2	2	2	2	2	2	2	2	2	2
1600	2	2	2	2	2	2	2	3	3	3
1700	2	2	2	2	2	3	3	3	3	3
1800	2	2	2	3	3	3	3	3	3	3

BS 2 C-100

Passage width A	Width of workpiece pallet b_{WT}									
	160	240	320	400	480	640	800	1040	1200	
600	x*	1	1	2	2	2	2	2	2	2
700	x*	2	2	2	2	2	2	2	2	2
800	x*	2	2	2	2	2	2	2	2	2
900	x*	2	2	2	2	2	3	3	3	3
1000	x*	2	2	2	3	3	3	3	3	3
1100	x*	3	3	3	3	3	3	3	3	3
1200	x*	3	3	3	3	3	3	3	3	3
1300	x*	3	3	3	3	3	4	4	4	4
1400	x*	3	3	3	4	4	4	5	5	5
1500	x*	4	4	4	4	5	5	5	5	5
1600	x*	4	4	4	5	5	5	5	5	5
1700	x*	5	5	5	5	5	5	5	5	5
1800	x*	5	5	5	5	5	6	6	6	6

x* Mounting not possible

BS 2 R-300 ks

Passage width A	Width of workpiece pallet b_{WT}									
	160	240	320	400	480	640	800	1040	1200	
600	x*	2	2	2	2	2	2	3	3	3
700	x*	2	2	2	2	2	3	3	3	3
800	x*	2	2	2	2	3	3	3	3	3
900	x*	2	2	2	3	3	3	3	3	3
1000	x*	3	3	3	3	3	3	4	4	4
1100	x*	3	3	3	3	3	4	4	4	4
1200	x*	3	3	3	3	4	4	5	5	5
1300	x*	4	4	4	4	4	5	5	5	5
1400	x*	4	4	4	4	5	5	5	5	5
1500	x*	4	4	5	5	5	5	5	5	5
1600	x*	5	5	5	5	5	5	6	6	6
1700	x*	5	5	5	5	6	6	6	6	6
1800	x*	5	6	6	6	6	6	6	6	6

x* Mounting not possible

BS 2 R-300 st

Passage width A	Width of workpiece pallet b_{WT}									
	160	240	320	400	480	640	800	1040	1200	
600	x*	2	2	2	2	2	3	3	3	3
700	x*	2	2	2	2	3	3	3	3	3
800	x*	3	3	3	3	3	3	3	3	3
900	x*	3	3	3	3	3	3	4	4	4
1000	x*	3	3	3	3	3	4	4	4	4
1100	x*	3	3	3	4	4	4	5	5	5
1200	x*	4	4	4	4	4	5	5	5	5
1300	x*	4	4	4	5	5	5	5	5	5
1400	x*	5	5	5	5	5	5	5	5	5
1500	x*	5	5	5	5	5	5	6	6	6
1600	x*	5	5	5	5	5	6	6	6	6
1700	x*	5	6	6	6	6	6	6	6	6
1800	x*	6	6	6	6	6	6	6	6	6

x* Mounting not possible

Conveyor unit

ST 2/C-H + AS 2/C-100 + UM 2/C-60

Passage width A	Width of workpiece pallet b_{WT}								
	160	240	320	400	480	640	800	1040	1200
600	x*	2	2	3	3	3	3	3	3
700	x*	3	3	3	3	3	3	3	4
800	x*	3	3	3	3	3	4	4	4
900	x*	3	3	3	4	4	4	4	4
1000	x*	4	4	4	4	4	5	5	5
1100	x*	4	4	5	5	5	5	5	5
1200	x*	5	5	5	5	5	5	5	5
1300	x*	5	5	5	5	5	5	5	6
1400	x*	5	5	5	5	6	6	6	6
1500	x*	5	6	6	6	6	6	6	6
1600	x*	6	6	6	6	6	6	6	7
1700	x*	6	6	6	6	7	7	7	7
1800	x*	6	6	6	6	7	7	7	7

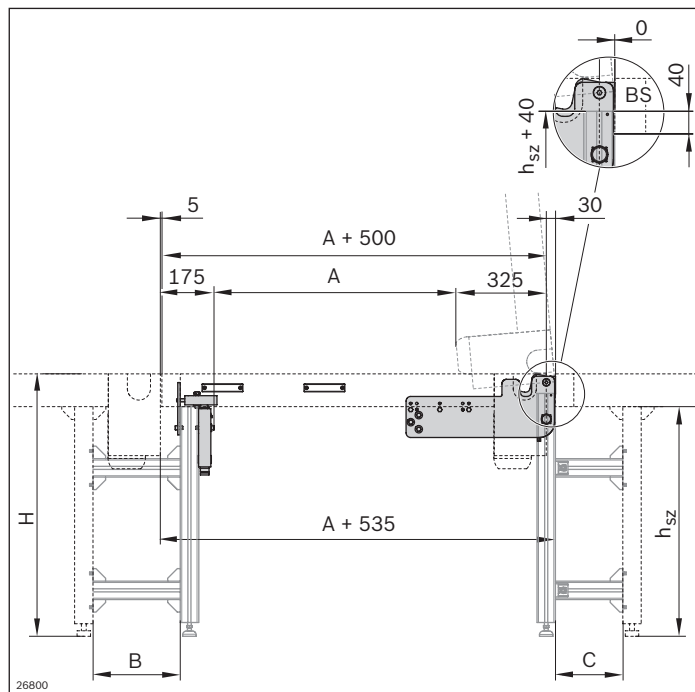
x* Mounting not possible

Conveyor unit

ST 2/R-H + AS 2/R-300 + UM 2/R-60 (st)

Passage width A	Width of workpiece pallet b_{WT}								
	160	240	320	400	480	640	800	1040	1200
600	x*	2	3	3	3	3	3	3	3
700	x*	3	3	3	3	3	3	4	4
800	x*	3	3	3	3	4	4	4	4
900	x*	3	3	4	4	4	4	4	4
1000	x*	4	4	4	4	5	5	5	5
1100	x*	4	5	5	5	5	5	5	5
1200	x*	5	5	5	5	5	5	5	5
1300	x*	5	5	5	5	5	5	6	6
1400	x*	5	5	5	6	6	6	6	6
1500	x*	6	6	6	6	6	6	6	6
1600	x*	6	6	6	6	6	6	7	7
1700	x*	6	6	6	7	7	7	7	7
1800	x*	6	6	6	7	7	7	7	7

x* Mounting not possible



LG 2/H mounting kit

- Determine the LG 2/H mounting kit reference number using the tables and the description “Selection of the LG 2/H mounting kit for the belt section type” on page 3-228f.

The reference number is also the mounting kit number. For example, if the reference number is 2, the mounting kit number is also 2.

Minimum length of the leg connection:

Minimum length B/C (mm)	Connection
145 ^{*)}	BS 2 return unit
175 ^{*)}	UM 2/C-60, UM 2/R-60
245	BS 2 drive
285	AS 2/C-100, AS 2/C-250, AS 2/R-300, AS 2/R-700, UM 2/C-170, UM 2/R-170
395	AS 2/C-400, AS 2/C-700, AS 2/R-1200, AS 2/R-220

^{*)} Optimal leg connection for ideal support: 220 mm

Recommended accessories:

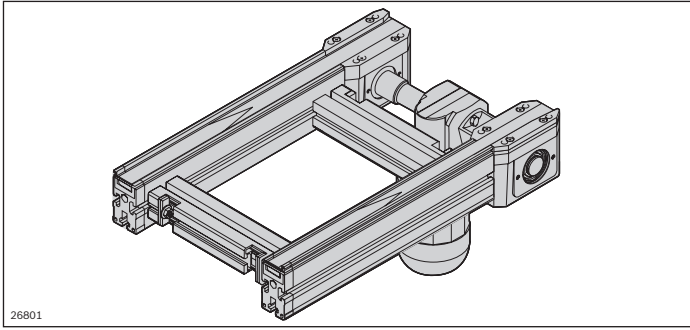
- PN kit for unlocking in the top end position, see p. 3-232

Required accessories:

- 1x BS 2 belt section, see p. 3-6, or conveyor unit
- 2x SZ 2 leg set, see p. 6-6
- 2x 4 45x60 strut profile, see p. 3-232
- 16x 45x45 bracket, see p. 3-232
- 2x foundation bracket, see p. 3-231

Ordering information

LG 2/H mounting kit	Packaging unit	Material number
1	1	3842549511
2	1	3842549512
3	1	3842549513
4	1	3842549514
5	1	3842549515
6	1	3842549516
7	1	3842549517

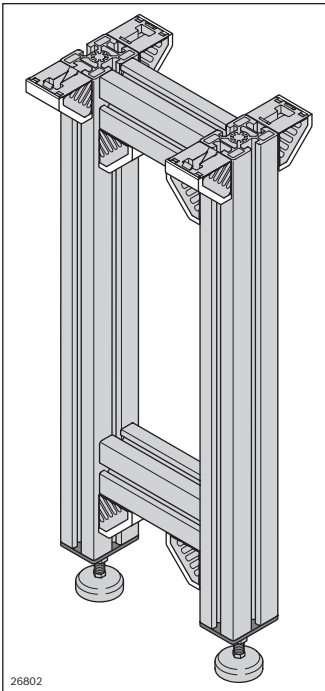


Belt section of $l = A + 500$

Select the length (l) of the belt section (BS).

$l = A + 500$ mm, according to the ambient system:

- ▶ BS 2, see p 3-6
- ▶ BS 2/C-100, see p. 3-55
- ▶ BS 2/R-300 plastic chain and steel chain, see p. 3-122
- ▶ Conveyor unit: ST 2/R-H (see p. 3-161), AS 2/R-300 (see p. 3-136), UM 2/R-60 (see p. 3-148)
- ▶ Conveyor unit: ST 2/C-H (see p. 3-91), AS 2/C-100 (see p. 3-68), UM 2/C-60 (see p. 3-80)



To construct a lift gate, you need:

- One SZ 2 leg set (3842996320) with AO = profile height of a BS 2
- One SZ 2 leg set with parameters, see table below:
 AO = 60 mm and leg set width b_{sz}

BS 2	SZ 2 ¹ leg sets	Material number
A $b \geq 160$, MA = M	$b_{sz}^3 = b^4 + 120$, AO ²⁾ = 60 mm	3842996320
B $b \geq 320$, MA = L; R	$b_{sz}^3 = b^4 - 120$, AO ²⁾ = 60 mm	3842996320
C $b = 240$ MA = L; R	$b = b^4$ AO ²⁾ = 60 mm	3842996320

¹⁾ See also p. 6-7
²⁾ AO = installation location
³⁾ b_{sz} = width b for leg
⁴⁾ b = width of belt section

See also p. 3-227:

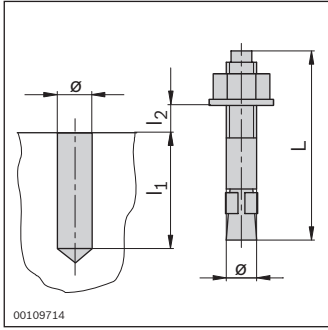
For **A**: If both plates are mounted outside of the belt section
 For **B**: If both plates are mounted in the middle of the belt section
 For **C**: If one plate is mounted outside or inside the belt section



Ordering information

Product designation	Packaging unit	Material number
Foundation bracket	20	3842146848

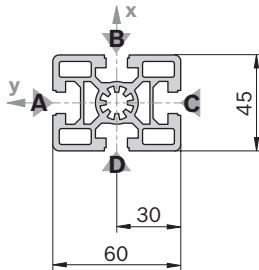
See also p. 6-28



00109714

45x60

A = 11,0 cm²
 I_x = 37,2 cm⁴
 I_y = 22,7 cm⁴
 W_x = 12,4 cm³
 W_y = 10,1 cm³
 m = 3,0 kg/m



19433

Ordering information

Product designation	Packaging unit	Material number
Floor dowel	100	3842526560

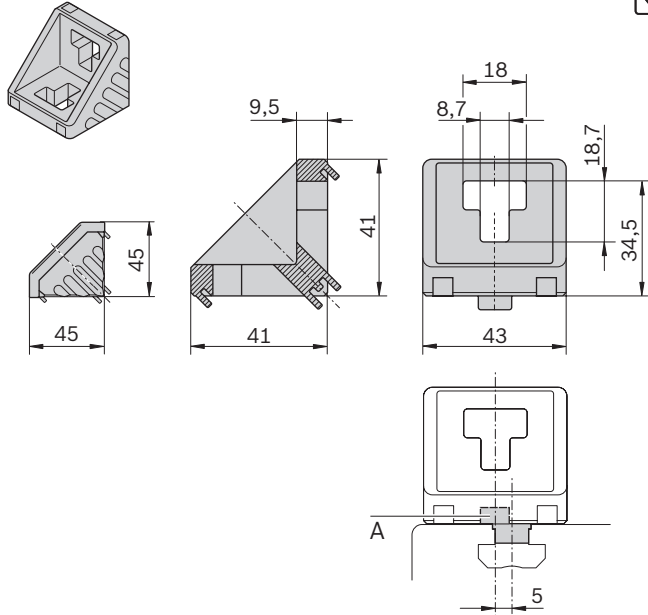
See also p. 6-30

Ordering information

Material number	3842990570
l (mm)	15 ... 5600
Packaging unit	1

Note: Determine the required length/number of strut profiles up to the next leg set according to your needs.

45/45



00109431

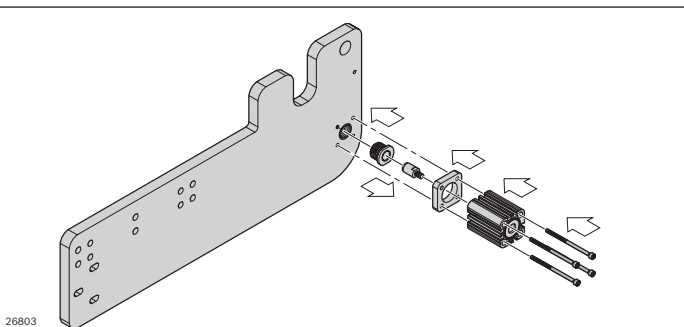
Ordering information

Product designation	Packaging unit	Material number
45/45 bracket set	1	3842523561

Scope of delivery: Incl. fastening material

Technical data

Material number	3842523561
Features	
ESD	Yes
Dimensions	
Groove	10/10



26803

Ordering information

Product designation	Packaging unit	Material number
PN kit	1	3842549509

Safety switch

- ▶ Connection of safety switch: 10-pin socket, cable with plug not included
- ▶ Activator locking type: inserted

Technical data

Features

Safety switch	STA3A-2131A024L024BHA10C2090
IP rating	IP 65
Material specification	Housing: Die-cast aluminum alloy

Additional information

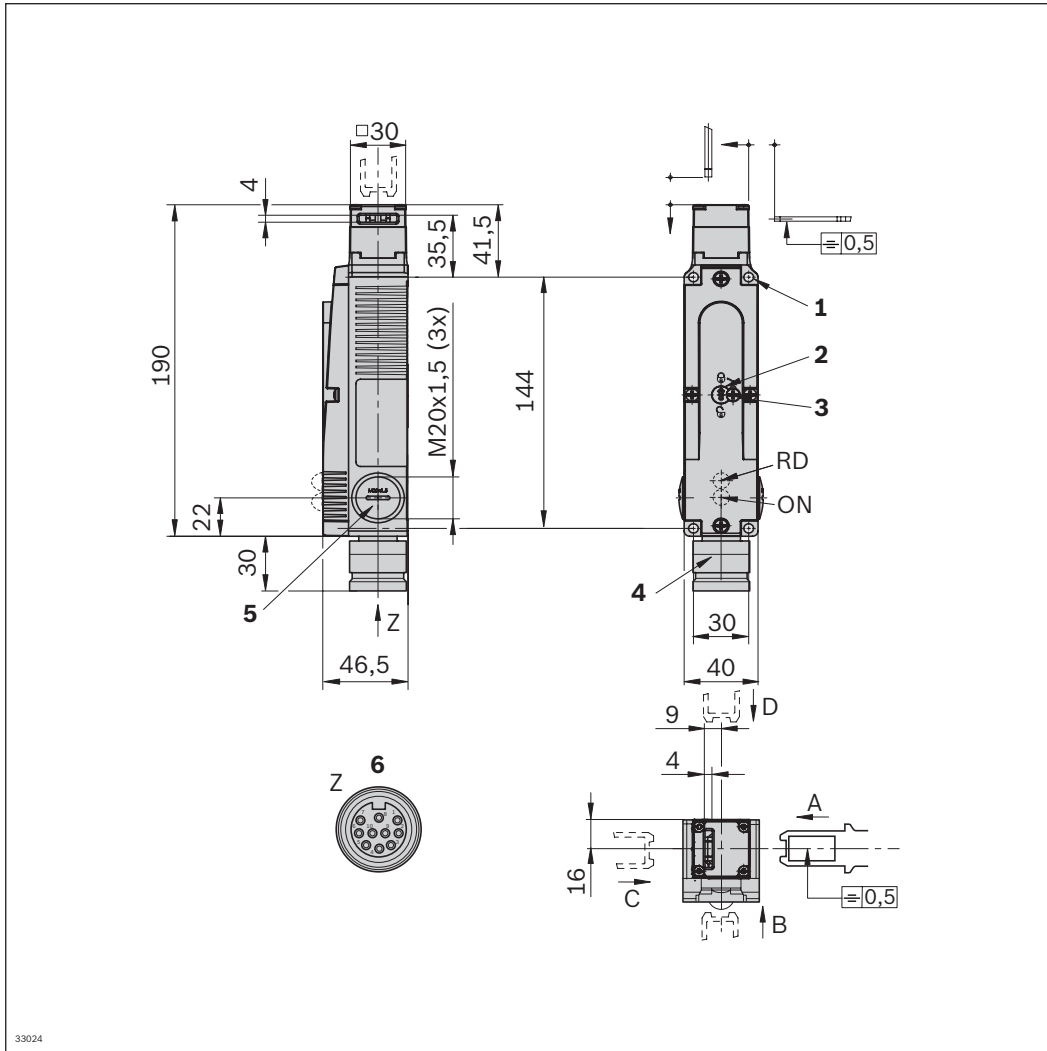
Actuation/extraction/retention force	N	35; 30; 20
Max. closing force	N	3000
Closing force F _{zh} as per testing principle GS-ET-19	N	2300
Actuation frequency	1/h	1200
Switching functions [*]		1 Mechanically locked. 2 Unlocked by applying a voltage. 3 Opened when the activator is pulled.

Additional information

Solenoid operating voltage	10%	AC/DC V	24
Operating time	ED	%	100
Connection power		W	8
Connection type			BHA10 integrated plug (9-pin + PE)
Approvals			CE, UL, CCC

^{*} See also "Switching function" on page 3-235

Dimensions



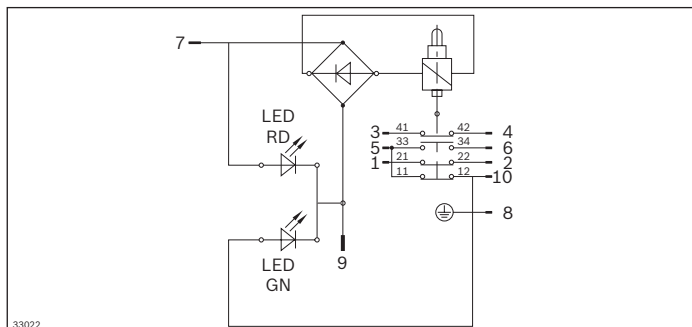
Note on direction of actuation:

After undoing the fastening screws, you can switch the fastening knob to the desired direction of approach.

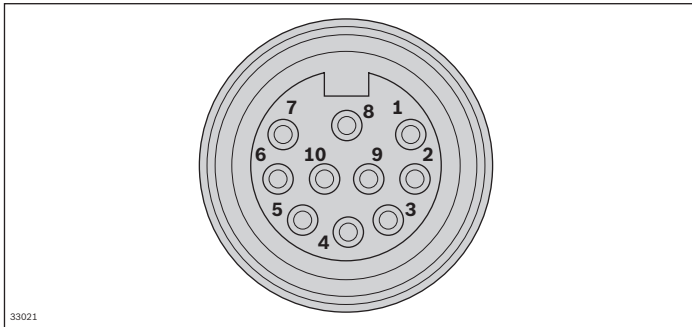
- 1 d = 5.3 (4x) for M5x35 mm ISO 1207/100 47
- 2 Auxiliary release
- 3 Locking screw

- 4 Integrated plug
- 5 M20x1.5 screw plug (2x)
- 6 BHA10 integrated plug, not aligned

Circuit diagrams

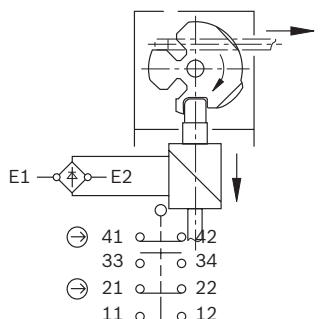
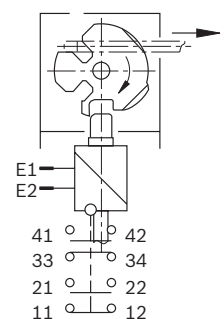
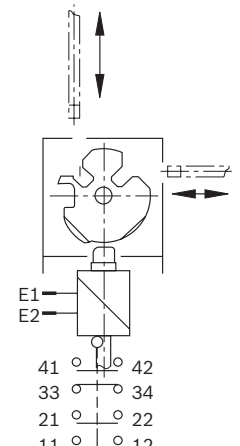


Plug assignment; MR10 socket plug, 10-pin



- | | |
|---------|---------|
| 1 OG | 6 OG/BK |
| 2 BU | 7 RD |
| 3 WH/BK | 8 GN/YE |
| 4 RD/BK | 9 BK |
| 5 GN/BL | 10 WH |


Switching function

Activator	Inserted	Inserted	Pulled																								
Switch position	Locked	Unlocked	Open																								
762	1	2	3																								
																											
Contact element 3NC* + 1NO	<table border="0"> <tr><td>⊖ 41</td><td>42</td></tr> <tr><td>33</td><td>34</td></tr> <tr><td>⊖ 21</td><td>22</td></tr> <tr><td>11</td><td>12</td></tr> </table>	⊖ 41	42	33	34	⊖ 21	22	11	12	<table border="0"> <tr><td>41</td><td>42</td></tr> <tr><td>33</td><td>34</td></tr> <tr><td>21</td><td>22</td></tr> <tr><td>11</td><td>12</td></tr> </table>	41	42	33	34	21	22	11	12	<table border="0"> <tr><td>41</td><td>42</td></tr> <tr><td>33</td><td>34</td></tr> <tr><td>21</td><td>22</td></tr> <tr><td>11</td><td>12</td></tr> </table>	41	42	33	34	21	22	11	12
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41	42																										
33	34																										
21	22																										
11	12																										

* 2x positively driven NC contacts + 1x delayed NC contact as a door monitoring contact

Connection kits for longitudinal conveyors

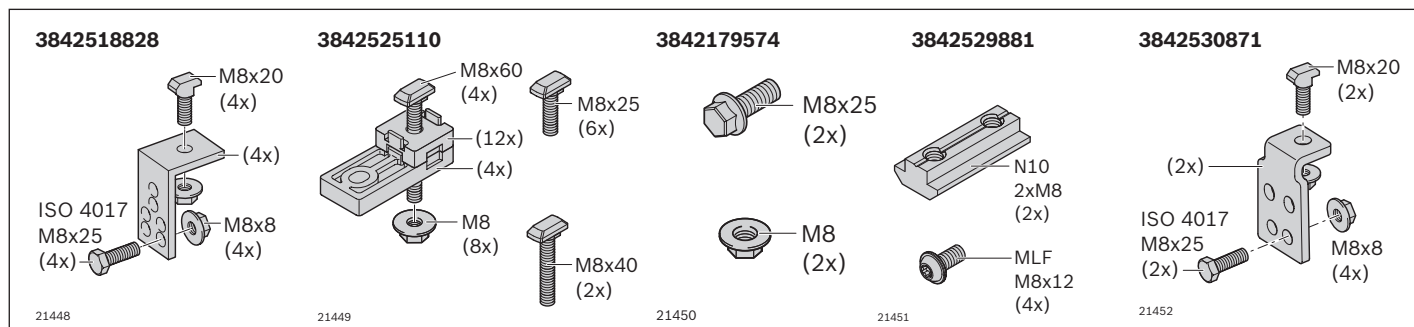
Use: For connecting the TS 2plus modules on a longitudinal conveyor at the ends (end-to-end)

	Return unit (return side)						
	UM 2/B	UM 2/C-60 UM 2/C-170 UM 2/R-60 UM 2/R-170	BS 2	BS 2/C BS 2/C-H BS 2/R BS 2/R-H	KE 2	KU 2	CU 2
Drive (drive side)							
AS 2/B-150, AS 2/-250	3842179574 ¹	3842530871	3842518828	3842530871	3842518828	3842530871	3842518828
AS 2/C-100, AS 2/C-250, KU 2/90, KU 2/180	3842530871	3842529881	3842525110	3842179574 -or- 3842529881	- ²	3842179574 -or- 3842529881	3842525110
AS 2/C-400, AS 2/C-700	3842179574 ¹	3842530871	3842518828	3842530871	- ²	3842530871	3842518828
AS 2/R-300, AS 2/R-700	3842530871	3842529881	3842525110	3842179574 -or- 3842529881	- ²	3842179574 -or- 3842529881	3842525110
AS 2/R-1200, AS 2/R-2200	3842179574 ¹	3842530871	3842518828	3842530871	- ²	3842530871	3842518828
BS 2	3842518828	3842525110	3842525110	3842525110	3842525110 ³	3842525110	3842525110
BS 2/C BS 2/R	3842530871	3842529881	3842525110	3842179574 -or- 3842529881	- ²	3842179574 -or- 3842529881	3842525110
BS 2/C-H BS 2/R-H	3842179574 ¹	3842530871	3842518828	3842530871	- ²	3842530871	3842518828
KE 2/90 KE 2/180	3842518828	- ²	3842525110	- ²	3842525110 ³	- ²	3842525110

¹ Included with UM 2/B

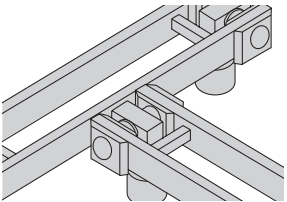
² Connection not permitted

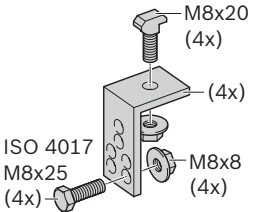
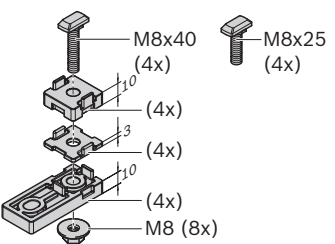
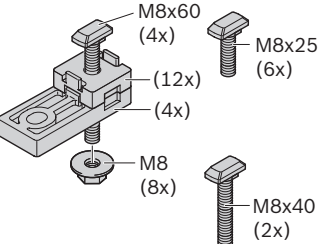
³ Included with KE 2

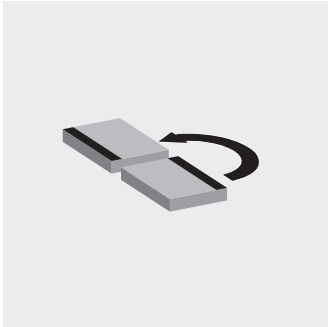


Connection kits for transverse conveyors

Use: For connecting the TS 2plus module on a transverse conveyor laterally (end-to-section), the following are additionally required: Lift transverse unit

	Longitudinal conveyor ST 2/B SP 2/B ST 2/B-100 ST 2/C-100 ST 2/R-100	ST 2/C-H ST 2/R-H ST 2/R-V
Transverse conveyor		
AS 2/B-150, AS 2/B-250	3842518828	-
AS 2/C-100, AS 2/C-250	3842528192	3842528192
AS 2/C-400, AS 2/C-700	3842518828	3842518828
AS 2/R-300, AS 2/R-700	3842528 192	3842528192
AS 2/R-1200, AS 2/R-2200	3842518828	3842518828
UM 2/B	3842518828	-
UM 2/C-60, UM 2/C-170, UM 2/R-60, UM 2/R-170,	3842528192	3842528192
BS 2	3842525110	-
BS 2/C (drive side and return side) BS 2/R (drive side and return side)	3842528192	3842528192
BS 2/C-H (drive side) BS 2/R-H (drive side)	3842518828	3842518828
BS 2/C-H (return side) BS 2/R-H (return side)	3842528192	3842528192
KU 2 (drive side and return side)	3842528192	3842528192

<p>3842518828</p>  <p>21448</p>	<p>3842528192</p>  <p>21453</p>	<p>3842525110</p>  <p>21449</p>
---------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------



Curves

Selection of curves



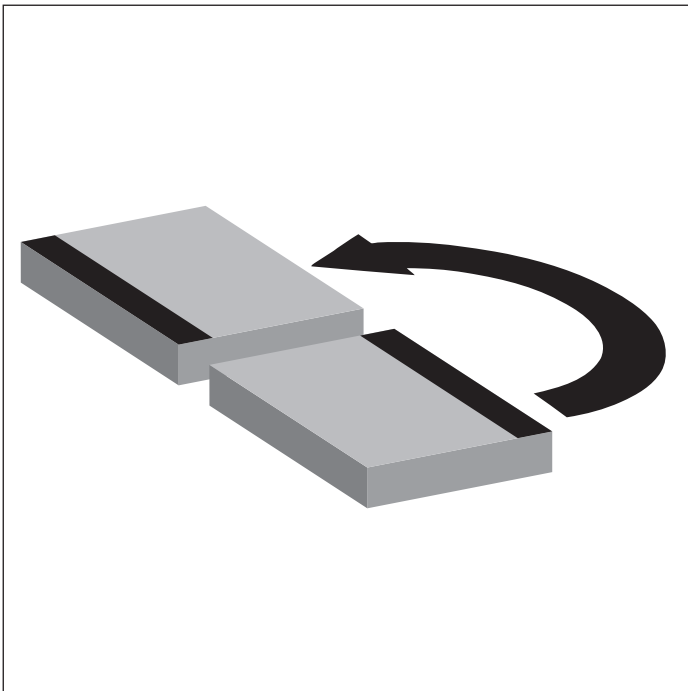
Selection of curves

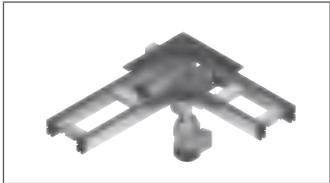
Curves

Curves are used to change the direction of a workpiece pallet and to keep the orientation of the parts traveling (the front is always the front). The pneumatic and electrical installation and control effort for these modular units is minimal.

Connection kits

They are used for connecting curves and curve arcs.





Curves

4-4



Connection kits for longitudinal conveyor

4-40

4

Curves

The following products are available for configuration for the curves:



CU 2/90 curve

Used with the toothed belt conveyor medium (suitable for use in an EPA) without additional drive.

KE curves

Used with the round belt conveyor medium in KE 2/90 and KE 2/180 versions with and without a built-in drive. Can be used for combining the longitudinal section with belts or toothed belts.

KU curves

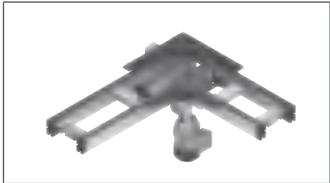
Used with the flat top chain conveyor medium in KU 2/90 and KU 2/180 versions with and without a built-in drive and conveyor medium.

KU curve arc

The construction principle of KU 2/0--90 and KU 2/0-180 curves with the flat top chain conveyor medium allows smooth integration into longer conveyor units driven by a single drive.

Note:

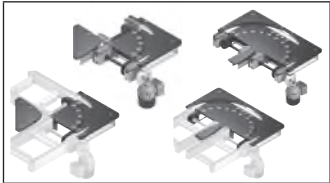
- ▶ For higher drive loads with integration of sections and curves, please consider the layout design
- ▶ The use of an automatic lubrication unit for curves with flat top chains is highly recommended



CU 2/90 curve



4-6

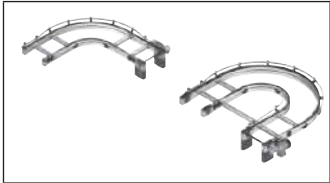


KE 2/..., KE 2/O-... curves



4-9

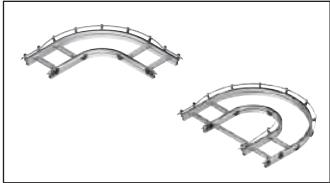
4



KU 2/... curves



4-24



KU 2/O-...curve arcs



4-32

CU 2/90 curve



- ▶ 90° curve conveying of the workpiece pallet
- ▶ With no additional drive for the curve function
- ▶ Max. total workpiece pallet weight = 10 kg
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Curve in anti-static version
- ▶ Can be combined with WT 2 and WT 2/F

Note: Accumulation operation not permitted in the curve.

The drive for CU 2/90 curves with the toothed belt conveyor medium is provided by the belt section.

Accessories

Recommended accessories

- ▶ SZ 2 leg sets/..., see p. 6-2
- ▶ Accumulation pressure control, e.g., with WI/M rocker, see p. 8-133

Delivery notes

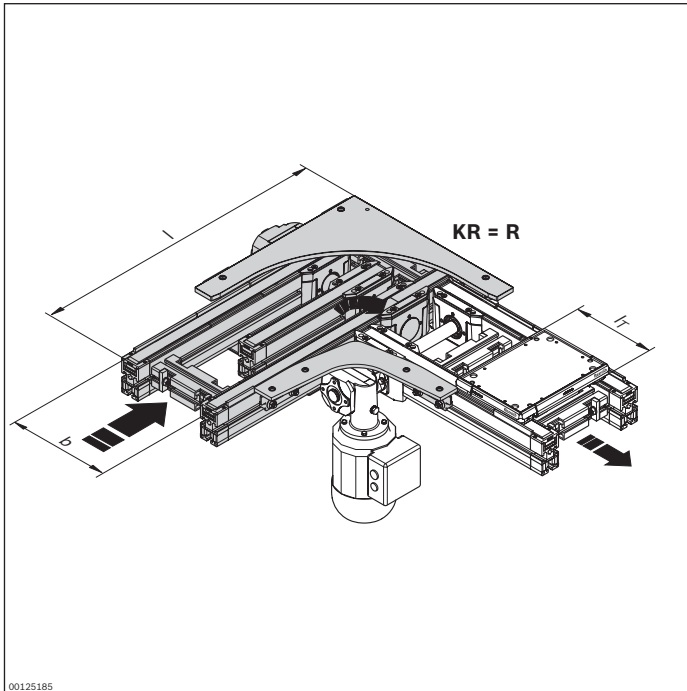
Scope of delivery

- ▶ Belt section
- ▶ Inner guide
- ▶ Outer guide
- ▶ Fastening material
- ▶ Connection kit 3842538259

Condition on delivery

- ▶ Partially assembled

Ordering information



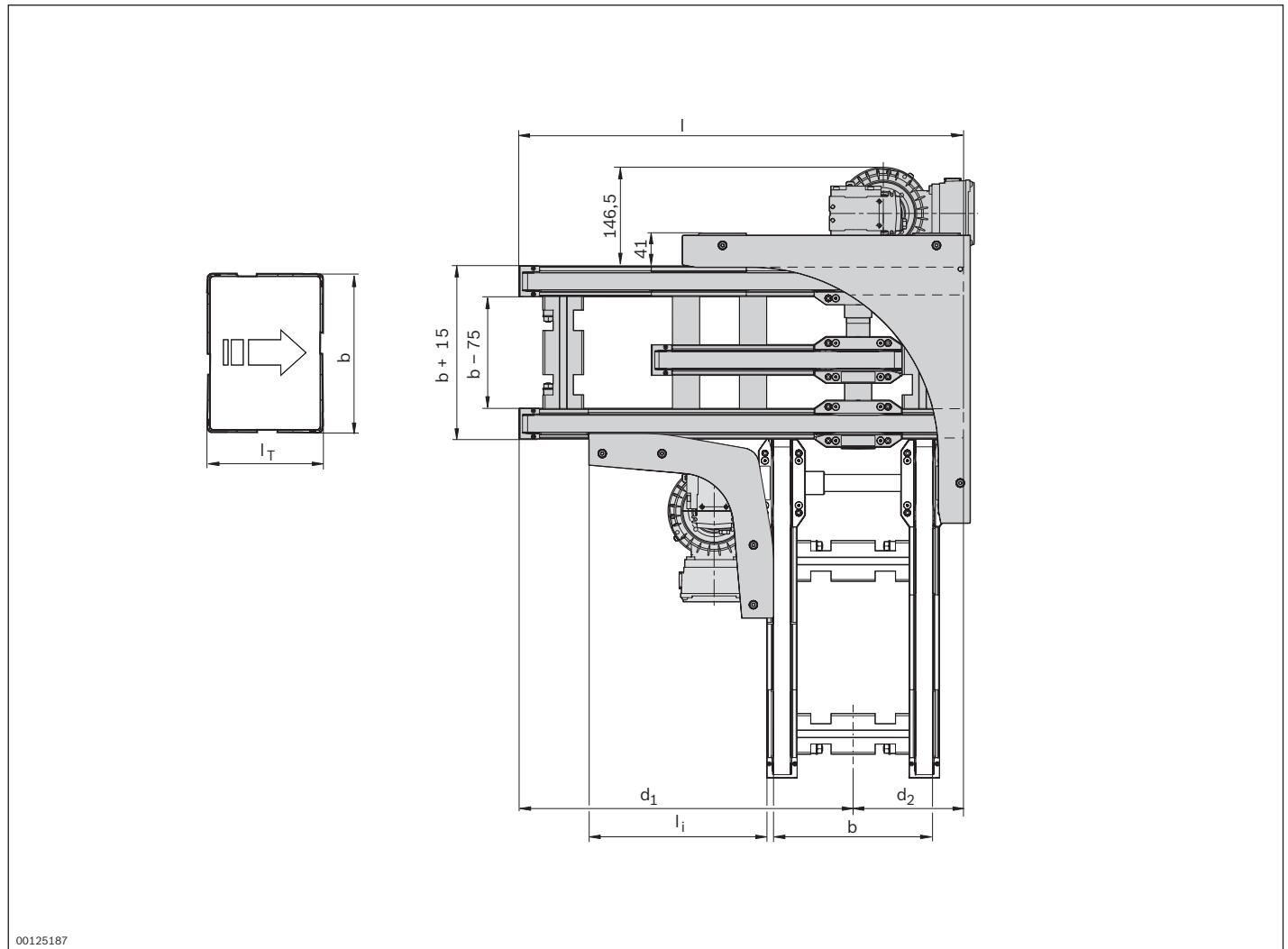
Material number	3842998288	
b (mm)	Track width in direction of transport	240; 320
l _T (mm)	Length in direction of transport	240; 320; 400
l (mm)	Length	721 ... 6000
w x l _d x l (mm x mm x mm)	Combination options	240 x 240 x 721 ... 6000 240 x 320 x 801 ... 6000 320 x 320 x 881 ... 6000 320 x 400 x 961 ... 6000
v _N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
KR	Curve direction R = right L = left	R; L

4

Technical data

Material number	3842998288	
Load		
Max. section load in accumulation operation before the curve	kg	60
Max. total workpiece pallet weight	m _G kg	10
Features		
ESD		Yes

Dimensions



00125187

$$d_2 = (b_T - 75) / 2 + 85$$

$$d_1 = L - d_2$$

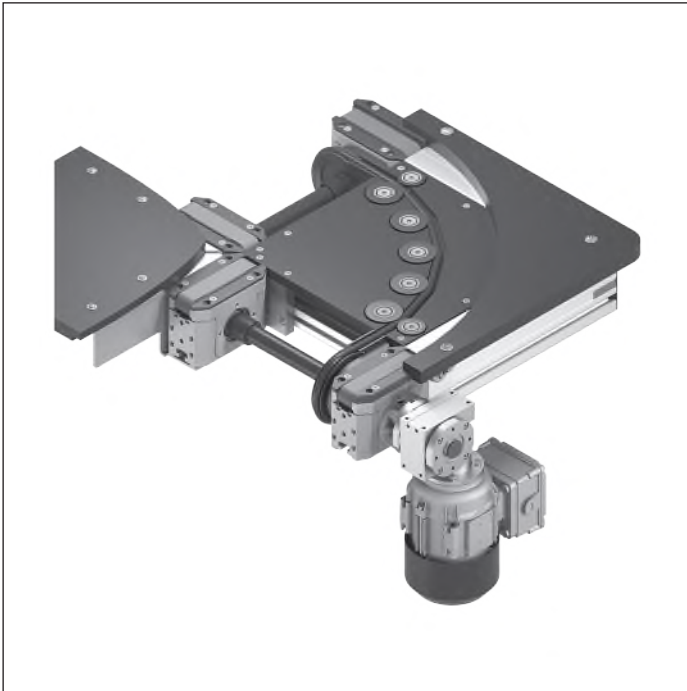
$$L = d_1 + d_2 = d_1 + (b_T - 75) / 2 + 85$$

b Track width in direction of transport

l_T Length in conveyor direction

Track width in direction of transport b (mm)	Length in direction of transport l_T (mm)	Length l (mm)	Dimension d_1 (mm)	Dimension d_2 (mm)	Dimension l_i (mm)
240	240	721 ... 6000	553.5 ... 5832.5	167.5	270.5
240	320	801 ... 6000	633.5 ... 5832.5	167.5	285.5
320	320	881 ... 6000	673.5 ... 5792.5	207.5	285.5
320	400	961 ... 6000	753.5 ... 5792.5	207.5	350.5

KE 2/90 curve



- ▶ 90° curve conveying of the workpiece pallet
- ▶ Max. total workpiece pallet weight = 20 kg
- ▶ Conveyor medium: Round belt (suitable for use in an EPA)
- ▶ Intended for grease-free and oil-free environments
- ▶ Can be combined with WT 2 and WT 2/F

Note: Accumulation operation not permitted.

The KE 2 curves with round belt conveyor medium have a built-in drive at the curve end. They can be used to

combine the longitudinal section with belts or toothed belts.

Accessories

Recommended accessories

- ▶ Connection kits, see p. 4-40
- ▶ SZ 2 leg sets/..., see p. 6-2

Delivery notes

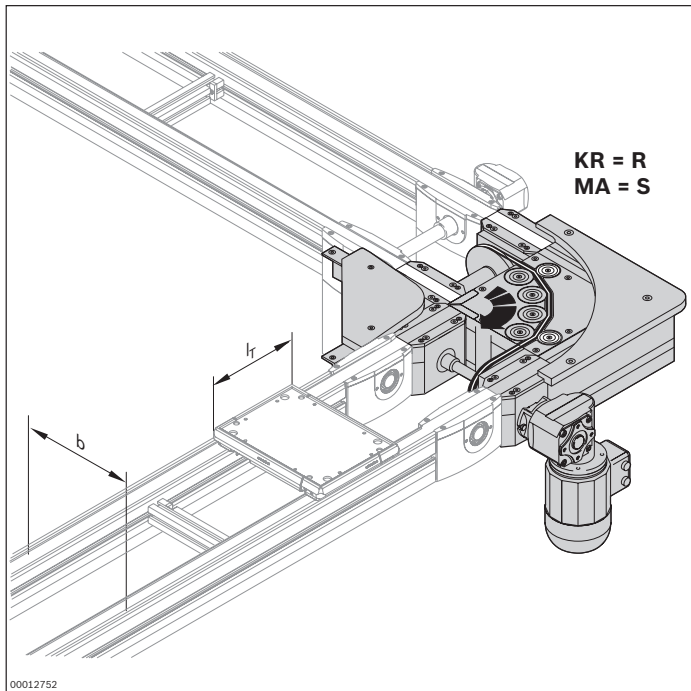
Scope of delivery

- ▶ Curve; complete with drive motor

Condition on delivery

- ▶ Partially assembled
- ▶ Inner guide and motor included

Ordering information



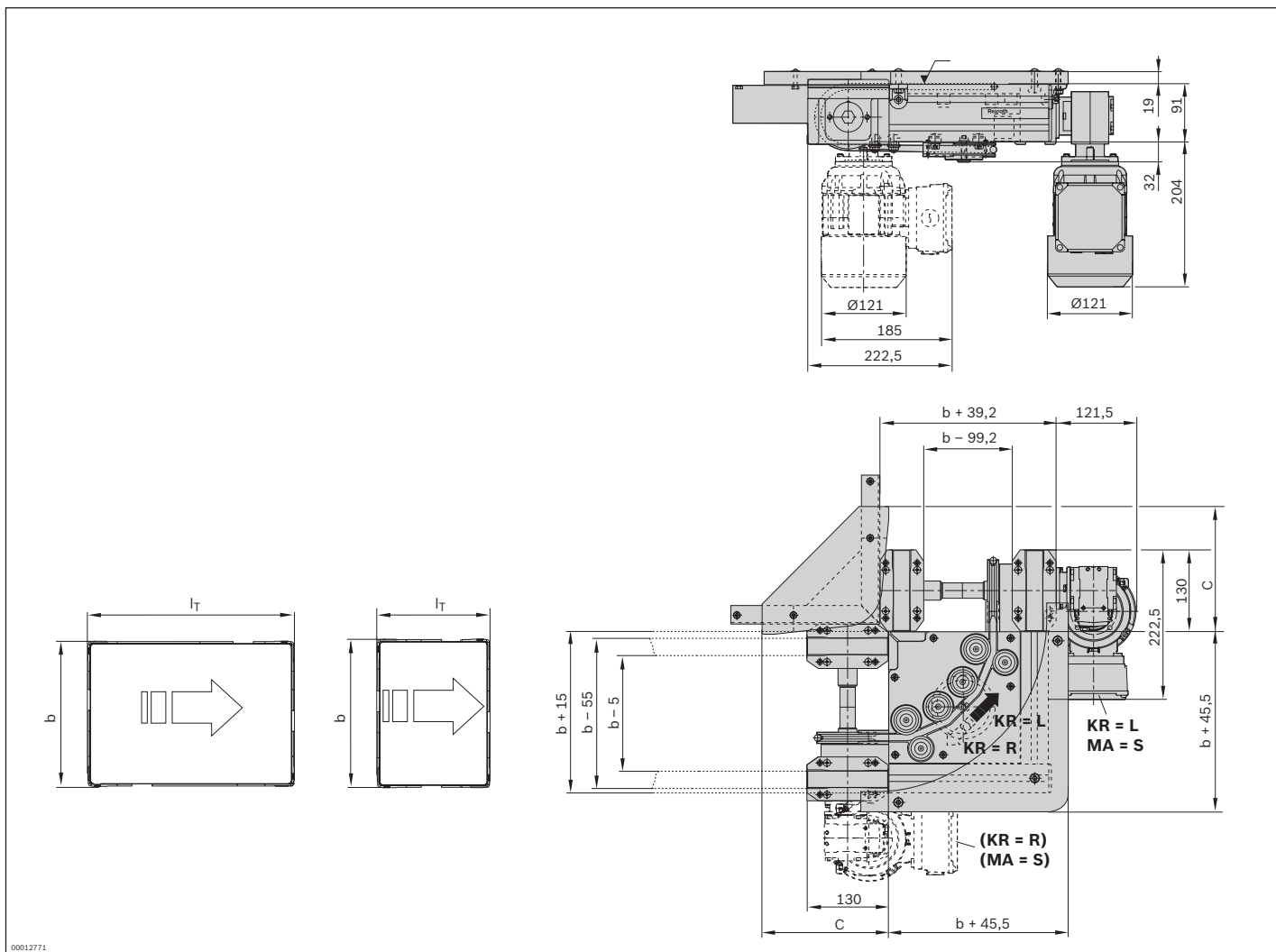
Material number		3842999727
b (mm)	Track width in direction of transport	160; 240; 320; 400
l_T (mm)	Length in direction of transport	160; 240; 320; 400
$w \times l_T$ (mm x mm)	Combination options	160 x 160; 240 x 160; 240; 320; 320 x 240; 320; 400; 400 x 320; 400
v_N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting M = center ¹⁾ S = side	M; S
KR	Curve direction R = right L = left	R; L

¹⁾ MA = M only when $b \geq 320$ mm

Technical data

Material number		3842999727
Load		
Max. total workpiece pallet weight	m_G	kg 20
Features		
ESD		Yes

Dimensions

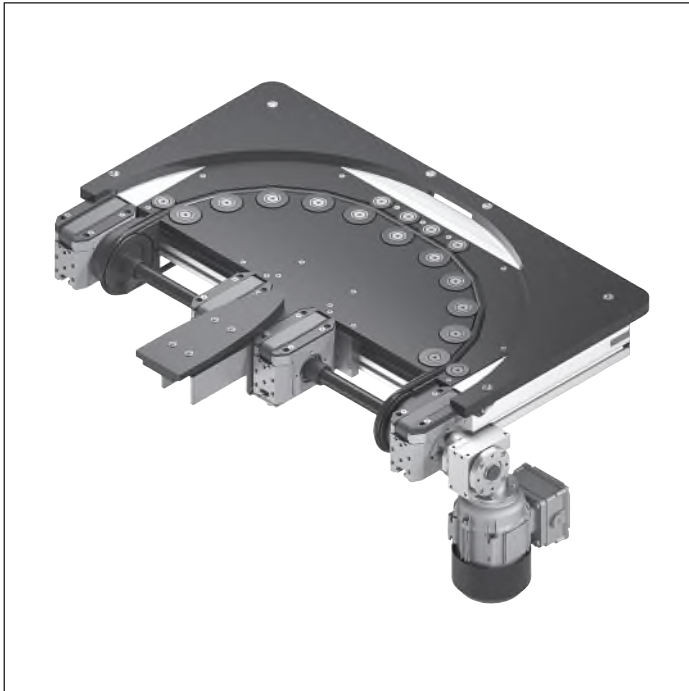


b Track width in direction of transport

l_T Length in conveyor direction

Track width in direction of transport b (mm)	Length in direction of transport l_T (mm)	Dimension C (mm)
160	160	170
160	240	225
240	160	200
240	240	200
240	320	200
320	240	290
320	320	290
320	400	290
400	320	355
400	400	355

KE 2/180 curve



- ▶ 180° curve conveying of the workpiece pallet
- ▶ Curve module with built-in drive
- ▶ Max. total workpiece pallet weight = 20 kg
- ▶ Conveyor medium: Round belt (suitable for use in an EPA)
- ▶ Intended for grease-free and oil-free environments
- ▶ Can be combined with WT 2 and WT 2/F

Note: Accumulation operation not permitted.

The KE 2 curves with round belt conveyor medium have a built-in drive at the curve end. They can be used to

combine the longitudinal section with belts or toothed belts.

Accessories

Recommended accessories

- ▶ Connection kits, see p. 4-40
- ▶ SZ 2 leg sets/..., see p. 6-2

Delivery notes

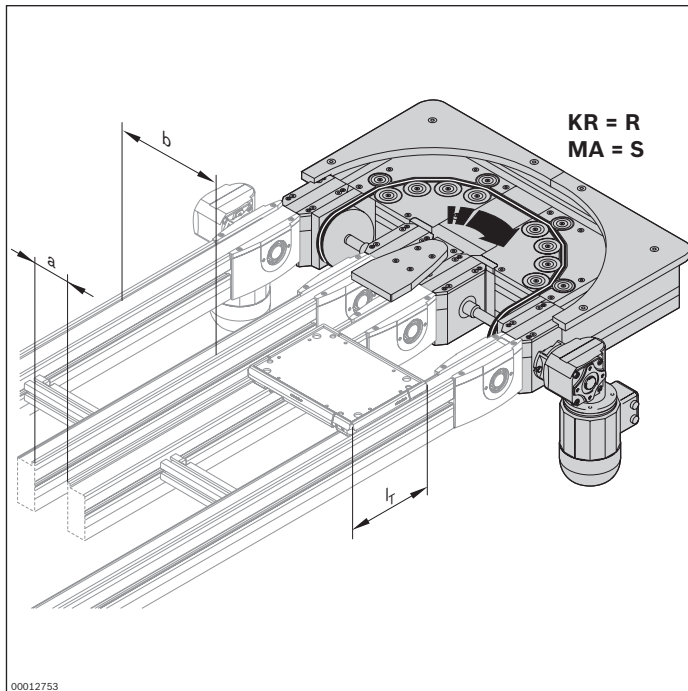
Scope of delivery

- ▶ Curve; complete with drive motor

Condition on delivery

- ▶ Partially assembled
- ▶ Inner guide and motor included

Ordering information



Material number		3842999728
b (mm)	Track width in direction of transport	160; 240; 320; 400
l _T (mm)	Length in direction of transport	160; 240; 320; 400
a (mm)	Distance between conveyors ¹	90; 135
w x l _d (mm x mm)	Combination options	b x l _T 160 x 160; 240 240 x 160; 240; 320 320 x 240; 320; 400 400 x 320; 400
v _N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting M = center ²⁾ S = on the outside, on the side	M; S
KR	Curve direction R = right L = left	R; L

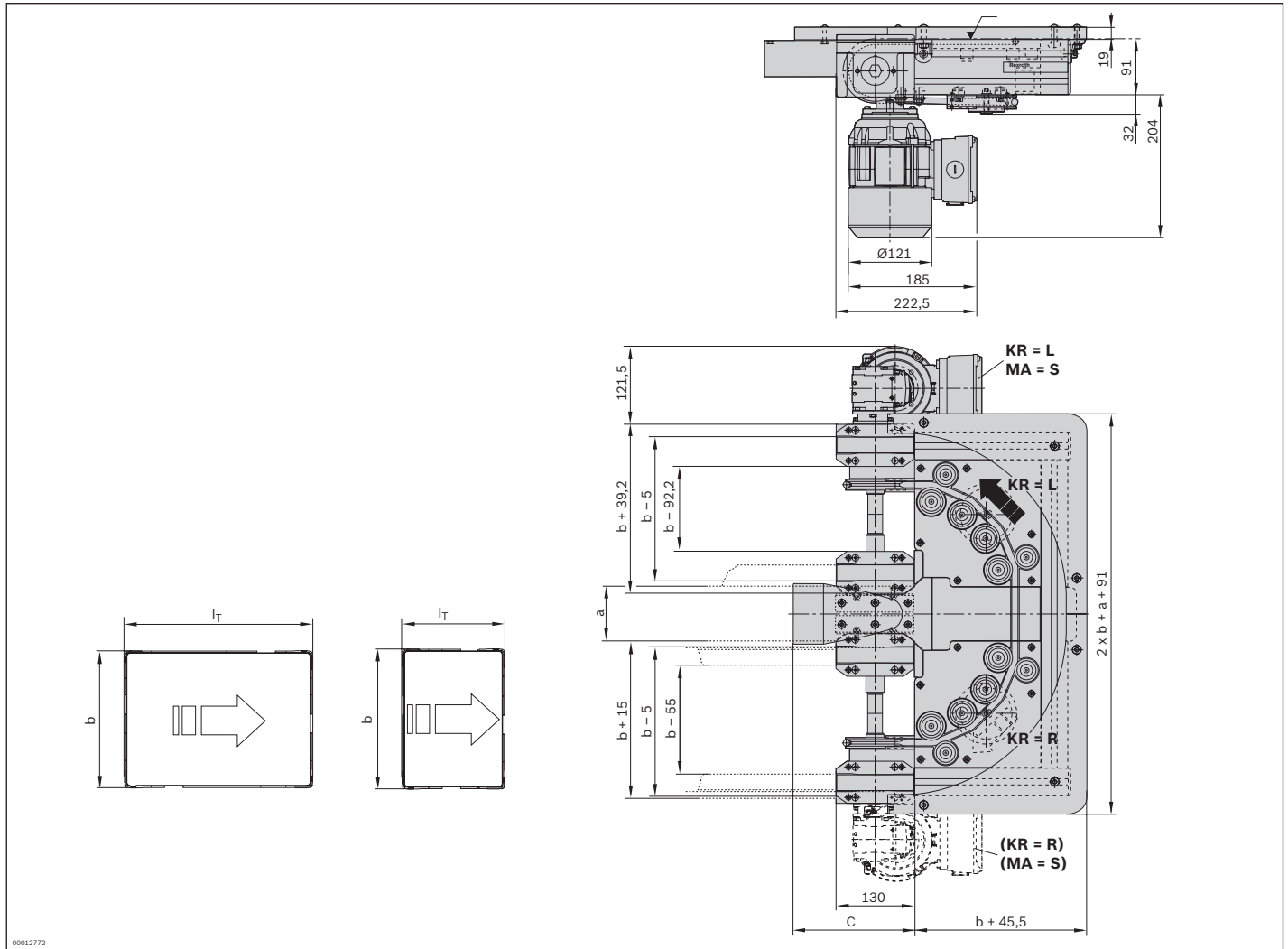
¹⁾ w x l_d is possible in all combinations

²⁾ MA = M only when b ≥ 320 mm

Technical data

Material number		3842999728
Load		
Max. total workpiece pallet weight	m _G	kg 20
Features		
ESD		Yes

Dimensions

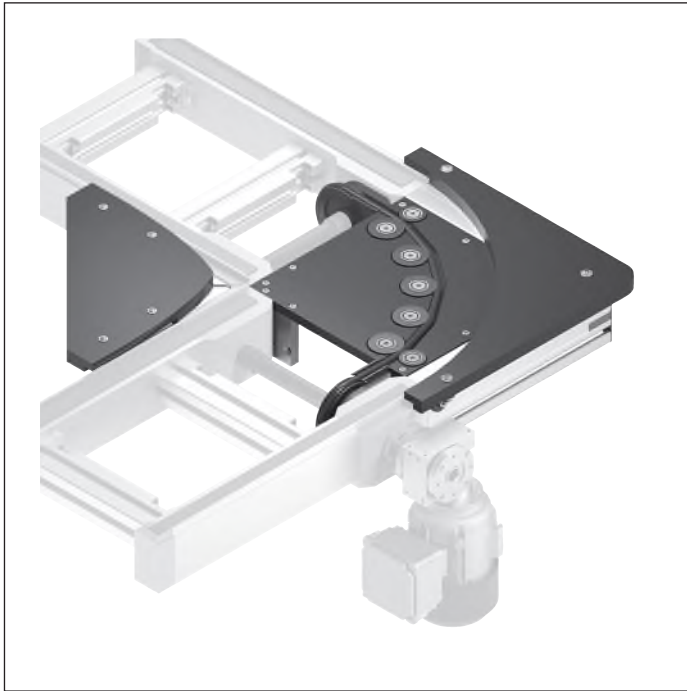


b Track width in direction of transport

l_T Length in conveyor direction

Track width in direction of transport b (mm)	Length in direction of transport l_T (mm)	Dimension C (mm)	Distance between conveyors a (mm)
160	160	170	90; 135
160	240	170	90; 135
240	160	200	90; 135
240	240	200	90; 135
240	320	200	90; 135
320	240	290	90; 135
320	320	290	90; 135
320	400	290	90; 135
400	320	355	90; 135
400	400	355	90; 135

KE 2/O-90 curve



- ▶ 90° curve conveying of the workpiece pallet
- ▶ Suitable for combination with BS 2/K
- ▶ Curve without built-in drive
- ▶ Max. total workpiece pallet weight = 20 kg
- ▶ Conveyor medium: Round belt (suitable for use in an EPA)
- ▶ Can be combined with WT 2 and WT 2/F

Note:

- ▶ Accumulation operation not permitted
- ▶ Drive by subsequent BS 2/K belt section (pulling operation)

In the KE 2/O curves with round belt conveyor medium, the drive is effected by the BS 2/K belt section in the infeed and outfeed sections.

Accessories

Required accessories

- ▶ 2x BS 2/K belt section, see p. 4-21

Delivery notes

Scope of delivery

- ▶ Curve, complete with mounting hardware

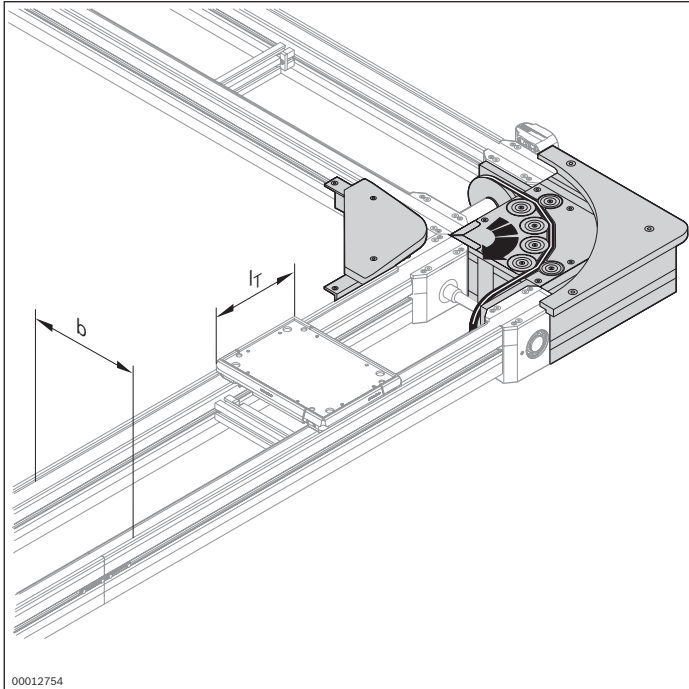
Recommended accessories

- ▶ SZ 2 leg sets/..., see p. 6-2

Condition on delivery

- ▶ Partially assembled
- ▶ Inner guide included

Ordering information

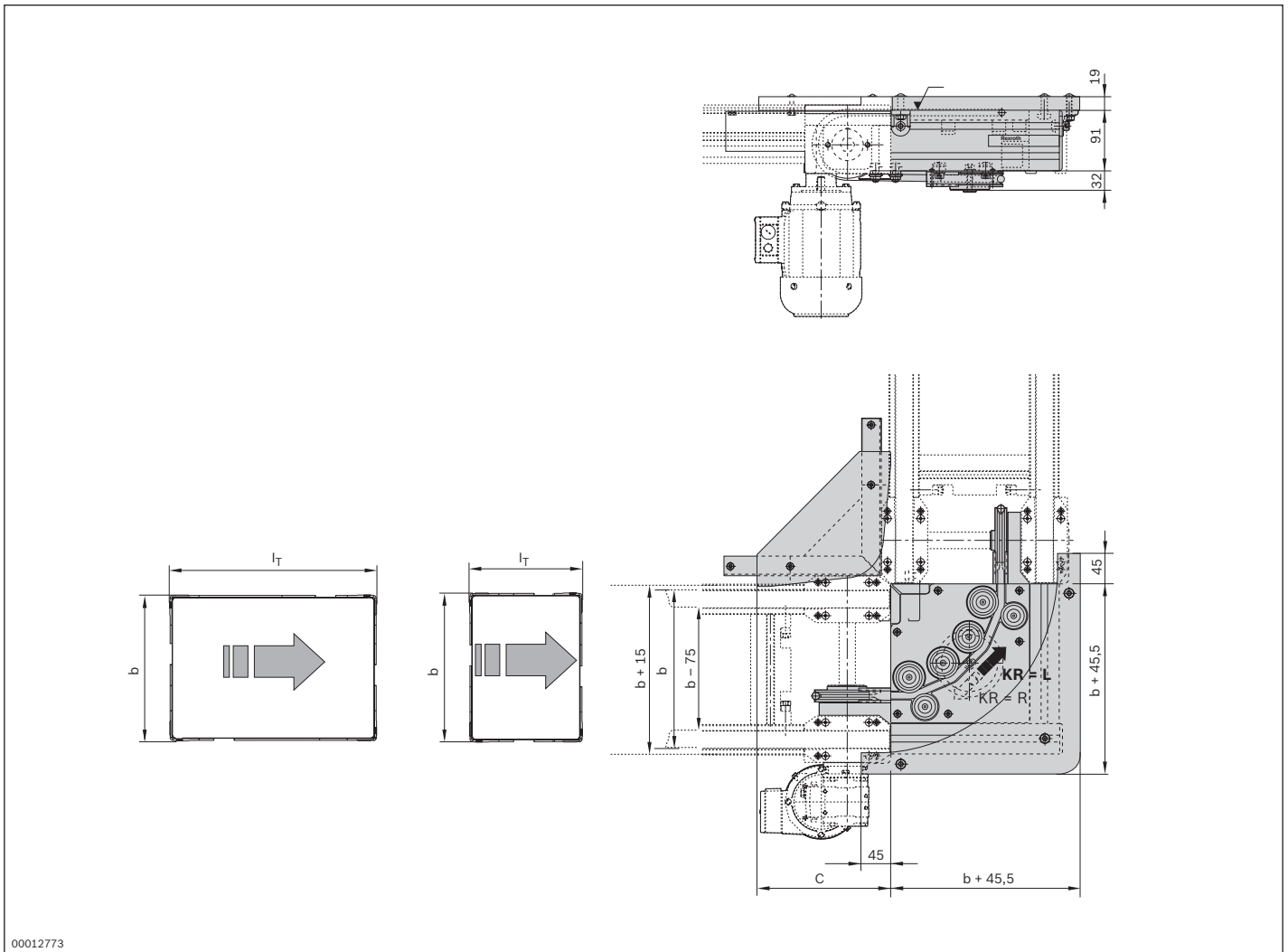


Material number		3842999725
b (mm)	Track width in direction of transport	160; 240; 320; 400
l _T (mm)	Length in direction of transport	160; 240; 320; 400
w x l _T (mm x mm)	Combination options	160 x 160; 240 240 x 160; 240; 320 320 x 240; 320; 400 400 x 320; 400

Technical data

Material number		3842999725
Load		
Max. total workpiece pallet weight	m _G	kg 20
Features		
ESD		Yes

Dimensions



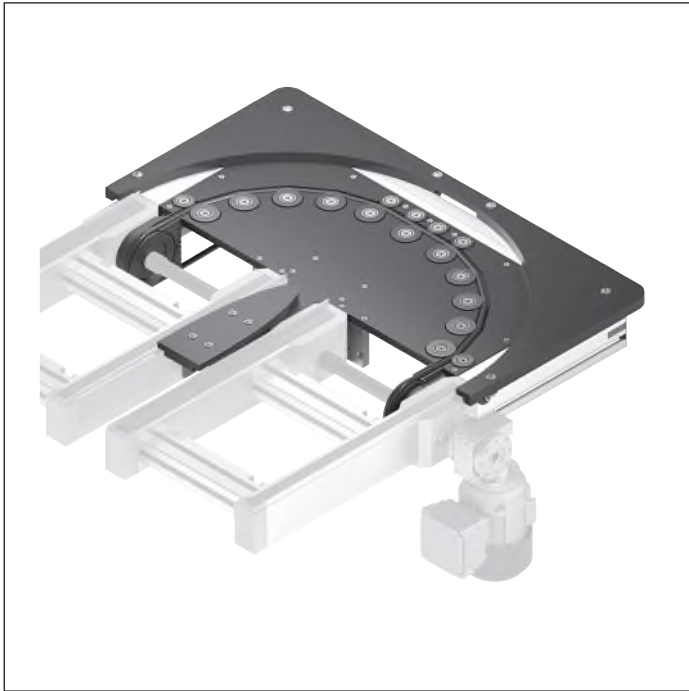
00012773

b Track width in direction of transport

l_T Length in conveyor direction

Track width in direction of transport b (mm)	Length in direction of transport l_T (mm)	Dimension C (mm)
160	160	170
160	240	225
240	160	200
240	240	200
240	320	200
320	240	290
320	320	290
320	400	290
400	320	355
400	400	355

KE 2/O-180 curve



- ▶ 180° curve conveying of the workpiece pallet
- ▶ Suitable for combination with BS 2/K
- ▶ Curve module without built-in drive
- ▶ Max. total workpiece pallet weight = 20 kg
- ▶ Conveyor medium: Round belt (suitable for use in an EPA)
- ▶ Can be combined with WT 2 and WT 2/F

Note:

- ▶ Accumulation operation not permitted
- ▶ Drive by subsequent BS 2/K belt section (pulling operation)

In the KE 2/O curves with round belt conveyor medium, the drive is effected by the BS 2/K belt section in the infeed and outfeed sections.

Accessories

Required accessories

- ▶ 2x BS 2/K belt section, see p. 4-21

Delivery notes

Scope of delivery

- ▶ Curve, complete with mounting hardware

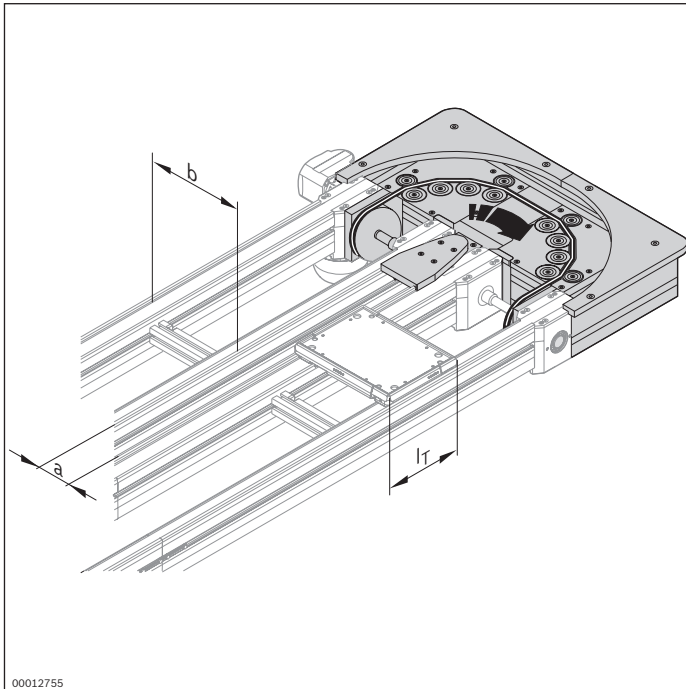
Recommended accessories

- ▶ SZ 2 leg sets/..., see p. 6-2

Condition on delivery

- ▶ Partially assembled
- ▶ Inner guide included

Ordering information



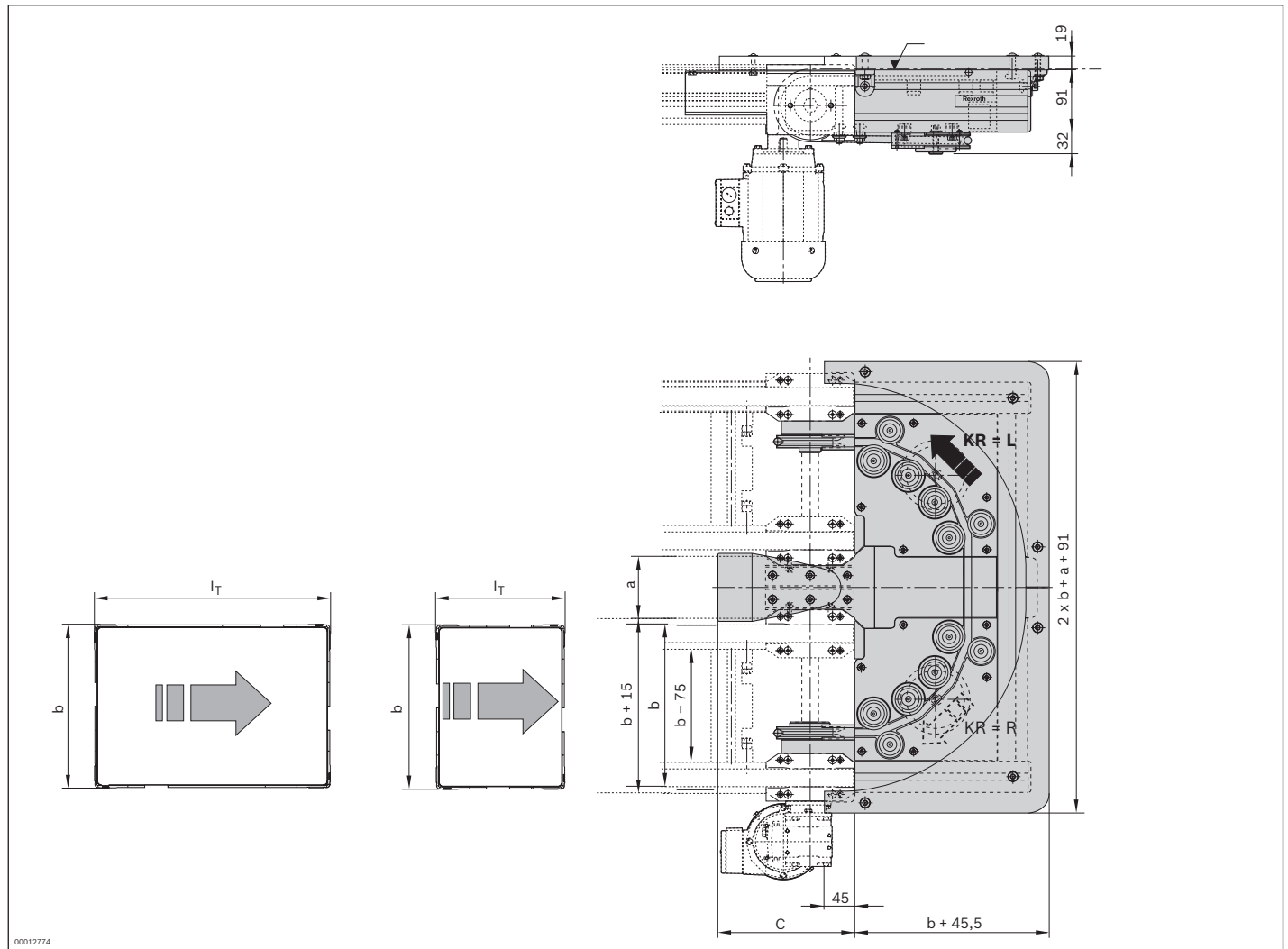
Material number		3842999726
b (mm)	Track width in direction of transport	160; 240; 320; 400
l_T (mm)	Length in direction of transport	160; 240; 320; 400
a (mm)	Distance between conveyors ¹	90; 135
w x l_d (mm x mm)	Combination options	b x l_T 160 x 160; 240 240 x 160; 240; 320 320 x 240; 320; 400 400 x 320; 400

¹⁾ w x l_d is possible in all combinations

Technical data

Material number		3842999726
Load		
Max. total workpiece pallet weight	m_G	kg 20
Features		
ESD		Yes

Dimensions



b Track width in direction of transport

l_T Length in conveyor direction

Track width in direction of transport b (mm)	Length in direction of transport l_T (mm)	Dimension C (mm)	Distance between conveyors a (mm)
160	160	170	90; 135
160	240	170	90; 135
240	160	200	90; 135
240	240	200	90; 135
240	320	200	90; 135
320	240	290	90; 135
320	320	290	90; 135
320	400	290	90; 135
400	320	355	90; 135
400	400	355	90; 135

BS 2/K belt section



The BS 2/K belt section is a conveyor section that is ready for operation with the toothed belt conveyor medium and a built-in drive. It is used to drive the KE 2/O curves and to

Delivery notes

Scope of delivery

- ▶ Belt section, complete with drive motor

- ▶ To drive a KE 2/O curve
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Max. permissible section load up to 60 kg in accumulation operation (incl. the driven curve section)
- ▶ Can be combined with WT 2 and WT 2/F

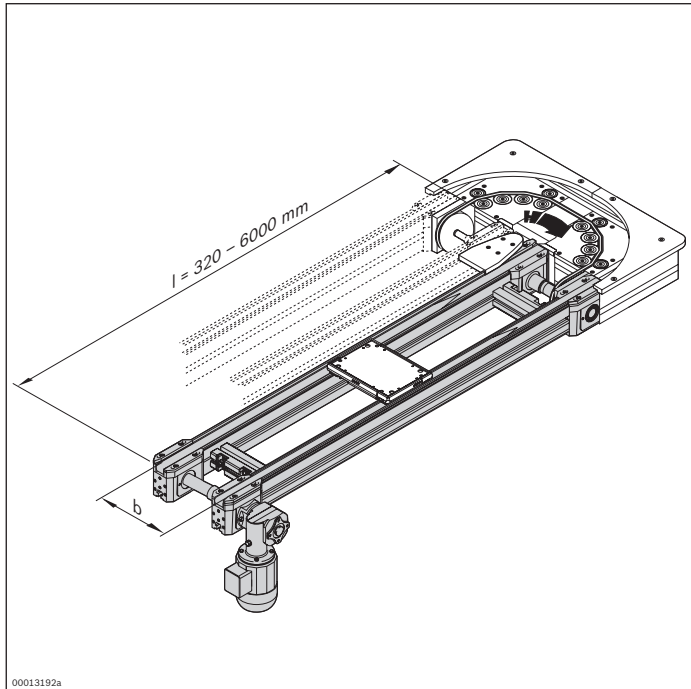
Note: Drive by subsequent BS 2/K belt section (pulling operation).

longitudinally convey workpiece pallets in the infeed and outfeed sections.

Condition on delivery

- ▶ Partially assembled
- ▶ Motor included

Ordering information



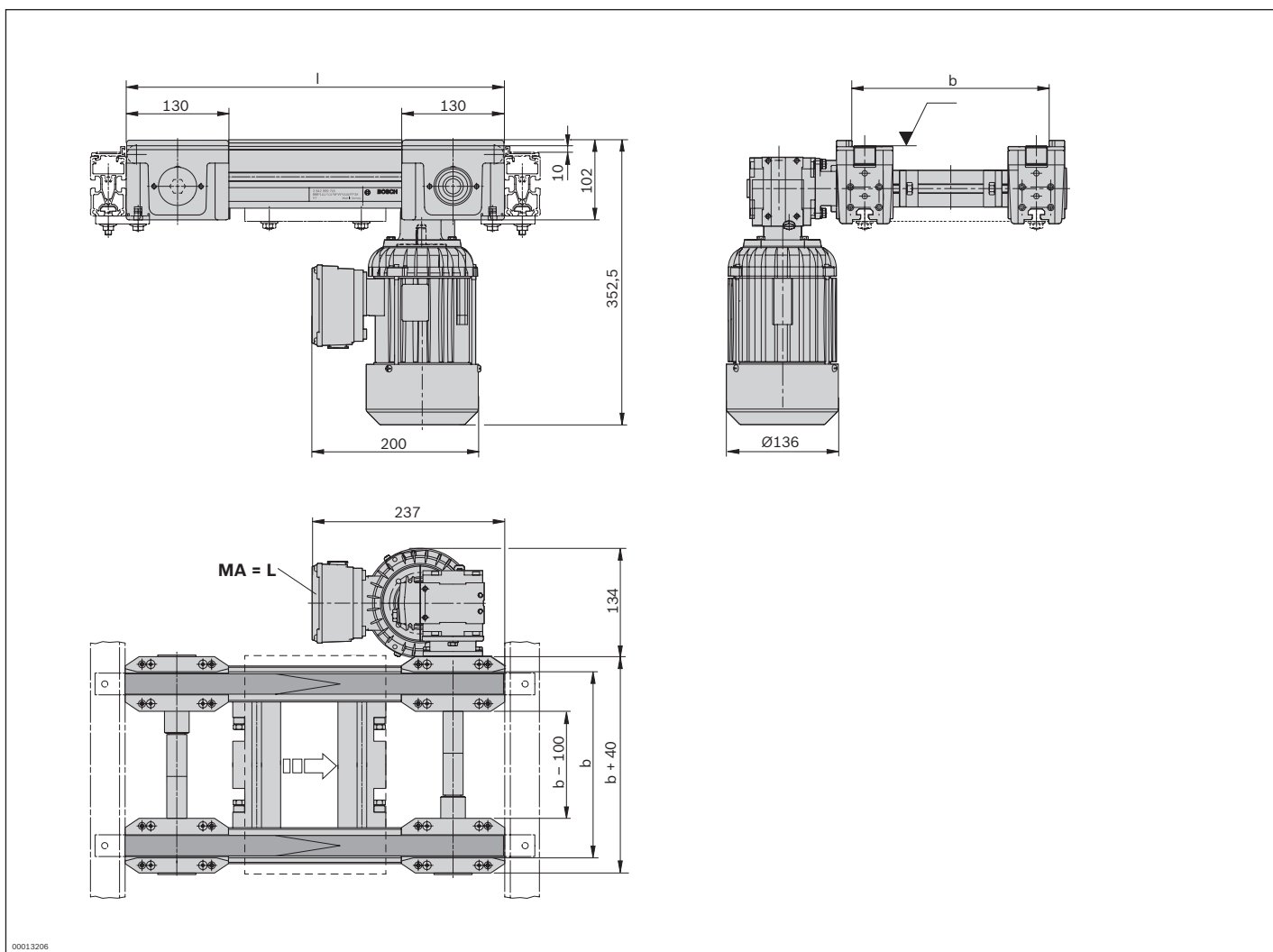
Material number		3842999715
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480
l (mm)	Length	320 ... 6000
v_N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center ¹⁾	R; L; M

¹⁾ MA = M only when $b \geq 320 \text{ mm}$

Technical data

Material number		3842999715
Load		
Max. section load in accumulation operation	kg	60
Features		
ESD		Yes

Dimensions

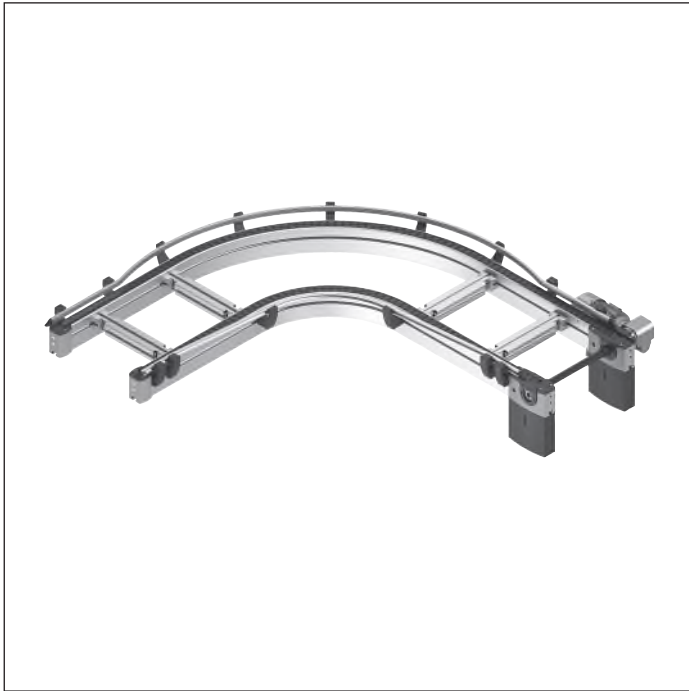


b Track width in direction of transport

l_T Length in conveyor direction

Track width in direction of transport b (mm)	Length l (mm)
160	320 ... 6000
240	320 ... 6000
320	320 ... 6000
400	320 ... 6000
480	320 ... 6000

KU 2/90 curve



- ▶ 90° curve conveying of the workpiece pallet
- ▶ Curve with built-in drive
- ▶ Section loads up to 90 kg in accumulation operation
- ▶ Conveyor medium: Flat top chain
- ▶ Accumulation operation possible
- ▶ Plastic chain guides
- ▶ Automatic chain tensioning system
- ▶ Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H

Note:

- ▶ Flat top chain in ESD version is not permitted
- ▶ The LU 2 automatic lubrication unit is highly recommended for flat top chains:

The KU 2 curves with flat top chain conveyor medium have a built-in drive. They are suitable for use with high section loads in accumulation operation.

Accessories

Recommended accessories

- ▶ SZ 2 leg sets/..., see p. 6-2
- ▶ Accumulation pressure control, e.g., with WI/M rocker, see p. 8-133
- ▶ Connection kits, see p. 4-40
- ▶ LU 2 automatic lubrication unit, see p. 3-152

Delivery notes

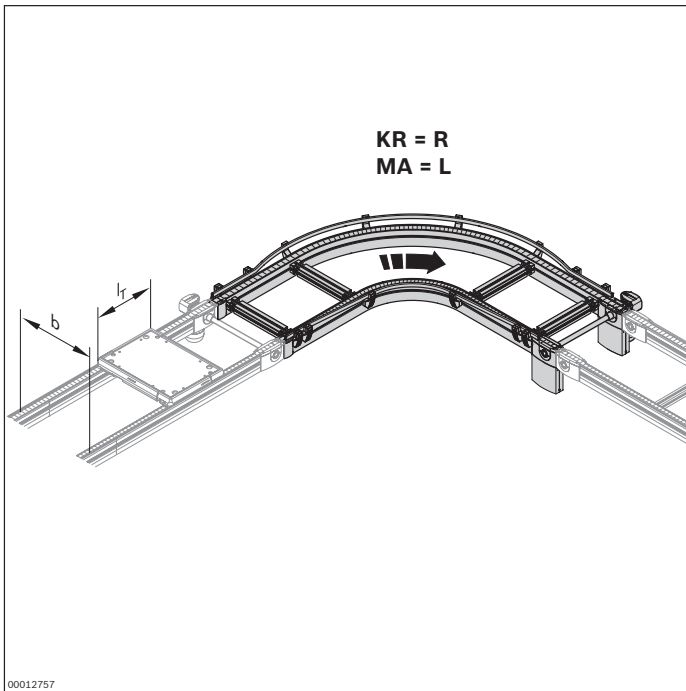
Scope of delivery

- ▶ Curve, complete

Condition on delivery

- ▶ Fully assembled

Ordering information



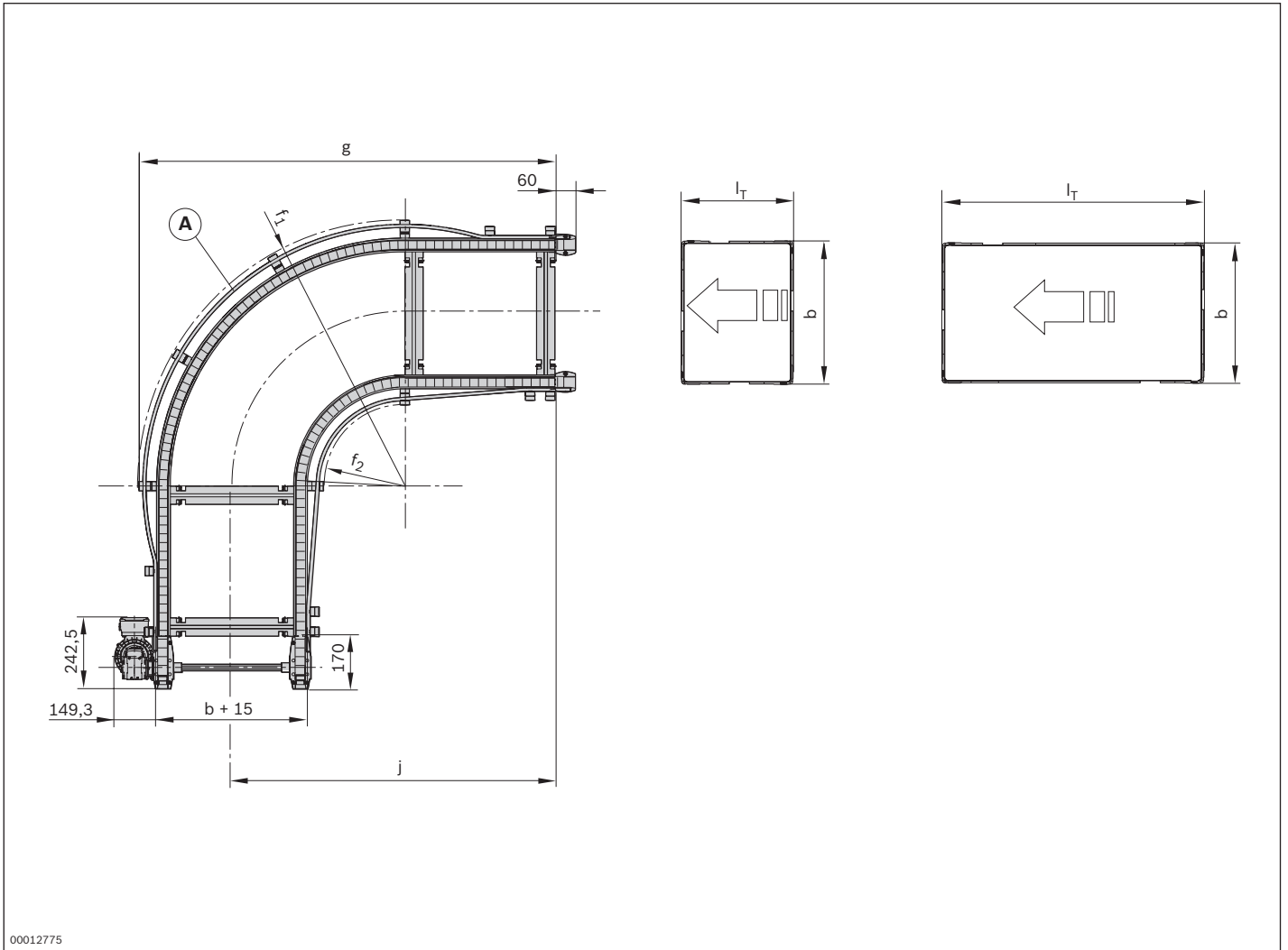
Material number		3842998098
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800
l _T (mm)	Length in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040
w x l _T (mm x mm)	Combination options	160 x 160; 240; 320 240 x 160; 240; 320; 400 320 x 160; 240; 320; 400; 480 400 x 240; 320; 400; 480; 640 480 x 320; 400; 480; 640; 800 640 x 400; 480; 640; 800; 1040 800 x 480; 640; 800; 1040
v _N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center ¹	R; L; M
KR	Curve direction R = right L = left	R; L

¹ MA = M only when b ≥ 240 mm

Technical data

Material number		3842998098
Load		
Max. section load in accumulation operation	kg	90
Features		
Max. operating temperature	T	°C
		+40 °C

Dimensions



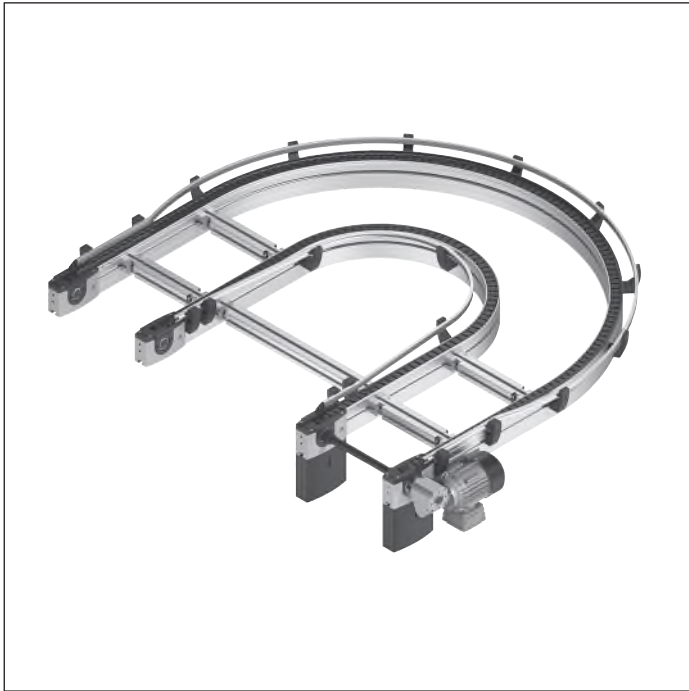
- Ⓐ Workpiece pallet outer guide from $l_T = 640$ mm
- b Track width in direction of transport

l_T Length in conveyor direction

Track width in direction of transport b (mm)	Length in direction of transport l_T (mm)	Curve radius f_1^1 (mm)	Curve radius f_2^1 (mm)	Dimension g (mm)	Dimension j (mm)
160	160	493	286	755	667
160	240	493	287	835	747
160	320	493	266	915	827
240	160	573	287	835	707
240	240	573	280	915	787
240	320	573	270	995	867
240	400	573	256	1075	947
240	480	573	240	1155	1027
320	160	653	288	915	747
320	240	653	282	995	827
320	320	653	273	1075	907
320	400	653	261	1155	987
320	480	653	247	1235	1067
400	240	733	283	1075	867
400	320	733	275	1155	947
400	400	733	265	1235	1027
400	480	733	252	1315	1107
400	640	770	260	1299	1032
480	320	813	277	1235	987
480	400	813	268	1315	1067
480	480	813	256	1395	1147
480	640	850	267	1366	1060
480	800	930	319	1695	1289
640	400	973	272	1475	1147
640	480	973	263	1555	1227
640	640	1010	278	1503	1117
640	800	1090	333	1733	1347
640	1040	1090	277	1973	1587
800	480	1133	267	1715	1307
800	640	1170	285	1642	1176
800	800	1250	344	1872	1406
800	1040	1250	296	2112	1646

¹ f_1, f_2 = guideline value

KU 2/180 curve



- ▶ 180° curve conveying of the workpiece pallet
- ▶ Curve with built-in drive
- ▶ Section loads up to 70 kg in accumulation operation
- ▶ Conveyor medium: Flat top chain
- ▶ Automatic chain tensioning system
- ▶ Plastic chain guides
- ▶ Accumulation operation possible
- ▶ Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H

Note:

- ▶ Flat top chain in ESD version is not permitted
- ▶ The LU 2 automatic lubrication unit is highly recommended for flat top chains:

The KU 2 curves with flat top chain conveyor medium have a built-in drive. They are suitable for use with high section loads in accumulation operation.

Accessories

Recommended accessories

- ▶ SZ 2 leg sets/..., see p. 6-2
- ▶ Accumulation pressure control, e.g., with WI/M rocker, see p. 8-133
- ▶ Connection kits, see p. 4-40
- ▶ LU 2 automatic lubrication unit, see p. 3-152

Delivery notes

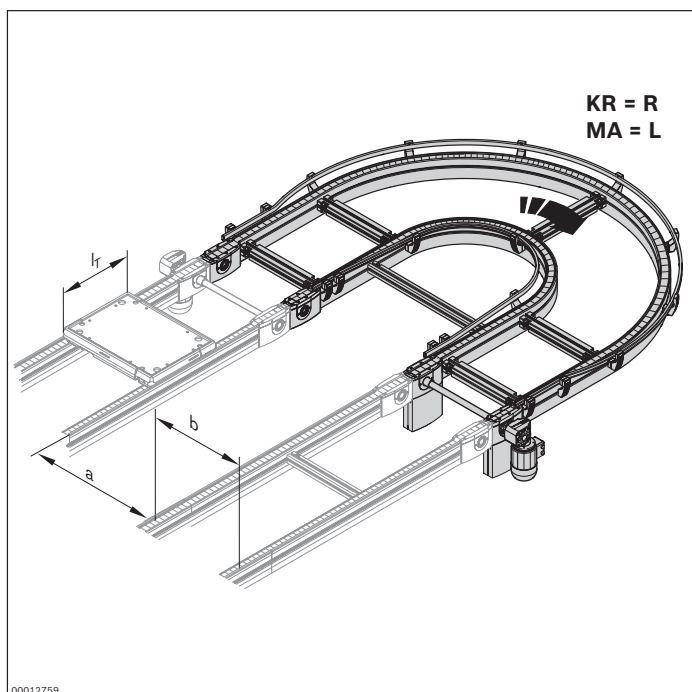
Scope of delivery

- ▶ Curve, complete

Condition on delivery

- ▶ Fully assembled

Ordering information



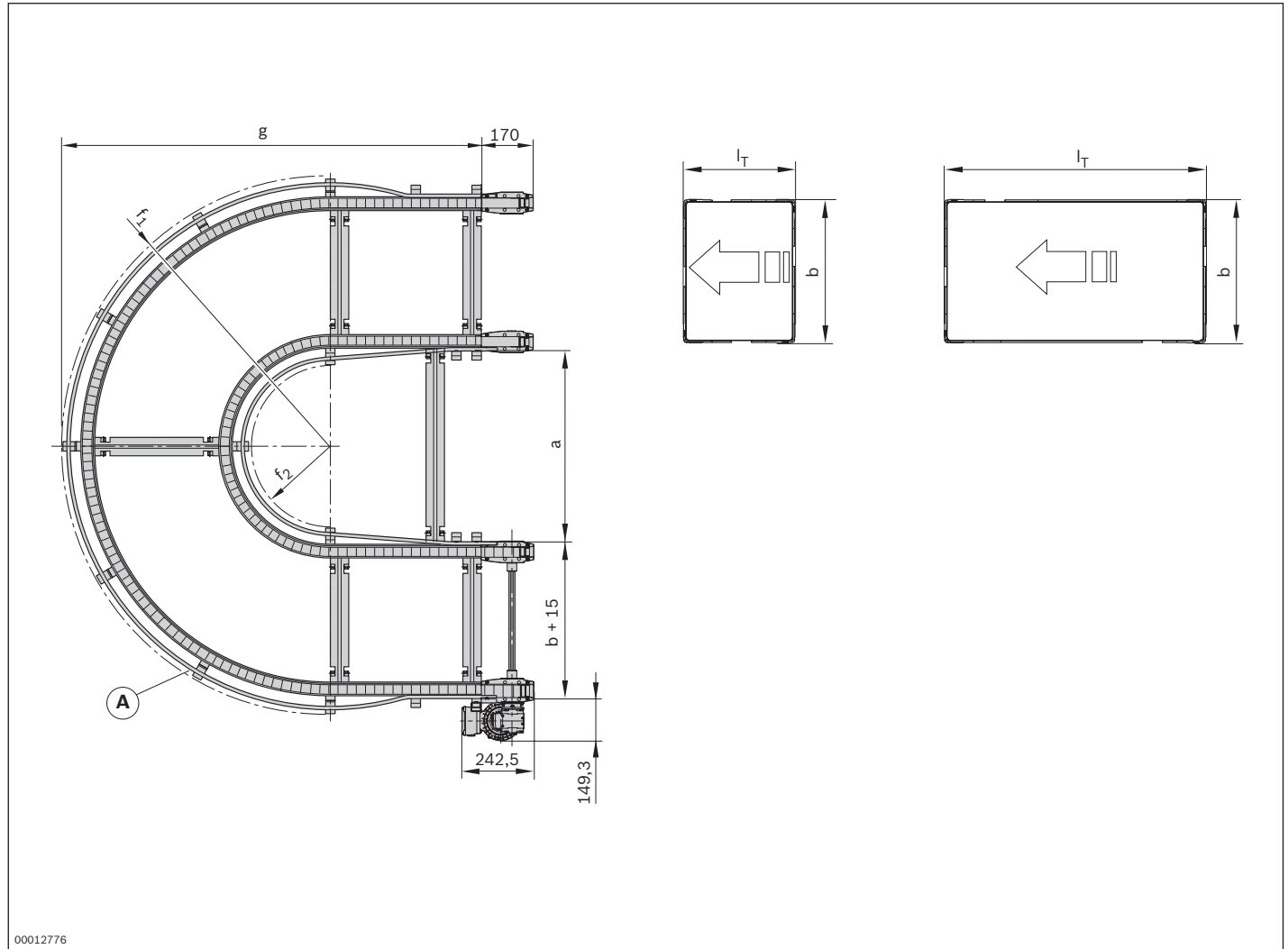
Material number		3842998099
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800
l _T (mm)	Length in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040
w x l _T (mm x mm)	Combination options a = 640 mm	b x l _T 160 x 160; 240; 320 240 x 160; 240; 320; 400 320 x 160; 240; 320; 400; 480 400 x 240; 320; 400; 480; 640 480 x 320; 400; 480; 640 640 x 400; 480; 640 800 x 480; 640
	a = 800 mm	480 x 800 640 x 800; 1040 800 x 800; 1040
v _N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center ¹	R; L; M
KR	Curve direction R = right L = left	R; L

¹ MA = M only when b ≥ 240 mm

Technical data

Material number		3842998099
Load		
Max. section load in accumulation operation	kg	70
Features		
Max. operating temperature	T	°C
		+40 °C

Dimensions



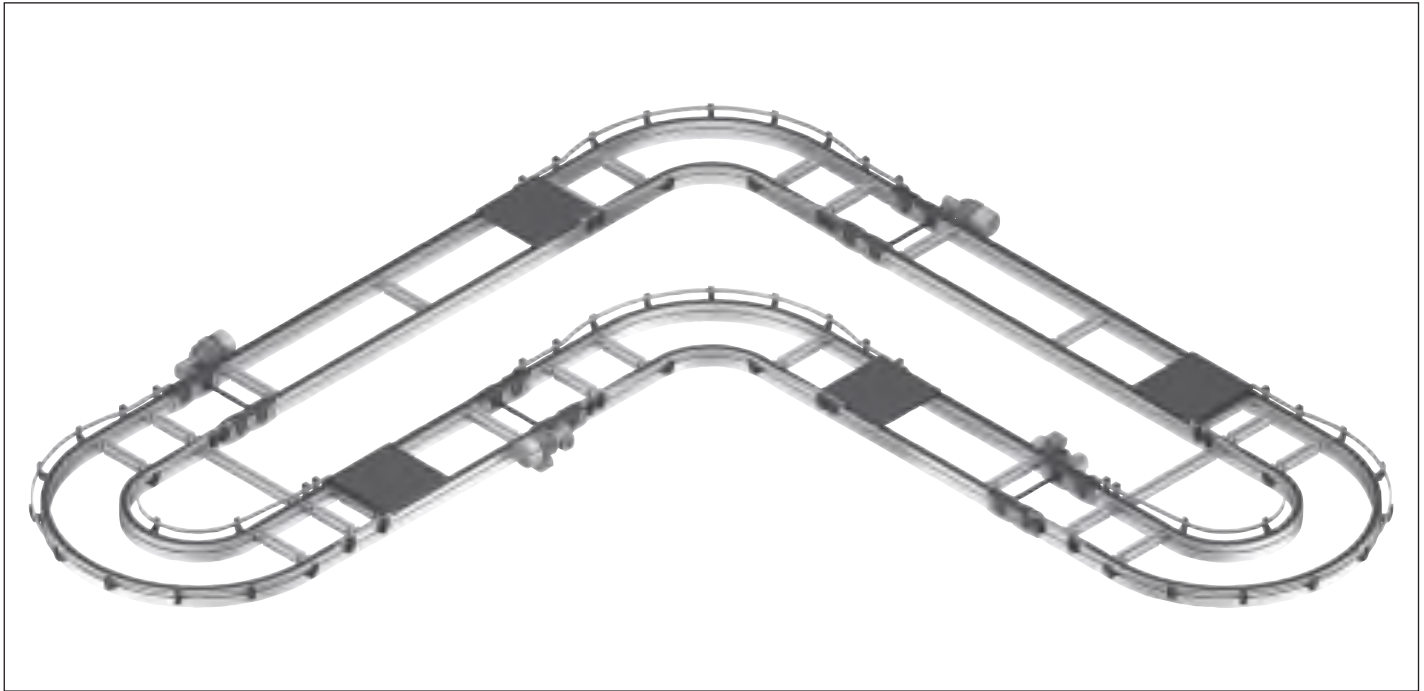
- Ⓐ Workpiece pallet outer guide from $l_T = 640$ mm
- b Track width in direction of transport

l_T Length in conveyor direction

Track width in direction of transport b (mm)	Length in direction of transport l_T (mm)	Curve radius f_1^1 (mm)	Curve radius f_2^1 (mm)	Dimension g (mm)	Distance between conveyors a (mm)
160	160	493	286	755	640
160	240	493	287	835	640
160	320	493	266	915	640
240	160	573	287	835	640
240	240	573	280	915	640
240	320	573	270	995	640
240	400	573	256	1075	640
240	480	573	240	1155	640
320	160	653	288	915	640
320	240	653	282	995	640
320	320	653	273	1075	640
320	400	653	261	1155	640
320	480	653	247	1235	640
400	240	733	283	1075	640
400	320	733	275	1155	640
400	400	733	265	1235	640
400	480	733	252	1315	640
400	640	770	260	1299	640
480	320	813	277	1235	640
480	400	813	268	1315	640
480	480	813	256	1395	640
480	640	850	267	1366	640
480	800	930	319	1595	800
640	400	973	272	1475	640
640	480	973	263	1555	640
640	640	1010	278	1503	640
640	800	1090	333	1733	800
640	1040	1090	277	1973	800
800	480	1133	267	1715	640
800	640	1170	285	1642	640
800	800	1250	344	1872	800
800	1040	1250	296	2112	800

¹ f_1, f_2 = guideline value

KU 2/O-... curve arcs



The construction principle of KU 2/O curves with the flat top chain conveyor medium allows smooth integration into longer conveyor units driven by a single drive.

In order to mount such units, the KU 2/O curve arcs are offered without the conveyor medium, and drive and return heads. The following guidelines must be taken into account when designing sections with integrated curves.

The AS 2/...-C and UM 2/...-C on the conveyor units can be used for driving and returning purposes.

The overall length of the flat top chain results from the sum of the required length of the conveyor belt for each component.

Drive layout

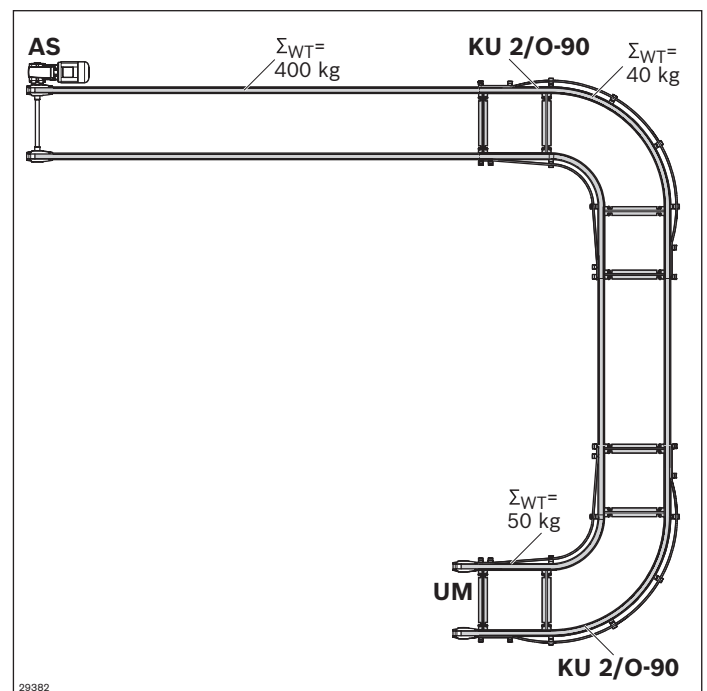
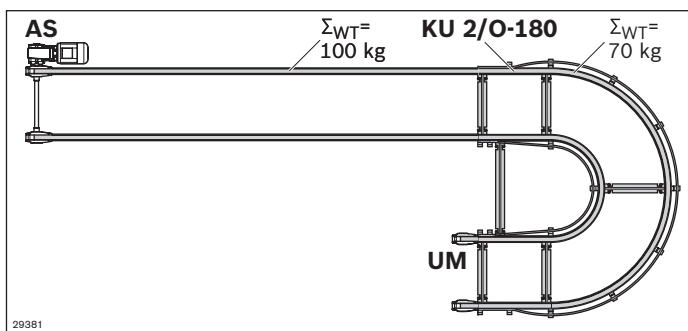
Each change in the direction of the conveyor medium on the transport level, such as with KU 2 curves, results in a loss through friction which must be offset by the drive. This increase in stress on the drive is taken into account by the curve factor. Multiplying the workpiece pallet load that arises before the curve with the curve factor results in the necessary load carrying capacity of the drive. The curve factor is 1.5 for every 90° curve angle.

The following applies as a general guideline:

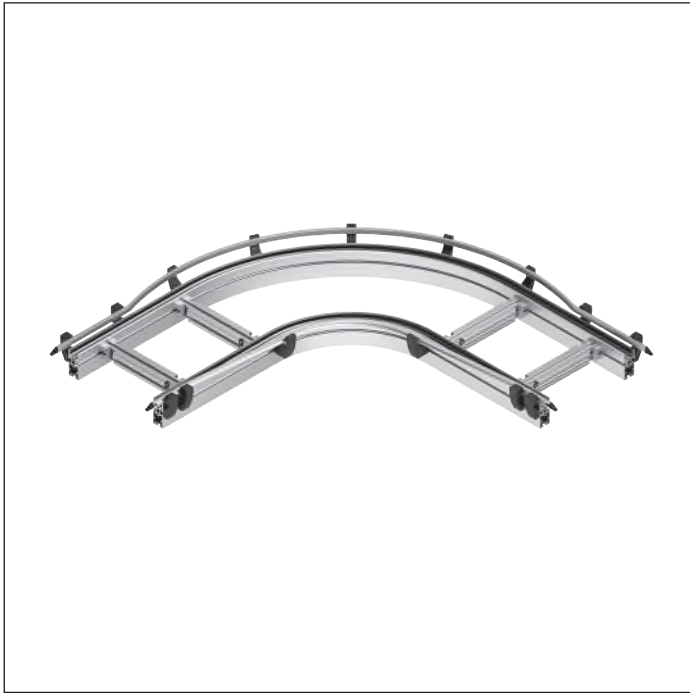
- For each AS 2/C drive module, max. 2x curve arc of 90° or max. 1x curve arc of 180°
- Mount curve arc directly on a UM 2/C-170 return unit
- For permitted total workpiece pallet weights in a 90° curve arc: 90 kg
- 180° curve arc: 70 kg

- The workpiece pallet loads before and in a 180° curve is 70 kg and an additional 100 kg after the curve. From this arises the minimum required load capacity of $(70 \text{ kg} * 1.5 * 1.5) + 100 \text{ kg} = 257.5 \text{ kg}$. The AS 2/C-400 drive module must be selected for this section.

- The workpiece pallet loads before and in the first 90°curve are 50 kg before and in the second 90°curve, another 40 kg before and in the second curve, and another 40 kg after the second curve. From this arises the minimum required load capacity of $(50 \text{ kg} * 1.5 * 1.5) + (40 \text{ kg} * 1.5) + 400 \text{ kg} = 572.5 \text{ kg}$. The AS 2/C-700 drive module must be selected for this section.



KU 2/O-90 curve arc



- ▶ Curve arc without built-in drive
- ▶ Accumulation operation possible
- ▶ Plastic chain guides
- ▶ Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H

Note:

- ▶ Flat top chain in ESD version is not permitted
- ▶ The LU 2 automatic lubrication unit is highly recommended for flat top chains:

The arcs KU 2/O curve arcs without drive are used for setting up sections with integrated curves to transport the

workpiece pallets in accumulation operation.

Accessories

Required accessories

- ▶ Plastic flat top chain conveyor medium 3842551226
- ▶ AS 2/C drive module, see p. 3-68
- ▶ UM 2/C return unit, see p. 3-80

Recommended accessories

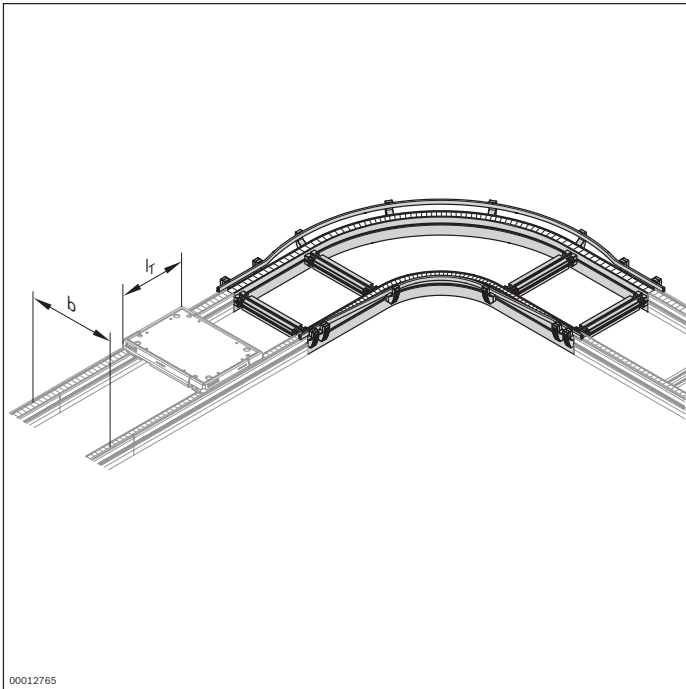
- ▶ SZ 2 leg sets/..., see p. 6-2
- ▶ ST 2/C-100 section, see p. 3-231
- ▶ Profile connector, see p. 3-40

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



00012765

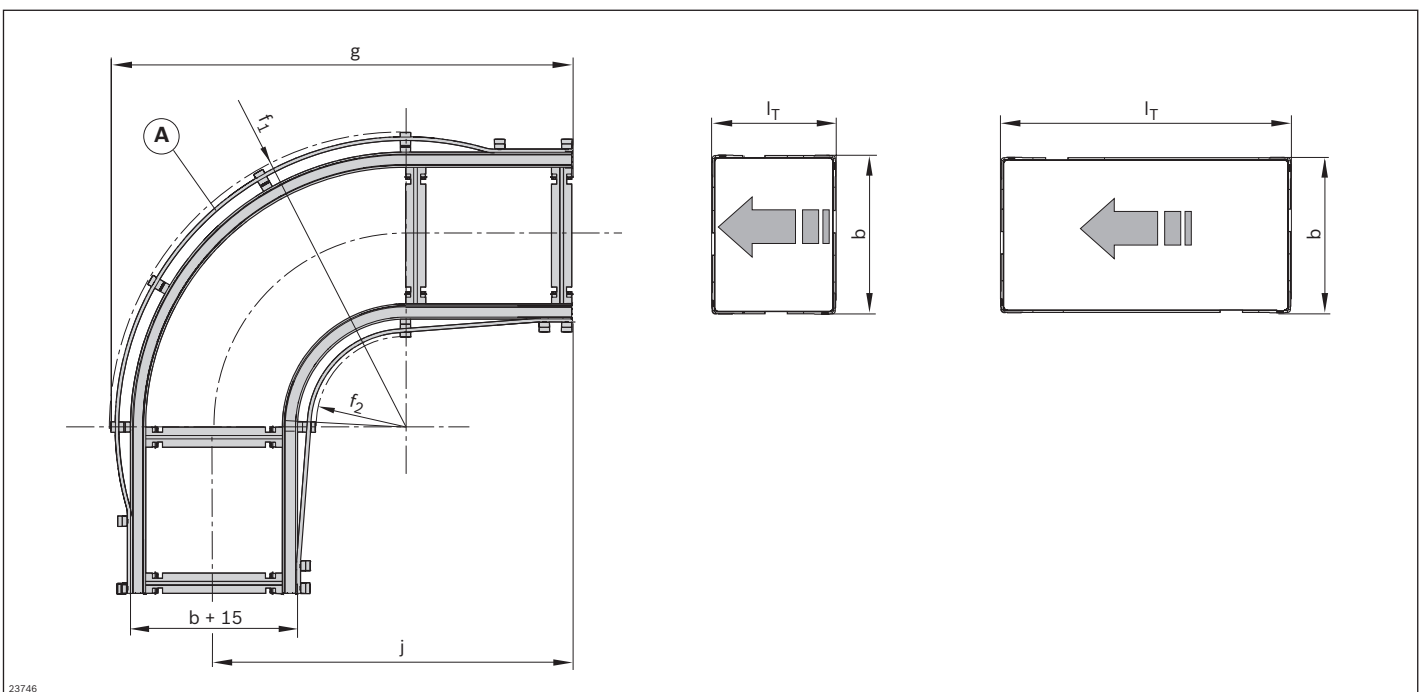
Material number		384299994
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800
l_T (mm)	Length in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040
$w \times l_T$ (mm x mm)	Combination options	160 x 160; 240; 320 240 x 160; 240; 320; 400 320 x 160; 240; 320; 400; 480 400 x 240; 320; 400; 480; 640 480 x 320; 400; 480; 640; 800 640 x 400; 480; 640; 800; 1040 800 x 480; 640; 800; 1040

4

Technical data

Material number		384299994	
Features			
Max. operating temperature	T	°C	+40 °C

Dimensions



23746

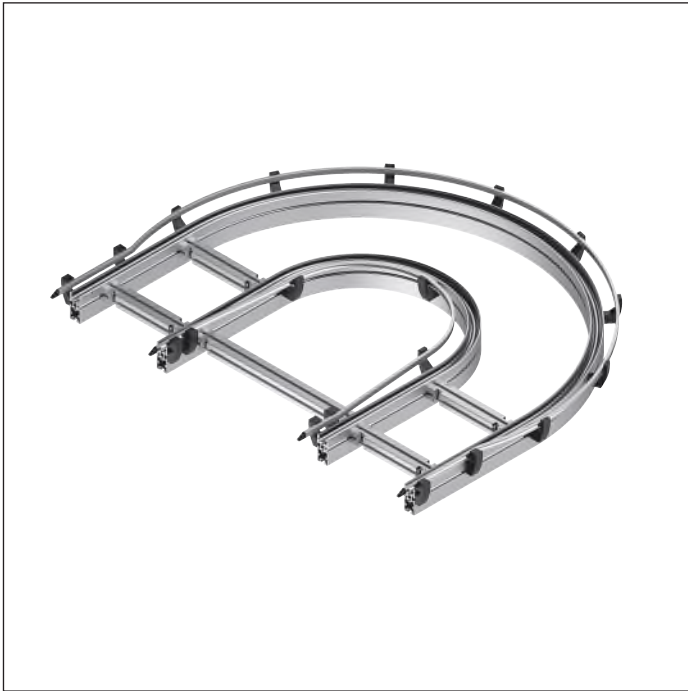
- Ⓐ Workpiece pallet outer guide from $l_T = 640$ mm
- b Track width in direction of transport

l_T Length in conveyor direction

Track width in direction of transport b (mm)	Length in direction of transport l_T (mm)	Curve radius f₁¹ (mm)	Curve radius f₂¹ (mm)	Dimension g (mm)	Dimension j (mm)	Required conveyor medium length l_k (mm)
160	160	493	286	755	667	4640
160	240	493	287	835	747	5280
160	320	493	266	915	827	5920
240	160	573	287	835	707	4892
240	240	573	280	915	787	5532
240	320	573	270	995	867	6172
240	400	573	256	1075	947	6812
240	480	573	240	1155	1027	7452
320	160	653	288	915	747	5143
320	240	653	282	995	827	5783
320	320	653	273	1075	907	6423
320	400	653	261	1155	987	7063
320	480	653	247	1235	1067	7703
400	240	733	283	1075	867	6034
400	320	733	275	1155	947	6674
400	400	733	265	1235	1027	7314
400	480	733	252	1315	1107	7954
400	640	770	260	1299	1032	7355
480	320	813	277	1235	987	6926
480	400	813	268	1315	1067	7566
480	480	813	256	1395	1147	8206
480	640	850	267	1366	1060	7508
480	800	930	319	1695	1289	9197
640	400	973	272	1475	1147	8068
640	480	973	263	1555	1227	8708
640	640	1010	278	1503	1117	7827
640	800	1090	333	1733	1347	9524
640	1040	1090	277	1973	1587	11444
800	480	1133	267	1715	1307	9211
800	640	1170	285	1642	1176	8161
800	800	1250	344	1872	1406	9864
800	1040	1250	296	2112	1646	11784

¹f₁, f₂ = guideline value

KU 2/O-180 curve arc



- ▶ Curve arc without built-in drive
- ▶ Accumulation operation possible
- ▶ Plastic chain guides
- ▶ Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H

Note:

- ▶ Flat top chain in ESD version is not permitted
- ▶ The LU 2 automatic lubrication unit is highly recommended for flat top chains:

The arcs KU 2/O curve arcs without drive are used for setting up sections with integrated curves to transport the

workpiece pallets in accumulation operation.

Accessories

Required accessories

- ▶ Plastic flat top chain conveyor medium 3842551226
- ▶ AS 2/C drive module, see p. 3-68
- ▶ UM 2/C return unit, see p. 3-80

Recommended accessories

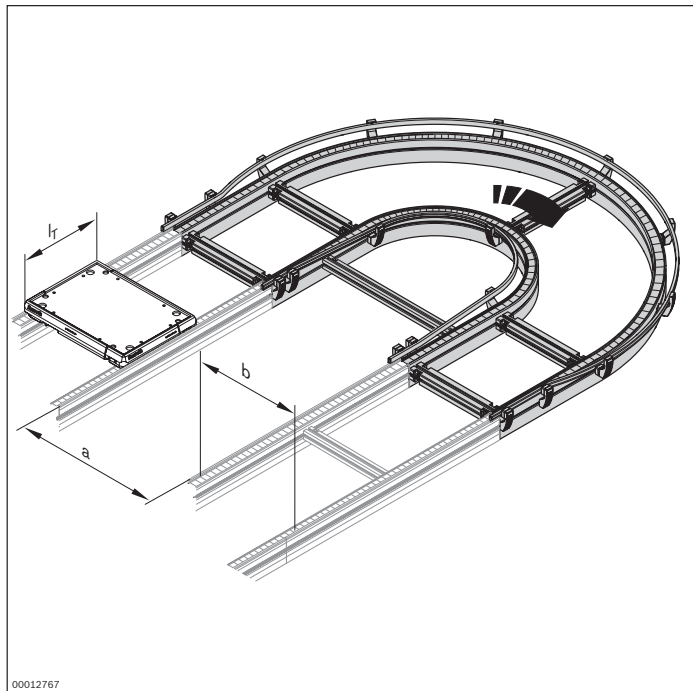
- ▶ SZ 2 leg sets/..., see p. 6-2
- ▶ ST 2/C-100 section, see p. 3-231
- ▶ Profile connector, see p. 3-40

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information

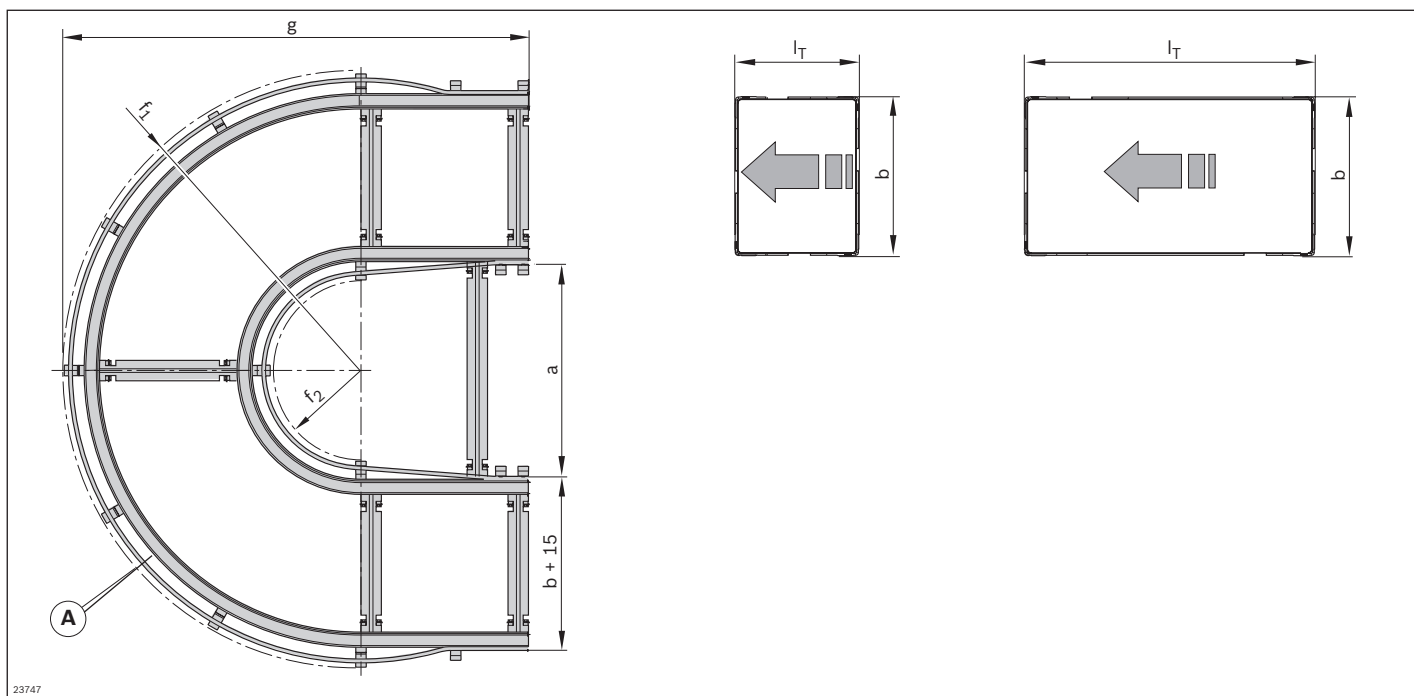


Material number		384299995
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800
l_T (mm)	Length in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040
$w \times l_T$ (mm x mm)	Combination options a = 640 mm	b x l_T
		160 x 160; 240; 320
		240 x 160; 240; 320; 400
		320 x 160; 240; 320; 400; 480
		400 x 240; 320; 400; 480; 640
		480 x 320; 400; 480; 640
		640 x 400; 480; 640
		800 x 480; 640
	a = 800 mm	480 x 800
		640 x 800; 1040
		800 x 800; 1040

Technical data

Material number		384299995
Features		
Max. operating temperature	T	°C
		+40 °C

Dimensions



- Ⓐ Workpiece pallet outer guide from $l_T = 640$ mm
- b Track width in direction of transport

l_T Length in conveyor direction


Track width in direction of transport b (mm)	Length in direction of transport l _r (mm)	Curve radius f ₁ ¹ (mm)	Curve radius f ₂ ¹ (mm)	Dimension g (mm)	Distance between conveyors a (mm)	Required conveyor medium length l _k (mm)
160	160	493	286	755	640	7201
160	240	493	287	835	640	7841
160	320	493	266	915	640	8481
240	160	573	287	835	640	7704
240	240	573	280	915	640	8344
240	320	573	270	995	640	8984
240	400	573	256	1075	640	9624
240	480	573	240	1155	640	10264
320	160	653	288	915	640	8206
320	240	653	282	995	640	8846
320	320	653	273	1075	640	9486
320	400	653	261	1155	640	10126
320	480	653	247	1235	640	10766
400	240	733	283	1075	640	9349
400	320	733	275	1155	640	9989
400	400	733	265	1235	640	10629
400	480	733	252	1315	640	11269
400	640	770	260	1299	640	10669
480	320	813	277	1235	640	10491
480	400	813	268	1315	640	11131
480	480	813	256	1395	640	11771
480	640	850	267	1366	640	11074
480	800	930	319	1595	800	13265
640	400	973	272	1475	640	12137
640	480	973	263	1555	640	12777
640	640	1010	278	1503	640	11896
640	800	1090	333	1733	800	14095
640	1040	1090	277	1973	800	16015
800	480	1133	267	1715	640	13782
800	640	1170	285	1642	640	12732
800	800	1250	344	1872	800	14938
800	1040	1250	296	2112	800	16858

¹f₁, f₂ = guideline value

Connection kits for longitudinal conveyors



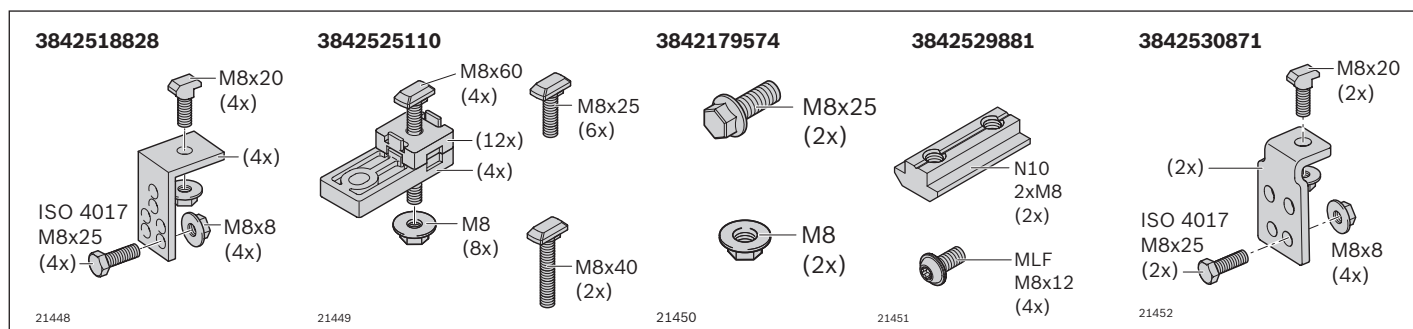
Use: For connecting the TS 2plus modules on a longitudinal conveyor at the ends (end-to-end)

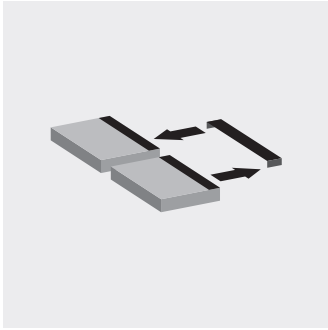
	Return unit (return side)						
	UM 2/B	UM 2/C-60 UM 2/C-170 UM 2/R-60 UM 2/R-170	BS 2	BS 2/C BS 2/C-H BS 2/R BS 2/R-H	KE 2	KU 2	CU 2
							
Drive (drive side)							
AS 2/B-150, AS 2/-250	3842179574 ¹	3842530871	3842518828	3842530871	3842518828	3842530871	3842518828
AS 2/C-100, AS 2/C-250, KU 2/90, KU 2/180	3842530871	3842529881	3842525110	3842179574 -or- 3842529881	- ²	3842179574 -or- 3842529881	3842525110
AS 2/C-400, AS 2/C-700	3842179574 ¹	3842530871	3842518828	3842530871	- ²	3842530871	3842518828
AS 2/R-300, AS 2/R-700	3842530871	3842529881	3842525110	3842179574 -or- 3842529881	- ²	3842179574 -or- 3842529881	3842525110
AS 2/R-1200, AS 2/R-2200	3842179574 ¹	3842530871	3842518828	3842530871	- ²	3842530871	3842518828
BS 2	3842518828	3842525110	3842525110	3842525110	3842525110 ³	3842525110	3842525110
BS 2/C BS 2/R	3842530871	3842529881	3842525110	3842179574 -or- 3842529881	- ²	3842179574 -or- 3842529881	3842525110
BS 2/C-H BS 2/R-H	3842179574 ¹	3842530871	3842518828	3842530871	- ²	3842530871	3842518828
KE 2/90 KE 2/180	3842518828	- ²	3842525110	- ²	3842525110 ³	- ²	3842525110

¹ Included with the UM 2/B

² Connection not permitted

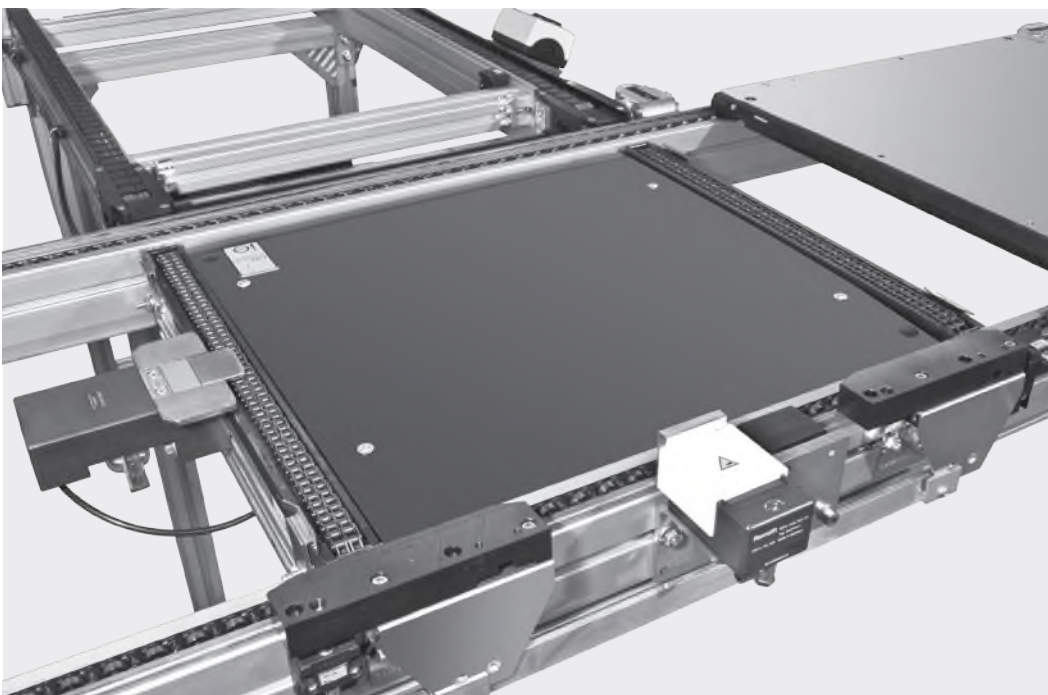
³ Included with the KE 2





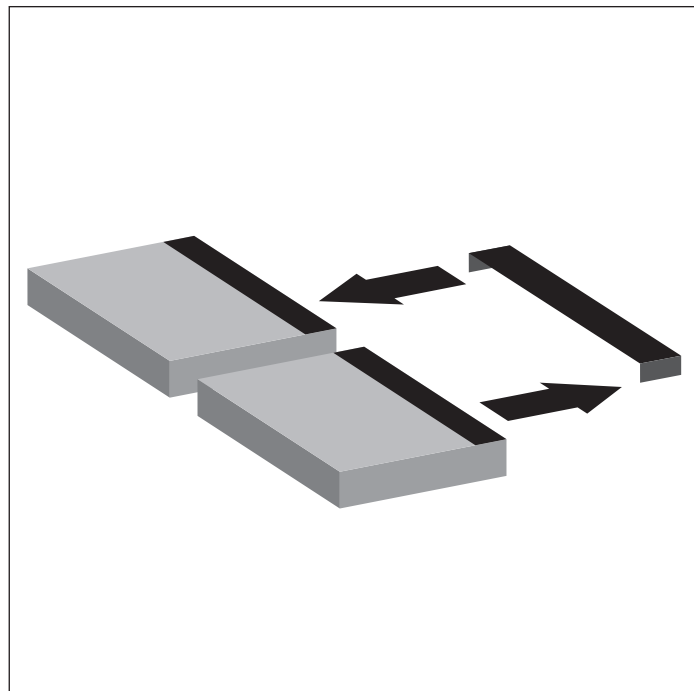
Transverse conveyor

Selection of transverse conveyors



Selection of transverse conveyors

Transverse conveyors are used to change the workpiece pallet direction of transport. They are used to create a branch in the workpiece pallet paths to the individual processing stations. The orientation of the workpiece pallet relative to its conveying direction changes when it is moved from longitudinal conveying to transverse conveying and vice versa.



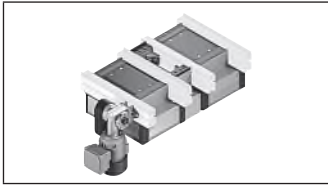
Transverse conveyors can be implemented in the TS 2plus transfer system in two different ways:

- ▶ **EQ 2 electric transverse conveyors** (see p. 5-4) (e.g., EQ 2/TR version with roller section), or
- ▶ **HQ 2 lift transverse units** (see p. 5-26) in combination with BS 2 belt sections or conveyor units

The EQ 2 electric transverse conveyors are complete macro modules. They consist of one or two HQ 2s and additional transverse conveyor sections (BS 2/RS 2).

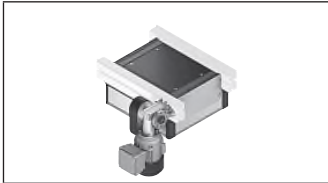
The transverse transport level is 10 mm above the transport level of the longitudinal section.

Note: The lift transverse units lift the workpiece pallet out of the longitudinal section and transport it transversely into the transverse section, which is situated 10 mm higher.



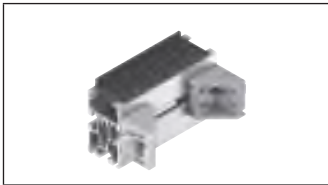
EQ 2 electric transverse conveyors

5-4



HQ 2 lift transverse units

5-26



RS 2 roller sections

5-80

EQ 2 electric transverse conveyors

EQ 2 electric transverse conveyors are used to move workpiece pallets from a longitudinal conveyor section onto a second, parallel longitudinal section. EQ 2s are complete macro modules which consist of one or two HQ 2 lift transverse units and one transverse conveyor section (BS 2/RS 2).

All the transport belts are driven by a motor.
For the TS 2plus transfer systems, electric transverse

conveyors are available with the following transport function:

EQ 2/TR

Moving workpiece pallets from one longitudinal section to a second one, which runs parallel a small distance away, across a roller section.

EQ 2/T

Moving workpiece pallets from one longitudinal section to a second one, which runs parallel a large distance away, across a transverse belt section.

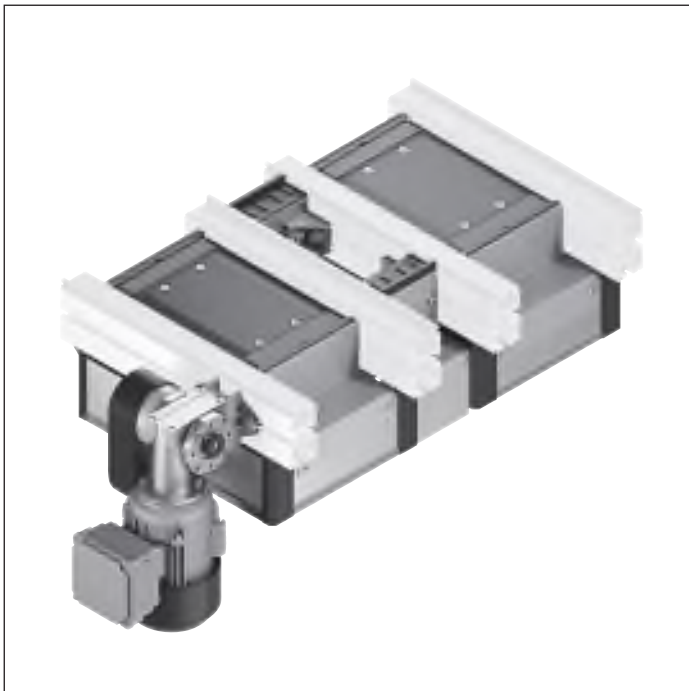
EQ 2/TE

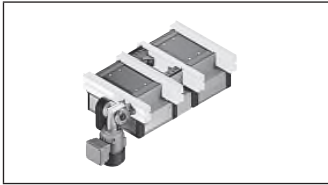
Moving pallets from a longitudinal section to a transverse belt section and vice versa.

Note: Accumulation on the HQ 2 is not permitted.

All EQ 2 designs are delivered with pneumatic connections, optionally for the center and top lift position, or for the bottom, center and top lift position. Pneumatic valves are not included in the delivery.

The pneumatic valves are designed so that the rest position acts as an exhaust position, moving the lift transverse units to the center position in case of a pressure drop. In the center position, the workpiece pallets are stopped by the lift transverse unit. This function provides increased safety and ensures easier commissioning.



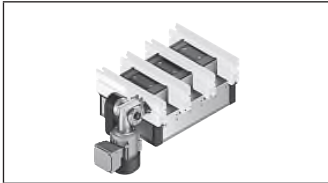


EQ 2/TR electric transverse conveyors

160 x 160 ... 800 x 480

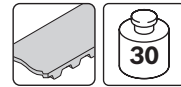


5-6



EQ 2/TR-90 electric transverse conveyors

160 x 160; 240 x 160



5-11



EQ 2/T electric transverse conveyors

160 x 160 ... 800 x 480



5-15



EQ 2/TE electric transverse conveyors

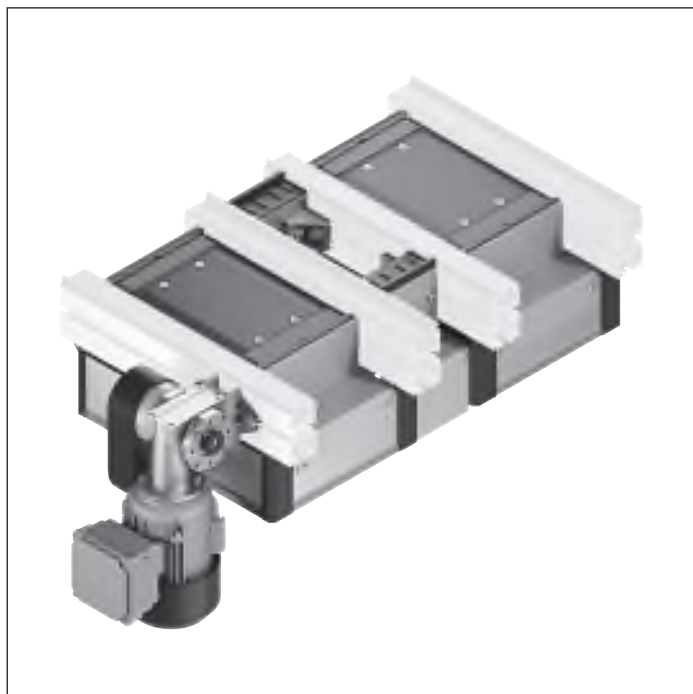
160 x 160 ... 800 x 480



5-20

5

EQ 2/TR electric transverse conveyor



- ▶ Complete macro module for connecting two parallel longitudinal sections at a short distance from each other
- ▶ In tandem design with RS 2 roller section at a distance of $a = 45 \dots 135$ mm
- ▶ Size 2 with two lifting cylinders from $\geq 480 \times 480$ mm
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Pneumatic equipment for 2 (top, center) or 3 (top, center, bottom) lift positions
- ▶ Suitable for mounting on an ST 2 section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Suspended motor mounting only. Other motor mounting variants available on request
- ▶ Can be combined with WT 2/E, WT 2 and WT 2/F

Note:

- ▶ Reversible operation possible
- ▶ Accumulation operation not permitted

Accessories

Required accessories

- ▶ 1x M12x1 sensor with rated sensing range $S_N = 4$ mm for each (top/bottom) position sensing location, see p. 8-106

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ Pneumatic equipment for two or three positions
- ▶ Kit for electrical position inquiry (2x sensors)
- ▶ Housing element

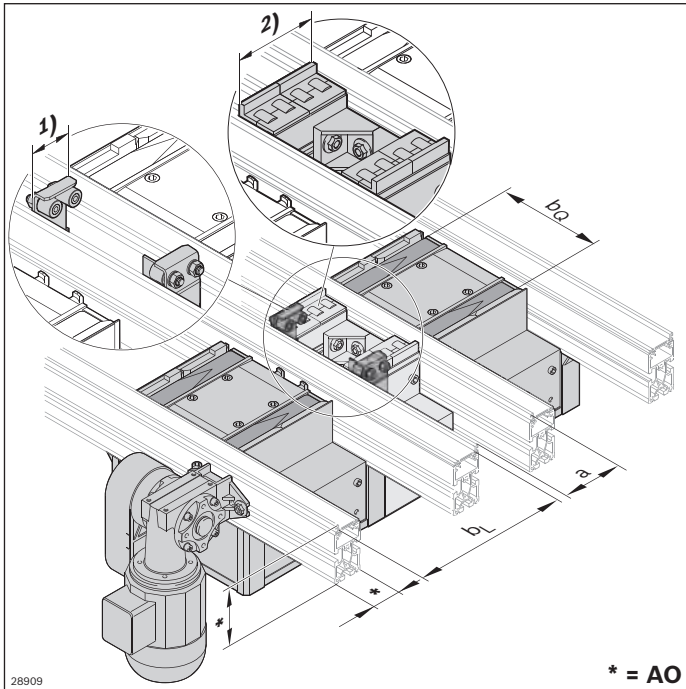
Recommended accessories

- ▶ DA 2/60 damper (see p. 8-62) for outfeeding workpiece pallets at $v_N > 9$ m/min
- ▶ WI 2 rockers (see p. 8-139ff), WI/M (see p. 8-133), DA 2/60 (see p. 8-62), DA 2/100-C dampers for BG 2 (see p. 8-71) for infeeding workpiece pallets

Condition on delivery

- ▶ HQ 2/O and HQ 2/T lift transverse unit assembled
- ▶ Connection kit
- ▶ Motor mounting kit, drive motor enclosed
- ▶ Roller section with roller elements
- ▶ Housing elements: not assembled

Ordering information



- 1 = intermediate section with roller:
 Applies when $a = 45$
 Applies when $a = 90$ and $b_L = 240$ mm
- 2 = roller section:
 Applies when $a = 90$ and $b_L > 240$ mm
 Applies when $a = 135$ and $b_L \geq 320$ mm

Material number		3842999894
b_Q (mm)	Track width in the transverse conveyor	160; 240; 320; 400; 480; 640; 800
b_L (mm)	Track width in the longitudinal conveyor	160; 240; 320; 400; 480
$b_Q \times b_L$ (mm x mm)	Combination options	BG 1: 160 x 160; 240; 320 240 x 160; 240; 320; 400 320 x 160; 240; 320; 400 400 x 240; 320; 400; 480 480 x 320; 400
		BG 2: 480 x 480 640 x 400; 480 800 x 400; 480
AO	Installation location, profile 0 = profile 45x80 1 = profile 45x100 2 = profile 50x100	0; 1; 2
PN	Pneumatic equipment	2 ¹ ; 3 ²
v_N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
a (mm)	Distance between conveyors	45; 90 ³ ; 135 ³

¹ PN = 2: Upper and middle lift position

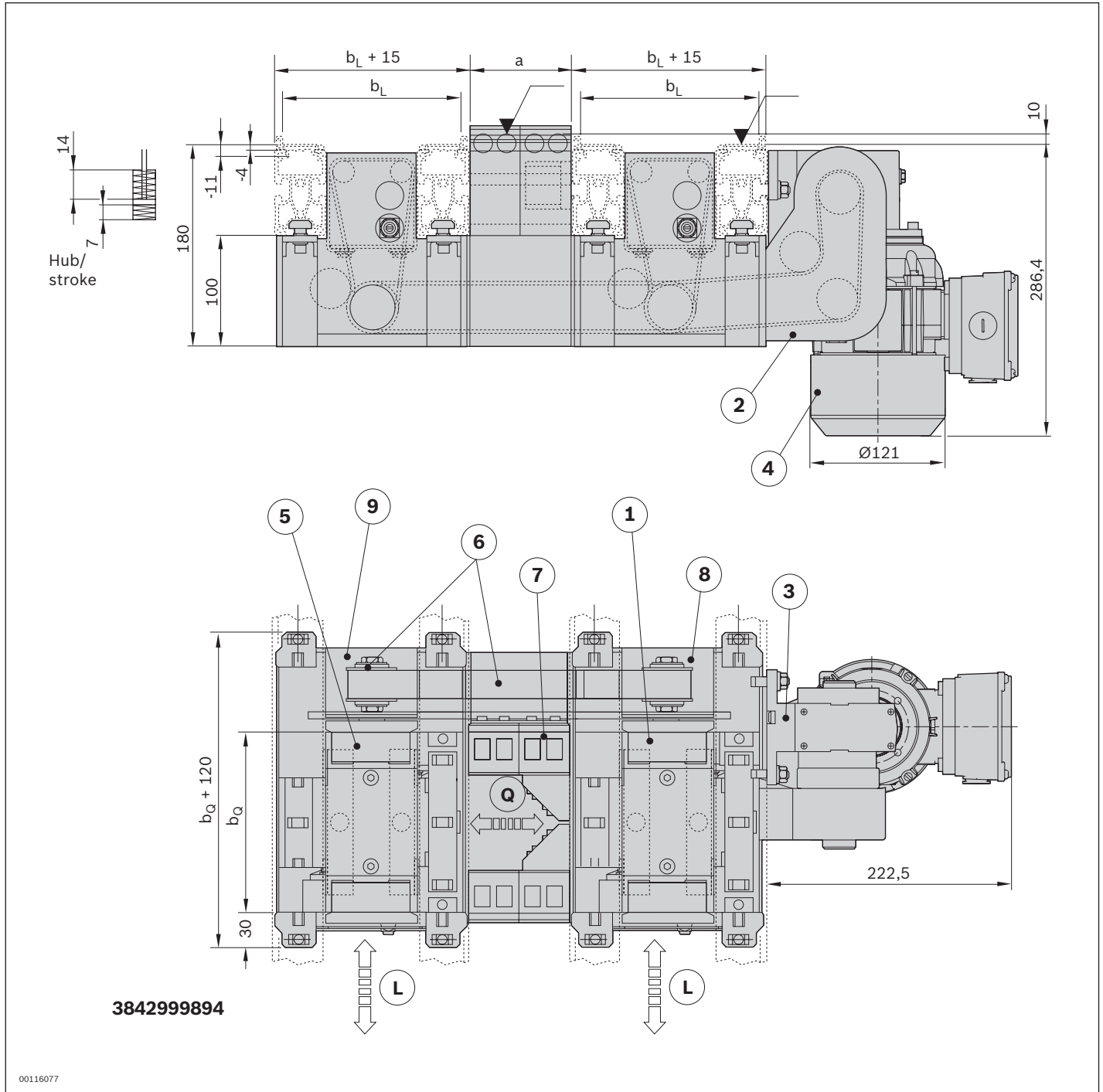
² PN = 3: Upper, middle and lower lift position

³ a = 90 mm only when $b_L \geq 240$ mm; a = 135 mm only when $b_L \geq 320$ mm

Technical data

Material number		3842999894
Load		
Max. total weight of workpiece pallet	m_G	kg 30
Features		
ESD		Yes
Design		
Size	BG	BG 1; BG 2
Additional information		
Required compressed air connection	p	bar 4 ... 6
Pneumatic connector	\emptyset	mm 6

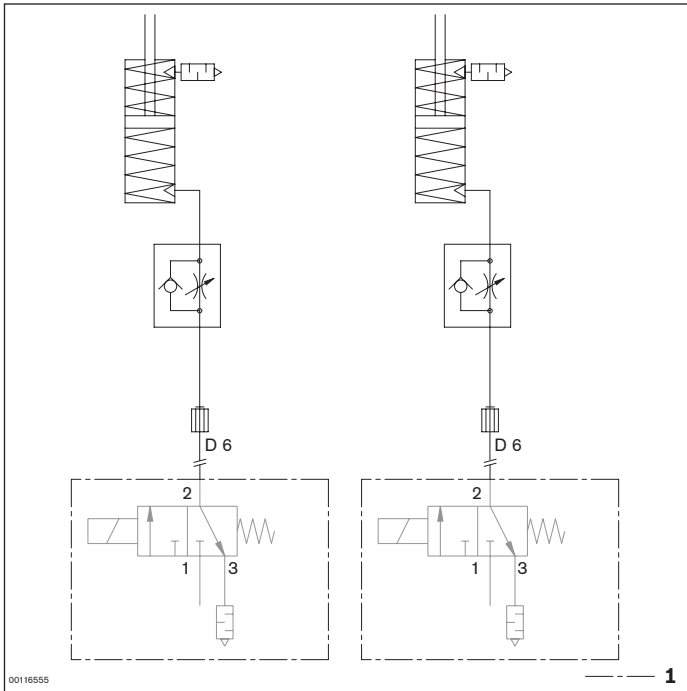
Dimensions



- L Longitudinal conveyor transport direction
- Q Transport direction of transverse conveyor
- 1 HQ 2/O lift transverse unit
- 2 Connecting kit
- 3 Motor mounting kit
- 4 Drive motor
- 5 HQ 2/T lift transverse unit

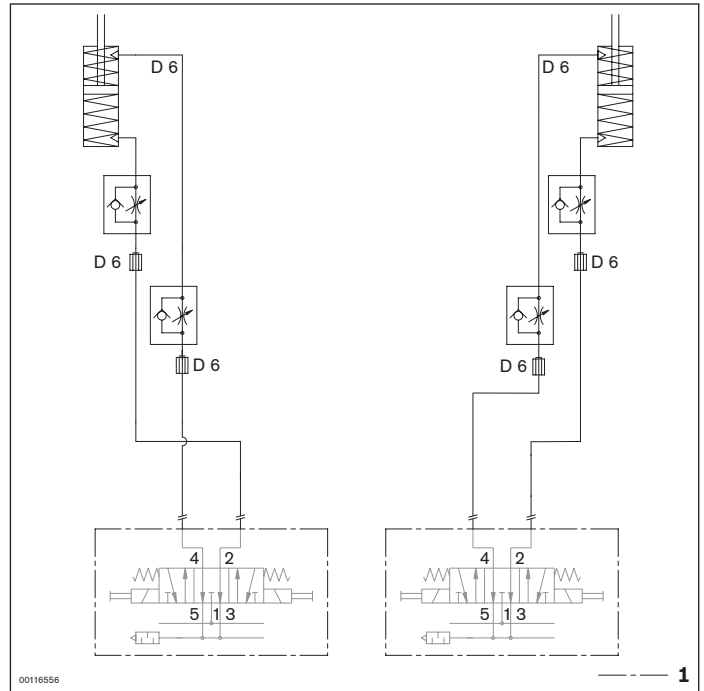
- 6 Drive kit
- 7 Intermediate section with roller elements and housing
- 8 Housing element for HQ 2/O lift transverse unit combined with HQ 2/T
- 9 Housing element for HQ 2/T lift transverse unit

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 1



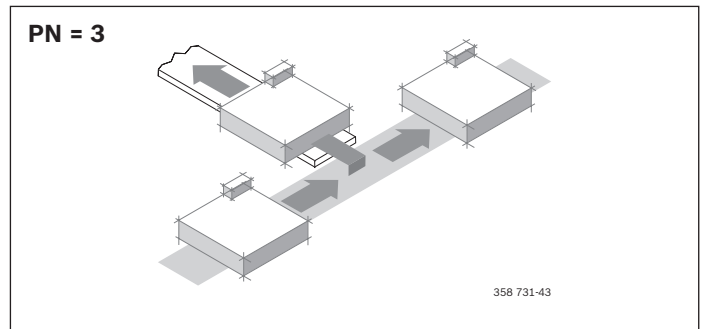
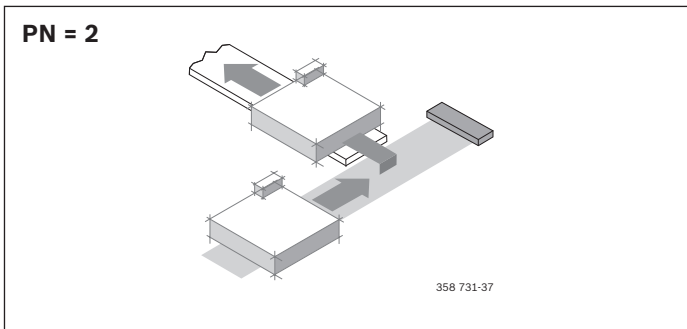
1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 1

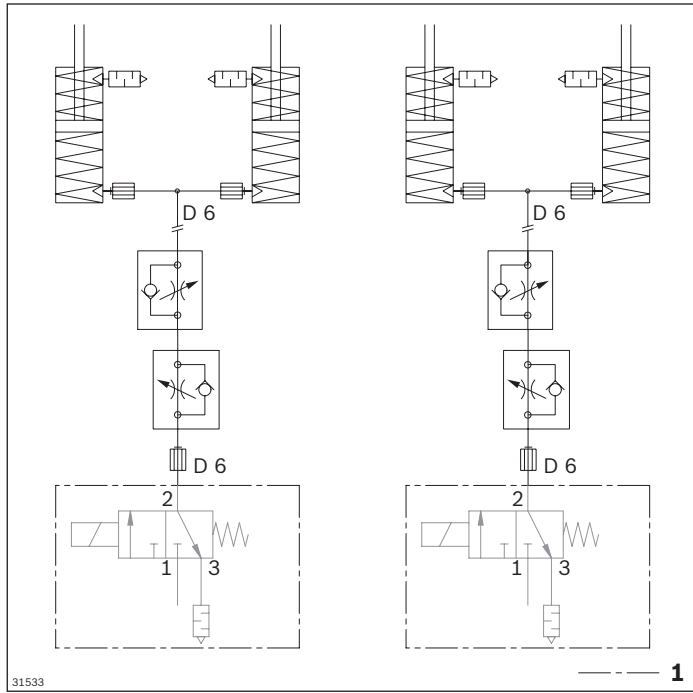


1 Not included in delivery

5

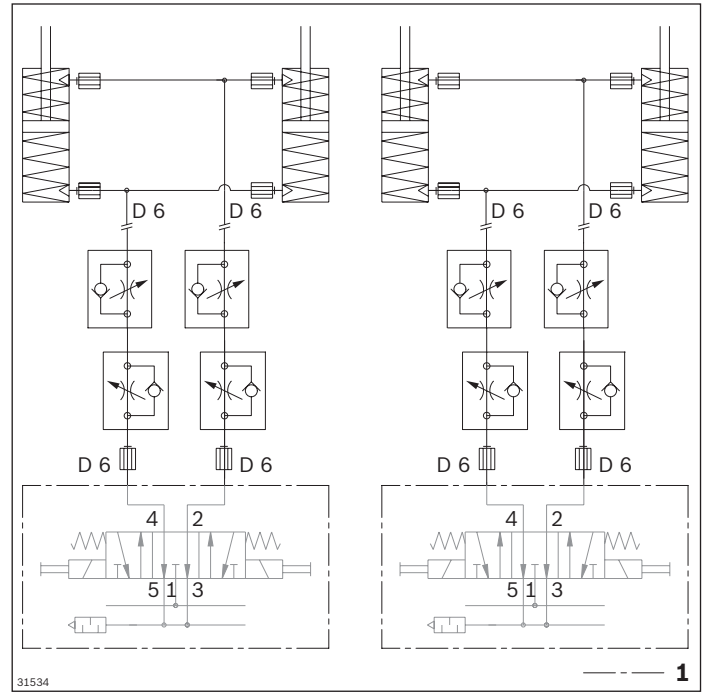


Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 2



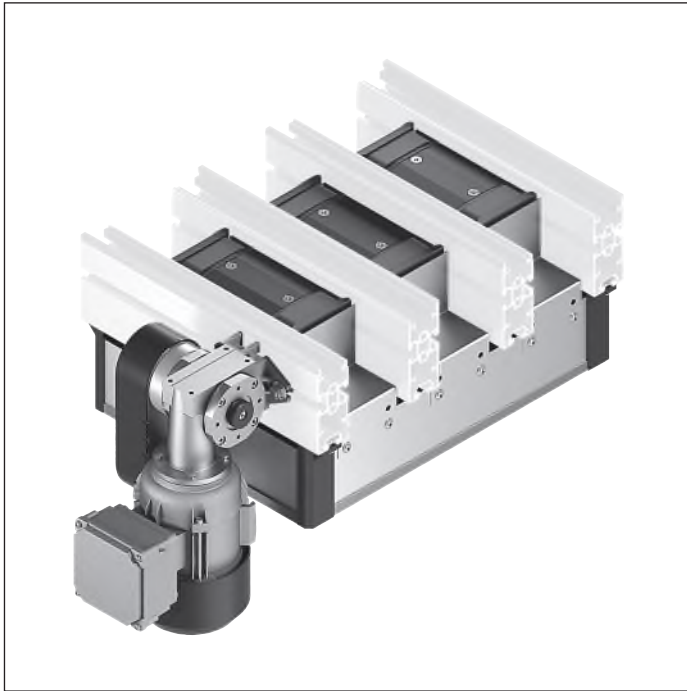
1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 3



1 Not included in delivery

EQ 2/TR-90 electric transverse conveyor



- ▶ Complete macro module for connecting two parallel longitudinal sections at a distance of 90 mm from each other
- ▶ With driven intermediate sections
- ▶ Modular unit with three lifting cylinders
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Pneumatic equipment for 2 (top, center) or 3 (top, center, bottom) lift positions
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2 and WT 2/E

Note:

- ▶ Reversible operation possible
- ▶ Accumulation operation not permitted

Accessories

Required accessories

- ▶ 1x M12x1 sensor with rated sensing range $S_N = 4$ mm for each (top/bottom) position sensing location, see p. 8-106

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ Pneumatic equipment for two or three positions
- ▶ Kit for electrical position inquiry (2x sensors)
- ▶ Connection kit
- ▶ Housing element

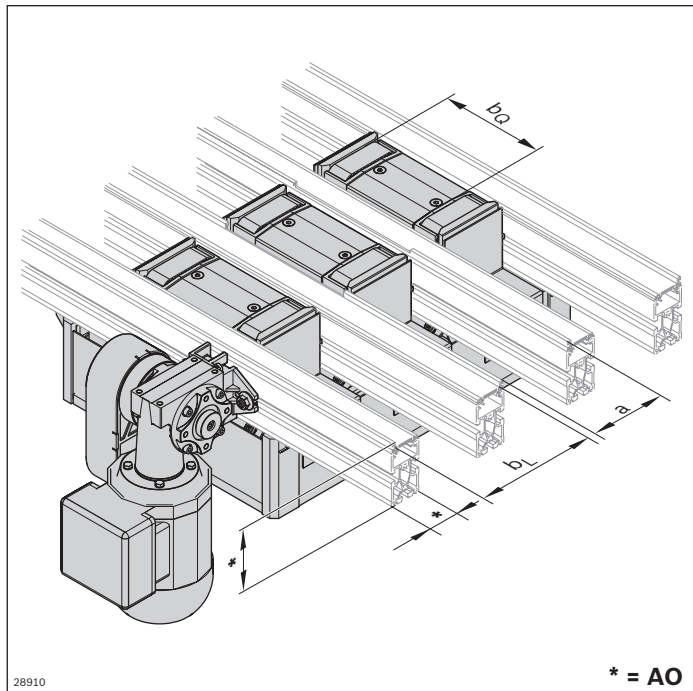
Recommended accessories

- ▶ DA 2/60 damper (see p. 8-62) for outfeeding WT 2 and WT 2/E workpiece pallets at $v_N > 9$ m/min
- ▶ WI 2 rocker (see p. 8-131) WI/M rocker (see p. 8-133) and DA 2/60-C damper (see p. 8-62) for infeeding WT 2 and WT 2/F workpiece pallets

Condition on delivery

- ▶ HQ 2/O and HQ 2/T lift transverse unit assembled
- ▶ Drive kit, assembled
- ▶ Motor mounting kit, drive motor enclosed
- ▶ Connection kit included
- ▶ Protective housing, not assembled

Ordering information



Material number		3842998289
b_Q (mm)	Track width in the transverse conveyor	160; 240
b_L (mm)	Track width in the longitudinal conveyor	160
$b_Q \times b_L$ (mm x mm)	Combination options	160 x 160 240 x 160
AO	Installation location, profile 0 = profile 45x80 1 = profile 45x100 2 = profile 50x100	0; 1; 2
PN	Pneumatic equipment	2 ¹ ; 3 ²
v_N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K

¹ PN = 2: Upper and middle lift position

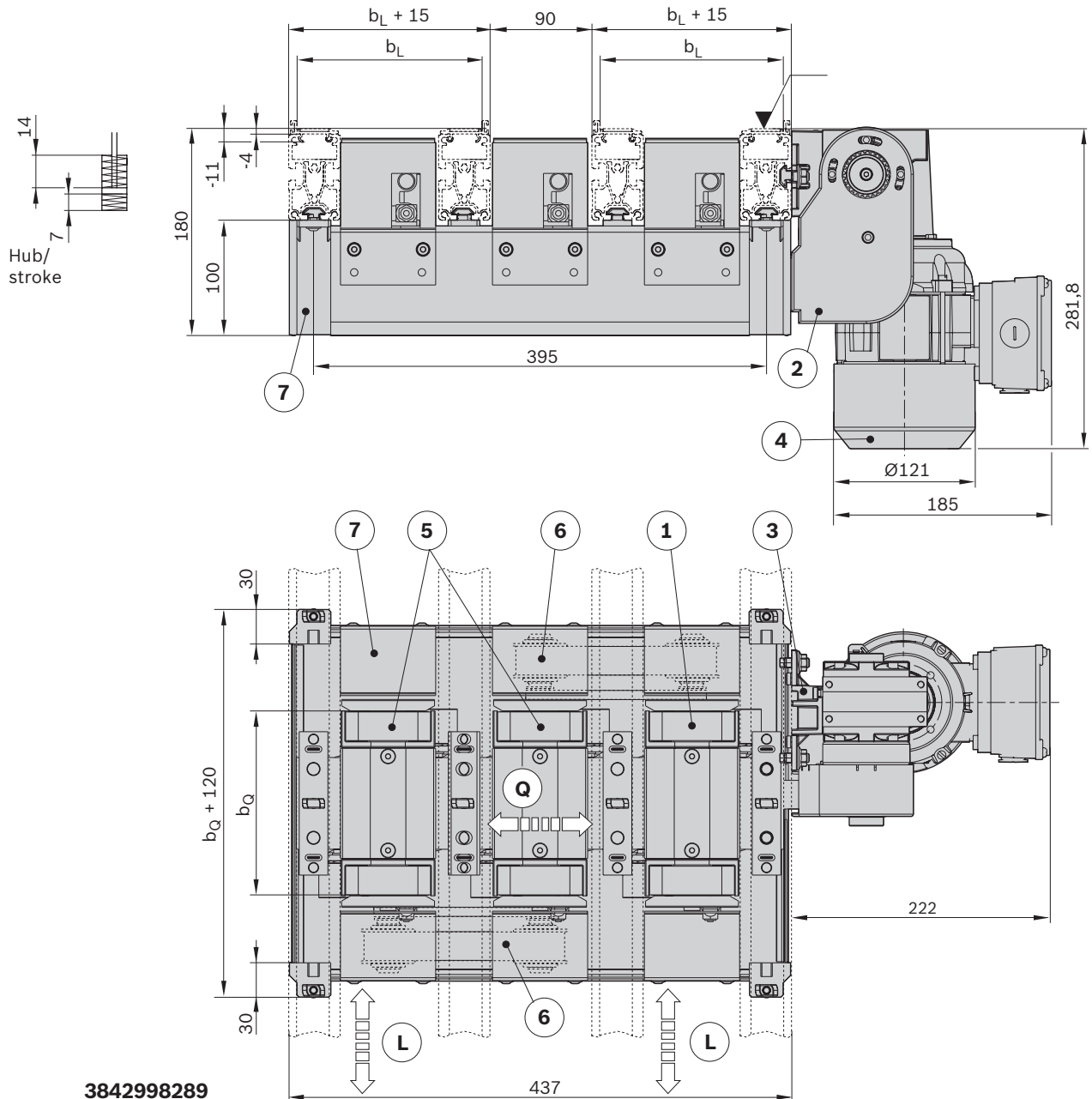
² PN = 3: Upper, middle and lower lift position

Technical data

Material number		3842998289	
Load			
Max. total weight of workpiece pallet	m_G	kg	30
Features			
ESD			Yes
Dimensions			
Distance between conveyors	a	mm	90
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	\emptyset	mm	6

Dimensions

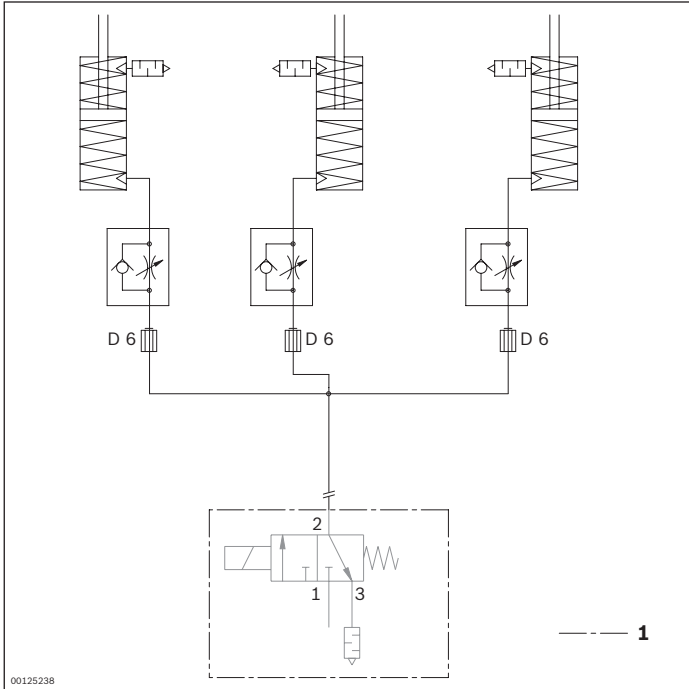
AO = 0 referenced



00125237

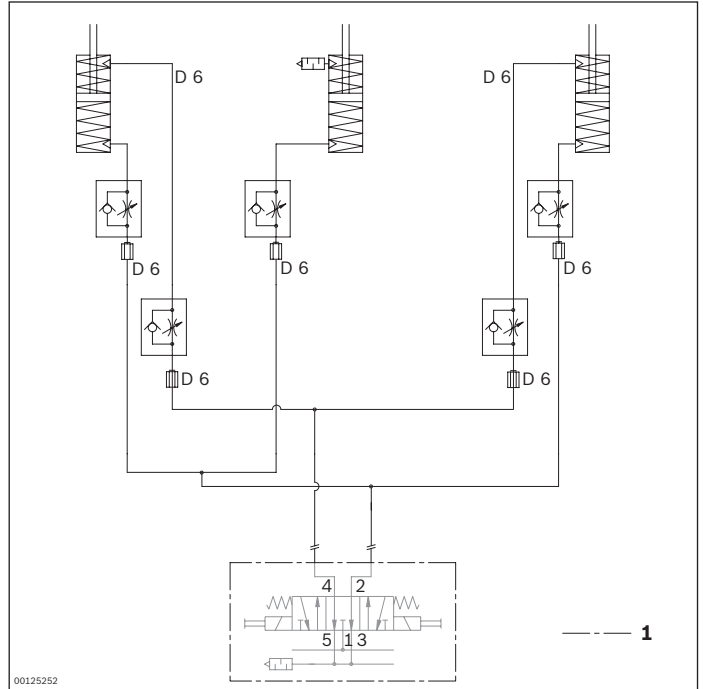
- L Longitudinal conveyor transport direction
- Q Transport direction of transverse conveyor
- 1 HQ 2/O lift transverse unit
- 2 Connecting kit
- 3 Motor mounting kit
- 4 Drive motor
- 5 HQ 2/T lift transverse unit
- 6 Drive kit
- 7 Housing element

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2)

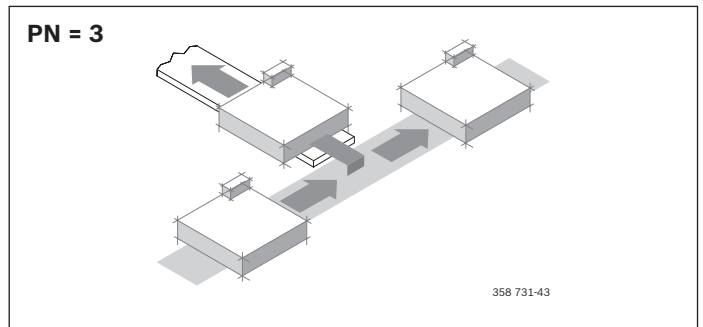
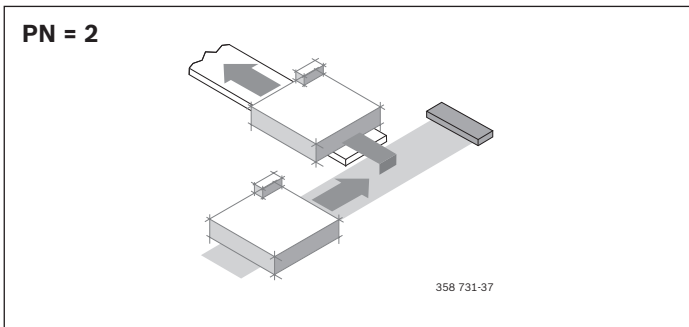


1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3)



1 Not included in delivery



EQ 2/T electric transverse conveyor



- ▶ Pre-assembled module for connecting two parallel longitudinal sections
- ▶ Tandem design with driven belt section for greater distances from 320 mm
- ▶ Size 2 from $\geq 480 \times 480$ mm with two lifting cylinders per lift transverse unit
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Pneumatic equipment for 2 (top, center) or 3 (top, center, bottom) lift positions
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2, WT 2/E and WT 2/F

Note:

- ▶ Reversible operation possible
- ▶ Accumulation operation not permitted on the lift transverse units.

Accessories

Required accessories

- ▶ 1x M12x1 sensor with rated sensing range $S_N = 4$ mm for each (top/bottom) position sensing location, see p. 8-108/8-110

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ 2x HQ 2/O
- ▶ 1x BS 2/T tandem belt section
- ▶ 2x connection kit
- ▶ 2x SK 2/B housing element
- ▶ Pneumatic equipment for two or three positions
- ▶ Kit for electric position sensing

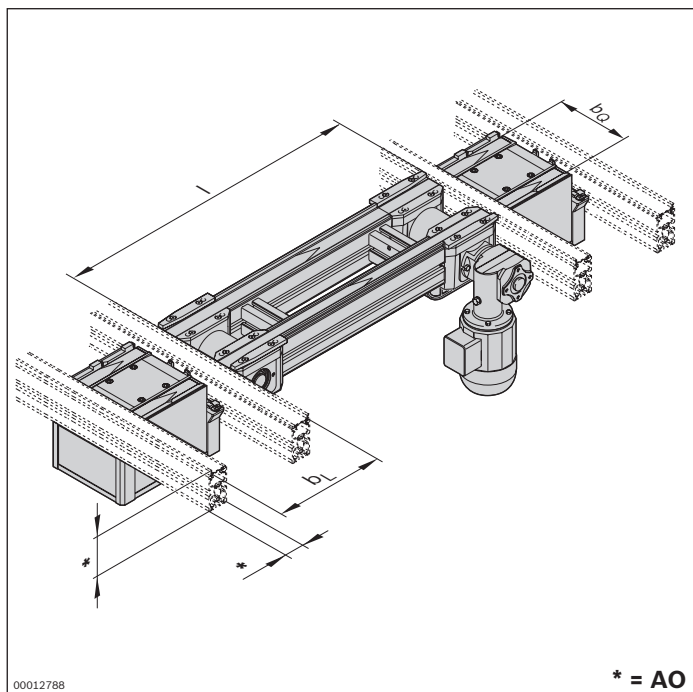
Recommended accessories

- ▶ DA 2/60 damper (see p. 8-62) for outfeeding workpiece pallets at $v_N > 9$ m/min
- ▶ WI/2 (see p. 8-131ff) or WI/M (see p. 8-133) rocker, DA 2/60 (see p. 8-62) or DA 2/100-C dampers for BG 2 (see p. 8-71) for infeeding workpiece pallets

Condition on delivery

- ▶ Pre-assembled in modular units

Ordering information



Material number		3842999895
b_Q (mm)	Track width in the transverse conveyor	160; 240; 320; 400; 480; 640; 800
b_L (mm)	Track width in the longitudinal conveyor	160; 240; 320; 400; 480
$b_Q \times b_L$ (mm x mm)	Combination options	BG 1: 160 x 160; 240; 320 240 x 160; 240; 320; 400 320 x 160; 240; 320; 400 400 x 240; 320; 400; 480 480 x 320; 400 BG 2: 480 x 480 640 x 400; 480 800 x 400; 480
l (mm)	Length	320 ... 6000
AO	Installation location, profile 0 = profile 45x80 1 = profile 45x100 2 = profile 50x100	0; 1; 2
PN	Pneumatic equipment	2 ¹ ; 3 ²
v_N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M ³

¹ PN = 2: Upper and middle lift position

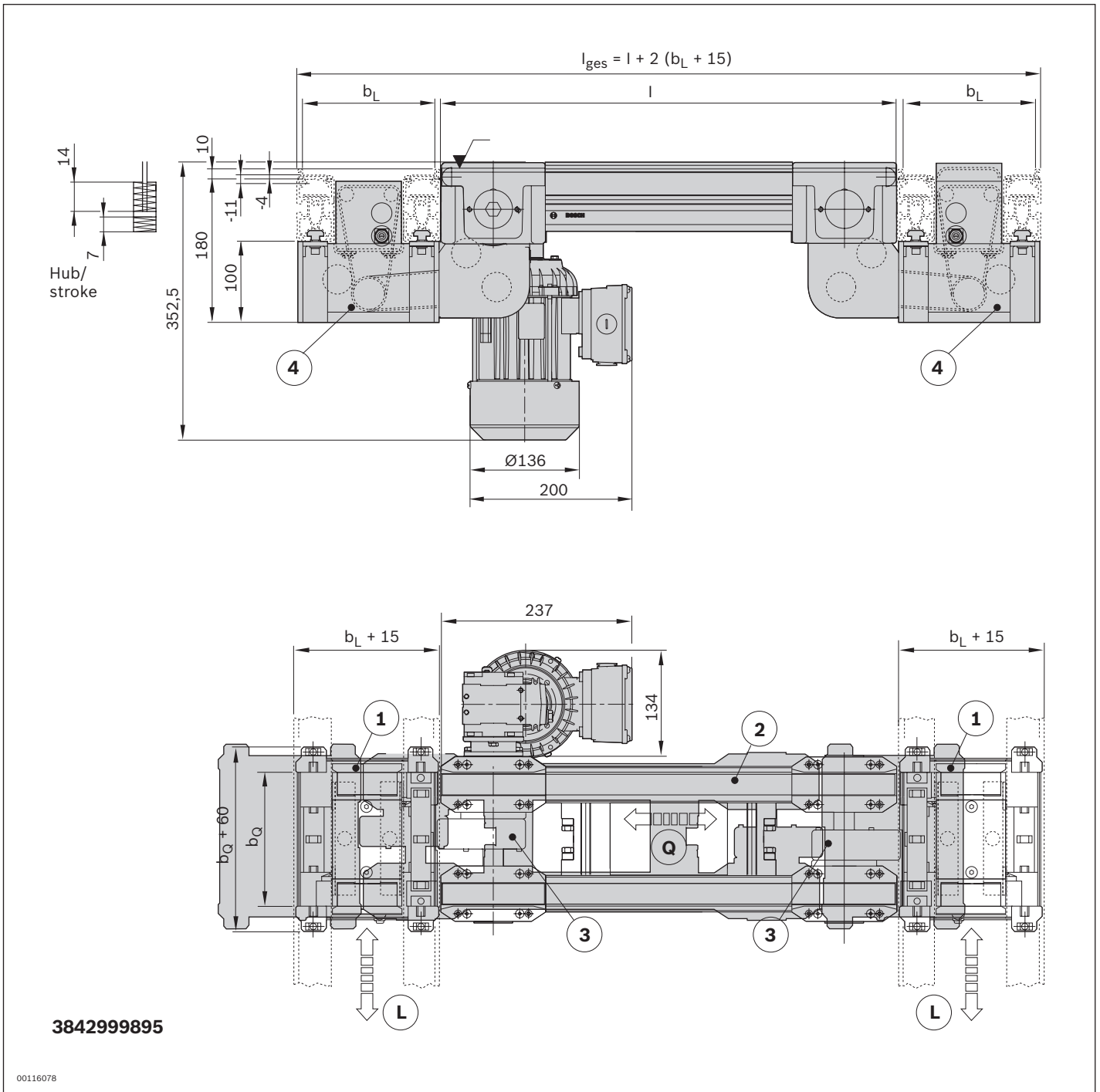
² PN = 3: Upper, middle and lower lift position

³ MA = M when $b_Q \geq 320$ mm

Technical data

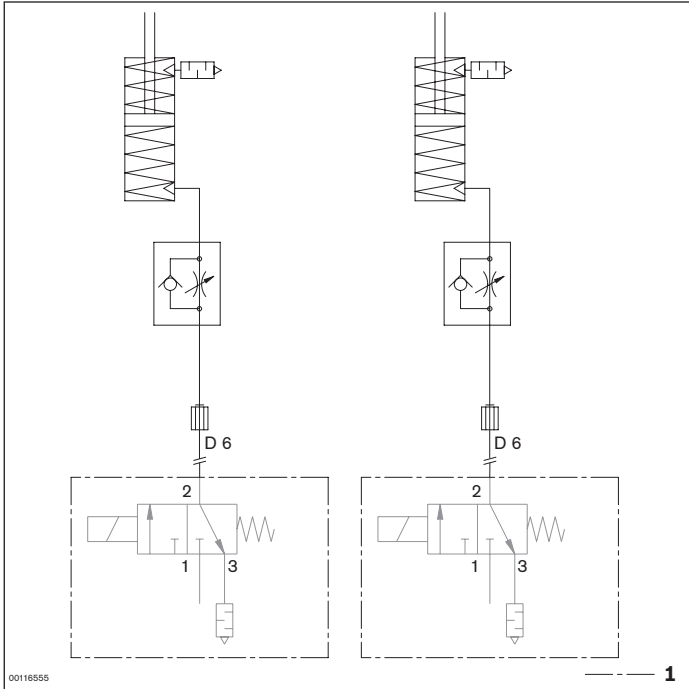
Material number		3842999895
Load		
Max. section load in accumulation operation	kg	60
Max. total weight of workpiece pallet m_G	kg	BG 1: 30 BG 2: 50
Features		
ESD		Yes
Design		
Size	BG	BG 1; BG 2
Additional information		
Required compressed air connection	p	bar
Pneumatic connector	\emptyset	mm
		4 ... 6
		6

Dimensions



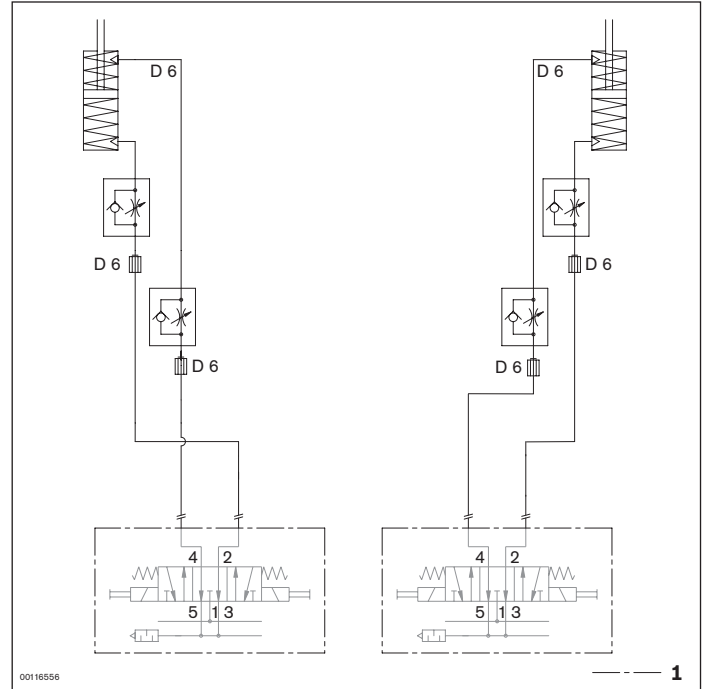
- L Longitudinal conveyor transport direction
- Q Transport direction of transverse conveyor
- 1 HQ 2/O lift transverse unit
- 2 BS 2/T tandem belt section
- 3 Connecting kit
- 4 Housing element

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 1

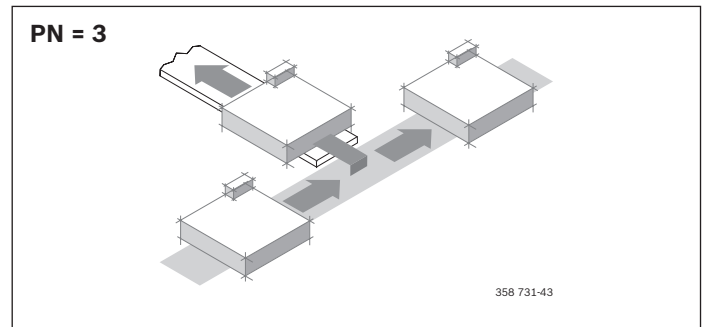
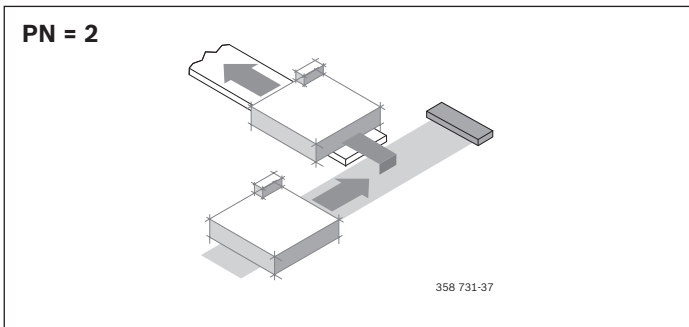


1 Not included in delivery

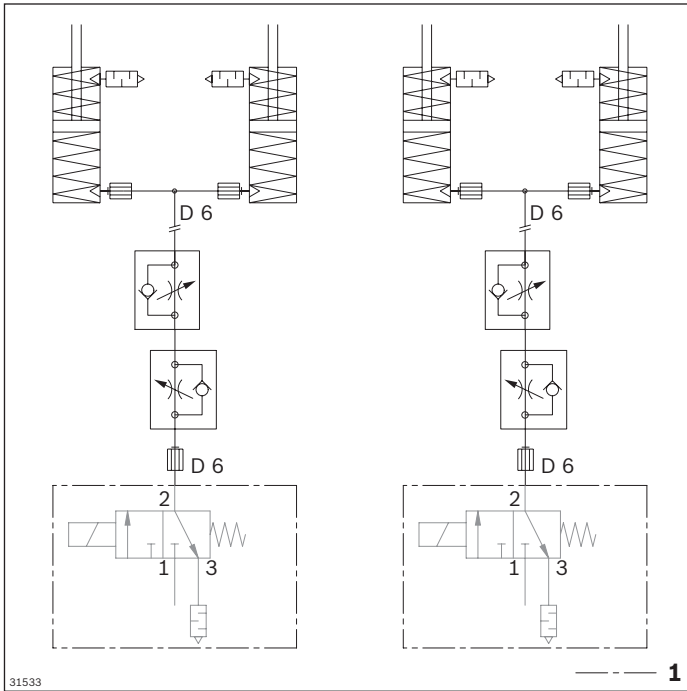
Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 1



1 Not included in delivery

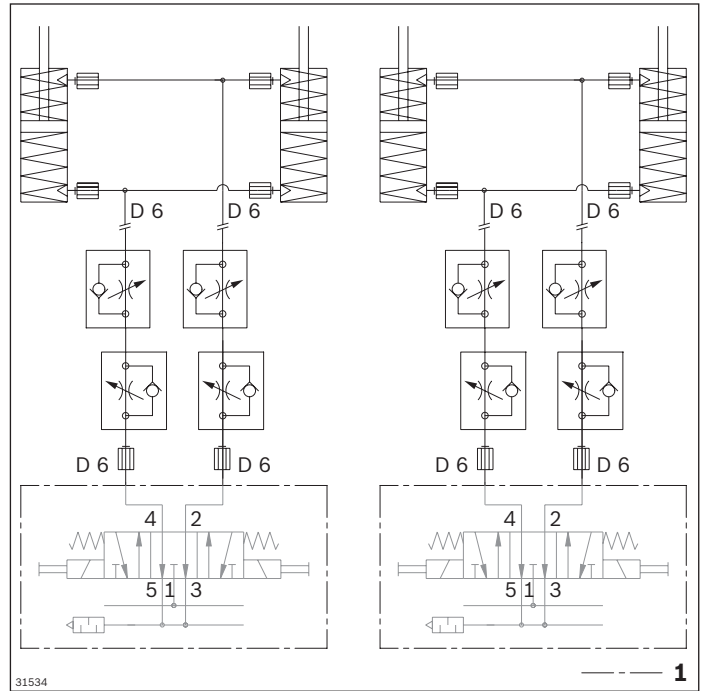


Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 2



1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 3



1 Not included in delivery

EQ 2/TE electric transverse conveyor



- ▶ Pre-assembled assembly for branching off into a transverse section in which the second end does not lead to a further transverse section (dead end)
- ▶ Size 2 from $\geq 480 \times 480$ mm with two lifting cylinders per lift transverse unit
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Pneumatic equipment for 2 (top, center) or 3 (top, center, bottom) lift positions
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2/E, WT 2 and WT 2/F

Note:

- ▶ Reversible operation possible
- ▶ Accumulation operation on the lift transverse unit is not permitted

Accessories

Required accessories

- ▶ 1x M12x1 sensor with rated sensing range $S_N = 4$ mm for each (top/bottom) position sensing location, see p. 8-108/8-110

Delivery notes

Scope of delivery

- ▶ 1x HQ 2/O lift transverse unit
- ▶ 1x BS 2/TE belt section
- ▶ 1x connection kit
- ▶ 1x SK 2/B housing element
- ▶ Pneumatic equipment for two or three positions
- ▶ Kit for electric position sensing

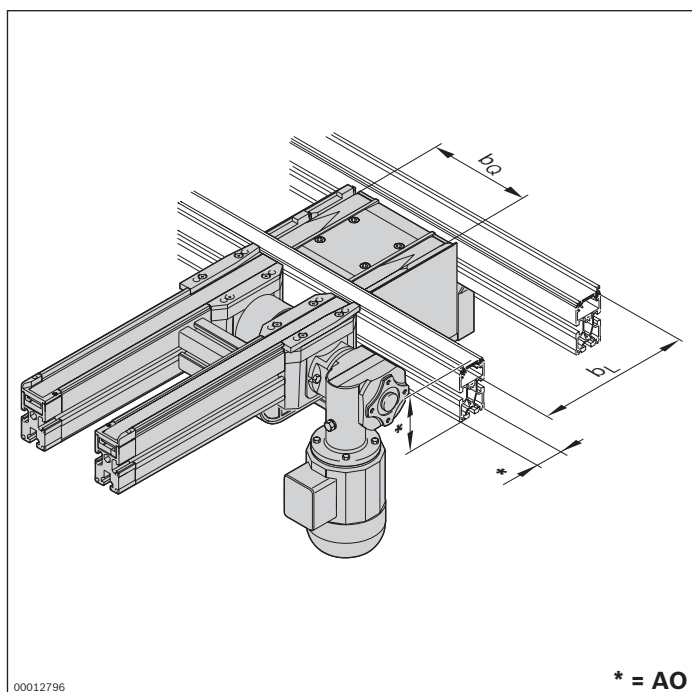
Recommended accessories

- ▶ DA 2/60 damper (see p. 8-62) for outfeeding WT 2, WT 2/F, WT 2/H or WT 2/F-H workpiece pallets at $v_N > 9$ m/min
- ▶ WI 2 (see p. 8-131ff) or WI/M (see p. 8-133) rocker and DA 2/60 (see p. 8-62) or DA 2/100-C dampers for BG 2 (see p. 8-62) for infeeding workpiece pallets

Condition on delivery

- ▶ HQ 2/O lift transverse unit, assembled
- ▶ BS 2/TE belt section, assembled
- ▶ Connection kit included
- ▶ Protective housing, not assembled

Ordering information



Material number		3842999896
b _Q (mm)	Track width in the transverse conveyor	160; 240; 320; 400; 480; 640; 800
b _L (mm)	Track width in the longitudinal conveyor	160; 240; 320; 400; 480
b _Q x b _L (mm x mm)	Combination options	BG 1: 160 x 160; 240; 320 240 x 160; 240; 320; 400 320 x 160; 240; 320; 400 400 x 240; 320; 400; 480 480 x 320; 400 BG 2: 480 x 480 640 x 400; 480 800 x 400; 480
l (mm)	Length	240 ... 6000
AO	Installation location, profile 0 = profile 45x80 1 = profile 45x100 2 = profile 50x100	0; 1; 2
PN	Pneumatic equipment	2 ¹ ; 3 ²
v _N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; M ³ ; L

¹ PN = 2: Upper and middle lift position

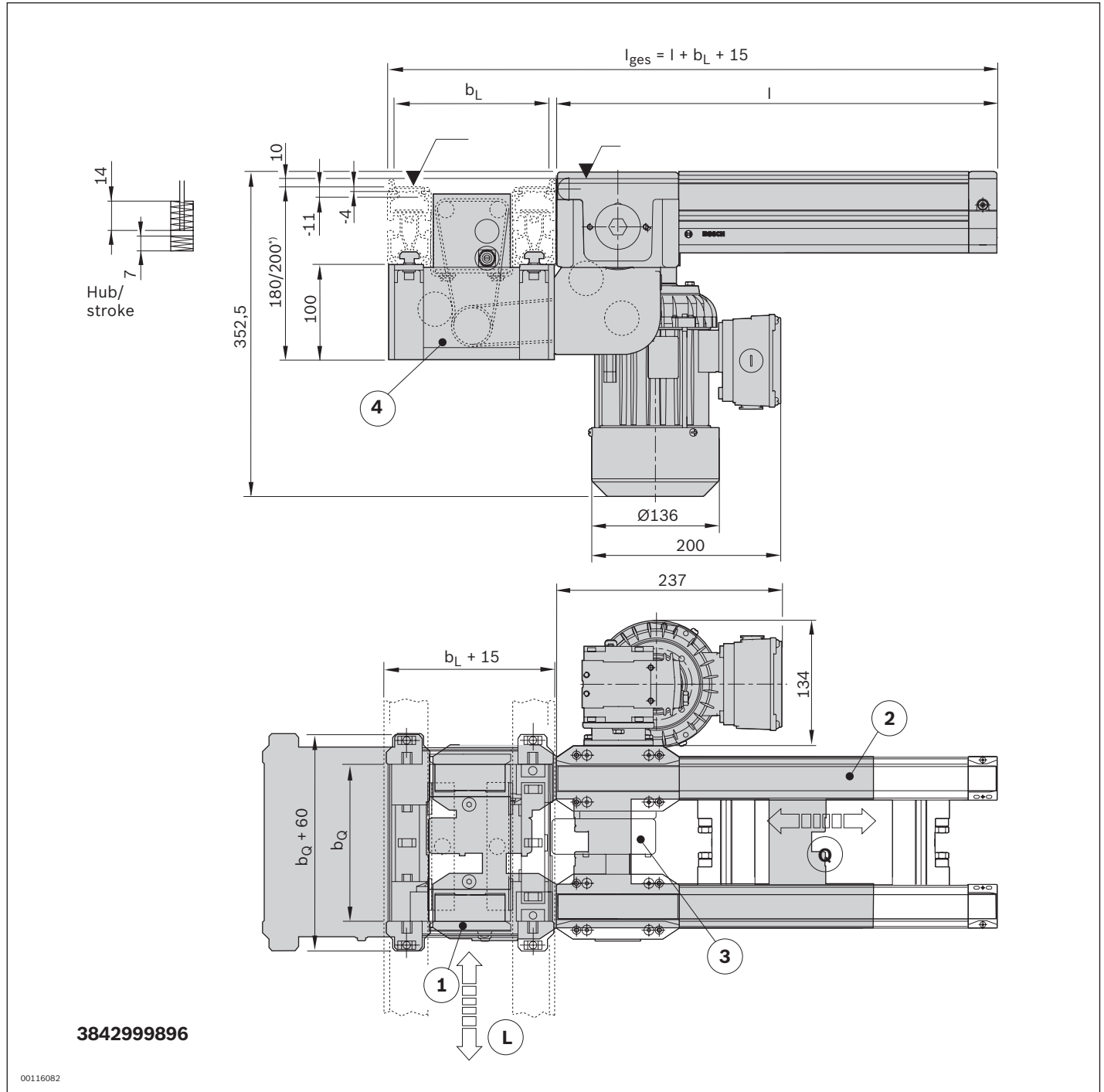
² PN = 3: Upper, middle and lower lift position

³ MA = M when b_Q ≥ 320 mm

Technical data

Material number		3842999896
Load		
Max. section load in accumulation operation	kg	60
Max. total weight of workpiece pallet m _G	kg	30
Features		
ESD		Yes
Design		
Size	BG	BG 1; BG 2
Additional information		
Required compressed air connection	p	bar
Pneumatic connector	Ø	mm
		4 ... 6
		6

Dimensions



L Longitudinal conveyor transport direction
Q Transport direction of transverse conveyor

1 HQ 2/O lift transverse unit

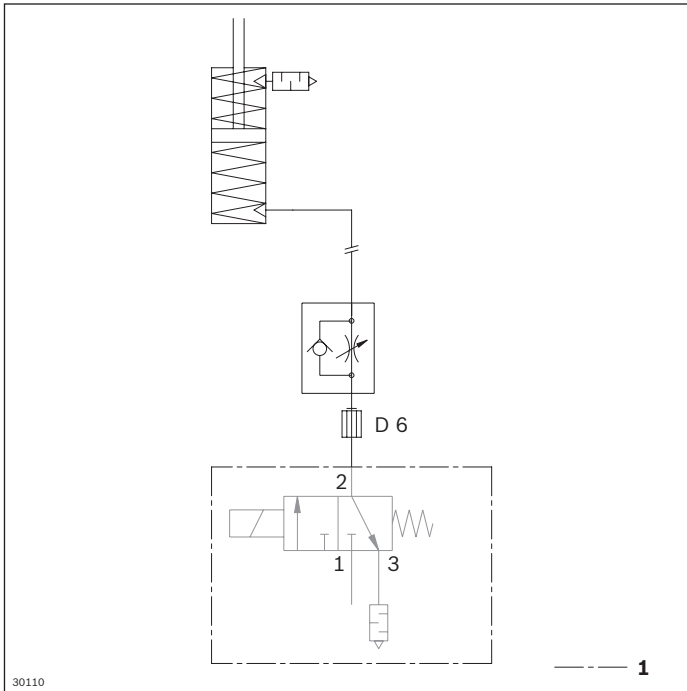
2 BS 2/TE belt section

3 Connecting kit

4 Housing element

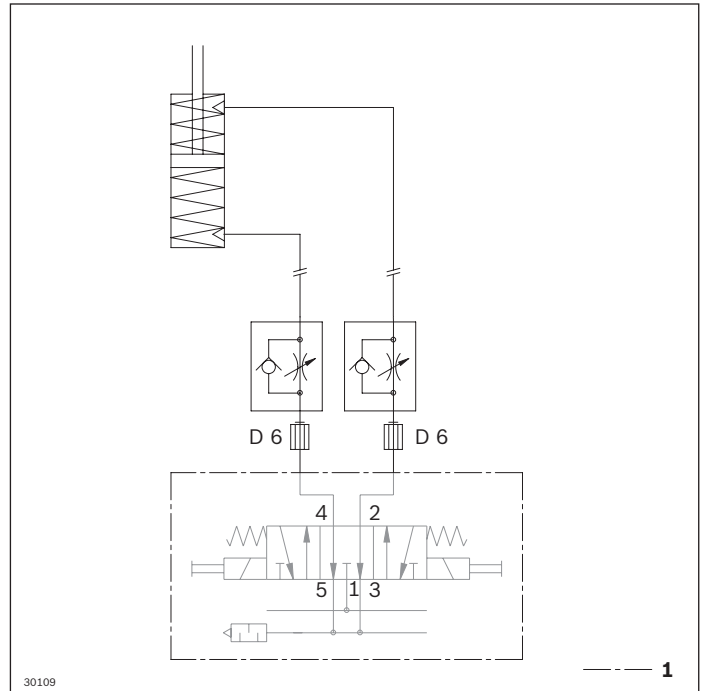
* 180 mm for 80 mm profile height, 200 mm for 100 mm profile height

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 1



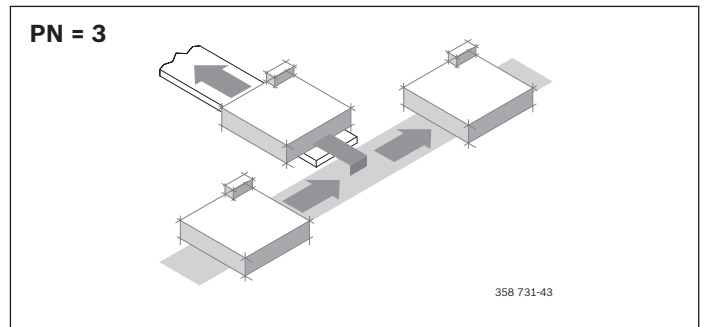
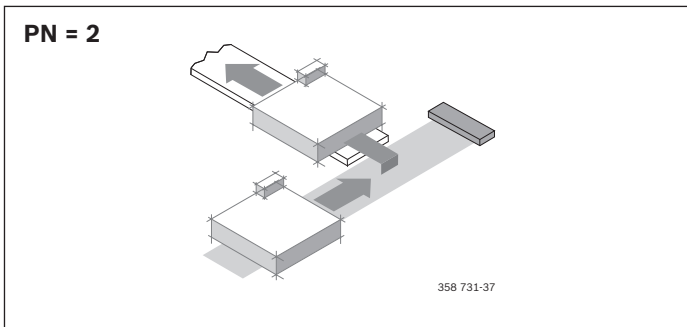
1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 1

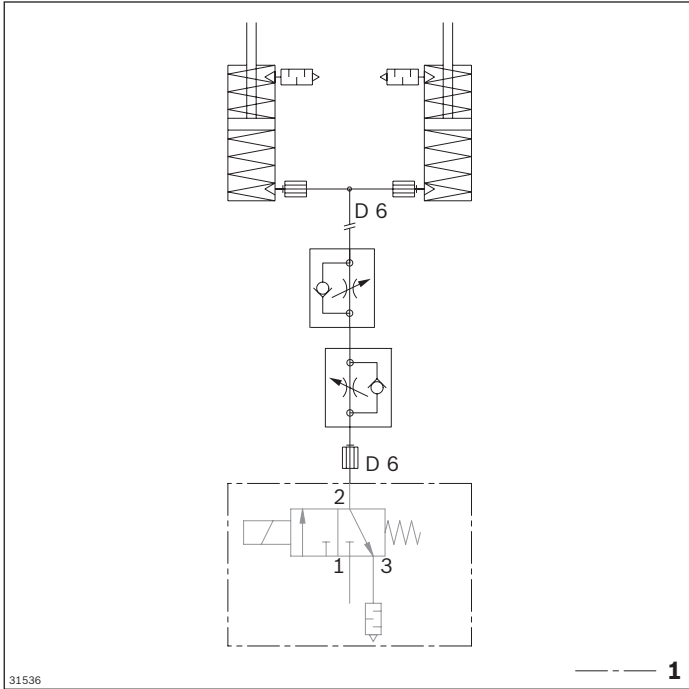


1 Not included in delivery

5

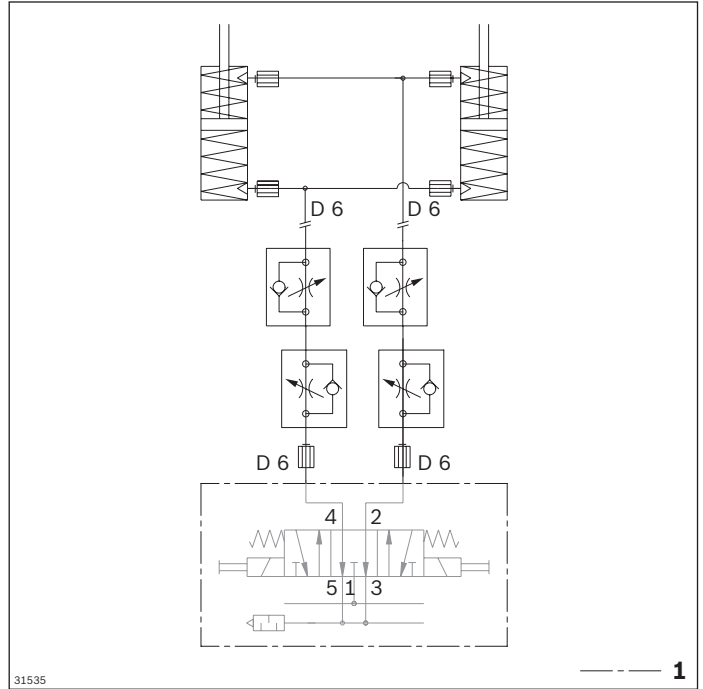


Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 2



1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 2



1 Not included in delivery

HQ 2 lift transverse units

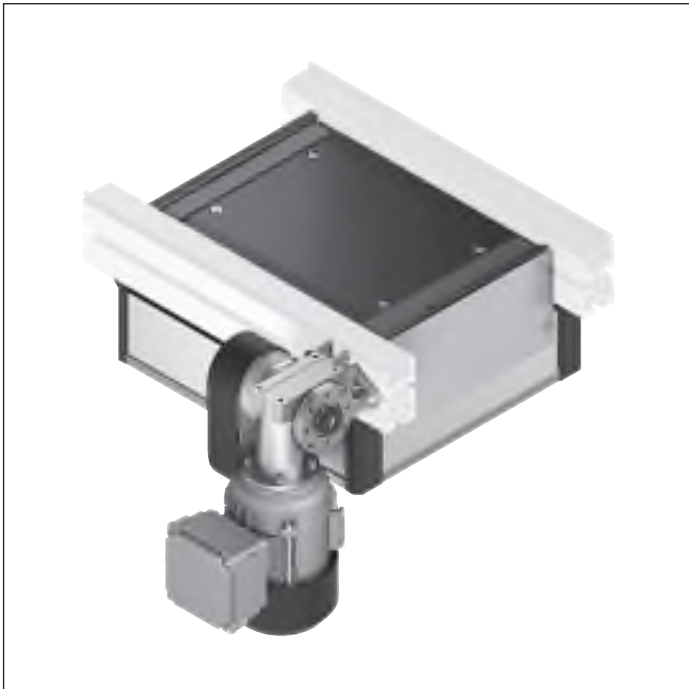
The lift transverse units have to:

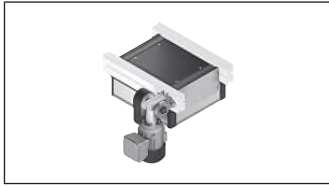
- ▶ Move the workpiece pallets from a longitudinal section to a transverse section
- ▶ Move the workpiece pallets from a transverse section onto a longitudinal section

Lift transverse units for overall workpiece pallet weights up to 240 kg are available for the TS *2plus* transfer system.

All lift transverse units have one thing in common – vertical pneumatic movement and horizontal transportation action. Vertical movement can be set in three positions:

- ▶ Spring-centered middle position (basic position, 4 mm below transport level). It serves as the transport position when the lug cam is lowered and as the locked position when the lug cam is raised
- ▶ Transverse conveying position (10 mm above transport level of longitudinal conveyor)
- ▶ Lower transport position (11 mm below conveying level). In this low position a workpiece pallet is also released onto a longitudinal conveyor section when the lug cam is raised





HQ 2/S lift transverse units

160 x 160 ... 800 x 480



5-28



HQ 2/O lift transverse units

160 x 160 ... 800 x 480



5-33



HQ 2/T lift transverse units

160 x 160 ... 800 x 480

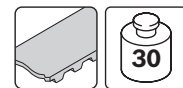


5-48



HQ 2/U lift transverse units

160 x 160 ... 400 x 400; 480 x 320



5-56



HQ 2/U2 lift transverse units

400 x 400 ... 800 x 640

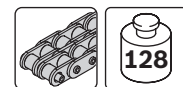


5-60

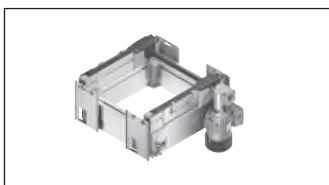


HQ 2/U-H lift transverse units

240 x 240 ... 640 x 640



5-64



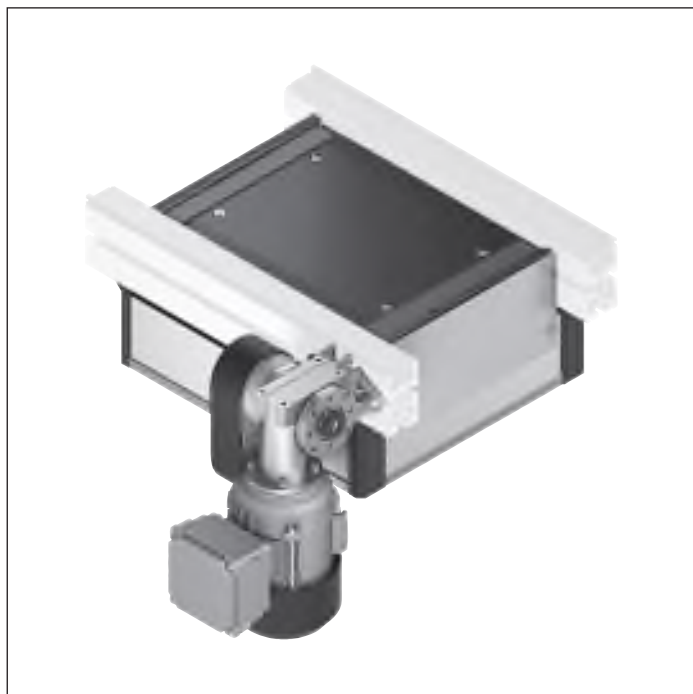
HQ 2/C-H lift transverse units

480 x 640 ... 1200 x 1200



5-71

HQ 2/S lift transverse unit



- ▶ Lift transverse unit for feeding out from a longitudinal section into a transverse section and vice versa
- ▶ Low height with motor mounted on side. It is therefore suitable for the operation of double-deck conveyor sections
- ▶ In two sizes with one or two lifting cylinders
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Pneumatic equipment for 2 (top, center) or 3 (top, center, bottom) lift positions
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2/E, WT 2 and WT 2/F

Note: Reversible operation possible

Vertical movement is delivered by pneumatic cylinders. Two sizes are available:

Size 1 (BG 1) for total weights (workpiece pallet + load) up to 30 kg by one lifting cylinder.

Accessories

Required accessories

- ▶ 1x M12x1 sensor with $S_N \geq 4$ mm rated sensing range for each position sensing location, see p. 8-108/8-110
- ▶ SK 2. protective housing, see p. 5-40

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ Pneumatic equipment for two or three positions
- ▶ Kit for electric position sensing

Size 2 (BG 2) for total weights (workpiece pallet + load) up to 50 kg by two lifting cylinder for workpiece pallet dimensions from 400 x 480 mm.

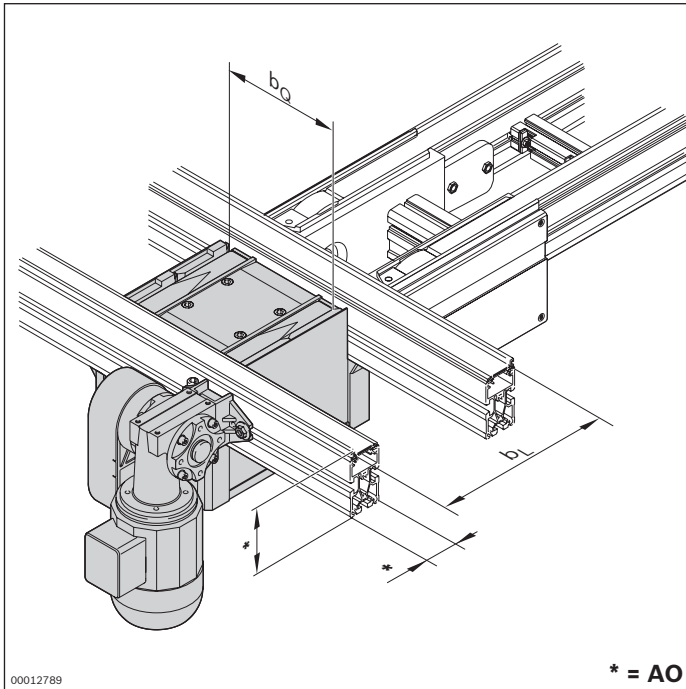
Recommended accessories

- ▶ DA 2/60 damper (see p. 8-62) for outfeeding workpiece pallets at $v_N > 9$ m/min
- ▶ WI 2/... rockers (see p. 8-139ff), WI/M (see p. 8-133) DA 2/60 (see p. 8-62), DA 2/100-C dampers for BG 2 (see p. 8-71) for infeeding the workpiece pallet

Condition on delivery

- ▶ Pre-assembled in modular units
- ▶ Protective housing, not assembled

Ordering information



Material number		3842999888
b _Q (mm)	Track width in the transverse conveyor	160; 240; 320; 400; 480; 640; 800
b _L (mm)	Track width in the longitudinal conveyor	160; 240; 320; 400; 480
b _Q x b _L (mm x mm)	Combination options	BG 1: 160 x 160; 240; 320 240 x 160; 240; 320; 400 320 x 160; 240; 320; 400 400 x 240; 320; 400 480 x 320 BG 2: 400 x 480 480 x 400; 480 640 x 400; 480 800 x 400; 480
AO	Installation location, profile 0 = profile 45x80 1 = profile 45x100 2 = profile 50x100	0; 1; 2
PN	Pneumatic equipment	2 ¹ ; 3 ²
v _N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K

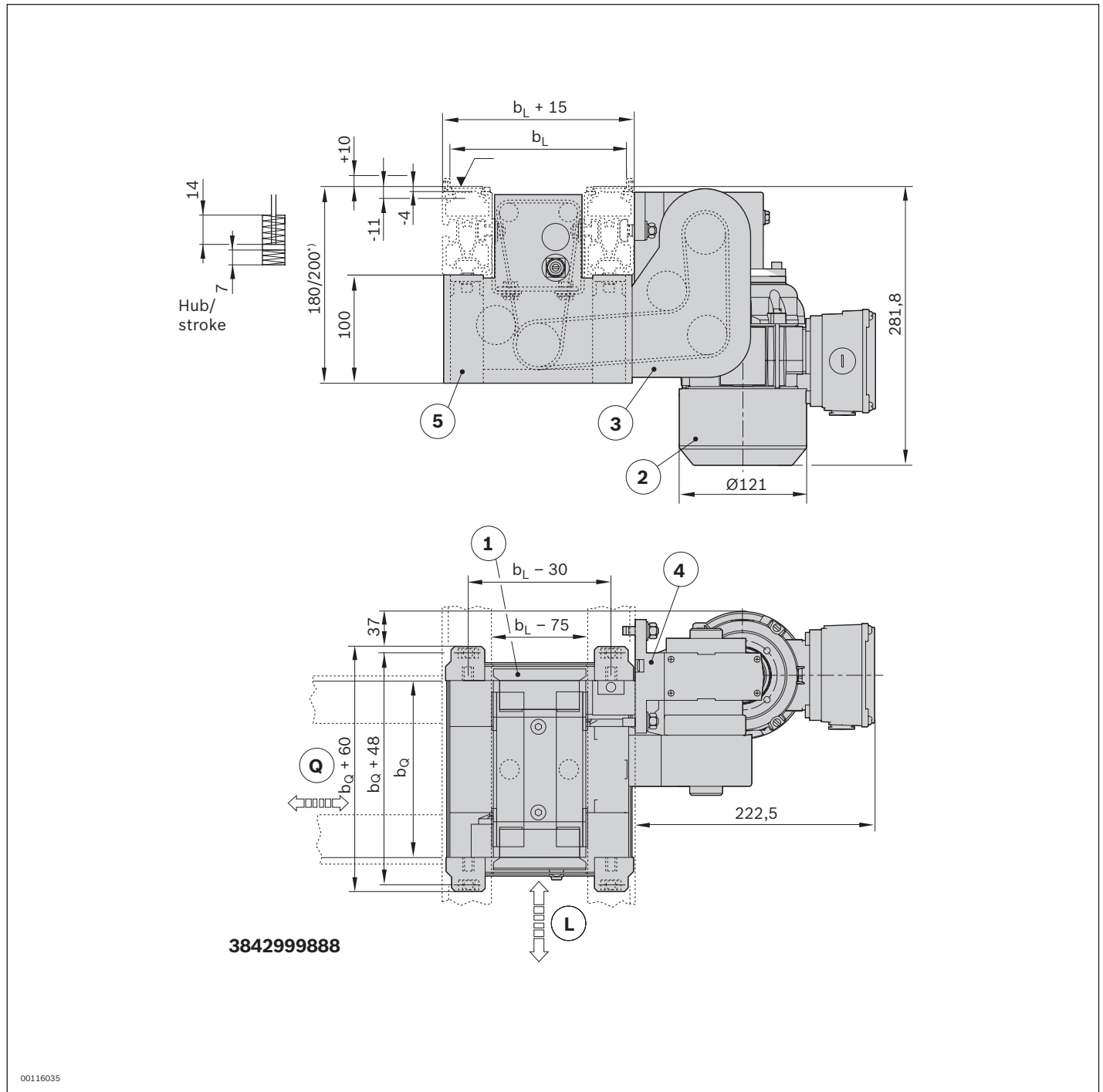
¹ PN = 2: Upper and middle lift position

² PN = 3: Upper, middle and lower lift position

Technical data

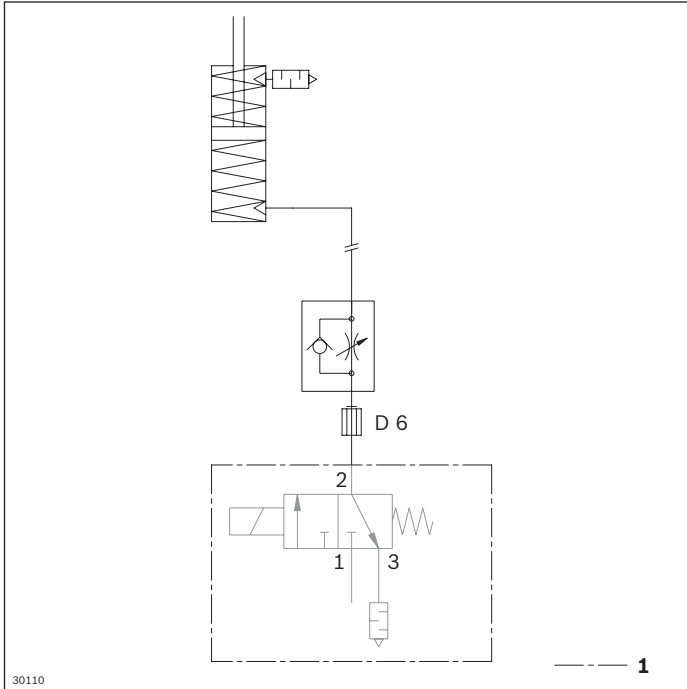
Material number		3842999888
Load		
Max. total weight of workpiece pallet	m _G	kg
		BG 1: 30 BG 2: 50
Features		
ESD		Yes
Design		
Size	BG	BG 1; BG 2
Additional information		
Required compressed air connection	p	bar
		4 ... 6
Pneumatic connector	∅	mm
		6

Dimensions



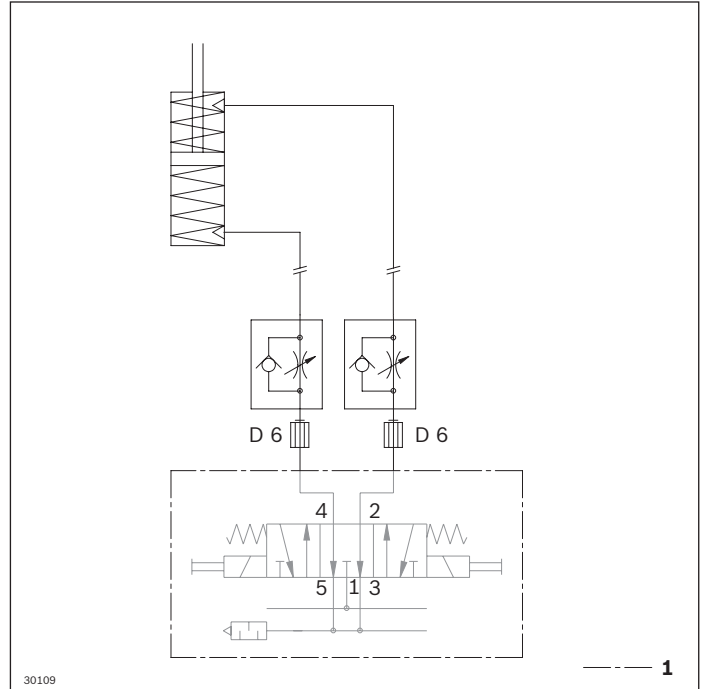
- L Transport direction of longitudinal conveyor section
 - Q Transport direction of transverse conveyor section
 - 1 HQ 2/S lift transverse unit
 - 2 Drive motor
 - 3 Connecting kit
 - 4 Motor mounting kit
 - 5 Housing element
- * 180 mm for 80 mm profile height, 200 mm for 100 mm profile height

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 1



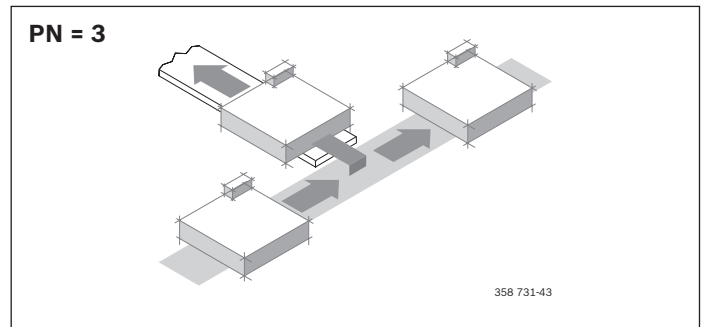
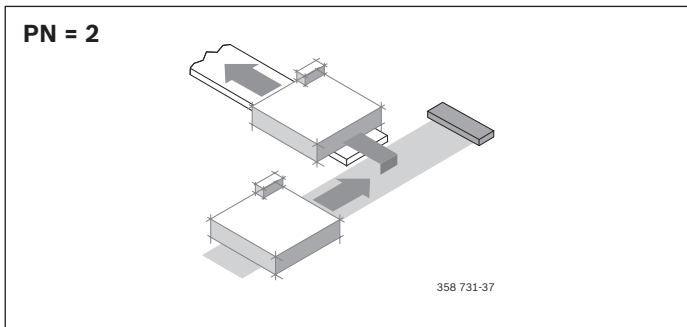
1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 1

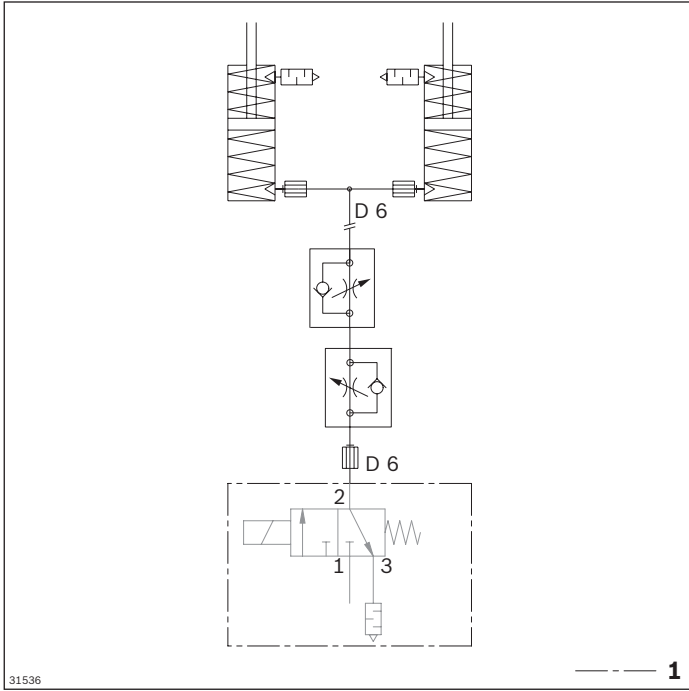


1 Not included in delivery

5

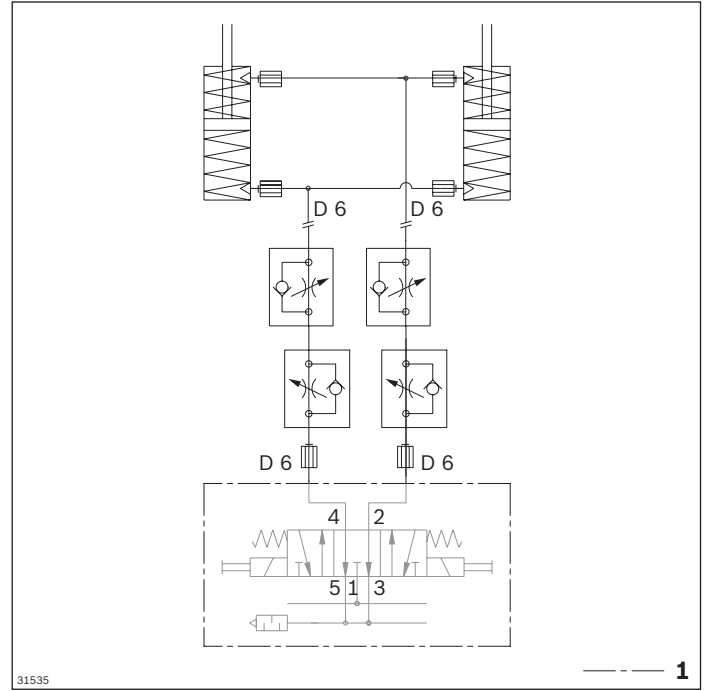


Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 2



1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 2



1 Not included in delivery

HQ 2/O lift transverse unit



The HQ 2/O does not have a built-in drive. Driven by a toothed belt coupled with a BS 2/T, BS 2/TE belt section or by a separate drive motor. It is a part of all EQ 2 electric transverse conveyors and can also be used in special system designs. Vertical movement is delivered by pneumatic cylinders.

Accessories

Required accessories

- ▶ 1x M12x1 sensor with $S_N \geq 4$ mm rated sensing range for each position sensing location, see p. 8-108/8-110
- ▶ BS 2/T belt section (see p. 5-42), BS 2/TE belt section (see p. 5-45) for driving
- ▶ HQ 2/T (see p. 5-48) in the tandem version
- ▶ Connection belt set for HQ 2/O drive (see p. 5-38) via a belt section
- ▶ SK 2/B protective housing, see p. 5-54

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ Pneumatic equipment for two or three positions
- ▶ Kit for electric position sensing

- ▶ Lift transverse unit without built-in drive for outfeeding from a longitudinal section into a transverse section and vice versa
- ▶ Drive by toothed belt coupling
- ▶ The low height is suitable for the operation of double-deck conveyor sections
- ▶ Suitable for use in special designs
- ▶ In two sizes with one or two lifting cylinders
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Pneumatic equipment for 2 (top, center) or 3 (top, center, bottom) lift positions
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2 and WT 2/F

Note: Reversible operation possible

Two sizes are available:

Size 1 (BG 1) for total weights (workpiece pallet + load) up to 30 kg by one lifting cylinder.

Size 2 (BG 2) for total weights (workpiece pallet + load) up to 50 kg by two lifting cylinder for workpiece pallet dimensions from 400 x 480 mm.

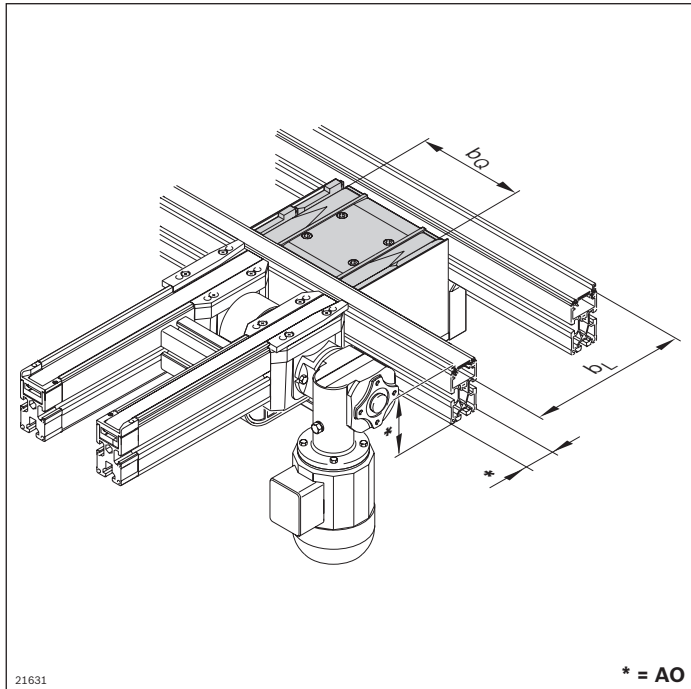
Recommended accessories

- ▶ DA 2/60 damper (see p. 8-62) for outfeeding workpiece pallets at $v_N > 9$ m/min
- ▶ WI 2 (see p. 8-139ff) or WI/M (see p. 8-133) rocker and DA 2/60 (see p. 8-62) or DA 2/100-C dampers for BG 2 (see p. 8-71) for infeeding workpiece pallets

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998113
b_Q (mm)	Track width in the transverse conveyor	160; 240; 320; 400; 480; 640; 800
b_L (mm)	Track width in the longitudinal conveyor	160; 240; 320; 400; 480
$b_Q \times b_L$ (mm x mm)	Combination options	BG 1: 160 x 160; 240; 320 240 x 160; 240; 320; 400 320 x 160; 240; 320; 400 400 x 240; 320; 400 480 x 320 BG 2: 400 x 480 480 x 400; 480 640 x 400; 480 800 x 400; 480
AO	Installation location, profile 0 = profile 45x80 1 = profile 45x100 2 = profile 50x100	0; 1; 2
PN	Pneumatic equipment	2 ¹ ; 3 ²

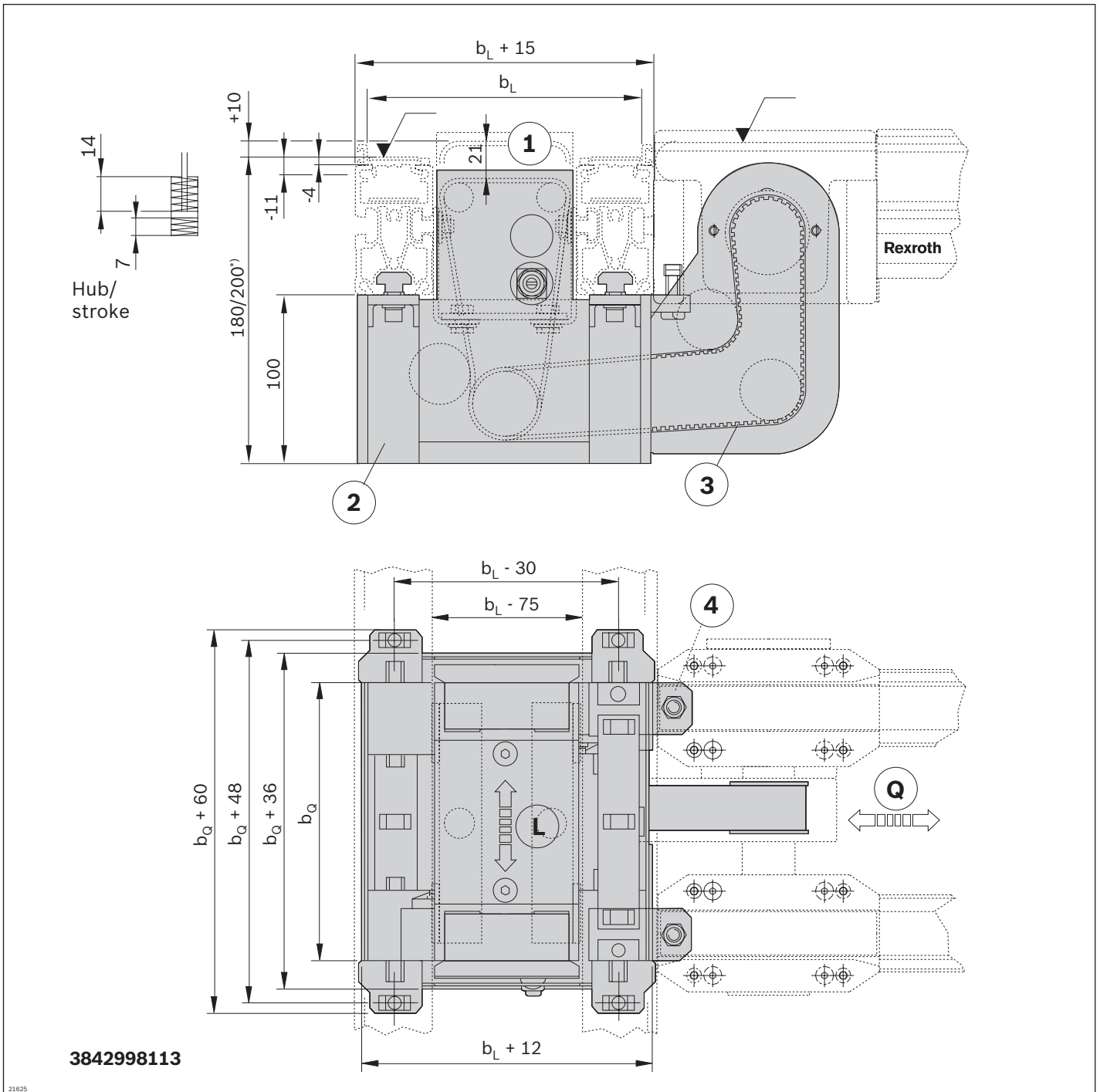
¹ PN = 2: Upper and middle lift position

² PN = 3: Upper, middle and lower lift position

Technical data

Material number		3842998113
Load		
Max. total weight of workpiece pallet	m_G	kg
		BG 1: 30 BG 2: 50
Features		
ESD		Yes
Design		
Size	BG	BG 1; BG 2
Additional information		
Required compressed air connection	p	bar
		4 ... 6
Pneumatic connector	\emptyset	mm
		6

Dimensions



L Transport direction of longitudinal conveyor section

Q Transport direction of transverse conveyor section

1 Stroke

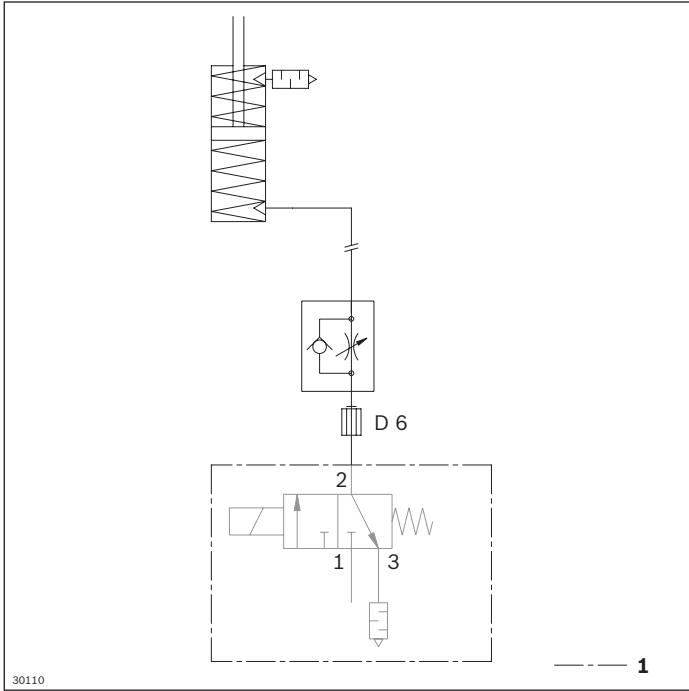
2 Housing element

3 Toothed belt for drive

4 Attachment for BS 2/T

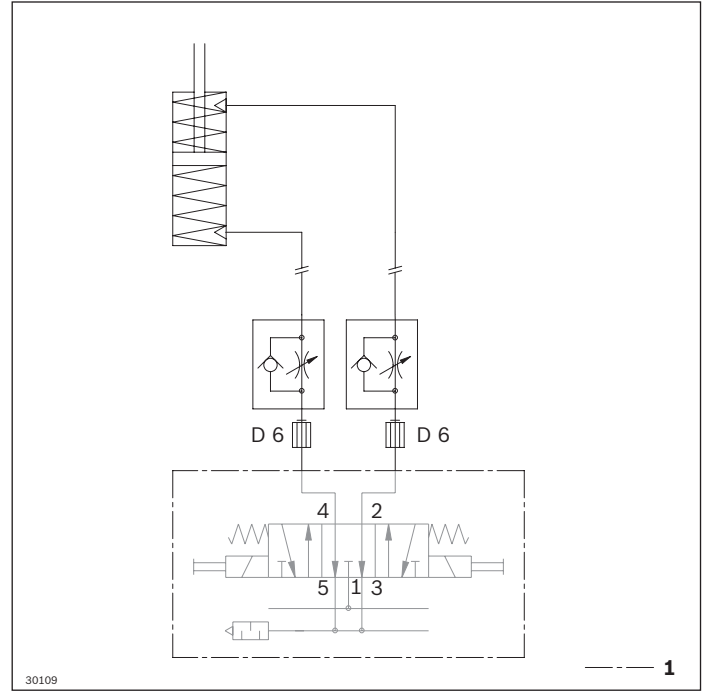
* 180 mm for 80 mm profile height, 200 mm for 100 mm profile height

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 1

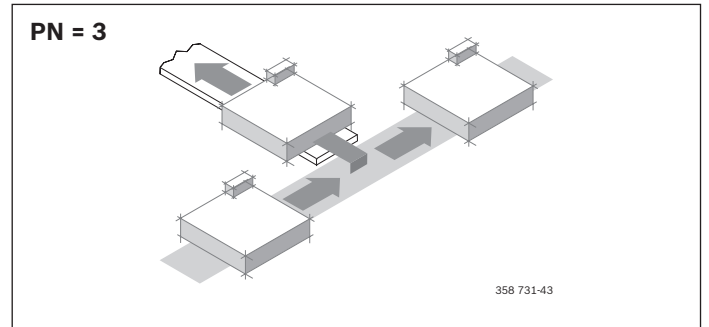
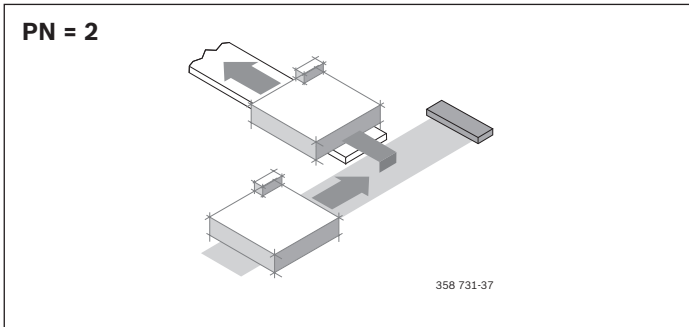


1 Not included in delivery

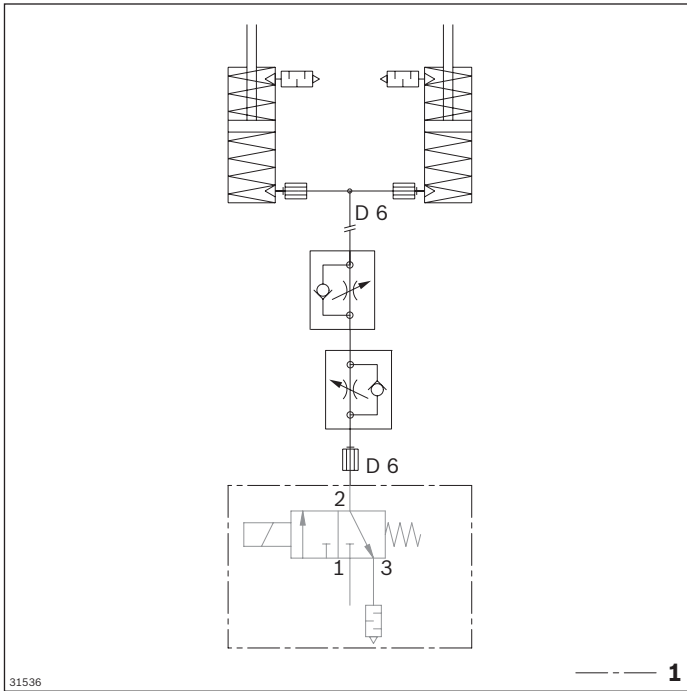
Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 1



1 Not included in delivery

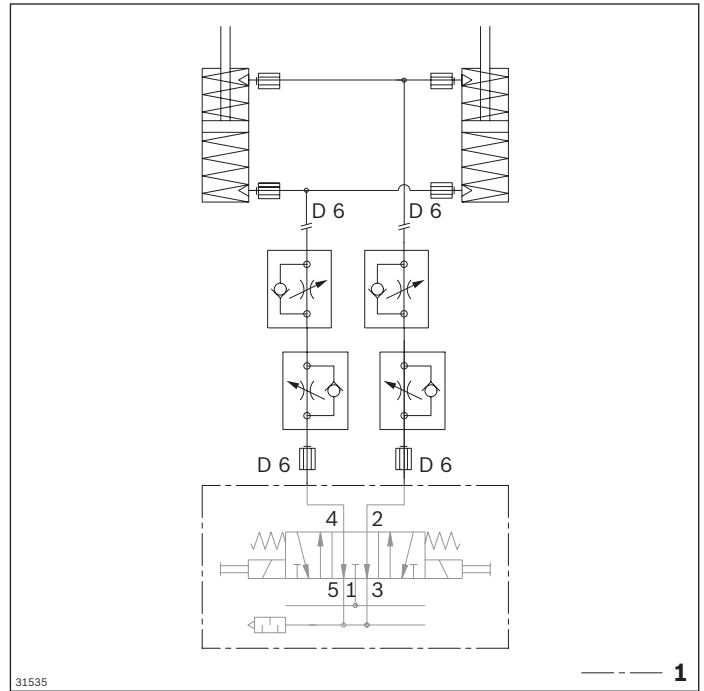


Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 2



1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 2



1 Not included in delivery

Connection belt for HQ 2/O



If the HQ 2/O lift transverse unit is driven via a belt section, a connection belt set is required.
 The HQ 2/O (BG 1 or BG 2) can be combined with BS 2/TE

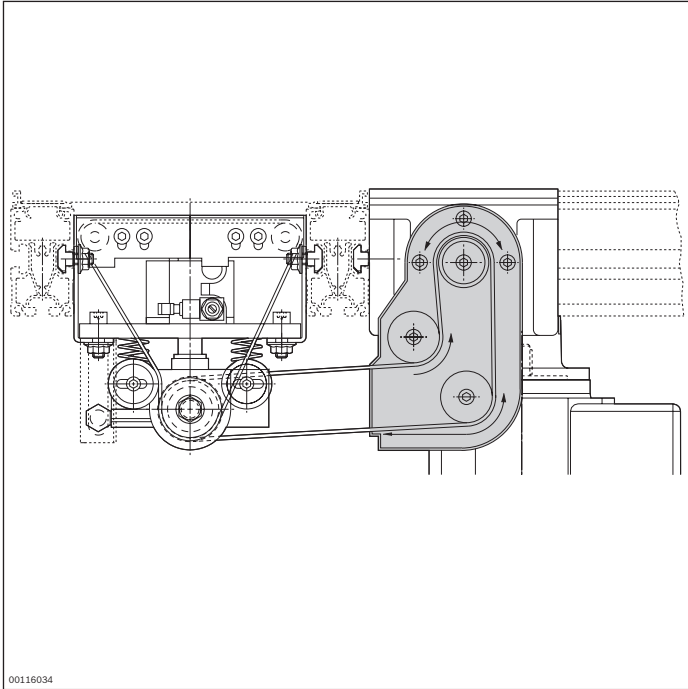
or BS 2/T using the connection belt set. The b_Q and b_L parameters are decisive for selection of the connection belt set.

Ordering information

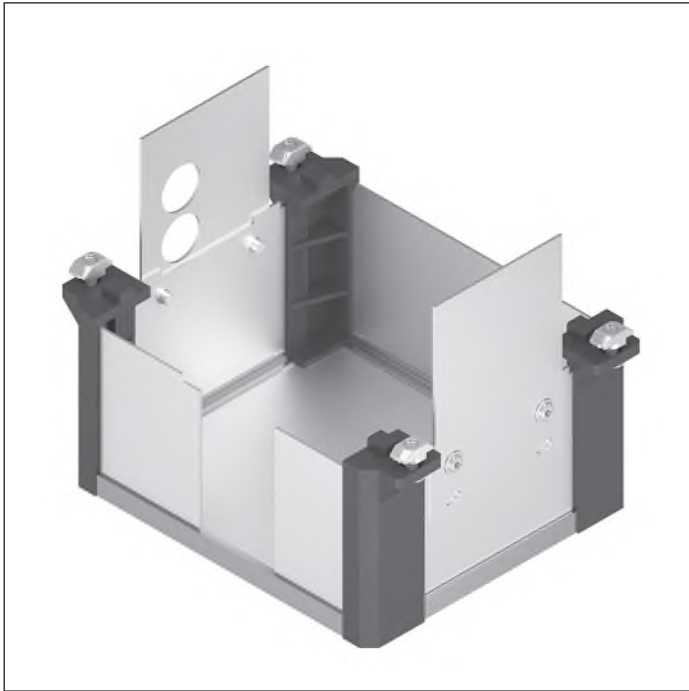
Material number		3842328196	3842328197
$b_Q \times b_L$ (mm x mm)	HQ 2/O combination possibilities	BG 1: 160 x 160; 240; 320 240 x 160; 240; 320; 400 320 x 160; 240; 320; 400 400 x 240; 320; 400 480 x 320	BG 2: 400 x 480 480 x 400; 480 640 x 400; 480 800 x 400; 480

Technical data

Material number		3842328196	3842328197
Design			
Size	BG	BG 1	BG 2



SK 2/B housing element



► Housing element for HQ 2/O and HQ 2/S

Ordering information

Product designation	b ₀ x b _L (mm)	Material number
SK 2/B housing element	160 x 160	3842338750
SK 2/B housing element	160 x 240	3842338755
SK 2/B housing element	160 x 320	3842338760
SK 2/B housing element	240 x 160	3842338751
SK 2/B housing element	240 x 240	3842338756
SK 2/B housing element	240 x 320	3842338761
SK 2/B housing element	240 x 400	3842338766
SK 2/B housing element	320 x 160	3842338752
SK 2/B housing element	320 x 240	3842338757
SK 2/B housing element	320 x 320	3842338762
SK 2/B housing element	320 x 400	3842338767
SK 2/B housing element	400 x 240	3842338758
SK 2/B housing element	400 x 320	3842338763
SK 2/B housing element	400 x 400	3842338768
SK 2/B housing element	400 x 480	3842338776
SK 2/B housing element	480 x 320	3842338764
SK 2/B housing element	480 x 400	3842338771
SK 2/B housing element	480 x 480	3842338777
SK 2/B housing element	640 x 400	3842338773
SK 2/B housing element	640 x 480	3842338779
SK 2/B housing element	800 x 400	3842338775
SK 2/B housing element	800 x 480	3842338781

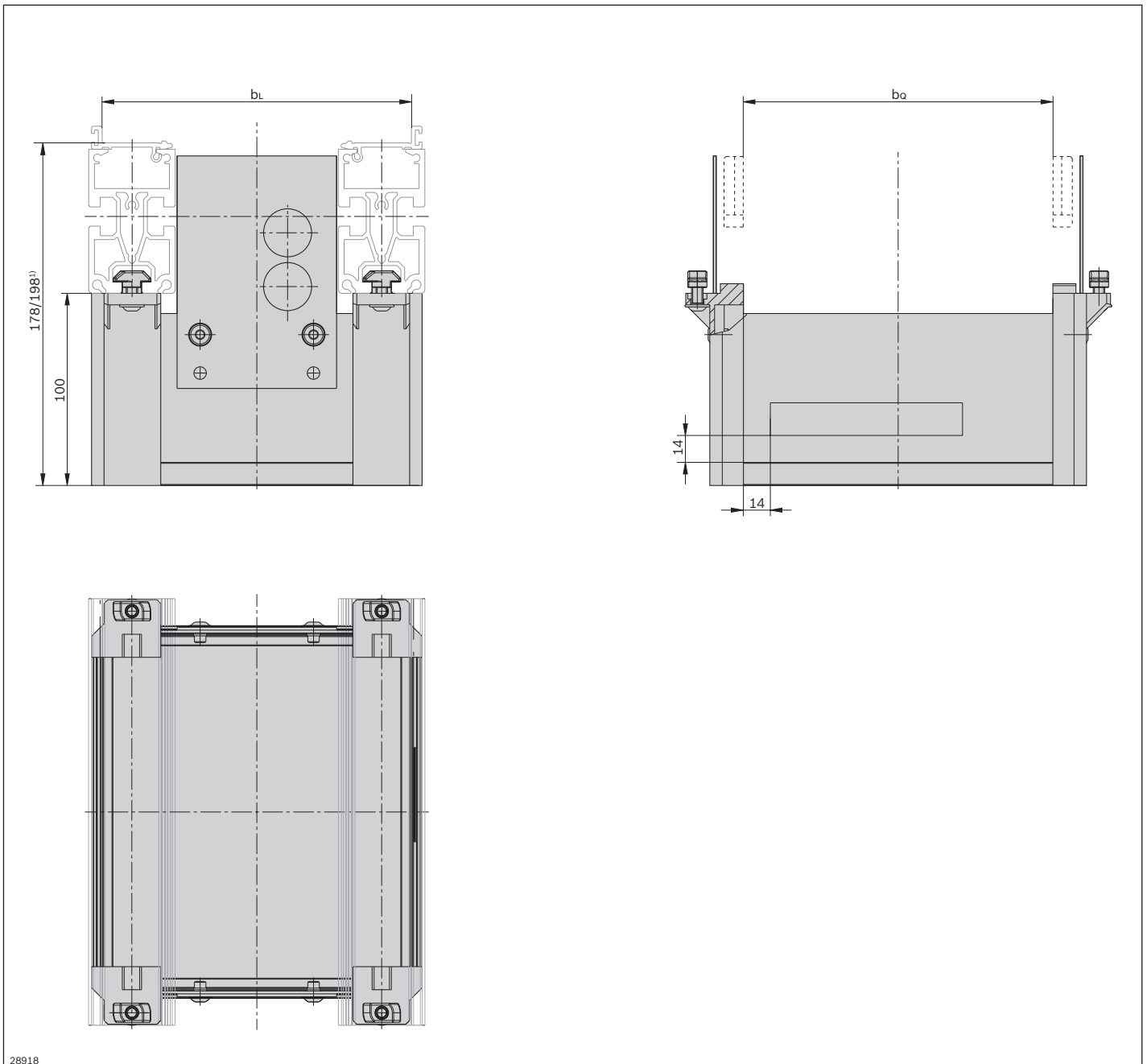
Technical data

Material number	3842338750	3842338757	3842338763	3842338768	3842338776
	3842338751	3842338758	3842338764	3842338771	3842338777
	3842338752	3842338760	3842338766	3842338773	3842338779
	3842338755	3842338761	3842338767	3842338775	3842338781
	3842338756	3842338762			

Features

Material specification	Aluminum; anodized PA66; black
------------------------	-----------------------------------

Dimensions



28918

¹ 178 mm for 80 mm profile height, 198 mm for 100 mm profile height

BS 2/T belt section



- ▶ Ready-to-use conveyor section with drive for transverse conveyance between parallel conveyor sections
- ▶ Additional toothed gears to drive an HQ 2/Q lift transverse unit each on both ends
- ▶ Reversible operation possible
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Can be combined with WT 2/E, WT 2, WT 2/F, WT 2/H and WT 2/F-H

Additional toothed gears to drive an HQ 2/Q lift transverse unit each on both ends.

Position of the gears depends on the size of the HQ 2/O.

Accessories

Recommended accessories

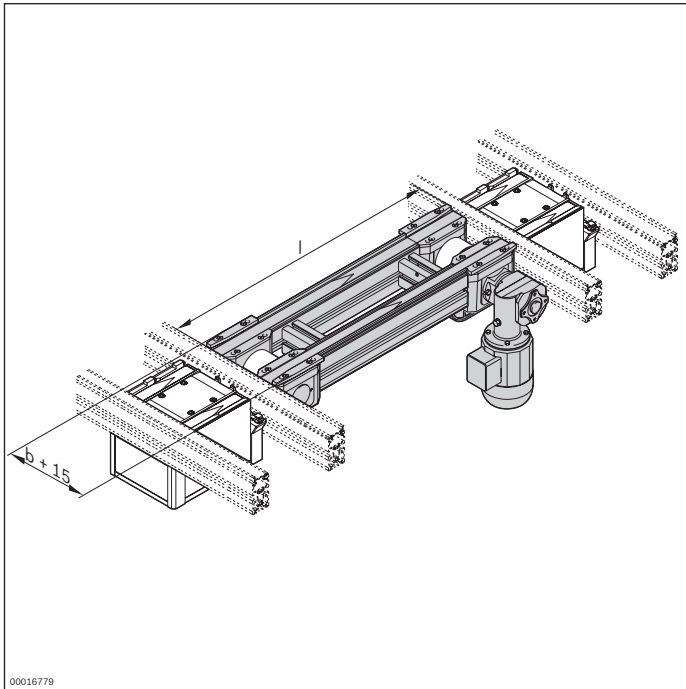
- ▶ Connection kit (3842525110, see p. 3-237) for installing the belt section between the ST 2 conveyor sections
- ▶ SZ 2 leg sets/..., see p. 6-2
- ▶ HQ 2/O lift transverse unit, see p. 5-33

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842999722
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800
l (mm)	Length	320 ... 6000
v_N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M ²
UB ¹	Connection belt UB = 1 UB = 2	1; 2

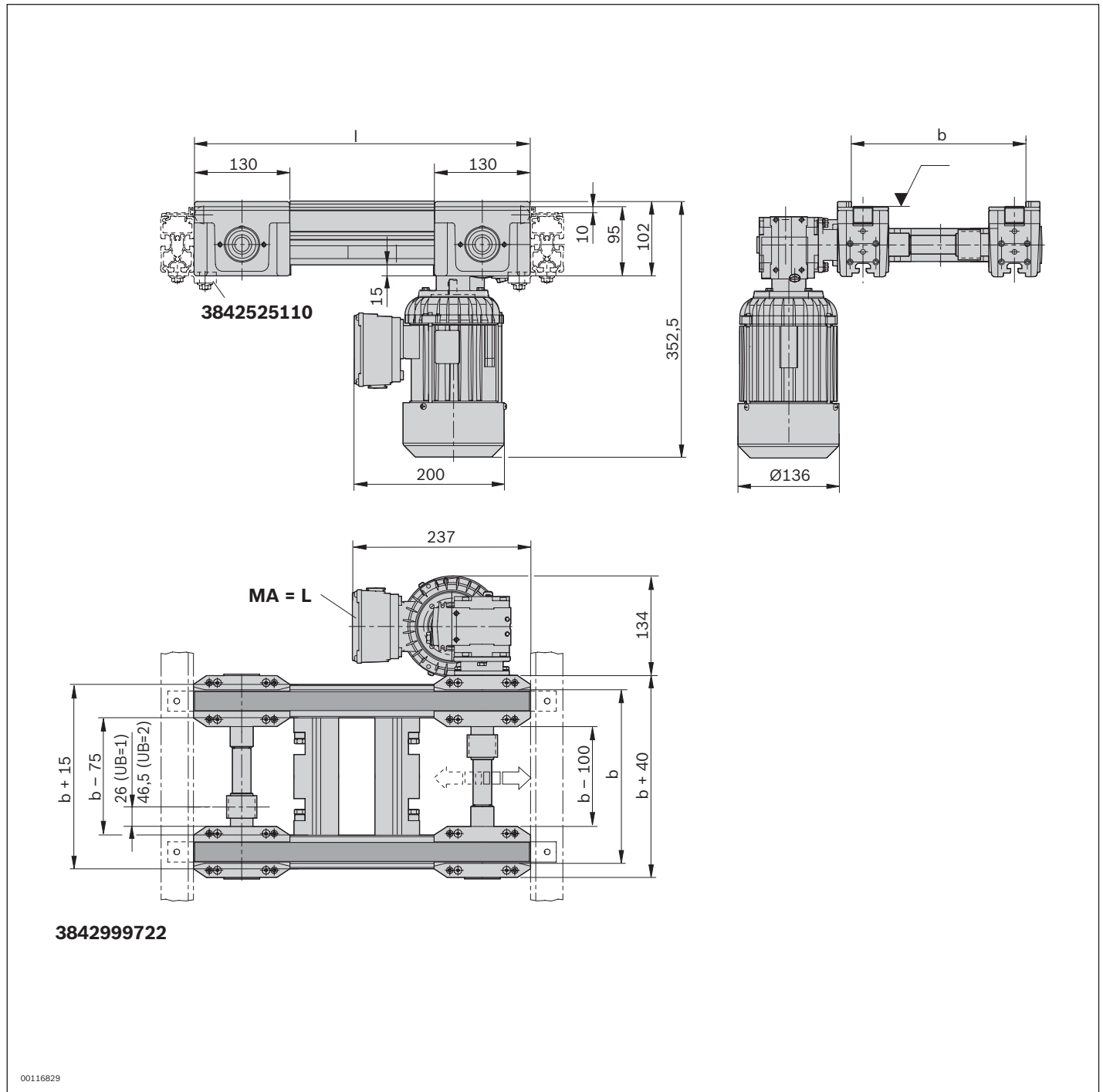
¹ UB: Connection belt for Size BG 1 ($b_o \times b_l \leq 480 \times 320$ mm) or BG 2 HQ 2/O ($b_o \times b_l \geq 400 \times 480$ mm)

² MA = M when $b_o \geq 320$ mm

Technical data

Material number		3842999722
Load		
Max. section load in accumulation operation	kg	60
Features		
ESD		Yes

Dimensions



BS 2/TE belt section



- ▶ Ready-to-use conveyor section with drive for transverse conveyance into a dead end
- ▶ Additional toothed gear to drive an HQ 2/O lift transverse unit
- ▶ Reversible operation possible
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Can be combined with WT 2/E, WT 2, WT 2/F, WT 2/H and WT 2/F-H

5

Accessories

Recommended accessories

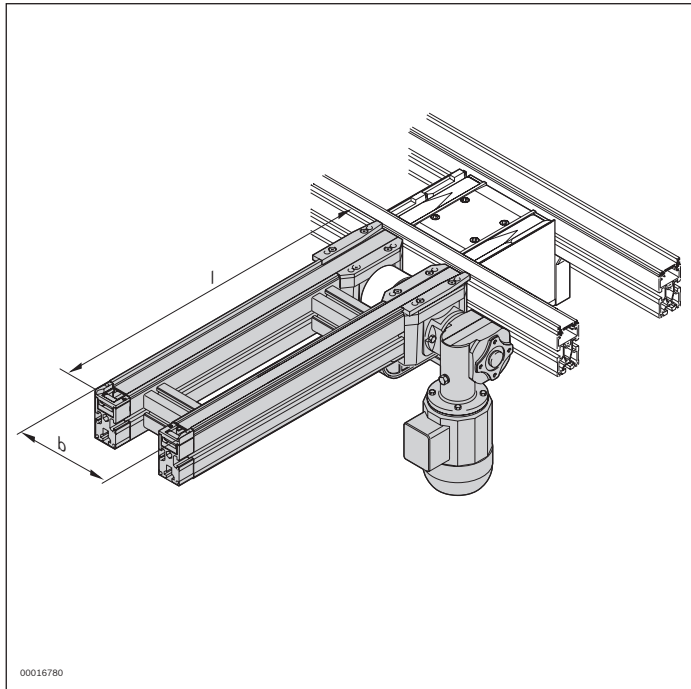
- ▶ Connection kit (3842525110, see p. 3-237) for installing the belt section between the ST 2 conveyor sections
- ▶ SZ 2 leg sets, see p. 6-2

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842999723
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800
l (mm)	Length	240 ... 6000
v_N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M ²
UB ¹	Connection belt UB = 1 UB = 2	1; 2

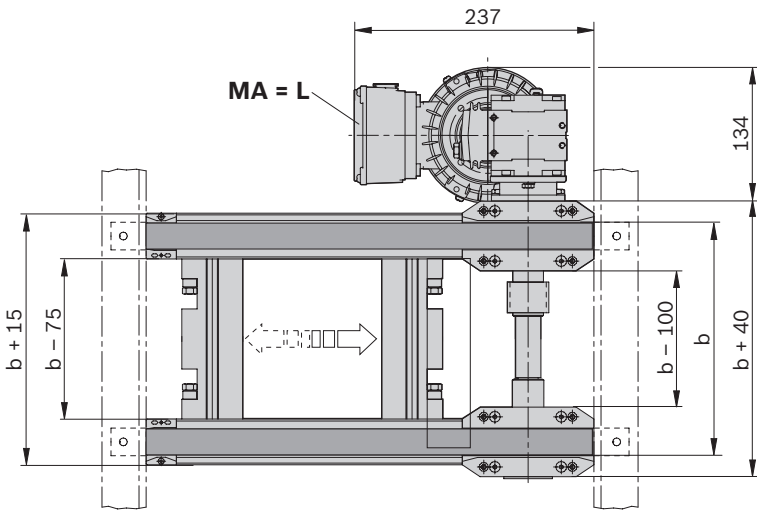
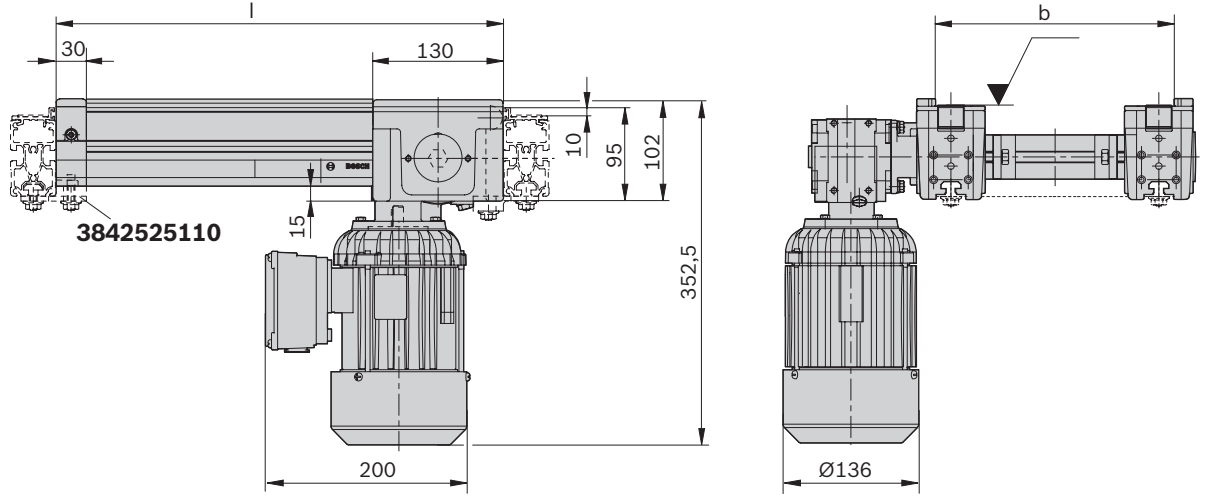
¹ UB: Connection belt for Size BG 1 ($b_o \times b_l \leq 480 \times 320$ mm) or BG 2 HQ 2/O ($b_o \times b_l \geq 400 \times 480$ mm)

² MA = M when $b_o \geq 320$ mm

Technical data

Material number		3842999723
Load		
Max. section load in accumulation operation	kg	60
Features		
ESD		Yes

Dimensions



3842999723

00116828

HQ 2/T lift transverse unit



- ▶ Lift transverse unit without built-in drive for outfeeding from a longitudinal section into a transverse section with a roller section and vice versa
- ▶ Used in tandem with the HQ 2/O
- ▶ Drive by toothed belt coupling
- ▶ Suitable for use in special designs
- ▶ In two sizes with one or two lifting cylinders
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Pneumatic equipment for 2 (top, center) or 3 (top, center, bottom) lift positions
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2/E, WT 2 and WT 2/F

Note: Reversible operation possible

Vertical movement is delivered by pneumatic cylinders. Two sizes are available:

Size 1 (BG 1) for total weights (workpiece pallet + load) up to 30 kg by one lifting cylinder.

Accessories

Required accessories

- ▶ 1x M12x1 sensor with $S_N \geq 4$ mm rated sensing range for each position sensing location, see p. 8-108/8-110
- ▶ SK 2 protective housing, see p. 5-54

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ Pneumatic equipment for two or three positions
- ▶ Kit for electric position sensing
- ▶ Incl. drive kit (required to drive an HQ 2/T)

Size 2 (BG 2) for total weights (workpiece pallet + load) up to 50 kg by two lifting cylinder for workpiece pallet dimensions from 400 x 480 mm.

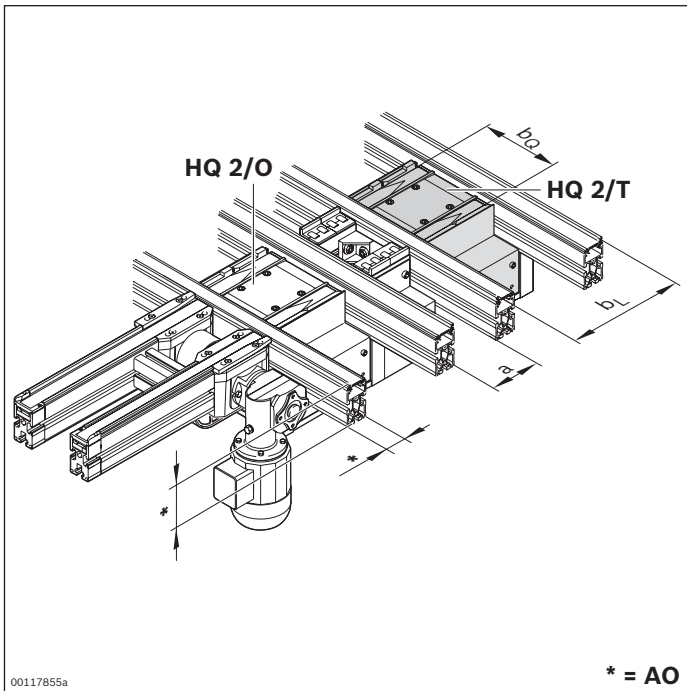
Recommended accessories

- ▶ DA 2/60 damper (see p. 8-62) for outfeeding workpiece pallets at $v_N > 9$ m/min
- ▶ WI 2 (see p. 8-131ff) or WI/M (see p. 8-133) rocker and DA 2/60 (see p. 8-62) or DA 2/100-C dampers for BG 2 (see p. 8-71) for infeeding workpiece pallets

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998114
b _Q (mm)	Track width in the transverse conveyor	160; 240; 320; 400; 480; 640; 800
b _L (mm)	Track width in the longitudinal conveyor	160; 240; 320; 400; 480
b _Q x b _L (mm x mm)	Combination options	BG 1: 160 x 160; 240; 320 240 x 160; 240; 320; 400 320 x 160; 240; 320; 400 400 x 240; 320; 400 480 x 320 BG 2: 400 x 480 480 x 400; 480 640 x 400; 480 800 x 400; 480
AO	Installation location, profile 0 = profile 45x80 1 = profile 45x100 2 = profile 50x100	0; 1; 2
PN	Pneumatic equipment	2 ¹ ; 3 ²

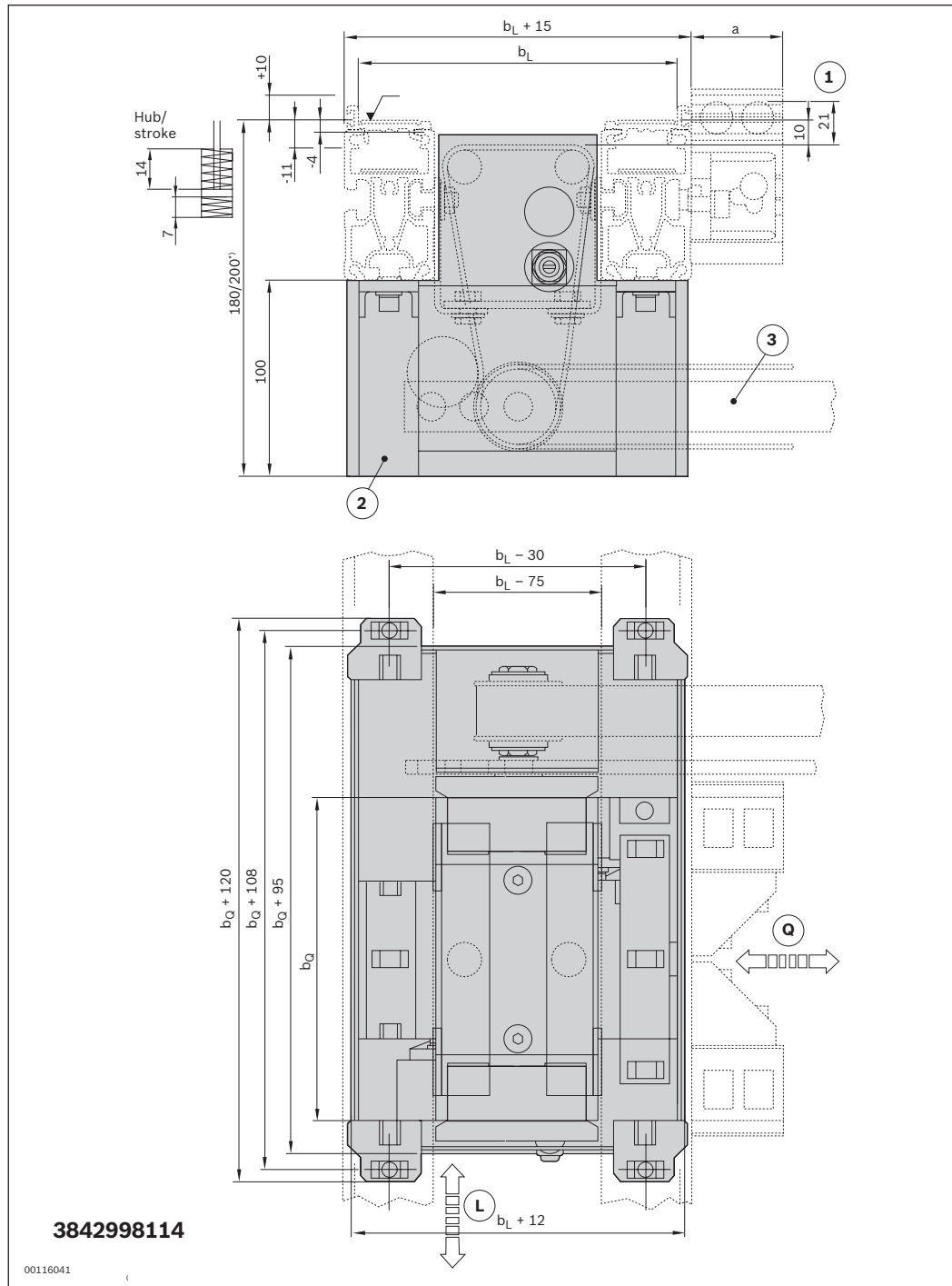
¹ PN = 2: Upper and middle lift position

² PN = 3: Upper, middle and lower lift position

Technical data

Material number		3842998114
Load		
Max. total weight of workpiece pallet	m _G	kg
		BG 1: 30 BG 2: 50
Features		
ESD		Yes
Design		
Size	BG	BG 1; BG 2
Additional information		
Required compressed air connection	p	bar
		4 ... 6
Pneumatic connector	Ø	mm
		6

Dimensions



L Transport direction of longitudinal conveyor section

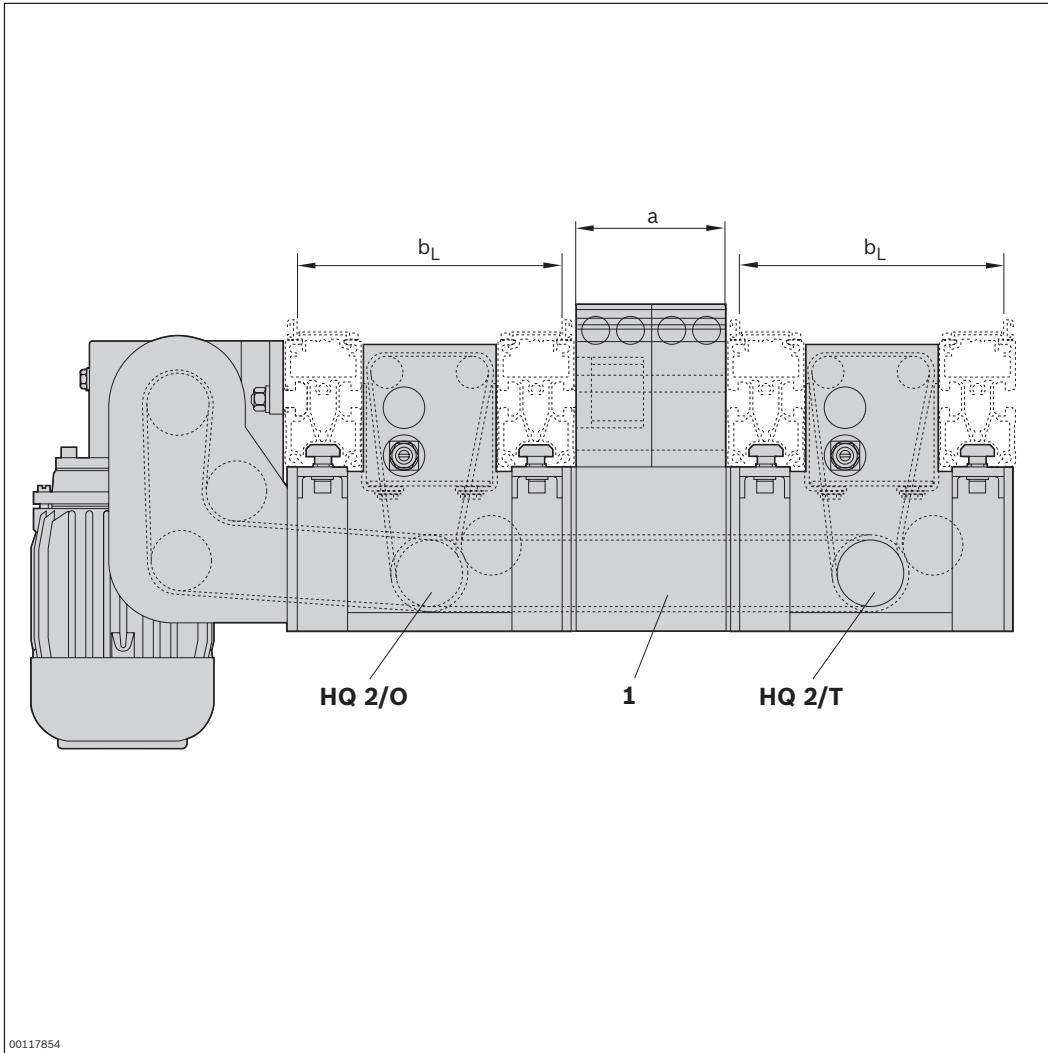
Q Transport direction of transverse conveyor section

1 Stroke

2 Housing element

3 Drive kit for HQ 2/O-HQ 2/T

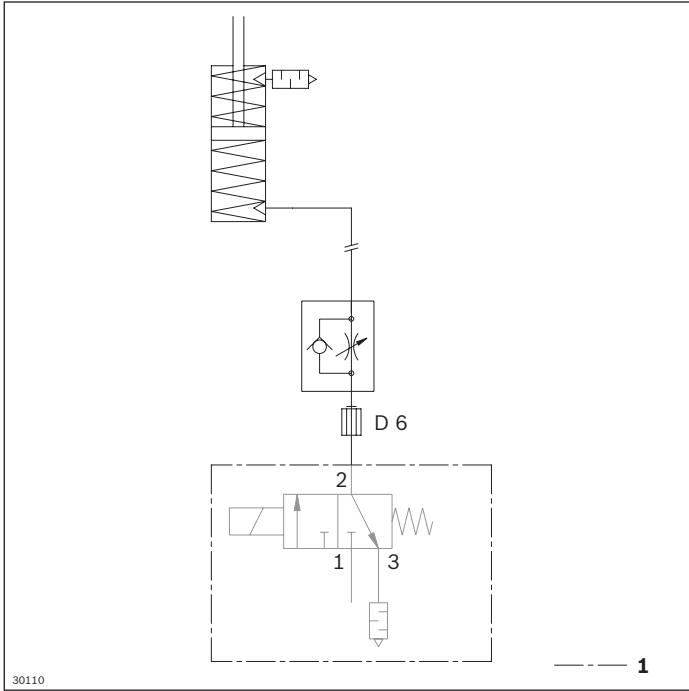
* 180 mm for 80 mm profile height, 200 mm for 100 mm profile height



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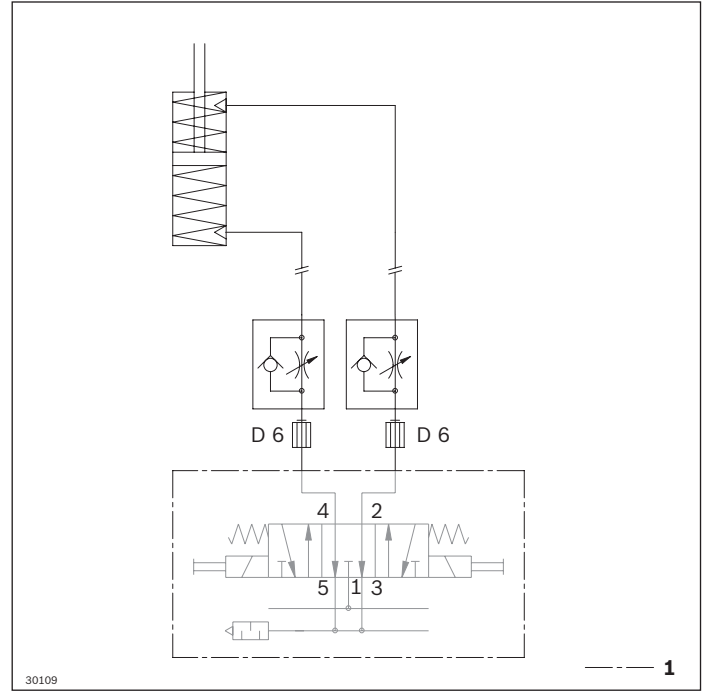
1 Drive kit

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 1

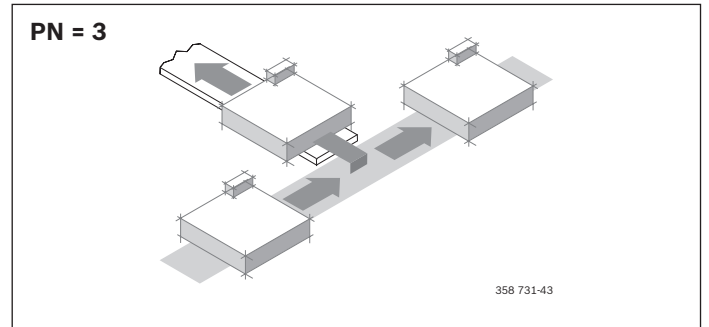
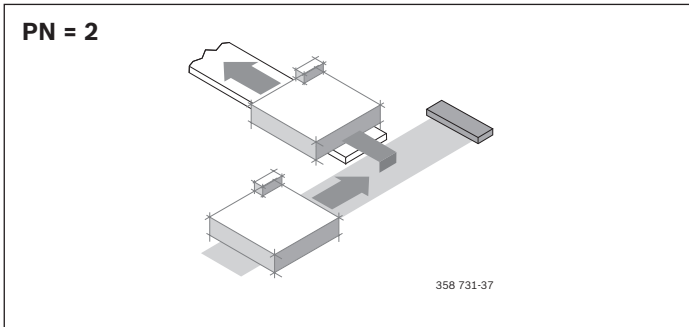


1 Not included in delivery

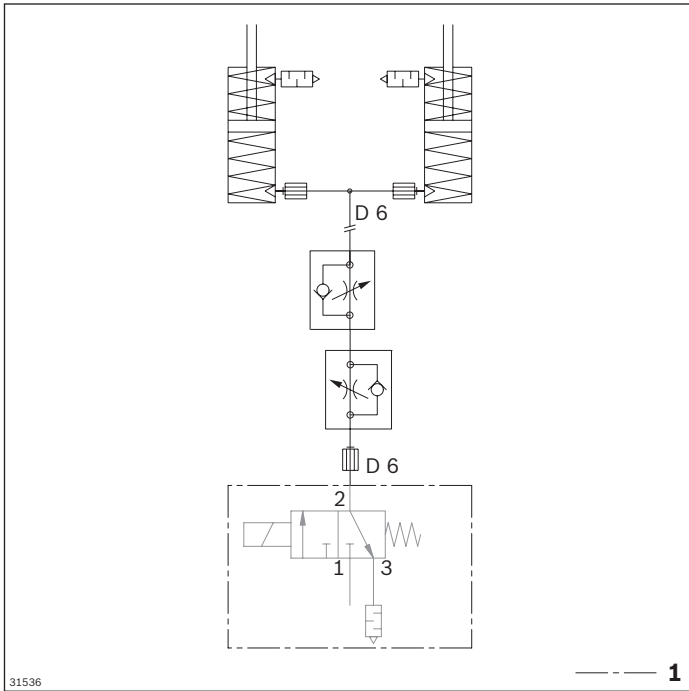
Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 1



1 Not included in delivery

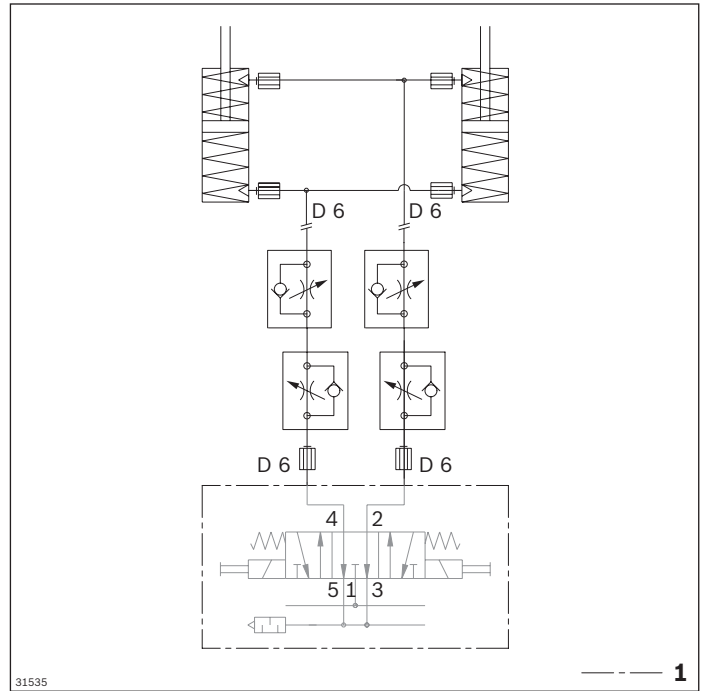


Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 2



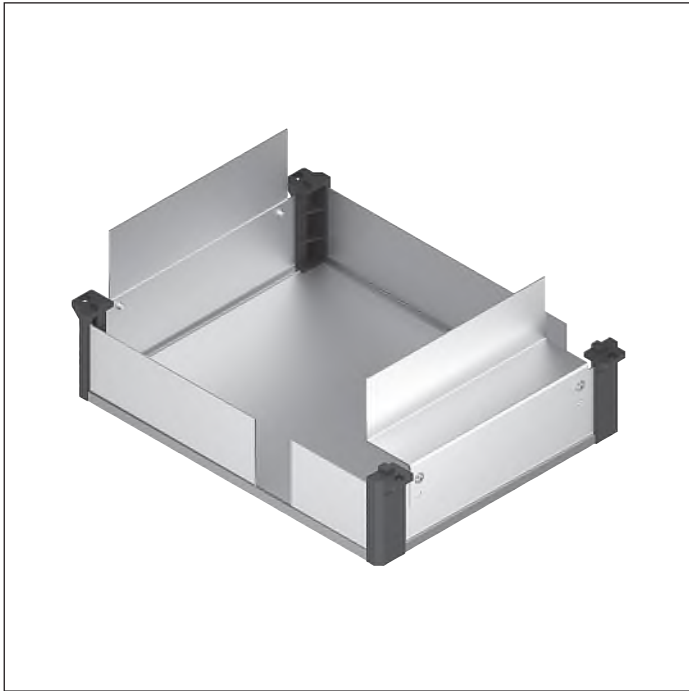
1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 2



1 Not included in delivery

SK 2 housing element



► Housing element for HQ 2/T

Ordering information

Product designation	$b_Q \times b_L$ (mm)	Material number
SK 2 housing element	160 x 160	3842345100
SK 2 housing element	160 x 240	3842345105
SK 2 housing element	160 x 320	3842345110
SK 2 housing element	240 x 160	3842345101
SK 2 housing element	240 x 240	3842345106
SK 2 housing element	240 x 320	3842345111
SK 2 housing element	240 x 400	3842345116
SK 2 housing element	320 x 160	3842345102
SK 2 housing element	320 x 240	3842345107
SK 2 housing element	320 x 320	3842345112
SK 2 housing element	320 x 400	3842345117
SK 2 housing element	400 x 240	3842345108
SK 2 housing element	400 x 320	3842345113
SK 2 housing element	400 x 400	3842345118
SK 2 housing element	400 x 480	3842345126
SK 2 housing element	480 x 320	3842345114
SK 2 housing element	480 x 400	3842345121
SK 2 housing element	480 x 480	3842345127
SK 2 housing element	640 x 400	3842345123
SK 2 housing element	640 x 480	3842345129
SK 2 housing element	800 x 400	3842345125
SK 2 housing element	800 x 480	3842345131

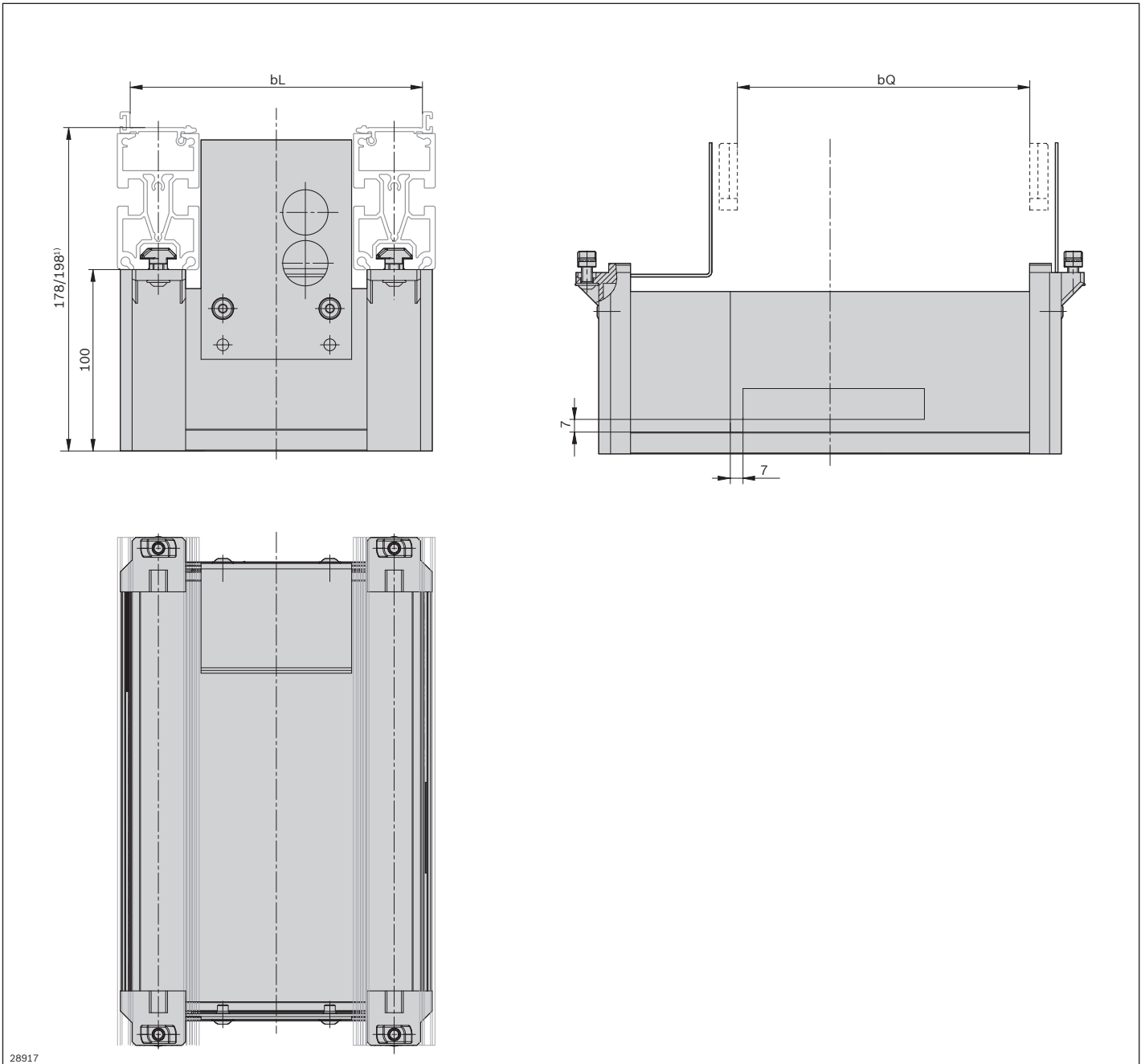
Technical data

Material number	3842345100	3842345107	3842345113	3842345118	3842345126
	3842345101	3842345108	3842345114	3842345121	3842345127
	3842345102	3842345110	3842345116	3842345123	3842345129
	3842345105	3842345111	3842345117	3842345125	3842345131
	3842345106	3842345112			

Features

Material specification	Aluminum; anodized PA 66; black
------------------------	------------------------------------

Dimensions



28917

¹ 178 mm for 80 mm profile height, 198 mm for 100 mm profile height

HQ 2/U lift transverse unit



- ▶ Lift transverse unit for outfeeding from a longitudinal section into a transverse section and vice versa
- ▶ Use in tight spaces by means of suspended drive motor (outside dimensions must be no wider than the section)
- ▶ Drive by toothed belt coupling is not possible because of the compact design
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Pneumatic equipment for 2 (top, center) or 3 (top, center, bottom) lift positions
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2/E, WT 2 and WT 2/F

Note: Reversible operation possible

Accessories

Required accessories

- ▶ 1x M12x1 sensor with $S_N \geq 4$ mm rated sensing range for each position sensing location, see p. 8-108/8-110

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ Pneumatic equipment for two or three positions
- ▶ Kit for electric position sensing
- ▶ Housing element

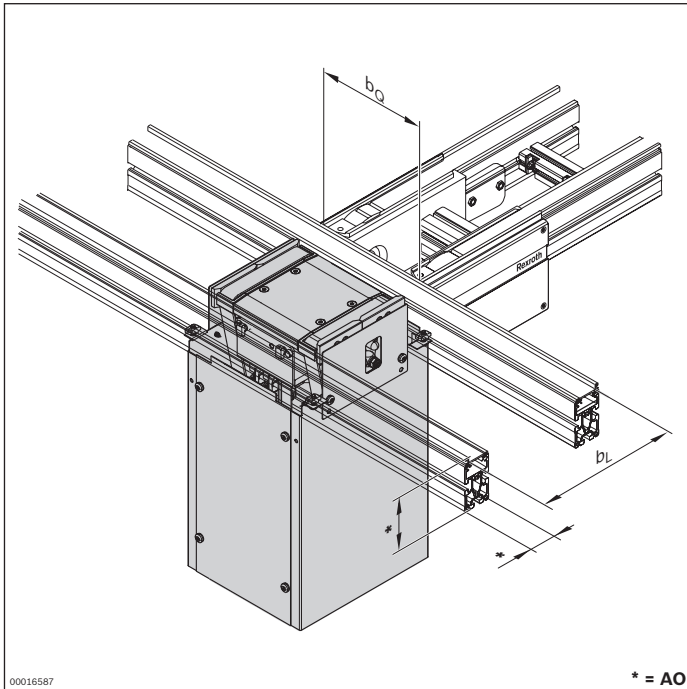
Recommended accessories

- ▶ DA 2/60 damper (see p. 8-62) for outfeeding workpiece pallets at $v_N > 9$ m/min
- ▶ WI 2 (see p. 8-139ff) or WI/M (see p. 8-133) rocker and DA 2/60 (see p. 8-62) or DA 2/100-C dampers for BG 2 (see p. 8-71) for infeding workpiece pallets

Condition on delivery

- ▶ Fully assembled
- ▶ Kit for electric position sensing included

Ordering information



Material number		3842999903
b _Q (mm)	Track width in the transverse conveyor	160; 240; 320; 400; 480
b _L (mm)	Track width in the longitudinal conveyor	160; 240; 320; 400
b _Q x b _L (mm x mm)	Combination options	160 x 160; 240; 320 240 x 160; 240; 320; 400 320 x 160; 240; 320; 400 400 x 240; 320; 400 480 x 320
AO	Installation location, profile 0 = profile 45x80 1 = profile 45x100 2 = profile 50x100	0; 1; 2
PN	Pneumatic equipment	2 ¹ ; 3 ²
v _N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K

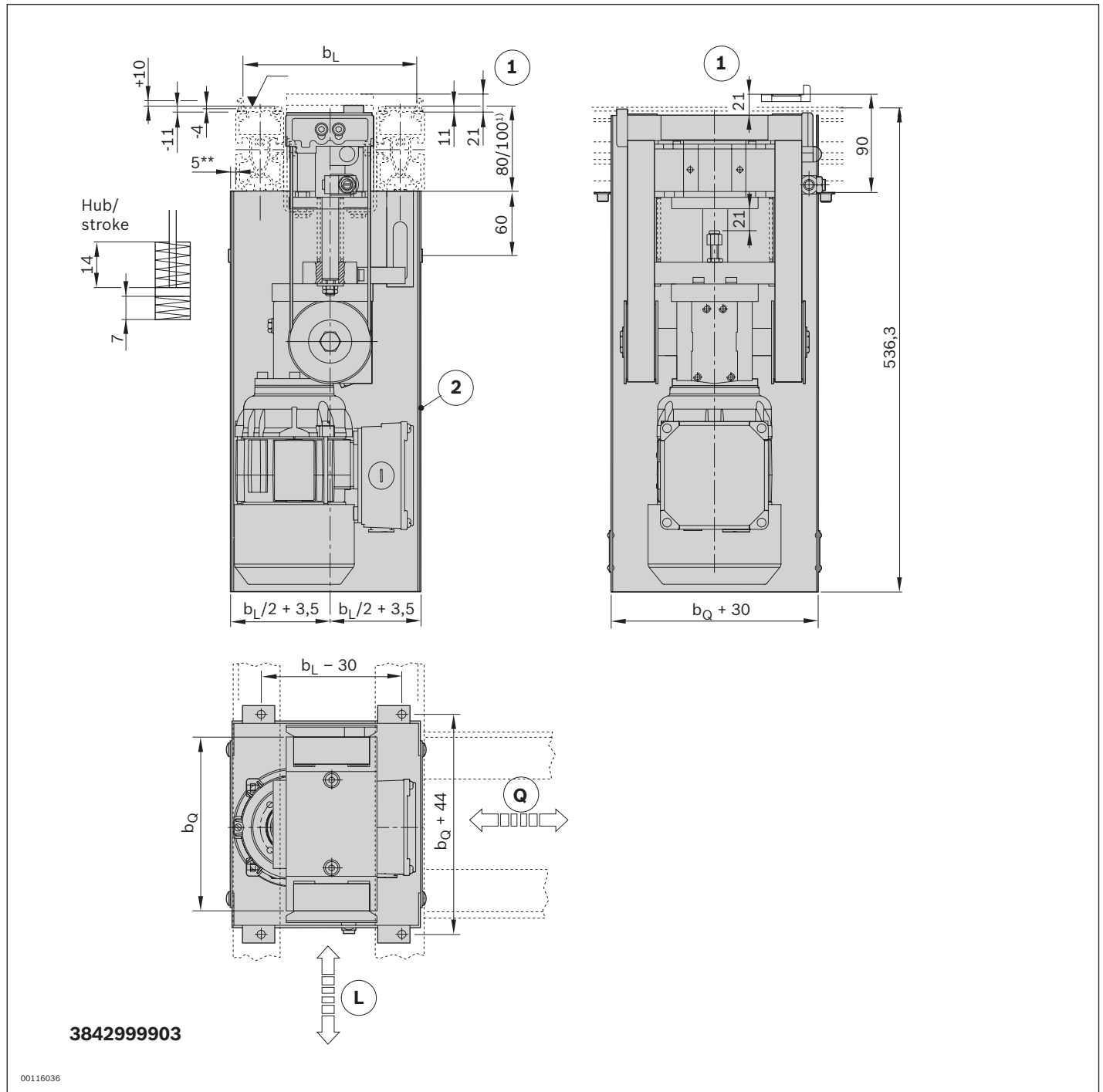
¹ PN = 2: Upper and middle lift position

² PN = 3: Upper, middle and lower lift position

Technical data

Material number		3842999903	
Load			
Max. total weight of workpiece pallet	m _G	kg	30
Features			
ESD			Yes
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	Ø	mm	6

Dimensions



L Transport direction of longitudinal conveyor section

Q Transport direction of transverse conveyor section

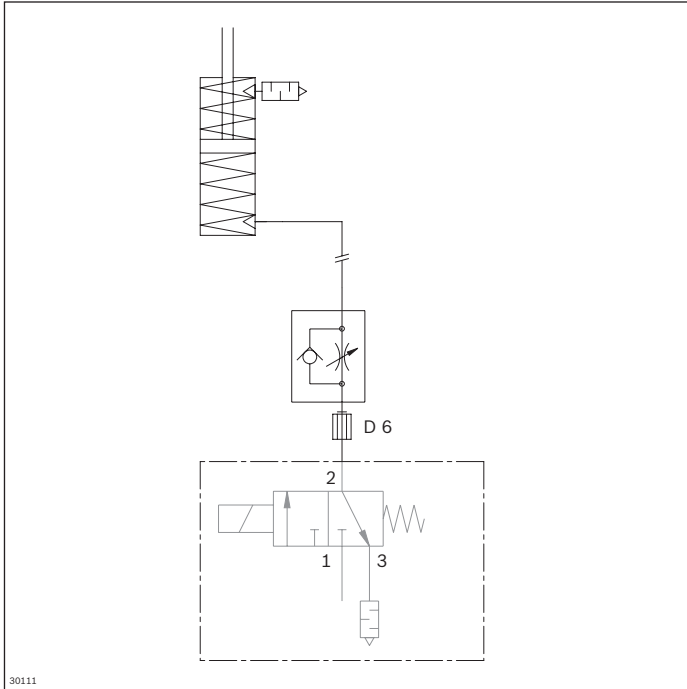
1 Stroke

2 Housing element

** Only for $b_L = 160$ mm

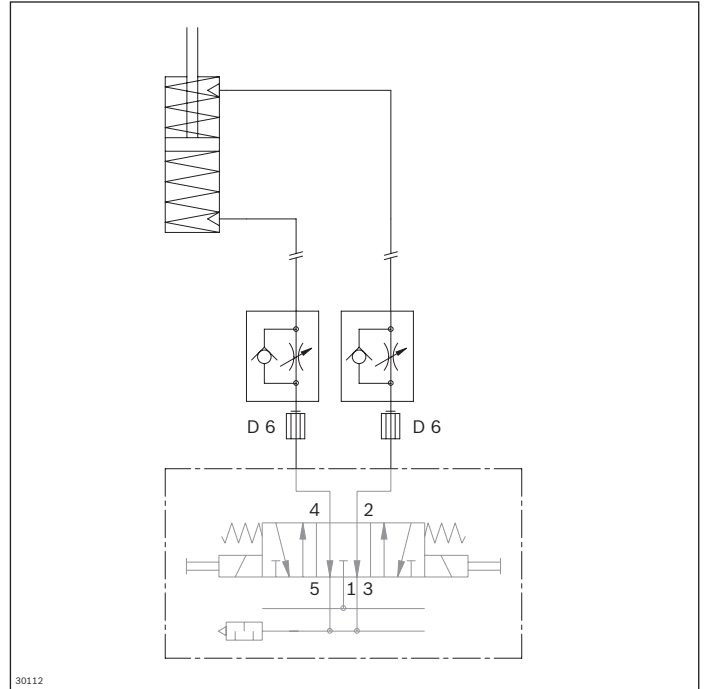
¹ Profile height

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2)



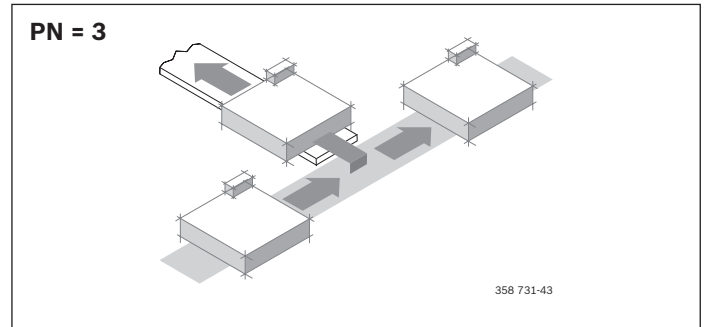
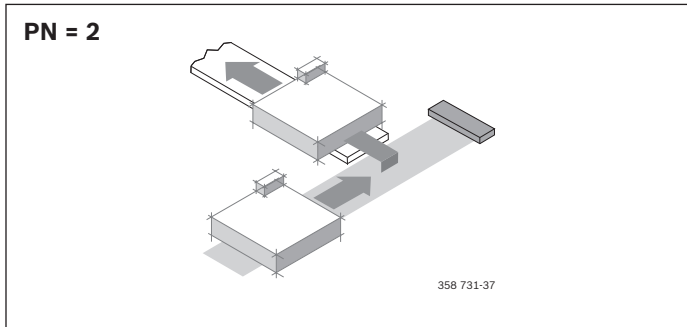
1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3)

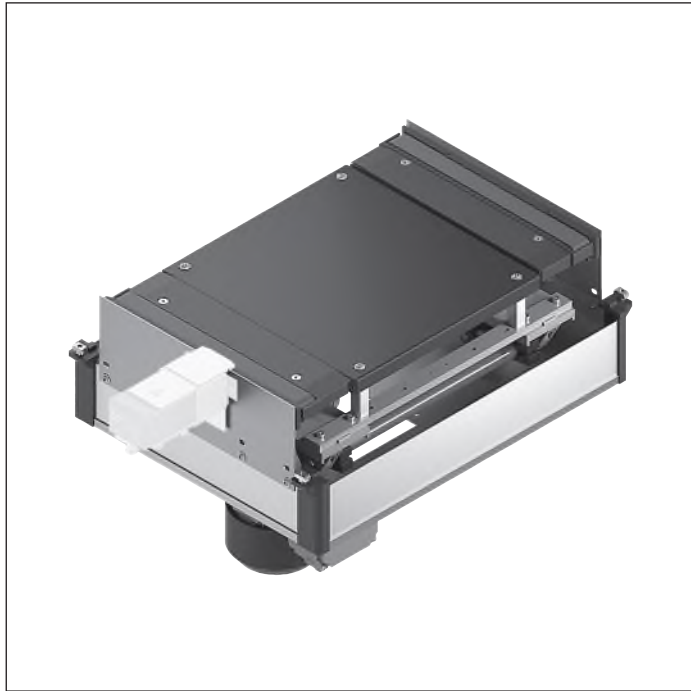


1 Not included in delivery

5



HQ 2/U2 lift transverse unit



- ▶ Lift transverse unit for outfeeding from a longitudinal section into a transverse section and vice versa
- ▶ Use in tight spaces by means of suspended drive motor (outside dimensions must be no wider than the section)
- ▶ Reinforced version of HQ 2/U with two lift cylinders for large workpiece pallet dimensions
- ▶ Drive by toothed belt coupling is not possible because of the compact design
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Pneumatic equipment for 2 (top, center) or 3 (top, center, bottom) lift positions
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H

Note: Reversible operation possible

Accessories

Required accessories

- ▶ 1x M12x1 sensor with $S_N \geq 4$ mm rated sensing range for each position sensing location, see p. 8-108/8-110

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ Pneumatic equipment for two or three positions
- ▶ Kit for electric position sensing
- ▶ Housing element

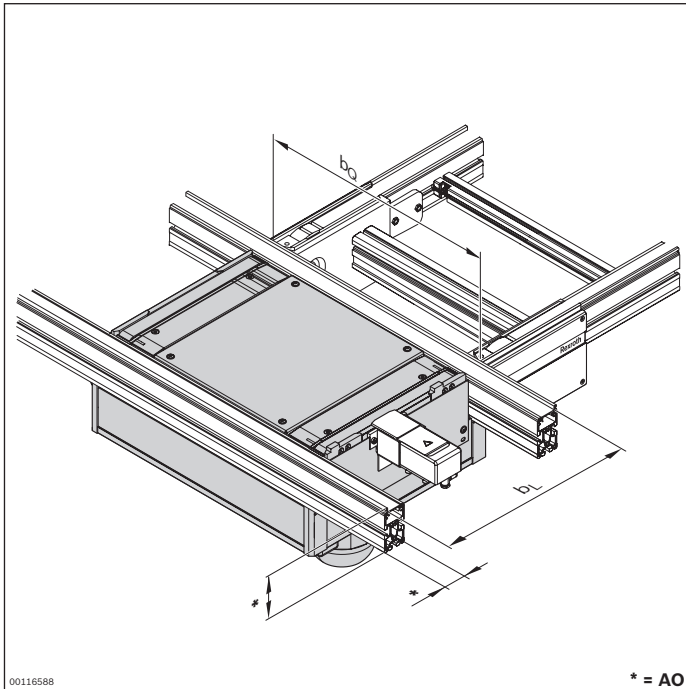
Recommended accessories

- ▶ DA 2/100-B (see p. 8-67) damper for outfeeding WT 2, WT 2/F, WT 2/H or WT 2/F-H workpiece pallets, required when $v_N > 12$ m/min or total weight of the workpiece pallet ≥ 30 kg
- ▶ WI 2 (see p. 8-139) or WI/M (see p. 8-133) rocker and DA 2/100-C damper (see p. 8-71) for infeeding WT 2 and WT 2/F workpiece pallets

Condition on delivery

- ▶ Fully assembled
- ▶ Kit for electric position sensing included
- ▶ Kit for housing element included

Ordering information



Material number		3842999843
b_Q (mm)	Track width in the transverse conveyor	400; 480; 640; 800
b_L (mm)	Track width in the longitudinal conveyor	400; 480; 640
$b_Q \times b_L$ (mm x mm)	Combination options	400 x 400; 480; 640 480 x 400; 480; 640 640 x 400; 480; 640 800 x 400; 480; 640
AO	Installation location, profile 0 = profile 45x80 1 = profile 45x100 2 = profile 50x100	0; 1; 2
PN	Pneumatic equipment	2 ¹ ; 3 ²
v_N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K

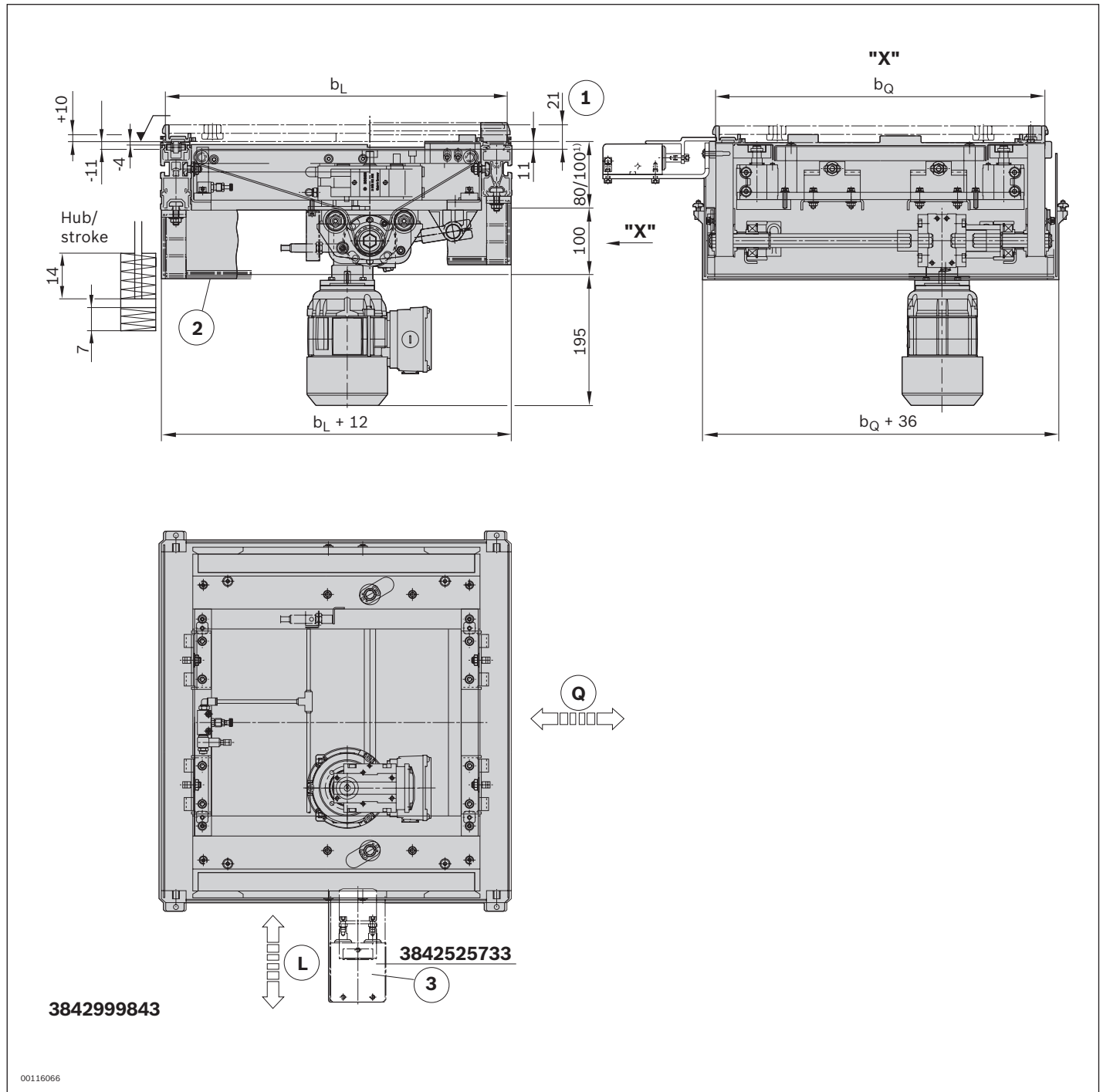
¹ PN = 2: Upper and middle lift position

² PN = 3: Upper, middle and lower lift position

Technical data

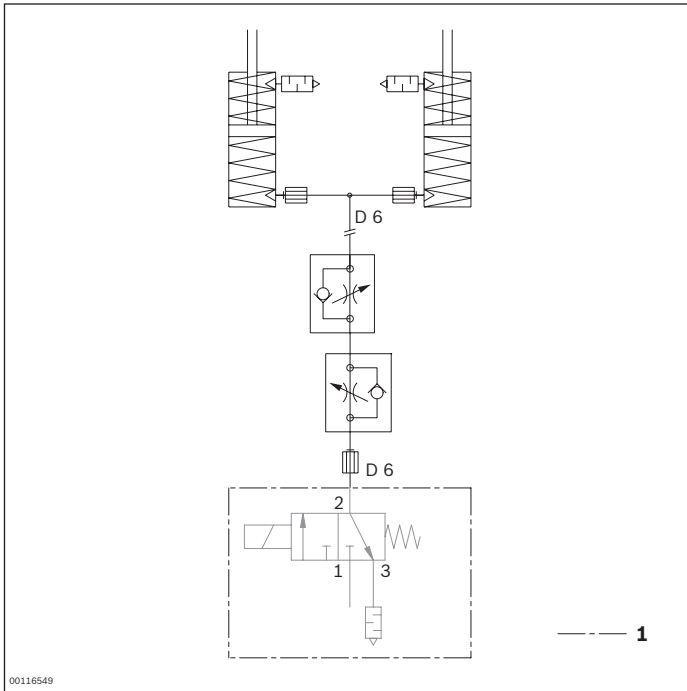
Material number		3842999843	
Load			
Max. total weight of workpiece pallet	m_G	kg	50
Features			
ESD			Yes
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	\emptyset	mm	6

Dimensions



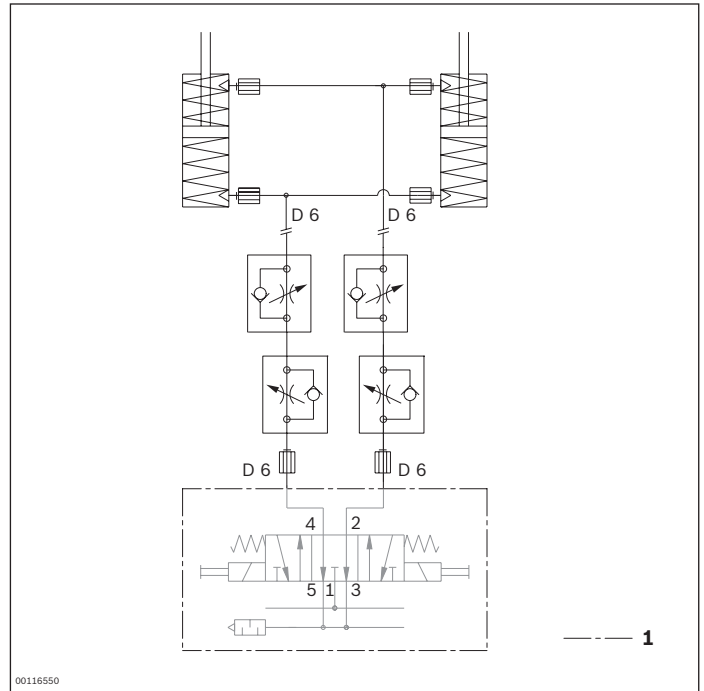
- L Transport direction of longitudinal conveyor section
- Q Transport direction of transverse conveyor section
- 1 Stroke
- 2 Housing element
- 3 Damped stop
- ¹ Profile height

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2)



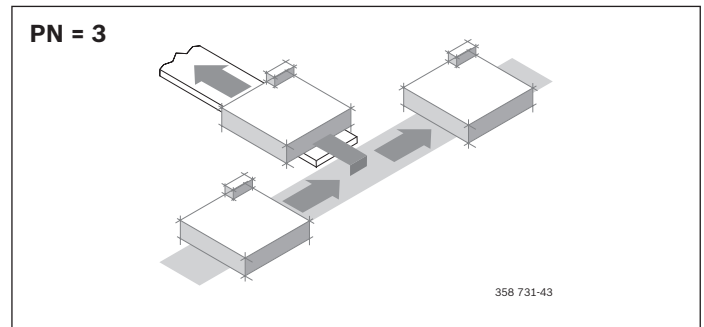
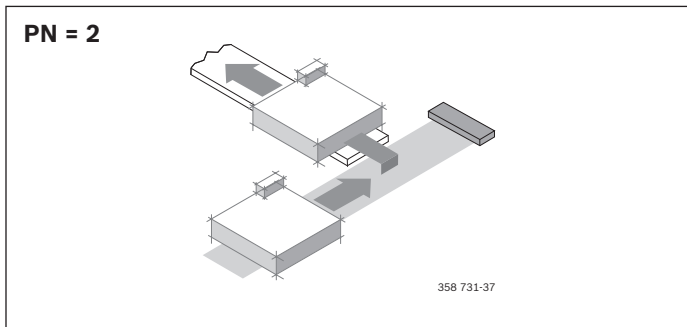
1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3)

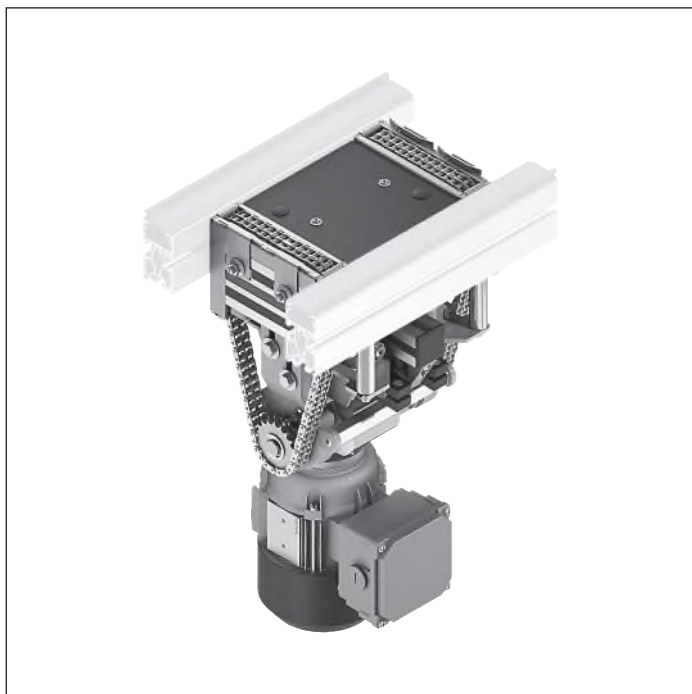


1 Not included in delivery

5



HQ 2/U-H lift transverse unit



In combination with HQ 2/U-H, only PE wear pads are recommended for use on the workpiece pallets.

Accessories

Required accessories

- ▶ 1x M12x1 sensor with rated sensing range $S_N = 4$ mm for each (top/bottom) position sensing location, see p. 8-108/8-110
- ▶ Adapter plate (available on request) required to mount a VA 2/D-130 perpendicular to the main direction of transport

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ Pneumatic equipment for two or three positions
- ▶ Kit for electric position sensing
- ▶ Housing element

- ▶ Lift transverse unit for outfeeding from a longitudinal section into a transverse section and vice versa
- ▶ Use for high total weights up to 2 kg/cm on the smallest side of the workpiece pallet
- ▶ Sensor mounting for speed control during infeeding possible
- ▶ Lifting movements through two to four block cylinders according to size
- ▶ Conveyor medium: Duplex chain (suitable for use in an EPA)
- ▶ Pneumatic equipment for 2 (top, center) or 3 (top, center, bottom) lift positions
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ The lateral guides can be mounted on either the left or the right depending on the conveying situation
- ▶ Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H

Note:

- ▶ Reversible operation possible
- ▶ Lateral guides of different heights allow for a fixed stop when outfeeding on the HQ

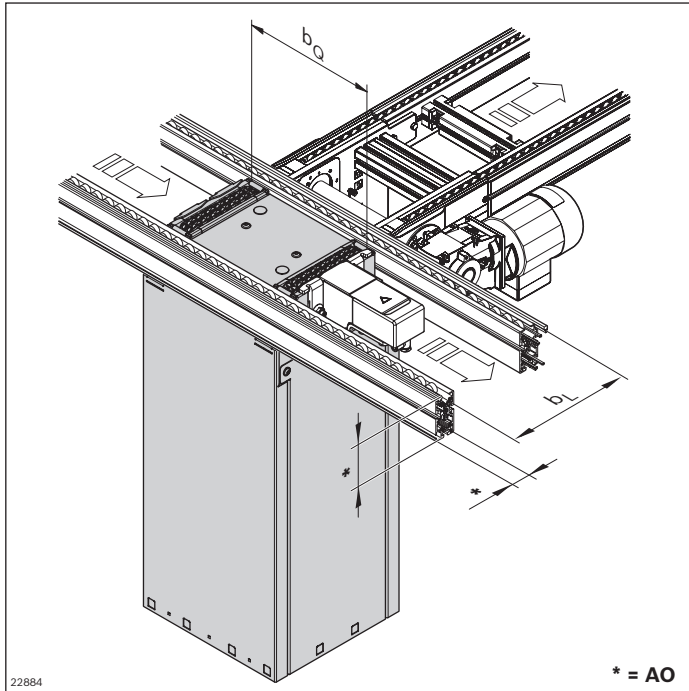
Recommended accessories

- ▶ DA 2/150-E (see p. 45 mm8-79)) or DA 2/100-E (see p. 8-75) damper for outfeeding WT 2, WT 2/F, WT 2/H or WT 2/F-H workpiece pallets; required when $v_N > 9$ m/min or total weight of the workpiece pallet > 30 kg/cm
- ▶ WI 2/... (see p. 8-139ff) or WI/M (see p. 8-133) rockers and DA 2/100-C (see p. 8-71) damper for infeeding WT 2 and WT 2/F workpiece pallets

Condition on delivery

- ▶ Pre-assembled incl. pneumatic equipment
- ▶ Protective housing, not assembled

Ordering information



Material number		3842998750
b_Q (mm)	Track width in the transverse conveyor	240; 320; 400; 480; 640
b_L (mm)	Track width in the longitudinal conveyor	240; 320; 400; 480; 640
$b_Q \times b_L$ (mm x mm)	Combination options	BG 1: 240 x 240; 320; 400 320 x 240; 320; 400; 480; 400 x 240 BG 2: 400 x 320; 400; 480; 640; 480 x 320; 400 640 x 400 BG 3: 480 x 480; 640 640 x 480; 640
AO ¹	Installation location, profile 0 = profile 45x80 1 = profile 45x100 2 = profile 50x100	0; 1; 2
PN	Pneumatic equipment	2 ² ; 3 ³
v_N (m/min)	Nominal speed	6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K

¹ Only required when $b_Q = 240$ mm

² PN = 2: Upper and middle lift position

³ PN = 3: Upper, middle and lower lift position

Technical data

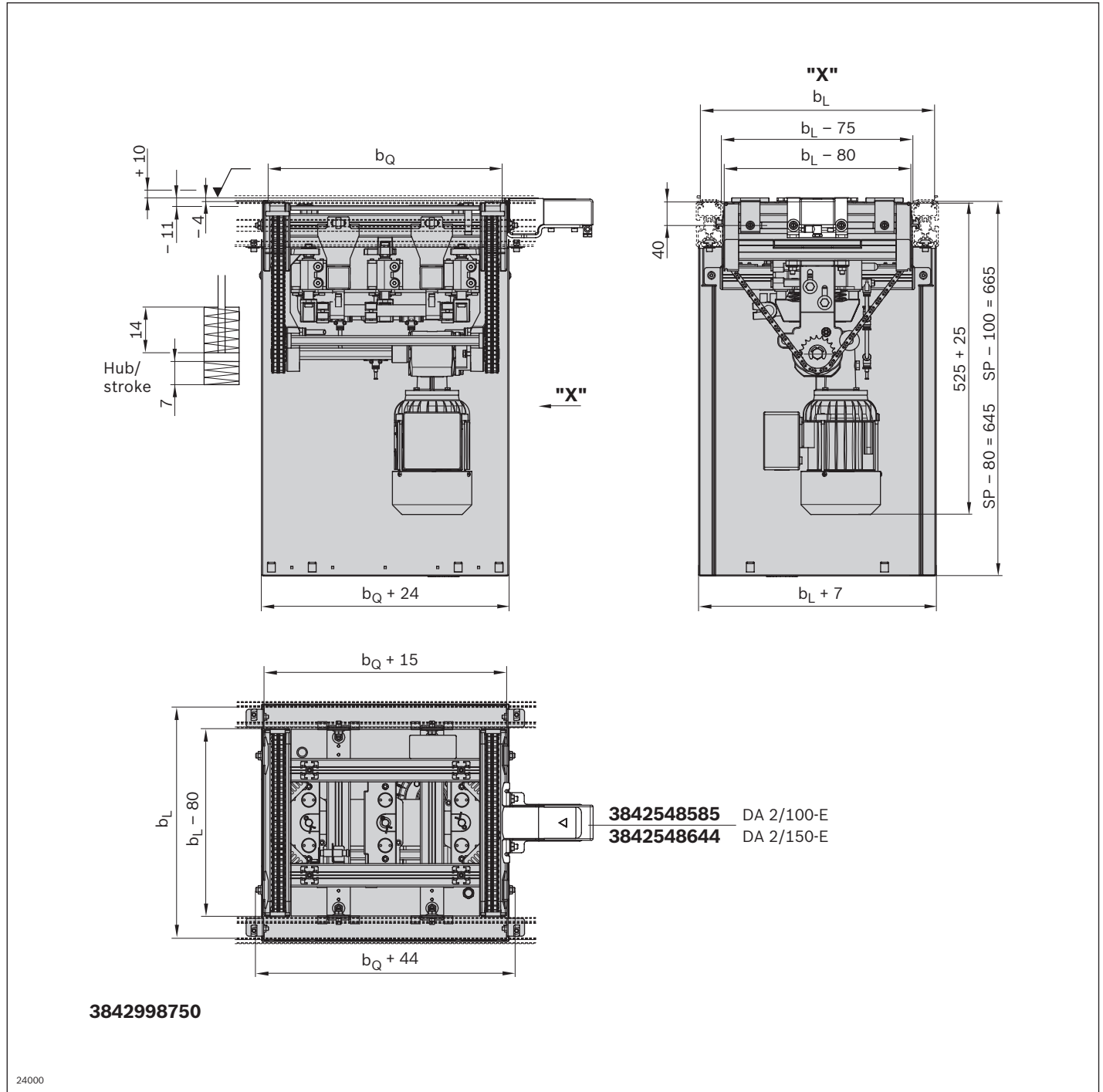
Material number		3842998750	
Load			
Max. total weight of workpiece pallet	m_G	kg	128
Features			
ESD			Yes
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	\emptyset	mm	BG 1, 2, 3; 6
Number of lifting cylinders ¹			BG 1: 2 BG 2: 3 BG 3: 4

¹ See also p. 5-67

Note:











Adapter plate for mounting a VA 2/D-130 slide stop on the HQ 2/U-H perpendicular to the main direction of transport available on request.

Dimensions

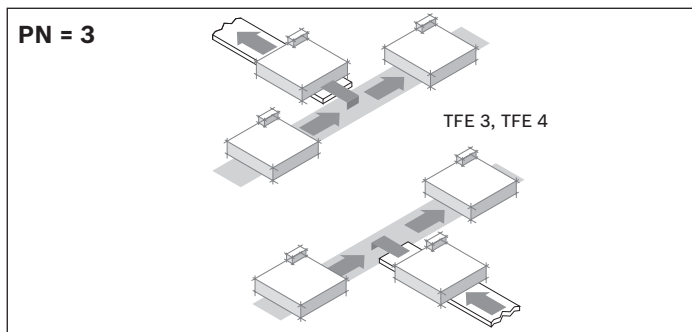
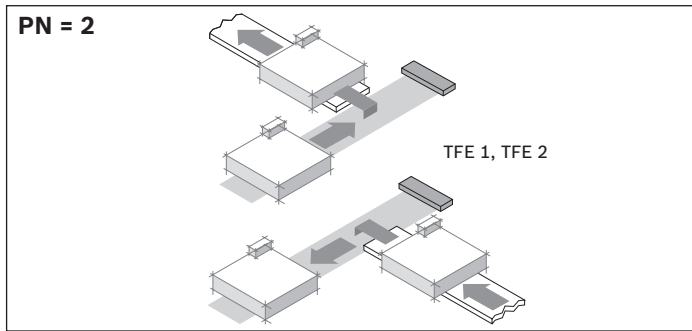


Cylinder arrangement

Schematic of the cylinder arrangement according to size

	b_q 240	b_q 320	b_q 400	b_q 480	b_q 640
					
b_L 240	2 cylinders	2 cylinders	2 cylinders		
Load	48	48	48		
					
b_L 320	2 cylinders	2 cylinders	3 cylinders	3 cylinders	
Load	48	64	64	64	
					
b_L 400	2 cylinders	2 cylinders	3 cylinders	3 cylinders	3 cylinders
Load	48	64	80	96	96
					
b_L 480		2 cylinders	3 cylinders	4 cylinders	4 cylinders
Load		64	80	96	96
					
b_L 640			3 cylinders	4 cylinders	4 cylinders
Load			80	96	128

Pneumatic diagram



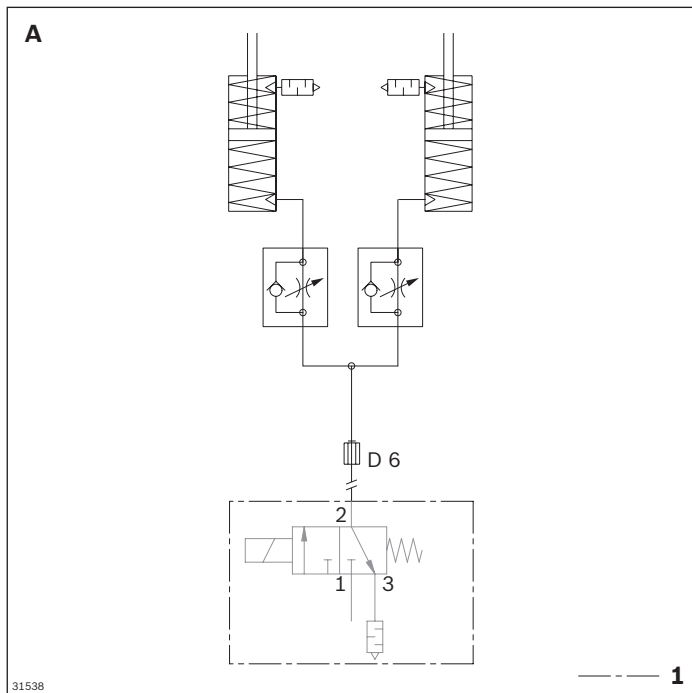
Use pneumatic diagram:

A (for pneumatic equipment PN = 2) if you want to transfer the WT from the longitudinal section to the transverse section (TFE 1) or from the transverse section to the longitudinal section (TFE 2).

B (for pneumatic equipment PN = 3), if you want to outfeed the WT from the longitudinal section to the transverse section (TFE 3) or infeed from the transverse section to the longitudinal section (TFE 4).

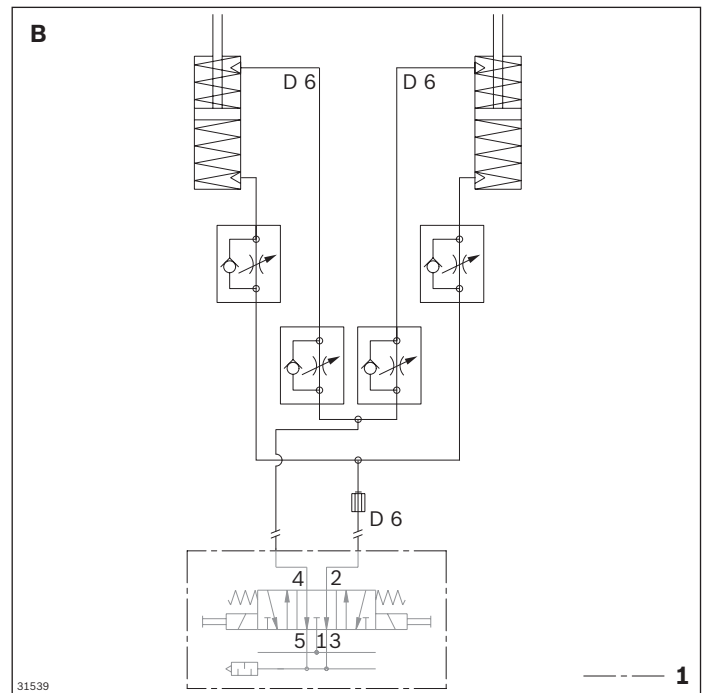
Pneumatic diagrams, BG 1, 2 cylinders

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 1, $b_L < 320$ mm



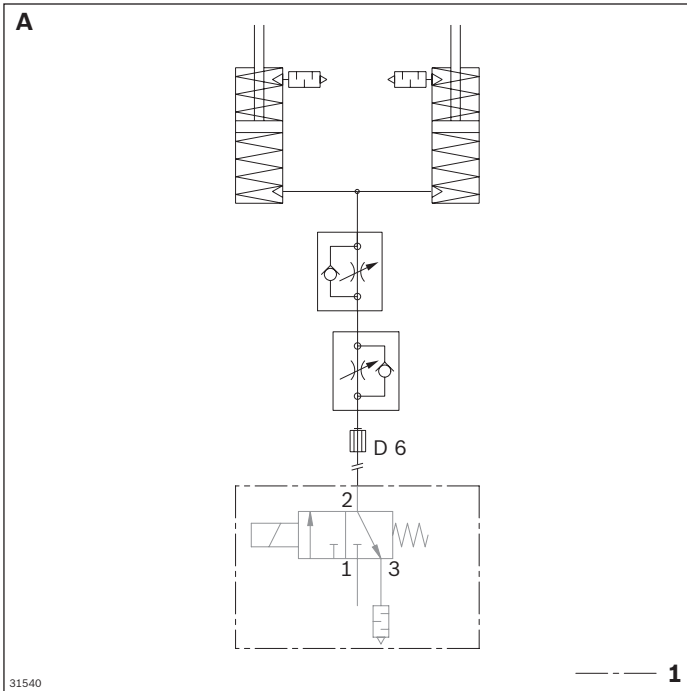
1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 1, $b_L < 320$ mm



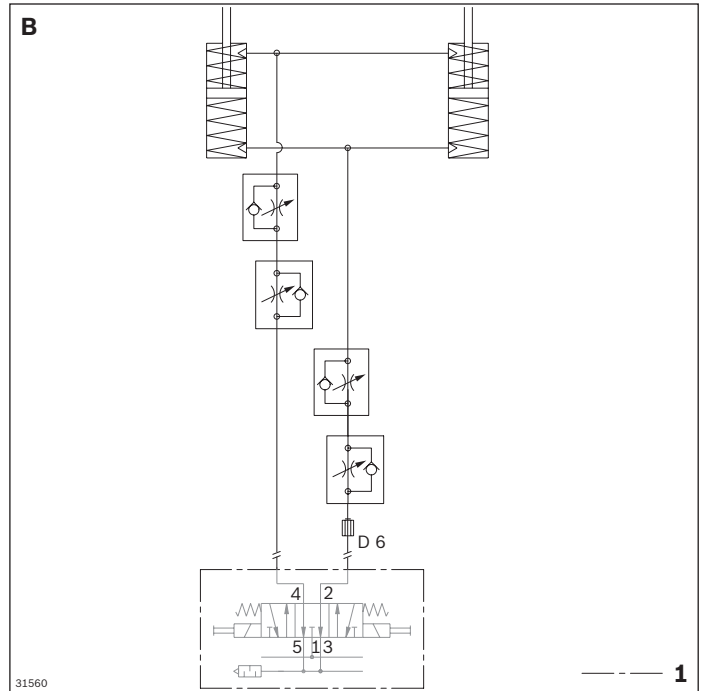
1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 1, $b_L \geq 320$



1 Not included in delivery

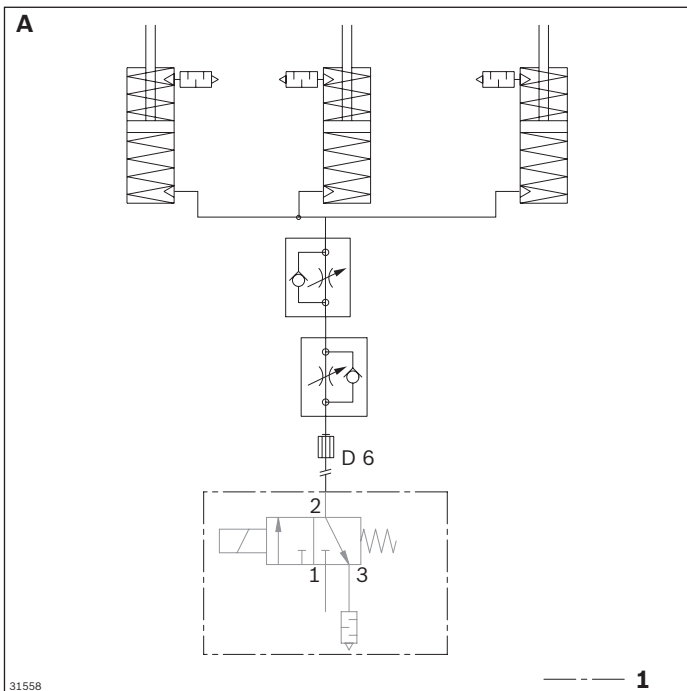
Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 1, $b_L \geq 320$



1 Not included in delivery

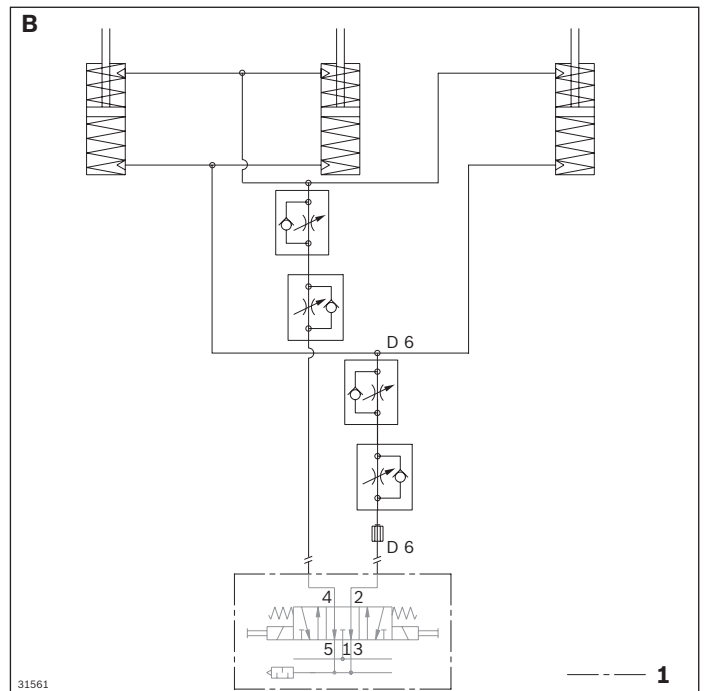
Pneumatic diagrams, BG 2, 3 cylinders

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 2



1 Not included in delivery

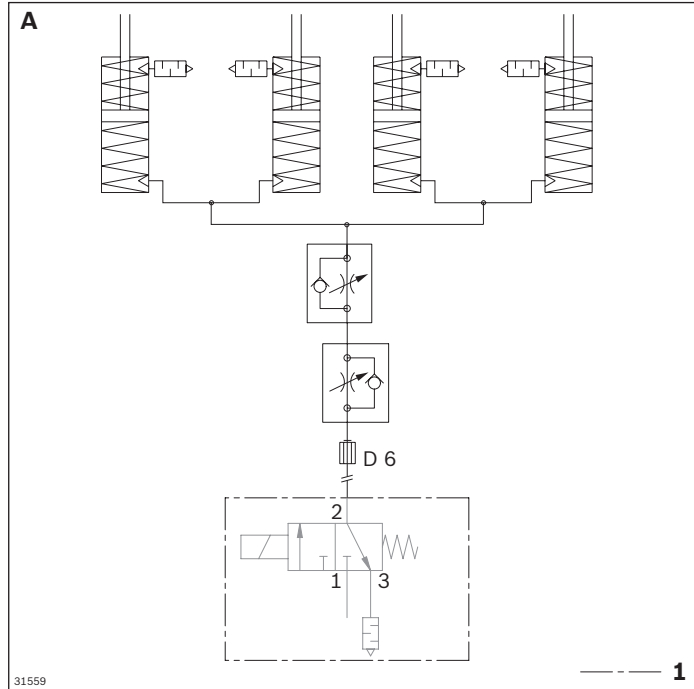
Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 2



1 Not included in delivery

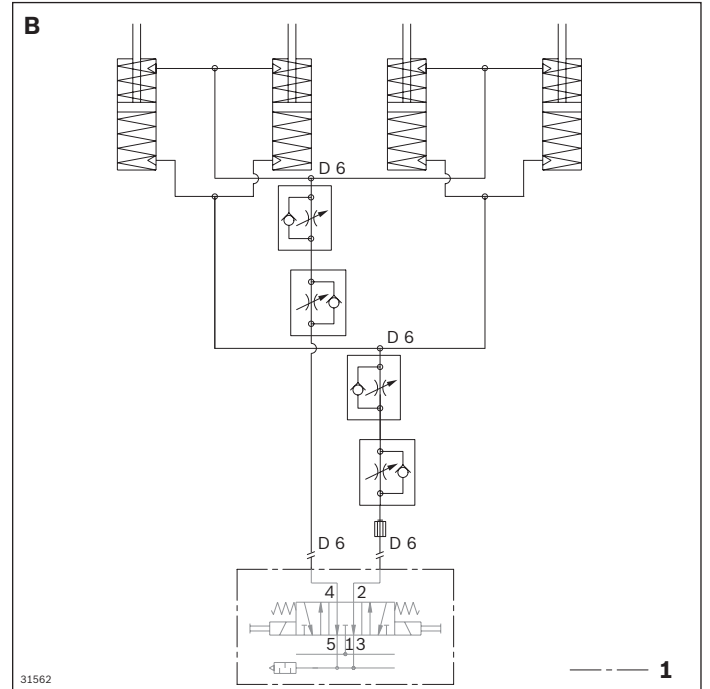
Pneumatic diagrams, BG 3, 4 cylinders

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 2



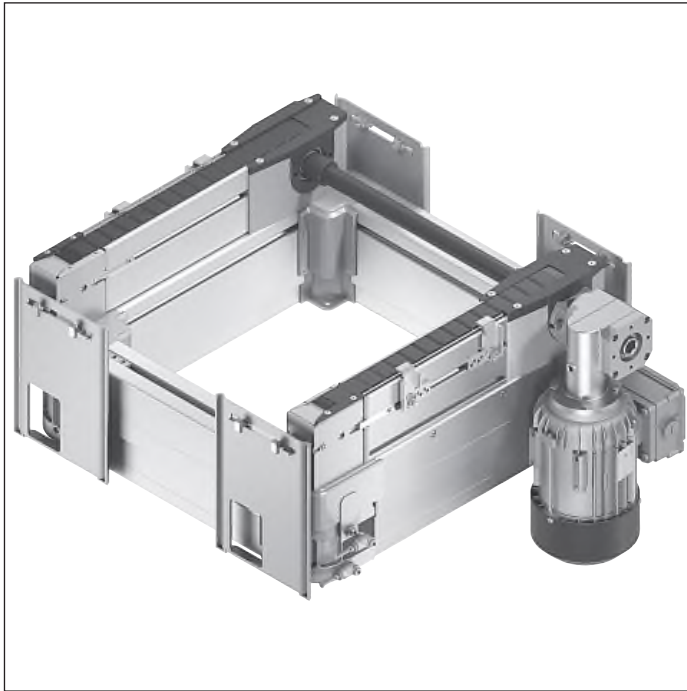
1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 3



1 Not included in delivery

HQ 2/C-H lift transverse unit



- ▶ Lift transverse unit for outfeeding from a longitudinal section into a transverse section and vice versa
- ▶ Use for high total weights up to 2 kg/cm on the smallest side of the workpiece pallet and up to 240 kg
- ▶ Flat design permits system layouts on several levels
- ▶ Synchronized lifting movement of the four block cylinders for uniform and parallel lifting movement
- ▶ Conveyor medium: Flat top chain
- ▶ Suitable for mounting on an ST 2 section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Depending on the installation, height-adjustable lateral guides can be used as a fixed stop for exporting or as a lateral guide when changing workpiece pallets
- ▶ Fixed stops in the form of adjustable/movable lateral guides made of strip steel
- ▶ Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H

Note:

- ▶ Reversible operation possible
- ▶ Accumulation operation not permitted

Accessories

Required accessories

- ▶ M12x1 sensor for position sensing, see p. 8-108/8-110
- ▶ Dampers for outfeeding and infeeding workpiece pallets, see p. 8-60

Recommended accessories

- ▶ DA 2/100-E (see p. 8-75) and DA 2/150-E (see p. 8-79) dampers or a fixed stop (included in delivery) can be used for outfeeding WT 2, WT 2/F, WT 2/H and WT 2/F-H workpiece pallets. The DA 2/100-C (see p. 8-71) damper can be used at the belt end for outfeeding a WT 2 or WT 2/F workpiece pallet.
- ▶ DA 2/100-H (see p. 8-82) or DA 2/250-H (see p. 8-85) damper for outfeeding a WT 2/H or WT 2/F-H workpiece pallet
- ▶ A fixed stop (included in delivery) or a DA 2/100-C damper can be used for infeeding WT 2 and WT 2/F workpiece pallets. This is also possible in combination with a WI 2 rocker (see p. 8-139), WI 2/X rocker (see p. 8-143), WI 2/D rocker (see p. 8-145) or a WI 2/M rocker (see p. 8-133).
- ▶ DA 2/100-H and DA 2/250-H dampers can be used for infeeding WT 2/H and WT 2/F-H workpiece pallets.

Delivery notes

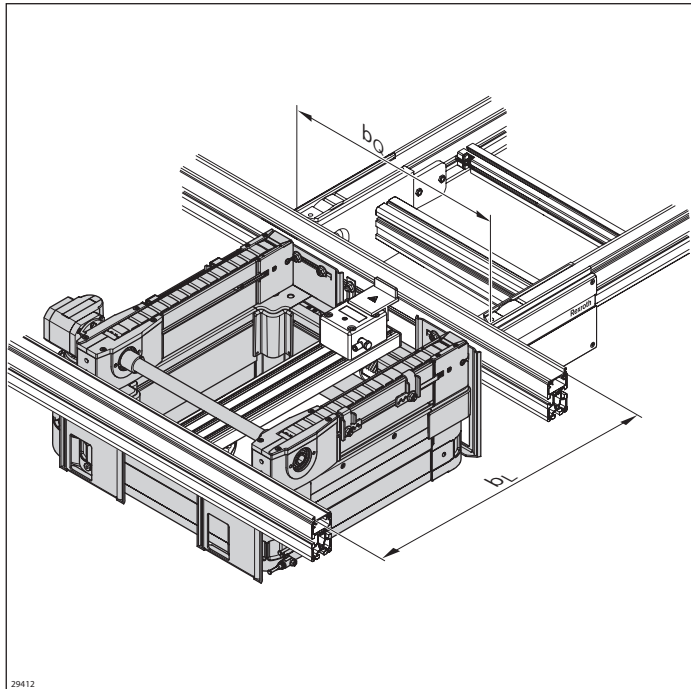
Scope of delivery

- ▶ Incl. fastening material
- ▶ Switch holder for 12 mm sensor for position sensing
- ▶ Kit for electric position sensing
- ▶ Lateral guide kit for $b_1 \leq 640$ mm (3842549567) or for $b_1 > 640$ mm (3842549568)

Condition on delivery

- ▶ Fully assembled
- ▶ Kits for lateral guides included

Ordering information



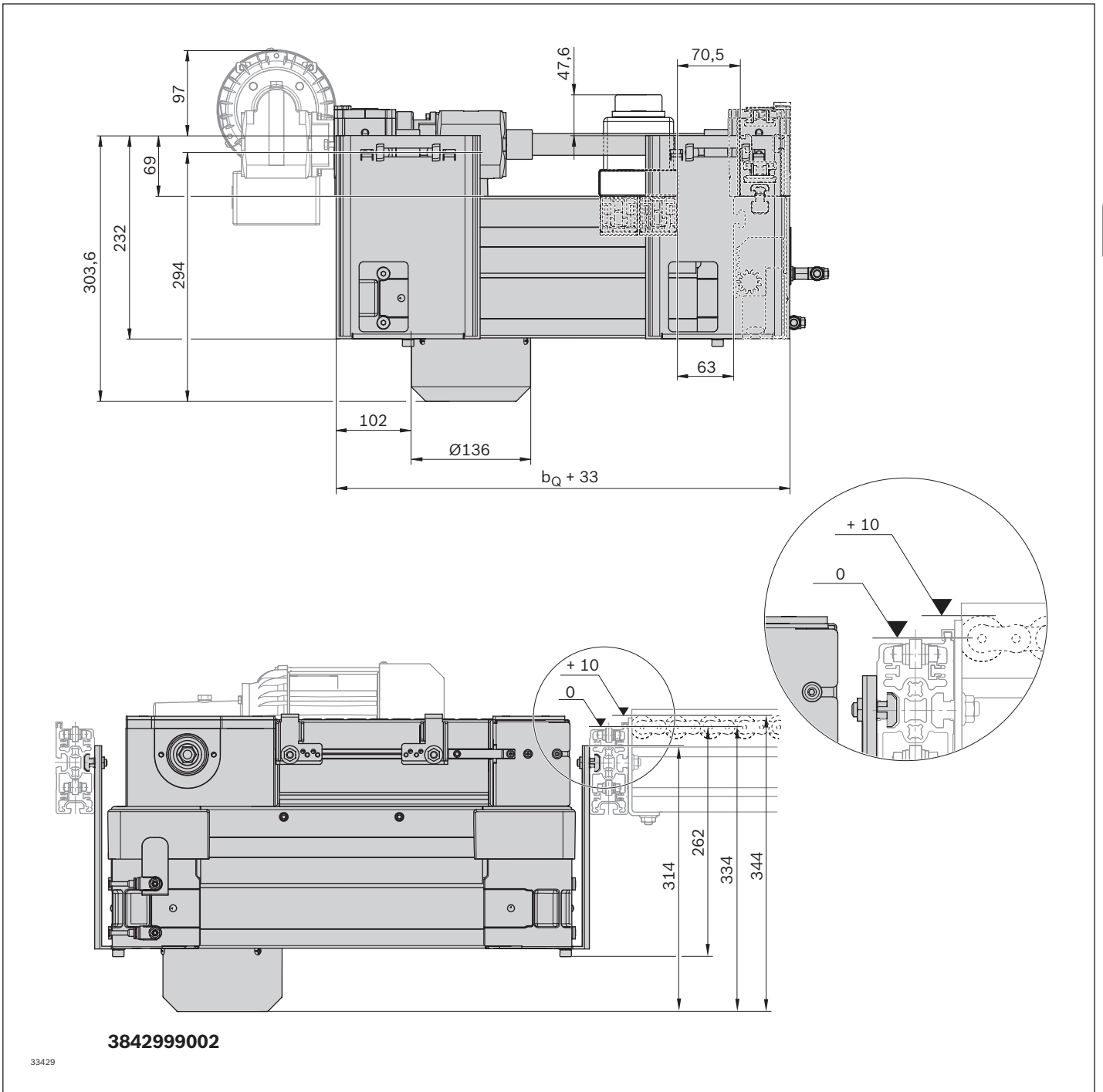
Material number		3842999002
b_Q (mm)	Track width in the transverse conveyor	480; 640; 800; 1040; 1200 480 ... 1200 ¹⁾
b_L (mm)	Track width in the longitudinal conveyor	640; 800; 1040; 1200 640 ... 1200 ¹⁾
$b_Q \times b_L$ (mm x mm)	Combination options	480 ... 1200 x 640 ... 1200
v_N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M

¹⁾ Individual width variants available

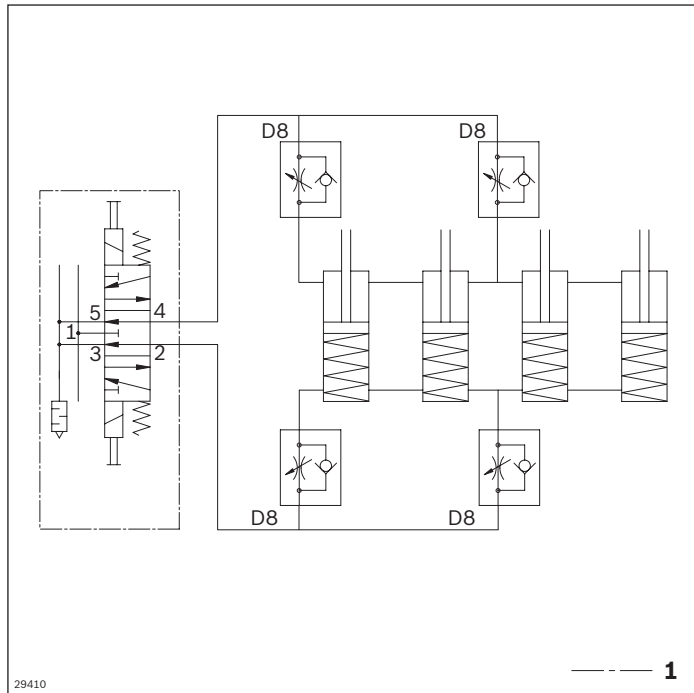
Technical data

Material number		3842999002	
Load			
Max. total weight of workpiece pallet	m_G	kg	240
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	\varnothing	mm	8

Dimensions



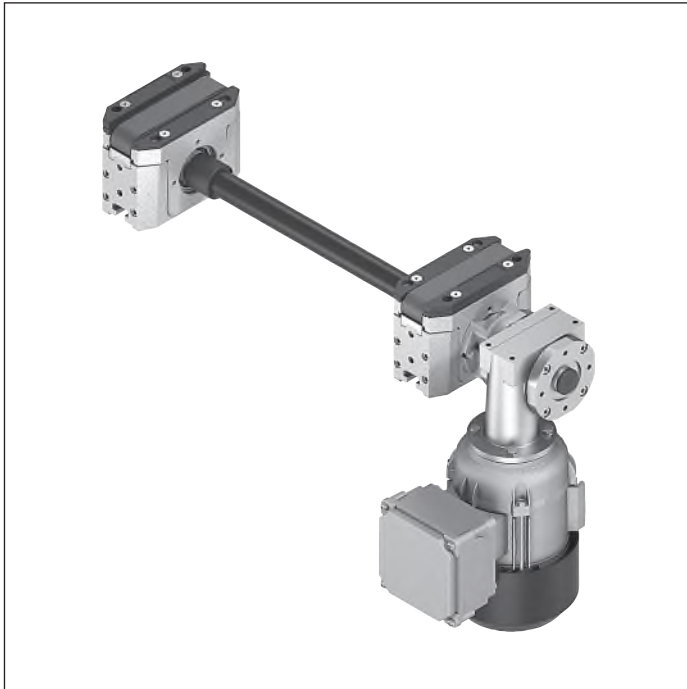
Circuit diagram



29410

1 Not included in delivery

BS 2/130 belt section



- ▶ Fully mounted belt section for transverse workpiece pallet conveyance between parallel conveyor sections at a distance of $a = 135$ mm
- ▶ With built-in drive
- ▶ Use with two HQ 2 lift transverse units
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Reversible operation possible
- ▶ Suitable for mounting on an ST 2 section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2/E, WT 2, WT 2/F, WT 2/H and WT 2/F-H

5

Accessories

Recommended accessories

- ▶ 2x HQ 2 for transverse conveyance, see p. 5-26

Delivery notes

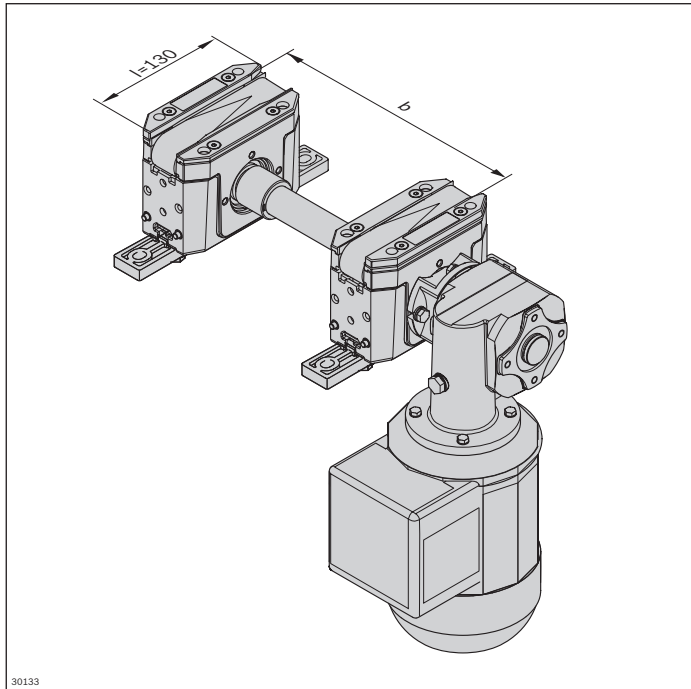
Scope of delivery

- ▶ Incl. fastening material

Condition on delivery

- ▶ Fully assembled

Ordering information



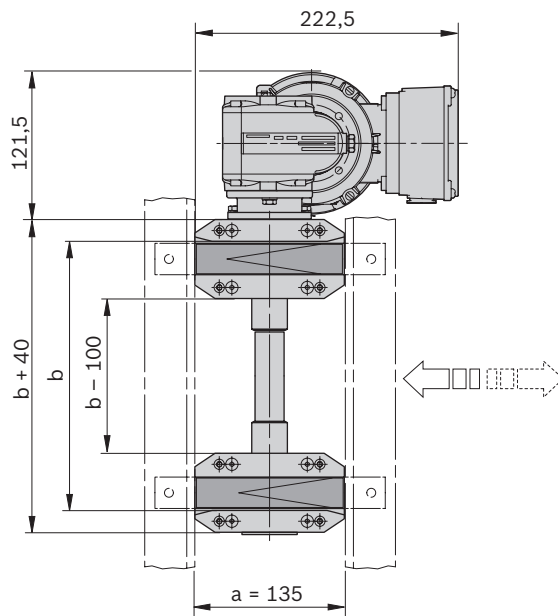
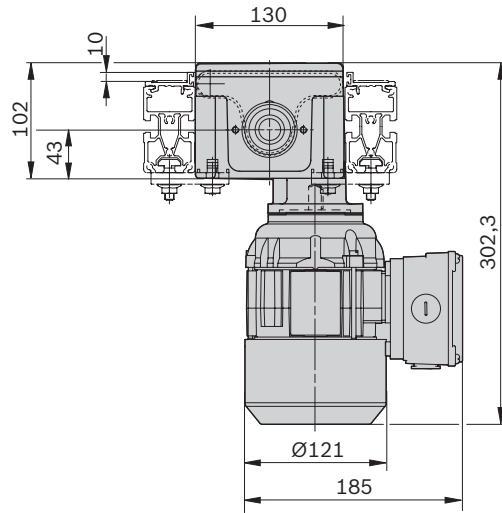
Material number		3842999743
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480; 640; 800; 1040; 1200
b (mm)	Track width in direction of transport	160 ... 1200
v _N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left	R; L

v_N = 0: without motor or gear

Technical data

Material number		3842999743
Load		
Max. section load in accumulation operation	kg	30
Features		
ESD		Yes
Dimensions		
Length	l	mm 130

Dimensions

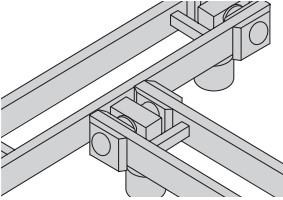


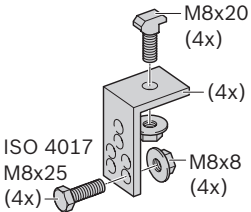
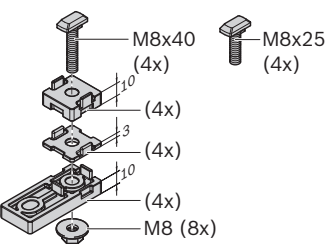
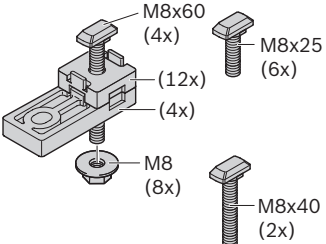
3842999743

00117866

Connection kits for transverse conveyors

Use: To connect the TS 2plus module on a transverse conveyor laterally (end-to-section), the following are also required: Lift transverse unit

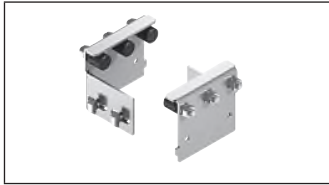
	Longitudinal conveyor ST 2/B SP 2/B ST 2/B-100 ST 2/C-100 ST 2/R-100	ST 2/C-H ST 2/R-H ST 2/R-V
Transverse conveyor		
AS 2/B-150, AS 2/B-250	3842518828	-
AS 2/C-100, AS 2/C-250	3842528192	3842528192
AS 2/C-400, AS 2/C-700	3842518828	3842518828
AS 2/R-300, AS 2/R-700	3842528 192	3842528192
AS 2/R-1200, AS 2/R-2200	3842518828	3842518828
UM 2/B	3842518828	-
UM 2/C-60, UM 2/C-170, UM 2/R-60, UM 2/R-170,	3842528192	3842528192
BS 2	3842525110	-
BS 2/C (drive side and return side) BS 2/R (drive side and return side)	3842528192	3842528192
BS 2/C-H (drive side) BS 2/R-H (drive side)	3842518828	3842518828
BS 2/C-H (return side) BS 2/R-H (return side)	3842528192	3842528192
KU 2 (drive side and return side)	3842528192	3842528192

<p>3842518828</p>  <p>M8x20 (4x) ISO 4017 M8x25 (4x) M8x8 (4x)</p> <p>21448</p>	<p>3842528192</p>  <p>M8x40 (4x) M8x25 (4x) M8x10 (4x) M8x3 (4x) M8x10 (4x) M8 (8x)</p> <p>21453</p>	<p>3842525110</p>  <p>M8x60 (4x) M8x25 (6x) M8 (12x) M8 (8x) M8x40 (2x)</p> <p>21449</p>
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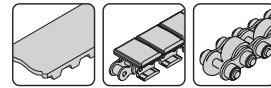
Roller sections



Roller sections in conjunction with two lift transverse units permit workpiece pallets to be conveyed between parallel conveyor sections.



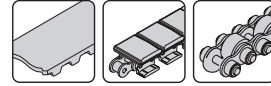
Intermediate section with roller



5-82



RS 2 roller section



5-84



RE roller elements

5-86



RB 2/UM 2 roller track set

5-88

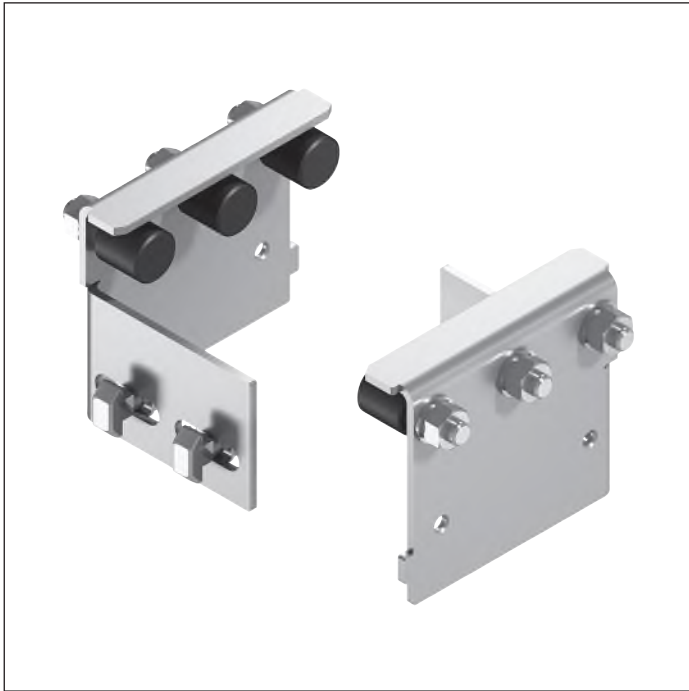
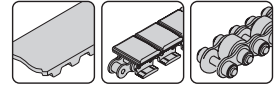


RS 2/H roller section



5-90

Intermediate section with roller



- ▶ Unmounted roller section for transverse workpiece pallet conveyance between parallel conveyor sections at a distance of $a = 45$ to 135 mm
- ▶ Use with two HQ 2 lift transverse units
- ▶ Without built-in drive
- ▶ Conveyor medium: Rollers made of galvanized steel
- ▶ Reversible operation possible
- ▶ Suitable for mounting on an ST 2 section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H

Installation between two ST 2 conveyor units or BS 2 belt sections.

Alternatively, use as an inclined passive conveyor section.

Delivery notes

Scope of delivery

- ▶ Incl. fastening material

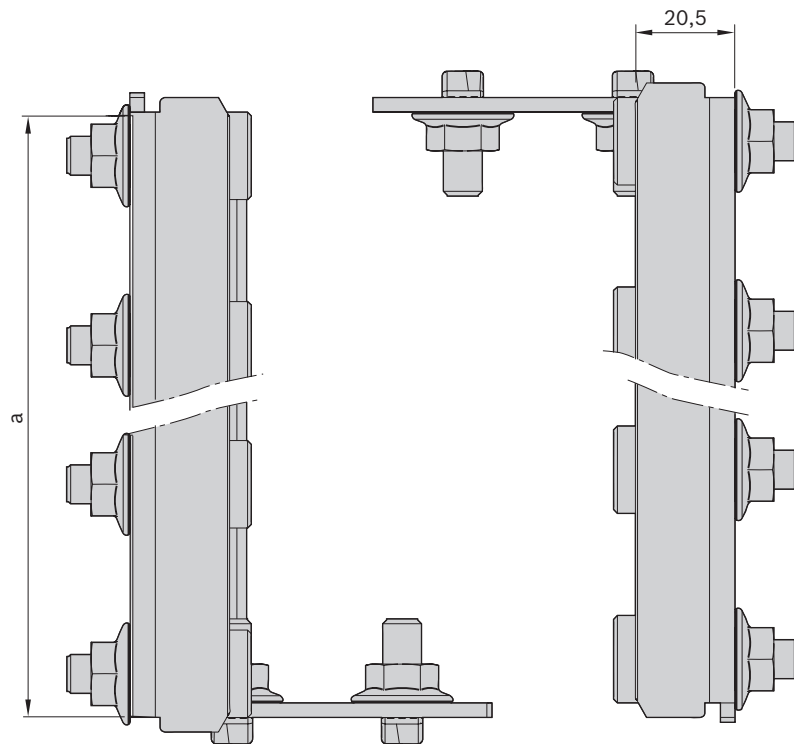
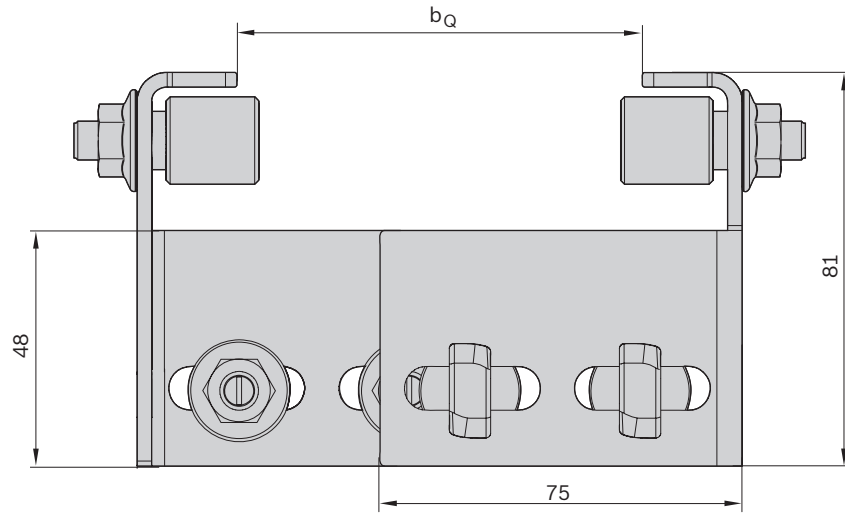
Condition on delivery

- ▶ Not assembled

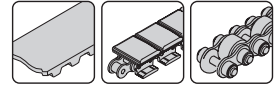
Ordering information

Product designation	Material number
Intermediate section with roller $a = 45$	3842553814
Intermediate section with roller $a = 90$	3842554658
Intermediate section with roller $a = 135$	3842554659

Dimensions



RS 2 roller section



- ▶ Unmounted roller section for transverse workpiece pallet conveyance between parallel conveyor sections at a distance of $a = 90$ to 200 mm
- ▶ Use with two HQ 2 lift transverse units
- ▶ Use as an inclined passive conveyor section is possible
- ▶ Without built-in drive
- ▶ Conveyor medium: PA6 rollers
- ▶ Reversible operation possible
- ▶ Suitable for mounting on an ST 2 section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H

Installation between two ST 2 conveyor units or BS 2 belt sections.

Alternatively, use as an inclined passive conveyor section.

Delivery notes

Scope of delivery

- ▶ Incl. fastening material

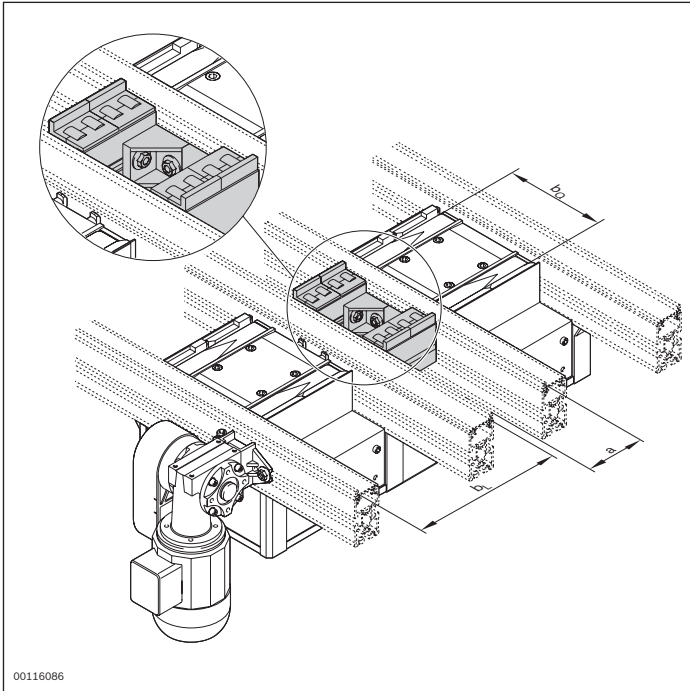
Condition on delivery

- ▶ Not assembled

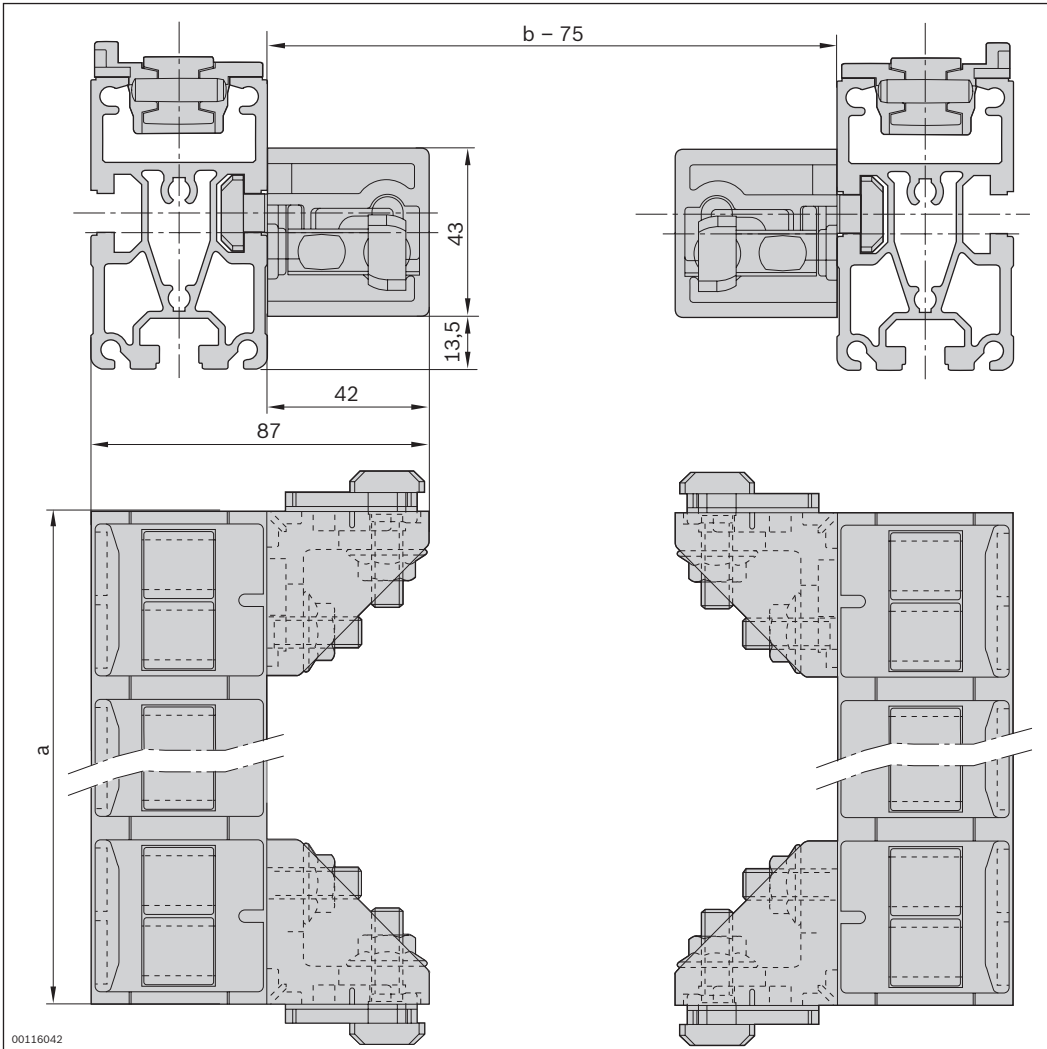
Ordering information

Product designation	Material number
RS 2 roller section $a = 90$	3842522140
RS 2 roller section $a = 135$	3842522141
RS 2 roller section $a = 160$	3842522142
RS 2 roller section $a = 200$	3842522143

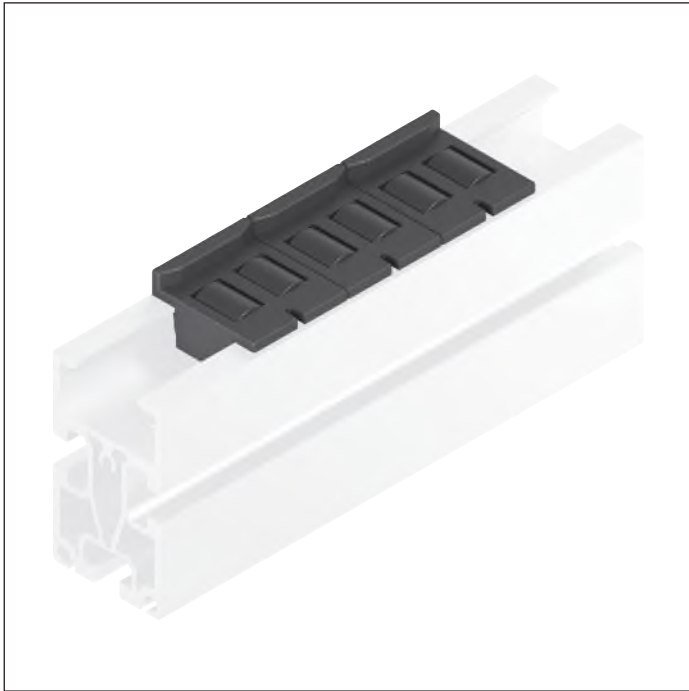
Technical data



Dimensions



RE roller element



- ▶ Assembled roller elements for the manual transportation of workpiece pallets
- ▶ Use as an inclined passive conveyor section is possible
- ▶ Without built-in drive
- ▶ Conveyor medium: PA66 rollers
- ▶ Reversible operation possible
- ▶ Can be combined with WT 2/E, WT 2, WT 2/F, WT 2/H and WT 2/F-H

Roller elements can be clipped into SP 2/B section profiles instead of driven belts. Roller sections constructed in this way are an economical solution for moving workpiece pallets or other similar pallets manually on a transfer system.

The number of roller elements is calculated based on the section length. The remaining measurement < 45 mm has to be distributed by spacing the roller elements accordingly.

Accessories

Required accessories

- ▶ SP 2/B section profile, see p. 3-4

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information

Product designation	Packaging unit	Material number
RB 39 roller element	10	3842520000
ESD RE 39 roller element ¹	10	3842538245
RB 45 roller element	100	3842319501
ESD RE 45 roller element ¹	100	3842538064
RE 45 roller element	100	3842319500
ESD SK RE 45 roller element ¹	100	3842538065

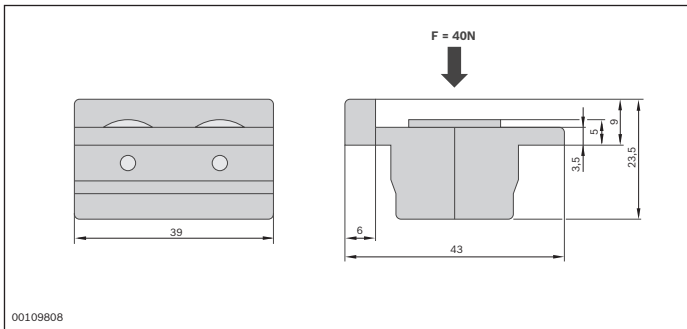
¹ Version with conductive material in accordance with DIN EN 61 340-5-1, suitable for ESD-sensitive areas.

Technical data

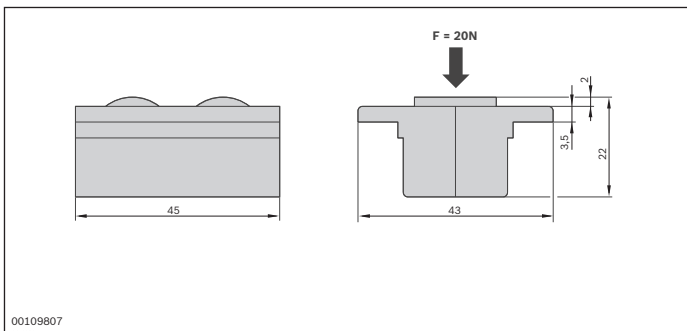
Material number	RE 39	3842520000	3842538245
	RE 45	3842319501	3842538064
	RE 45SK	3842319500	3842538065
Features			
ESD		No	Yes
Material specification		RE 39, RE 45, RE 45SK: Rollers: PA66 Housing: PA6 RE 39: Bearing: Steel bolt	RE 39, RE 45, RE 45SK: Rollers: PA66 Housing: PA6 RE 39: Bearing: Steel bolt

Dimensions

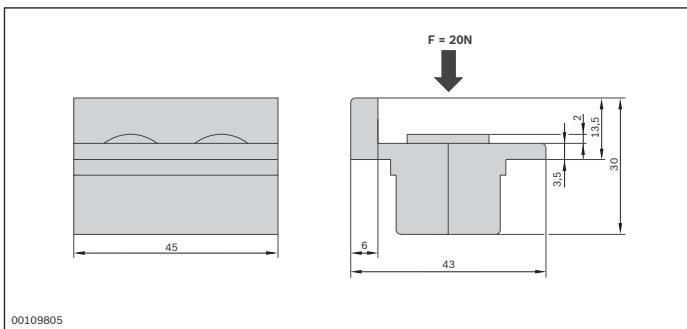
RE 39



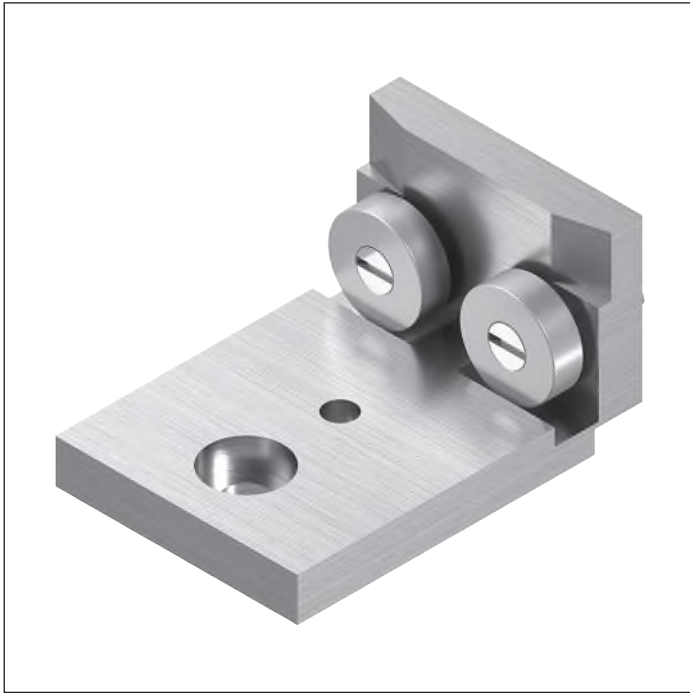
RE 45



RE 45 SK



RB 2/UM 2 roller track set



- ▶ Mounted roller section for mounting on AS 2/B or UM 2/B for transverse conveying
- ▶ Additional workpiece pallet support on the front transition from AS 2/B to UM 2/B or from AS 2/B or UM 2/B to a lift transverse unit
- ▶ One set is required for each AS 2/B or UM 2/B
- ▶ Required for workpiece pallet lengths of 160 mm; recommended for longer lengths
- ▶ Without drive
- ▶ Reversible operation possible
- ▶ Can be combined with WT 2/E, WT 2, WT 2/F

Delivery notes

Scope of delivery

- ▶ Set (containing 2x roller track, 2x guide profile, 2x fastening kit)

Condition on delivery

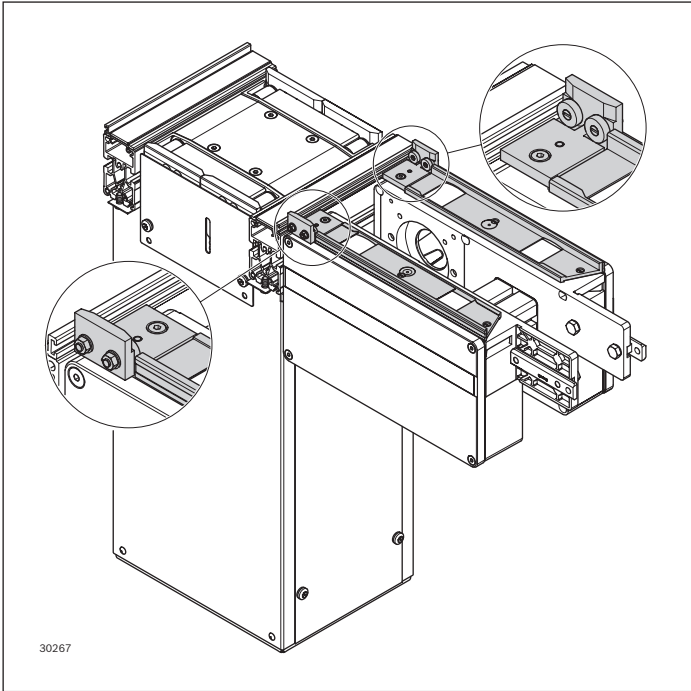
- ▶ Fully assembled

Ordering information

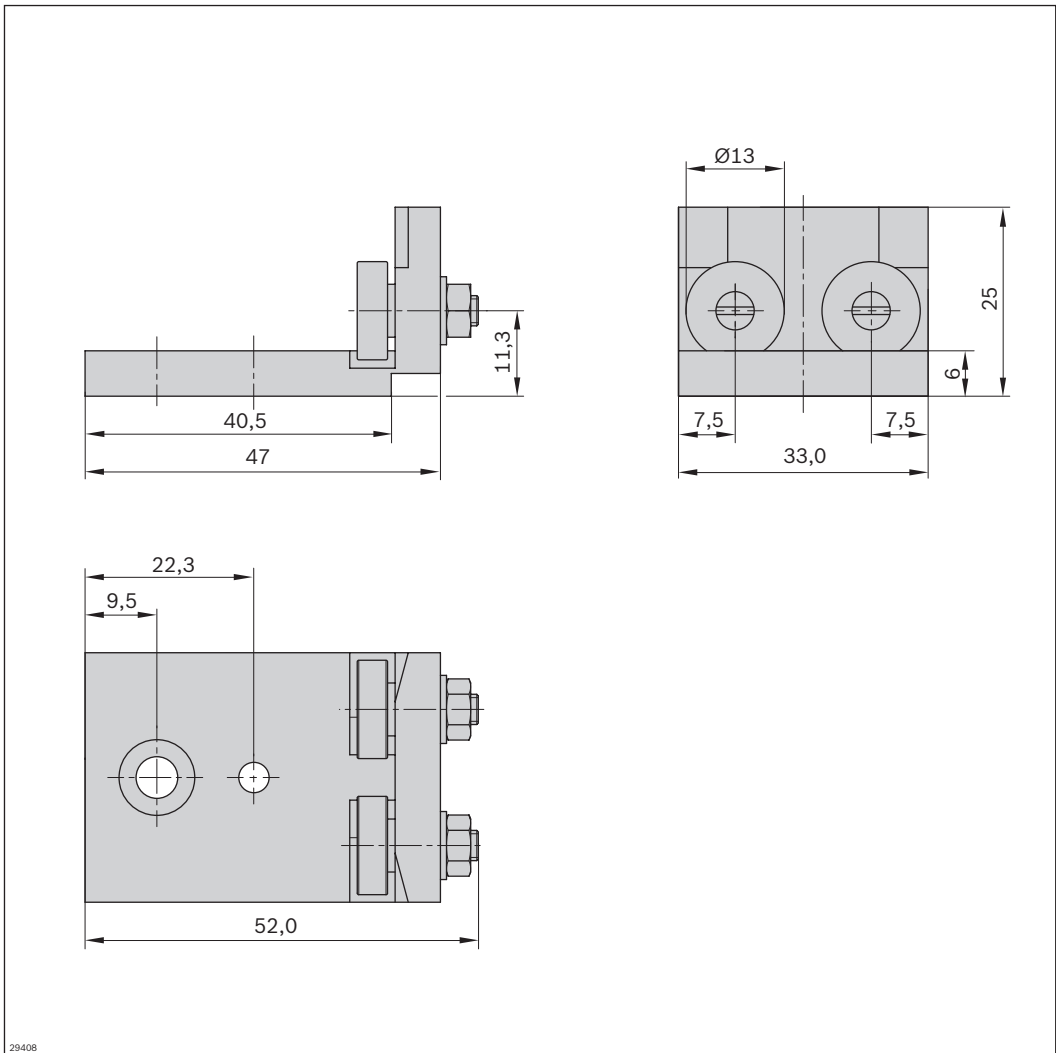
Product designation	Packaging unit	Material number
RB 2/UM 2 roller track set	Set	3842558657

Technical data

Material number	3842558657
Features	
Material specification	Track: Aluminum Rollers: Steel



Dimensions



29408

RS 2/H roller section



- ▶ Mounted roller section for transverse workpiece pallet conveyance between parallel conveyor sections at a distance of $a = 90$ to 690 mm
- ▶ Use with two HQ 2 lift transverse units
- ▶ Without built-in drive
- ▶ Conveyor medium: Accumulation roller chain with steel accumulation rollers and small parts protection
- ▶ Suitable for mounting on an ST 2 section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2/E, WT 2, WT 2/F, WT 2/H and WT 2/F-H

Installation between two ST 2/...-H conveyor units or BS 2/...-H belt sections with HQ 2/U-H or HQ 2/C-H lift

transverse unit. Alternatively, use as an inclined conveyor section is possible.

Accessories

Recommended accessories

- ▶ Note on QV cross connectors: When conveyor section distances $a > 90$ mm, we recommend stabilizing the RS 2/H roller section using QV cross connectors, see p. 5-92

Delivery notes

Scope of delivery

- ▶ Section, incl. accumulation roller chain with steel accumulation rollers and small parts protection
- ▶ Incl. fastening material

Condition on delivery

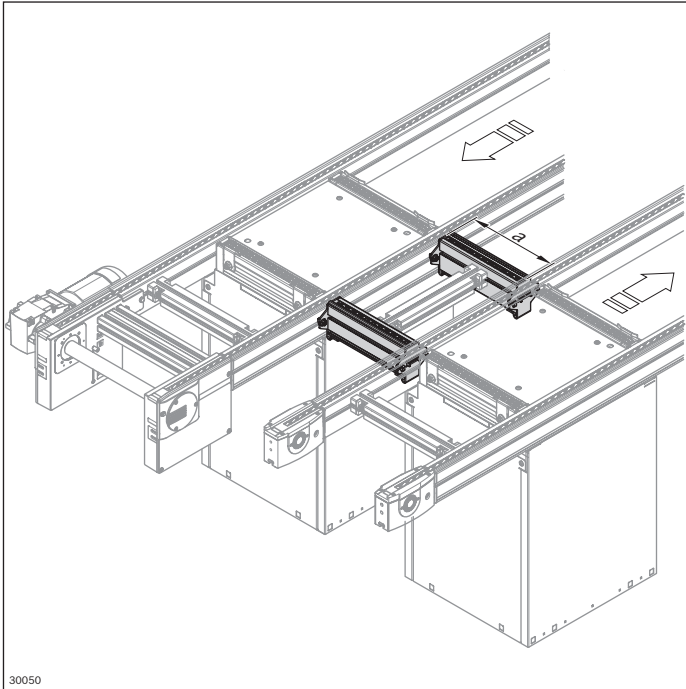
- ▶ Fully assembled

Ordering information

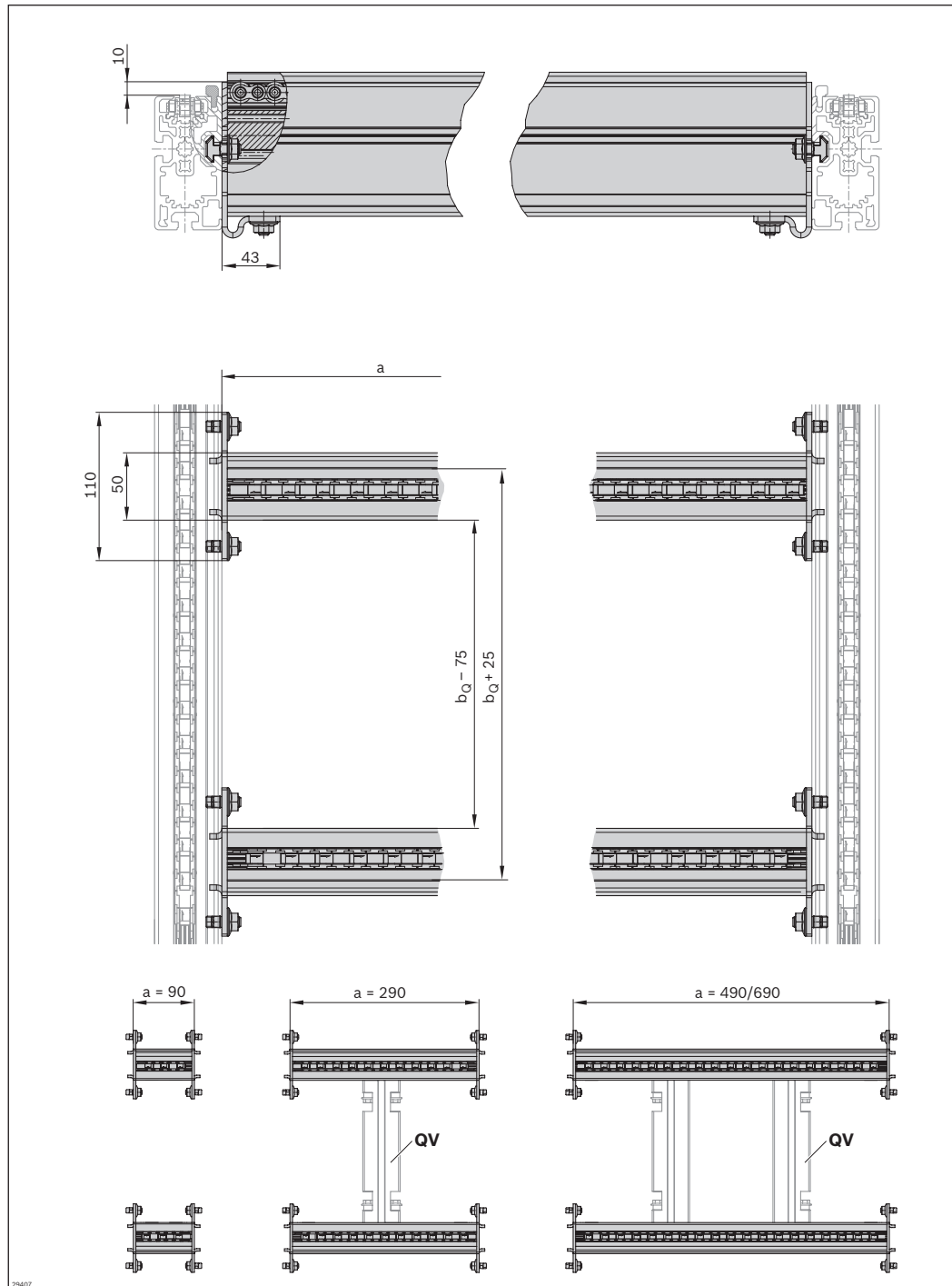
Product designation	a (mm)	b ₁ (mm)	Material number
RS 2/H roller section	90	480; 640; 800; 1040; 1200	3842998744
	290	640; 800; 1040; 1200	3842998744
	490	800; 1040; 1200	3842998744
	690	1040; 1200	3842998744

Technical data

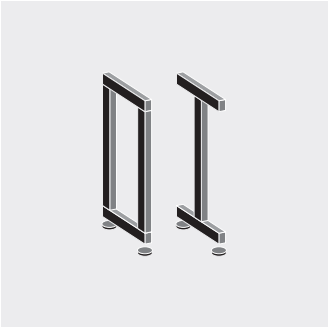
Material number	3842998744	
Features		
Material specification	Section profile: Aluminum, natural; anodized Accumulation roller chain: Steel accumulation rollers and small parts protection	
Dimensions		
a (mm)	Roller section length	90 ... 690



Dimensions



a (mm)	Number of QVs	QV material number
90	-	-
290	1	3842993052/b = b_Q
490	2	3842994635/b = b_Q
690	2	3842994635/b = b_Q



Leg sets

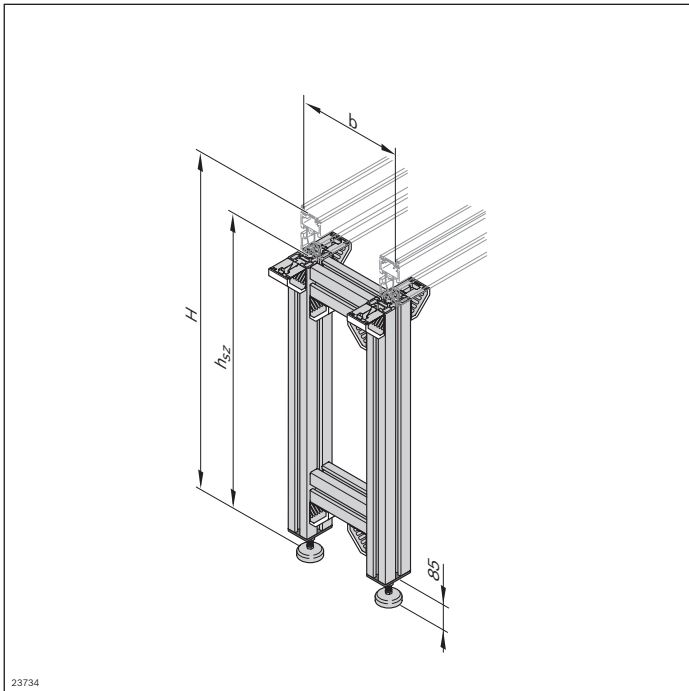
Selection of leg sets

6-2

6



Selection of leg sets

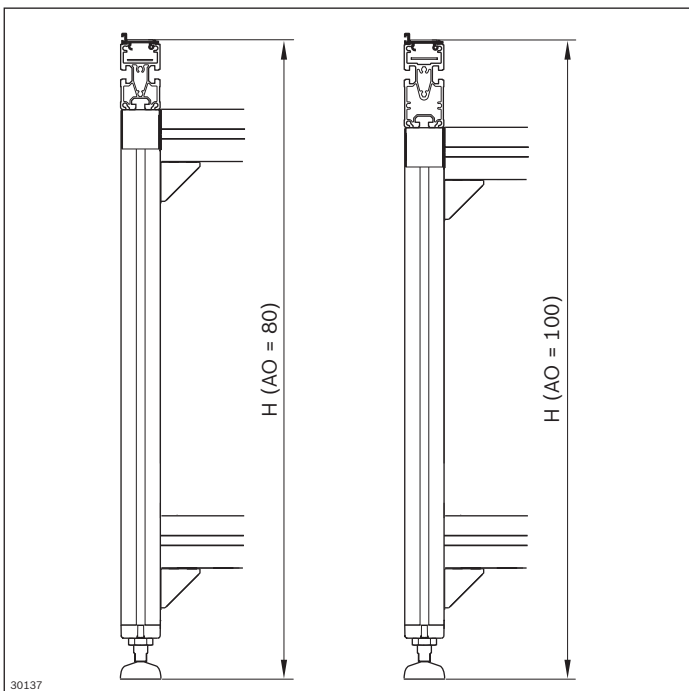


New leg set height H

Defines the height of the leg sets with the new parameter H, measured from floor to top of the conveyor medium (= conveying level).

In addition, the height of the section profile is specified as an additional order parameter (AO).

The height of the leg set to lower edge of section profile (= h_{sz}) is calculated as follows: $h_{sz} = H - AO$.





SZ 2 leg sets

6-4



SZ 2-ST 2 reinforcement

6-26



Foundation bracket, floor dowel, T-bolt, flange nut, bracket caps

6-28

SZ 2/... leg sets



Leg sets

Leg sets support the conveyor section. They have to be mounted directly next to the drive and return units, and underneath section joints. Conveyor units have to be supported with extra leg sets at equal distances of max. 2000 mm.

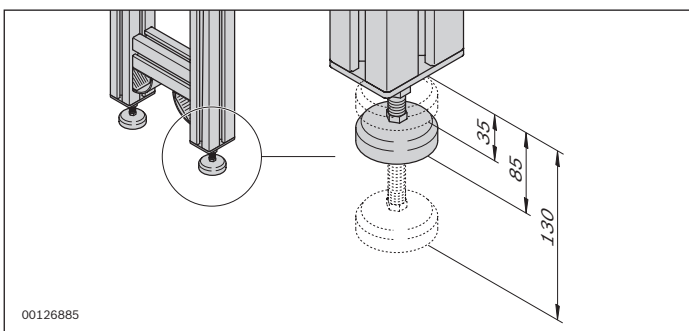
Fastening material

Leg sets must be anchored to the floor with foundation brackets (3842146848) and floor dowels (3842526560)..

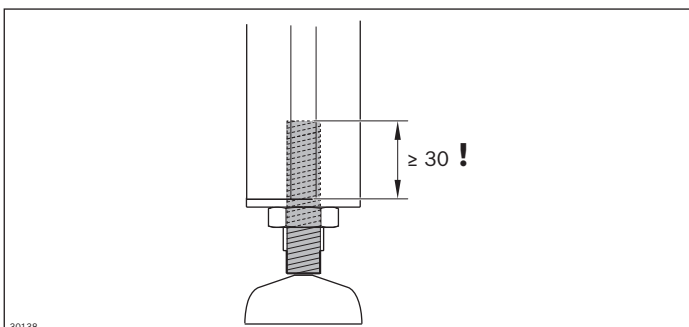
Bracket caps are not included in delivery for all leg sets.

Leveling feet

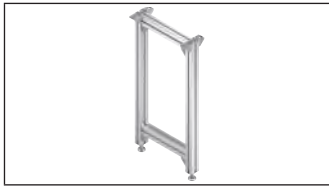
The height-adjustable leveling feet (incl. fastening material) are included in delivery. The engagement depth of the leveling feet must be at least 30 mm for all leg sets.



00126885

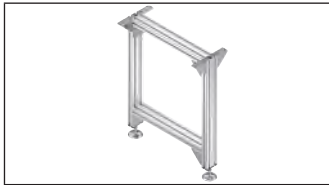


30138



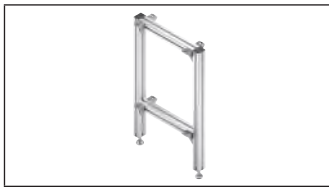
SZ 2 leg set

6-6



SZ 2/H leg set

6-8



SZ 2/U leg set

6-10



SZ 2/U-H leg set

6-13



SZ 2/T leg set

6-16



SZ 2/T-H leg set

6-18



SZ 2/K-90, SZ 2/K-180 leg set

6-20



HD 2/H leg set

6-24

SZ 2 leg set



- ▶ Leg set for single-track conveyor sections on a single conveying level
- ▶ Standard version

The leg sets support one belt section or one conveyor unit.

Accessories

Required accessories

- ▶ Foundation bracket (3842146848, see p.) 6-28
- ▶ Floor dowel (3842526560, see p.) 6-30

Delivery notes

Scope of delivery

- ▶ Incl. height-adjustable leveling foot
- ▶ Incl. all fastening material to mount on conveyor section, drive module or return unit

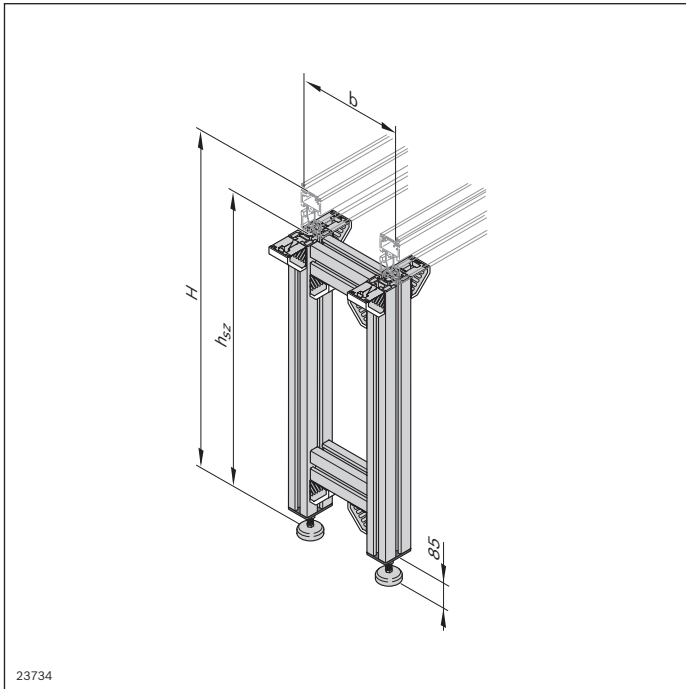
Recommended accessories

- ▶ Bracket caps, see p. 6-33

Condition on delivery

- ▶ Assembled (MT = 1)
- ▶ Not assembled (MT = 0)

Ordering information



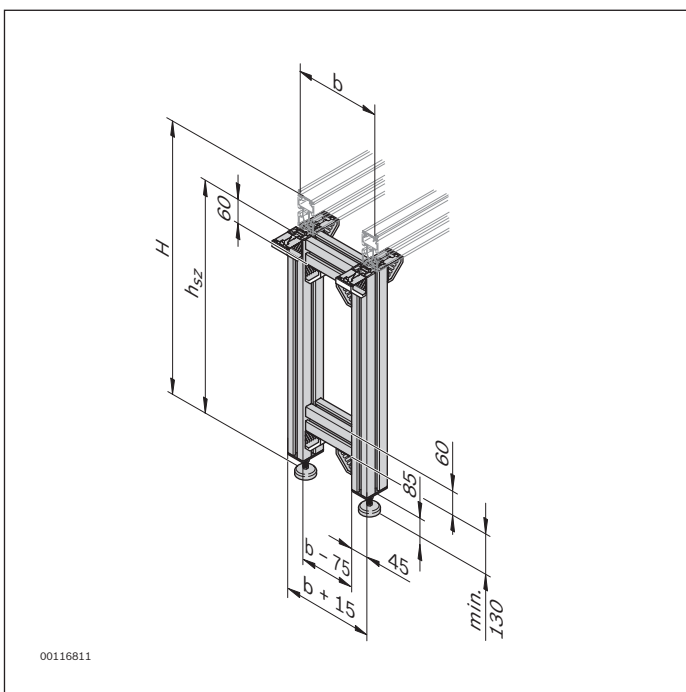
Material number		3842996320	
b (mm)	Track width in direction of transport	160 ... 1200	
H (mm)	Transportation height	ST 2/B-50:	350 ... 2000
$H = h_{sz} + AO$		Lift gate:	355 ... 2000
		ST 2/B:	375 ... 2000
		ST 2/B-100:	395 ... 2000
AO	Installation location	55; 60; 80; 100	
SP 2/B-50:		AO = 55	
Lift gate:		AO = 60	
ST 2/B; SP 2/BH		AO = 80	
BS 2; BS 2/M:		AO = 80	
ST 2/B-100; ST 2/C-100;			
ST 2/R-100; ST 2/C-H;			
ST 2/R-H; ST 2/R-V;			
BS 2/C; BS 2/C-H;			
BS 2/R; BS 2/R-H;			
BS 2/R-V; CS/C:		AO = 100	
MT	Kit	0; 1	
0 = not assembled			
1 = assembled			

* h_{sz} = leg set height

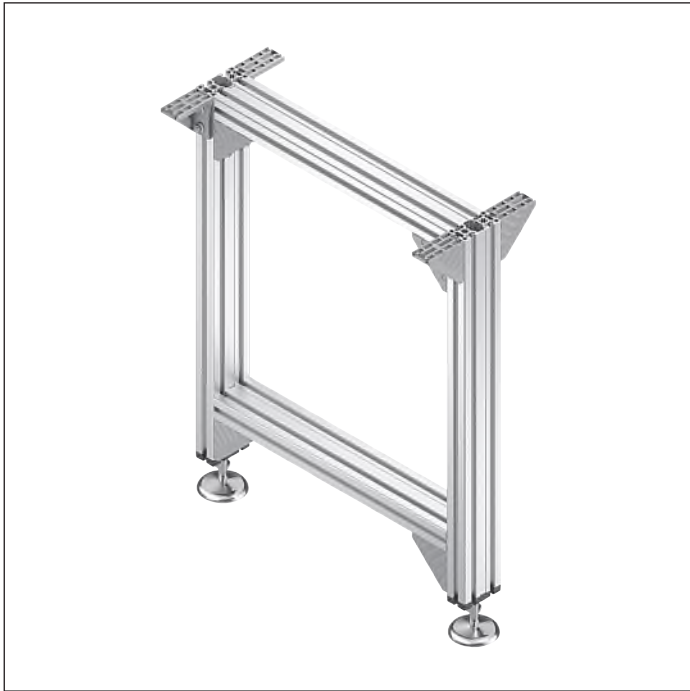
Technical data

Material number		3842996320	
Features			
ESD		Yes	

Dimensions



SZ 2/H leg set



- ▶ Leg set for heavy-duty single-track conveyor sections on one conveying level
- ▶ Standard version

The leg sets support one belt section or one conveyor unit with high loads. They are particularly suitable for BS 2/...-H

belt sections and conveyor units with SP 2/...-H section profile.

Accessories

Required accessories

- ▶ Foundation bracket (3842146848, see p.) 6-28
- ▶ Floor dowel (3842526560, see p.) 6-30

Recommended accessories

- ▶ Bracket caps, see p. 6-33

Delivery notes

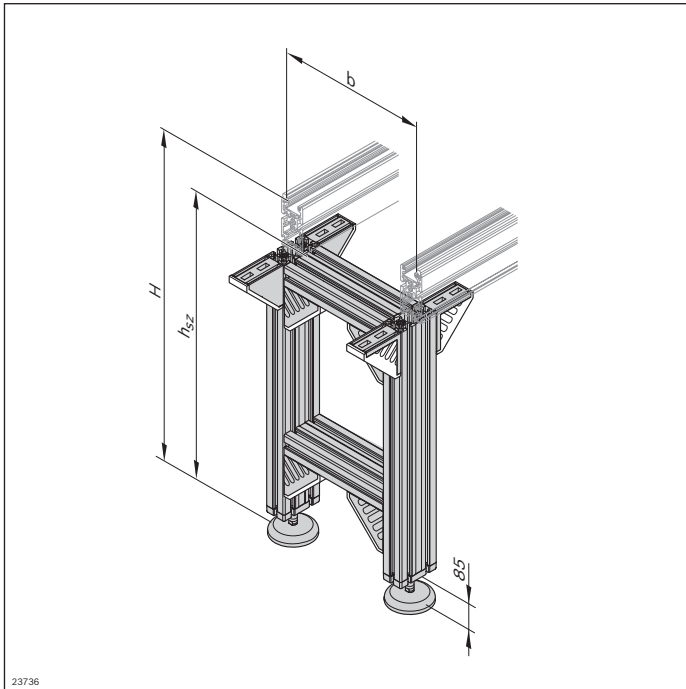
Scope of delivery

- ▶ Incl. height-adjustable leveling foot
- ▶ Incl. all fastening material to mount on conveyor section, drive module or return unit

Condition on delivery

- ▶ Assembled (MT = 1)
- ▶ Not assembled (MT = 0)

Ordering information



23736

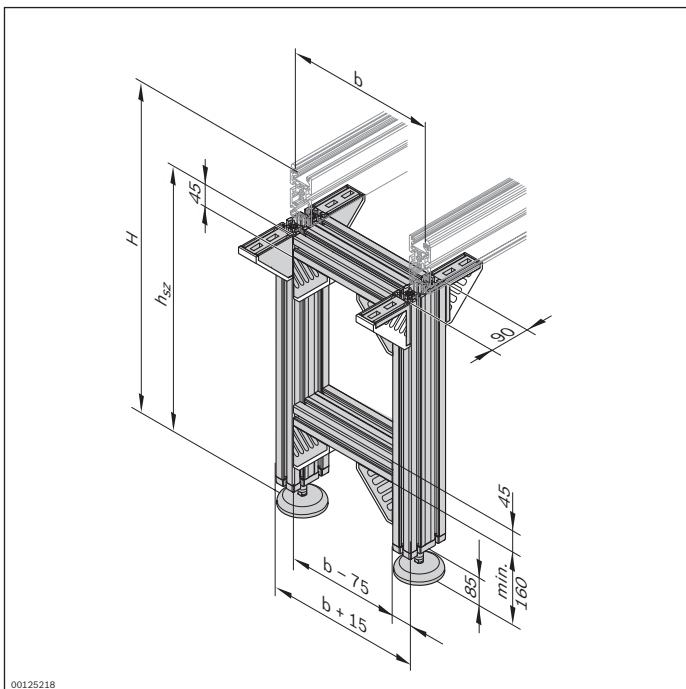
Material number		3842996321	
b (mm)	Track width in direction of transport	400 ... 1200	
H (mm)	Transportation height	ST 2/B-50:	410 ... 2000
$H = h_{sz}^* + AO$		ST 2/B:	435 ... 2000
		ST 2/B-100:	455 ... 2000
AO	Installation location	55; 80; 100	
SP 2/B-50:		AO = 55	
ST 2/B; SP 2/BH;		AO = 80	
BS 2; BS 2/M:		AO = 80	
ST 2/B-100; ST 2/C-100;		AO = 100	
ST 2/R-100; ST 2/C-H;		AO = 100	
ST 2/R-H; ST 2/R-V;		AO = 100	
BS 2/C; BS 2/C-H;		AO = 100	
BS 2/R; BS 2/R-H;		AO = 100	
BS 2/R-V; CS/C:		AO = 100	
MT	Kit	0; 1	
0 = not assembled			
1 = assembled			

* h_{sz} = leg set height

Technical data

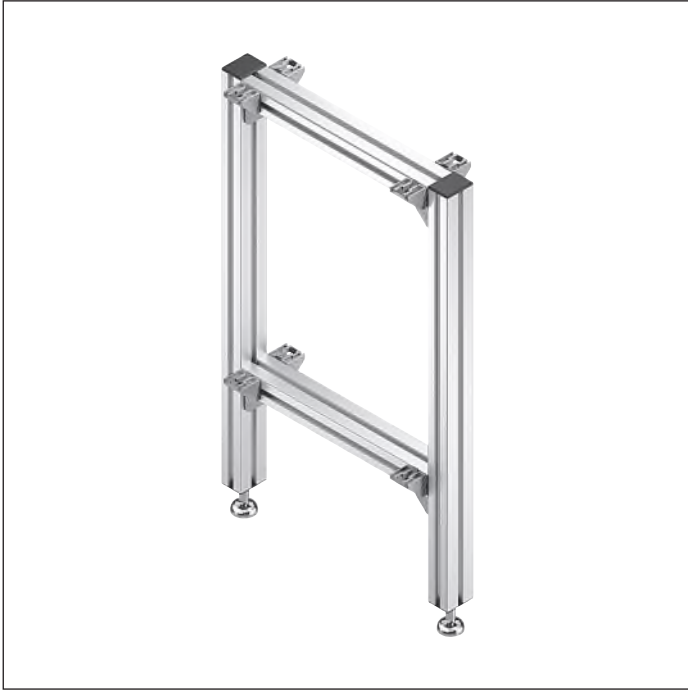
Material number	3842996321
Features	
ESD	Yes

Dimensions



00125218

SZ 2/U leg set



- ▶ Leg set for single-track conveyor sections on two conveying levels

The leg sets support two belt sections or two conveyor units side by side, e.g. for a workpiece return.

Accessories

Required accessories

- ▶ Foundation bracket (3842146848, see p.) 6-28
- ▶ Floor dowel (3842526560, see p.) 6-30

Delivery notes

Scope of delivery

- ▶ Incl. height-adjustable leveling foot
- ▶ Incl. all fastening material to mount on conveyor section, drive module or return unit

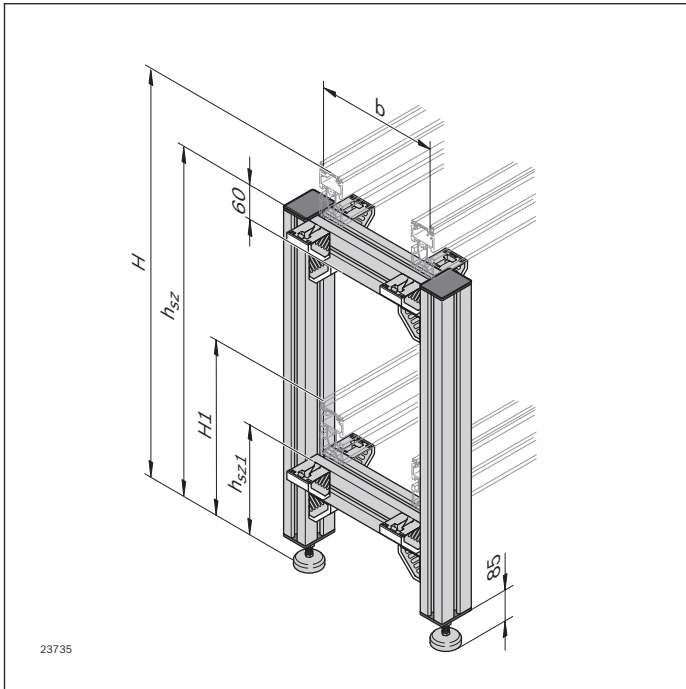
Recommended accessories

- ▶ Bracket caps, see p. 6-33

Condition on delivery

- ▶ Assembled (MT = 1)
- ▶ Not assembled (MT = 0)

Ordering information



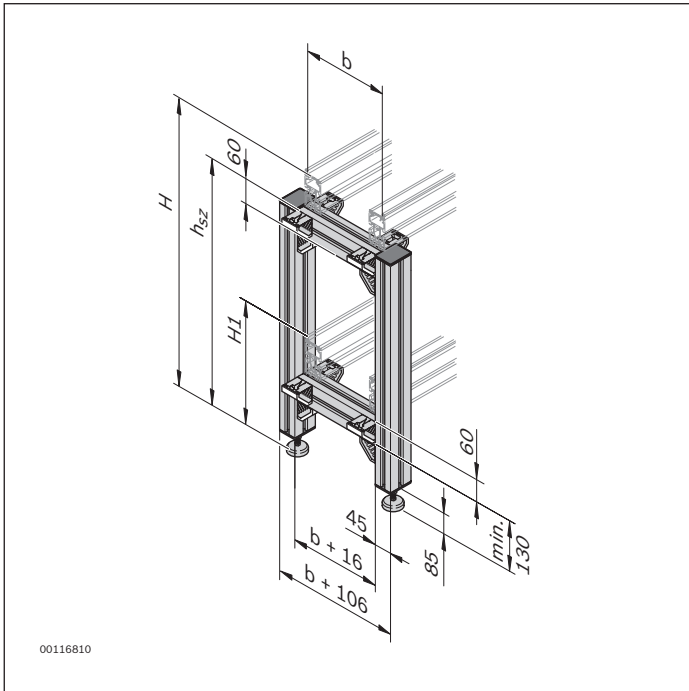
Material number		3842996322	
b (mm)	Track width in direction of transport	160 ... 1200	
H (mm)	Transportation height	ST 2/B-50:	475 ... 2000
$H = h_{sz}^{*} + AO^{1)}$		ST 2/B:	525 ... 2000
		ST 2/B-100:	565 ... 2000
H1 (mm)		ST 2/B-50:	245 ... 1770
$H1 = h_{sz1}^{**} + AO1^{2)}$		ST 2/B:	270 ... 1745
		ST 2/B-100:	290 ... 1725
AO ¹⁾	Installation location	55; 80; 100	
SP 2/B-50:		AO = 55	
ST 2/B; SP 2/BH;		AO = 80	
BS 2; BS 2/M:			
ST 2/B-100; ST 2/C-100;		AO = 100	
ST 2/R-100; ST 2/C-H;			
ST 2/R-H; ST 2/R-V;			
BS 2/C; BS 2/C-H;			
BS 2/R; BS 2/R-H;			
BS 2/R-V; CS/C:			
AO ²⁾	Installation location	55; 80; 100	
SP 2/B-50:		AO1 = 55	
ST 2/B; SP 2/BH;		AO1 = 80	
BS 2; BS 2/M:			
ST 2/B-100; ST 2/C-100;		AO1 = 100	
ST 2/R-100; ST 2/C-H;			
ST 2/R-H; ST 2/R-V;			
BS 2/C; BS 2/C-H;			
BS 2/R; BS 2/R-H;			
BS 2/R-V; CS/C:			
MT	Kit	0; 1	
0 = not assembled			
1 = assembled			

* h_{sz} = leg set height at upper conveying level
 ** h_{sz1} = leg set height at lower conveying level
¹ Upper conveying level
² Lower conveying level

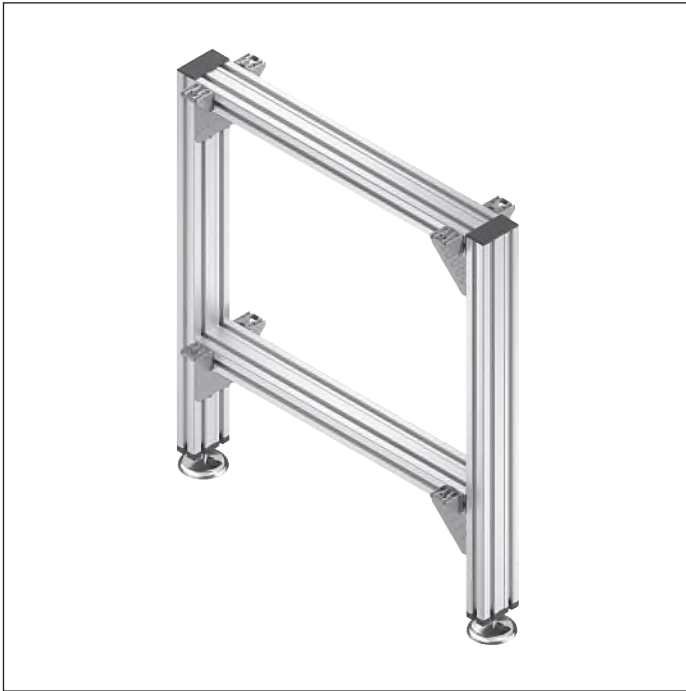
Technical data

Material number	3842996322
Features	
ESD	Yes

Dimensions



SZ 2/U-H leg set



- ▶ Leg set for heavy-duty single-track conveyor sections on two conveying levels

6

The leg sets support two belt sections or two conveyor units side by side, e.g. for a workpiece return. They are

particularly suitable for BS 2/...-H belt sections or conveyor units with SP 2/...-H section profile.

Accessories

Required accessories

- ▶ Foundation bracket (3842146848, see p.) 6-28
- ▶ Floor dowel (3842526560, see p.) 6-30

Recommended accessories

- ▶ Bracket caps, see p. 6-33

Delivery notes

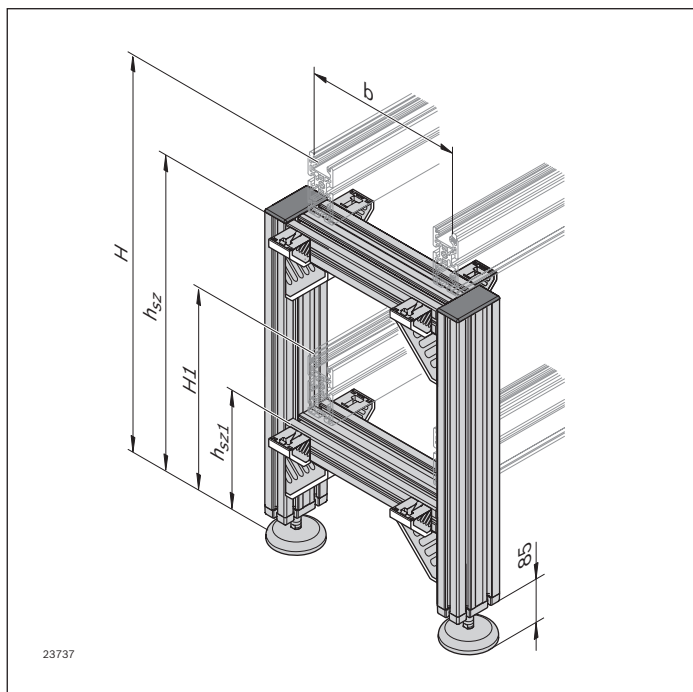
Scope of delivery

- ▶ Incl. height-adjustable leveling foot
- ▶ Incl. all fastening material to mount on conveyor section, drive module or return unit

Condition on delivery

- ▶ Assembled (MT = 1)
- ▶ Not assembled (MT = 0)

Ordering information



23737

Material number		3842996323	
b (mm)	Track width in direction of transport	400 ... 1200	
H (mm)	Transportation height	ST 2/B-50:	535 ... 2000
	$H = h_{sZ}^{*+} + AO^1$	ST 2/B:	585 ... 2000
		ST 2/B-100:	625 ... 2000
H1 (mm)		ST 2/B-50:	275 ... 1740
	$H1 = h_{sZ1}^{**+} + AO1^2$	ST 2/B:	300 ... 1715
		ST 2/B-100:	320 ... 1695
AO ¹	Installation location	55; 80; 100	
	SP 2/B-50:	AO = 55	
	ST 2/B; SP 2/BH;	AO = 80	
	BS 2; BS 2/M:	AO = 80	
	ST 2/B-100; ST 2/C-100;	AO = 100	
	ST 2/R-100; ST 2/C-H;	AO = 100	
	ST 2/R-H; ST 2/R-V;	AO = 100	
	BS 2/C; BS 2/C-H;	AO = 100	
	BS 2/R; BS 2/R-H;	AO = 100	
	BS 2/R-V; CS/C:	AO = 100	
AO1 ²	Installation location	55; 80; 100	
	SP 2/B-50:	AO1 = 55	
	ST 2/B; SP 2/BH;	AO1 = 80	
	BS 2; BS 2/M:	AO1 = 80	
	ST 2/B-100; ST 2/C-100;	AO1 = 100	
	ST 2/R-100; ST 2/C-H;	AO1 = 100	
	ST 2/R-H; ST 2/R-V;	AO1 = 100	
	BS 2/C; BS 2/C-H;	AO1 = 100	
	BS 2/R; BS 2/R-H;	AO1 = 100	
	BS 2/R-V; CS/C:	AO1 = 100	
MT	Kit	0; 1	
	0 = not assembled		
	1 = assembled		

* h_{sZ} = leg set height at upper conveying level

* h_{sZ1} = leg set height at lower conveying level

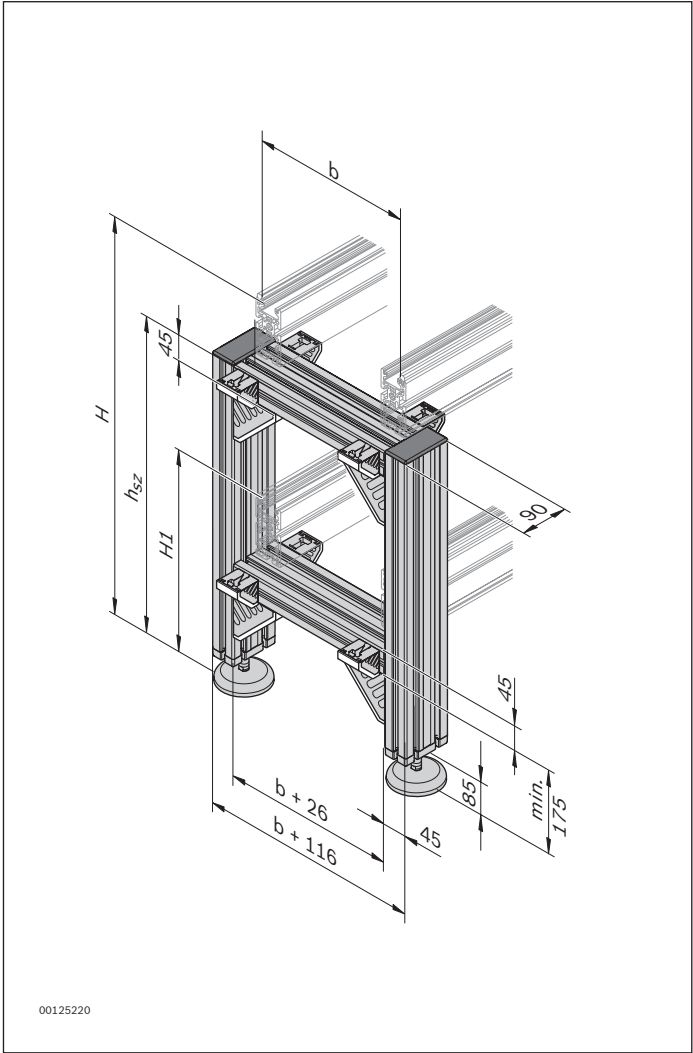
¹ Upper conveying level

² Lower conveying level

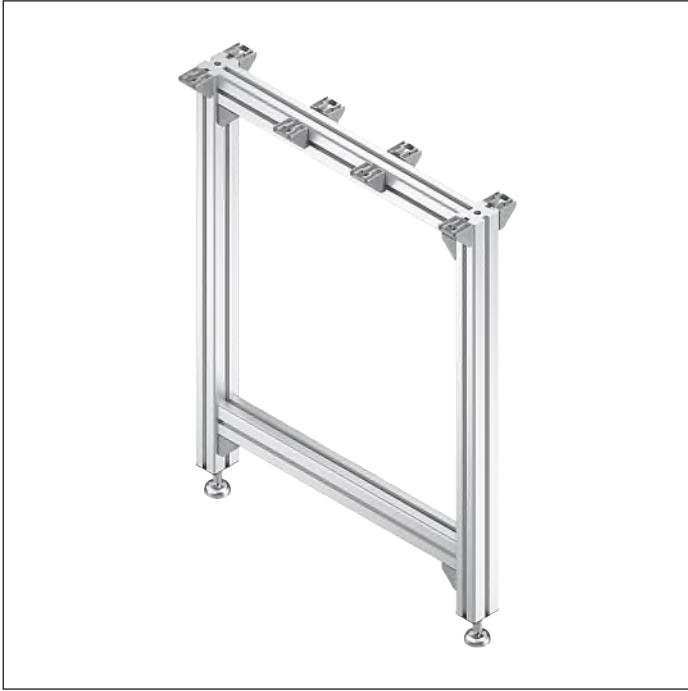
Technical data

Material number	3842996323
Features	
ESD	Yes

Dimensions



SZ 2/T leg set



- ▶ Leg set for double-track conveyor sections on one conveying level

The leg sets support two belt sections or two conveyor units side by side.

Accessories

Required accessories

- ▶ Foundation bracket (3842146848, see p. 6-28)
- ▶ Floor dowel (3842526560, see p.) 6-30

Delivery notes

Scope of delivery

- ▶ Incl. height-adjustable leveling foot
- ▶ Incl. all fastening material to mount on conveyor section, drive module or return unit

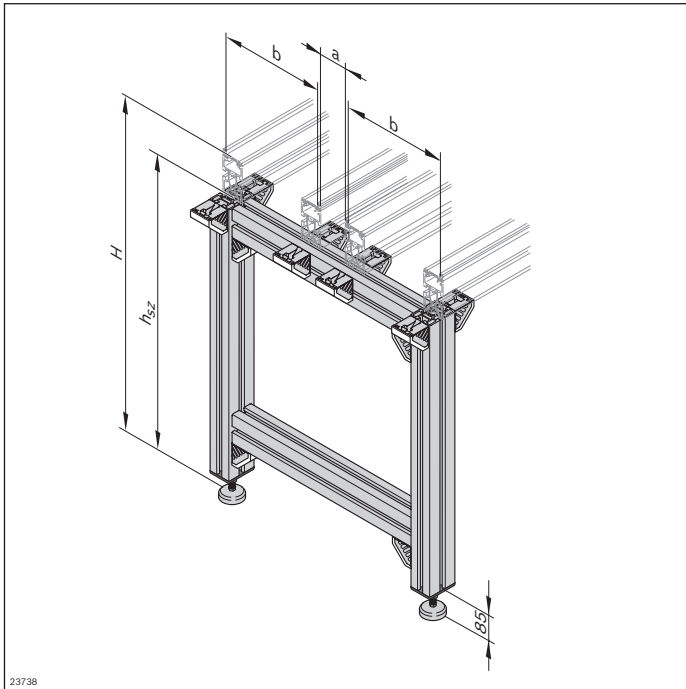
Recommended accessories

- ▶ Bracket caps, see p. 6-33

Condition on delivery

- ▶ Assembled (MT = 1)
- ▶ Not assembled (MT = 0)

Ordering information



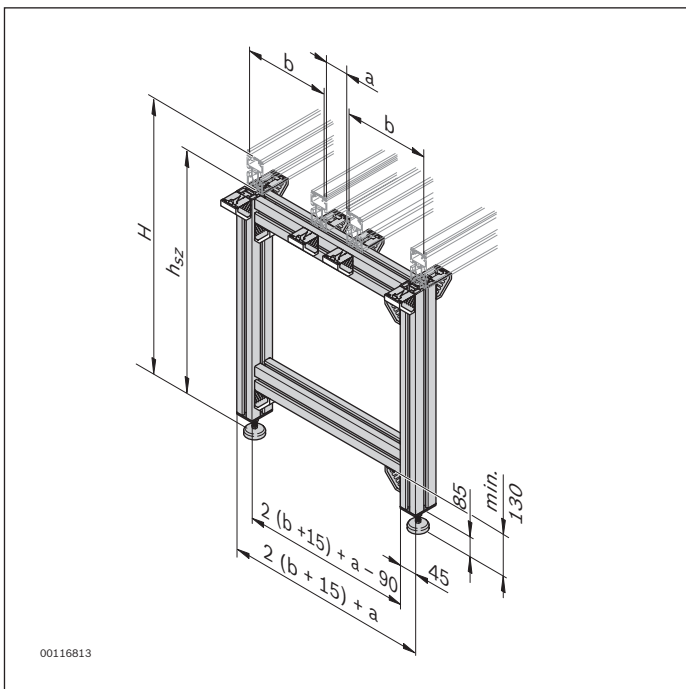
Material number		3842996324	
b (mm)	Track width in direction of transport	160 ... 480	
H (mm)	Transportation height	ST 2/B-50:	350 ... 2000
$H = h_{sz}^* + AO$		ST 2/B:	375 ... 2000
		ST 2/B-100:	395 ... 2000
AO	Installation location	55; 80; 100	
SP 2/B-50:		AO = 55	
ST 2/B; SP 2/BH; BS 2; BS 2/M:		AO = 80	
ST 2/B-100; ST 2/C-100; ST 2/R-100; ST 2/C-H; ST 2/R-H; ST 2/R-V; BS 2/C; BS 2/C-H; BS 2/R; BS 2/R-H; BS 2/R-V; CS/C:		AO = 100	
MT	Kit	0; 1	
		0 = not assembled 1 = assembled	
a (mm)	Distance between conveyors	45; 90; 135	

* h_{sz} = leg set height

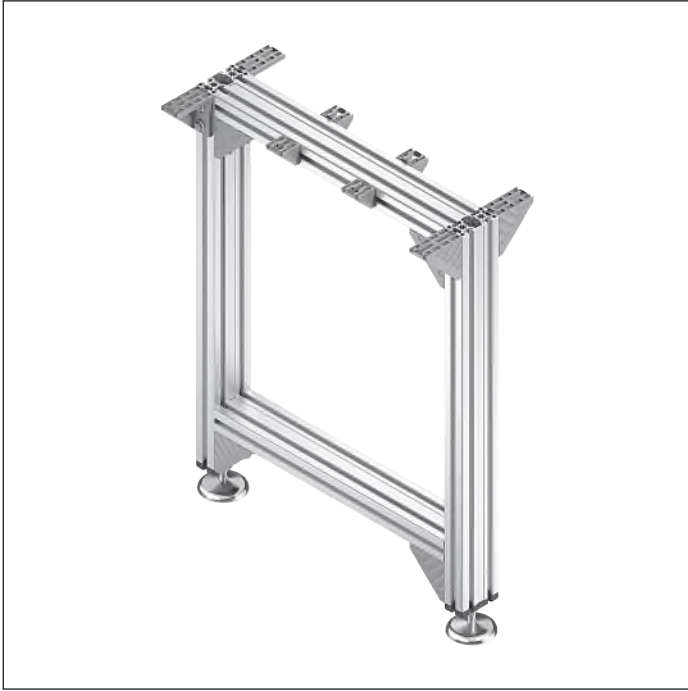
Technical data

Material number	3842996324
Features	
ESD	Yes

Dimensions



SZ 2/T-H leg set



- ▶ Leg set for heavy-duty double-track conveyor sections on one conveying level

The leg sets support two belt sections or two conveyor units side by side. They are particularly suitable for

BS 2/...-H belt sections or conveyor units with SP 2/...-H section profile.

Accessories

Required accessories

- ▶ Foundation bracket (3842146848, see p.) 6-28
- ▶ Floor dowel (3842526560, see p.) 6-30

Recommended accessories

- ▶ Bracket caps, see p. 6-33

Delivery notes

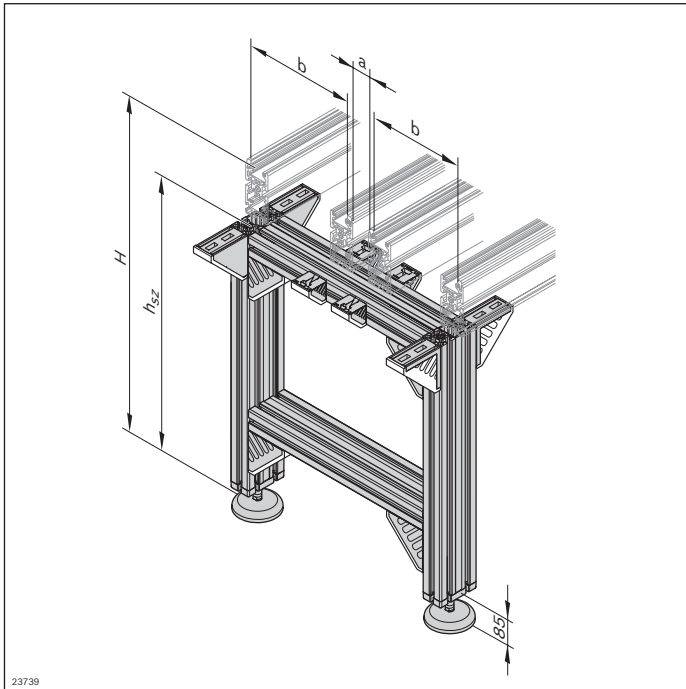
Scope of delivery

- ▶ Incl. height-adjustable leveling foot
- ▶ Incl. all fastening material to mount on conveyor section, drive module or return unit

Condition on delivery

- ▶ Assembled (MT = 1)
- ▶ Not assembled (MT = 0)

Ordering information



23739

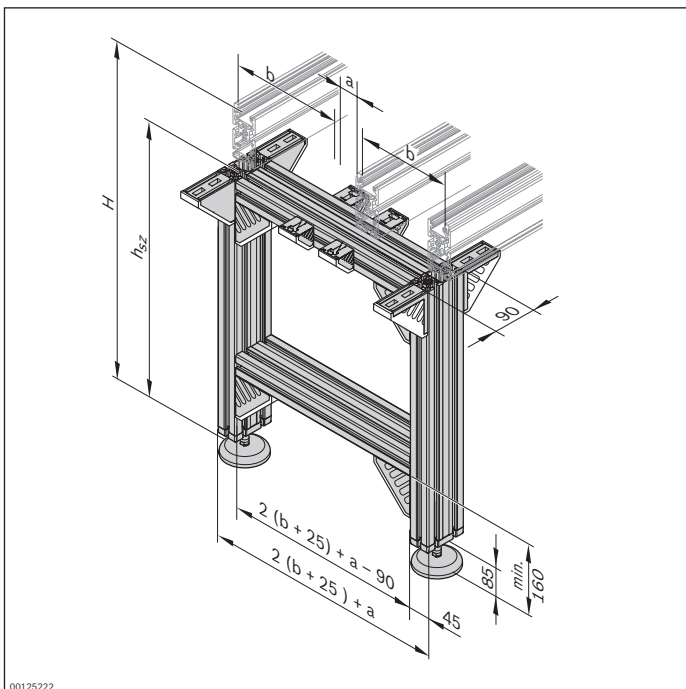
Material number		3842996325	
b (mm)	Track width in direction of transport	160 ... 480	
H (mm)	Transportation height	ST 2/B-50:	410 ... 2000
	$H = h_{sz}^* + AO$	ST 2/B:	435 ... 2000
		ST 2/B-100:	455 ... 2000
AO	Installation location	55; 80; 100	
	SP 2/B-50:	AO = 55	
	ST 2/B; SP 2/BH; BS 2; BS 2/M:	AO = 80	
	ST 2/B-100; ST 2/C-100; ST 2/R-100; ST 2/C-H; ST 2/R-H; ST 2/R-V; BS 2/C; BS 2/C-H; BS 2/R; BS 2/R-H; BS 2/R-V; CS/C:	AO = 100	
MT	Kit	0; 1	
	0 = not assembled 1 = assembled		
a (mm)	Distance between conveyors	45; 90; 135	

* h_{sz} = leg set height

Technical data

Material number	3842996325
Features	
ESD	Yes

Dimensions



00125222

SZ 2/K-90 leg set



- ▶ Leg set for K...-90 curves

The leg sets support a 90° curve.

Accessories

Required accessories

- ▶ Foundation bracket (3842146848, see p.) 6-28
- ▶ Floor dowel (3842526560, see p.) 6-30

Delivery notes

Scope of delivery

- ▶ Incl. height-adjustable leveling foot
- ▶ Incl. all fastening material for mounting on the KE 2/90 curve

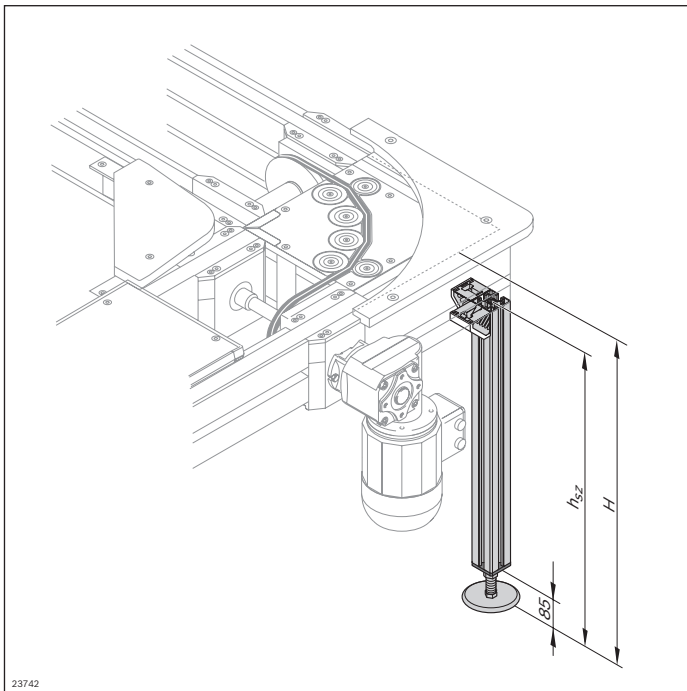
Recommended accessories

- ▶ Bracket caps, see p. 6-33

Condition on delivery

- ▶ Assembled (MT = 1)
- ▶ Not assembled (MT = 0)

Ordering information



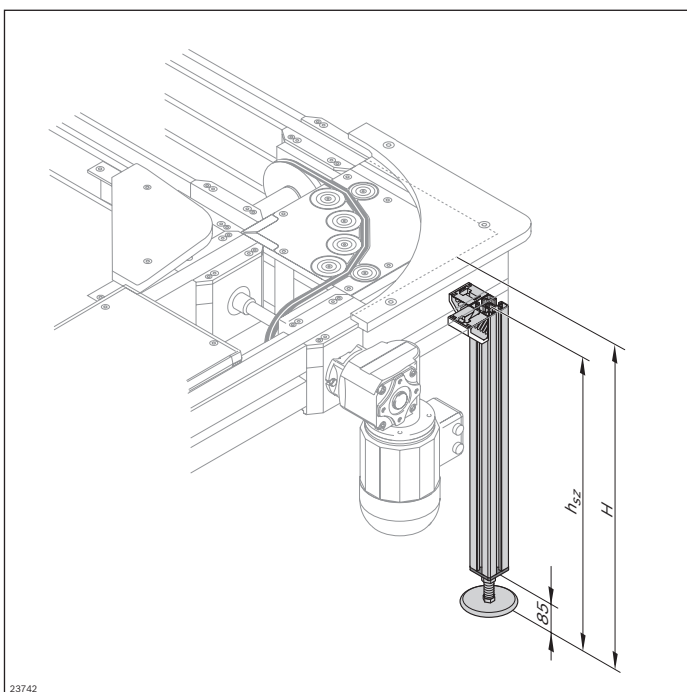
Material number	3842996326	
H (mm)	Transportation height	376 ... 2000
$H = h_{sz} + AO$		
AO	Installation location	91
MT	Kit	0; 1
	0 = not assembled	
	1 = assembled	

* h_{sz} = leg set height

Technical data

Material number	3842996326
Features	
ESD	Yes

Dimensions



SZ 2/K-180 leg set



- ▶ Leg set for K...-180 curves

The leg sets support a 180° curve.

Accessories

Required accessories

- ▶ Foundation bracket (3842146848, see p.) 6-28
- ▶ Floor dowel (3842526560, see p.) 6-30

Delivery notes

Scope of delivery

- ▶ Incl. height-adjustable leveling foot
- ▶ Incl. all fastening material for mounting on the KE 2/180 curve

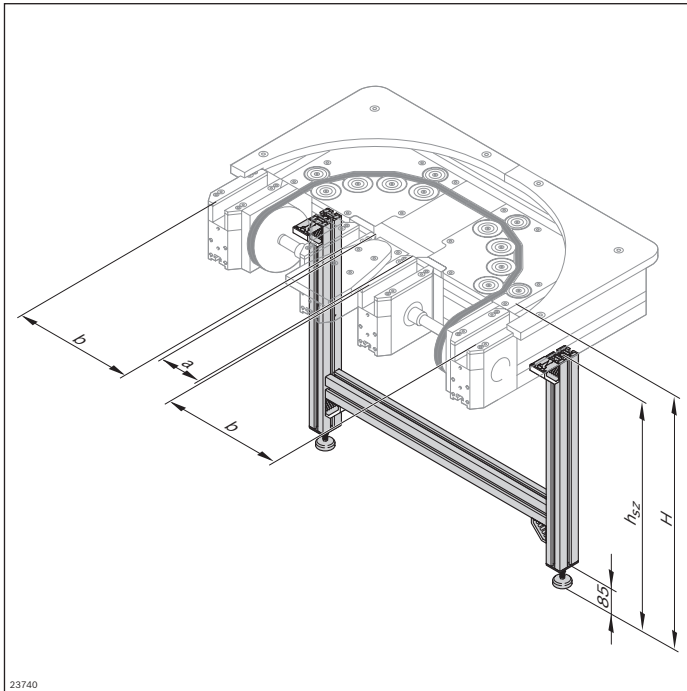
Recommended accessories

- ▶ Bracket caps, see p. 6-33

Condition on delivery

- ▶ Assembled (MT = 1)
- ▶ Not assembled (MT = 0)

Ordering information



23740

Material number		3842996327
b (mm)	Track width in direction of transport	160 ... 400
H (mm)	Transportation height	376 ... 2000
$H = h_{sz} + AO$		
AO	Installation location	91
MT	Kit 0 = not assembled 1 = assembled	0; 1
a (mm)	Distance between conveyors	90; 135

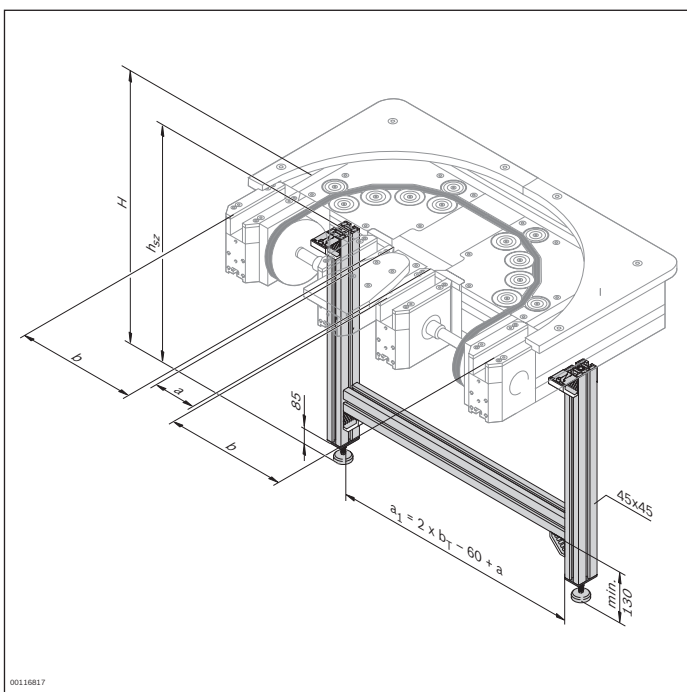
* h_{sz} = leg set height

6

Technical data

Material number	3842996327
Features	
ESD	Yes

Dimensions



00116817

HD 2/H leg set



- ▶ Leg sets for HD 2/H lift rotate unit
- ▶ For Size 2 over 50 kg (Size 2)
- ▶ For Size 3 generally (Size 3)

Accessories

Required accessories

- ▶ Foundation bracket (3842146848, see p. 6-28)
- ▶ Floor dowel (3842526560, see p. 6-30)

Delivery notes

Scope of delivery

- ▶ Incl. height-adjustable leveling foot
- ▶ Incl. fastening material

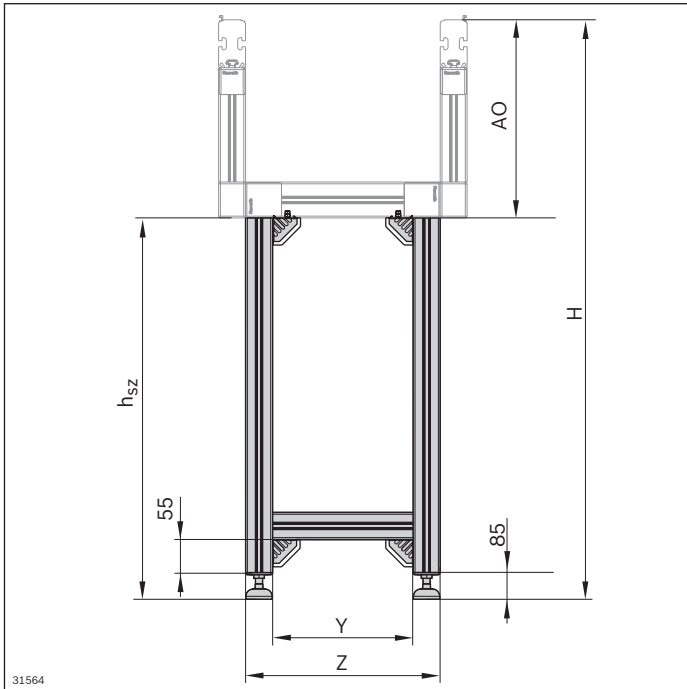
Recommended accessories

- ▶ Bracket caps, see p. 6-33

Condition on delivery

- ▶ Assembled (MT = 1)
- ▶ Not assembled (MT = 0)

Ordering information



HD 2/H leg set, Size 2¹

Material number	3842993324	
H (mm)	Transportation height	595 ... 2000
$H = h_{sz}^* + AO$		
DW (°)	Rotation angle	90; 180
MT	Kit	0; 1
	0 = not assembled 1 = assembled	

¹ For Size 2 over 50 kg

* h_{sz} = leg set height

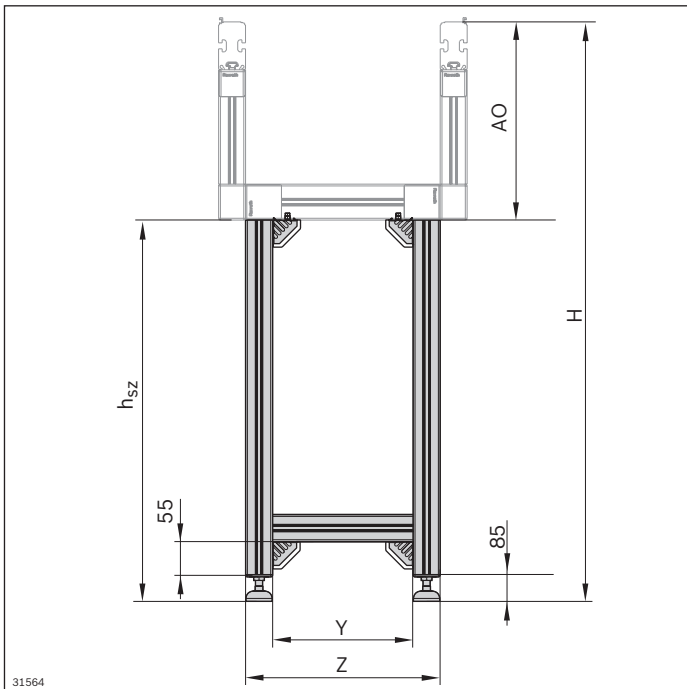
HD 2/H leg set, Size 3²

Material number	3842993325	
H (mm)	Transportation height	625 ... 2000
$H = h_{sz}^* + AO$		
DW (°)	Rotation angle	90; 180
MT	Kit	0; 1
	0 = not assembled 1 = assembled	

² For Size 3 generally

* h_{sz} = leg set height

Dimensions



	Size 2, DW = 90°	Size 2, DW = 180°	Size 3, DW = 90°	Size 3, DW = 180°
AO	331	226	362	257
Y	235	235	480	480
Z	325	325	570	570

SZ 2-ST 2 reinforcement



For absorbing horizontal forces from the sections.
Installation at the end of the section

Delivery notes

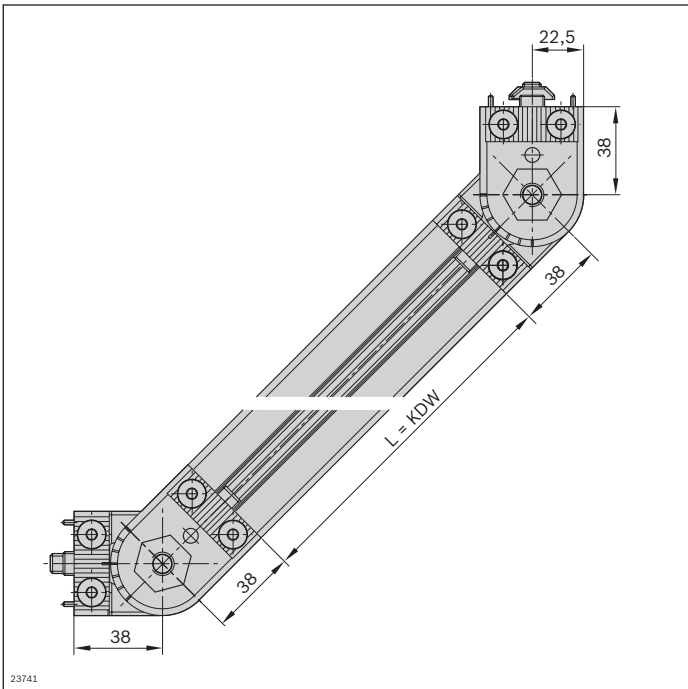
Scope of delivery

- ▶ Incl. fastening material

Condition on delivery

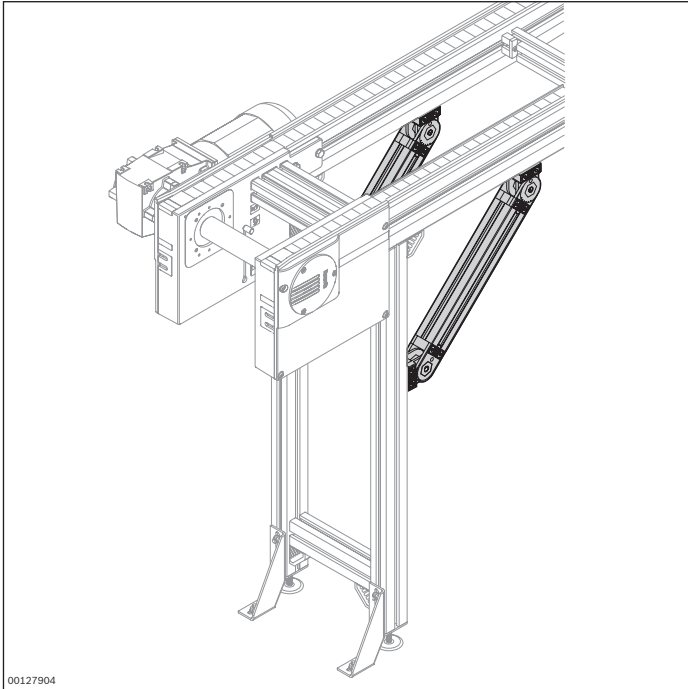
- ▶ Not assembled

Ordering information



Material number	3842994910	
l (mm)	Length	300 ... 2000

Technical data



00127904

210x90x42 foundation bracket



Foundation brackets are used for securing frames to the floor.

The hole for the floor dowel can be drilled out without removing the foundation bracket

Accessories

Required accessories

- ▶ Floor dowel (3842526560, see p.) 6-30
- ▶ M8x25 T-bolt (3842528718, see p.) 6-31
- ▶ M8 flange nut (3842345081, see p.) 6-32

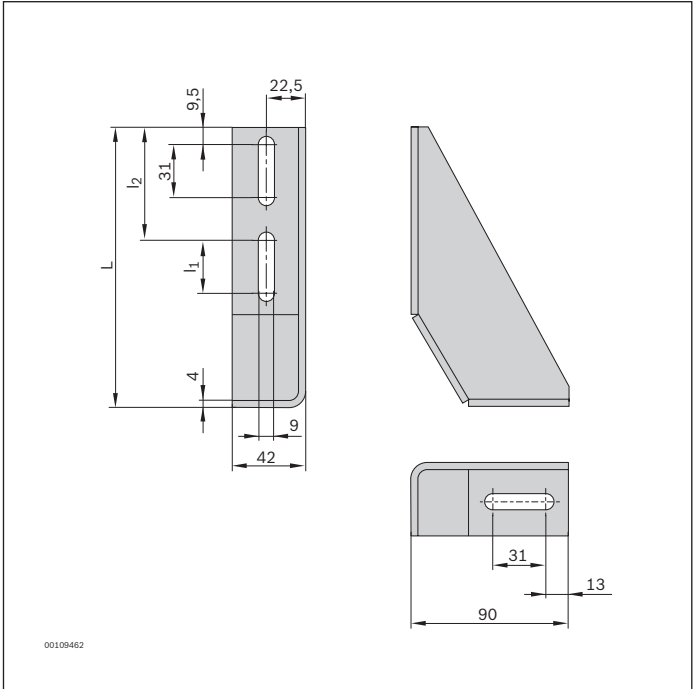
Ordering information

Product designation	Packaging unit	Material number
210x90x42 foundation bracket	20	3842146848

Technical data

Material number	3842146848
Features	
Material specification	Plate steel; galvanized, transparent chromated

Dimensions



Length l_1 (mm)	Length l_2 (mm)	Dimension L (mm)
91	54.5	210

M8x80-15 floor dowel



► For anchoring foundation brackets to the floor

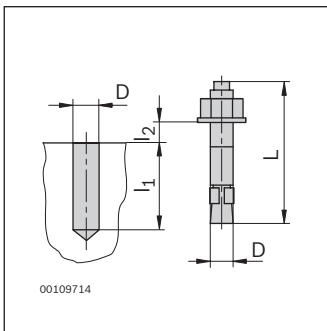
Ordering information

Product designation	Packaging unit	Material number
M8x80-15 floor dowel	100	3842526560

Technical data

Material number	3842526560
Features	
Material specification	Steel; galvanized

Dimensions



l_2 = maximum value

Length l_1 (mm)	Length l_2 (mm)	Dimension L (mm)	Dimension D
65	15	80	M8

HS10-M8x25 T-bolt



Accessories

Required accessories

- ▶ M8 flange nut (3842345081, see p. 6-32)

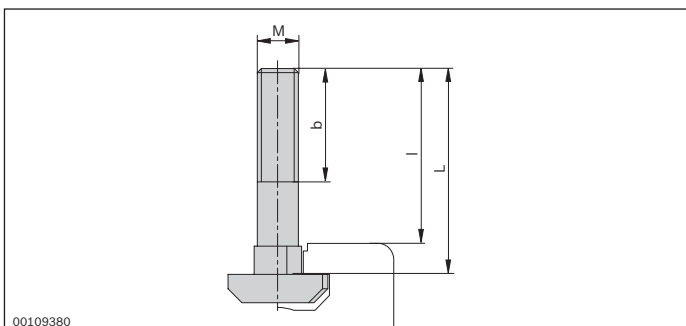
Ordering information

Product designation	Packaging unit	Material number
M8x25 T-bolt	100	3842528718

Technical data

Material number	3842528718		
Features			
ESD	Yes		
Material specification	Steel; galvanized		
Thread size	M8x25		
Dimensions			
Length	l	mm	19

Dimensions



Dimension b (mm)	Dimension l (mm)	Dimension L (mm)
19	19	25

M8 flange nut



Accessories

Required accessories

- ▶ M8x25 T-bolt (3842528718, see p. 6-31)

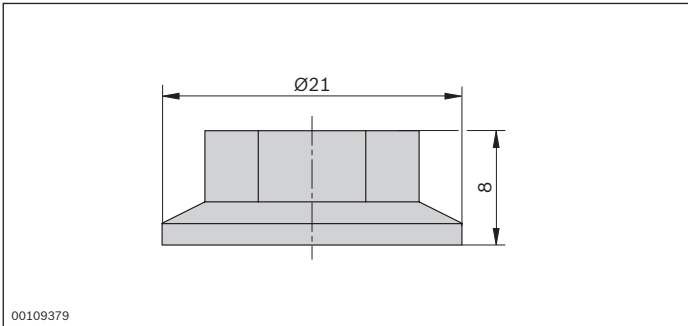
Ordering information

Product designation	Packaging unit	Material number
M8 flange nut	100	3842345081

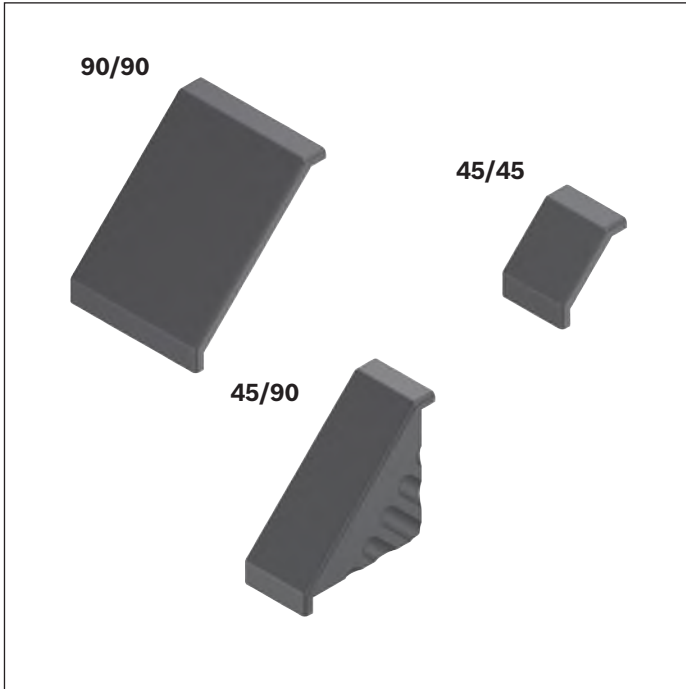
Technical data

Material number	3842345081
Features	
ESD	Yes
Material specification	Steel; galvanized
Thread size	M8

Dimensions



Bracket caps



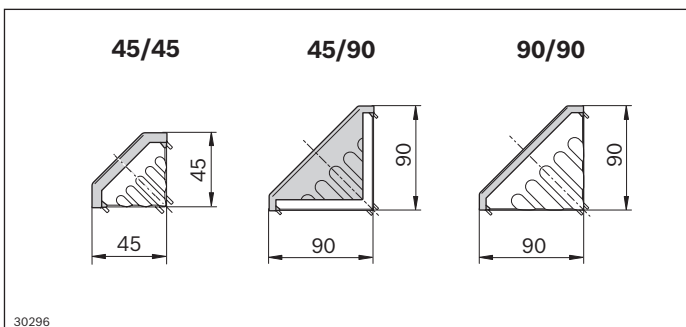
Ordering information

Product designation	Packaging unit	Material number
45x45 cap; signal gray	100	3842548862
45x45 cap; black	100	3842548863
45x90 cap; signal gray	100	3842548864
45x90 cap; black	100	3842548865
90x90 cap; signal gray	20	3842548868
90x90 cap; black	20	3842548869

Technical data

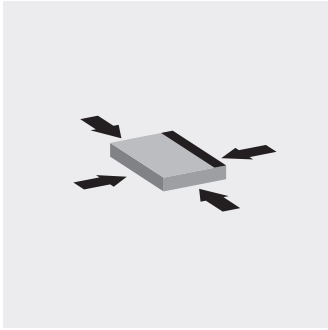
Material number	3842548862	3842548863	3842548864	3842548865	3842548868	3842548869
Features						
ESD	No	Yes	No	Yes	No	Yes
Material specification	Polypropylene	Polypropylene	Polypropylene	Polypropylene	Polypropylene	Polypropylene

Dimensions



Leg set/bracket/cap combination matrix

		Bracket	Number of bracket caps (black or signal gray)					
			45x45 Black 3842548863	45x90 Black 3842548865	90x90 Black 3842548869	45x45 Signal gray 3842548862	45x90 Signal gray 3842548864	90x90 Signal gray 3842548868
Leg set	SZ 2 3842996320	45x45	8			8		
	SZ 2/H 3842996321	45x90		4			4	
		90x90			4			4
	SZ 2/U 3842996322	45x45	12			12		
	SZ 2/U-H 3842996323	45x45	8			8		
		90x90			4			4
	SZ 2/T 3842996324	45x45	12			12		
	SZ 2/T-H 3842996325	45x45	4			4		
		45x90		4			4	
		90x90			4			4
SZ 2/K-90 3842996326	45x45	2			2			
SZ 2/K-180 3842996327	45x45	4			4			
Leg set	HD 2/H Size 2 3842993324	45x45	4			4		
	HD 2/H Size 3 3842993325	45x45	4			4		



Positioning and orientation

Selection of positioning units

7-2

7

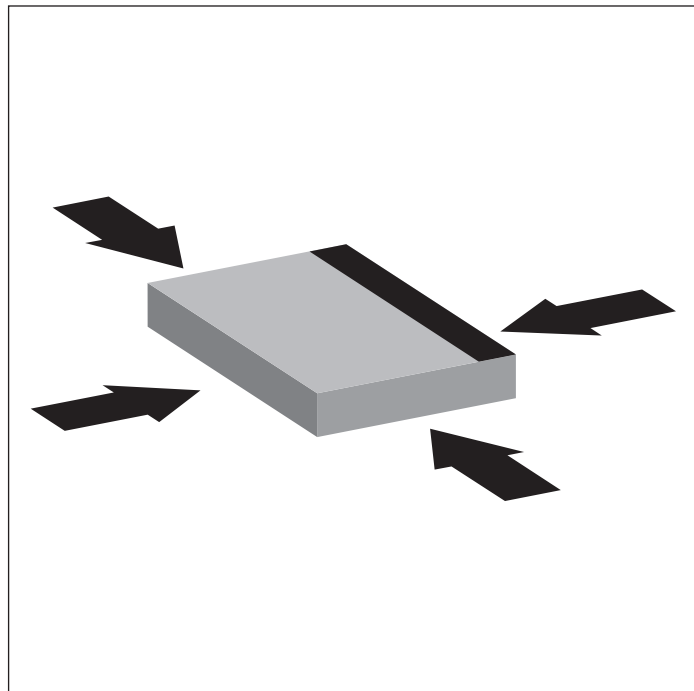


Selection of positioning units

In order to process and maintain manufacturing tolerances, workpiece pallets must be stopped and positioned in the processing station.

Depending on the design, the positioning unit can move the workpiece pallets with an accuracy of ± 0.05 mm.

Vertical process forces of up to 100 kN can be taken up.



Intended use

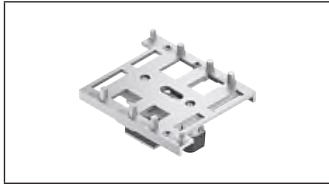
- ▶ A VE 2 stop gate (see p. 8-6) is sufficient for use with a manual workplace that has low requirements for positioning accuracy and if no forces act upon the workpiece pallet
- ▶ Transverse positioning accuracy can be improved using a workpiece pallet inner guide (see p. 7-5)
- ▶ To lift the workpiece pallet from the conveyor medium: PE 2 (see p. 7-8) and PE 2/X (see p. 7-14)
- ▶ For larger lifting distances: HP 2 (see p. 7-27) and HP 2/L (see p. 7-18)
- ▶ For high forces, e.g., in presses or in riveting machines: PE 2/XP, see p. 7-36
- ▶ For process force decoupling: PE 2/XX, see p. 7-44
- ▶ To change the workpiece pallet orientation: HD 2 lift rotate unit (see p. 7-52) and HD 2/H lift rotate unit (see p. 7-60)



Workpiece pallet inner guide



7-5



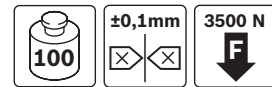
PE 2 positioning unit



7-8



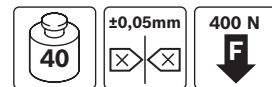
PE 2/X positioning unit



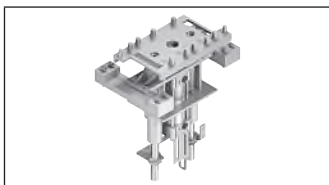
7-14



HP 2/L lift positioning unit



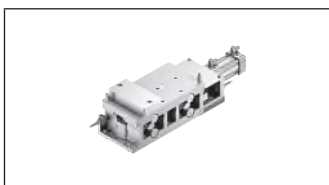
7-18



HP 2 lift positioning unit



7-27



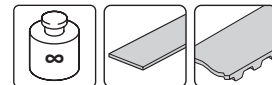
PE 2/XP positioning unit



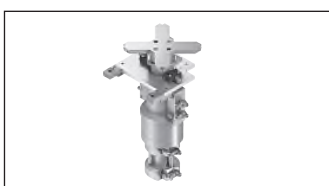
7-36



PE 2/XX process force decoupling



7-44



HD 2 lift rotate unit

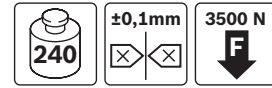


7-52

7



PE 2/H positioning unit



7-56

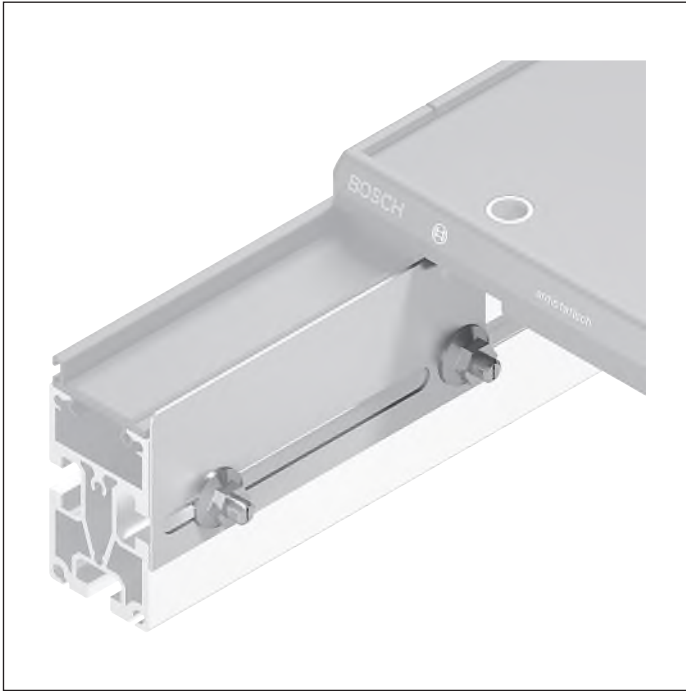


HD 2/H lift rotate unit



7-60

Workpiece pallet inner guide



- ▶ Easy mounting on conveyor sections
- ▶ Positioning with the guide groove on the WT 2 workpiece pallet
- ▶ Can be combined with all WT 2, WT 2/F and WT 2/E workpiece pallets

7

Using a workpiece pallet inner guide and a VE 2 stop gate, a workpiece pallet with low requirements can be

positioned at the repeat accuracy (± 0.5 mm), i.e., for manual assembly processes.

Accessories

Required accessories

- ▶ VE 2/... stop gate, see p. 8-4

Delivery notes

Scope of delivery

- ▶ Including fastening material for installation on the ST 2 conveyor section or BS 2 belt section.

Condition on delivery

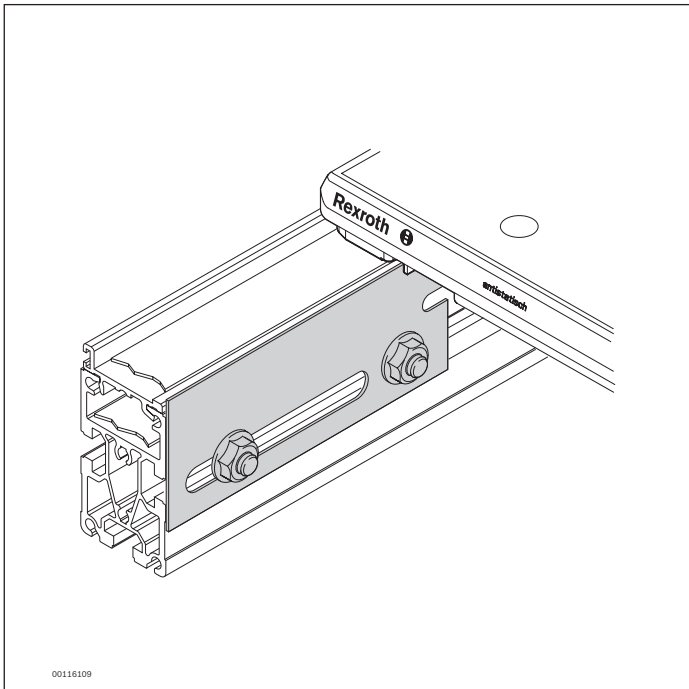
- ▶ Not assembled

Ordering information

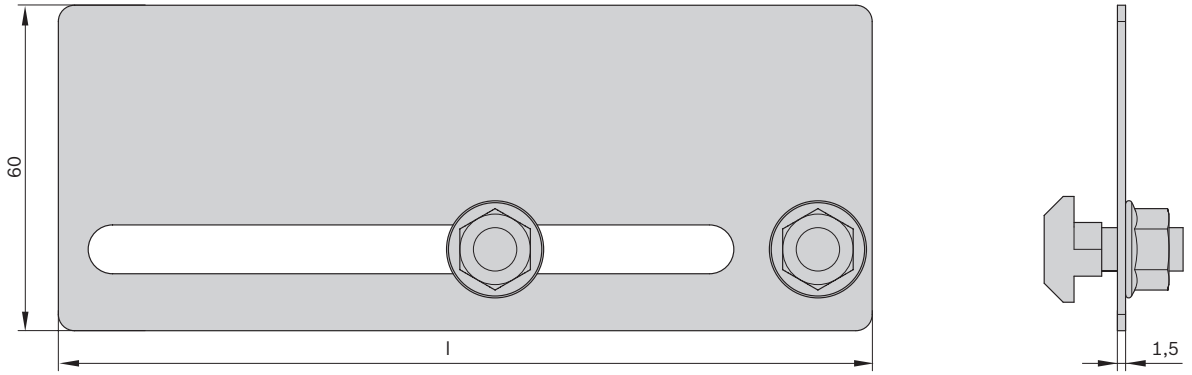
Product designation	Length l (mm)	Material number
Workpiece pallet inner guide	45	3842525634
Workpiece pallet inner guide	150	0842601001
Workpiece pallet inner guide	300	0842601003
Workpiece pallet inner guide	450	0842601004
Workpiece pallet inner guide	600	0842601006

Technical data

Material number	0842601001	0842601003	0842601004	0842601006	3842525634		
Features							
ESD	Yes	Yes	Yes	Yes	Yes		
Material specification	Steel; stainless	Steel; stainless	Steel; stainless	Steel; stainless	Steel; stainless		
Dimensions							
Length	l	mm	150	300	450	600	45
Additional information							
Repeat accuracy	mm	±0.5	±0.5	±0.5	±0.5	±0.5	

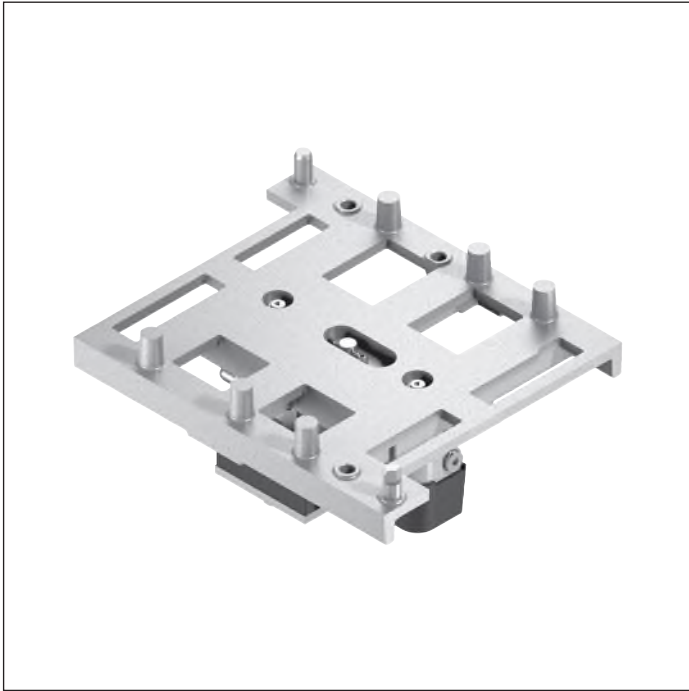
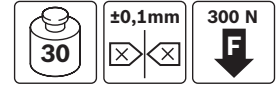


Dimensions



23753

PE 2 positioning unit



- ▶ To position a workpiece pallet in a manual/automatic processing station
- ▶ For high positioning accuracy requirements up to ± 0.1 mm
- ▶ Can be combined with all WT 2 and WT 2/F workpiece pallets up to 400 x 400 mm

Accessories

Required accessories

- ▶ VE 2/... stop gate, see p. 8-4
- ▶ Pneumatic equipment, connectors

Delivery notes

Scope of delivery

- ▶ Incl. fastening material

Recommended accessories

- ▶ Position sensor kit for PE 2, see p. 7-12

Condition on delivery

- ▶ Fully assembled

Ordering information

Product designation	Positioning unit w x l _d (mm)	Material number
PE 2 positioning unit	160 x 160	3842504706
PE 2 positioning unit	160 x 240	3842504707
PE 2 positioning unit	160 x 320	3842504708
PE 2 positioning unit	240 x 160	3842504710
PE 2 positioning unit	240 x 240	3842504711
PE 2 positioning unit	240 x 320	3842504712
PE 2 positioning unit	240 x 400	3842504713
PE 2 positioning unit	320 x 160	3842504714
PE 2 positioning unit	320 x 240	3842504715
PE 2 positioning unit	320 x 320	3842504716
PE 2 positioning unit	320 x 400	3842504717
PE 2 positioning unit	400 x 320	3842504718
PE 2 positioning unit	400 x 400	3842504719

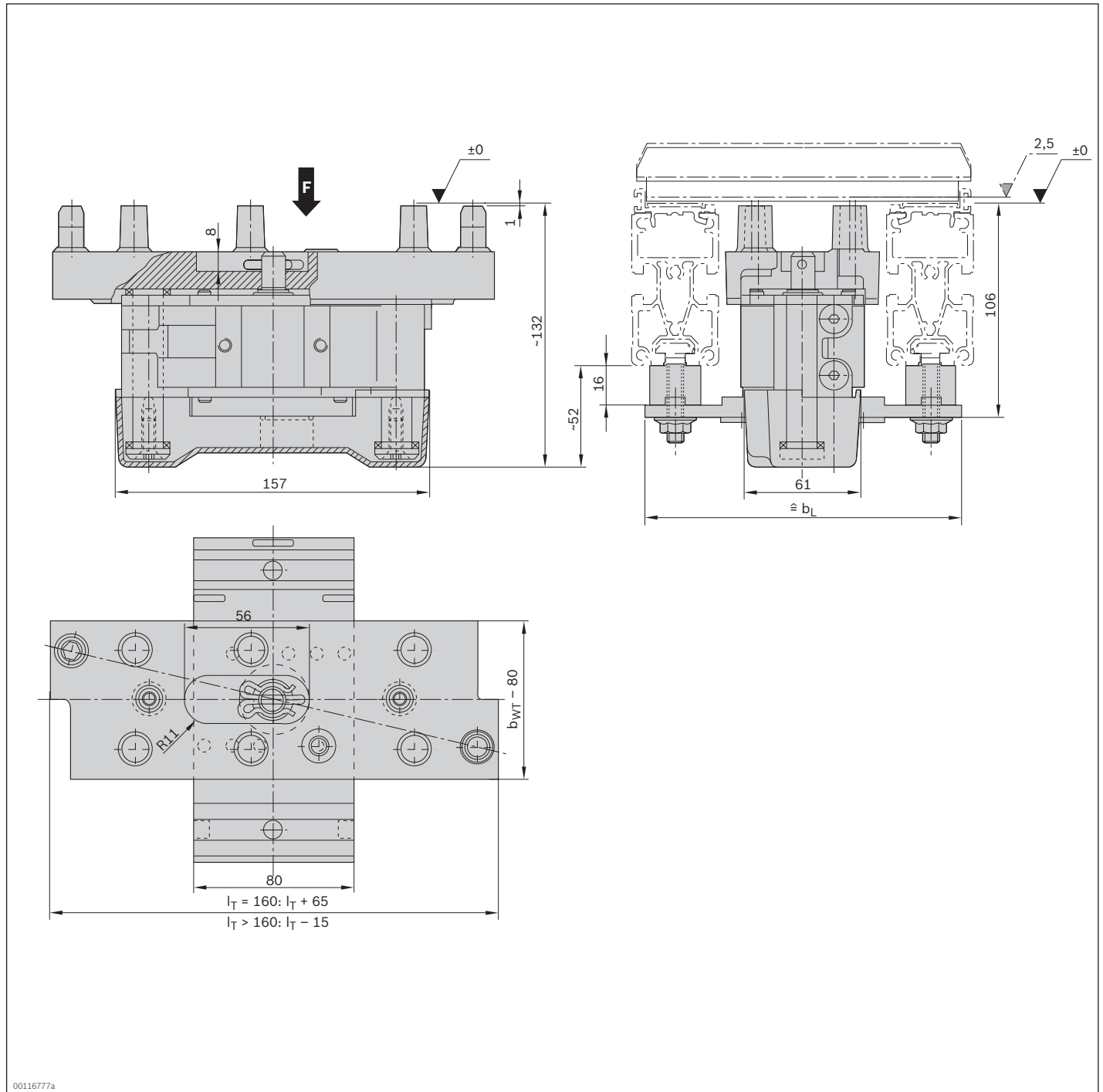
Technical data

Material number	3842504706	3842504712	3842504716
	3842504707	3842504713	3842504717
	3842504708	3842504714	3842504718
	3842504710	3842504715	3842504719
	3842504711		
Load			
Max. total workpiece pallet weight	m _G	kg	30
Features			
ESD			Yes
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector ¹	∅	mm	G1/8"
WT lift above conveying level		mm	2.5
Repeat accuracy		mm	±0.1
Permissible vertical process forces ²		N	300

¹ Connector for G1/8" thread must be attached by customer

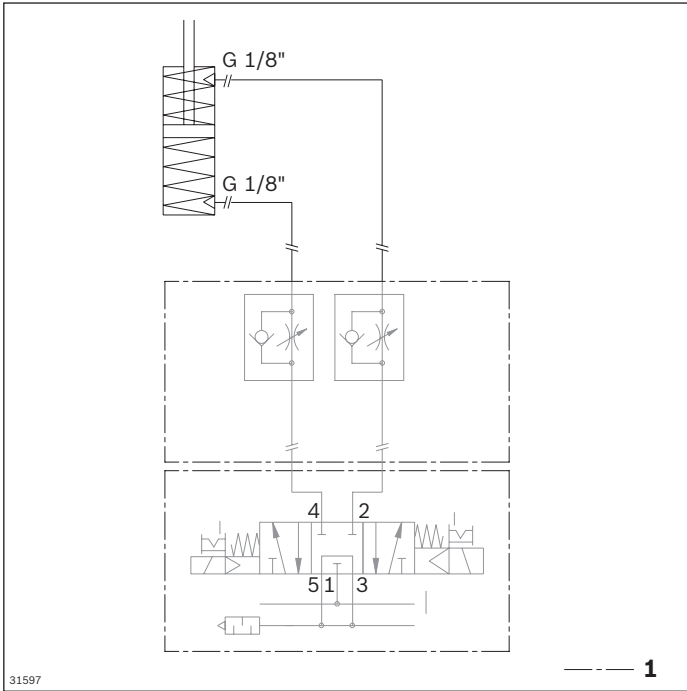
² Incl. WT 2

Dimensions



00116777a

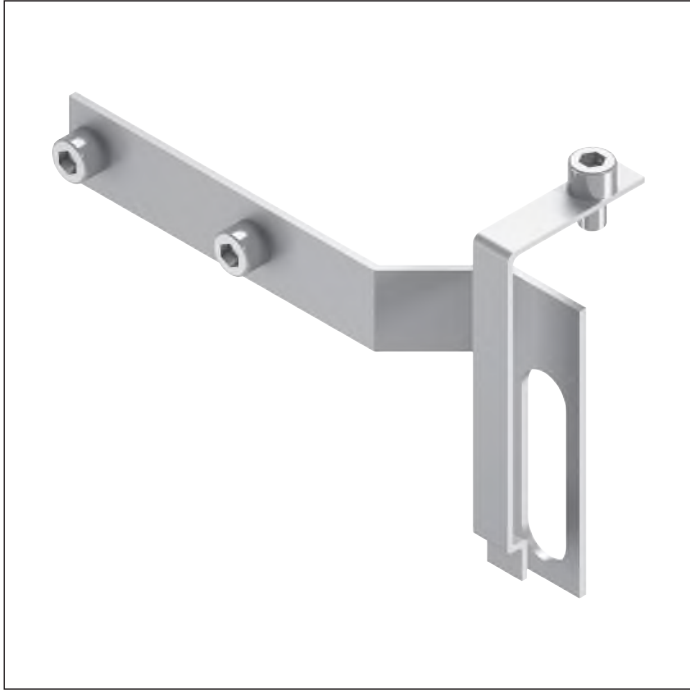
Circuit diagram



31597

1 Not included in delivery

Position sensor kit for PE 2



► For position sensor for PE 2 positioning unit

Accessories

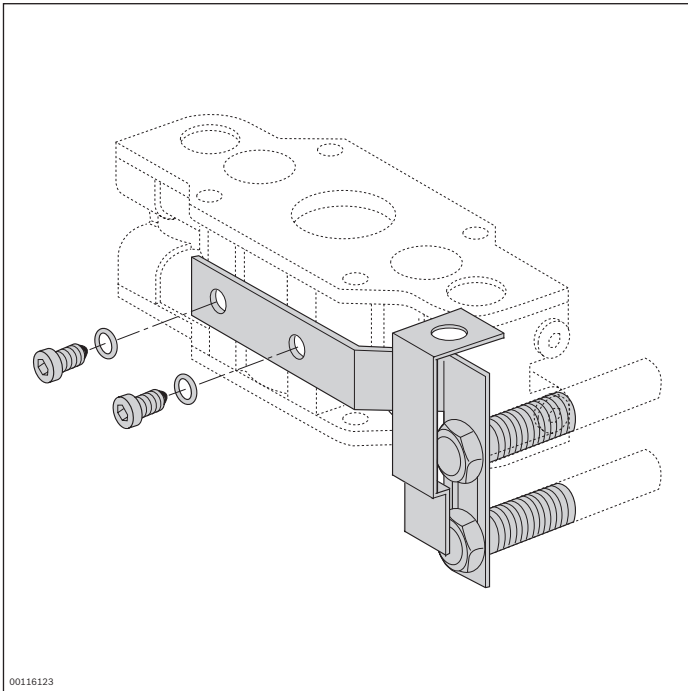
Required accessories

- PE 2 positioning unit, see p. 7-8
- M12x1 sensor with $S_N = 4$ mm rated sensing range, see p. 8-108

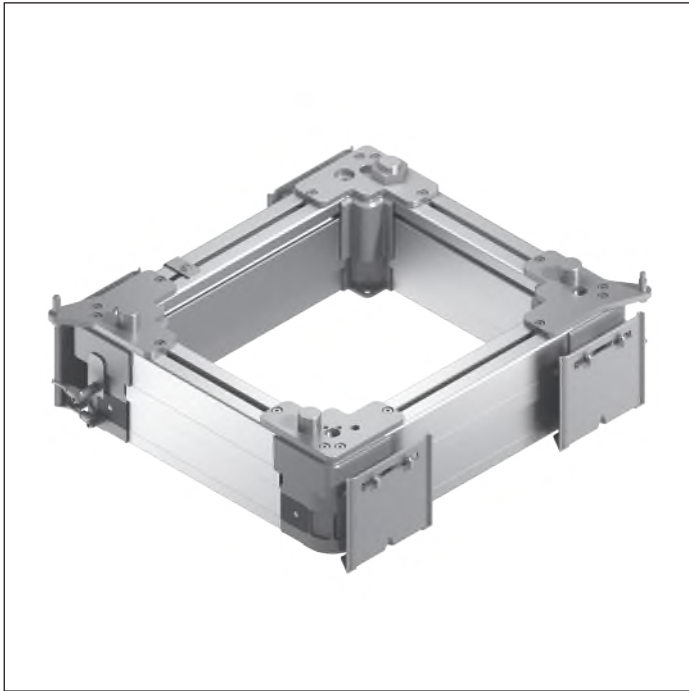
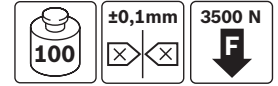
Ordering information

Product designation	Material number
Position sensor kit for PE 2	3842508933

Technical data



PE 2/X positioning unit



- ▶ To position a workpiece pallet in a manual/automatic processing station
- ▶ Positioning accuracy up to ± 0.1 mm when assembled on a separate machine frame
- ▶ WT lift above transportation level, approx. 9 mm
- ▶ Positioning via the PE 2 positioning pins and the positioning bushings on the WT 2 workpiece pallet
- ▶ Mounting holes on lift frame as an optional fastening point for a separate machine frame
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2 and WT 2/F workpiece pallets

Accessories

Required accessories

- ▶ VE 2/... stop gate, see p. 8-4

Delivery notes

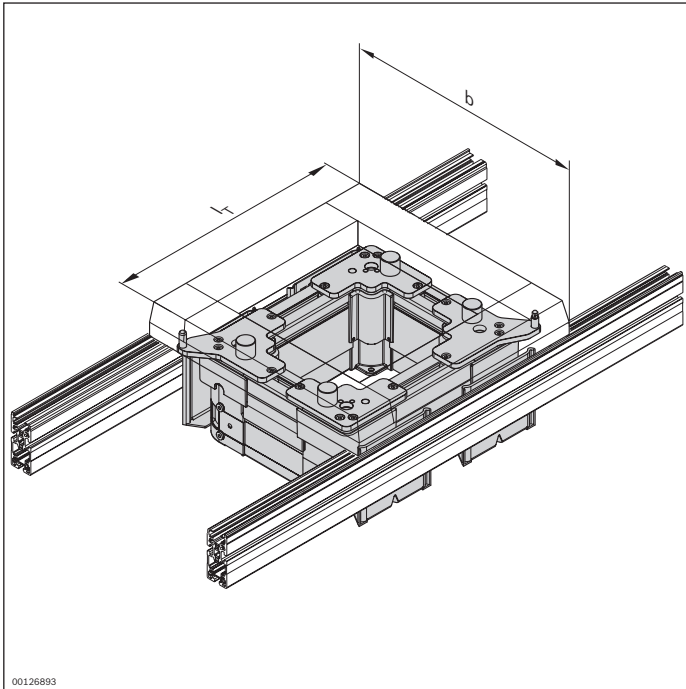
Scope of delivery

- ▶ Incl. fastening material
- ▶ Switch bracket for mounting M12 sensors for top position sensing

Condition on delivery

- ▶ Fully assembled

Ordering information



00126893

Material number		3842998324
b (mm)	Track width in direction of transport	480; 640; 800; 1040; 1200 480 ... 1200 ¹
l _T (mm)	Length in direction of transport	480; 640; 800; 1040; 1200 480 ... 1200 ¹
w x l _d (mm x mm)	Combination options	480 x 480; 640; 800 640 x 480; 640; 800 800 x 480; 640; 800; 1040; 1200 1040 x 640; 800; 1040; 1200; 1200 x 800; 1040; 1200 480 ... 1200 x 480 ... 1200

¹⁾ Individual width variants available

7

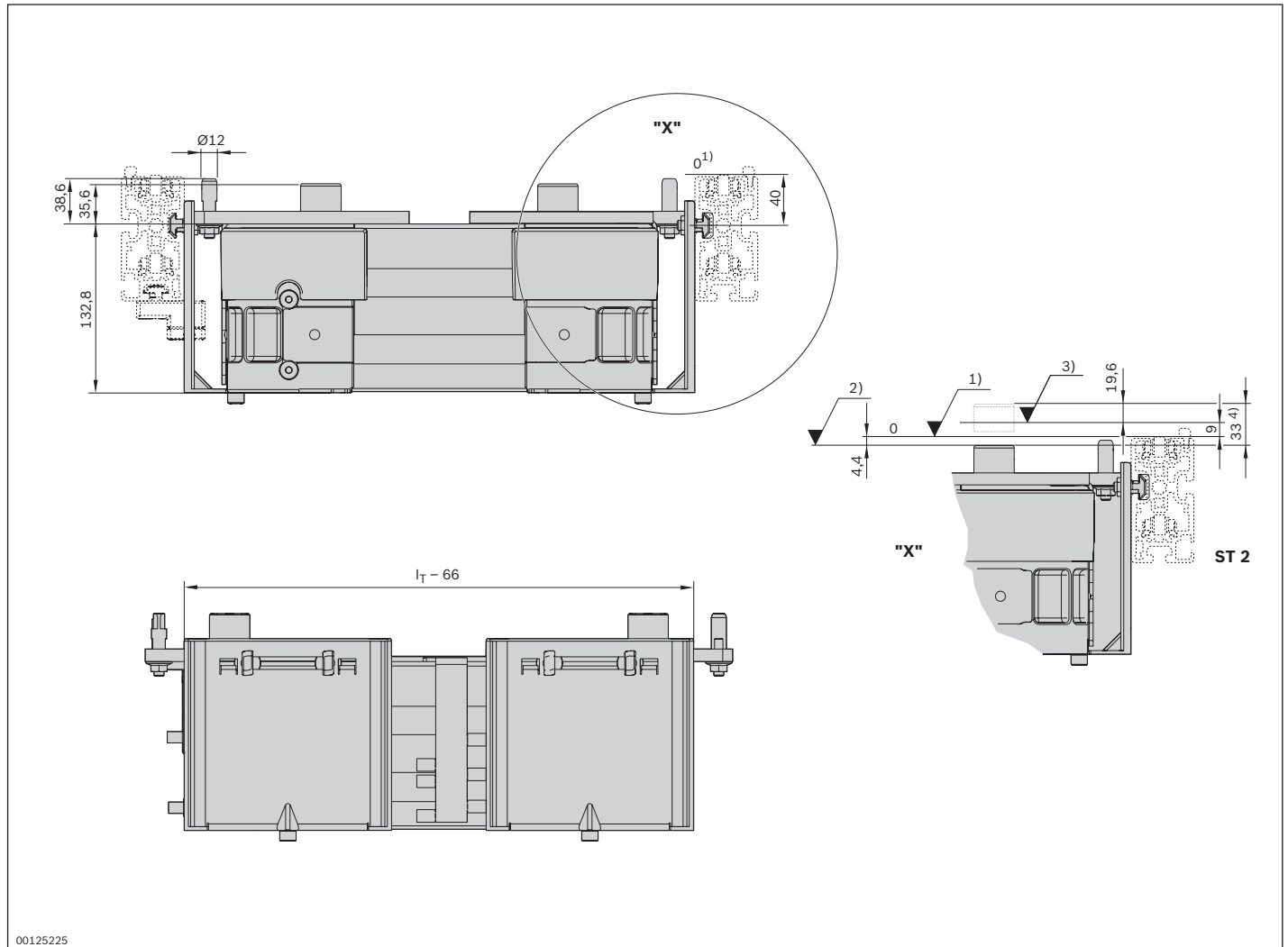
Technical data

Material number		3842998324	
Load			
Max. total workpiece pallet weight	m _G	kg	100
Features			
ESD			Yes
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	Ø	mm	8
WT lift above conveying level		mm	9
Repeat accuracy ¹		mm	±0.1
Permissible vertical process forces ²		N	3500

¹ When assembled on a separate machine frame

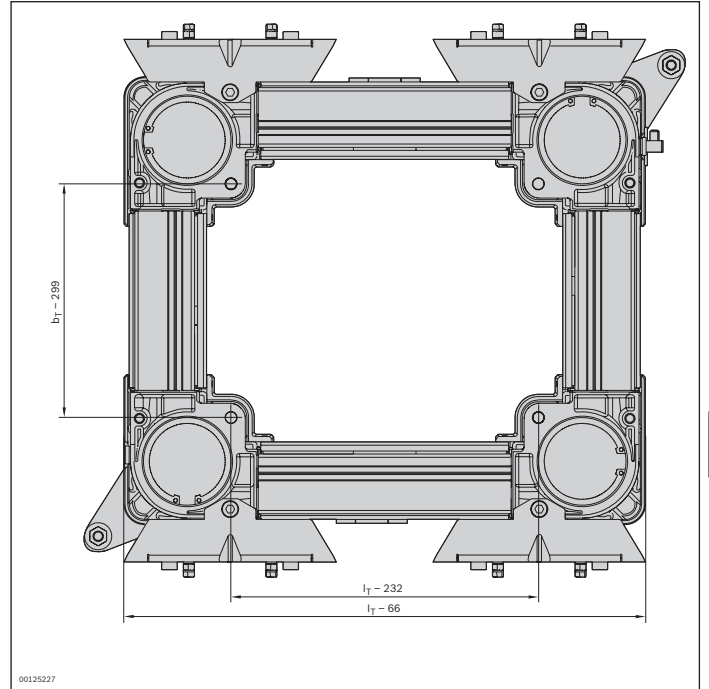
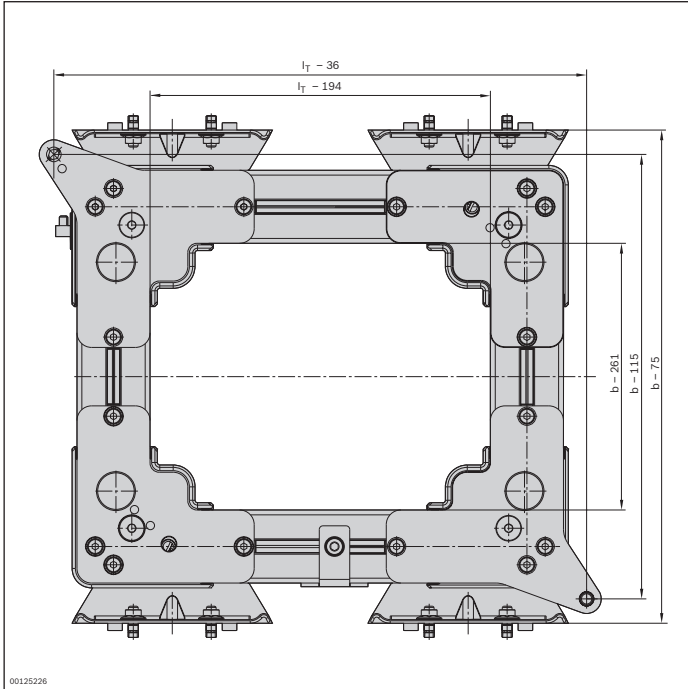
² Incl. WT 2

Dimensions

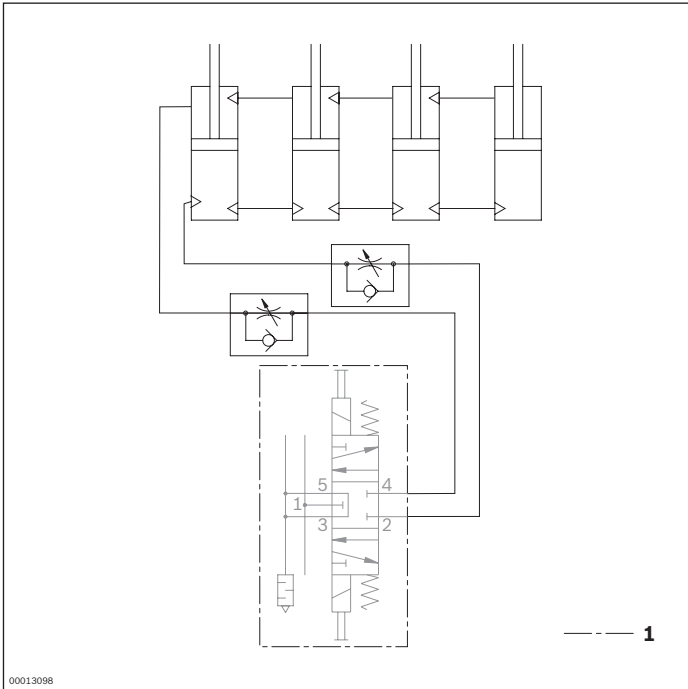


- 1) ST 2 conveyor level
- 2) PE 2/X, lower position: 4.4 mm below ST 2 conveyor level
- 3) PE 2/X, upper position: 9 mm above ST 2 conveyor level
- 4) Total stroke 33 mm

Dimensions

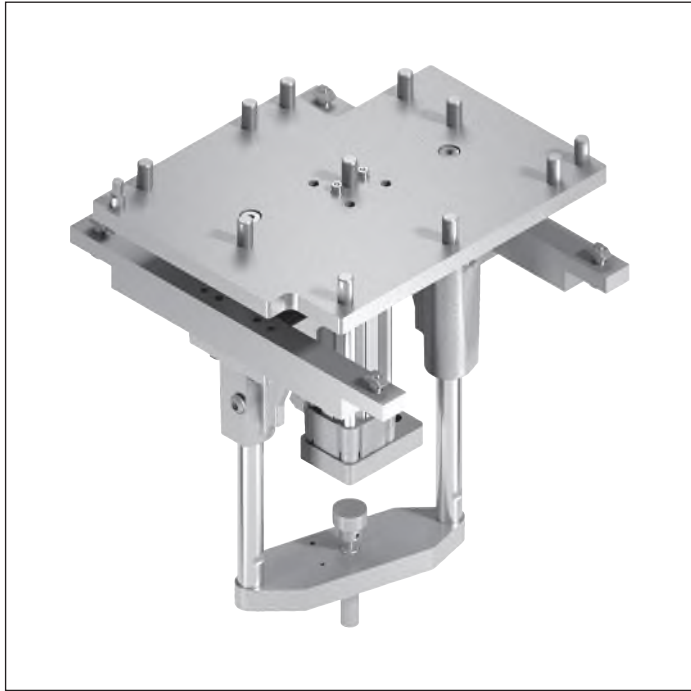
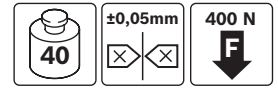


Circuit diagrams



1 Not included in delivery

HP 2/L lift positioning unit



- ▶ Positions a workpiece pallet in a processing station with high positioning accuracy requirements
- ▶ Positioning with exchangeable positioning pins in the HP 2/L and positioning bushings in the WT 2 workpiece pallet
- ▶ Lifting cylinder \varnothing 40 mm with damping for the lower and upper end position
- ▶ Exchange of lifting cylinder possible without disassembling the lift plate
- ▶ 5 lift ranges h_0 from 0 ... 240 mm, continuously adjustable central lift height within the lift range
- ▶ Optional lifting cylinder for $b = 240$ mm, center ($HA = 0$) or offset ($HA = 1$).
Space-saving arrangement made possible by inner WT stop
- ▶ Adjustment time at $H = 50$ mm without load:
Upward stroke = 0.5 s, downward stroke = 0.5 s
(= lift range from 0 to 28 mm)
- ▶ Can be combined with workpiece pallets WT 2, WT 2/F, WT 2/E

Accessories

Required accessories

- ▶ Position sensor set for SA lifting cylinder, see p. 7-22
- ▶ Position sensor set with RA turret stop, see p. 7-26
- ▶ HP 2/L housing element, see p. 7-18

Delivery notes

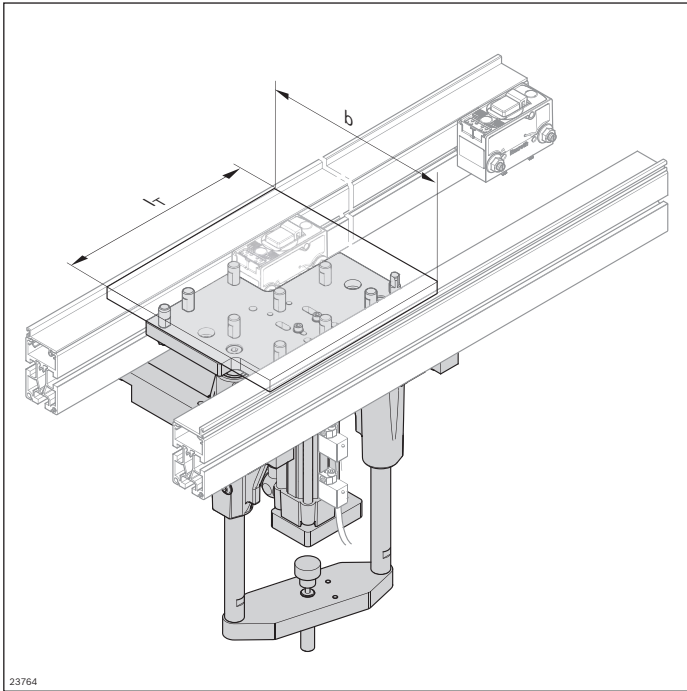
Scope of delivery

- ▶ Incl. fastening material
- ▶ Incl. throttle non-return valve

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842998952
b (mm)	Track width in direction of transport	160; 240; 320
l _T (mm)	Length in direction of transport	160; 240; 320
w x l _d (mm x mm)	Combination options	160 x 160; 240; 320 240 x 160; 240; 320 320 x 160; 240; 320
h _N (mm)	Nominal stroke	50; 100; 160; 200; 250
AO	Installation location Under the conveyor section (AO = UB) On the machine table (AO = AT) For custom design (AO = O)	UB; AT; O
HA	Lift arrangement Centered (HA = 0) Eccentric (HA = 1)	0; 1 ¹

¹ HA = 1 only when b = 240 mm

Technical data

Material number		3842998952
Load		
Max. total workpiece pallet weight	m _G	kg 40
Features		
ESD		Yes
Additional information		
Required compressed air connection	p	bar 4 ... 6
Pneumatic connector	∅	mm 8
Repeat accuracy ¹		mm ±0.05
Permissible vertical process forces ²		N 400

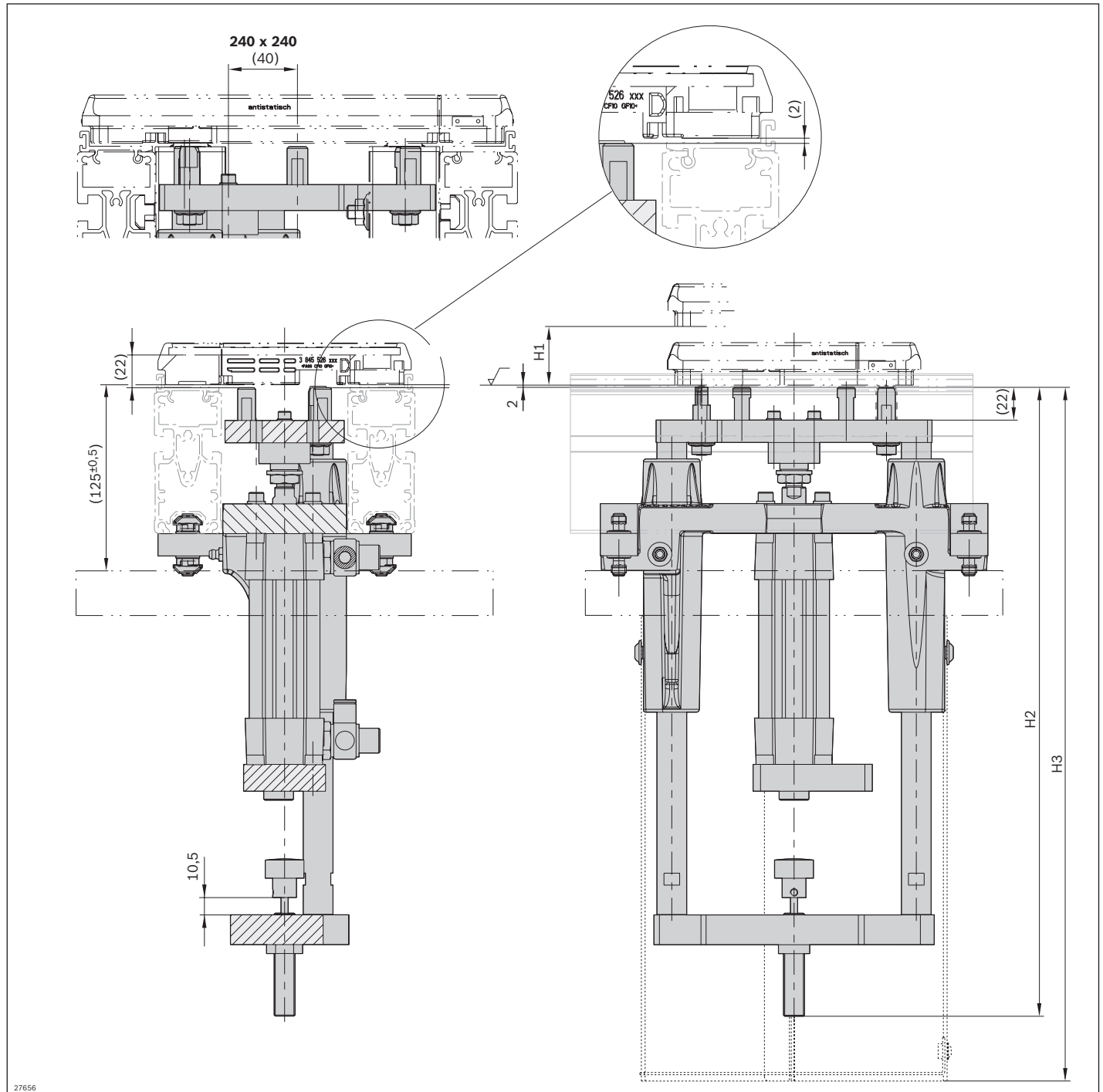
¹ Applies only to strokes of up to 204 mm

² Incl. WT 2

Lift range

Nominal stroke h _N (mm)	WT lift above conveying level h ₀ (mm)
50	0 ... 28
100	35 ... 78
160	95 ... 138
200	135 ... 178
250	185 ... 228

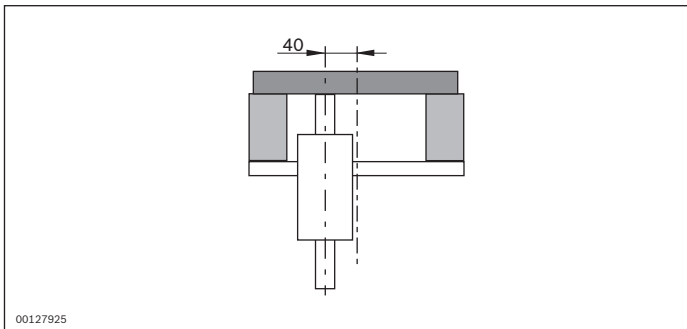
Dimensions



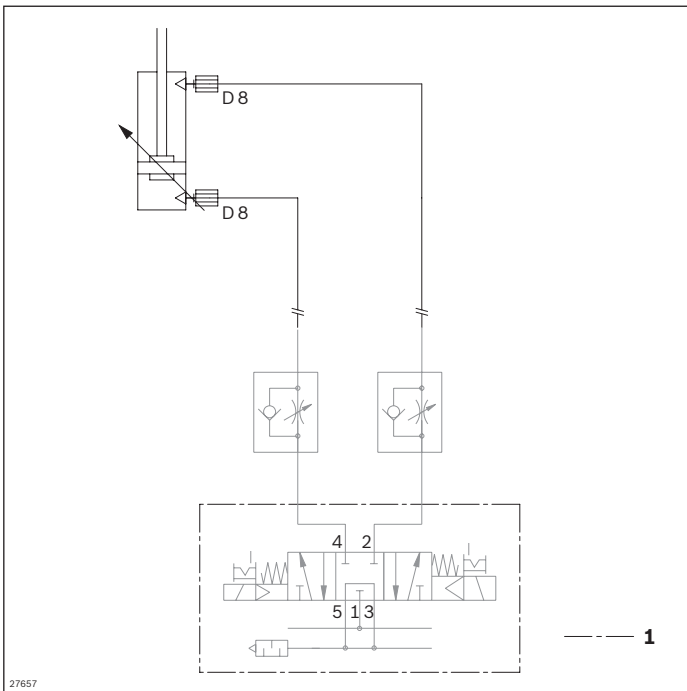
27656

Compressed air (bar)	Lifting force (N)
4	350
5	450
6	550

Offset lifting cylinder (HA = 1)

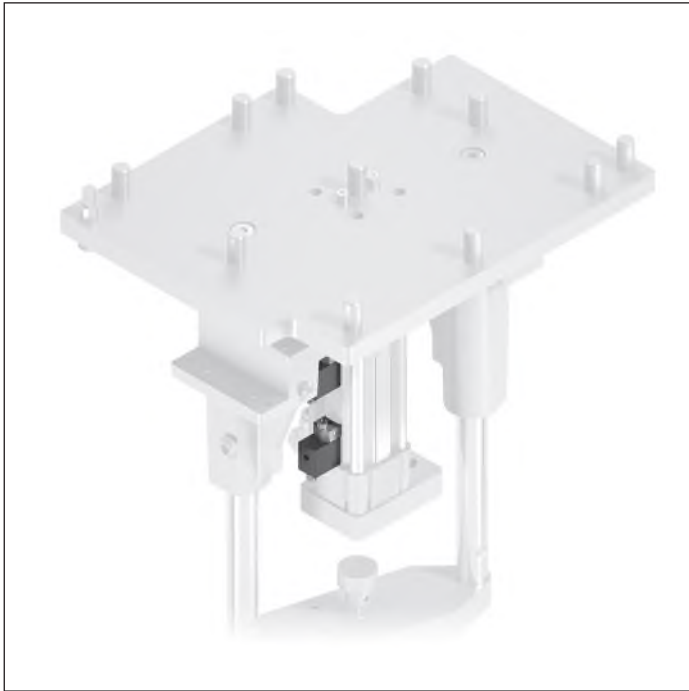


Circuit diagrams



1 Not included in delivery

SA cylinder position sensor



- ▶ Cylinder switch with clamping holder for lifting cylinder position sensing

Note: Position sensor can only be mounted on the side

Accessories

Required accessories

- ▶ Connection cable with plug

Delivery notes

Scope of delivery

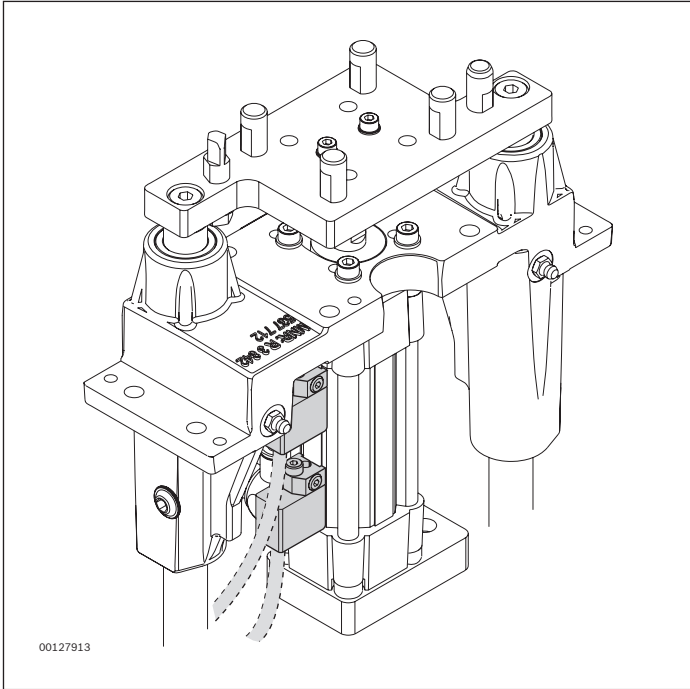
- ▶ 2x SN2 series cylinder switch (cube)
- ▶ 2x clamping holder for cylinder switch

Ordering information

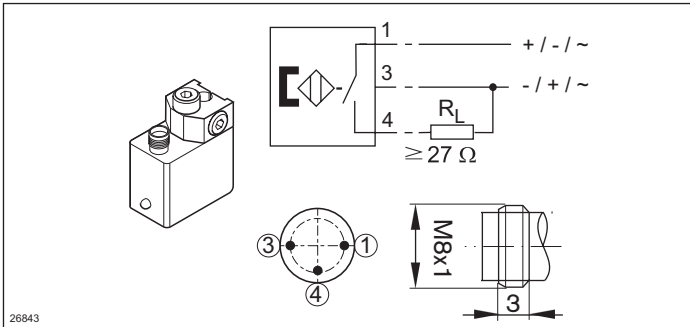
Product designation	Packaging unit	Material number
SA cylinder position sensor	2	3842536974

Technical data

Material number	3842536974 SN2 series cylinder switch (cube)
Features	
Connector	M8x1, without cable
Function indicator	LED
Additional information	
Contact type	Reed, 3-conductor
Operating voltage	AC 12-30, DC 12-36 V



Circuit diagrams



HP 2/L housing element

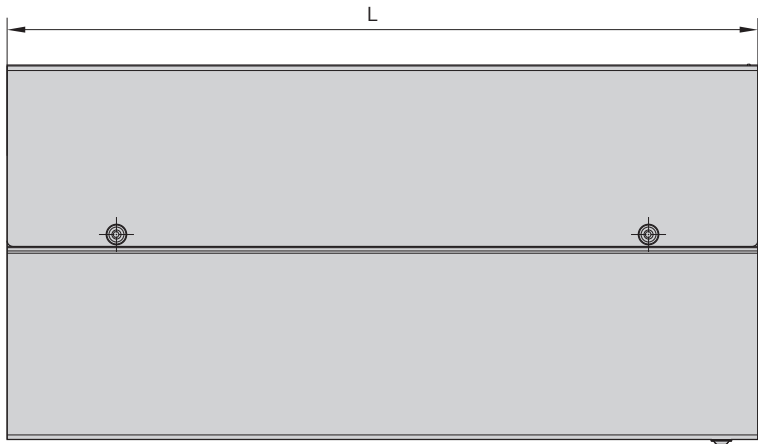
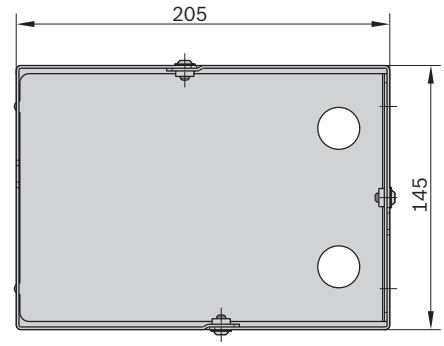
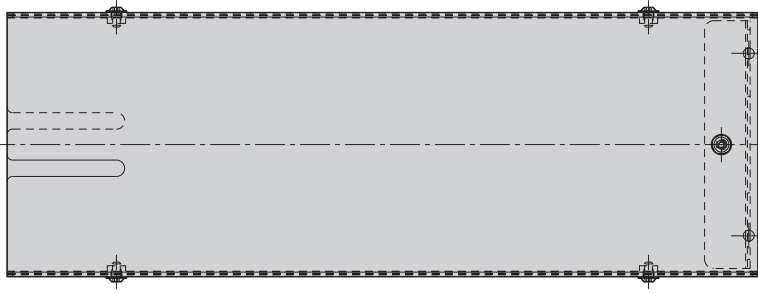


► Housing element for HP 2/L lift positioning unit

Ordering information

Product designation	Nominal stroke h_N (mm)	Length L (mm)	Material number
HP 2/L housing element	50	315	3842536977
HP 2/L housing element	100	353	3842536960
HP 2/L housing element	160	353	3842536960
HP 2/L housing element	200	715	3842536962
HP 2/L housing element	250	715	3842536962

Dimensions



28904

Length L (mm)	Material number
315	3842536977
353	3842536960
715	3842536962

RA position sensor set



- Position sensor for HP 2/L special design with turret stop

For use with a turret stop (e.g., Somatec), the HP 2/L can be ordered with longer guide rails as a modification. An accompanying sensor is used instead of the cylinder

switch to sense the upper positions on the turret stop (RA position sensor set).

Delivery notes

Scope of delivery

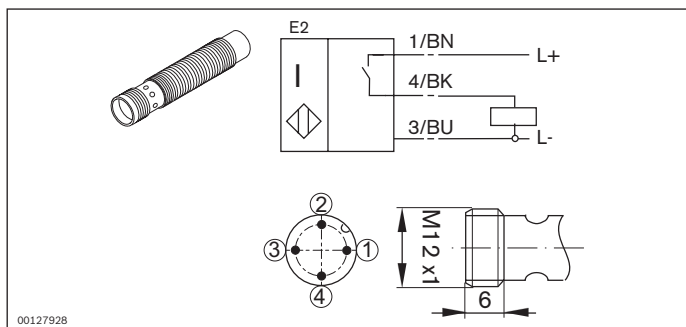
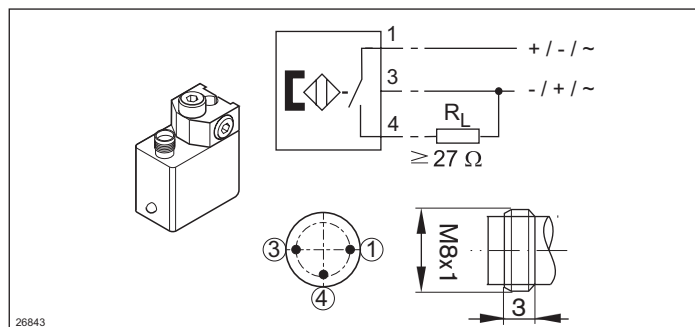
- 1x SN 2 series cylinder switch (cube)
- 1x clamping holder for cylinder switch
- 1x M12x1 sensor with $S_N=8$ mm rated sensing range, length 50 mm (3842557633), see p. 8-108

- 1x switch bracket for mounting on the base plate

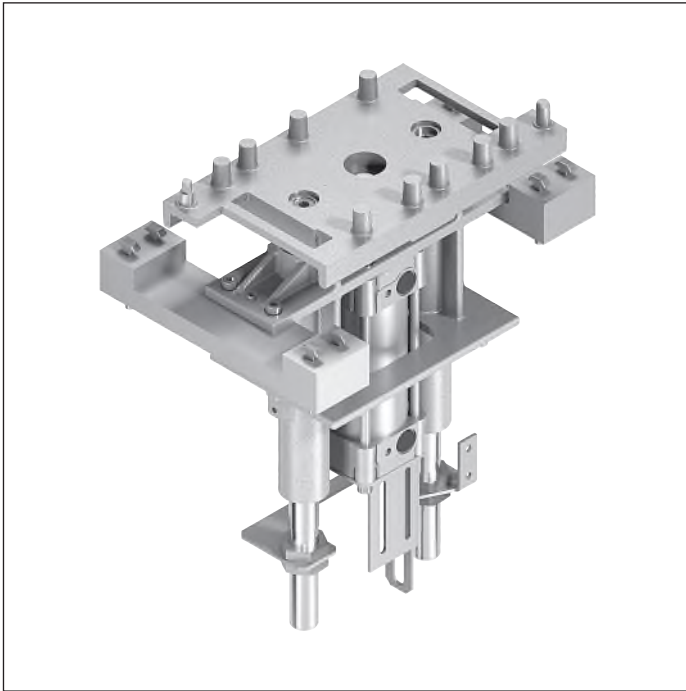
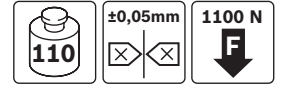
Ordering information

Product designation	Material number
RA position sensor	3842536975

Circuit diagrams



HP 2 lift positioning unit



- ▶ Positions a workpiece pallet in a processing station with high positioning accuracy requirements and higher workpiece pallet weights.
- ▶ Positioning via the HP 2 positioning pins and the positioning bushings on the WT 2 workpiece pallet
- ▶ Lifting cylinder with adjustable top-end and bottom stop-end damping
- ▶ Top-end damping takes effect only under full lift.
- ▶ Continuously adjustable lift height in 8 lift ranges h_N of 0 ... 404 mm
- ▶ Can be combined with workpiece pallets WT 2, WT 2/F, WT 2/E

7

Damping at the top end of the cylinder takes effect only under full lift. With larger lifts, we recommend separately

fixing the workpiece pallet while the HP 2 is in the highest position in order to improve positioning accuracy.

Accessories

Required accessories

- ▶ VE 2 stop gate, see p. 8-4
- ▶ Throttle non-return valve, exhaust air, G3/8", diameter $d = 6$ mm

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ Switch bracket for mounting of M12 sensors for top and bottom lift position sensing

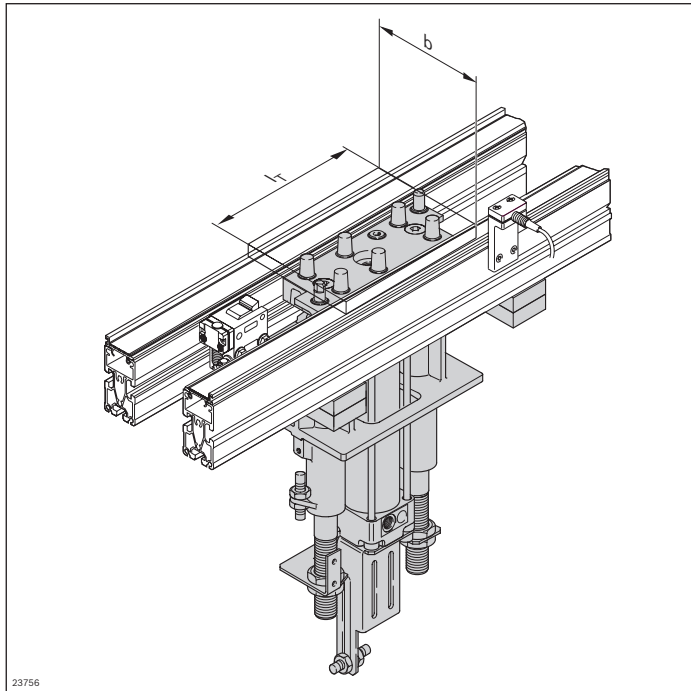
Recommended accessories

- ▶ Damping kit (3842211355) to set the WT on the conveyor medium without any shocks
- ▶ HP 2 housing element, see p. 7-34

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842999678
b (mm)	Track width in direction of transport	160; 240; 320; 400; 480
l _T (mm)	Length in direction of transport	0 ¹ ; 160; 240; 320; 400; 480; 640; 800
w x l _d (mm x mm)	Combination options	160 x 0 ¹ ; 160; 240; 320; 400; 480 240 x 0 ¹ ; 160; 240; 320; 400; 480 320 x 0 ¹ ; 160; 240; 320; 400; 480 400 x 0 ¹ ; 320; 400; 480; 640; 800 480 x 0 ¹ ; 320; 400; 480; 640; 800
h _N (mm)	Nominal stroke	55; 100; 150; 200; 250; 300; 350; 400
AO	Installation location Under the conveyor section (AO = UB) On the machine table (AO = AT) For custom design without fastening material (AO = O)	UB; AT; O

¹ If the value is "0", HP 2 will be delivered with a lift plate (3842516048, see p. 7-31) instead of the lift position plate for custom designing of the lift positioning plate.

Technical data

Material number		3842999678
Load		
Max. total workpiece pallet weight	m _G	kg 110
Features		
ESD		Yes
Additional information		
Required compressed air connection	p	bar 4 ... 6
Pneumatic connector ²	d	mm 6
Repeat accuracy		mm ±0.05
Permissible vertical process forces ¹		N 1100

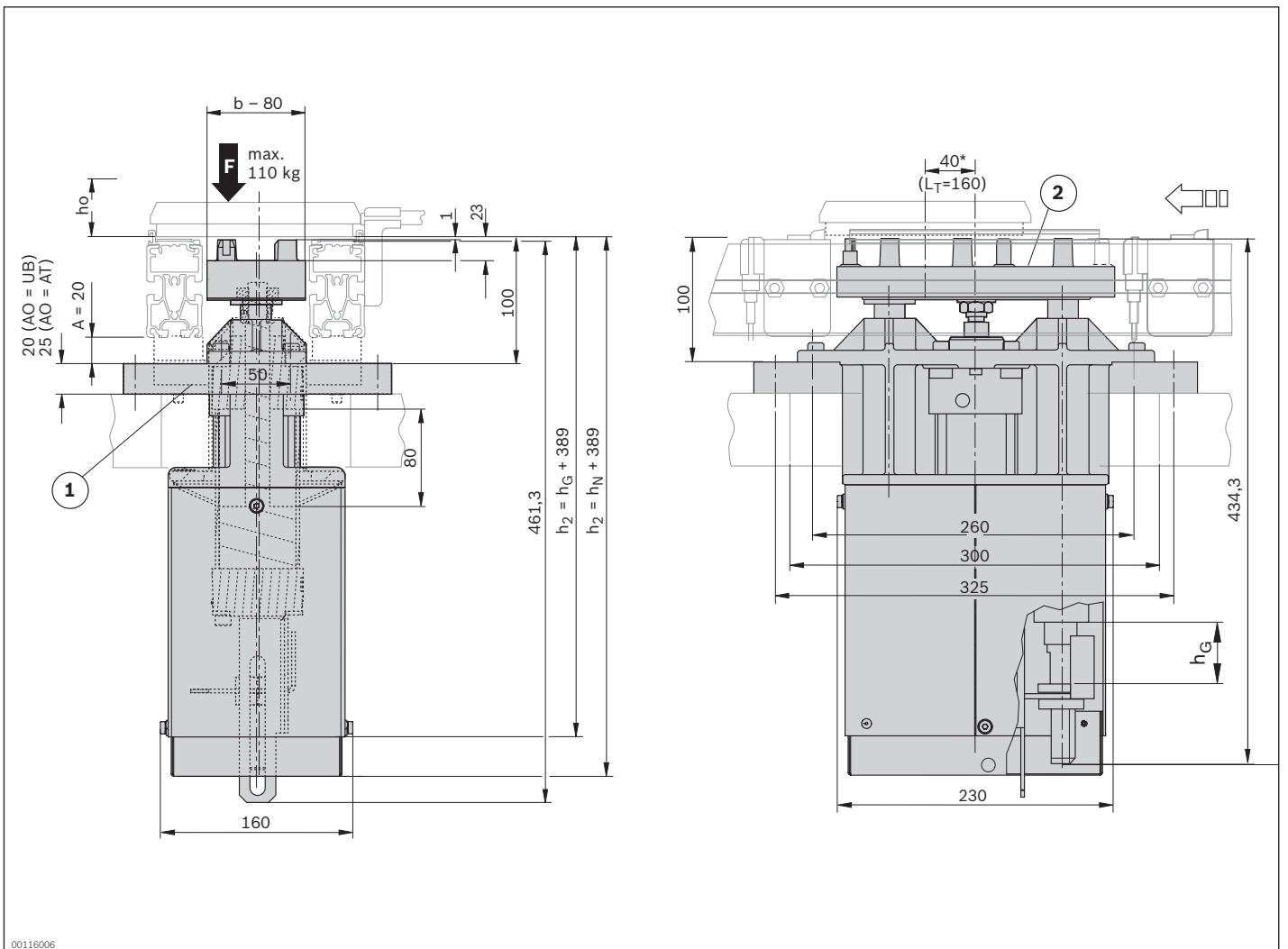
¹ Incl. WT 2

² Throttle non-return valve, exhaust air with connector, diameter d = 6 mm, for thread G 3/8" must be attached by the customer

Lift range

Cylinder total lift h_G (mm)	Nominal stroke h_N (mm)	WT lift above conveying level h_0 (mm)
80	55	0 ... 59
125	100	60 ... 104
175	150	105 ... 154
225	200	155 ... 204
275	250	205 ... 254
325	300	255 ... 304
375	350	305 ... 354
425	400	355 ... 404

Dimensions



00116006

* Eccentric position for WT $L_T = 160$ mm

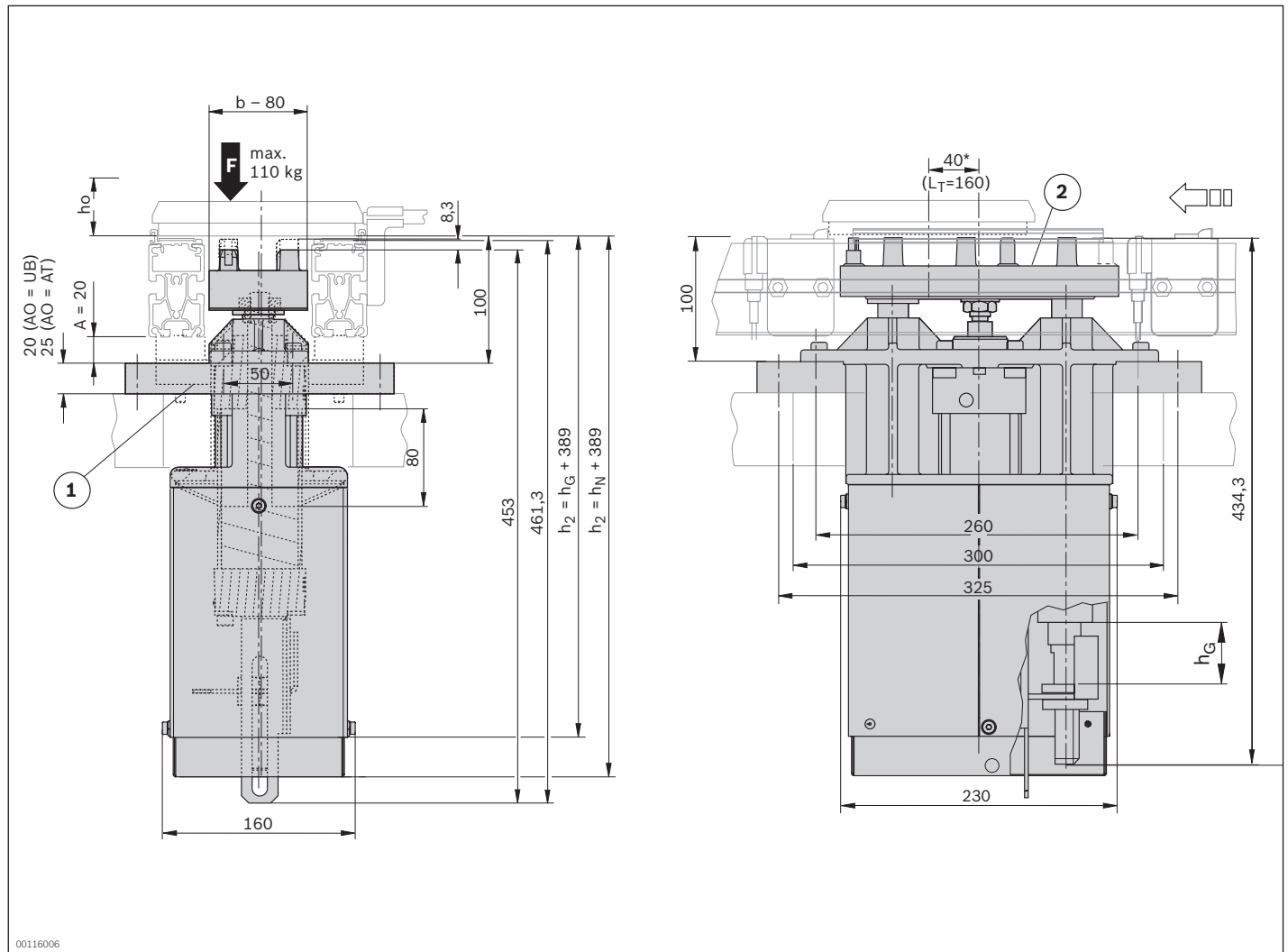
1 Fastening kit (UB or AT)

2 Positioning plate

h_0 WT lift above transportation level

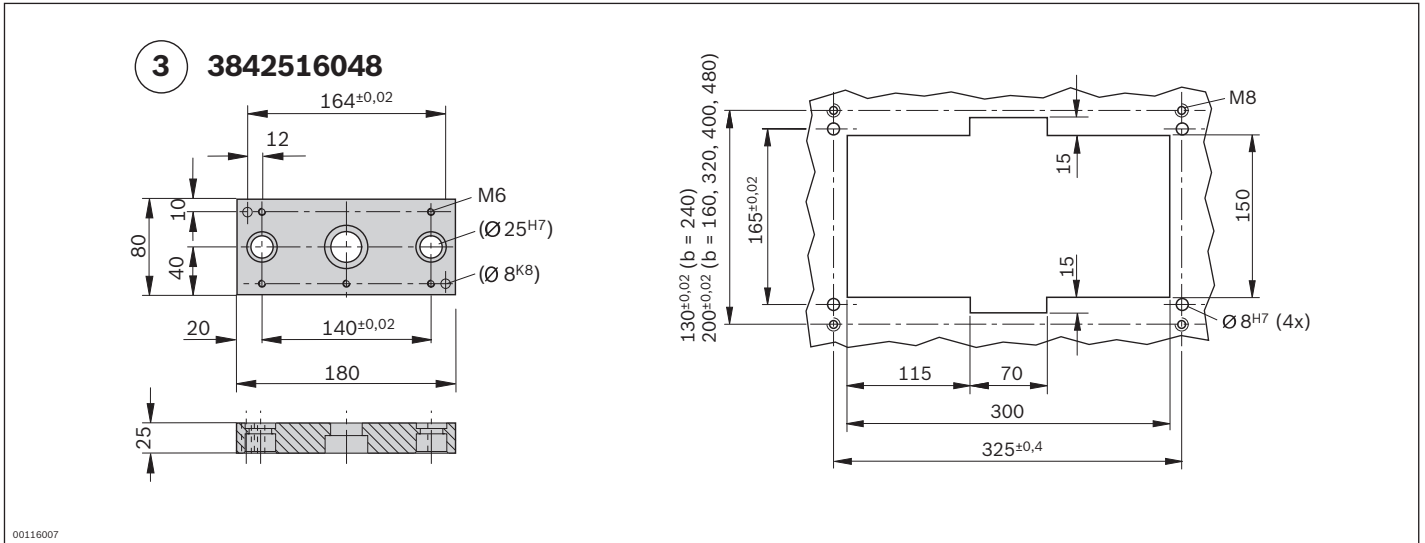
h_G total cylinder lift

7-30 **TS 2plus 7.0** | Positioning and orientation
 HP 2 lift positioning unit



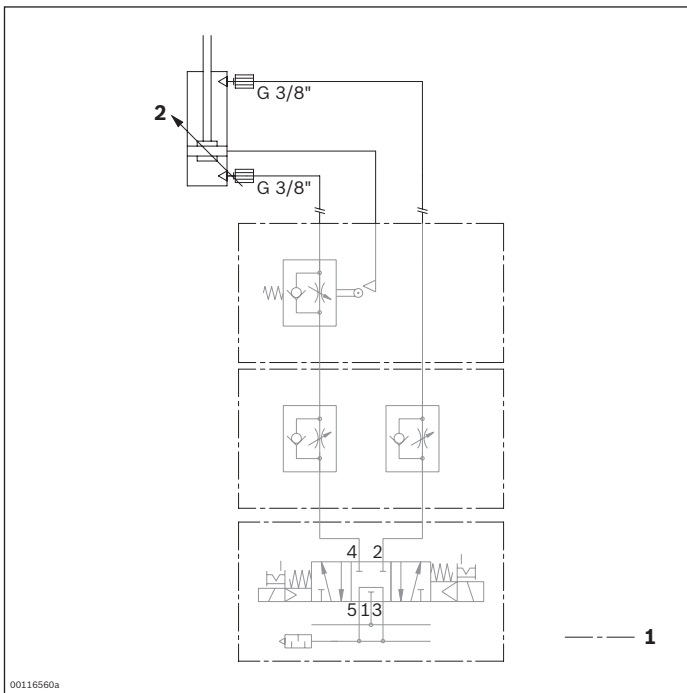
00116006

- * Eccentric position for WT $L_T = 160$ mm
- 1 Fastening kit (UB or AT)
- 2 Positioning plate
- h_0 WT lift above transportation level
- h_G total cylinder lift



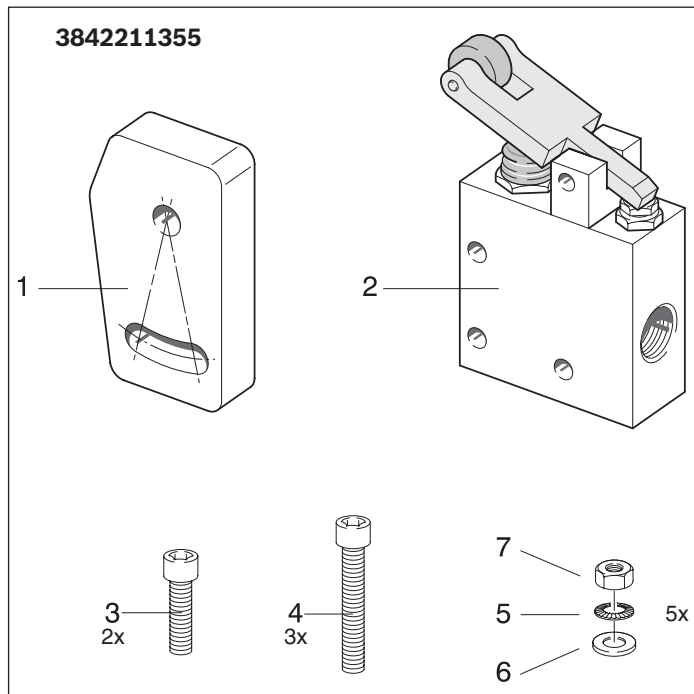
3 Lift plate

Circuit diagrams



- 1 Not included in delivery
- 2 Adjustable top-end damping

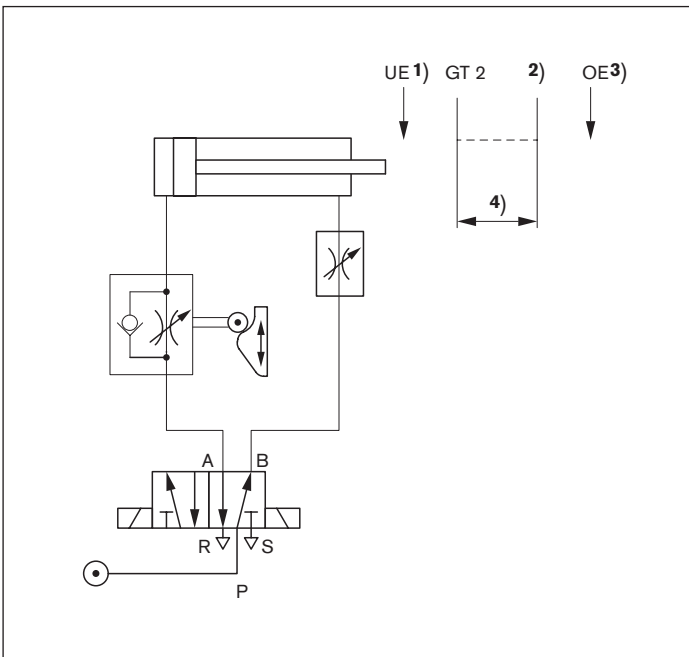
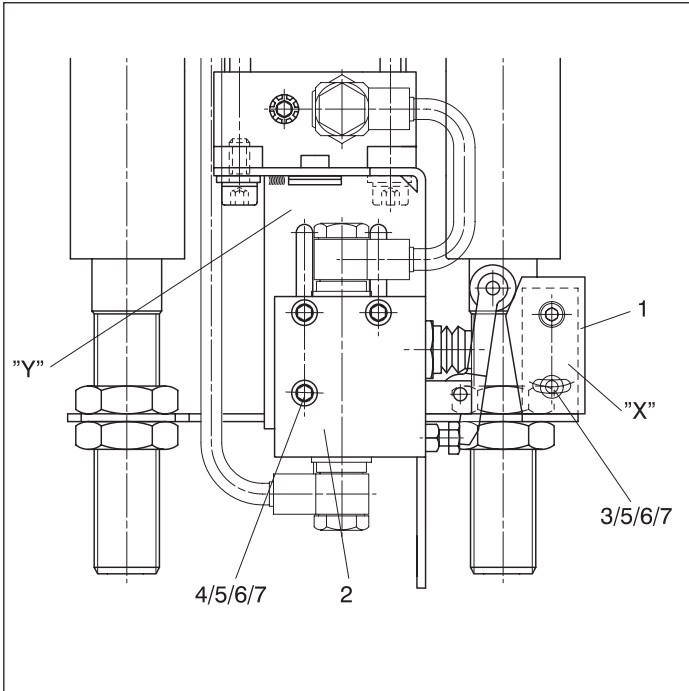
Kit for lower end damping



- ▶ Fasten each switching tappet (1) to the metal bracket "X" with two cylinder head screws M6x20 (3), lock washers (6) and hexagon nuts (7)
- ▶ Fasten each valve (2) to the limit switch holder "Y" with three cylinder head screws M6x35 (4) lock washers (5) washers (6) and hexagon nuts (7)

Ordering information

Product designation	Material number
Kit for bottom-end damping	3842211355



- 1 Lower end position
- 2 Tappet
- 3 Upper end position
- 4 Damping (adjustable)

HP 2 housing element

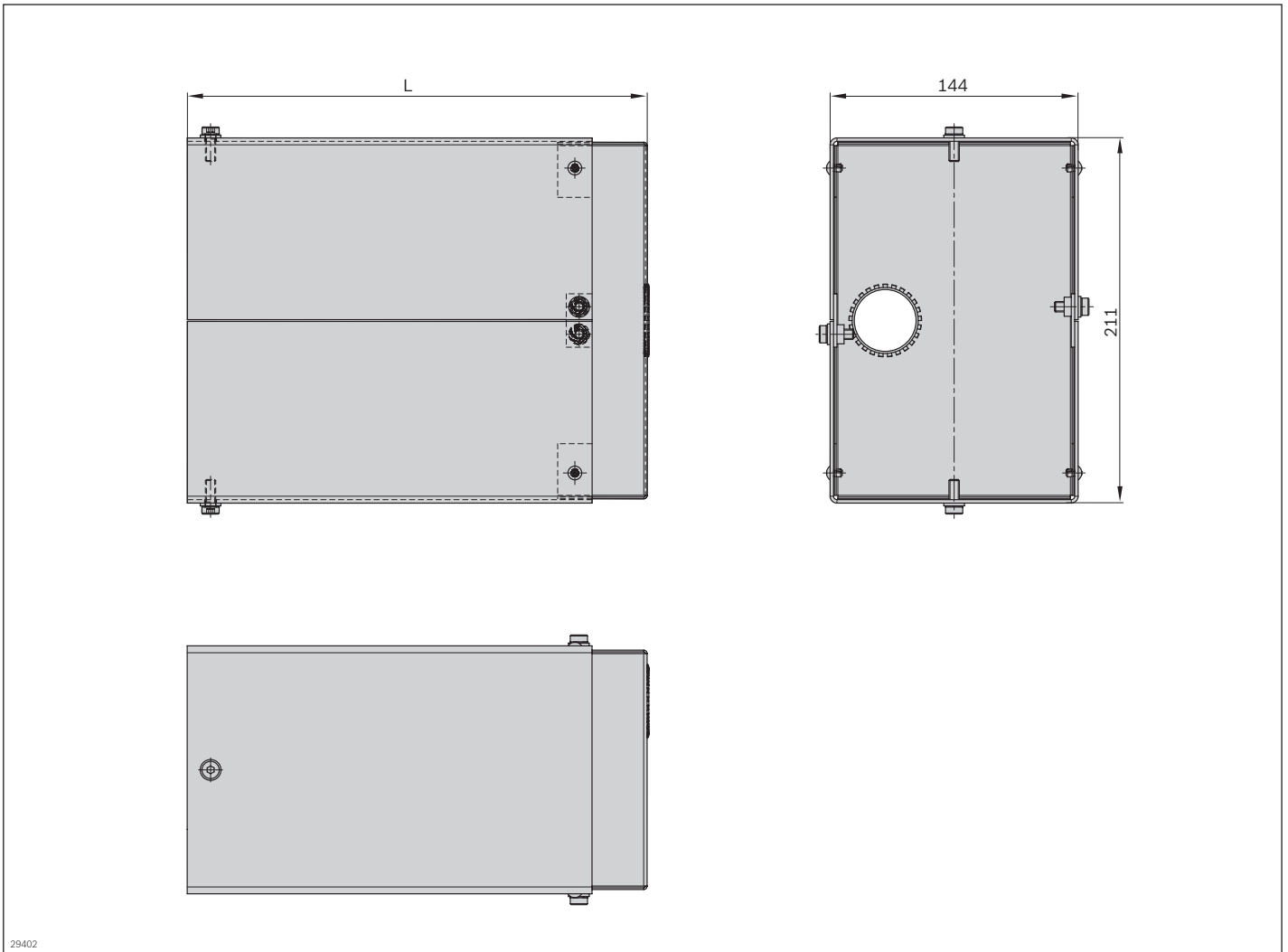


► Housing element for HP 2 lift positioning unit

Ordering information

Product designation	Nominal stroke h_N (mm)	Length L (mm)	Material number
HP 2 housing element	55	267	3842510157
HP 2 housing element	100	312	3842510158
HP 2 housing element	150	362	3842510159
HP 2 housing element	200	412	3842510160
HP 2 housing element	250	462	3842532409
HP 2 housing element	300	512	3842532410
HP 2 housing element	350	562	3842532411
HP 2 housing element	400	612	3842532412

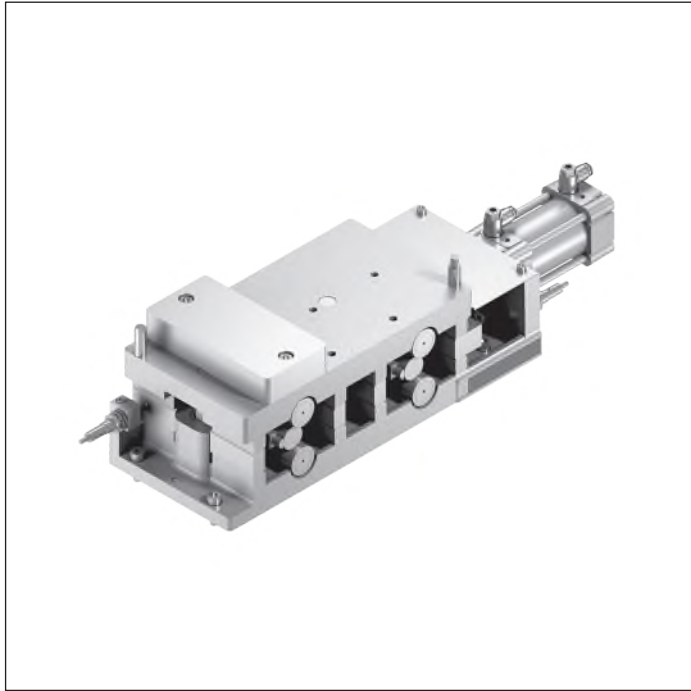
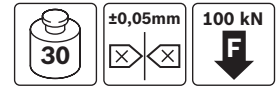
Dimensions



29402

Length L (mm)	Material number
267	3842510157
312	3842510158
362	3842510159
412	3842510160
462	3842532409
512	3842532410
562	3842532411
612	3842532412

PE 2/XP positioning unit



- ▶ Positions a workpiece pallet in a processing station with especially high vertical process force requirements (100 kN/60 kN), such as those needed for press-fit or riveting work.
- ▶ Mounting in force cells, positive force introduction
- ▶ WT lift above transportation level, approx. 3 mm
- ▶ Can be combined with WT 2 workpiece pallets

Note: Maximum total workpiece pallet weight m_G , incl. anvil plate or positioning plate for BG 1, is: $m_G = 20$ kg and BG 2: $m_G = 30$ kg.

Accessories

Required accessories

- ▶ Anvil plate for standard sizes from 160 x 160 mm to 320 x 240 mm, see p 7-40
- ▶ Anvil plate for 320 x 240 mm workpiece pallets, see p. 7-39
- ▶ Positioning pins, round and flat-sided
h = 30 mm for standard anvil plate
h = 21 mm for special designs
- ▶ VE 2/... stop gate, see p. 8-4
- ▶ 2x M12x70 and M12x67 sensor with rated sensing range $S_N = 4$ mm, can be installed flush, see p. 8-108/8-110

Delivery notes

Condition on delivery

- ▶ Fully assembled

Ordering information

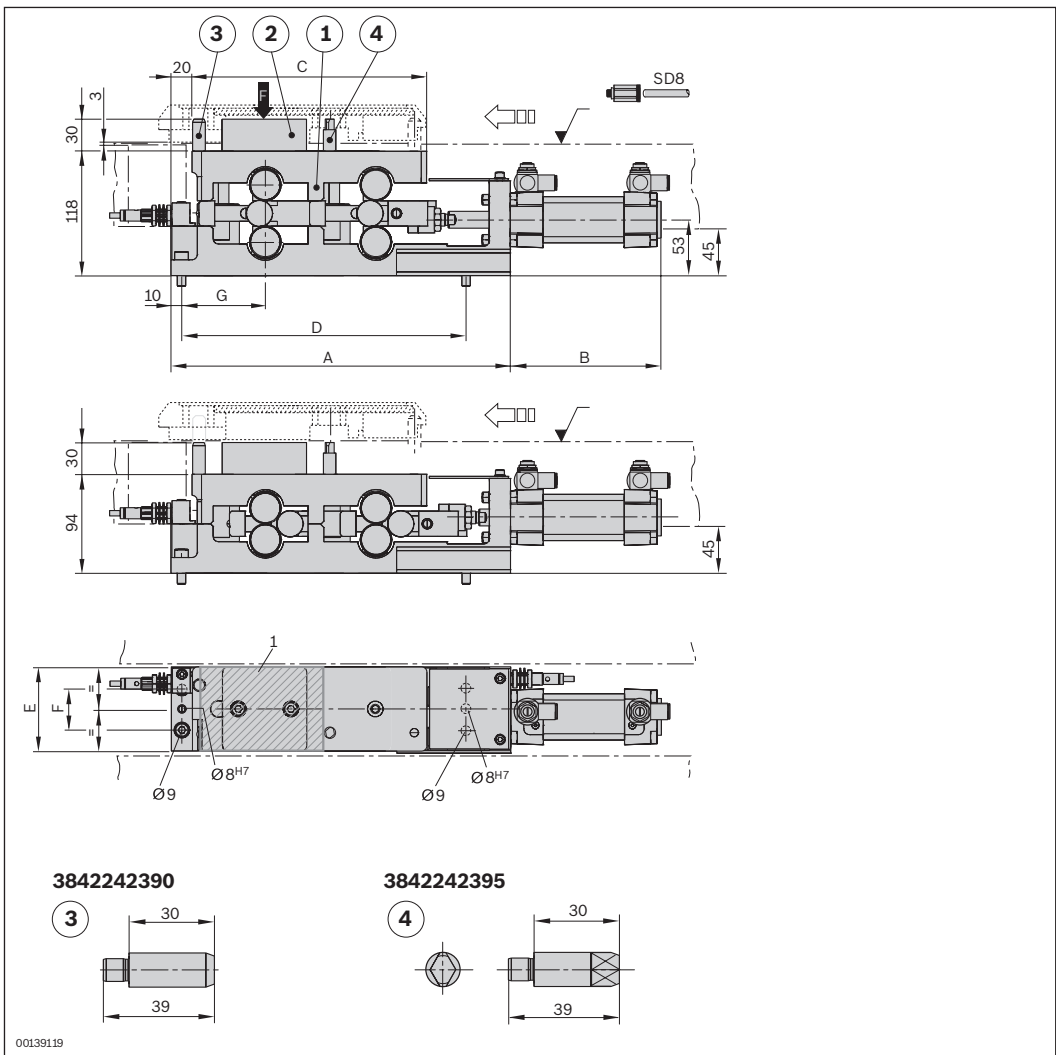
Product designation	Size	Width of workpiece pallet (mm)	Material number
PE 2/XP positioning unit	BG 1	160	3842242350
PE 2/XP positioning unit	BG 2	240	3842242351

Technical data

Material number		3842242350	3842242351
Load			
Max. total workpiece pallet weight	m_G	kg	20
Features			
ESD			Yes
Design			
Size	BG	BG 1	BG 2
Additional information			
Repeat accuracy		mm	± 0.05
Permissible vertical process forces ¹		kN	60
WT lift above conveying level		mm	3

¹⁾ Incl. WT 2

Dimensions

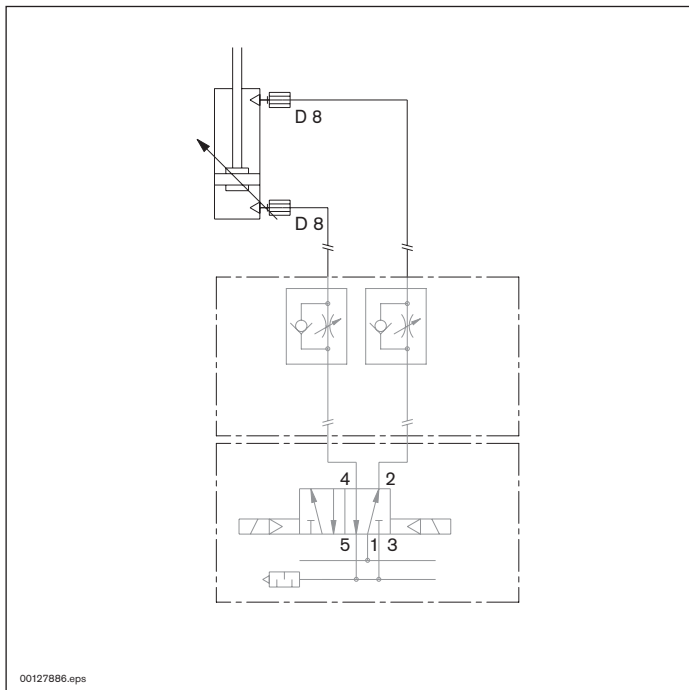


- 1 PE 2/XP
- 2 Anvil plate
- 3 Positioning pin, round
- 4 Positioning pin, flat-sided

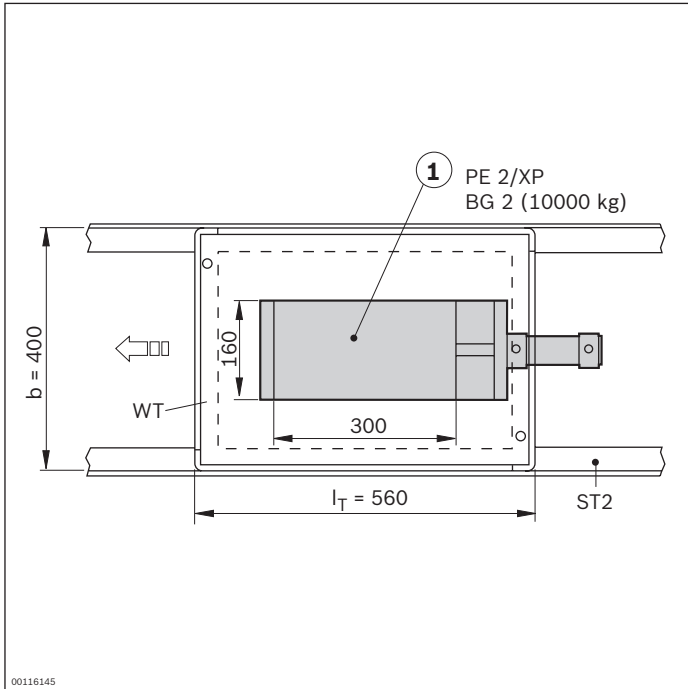
Dimensions

Size	Workpiece pallet size l_T (mm)	Workpiece pallet size b (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
BG 1	160	160	322	142	222	270	80	40±0.2	78.5
BG 1	240	160	322	142	222	270	80	40±0.2	118.5
BG 2	160	240	405	146	298	350	160	100±0.3	78.5
BG 2	240	240	405	146	298	350	160	100±0.3	118.5
BG 2	320	240	405	146	298	350	160	100±0.3	158.5

Circuit diagrams



Not included in delivery



Use of PE 2/XP positioning unit with workpiece pallets larger than $l_T = 320 \text{ mm} \times b = 240 \text{ mm}$

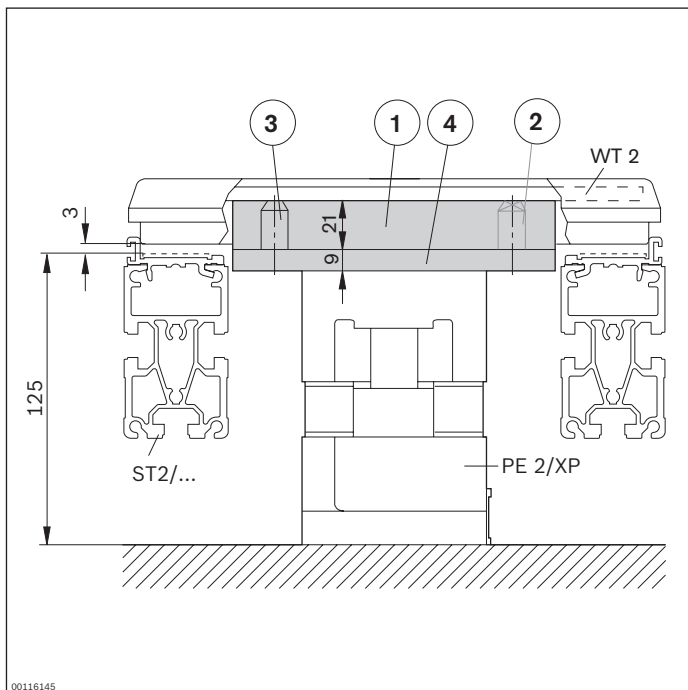
The PE 2/XP positioning unit, designed to absorb forces, can also be used with workpiece pallets with large dimensions if the process forces are applied at certain points.

The PE 2/XP must then be arranged in such a manner that it can absorb the forces directly.

The forces may be applied off-center.

However, where process forces are applied must be within the area of the upper part of the PE 2/XP.

1 Anvil plate, example:
Process forces applied at center of workpiece pallet



Design notes

When the unit is used with workpiece pallets larger than $l_T \times b = 320 \times 240 \text{ mm}$, a special anvil plate with a thickness of 21 mm and a positioning plate with a thickness of 9 mm must be designed.

The positioning plate must also receive the positioning pins. The anvil plate should support the WT carrying plate.

The anvil plate can also be replaced with several domes for workpiece pallet support and power transmission. Benefits: Weight reduction.

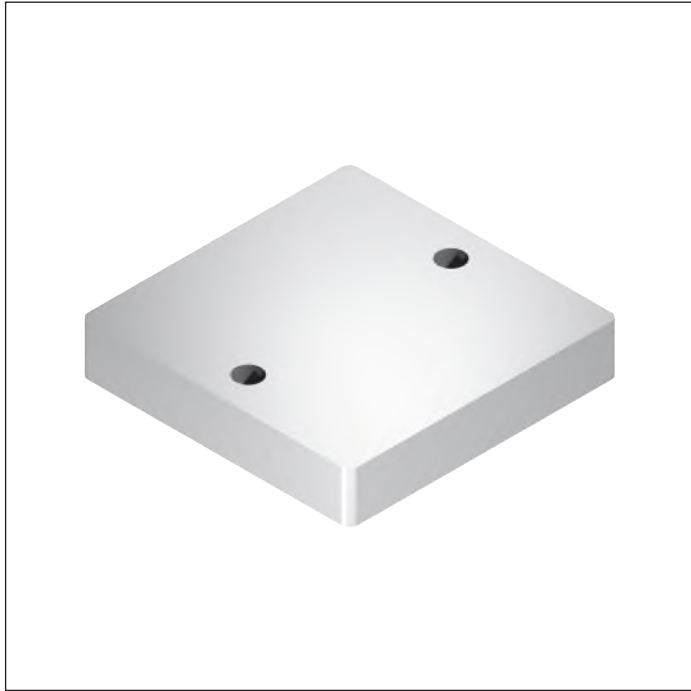
The maximum total workpiece pallet weight m_G , incl. anvil plate or positioning plate, is as follows for the following sizes:

BG 1: $m_G = 20 \text{ kg}$

BG 2: $m_G = 30 \text{ kg}$

1 Anvil plate
2 Positioning pin, round
3 Positioning pin, flat-sided
4 Positioning plate

Anvil plate



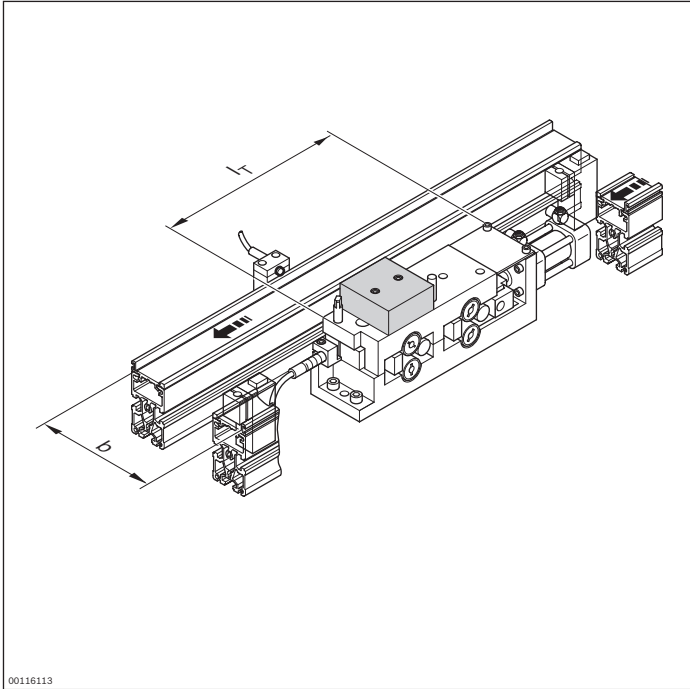
► For PE 2/XP positioning unit

Ordering information

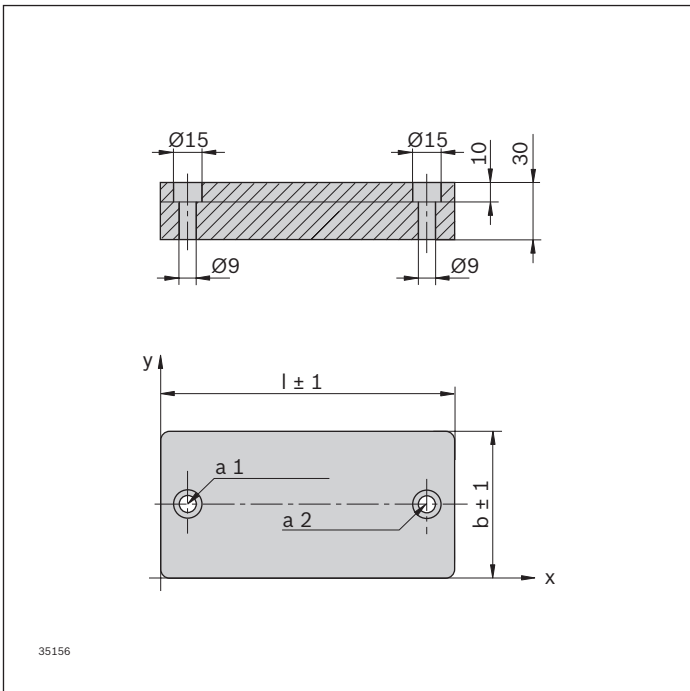
Product designation	BG	Track width in direction of transport b (mm)	Length in direction of transport l _T (mm)	Material number
Anvil plate	BG 1	160	160	3842242375
Anvil plate	BG 2	240	160	3842242376
Anvil plate	BG 1	160	240	3842242376
Anvil plate	BG 2	240	240	3842242377
Anvil plate	BG 2	240	320	3842242378

Technical data

Material number	3842242375	3842242376	3842242377	3842242378
Load				
Max. total workpiece pallet weight	m _G kg	BG 1: 20	BG 1; 2: 20; 30	BG 2: 30

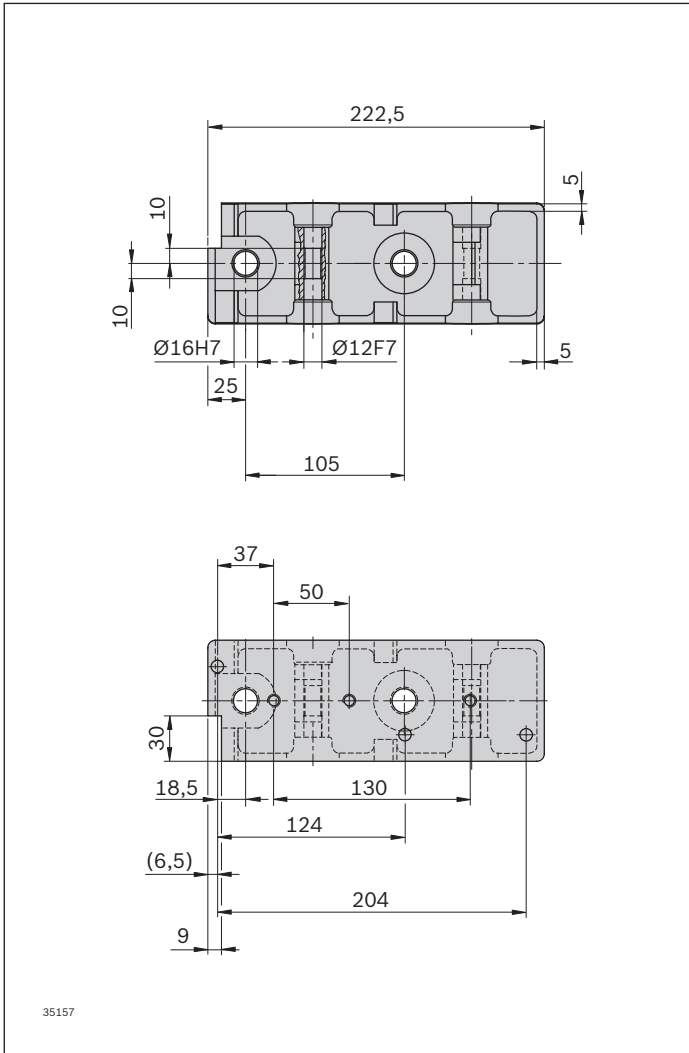


Anvil plate drilling plan



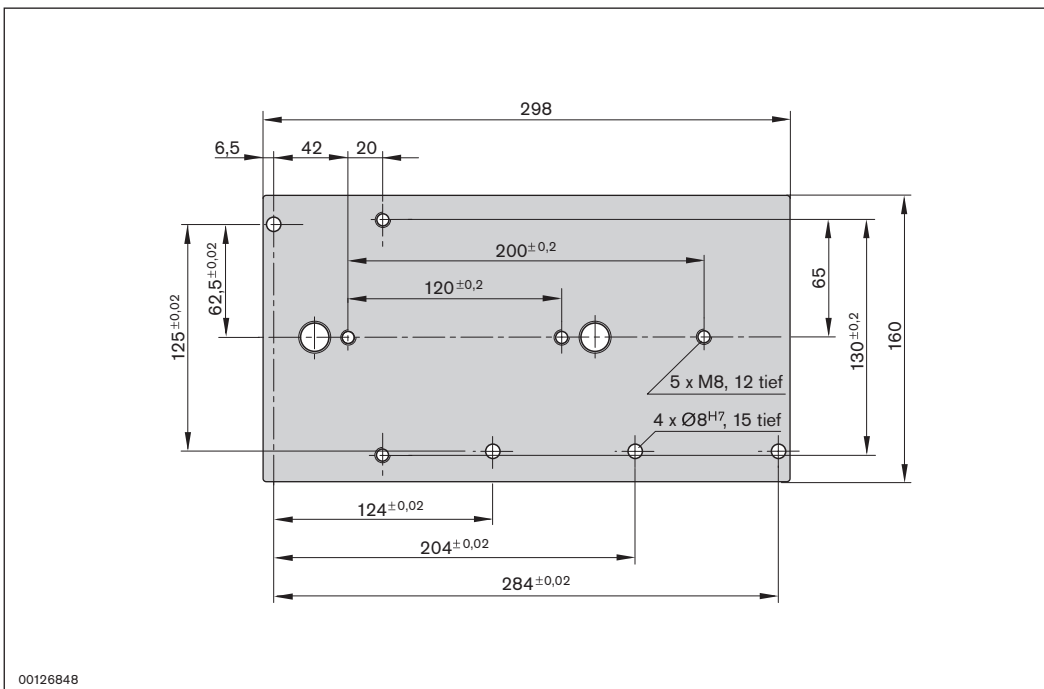
Workpiece pallet size b_{WT} (mm)	Workpiece pallet size l_{WT} (mm)	Type	b (mm)	l (mm)	x (mm)	y (mm)
160	160	a1	80	80	15	40
		a2	80	80	65	40
160	240	a1	80	160	15	40
		a2	80	160	145	40
240	160	a1	80	160	15	40
		a2	80	160	145	40
240	240	a1	160	160	20	80
		a2	160	160	140	80
240	320	a1	160	240	20	80
		a2	160	240	220	80

**Drilling plan for upper part
of PE 2/XP (BG 1)**



35157

**Drilling plan for upper part
of PE 2/XP (BG 2)**



00126848

Positioning pin, round



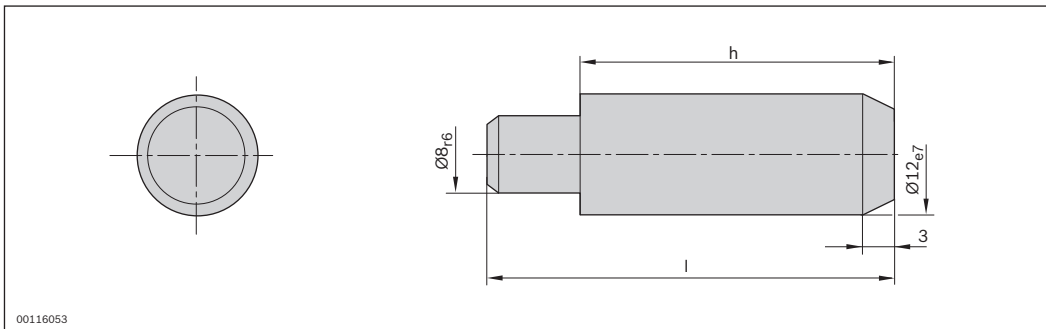
► For PE 2/XP positioning unit

Ordering information

Product designation	Length l (mm)	Height h (mm)	Material number
Positioning pin, round	30	21	3842242391
Positioning pin, round	38	21	3842242392
Positioning pin, round	39	30	3842242390

7

Dimensions



Positioning pin, flat-sided

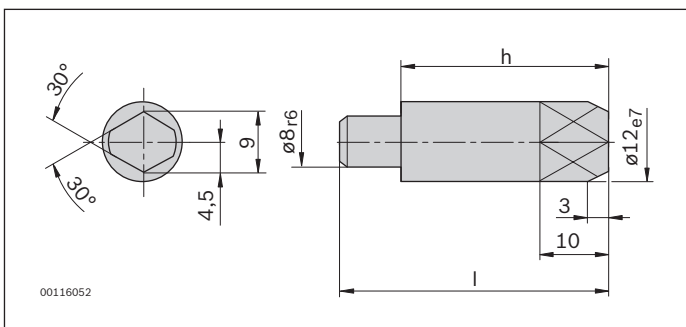


► For PE 2/XP positioning unit

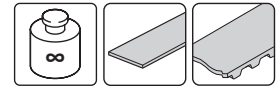
Ordering information

Product designation	Length l (mm)	Height h (mm)	Material number
Positioning pin, flat-sided	30	21	3842242396
Positioning pin, flat-sided	38	21	3842242397
Positioning pin, flat-sided	39	30	3842242395

Dimensions



PE 2/XX process force decoupler Components



- ▶ For mounting processes with especially high demands on vertical process forces
- ▶ To guide the belt or toothed belt near a force cell to be constructed by the customer.
- ▶ Permissible vertical process force depending on the construction by the customer
- ▶ Lift below conveying level approx. 1 mm.
- ▶ Prepositioning via VE (accessories)
- ▶ Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H, on which the customer must install spacer plates under the force introduction side

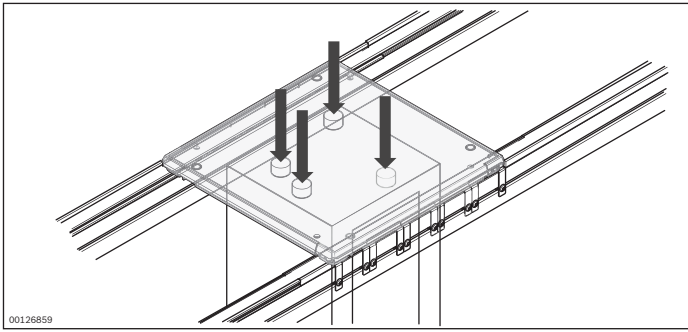
The process force decoupler is assembled using the following parts:

- ▶ Spring element in versions with 5.8 N/cm and 10 N/cm surface load, see p. 7-46
- ▶ Transition pieces to and from the spring elements, see p. 7-48
- ▶ Lateral guides, see p. 7-50

Accessories

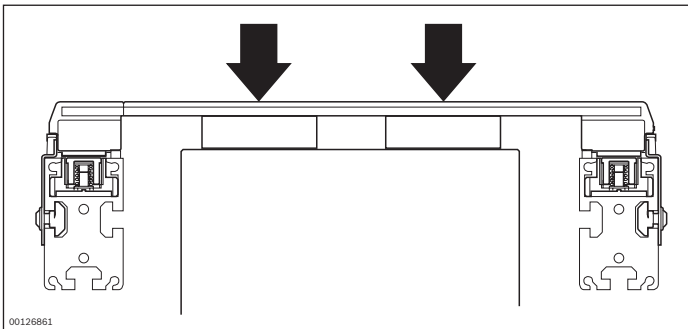
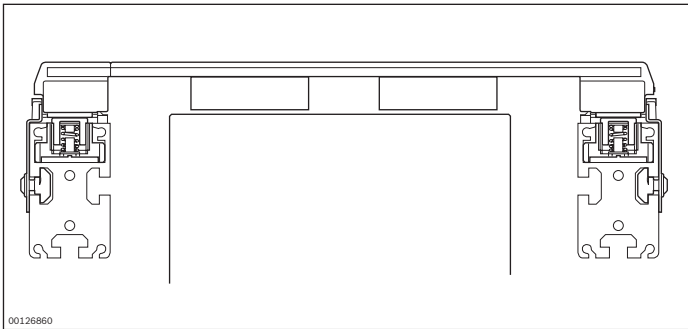
Required accessories

- ▶ Anvil (customer force cell) to absorb process forces at the mounting location of the positioning unit
- ▶ Substructure plate for workpiece pallets to transfer the process forces to the anvil (provided by customer)
- ▶ VE 2 stop gate, see p. 8-4

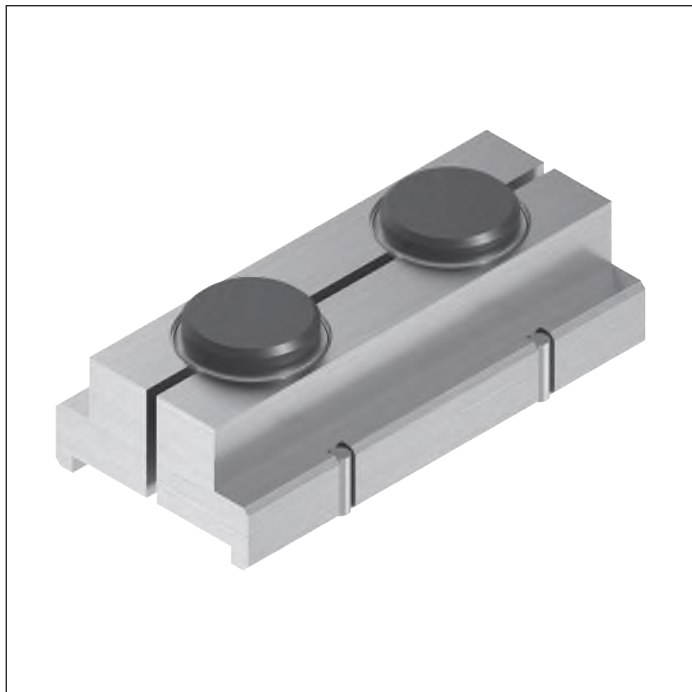
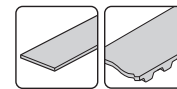


Mode of operation

Vertical process forces are deflected via a force cell constructed by the customer. In doing so, the plate of the workpiece pallet is supported via the spacer blocks on the anvil of the force cell. The guide profile is replaced by spring elements near the force cell to prevent the conveyor medium (belt or toothed belt) from getting jammed between the workpiece pallet and guide profile. The conveyor medium can thus be pushed down by up to 1.5 mm.



Spring element



- ▶ For mounting in sections where the workpiece pallet is stressed by the process forces
- ▶ For section loads of 5.8 N/cm and 10 N/cm

Delivery notes

Scope of delivery

- ▶ Set containing 2x spring element

Ordering information

Product designation	Packaging unit	Material number
10 N/cm spring element	Set	3842536930
5.8 N/cm spring element	Set	3842536931

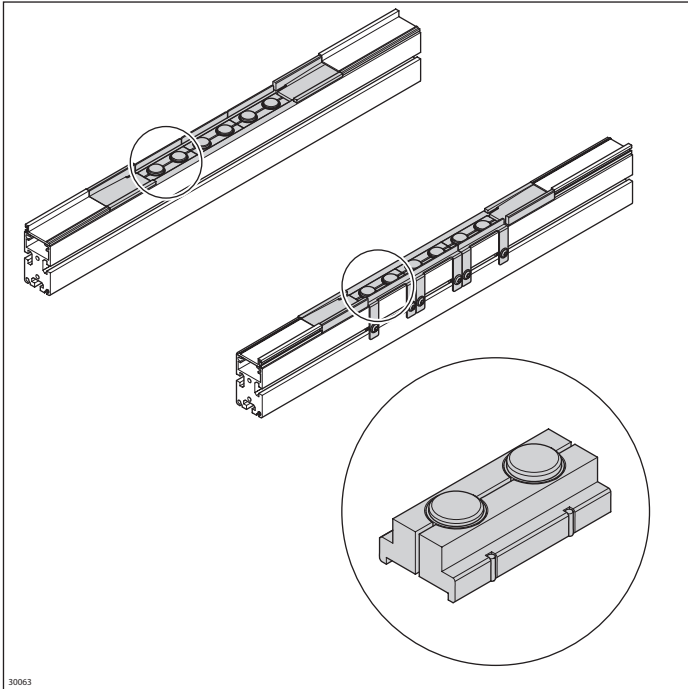
Technical data

Material number	3842536930	3842536931
Features		
ESD	Yes	Yes

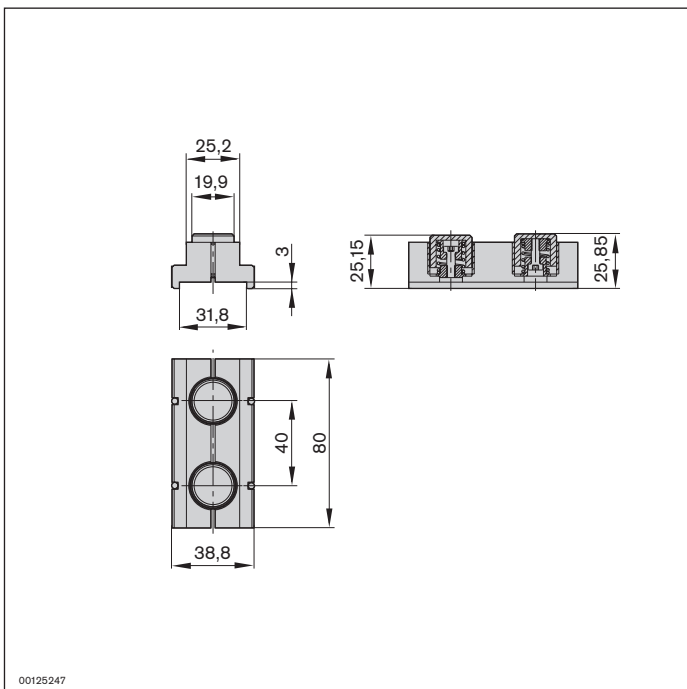
Length of workpiece pallet l_{WT} (mm)	Quantity required per section profile X	5.8 N/cm section load 3842536931 $m_{WT} \max^1$ (kg)	10 N/cm section load 3842536930 $m_{WT} \max^1$ (kg)
160	2	9.3	16
240	3	14.0	23.1
320	4	18.7	31.9
400	5	23.3	40
480	6	28.0	48

Length of workpiece pallet l_{WT} (mm)	Quantity required per section profile X	5.8 N/cm section load 3842536931 $m_{WT} \max^1$ (kg)	10 N/cm section load 3842536930 $m_{WT} \max^1$ (kg)
640	8	37.3	64
800	10	46.7	70
1040	13	60.7	70

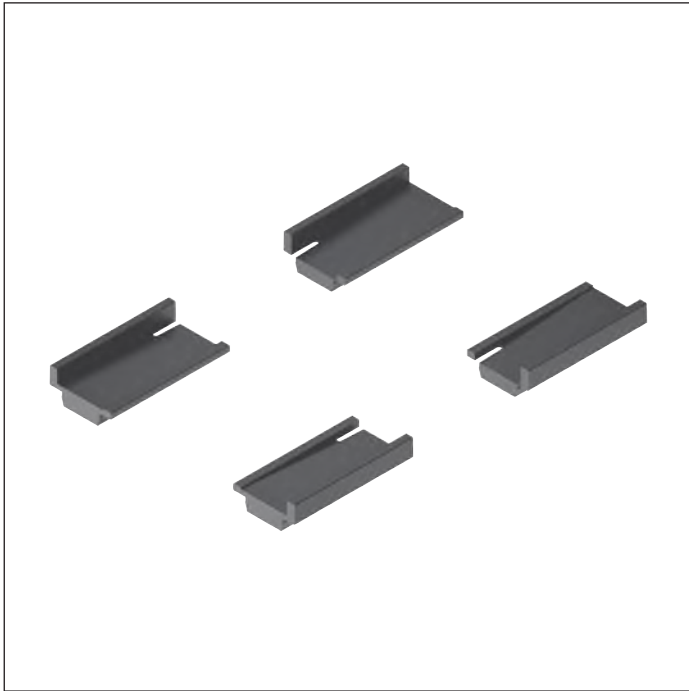
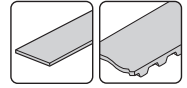
¹ Maximum workpiece pallet weight, incl. spacer block/base plate



Dimensions



Transition piece



- ▶ For transitioning from guide profile to spring elements and vice versa
- ▶ For use with the belt or toothed belt conveyor medium

Delivery notes

Scope of delivery

- ▶ Set containing 2x left transition piece, 2x right transition piece

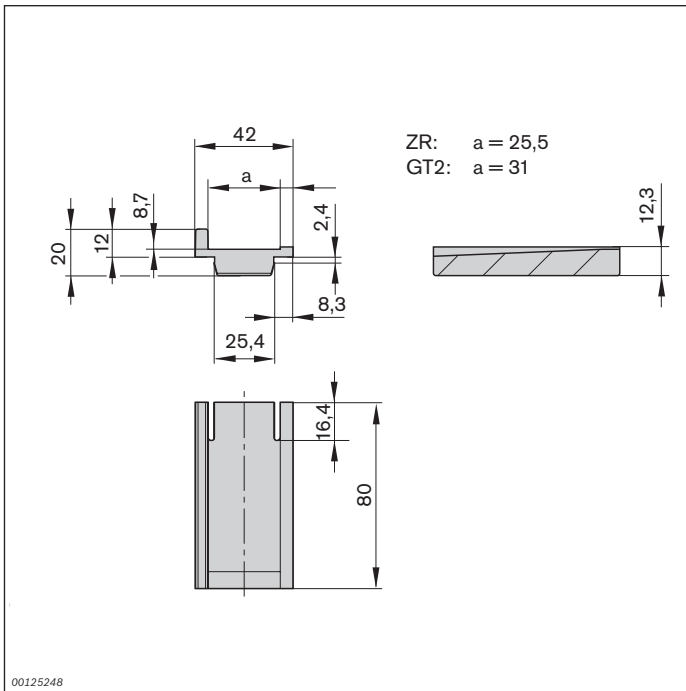
Ordering information

Product designation	Packaging unit	Material number
Transition piece for belt	Set	3842536932
Transition piece for toothed belt	Set	3842536933

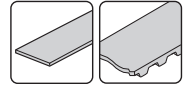
Technical data

Material number	3842536932	3842536933
Features		
ESD	Yes	Yes
Dimensions		
Length	l	mm
	80	80

Dimensions



Lateral guide



- ▶ For laterally guiding workpiece pallets in the sections where the spring elements are mounted
- ▶ A WT 2 stop can be positioned diagonally the stop gate to prevent workpiece pallets from rotating and tilting

Delivery notes

Scope of delivery

- ▶ 1 set (containing 2x lateral guide), incl. fastening material

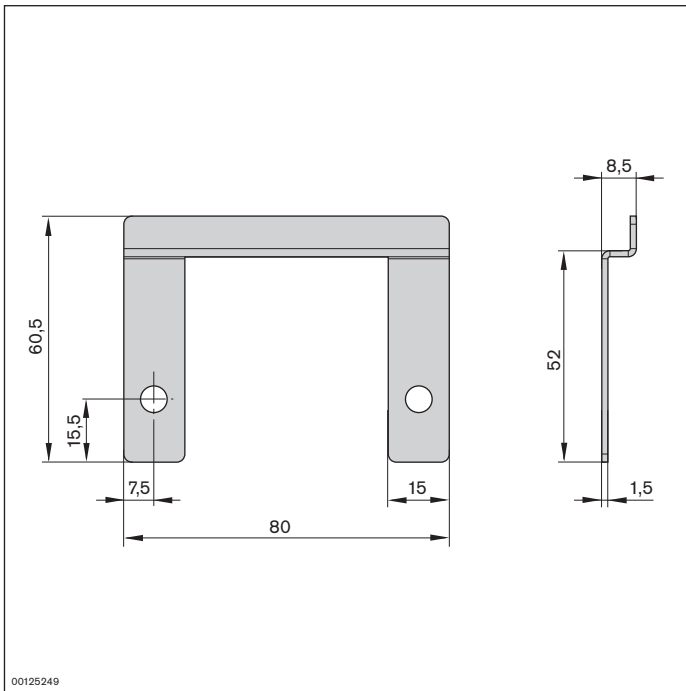
Ordering information

Product designation	Packaging unit	Material number
Lateral guide	Set	3842536926

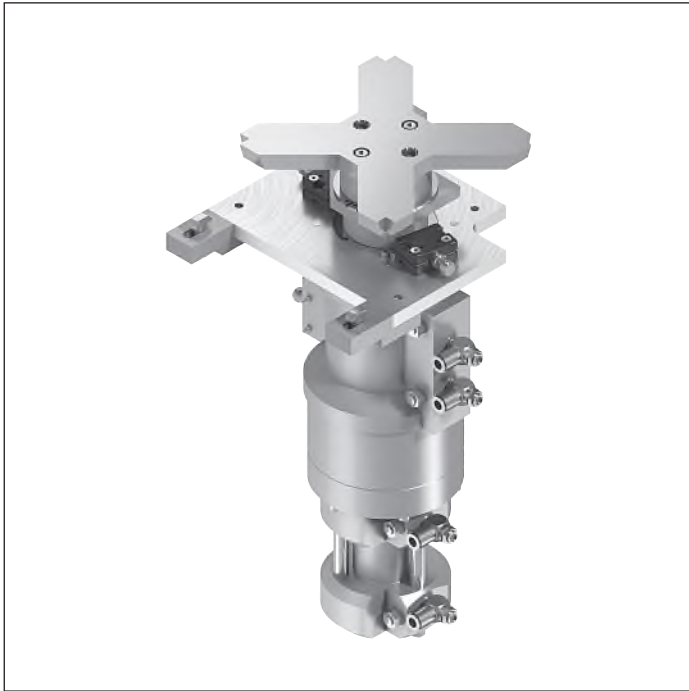
Technical data

Material number	3842536926	
Features		
ESD	Yes	
Material specification	Sheet steel; galvanized	
Dimensions		
Length	l	mm
		80

Dimensions



HD 2 lift rotate unit



- ▶ Turning angles on the Z axis: 90° or 180°. The direction of rotation of the HD 2/90° can be individually selected for each workpiece pallet as required
- ▶ WT lift 40 mm or 90 mm above transportation level
The version with a 40 mm lift is suitable for turning workpiece pallets directly above the conveyor section. If there are any components mounted at the side of the workpiece pallet, e.g., identification and data storage modules, it may be necessary to select the version with a 90 mm lift
- ▶ Max. permitted mass moment of inertia: 0.65 kgm²

The HD 2 lift rotate unit turns workpiece pallets to the required orientation. On circuits without curves it ensures that the workpiece pallet always runs with the correct orientation, i.e., front is always front.

Work on the HD 2 is permitted without additional forces.

Accessories

Required accessories

- ▶ VE 2 stop gate, see p. 8-4
- ▶ M12x1 sensor with rated sensing range $S_N \geq 4$ mm, can be installed at 0.5 mm rather than being installed flush, see p. 8-108

Delivery notes

Scope of delivery

- ▶ Incl. fastening material

Ordering information

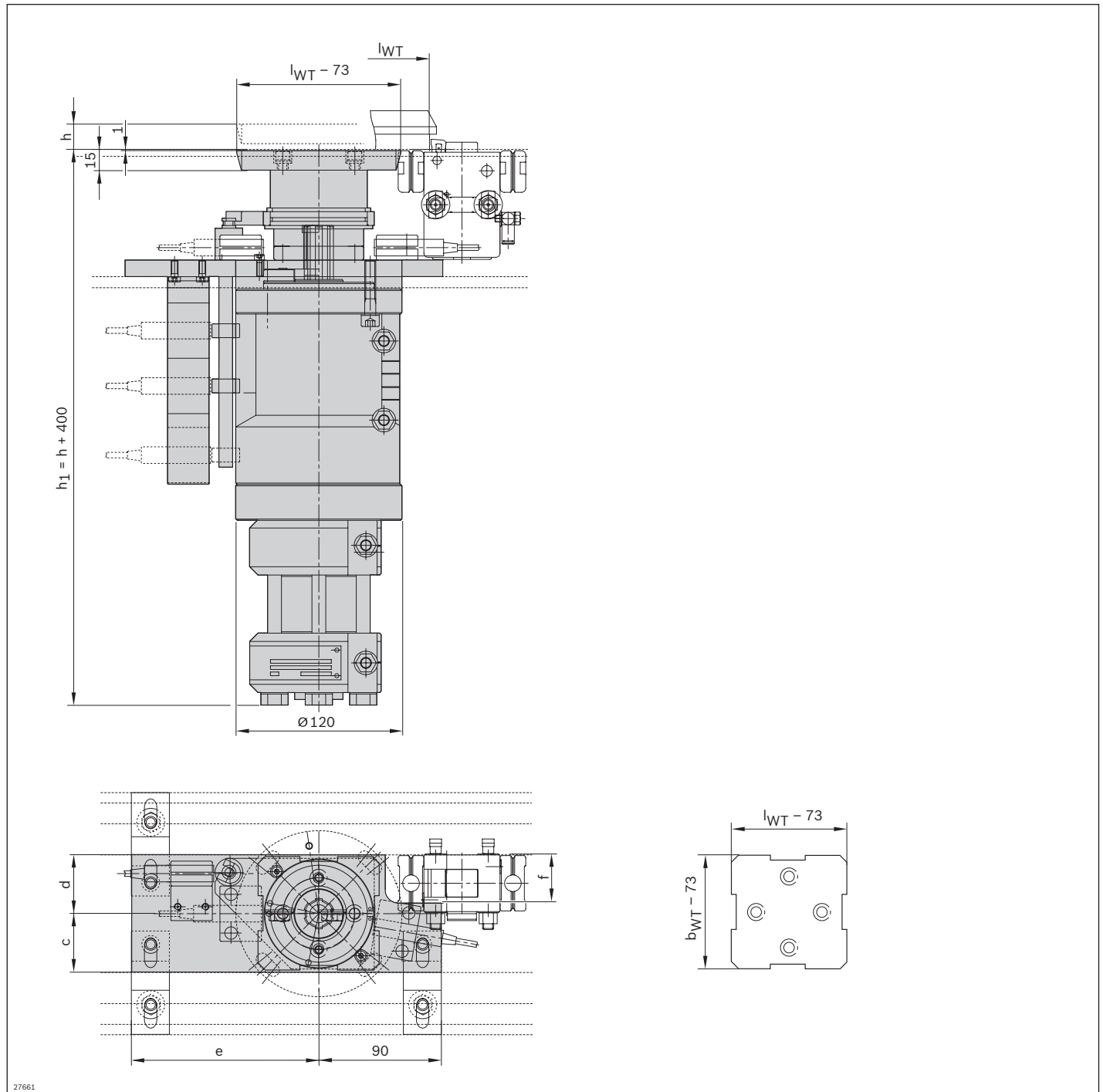
Product designation	b (mm)	l _r (mm)	DW (°)	h (mm)	Material number
HD 2 lift rotate unit	160	160	90	40	3842525847
HD 2 lift rotate unit	160	160	180	40	3842525848
HD 2 lift rotate unit	160	160	90	90	3842525849
HD 2 lift rotate unit	160	160	180	90	3842525850
HD 2 lift rotate unit	160	240	180	40	3842525851
HD 2 lift rotate unit	160	240	180	90	3842525852
HD 2 lift rotate unit	160	320	180	40	3842525853
HD 2 lift rotate unit	160	320	180	90	3842525854
HD 2 lift rotate unit	240	160	180	40	3842525855
HD 2 lift rotate unit	240	160	180	90	3842525856
HD 2 lift rotate unit	240	240	90	40	3842525857
HD 2 lift rotate unit	240	240	180	40	3842525858
HD 2 lift rotate unit	240	240	90	90	3842525859
HD 2 lift rotate unit	240	240	180	90	3842525860
HD 2 lift rotate unit	240	320	180	40	3842525861
HD 2 lift rotate unit	240	320	180	90	3842525862
HD 2 lift rotate unit	320	160	180	40	3842525863
HD 2 lift rotate unit	320	160	180	90	3842525864
HD 2 lift rotate unit	320	240	180	40	3842525865
HD 2 lift rotate unit	320	240	180	90	3842525866
HD 2 lift rotate unit	320	320	90	40	3842525867
HD 2 lift rotate unit	320	320	180	40	3842525868
HD 2 lift rotate unit	320	320	90	90	3842525869
HD 2 lift rotate unit	320	320	180	90	3842525870

7

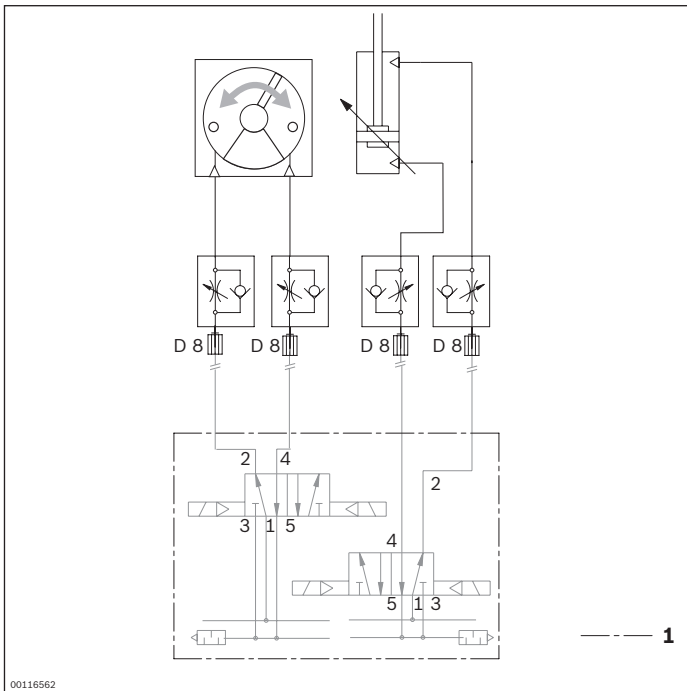
Technical data

Material number	3842525847	3842525853	3842525859	3842525865
	3842525848	3842525854	3842525860	3842525866
	3842525849	3842525855	3842525861	3842525867
	3842525850	3842525856	3842525862	3842525868
	3842525851	3842525857	3842525863	3842525869
	3842525852	3842525858	3842525864	3842525870
Load				
Max. total workpiece pallet weight	m _G	kg		16
Features				
ESD				Yes
Additional information				
WT lift above conveying level				40; 90

Dimensions

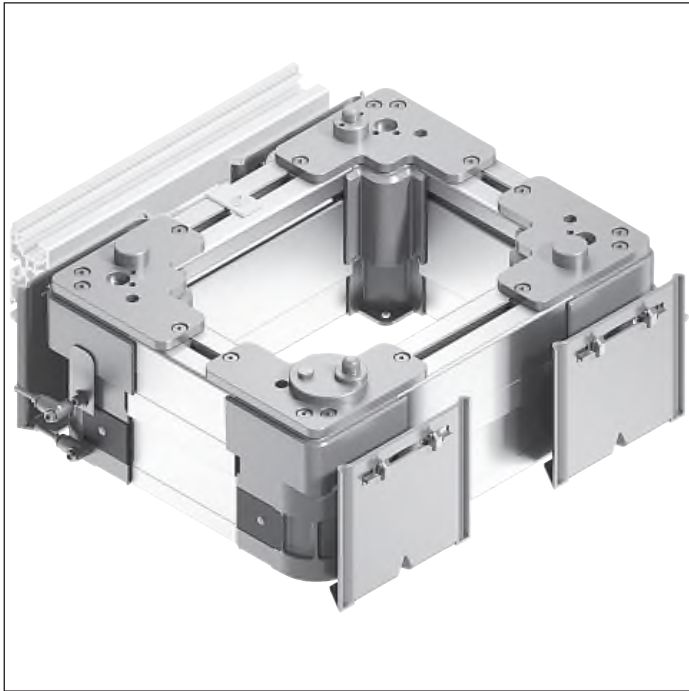
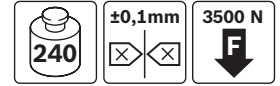


Circuit diagrams



1 Not included in delivery

PE 2/H positioning unit



- ▶ For positioning a workpiece pallet in a manual/ automatic processing station
- ▶ Positioning accuracy up to ± 0.1 mm when assembled on a separate machine frame
- ▶ WT lift above transportation level, approx. 16 mm
- ▶ Positioning via the PE 2 positioning pins and the positioning bushings on the WT 2 workpiece pallet
- ▶ Mounting holes on lift frame as an optional fastening point for a separate machine frame
- ▶ Permissible vertical process forces: 3500 N, incl. WT 2
- ▶ Can be combined with all WT 2/H and WT 2/F-H workpiece pallets

Accessories

Required accessories

- ▶ VE 2/D100-H stop gate, see p. 8-33 or
VE 2/D250-H stop gate, see p. 8-37

Delivery notes

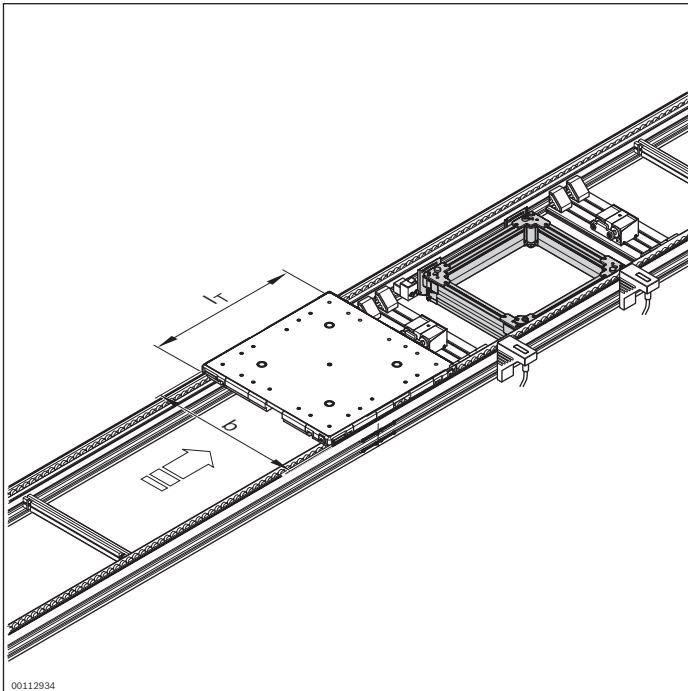
Scope of delivery

- ▶ Incl. fastening material
- ▶ Pneumatic elements

Condition on delivery

- ▶ Fully assembled

Ordering information



Material number		3842999000
b (mm)	Track width in direction of transport	480; 640; 800; 1040; 1200 480 ... 1200 ¹
l _T (mm)	Length in direction of transport	480; 640; 800; 1040; 1200 480 ... 1200 ¹
w x l _d (mm x mm)	Combination options	480 ... 1200 x 480 ... 1200

¹ Individual width variants available

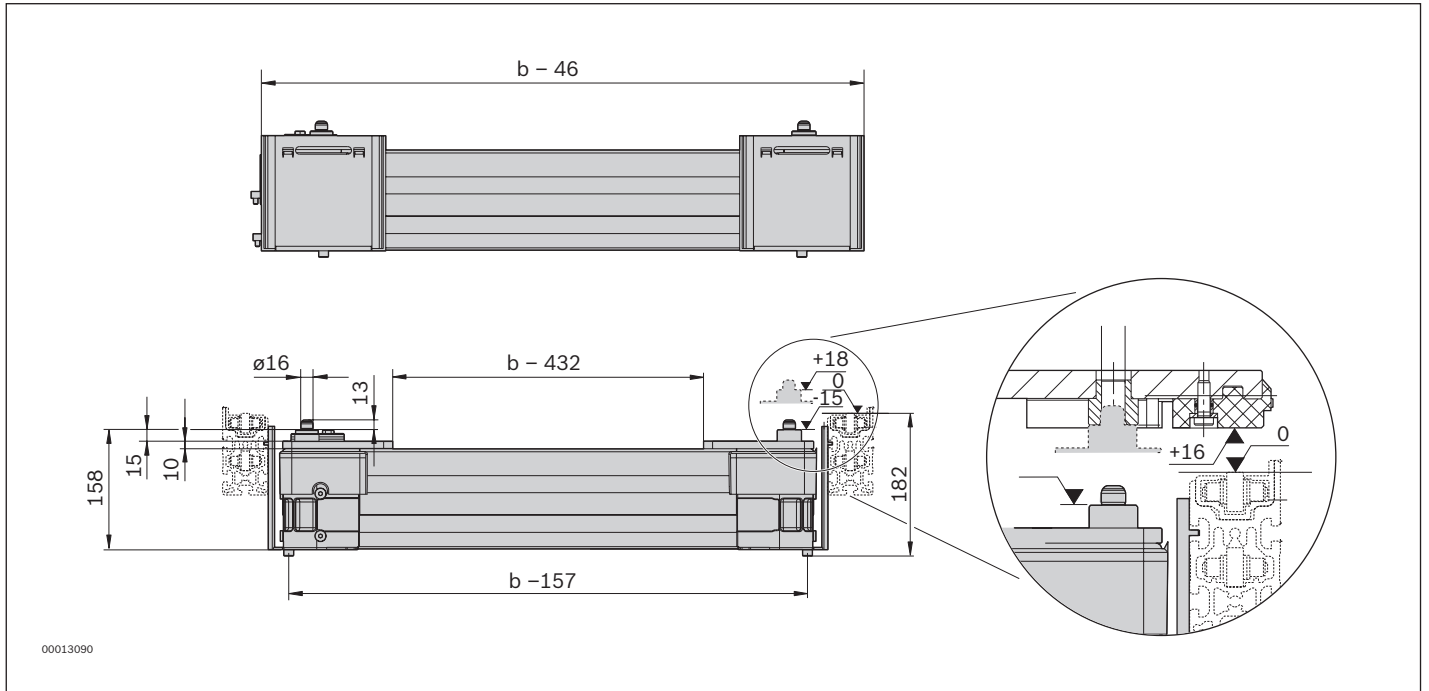
Technical data

Material number		3842999000	
Load			
Max. total workpiece pallet weight	m _G	kg	240
Features			
ESD			Yes
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	d	mm	8
WT lift above conveying level		mm	16
Repeat accuracy ¹		mm	±0.1
Permissible vertical process forces ²		N	3500

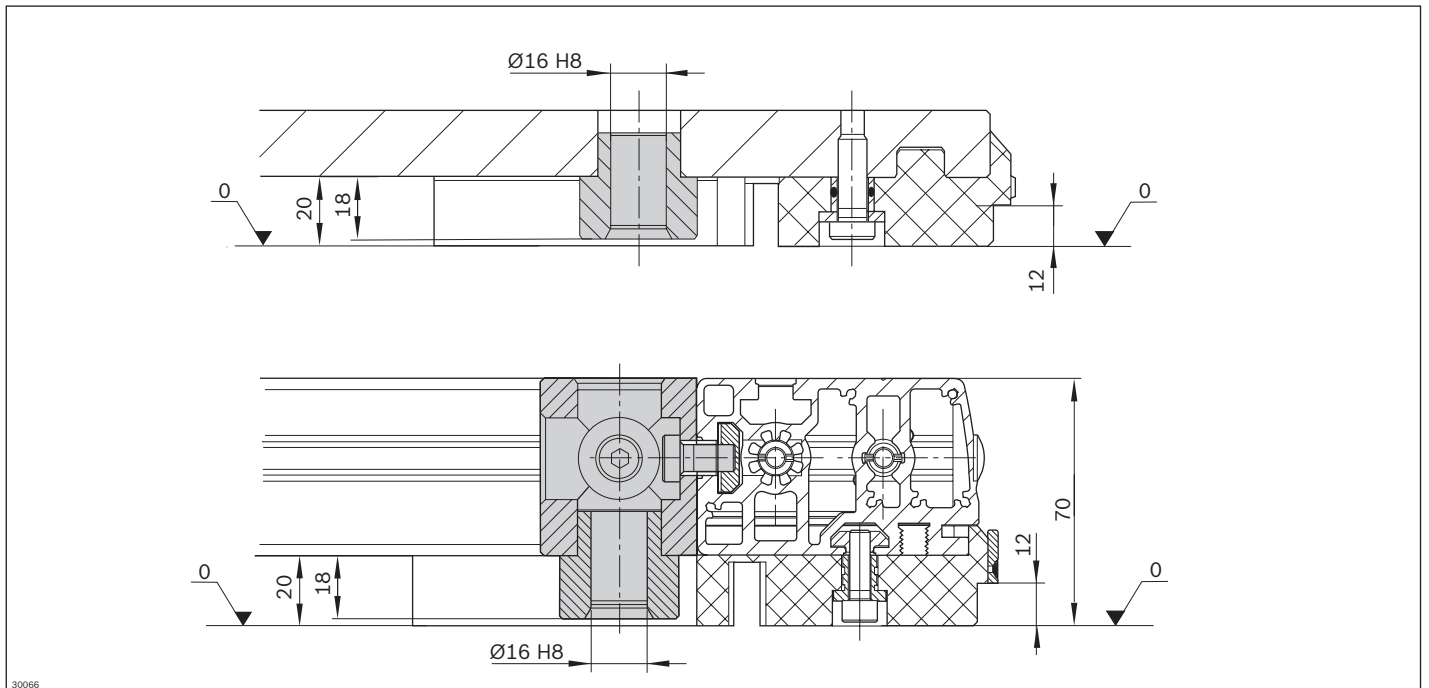
¹ When assembled on a separate machine frame

² Incl. WT 2

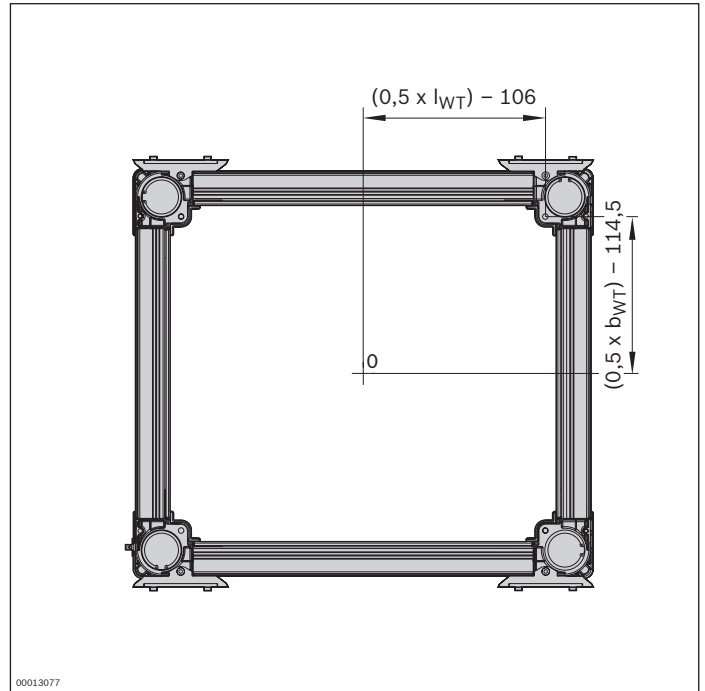
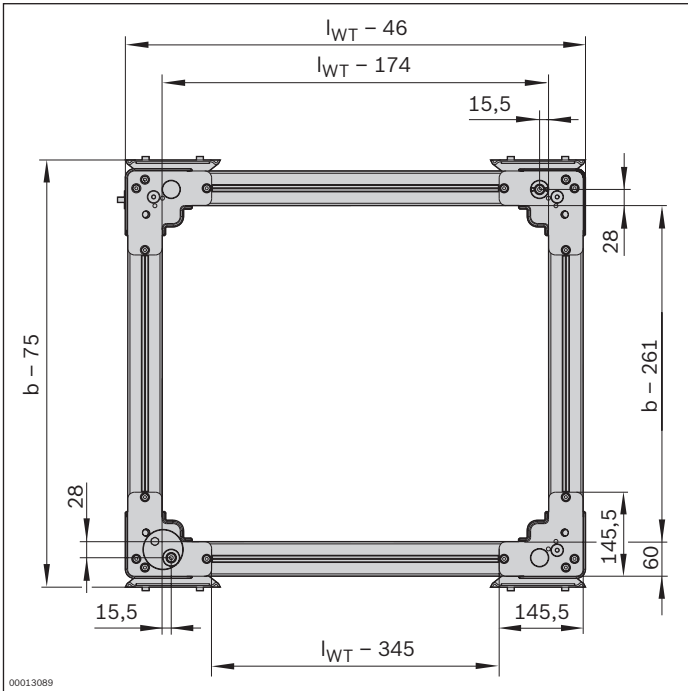
Dimensions



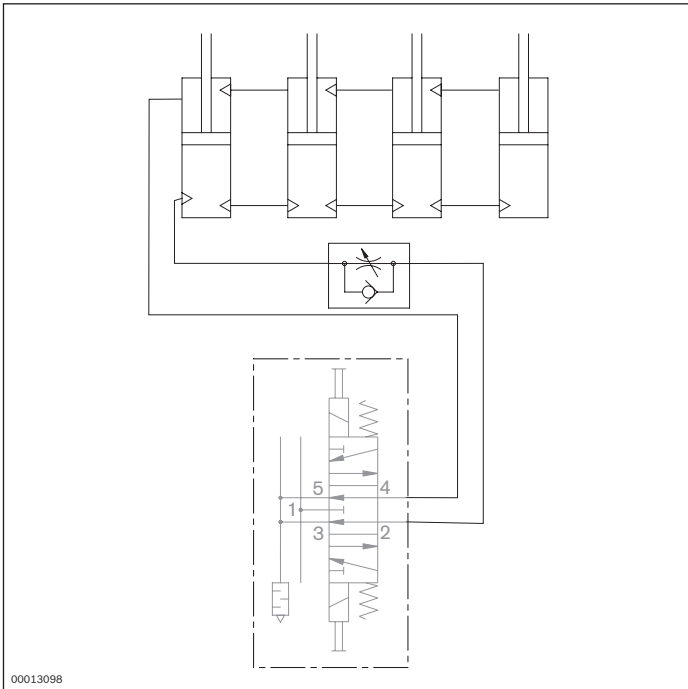
0 Transport level



Dimensions

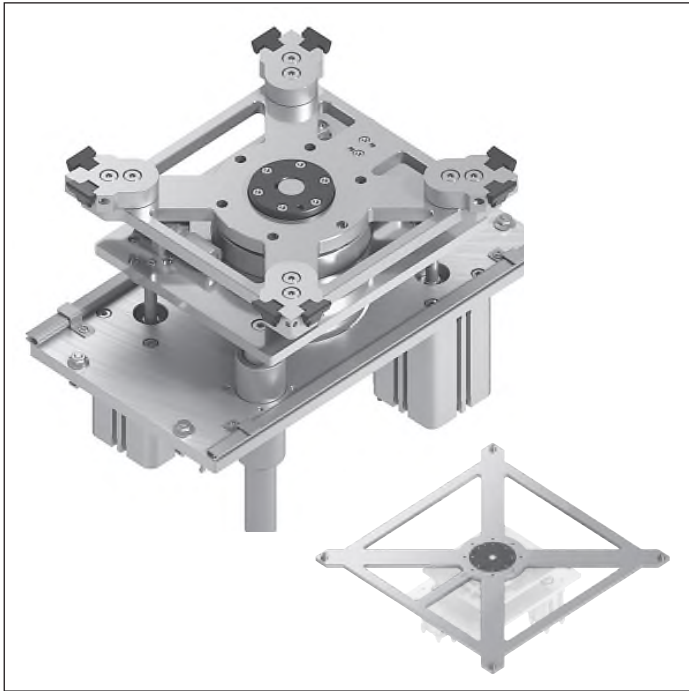


Circuit diagrams



1 Not included in delivery

HD 2/H lift rotate unit



- ▶ WT lift above transportation level, approx. 50 mm
- ▶ Available in 3 sizes (BG) for WT total weights up to 240 kg
 - BG 1 and BG 2 for use with WT 2 and WT 2/F workpiece pallets
 - BG 3 for use with WT 2/H and WT 2/F-H workpiece pallets
- ▶ Rotation 90° or 180°
 - For rotating quadratic workpiece pallets 90° or 180°
 - For rotating non-quadratic workpiece pallets 180°
 - For BG 1 and BG 2 at a 90° rotation, the reverse rotation occurs below the belt. Reduced cycle times by means of reverse rotation during workpiece pallet change
 - For BG 3 at a 90° rotation, the reverse rotation occurs below the belt
- Center position only with BG 1 and BG 2 in 90° version

The HD 2/H lift rotate unit turns workpiece pallets to the required orientation.

Accessories

Required accessories

- ▶ Housing element, see p. 7-67
- ▶ Leg sets for BG 2 over 50 kg, see p. 6-24
- ▶ Leg sets for BG 3 generally, see p. 6-24
- ▶ Cylinder switch (0830100433) for the top/center/bottom lift positions, see p. 7-61
- ▶ Sensor for rotary movement at 0°/180° or 0°/90°, see p. 7-61

Delivery notes

Scope of delivery

- ▶ 2x damper for end rotary movement positions
- ▶ Incl. fastening material for assembly on conveyor sections
- ▶ Pneumatic elements such as fittings, throttle non-return valves, etc. for the top/center/bottom lift positions

Recommended accessories

- ▶ VE 2 stop gate, see p. 8-6, or VE 2/D stop gate, see p. 8-24, for damped stopping of a workpiece pallet
- ▶ Recommended accessories for BG3: VE 2/D-100 or VE 2/D-250 stop gate

Condition on delivery

- ▶ Fully assembled

Ordering information

Product designation	Size BG	Max. total workpiece pallet weight m_c (kg)	Width b_{WT} (mm)	Length l_T (mm)	Angle of rotation DW^3 (°)	Installation location AO^4	Material number
HD 2/H lift rotate unit	BG 1 ¹	50	240	240; 320; 400	90; 180	0; 1	3842998760
			320	240; 320; 400; 480	90; 180	0; 1	3842998760
			400	320	180	0; 1	3842998760
HD 2/H lift rotate unit	BG 2 ¹	128	400	400; 480	90; 180	0; 1	3842998761
			480	400; 480; 640; 800	90; 180	0; 1	3842998761
			640	480; 640; 800; 1040	90; 180	0; 1	3842998761
			800	640	180	0; 1	3842998761
HD 2/H lift rotate unit	BG 3 ²	240	800	800; 1040	90; 180	0; 1	3842998762
			1040	800; 1040; 1200	90; 180	0; 1	3842998762
			1200	1200	90; 180	0; 1	3842998762

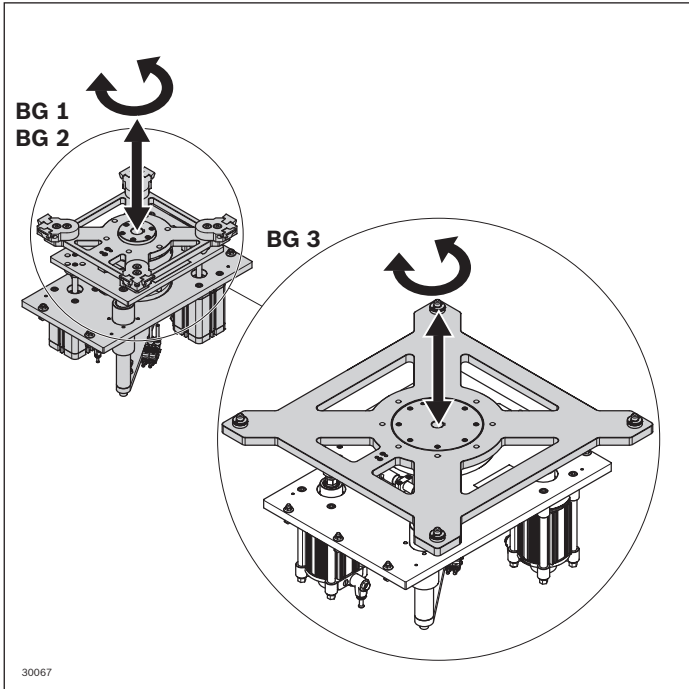
- 1 For use with WT 2 and WT 2/F-H workpiece pallets only
 2 For use with WT 2/H and WT 2/F-H workpiece pallets only
 3 Only possible for $DW = 90^\circ$ quadratic workpiece pallets
 4 Installation location: 0 = 80 mm and 1 = 100 mm

Ordering information

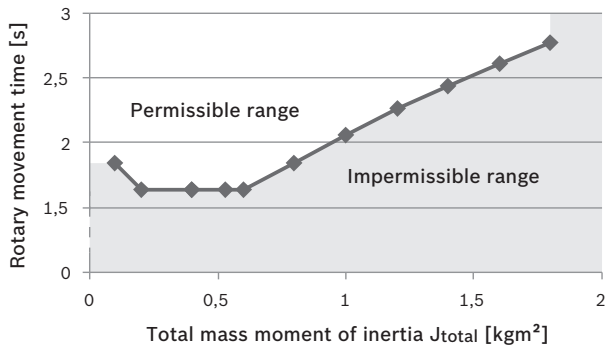
Product designation	Material number
Cylinder switch for top/center/bottom position sensing ST6-PN-M12R-030 sensor	0830100433
Product designation	Material number
Sensor, short, for rotary movement end position sensing IEC/EN 60947-5-2:-2004	3842549811

Technical data

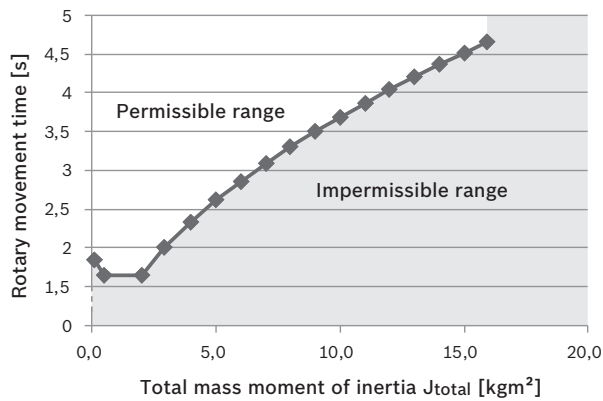
Material number	3842998760	3842998761	3842998762
Additional information			
WT lift above conveying level	50	50	50



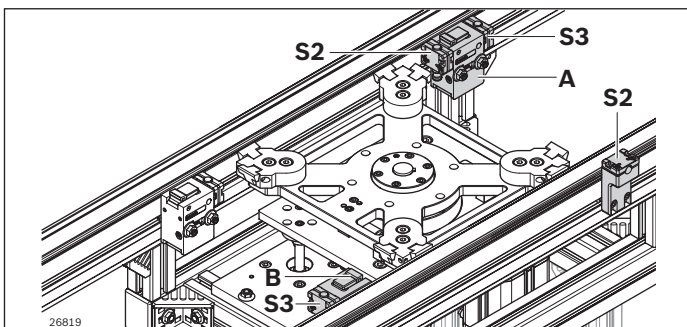
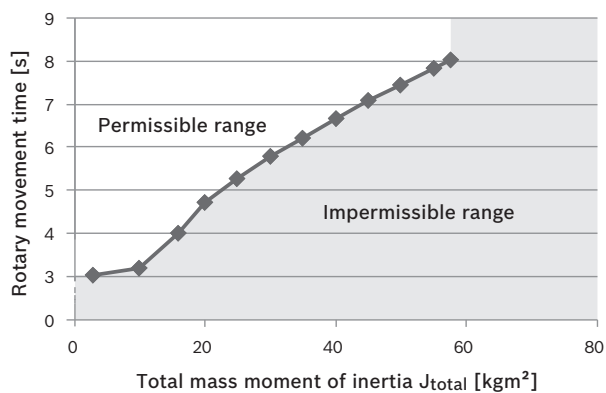
Size 1



Size 2



Size 3



Operating limits of the HD 2/H lift rotate unit

Mass moment of inertia

Note:

In the arrangement of supports and workpieces on the WT (= workpiece carrier) it must be ensured that the center of gravity of the loaded WT is within $\frac{1}{3}$ of the length/width of the WT around the center of the WT.

It must also be ensured that the loading center of gravity at height h_s does not exceed $\frac{1}{2} b_{WT}$ (with $b_{WT} \leq l_{WT}$).

Size 1: HD 2/H lift rotate unit, 3842998760

Mass max. 50 kg; mass moment of inertia max. 1.8 kg/m²

Size 2: HD 2/H lift rotate unit, 3842998761

Mass max. 128 kg; mass moment of inertia max. 15.9 kg/m²

Size 3: HD 2/H lift rotate unit, 3842998762

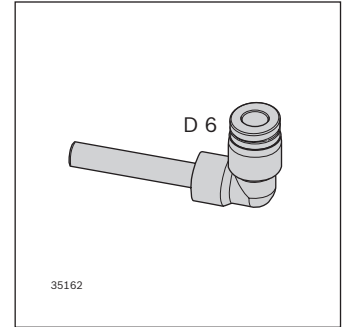
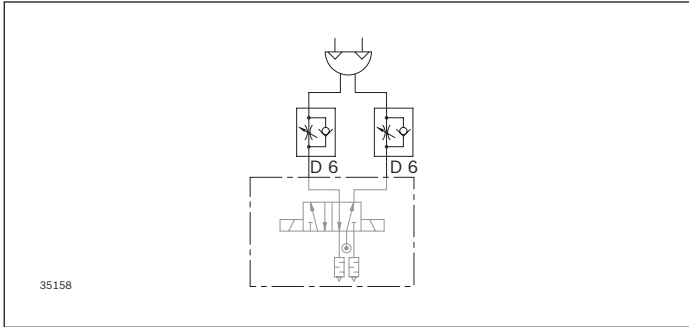
Mass max. 240 kg; mass moment of inertia max. 57.6 kg/m²

Additional operating limits

- Switch bracket mounting at $b_{WT} \times l_{WT}$ 240 mm x 240 mm is only possible from outside => see S2
- Reversible operation possible from $b_{WT} \times l_{WT}$ 320 mm x 320 mm => see A and B

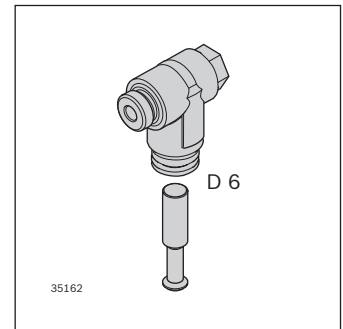
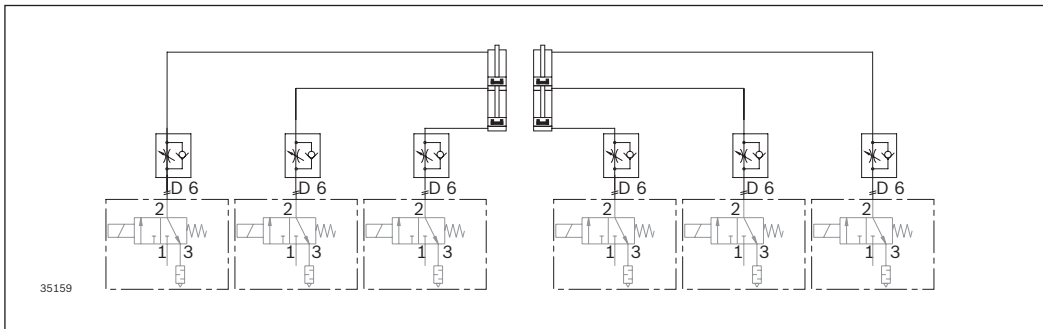
Pneumatic diagram of the HD 2/H lift rotate unit:

Rotating cylinder for Size 1/2/3, rotation angle 90° and 180°



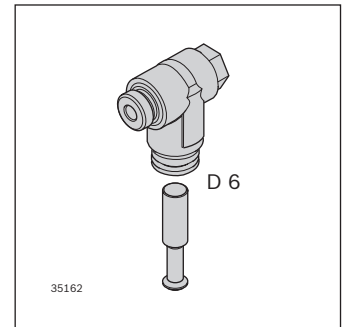
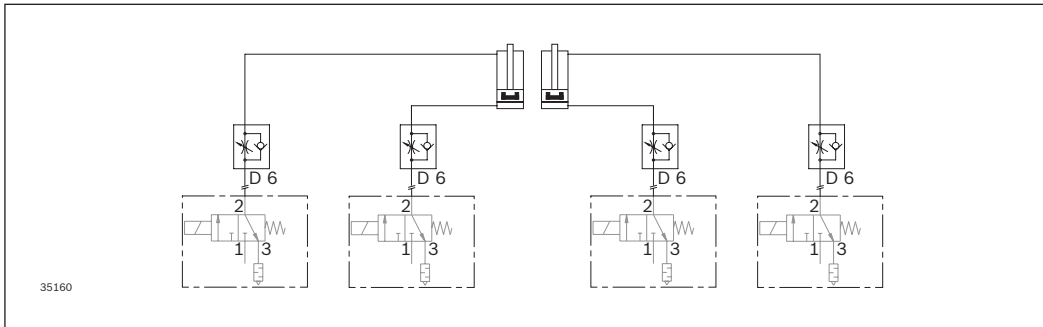
Pneumatic diagram of the HD 2/H lift rotate unit:

Lifting cylinder for Size 1/2, rotation angle 90° (multiple position cylinder)



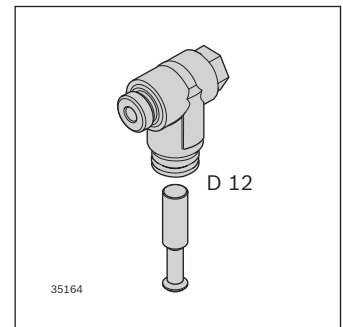
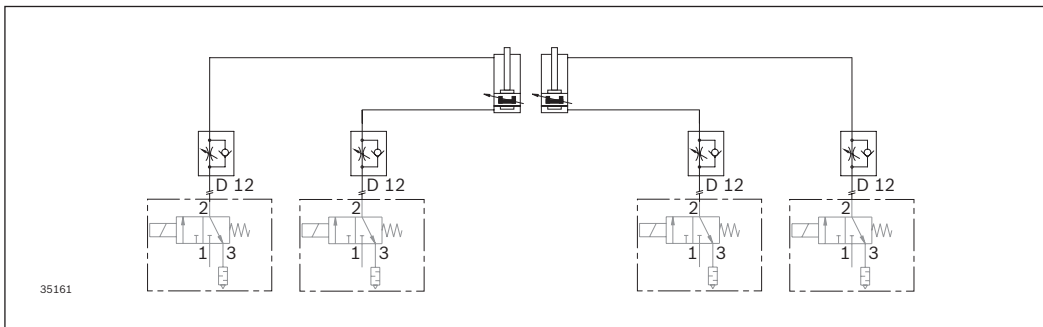
Pneumatic diagram of the HD 2/H lift rotate unit:

Lifting cylinder for Size 1/2, rotation angle 180°

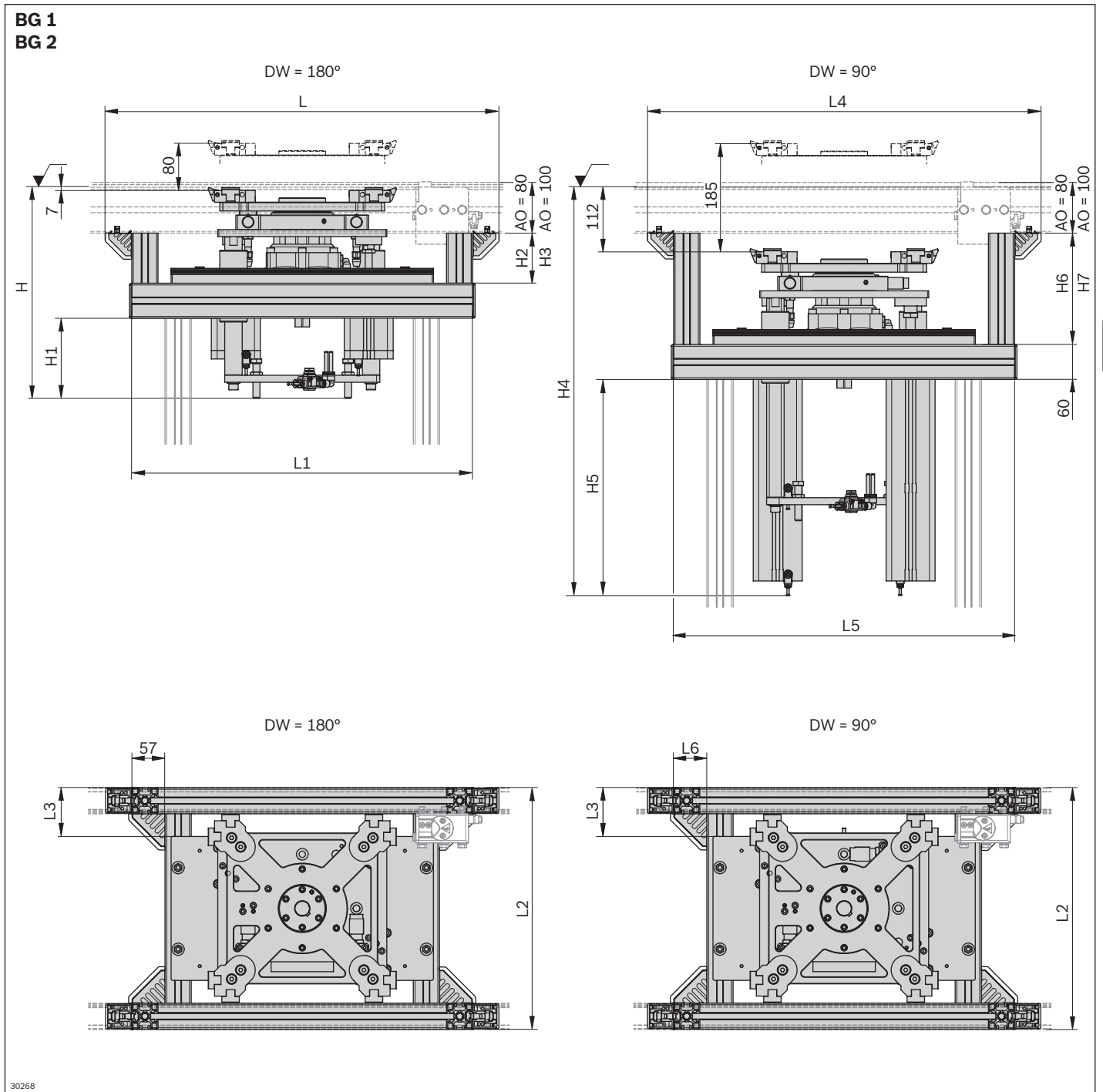


Pneumatic diagram of the HD 2/H lift rotate unit:

Lifting cylinder for Size 3, rotation angle 90° and 180°



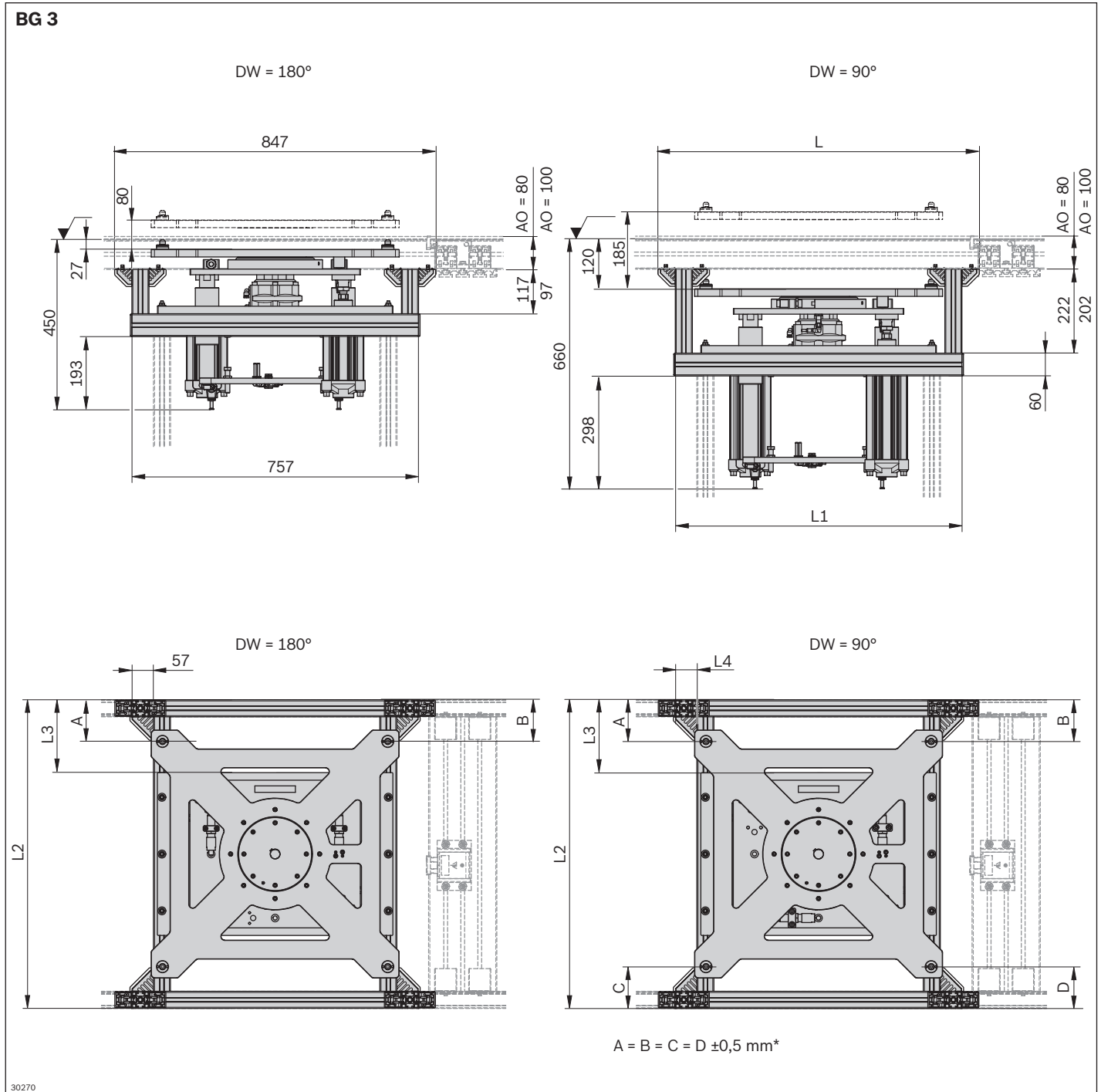
Dimensions for BG 1 (3842998760)/BG 2 (3842998761)



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BG	Width b_{WT} (mm)	H (mm)	H1 (mm)	H2 (mm)	H3 (mm)	H4 (mm)	H5 (mm)	H6 (mm)	H7 (mm)	L (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	L6 (mm)
BG 1	240	336.4	120.4	76	56	672.2	351.2	181	161	597	507	255	47.5	597	507	57
BG 1	320	336.4	120.4	76	56	672.2	351.2	181	161	597	507	335	87.5	597	507	57
BG 1	400	336.4	120.4	76	56	672.2	351.2	181	161	597	507	415	127.5	597	507	57
BG 2	400	363.5	137.5	86	66	701.9	370.9	191	171	675	585	415	84.0	675	585	57
BG 2	480	363.5	137.5	86	66	701.9	370.9	191	171	675	585	495	124.0	675	585	57
BG 2	640	363.5	137.5	86	66	701.9	370.9	191	171	675	585	655	204.0	725	635	82
BG 2	800	363.5	137.5	86	66	701.9	370.9	191	171	675	585	815	284	725	635	82

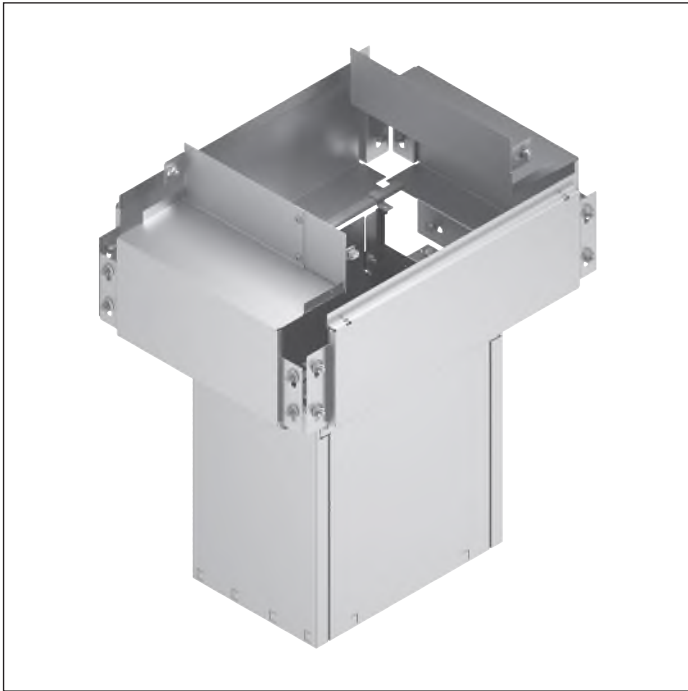
Dimensions for BG 3 (3842998762)



*Rotation angle setting

BG	Width b_{WT} (mm)	L (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)
BG 3	800	847	757	815	192.5	57.0
BG 3	1040	1040	950	1055	312.5	153.5
BG 3	1200	1190	1100	1215	392.5	228.5

HD 2/H housing element

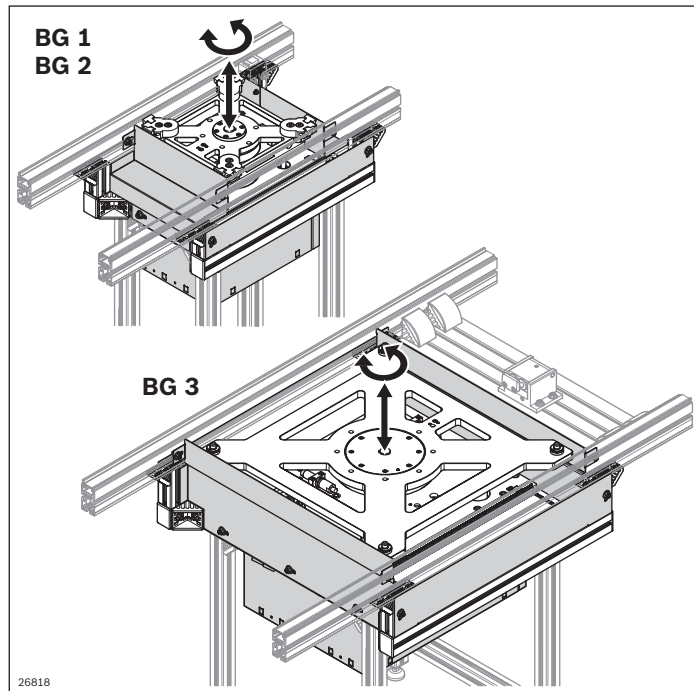


- ▶ For the safety of the unit and to protect against interference from outside below the conveying level
- ▶ Protection above the conveying level must be configured individually for each application

Ordering information

BG	Width b_{WT} (mm)	Length l_{WT} (mm)	Rotation angle DW (°)	Material number
BG 1	240	240	90	3842552593
BG 1	240	240	180	3842552601
BG 1	240	320	180	3842552602
BG 1	240	400	180	3842552603
BG 1	320	240	180	3842552604
BG 1	320	320	90	3842552594
BG 1	320	320	180	3842552605
BG 1	320	400	180	3842552606
BG 1	320	480	180	3842552607
BG 1	400	320	180	3842552609
BG 2	400	400	90	3842552595
BG 2	400	400	180	3842552611
BG 2	400	480	180	3842552612
BG 2	480	400	180	3842552613
BG 2	480	480	90	3842552596
BG 2	480	480	180	3842552614
BG 2	480	640	180	3842552615
BG 2	480	800	180	3842552616
BG 2	640	480	180	3842552617
BG 2	640	640	90	3842552597
BG 2	640	640	180	3842552618

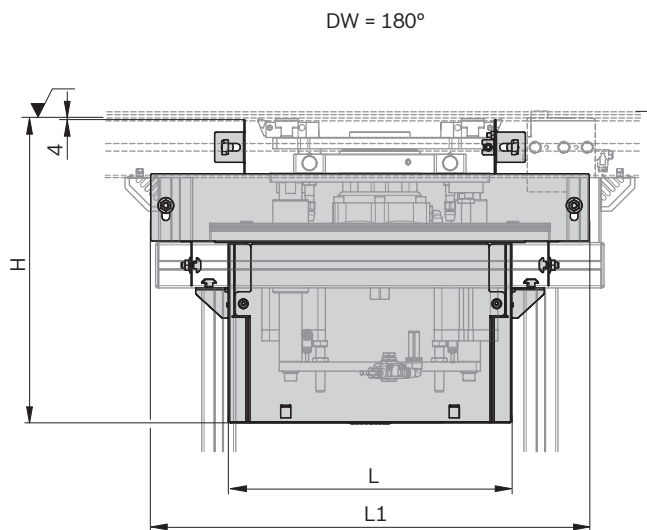
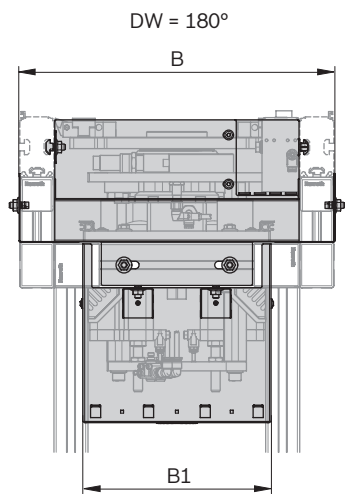
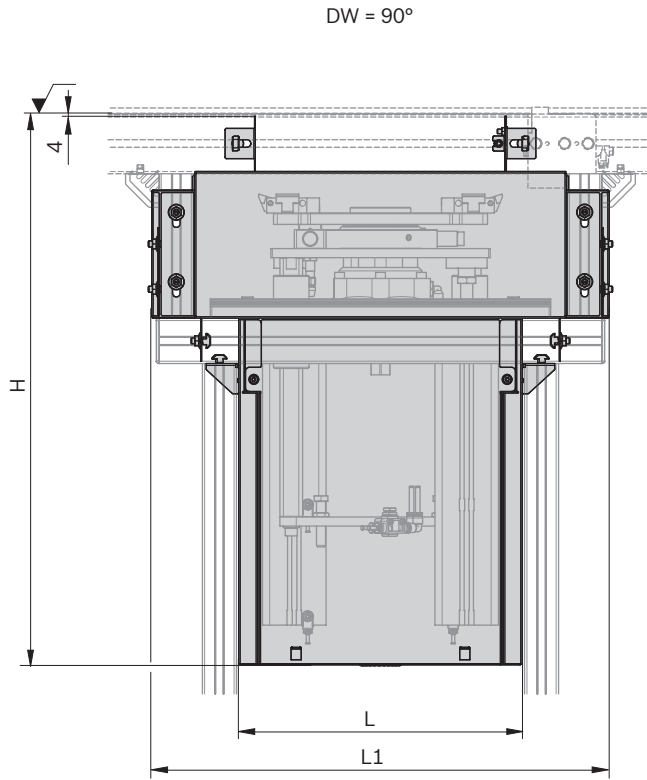
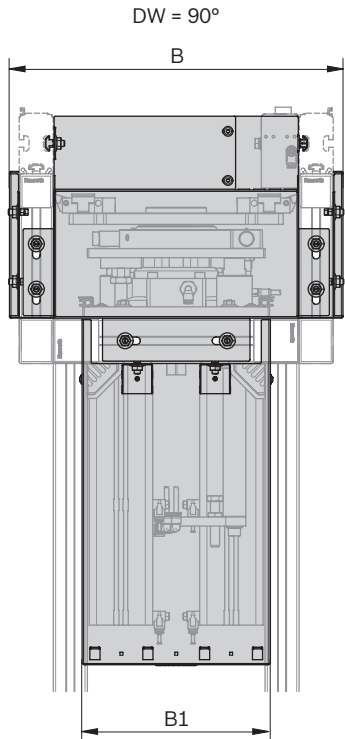
BG	Width b_{WT} (mm)	Length l_{WT} (mm)	Rotation angle DW (°)	Material number
BG 2	640	800	180	3842552619
BG 2	640	1040	180	3842552620
BG 2	800	640	180	3842552622
BG 3	800	800	90	3842552598
BG 3	800	800	180	3842552624
BG 3	800	1040	180	3842552625
BG 3	1040	800	180	3842552626
BG 3	1040	1040	90	3842552599
BG 3	1040	1040	180	3842552627
BG 3	1040	1200	180	3842552628
BG 3	1200	1200	90	3842552600
BG 3	1200	1200	180	3842552630



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Housing element dimensions for BG 1 and BG 2

BG 1
BG 2



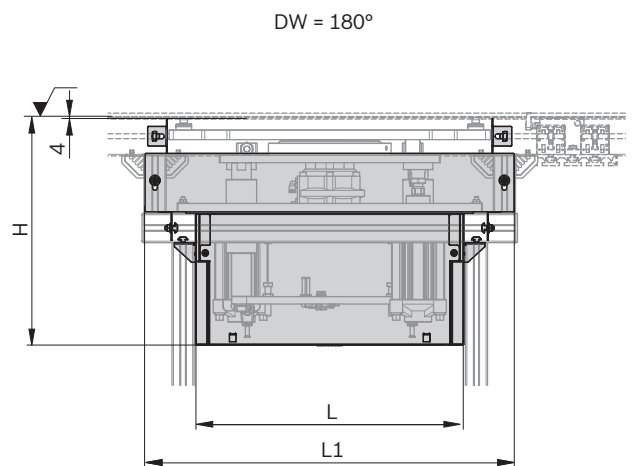
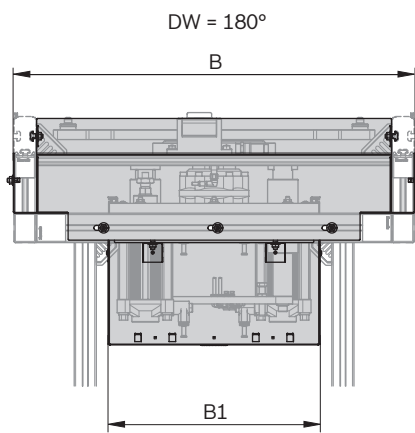
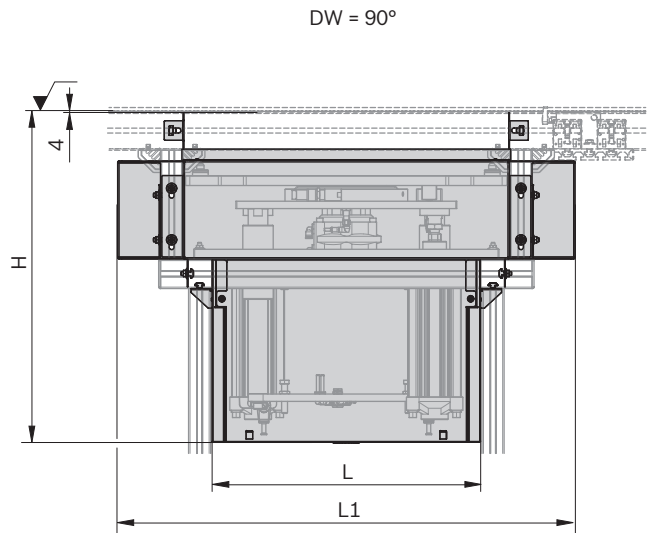
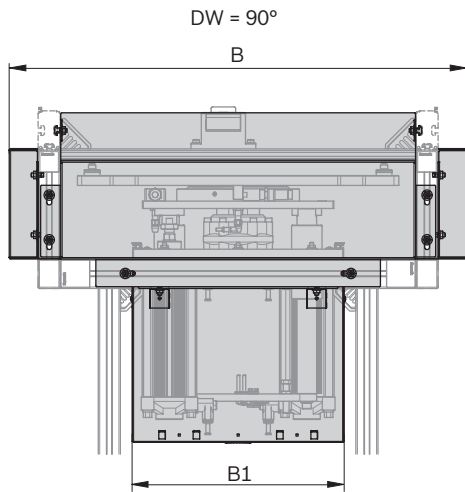
30269

7-70 **TS 2plus 7.0** | Positioning and orientation
 HD 2/H housing element

BG	Width b_{WT} (mm)	Length l_{WT} (mm)	Rotation angle DW (°)	H (mm)	L (mm)	L1 (mm)	B (mm)	B1 (mm)	Material number
BG 1	240	240	90	699.5	297	509	257.2	157	3842552593
BG 1	240	240	180	371.5	297	423	257.2	157	3842552601
BG 1	240	320	180	371.5	297	423	257.2	157	3842552602
BG 1	240	400	180	371.5	297	423	257.2	157	3842552603
BG 1	320	240	180	371.5	297	423	337.2	162	3842552604
BG 1	320	320	90	699.5	297	509	337.2	162	3842552594
BG 1	320	320	180	371.5	297	423	337.2	162	3842552605
BG 1	320	400	180	371.5	297	423	337.2	162	3842552606
BG 1	320	480	180	371.5	297	495	337.2	162	3842552607
BG 1	400	320	180	371.5	297	423	417.2	162	3842552609
BG 2	400	400	90	729.5	375	605	441.0	249	3842552595
BG 2	400	400	180	404.5	375	501	417.2	249	3842552611
BG 2	400	480	180	404.5	375	501	417.2	249	3842552612
BG 2	480	400	180	404.5	375	501	497.2	249	3842552613
BG 2	480	480	90	729.5	375	605	553.0	249	3842552596
BG 2	480	480	180	404.5	375	501	497.2	249	3842552614
BG 2	480	640	180	404.5	375	651	497.2	249	3842552615
BG 2	480	800	180	404.5	375	811	497.2	249	3842552616
BG 2	640	480	180	404.5	375	501	657.2	249	3842552617
BG 2	640	640	90	729.5	375	779	779.0	249	3842552597
BG 2	640	640	180	404.5	375	651	657.2	249	3842552618
BG 2	640	800	180	404.5	375	811	657.2	249	3842552619
BG 2	640	1040	180	404.5	375	1051	657.2	249	3842552620
BG 2	800	640	180	404.5	375	651	817.2	249	3842552622

Housing element dimensions for BG 3

BG 3

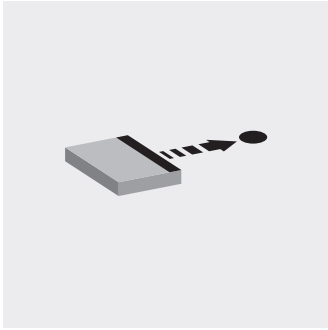


30271

7

7-72 **TS 2plus 7.0** | Positioning and orientation
 HD 2/H housing element

BG	Width b_{WT} (mm)	Length l_{WT} (mm)	Rotation angle DW (°)	H (mm)	L (mm)	L1 (mm)	B (mm)	B1 (mm)	Material number
BG 3	800	800	90	675.5	547	932	933.0	432	3842552598
BG 3	800	800	180	465.5	547	742	818.0	432	3842552624
BG 3	800	1040	180	465.5	547	982	818.0	432	3842552625
BG 3	1040	800	180	465.5	547	742	1058.0	432	3842552626
BG 3	1040	1040	90	675.5	547	1271	1271.0	432	3842552599
BG 3	1040	1040	180	465.5	547	982	1058.0	432	3842552627
BG 3	1040	1200	180	465.5	547	1142	1058.0	432	3842552628
BG 3	1200	1200	90	675.5	547	1497	1497.0	432	3842552600
BG 3	1200	1200	180	465.5	547	1142	1218.0	432	3842552630

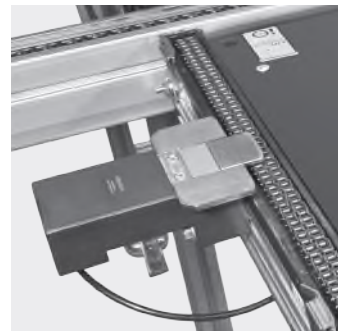
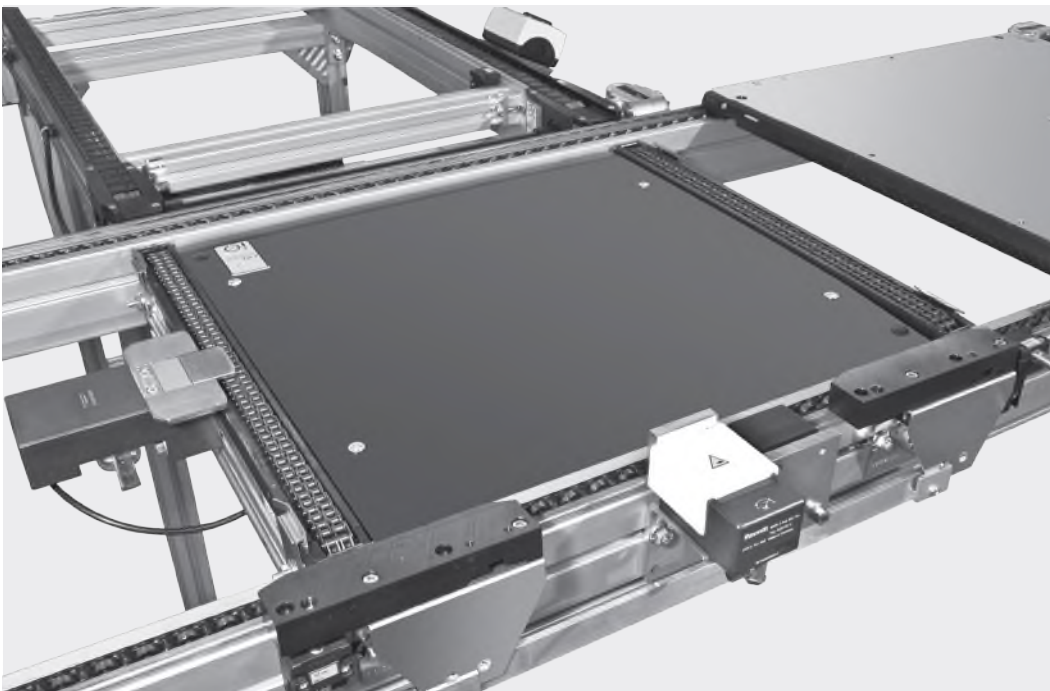


Transportation control

Transportation control selection

8-2

8



Transportation control selection

The modular units for transportation control are used to control the flow of the workpiece pallets on the transfer system. This involves stopping and separating pallets, inquiring the position of workpiece pallets, controlling all function processes, etc.

When WT 2/E, WT 2 and WT 2/F workpiece pallets are used, the VE 2/... stop gates are mounted directly on the section for lateral separation.

When WT 2/H and WT 2/F-H are used, the VE 2/D...-H stop gates are mounted by a cross strut for central separation.

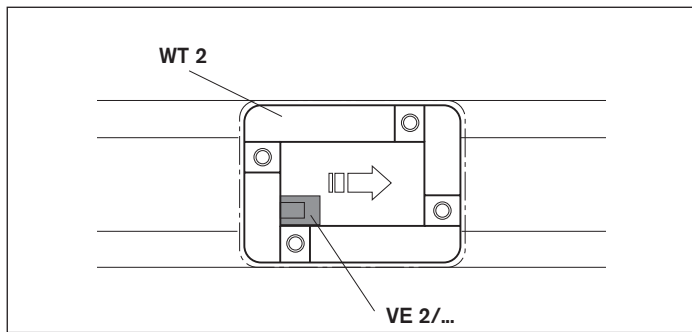
All VE 2/... (without VE 2/...-H) can be used for lateral separation.

All VE 2/D...-H can be used for central separation.

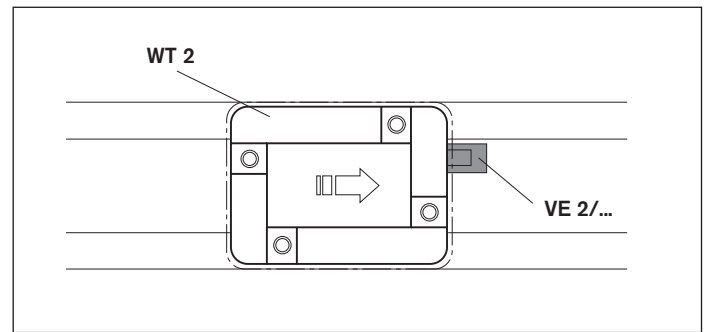
Depending on the application and available space, stop gates may be mounted inside or outside the workpiece pallet.

WT 2 workpiece pallet with lateral separation

Mounting in rear right position in the direction of transport, on the **inside** of the workpiece pallet surface

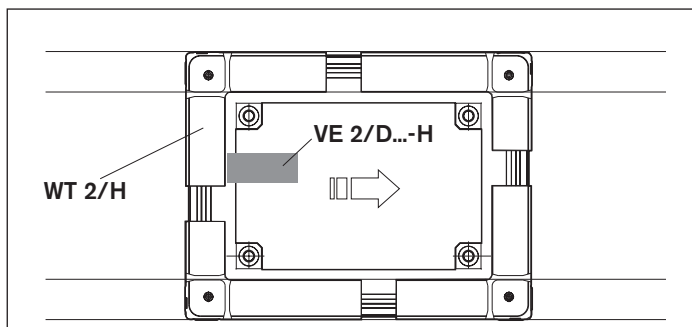


Mounting in front left position in the direction of transport, on the **outside** of the workpiece pallet surface

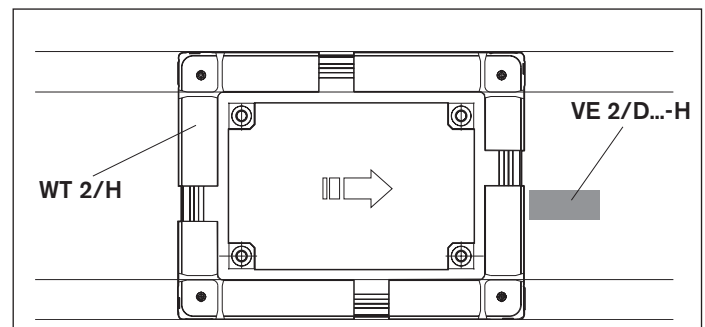


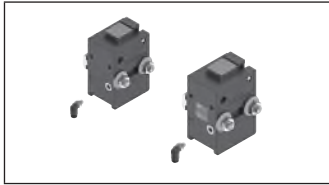
WT 2/H workpiece pallet with central separation

Mounting inside the workpiece pallet surface



Mounting outside the workpiece pallet surface





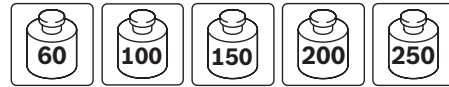
VE 2 stop gates



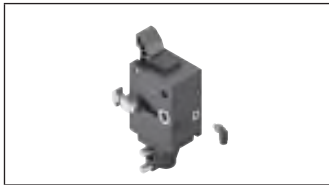
8-4



VE 2/D dampened stop gates



8-24



VA 2 slide stops



8-46



DA 2 dampers



8-60



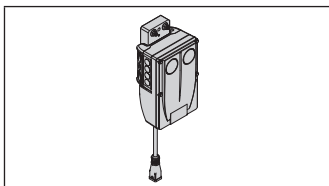
SH 2 switch brackets

8-90



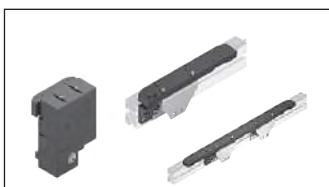
Sensors

8-106



Frequency converters

8-116



WI 2 rockers



8-131

VE 2 stop gate

The VE 2 stop gates are used to stop and separate workpiece pallets, e.g., in an automated station. Actuation is performed pneumatically. In an unpressurized state, the stop gate is held in the blocking position by a spring and thus contributes significantly to production safety.

Stop gates are available with and without integrated shock absorbers.



Depending on the application and available space, stop gates may be mounted inside or outside the workpiece pallet.

Stop gates have mounting areas for sensors, which are used to monitor whether a workpiece pallet is standing at a stop gate or has passed it.

Dampened stop gates are used on conveyors where shock-sensitive and fragile parts are conveyed at speeds of up to 18 m/min.

All versions are designed as pneumatic stop gate with infinitely adjustable damping. This reduces the force of impact by up to 80% compared to an uncushioned stop gate. Dampened stop gates are not suitable for accumulation stop.



Stop gate
VE 2, VE 2/L, VE 2/M



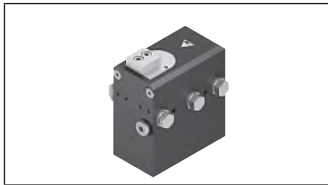
8-6



VE 2/S stop gate



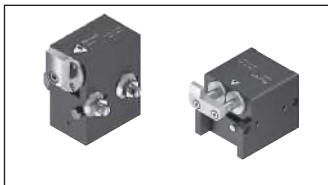
8-15



VE 2/X stop gate



8-21



Stop gate
VE 2/D-60, VE 2/D-175, VE 2/D-200



8-24



Stop gate
VE 2/D100-H, VE 2/D250-H



8-33



Return stops
VE 2/RS, VE 2/RS-H



8-40

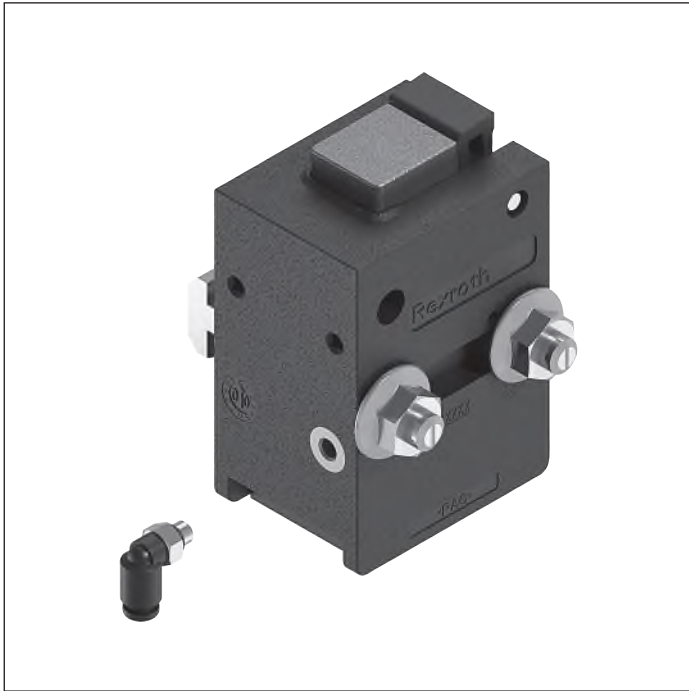


Slide stops
VA 2/50, VA 2/D-130, VA 2/D-250



8-46

VE 2 stop gate



- ▶ Pneumatic stop gate
- ▶ Tilting stop gate; can be opened without causing abrasion on the surface of the workpiece pallet stop surface
- ▶ Reversible operation not permitted
- ▶ Can be combined with WT 2/E, WT 2 and WT 2/F

Stops one or more accumulating workpiece pallets at the defined stop surface of the workpiece pallet. When the pressure is released the stop gate is closed by a spring and

the workpiece pallet is stopped. Mounted inside the tracks, directly on the conveyor section.

Accessories

Recommended accessories

- ▶ VE 2/RS return stop, see p. 8-40
- ▶ SH 2 switch bracket, see p. 8-88
- ▶ Position sensor, see p. 8-18

Delivery notes

Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor section
- ▶ Pneumatic elements

Condition on delivery

- ▶ Fully assembled

Ordering information

Product designation	Material number
VE 2 stop gate	0842900300

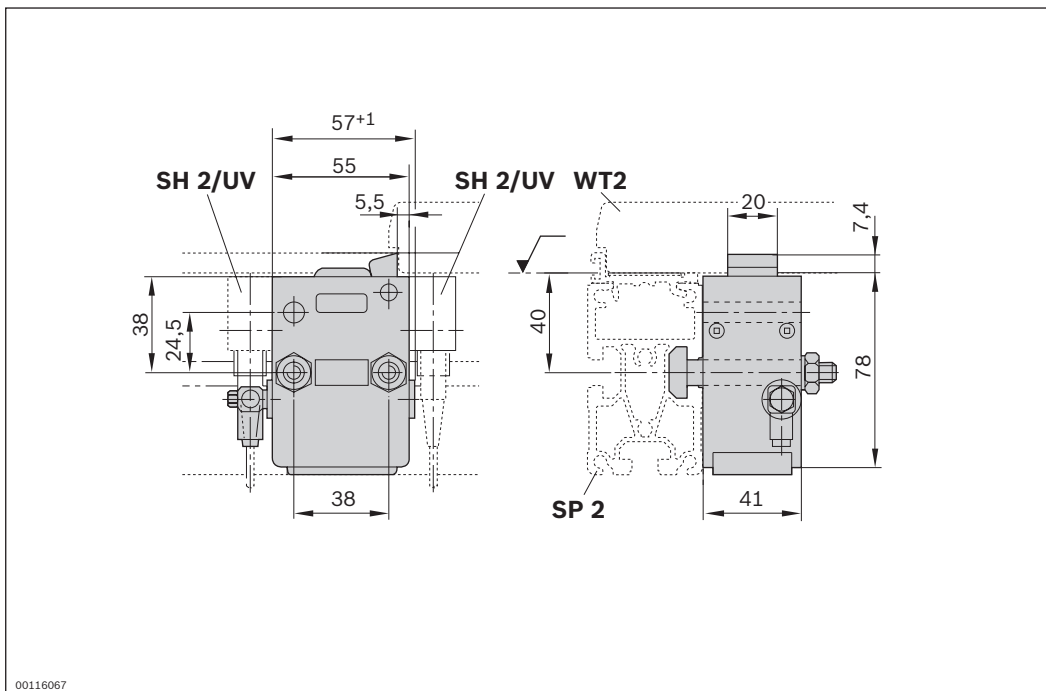
Technical data

Material number		0842900300	
Load			
Max. total weight of workpiece pallet	m_G	kg	200
Features			
Material specification			Housing: PA6 Safety catch: Brass Lug cam: PA66
Operating temperature ¹		°C	0 ... +60
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	d	mm	4

¹ High-temperature stop gate on request

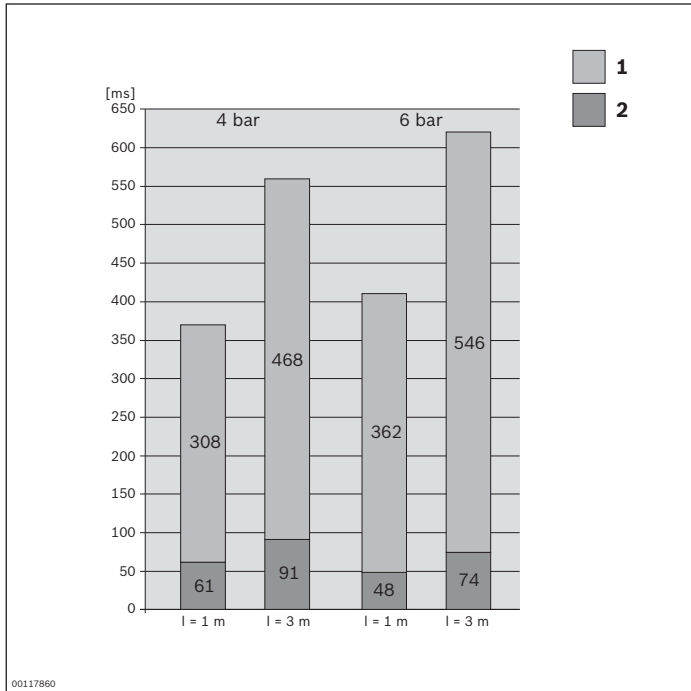
Permitted total weight of workpiece pallet m_G (kg)	Nominal speed v_N (m/min)
200	6
140	9
100	12
70	15
50	18

Dimensions



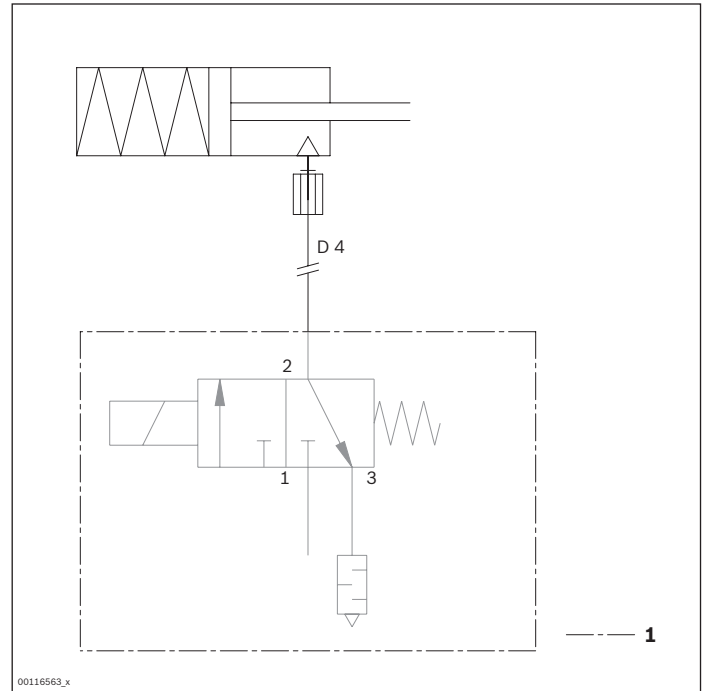
Circuit diagrams

Opening and shutting times



l = Hose length
1 Close
2 Open at 4 bar

Circuit diagram



VE 2/L stop gate



- ▶ Pneumatic stop gate
- ▶ Low-noise; especially quiet operation during opening and closing, therefore especially suitable for manual workstations
- ▶ Tilting stop gate; can be opened without causing abrasion on the surface of the workpiece pallet stop surface
- ▶ Reversible operation not permitted
- ▶ Can be combined with WT 2/E, WT 2 and WT 2/F

8

Stops one or more accumulating workpiece pallets at the defined stop surface of the workpiece pallet. When the pressure is released the stop gate is closed by a spring and

the workpiece pallet is stopped. Mounted inside the tracks, directly on the conveyor section.

Accessories

Recommended accessories

- ▶ VE 2/RS return stop, see p. 8-40
- ▶ SH 2 switch bracket, see p. 8-88
- ▶ Position sensor, see p. 8-18

Delivery notes

Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor section
- ▶ Pneumatic elements

Condition on delivery

- ▶ Fully assembled

Ordering information

Product designation	Material number
VE 2/L stop gate	3842530630

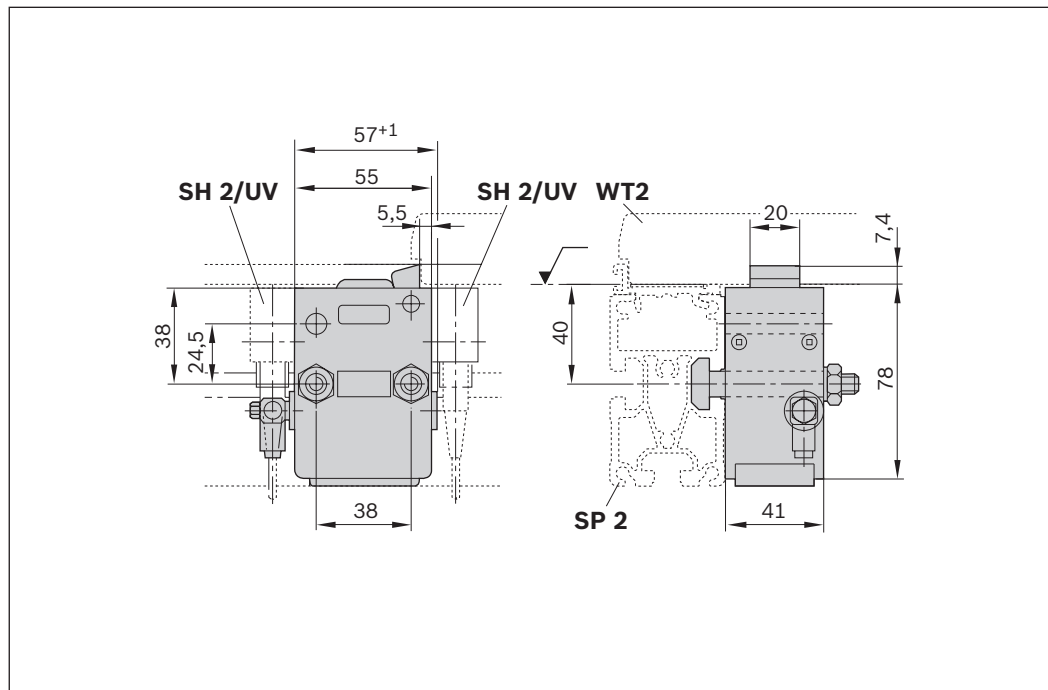
Technical data

Material number		3842530630	
Load			
Max. total workpiece pallet weight	m_G	kg	200
Features			
Material specification			Housing: PA6 Safety catch: Brass Lug cam: PA66
A-rated emission sound pressure level	L_{PA}	dB(A)	<60
Operating temperature ¹			0 ... +60
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	d	mm	4

¹ High-temperature stop gate on request

	Permitted total weight of workpiece pallet		Nominal speed
	m_G (kg)		v_N (m/min)
	200		6
	140		9
	100		12
	70		15
	50		18

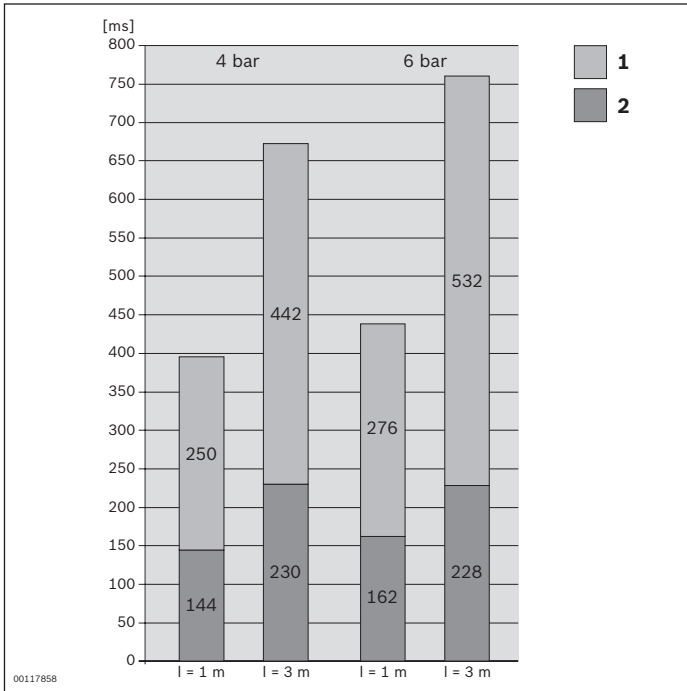
Dimensions



00116067

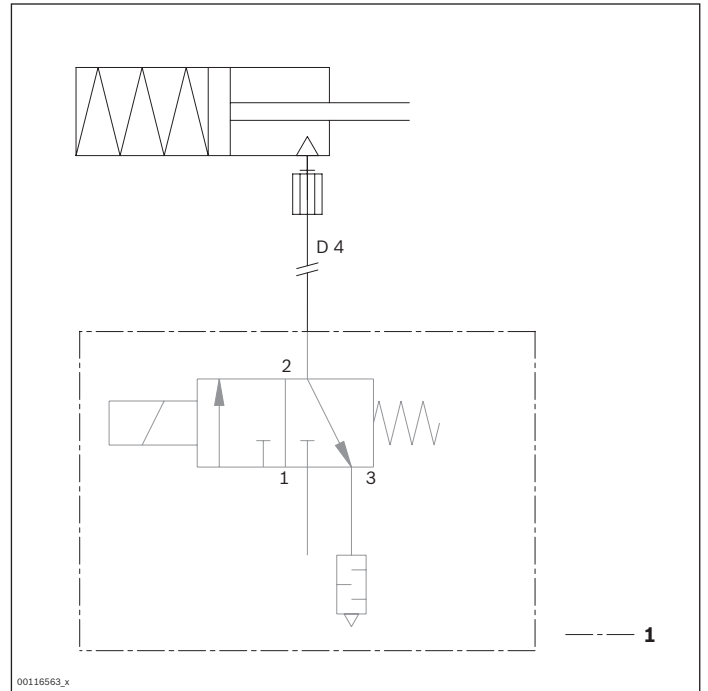
Circuit diagrams

Opening and shutting times



l = Hose length
1 Close
2 Open at 4 bar

Circuit diagram



1 Not included in delivery

VE 2/M stop gate



- ▶ Pneumatic stop gate
- ▶ Media resistant
- ▶ Tilting stop gate; can be opened without causing abrasion on the surface of the workpiece pallet stop surface
- ▶ Low-noise; especially quiet operation during opening and closing
- ▶ Reversible operation not permitted
- ▶ Can be combined with WT 2/E, WT 2 and WT 2/F

Stops one or more accumulating workpiece pallets at the defined stop surface of the workpiece pallet. When the pressure is released the stop gate is closed by a spring and

the workpiece pallet is stopped. Mounted inside the tracks, directly on the conveyor section.

Accessories

Recommended accessories

- ▶ VE 2/RS return stop, see p. 8-40
- ▶ SH 2 switch bracket, see p. 8-88
- ▶ Position sensor, see p. 8-18

Delivery notes

Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor section
- ▶ Pneumatic elements

Condition on delivery

- ▶ Fully assembled

Ordering information

Product designation	Material number
VE 2/M stop gate	3842531610

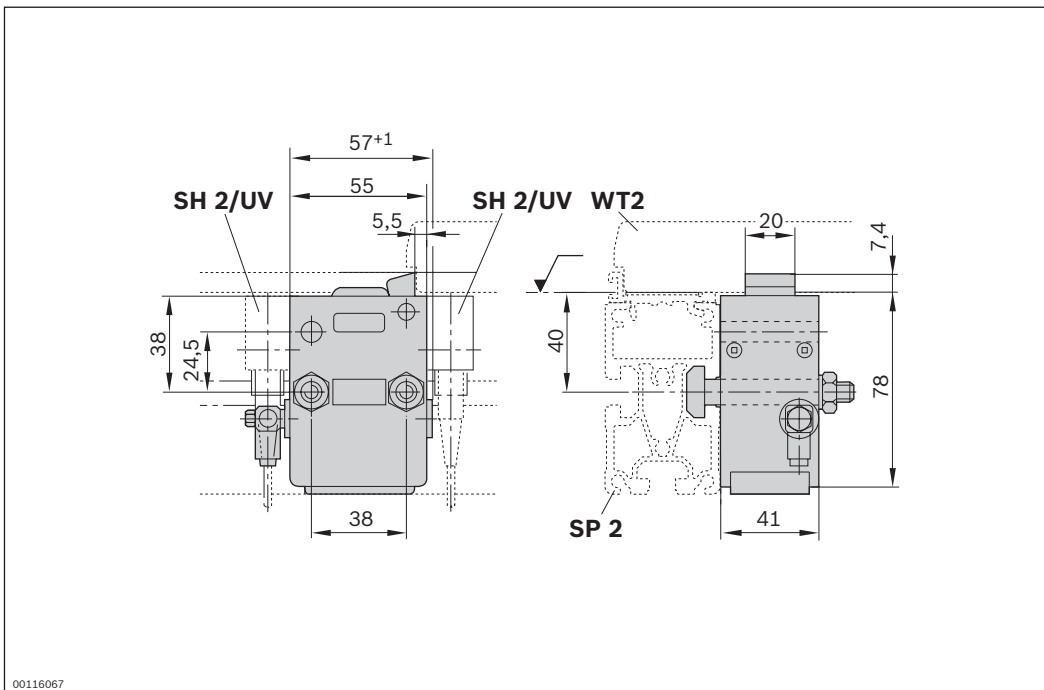
Technical data

Material number		3842531610	
Load			
Max. total workpiece pallet weight	m_G	kg	200
Features			
Material specification			Housing: PA6 Safety catch: Brass Lug cam: PA66
A-rated emission sound pressure level	L_{PA}	dB(A)	<60
Operating temperature ¹			0 ... +60
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	d	mm	4

¹ High-temperature stop gate on request

Permitted total weight of workpiece pallet m_G (kg)	Nominal speed v_N (m/min)
200	6
140	9
100	12
70	15
50	18

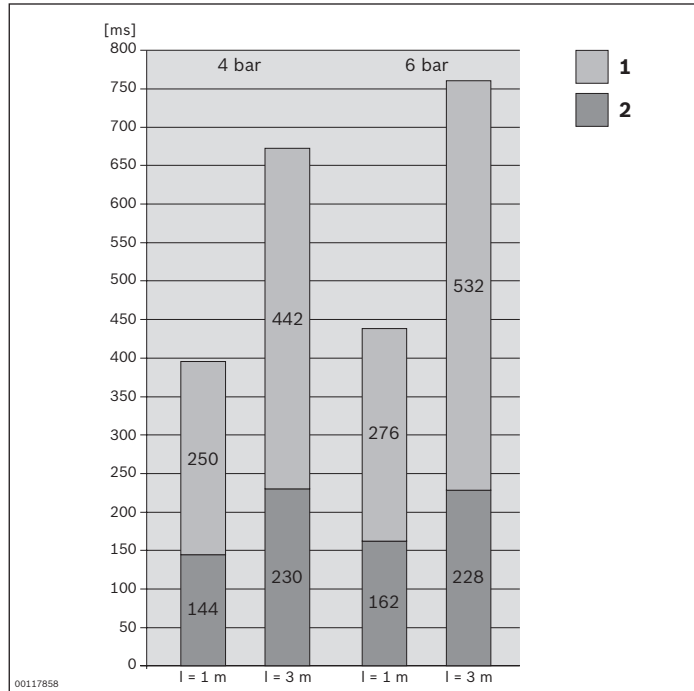
Dimensions



00116067

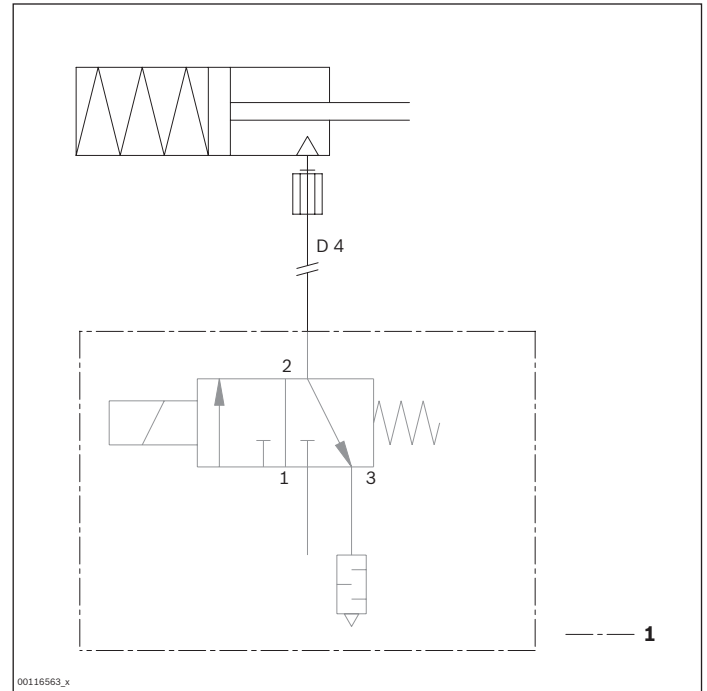
Circuit diagrams

Opening and shutting times



l = Hose length
1 Close
2 Open at 4 bar

Circuit diagram



1 Not included in delivery

VE 2/S stop gate



- ▶ Pneumatic stop gate
- ▶ Used on sections with possible reversible operation
- ▶ Pressure must not be exerted on VE 2/S by pallets traveling in reverse
- ▶ Can be combined with WT 2/E, WT 2 and WT 2/F

Note: Safe transition from both directions is possible by actively (pneumatically) opening the safety catch.

8

Stops one or more accumulating workpiece pallets at the defined stop surface of the workpiece pallet. The VE 2/S can only stop workpiece pallets coming from one direction. When the pressure is released the stop gate is closed by a spring and the workpiece pallet is stopped. Two VE 2/S

stop gates are needed to stop pallets coming from both directions, since pressure must not be exerted on the stop gate by pallets traveling in reverse. Mounted inside the tracks, directly on the conveyor section.

Accessories

Recommended accessories

- ▶ VE 2/RS return stop, see p. 8-40
- ▶ SH 2 switch bracket, see p. 8-88
- ▶ Position sensor, see p. 8-18

Delivery notes

Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor section
- ▶ Pneumatic elements

Condition on delivery

- ▶ Fully assembled

Ordering information

Product designation	Material number
VE 2/S stop gate	3842515844

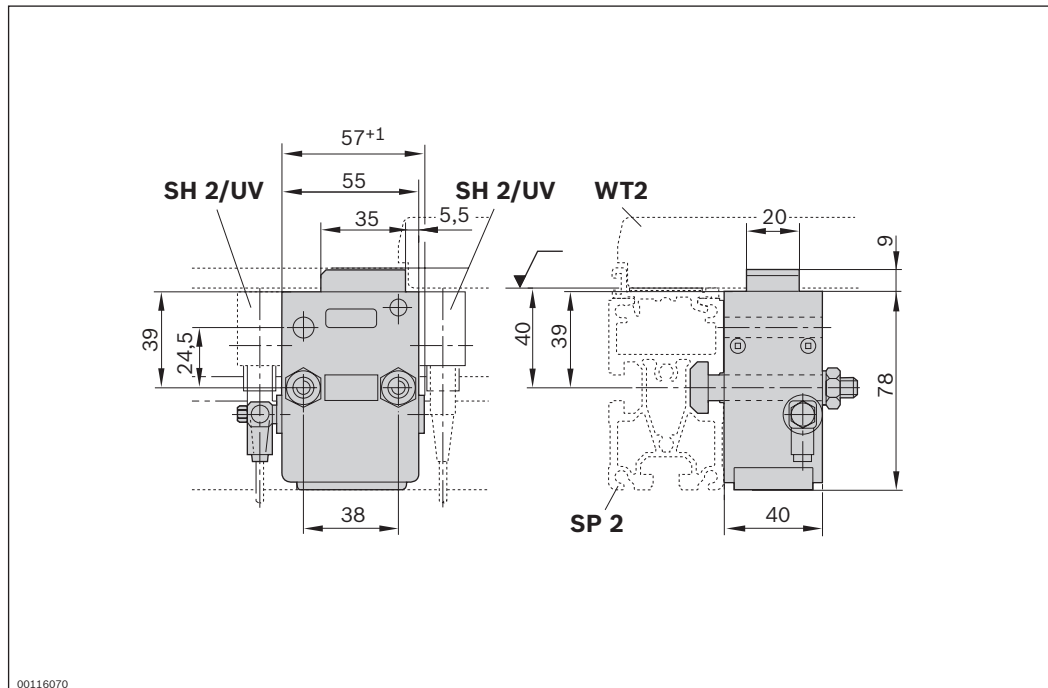
Technical data

Material number			3842515844
Load			
Max. total workpiece pallet weight	m_a	kg	140
Features			
Material specification			Housing: PA6 Lug cam: PA66
Operating temperature ¹	°C		0 ... +60
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	d	mm	4

¹ High-temperature stop gate on request

Permitted total weight of workpiece pallet		Nominal speed
m_a	(kg)	v_N (m/min)
	140	6
	90	9
	70	12
	50	15
	30	18

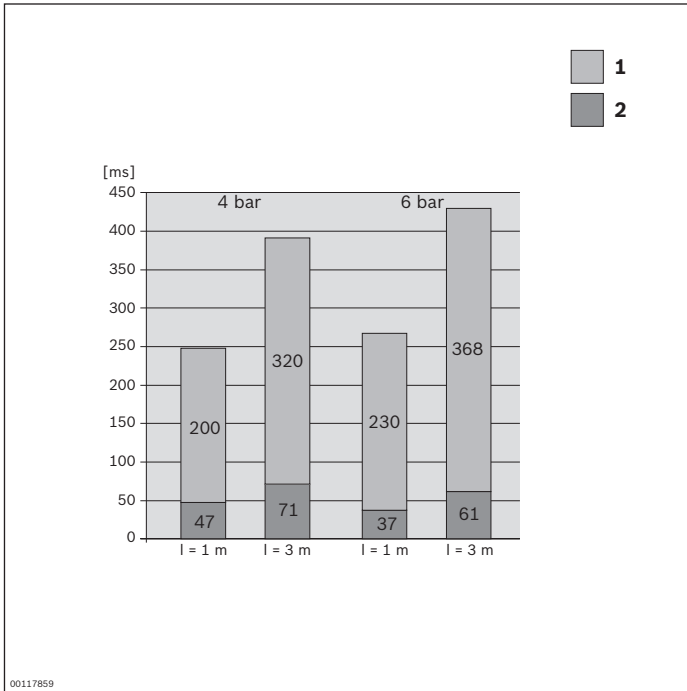
Dimensions



00116070

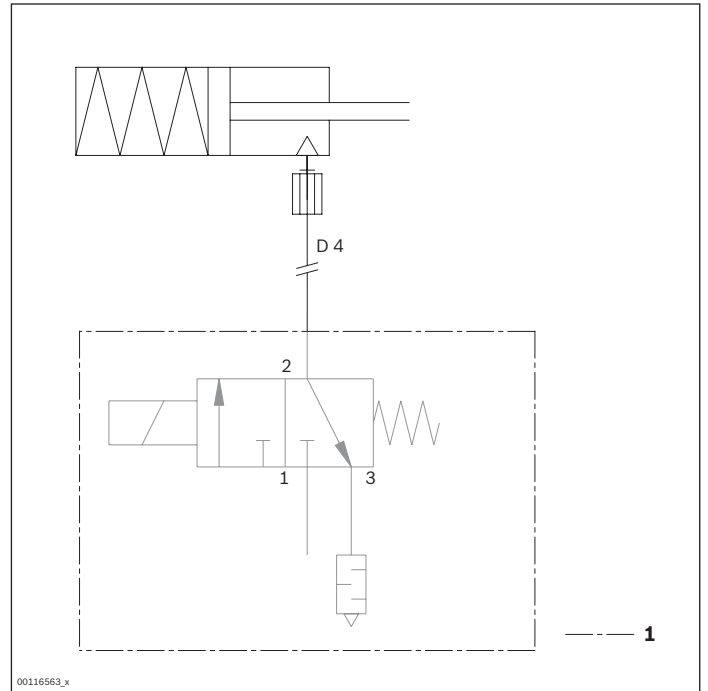
Circuit diagrams

Opening and shutting times



l = Hose length
1 Close
2 Open at 4 bar

Circuit diagram



1 Not included in delivery

Stop gate position sensor



- ▶ For retrofitting on the VE 2, VE 2/M, VE 2/L, or VE 2/S stop gates
- ▶ Upper and lower position sensing possible, only suitable for upper position sensing with VE 2/S
- ▶ Compressed air connection for double-action stop gate operation

The stop gate position sensor is used to detect the position of the stop gate using sensors and/or for active pneumatic

closing of the stop gate.

Accessories

Required accessories

- ▶ VE 2, VE 2/M, VE 2/L, or VE 2/S, stop gates
- ▶ 2x M8x1 sensor with rated sensing range $S_N \geq 2$ mm, can be installed flush

Delivery notes

Scope of delivery

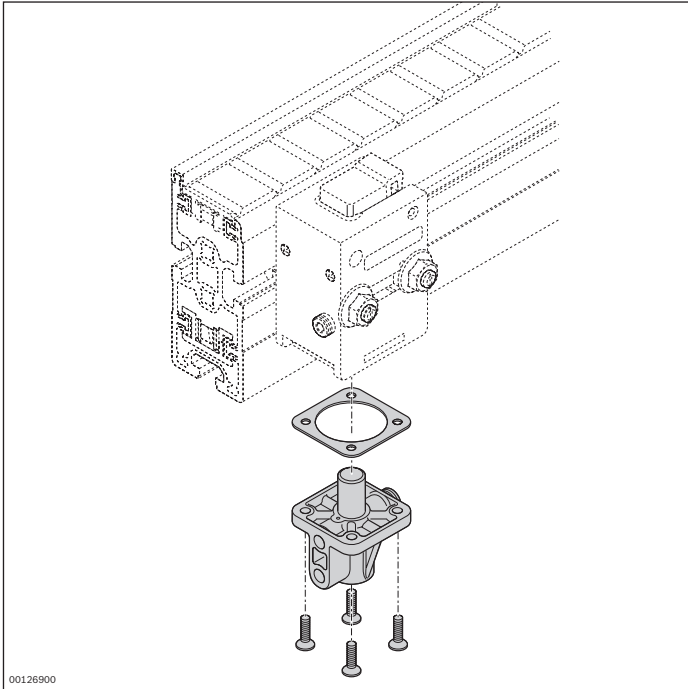
- ▶ Incl. fastening material

Ordering information

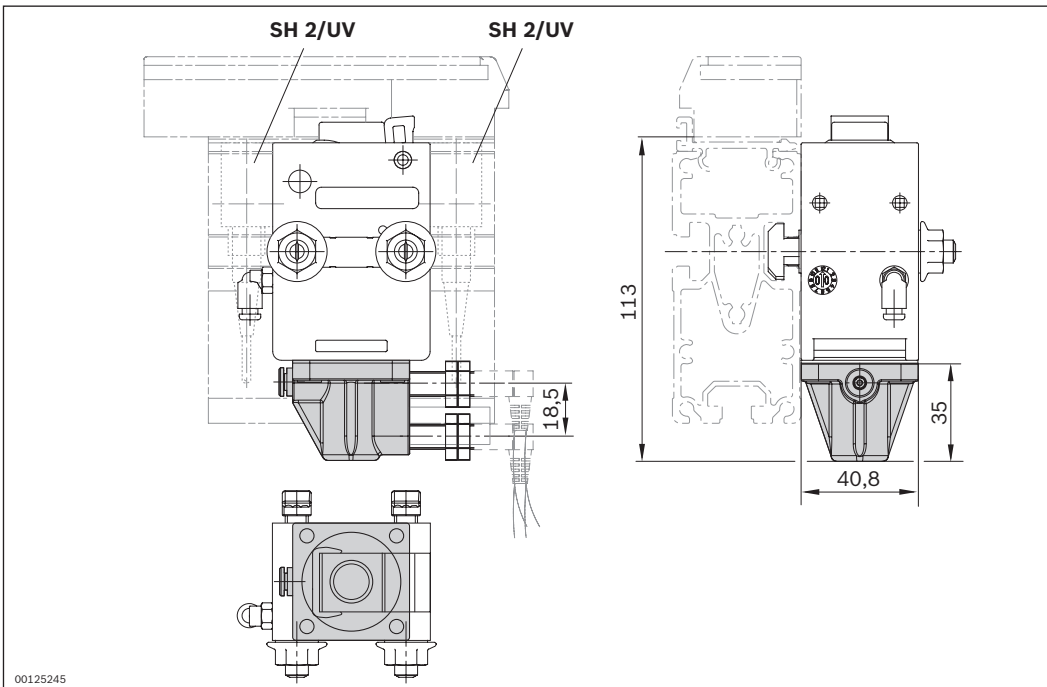
Product designation	Material number
Stop gate position sensor	3842528817

Technical data

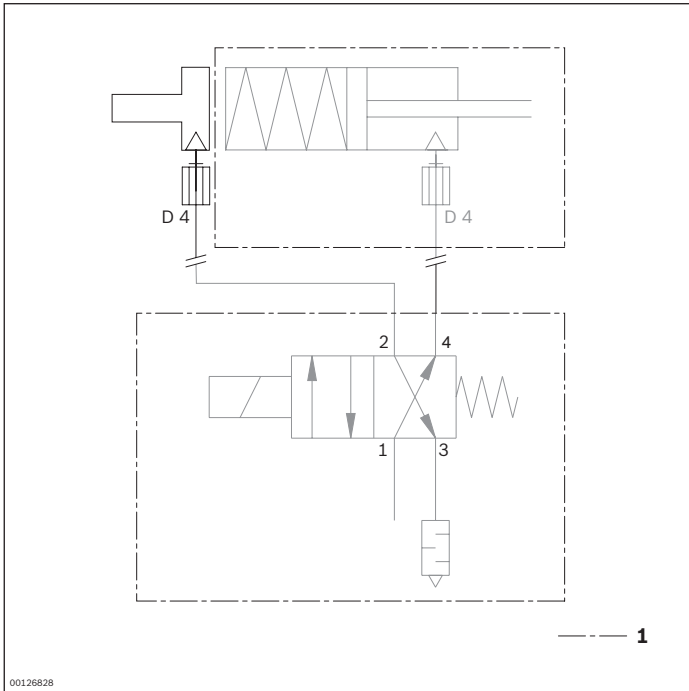
Material number	3842528817		
Features			
Material specification	PA; black Housing: PA6		
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	d	mm	4



Dimensions

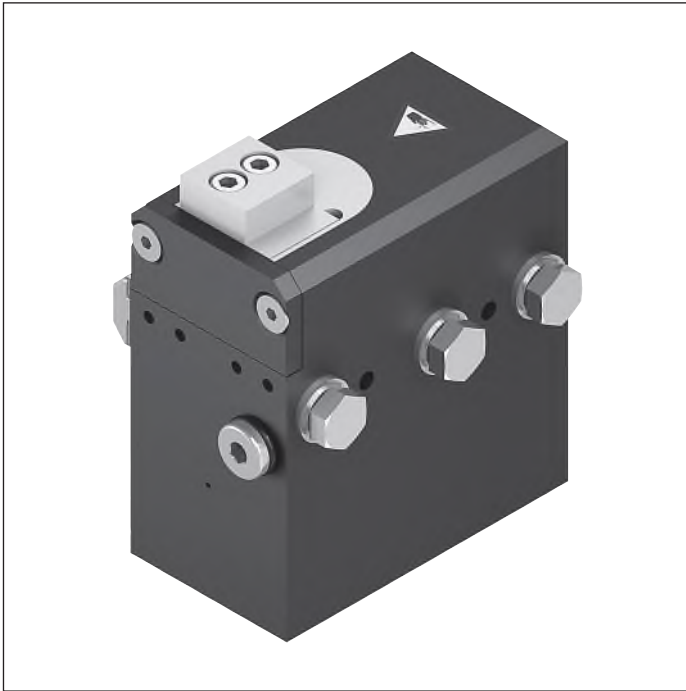


Circuit diagrams



1 Not included in delivery

VE 2/X stop gate



- ▶ Pneumatic stop gate
- ▶ For high permitted total weight of the workpiece pallet up to 450 kg
- ▶ Can be combined with WT 2 and WT 2/F

8

Stops one or more accumulating workpiece pallets at the defined stop surface of the workpiece pallet. When the pressure is released the stop gate is closed by a spring and

the workpiece pallet is stopped. Mounted inside the tracks, directly on the conveyor section.

Accessories

Recommended accessories

- ▶ VE 2/RS return stop, see p. 8-40
- ▶ SH 2 switch bracket, see p. 8-88

Delivery notes

Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor section

Condition on delivery

- ▶ Fully assembled

Ordering information

Product designation	Material number
VE 2/X stop gate	3842547770

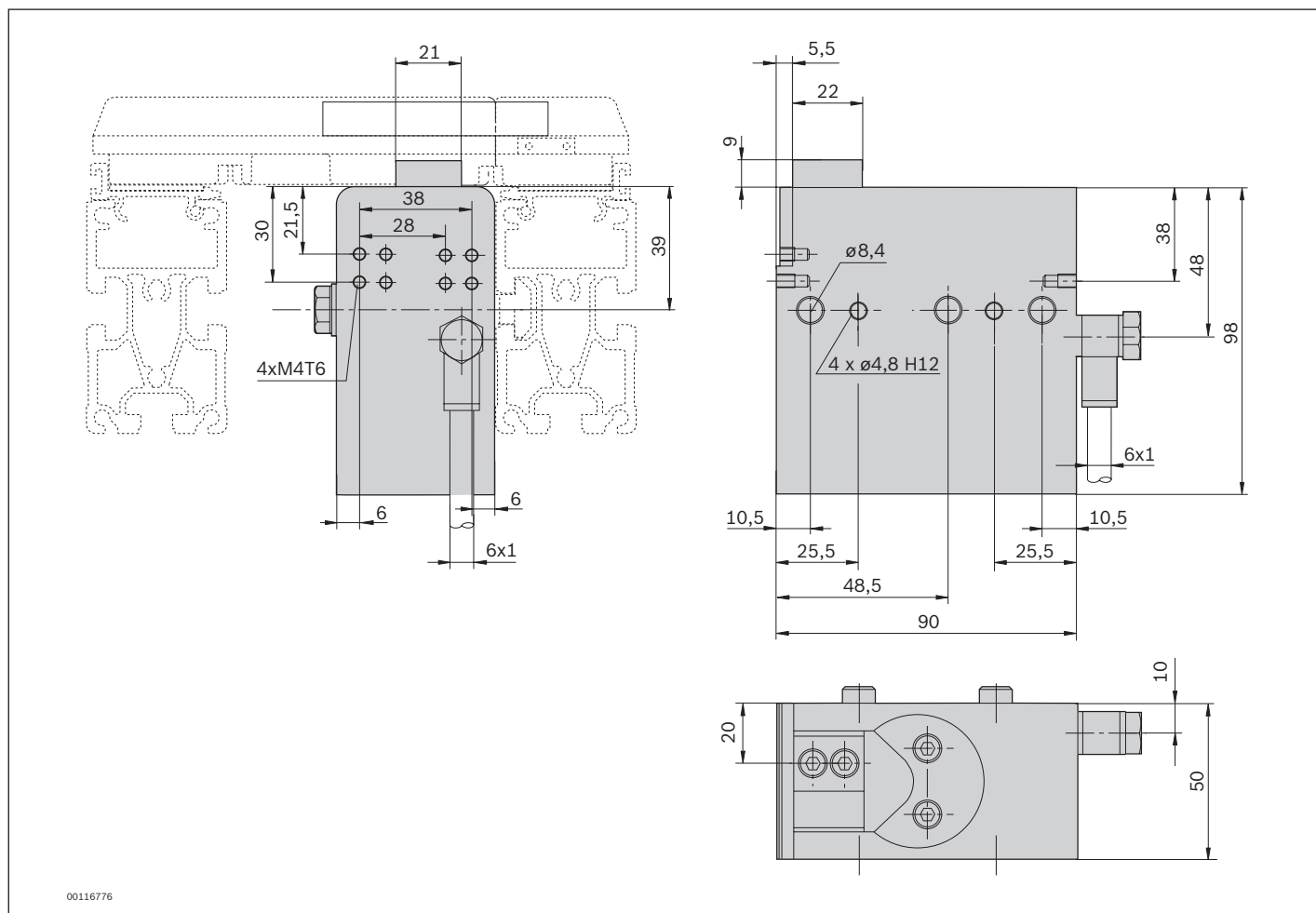
Technical data

Material number		3842547770	
Load			
Max. total workpiece pallet weight	m_G	kg	450
Features			
Material specification	Housing: aluminum, hard anodized Lug cam: Steel, hardened		
Operating temperature ¹		°C	0 ... +60
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	d	mm	6

¹ High-temperature stop gate on request

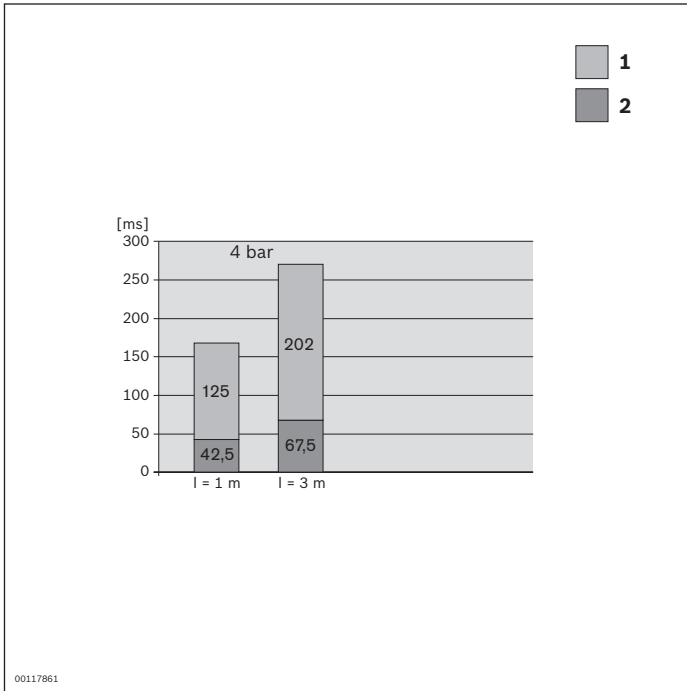
	Permitted total weight of workpiece pallet		Nominal speed
	m_G (kg)		v_N (m/min)
	450		6
	300		9
	220		12
	140		15
	100		18

Dimensions



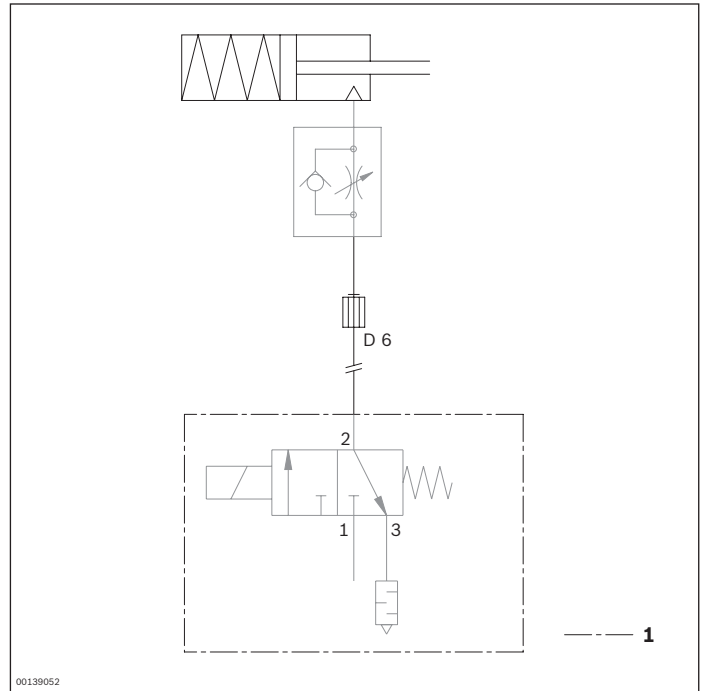
Circuit diagrams

Opening and shutting times



l = Hose length
1 Close
2 Open at 4 bar

Circuit diagram



1 Not included in delivery

VE 2/D-60 stop gate



- ▶ Pneumatic stop gate
- ▶ Optimal damping for workpiece pallet total weights up to 60 kg
- ▶ Continuously adjustable damping
- ▶ Can be combined with WT 2/E, WT 2 and WT 2/F

Dampened stopping of the first accumulating workpiece pallet. The stop gate stops one or more accumulating workpiece pallets at the defined stop surface of the workpiece pallet. When the pressure is released the stop

gate is closed by a spring and the workpiece pallet is stopped. Mounted inside the tracks, directly on the conveyor section.

Accessories

Recommended accessories

- ▶ VE 2/RS return stop, see p. 8-40

Delivery notes

Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor section

Condition on delivery

- ▶ Fully assembled

Ordering information

Product designation	Material number
VE 2/D-60 stop gate	3842547785

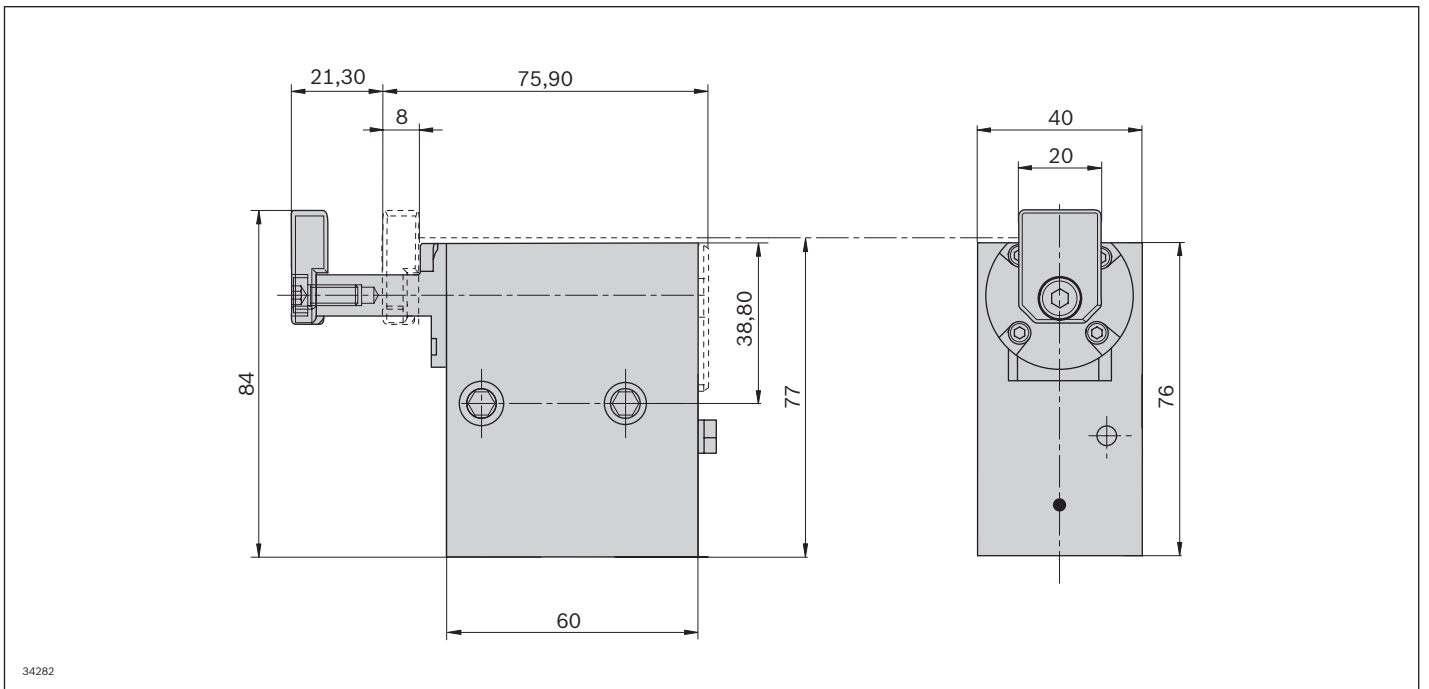
Technical data

Material number			3842547785
Load			
Max. total workpiece pallet weight	m_G	kg	60
Min. workpiece pallet weight	m	kg	1
Features			
Material specification			Housing: Aluminum, hard anodized Lug cam: Steel, hardened
Operating temperature ¹			°C 0 ... +60
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	d	mm	4

¹ High-temperature stop gate on request

Permitted total weight of workpiece pallet m_G (kg)	Nominal speed v_N (m/min)
60	6
40	9
35	12
30	15
30	18
24	24

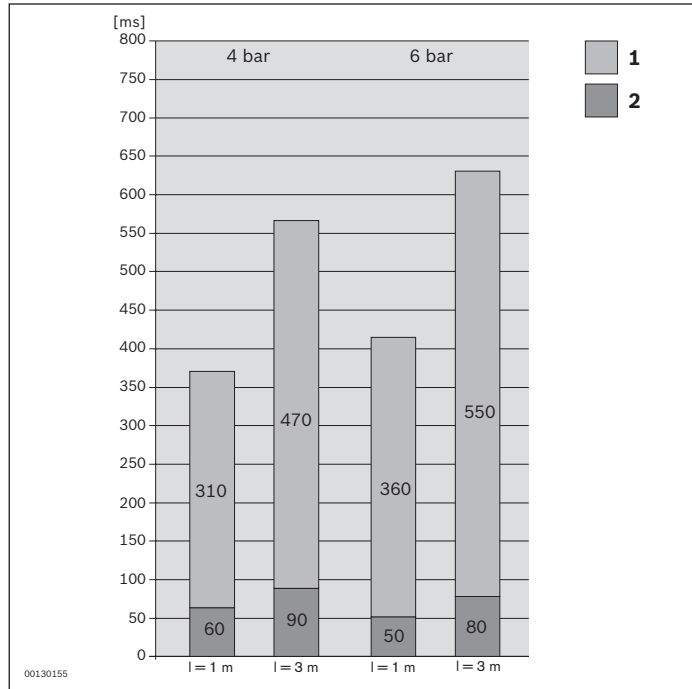
Dimensions



* Stroke

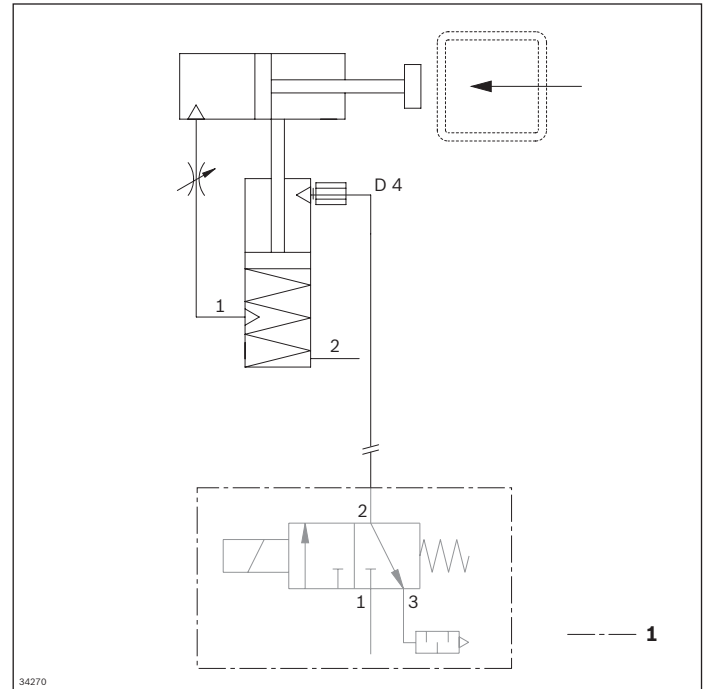
Circuit diagrams

Opening and shutting times



l = Hose length
1 Close
2 Open at 4 bar

Circuit diagram



1 Not included in delivery

VE 2/D-175 stop gate



- ▶ Pneumatic stop gate
- ▶ Especially sturdy all-metal design with double piston damper
- ▶ Continuously adjustable damping
- ▶ Short damping path of 20 mm
- ▶ Short damping time
- ▶ Short installation dimension
- ▶ Can be combined with WT 2 and WT 2/F

8

Dampened stopping of the first accumulating workpiece pallet. The stop gate stops one or more accumulating workpiece pallets at the defined stop surface of the workpiece pallet. When the pressure is released the stop

gate is closed by a spring and the workpiece pallet is stopped. Mounted inside the tracks, directly on the conveyor section.

Accessories

Recommended accessories

- ▶ VE 2/RS return stop, see p. 8-40

Delivery notes

Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor section

Condition on delivery

- ▶ Fully assembled

Ordering information

Product designation	Material number
VE 2/D-175 stop gate	3842558795

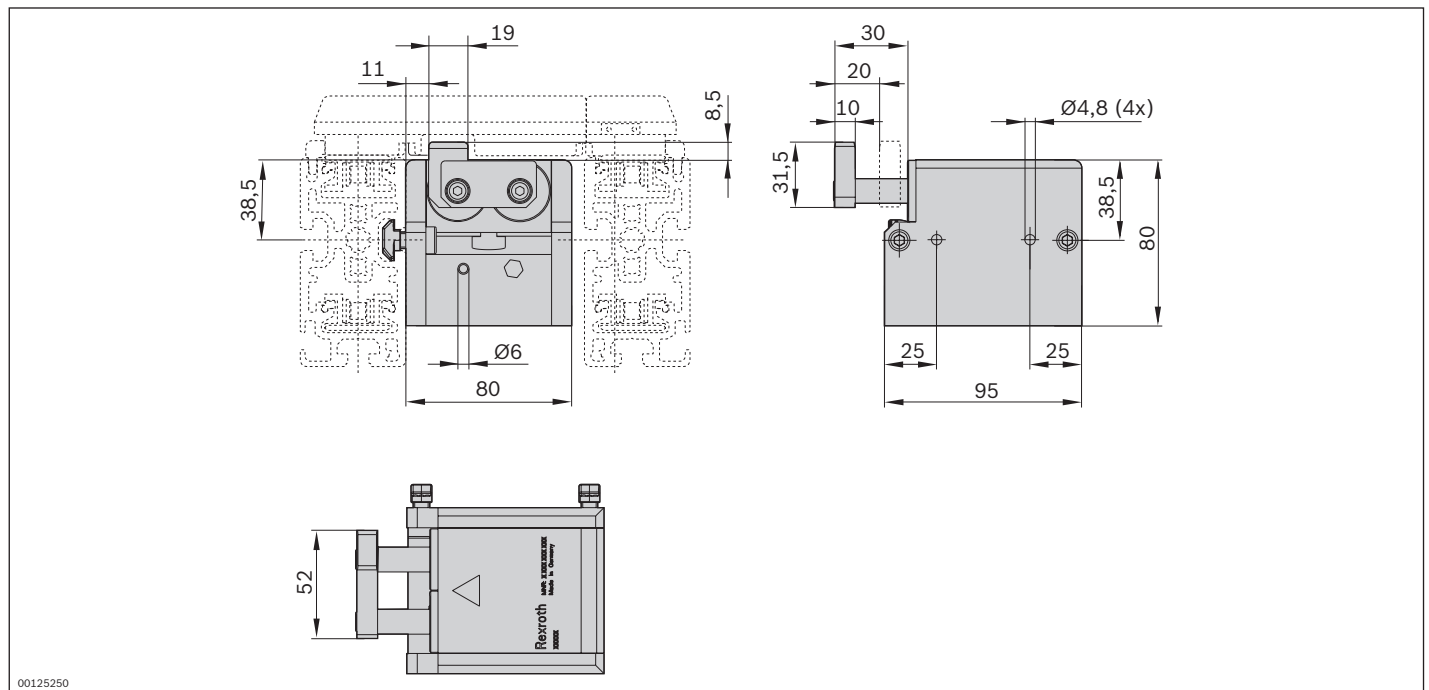
Technical data

Material number			3842558795
Load			
Max. total workpiece pallet weight	m_G	kg	175
Min. workpiece pallet weight	m	kg	5
Features			
Material specification			Housing: Aluminum; hard anodized Lug cam: Steel, hardened
Operating temperature ¹			°C 0 ... +60
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	d	mm	6

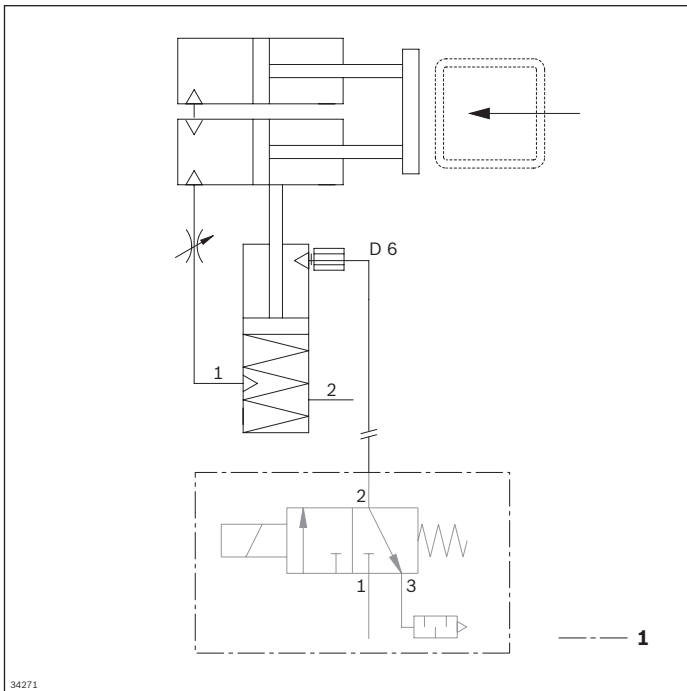
¹ High-temperature stop gate on request

Permitted total weight of workpiece pallet m_G (kg)	Nominal speed v_N (m/min)
175	6
160	9
145	12
110	15
90	18
50	24
35	30

Dimensions

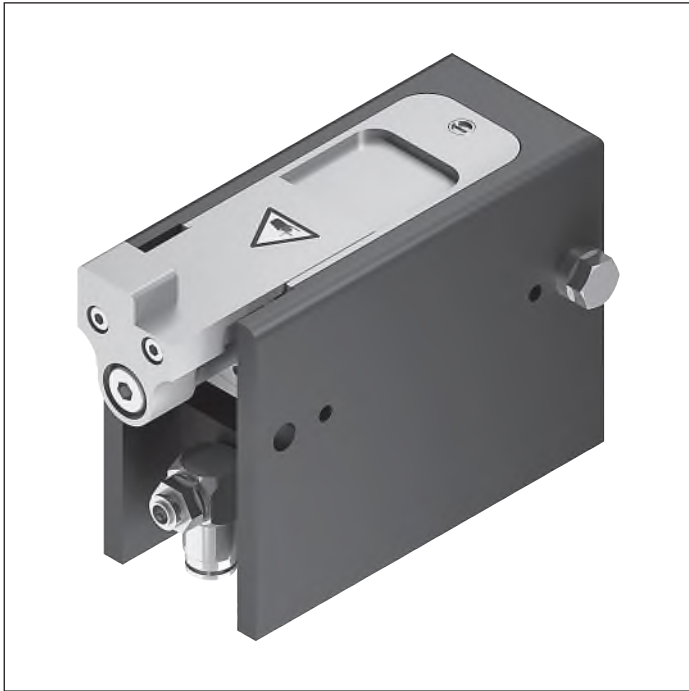


Circuit diagram



1 Not included in delivery

VE 2/D-200 stop gate



- ▶ Pneumatic stop gate
- ▶ Continuously adjustable damping
- ▶ Optimal damping for workpiece pallet total weights between 50 kg and 200 kg
- ▶ Can be combined with WT 2 and WT 2/F

Dampened stopping of the first accumulating workpiece pallet. Stops one or more accumulating workpiece pallets at the defined stop surface of the workpiece pallet. When the pressure is released the stop gate is closed by a spring

and the workpiece pallet is stopped. Mounted inside the tracks, directly on the conveyor section.

Accessories

Recommended accessories

- ▶ VE 2/RS return stop, see p. 8-40

Delivery notes

Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor section

Condition on delivery

- ▶ Fully assembled

Ordering information

Product designation	Material number
VE 2/D-200 stop gate	3842524895

Technical data

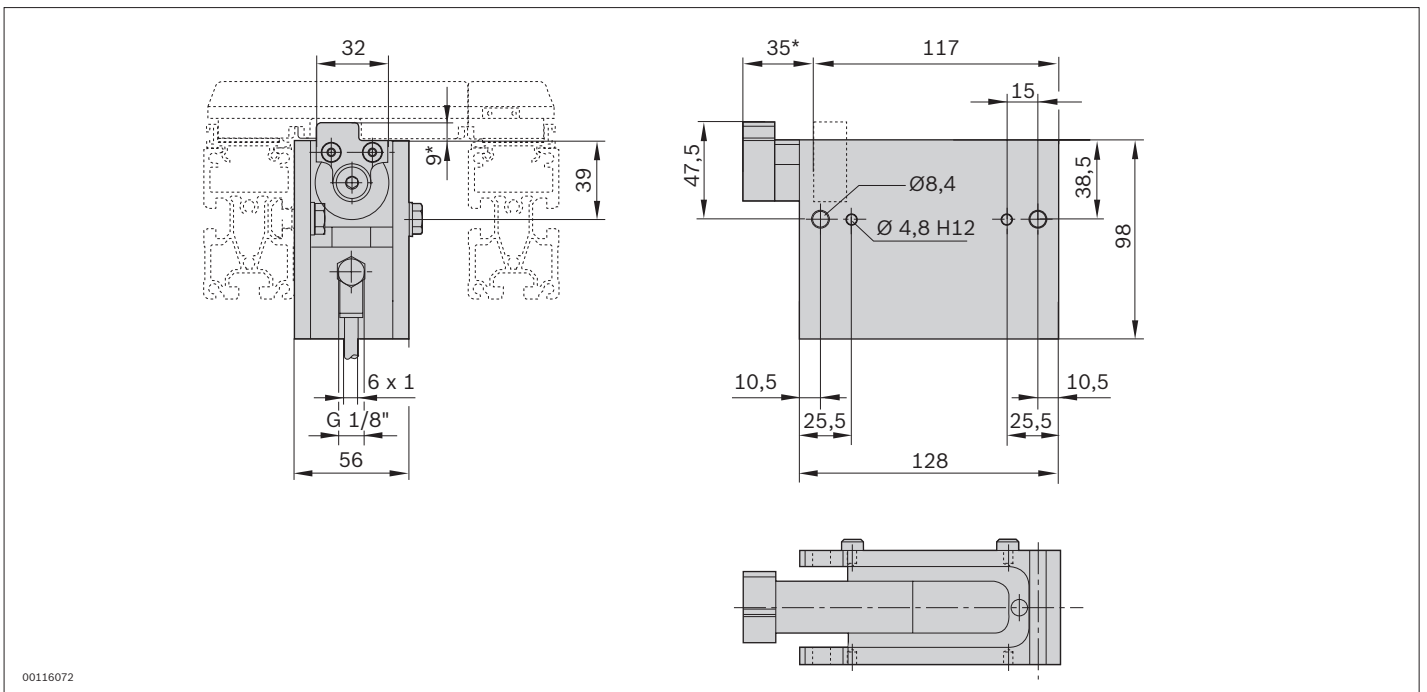
Material number		3842524895	
Load			
Max. total workpiece pallet weight	m_G	kg	200
Min. workpiece pallet weight	m	kg	5
Features			
Material specification		Housing: Aluminum, hard anodized Lug cam: Steel, hardened	
Operating temperature ¹		°C	0 ... +60
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	d	mm	6

¹ High-temperature stop gate on request

Permitted total weight of workpiece pallet m_G (kg)	Nominal speed v_N (m/min)
200	6
140	9
100	12
100	15
100	18
55	24
35	30

8

Dimensions

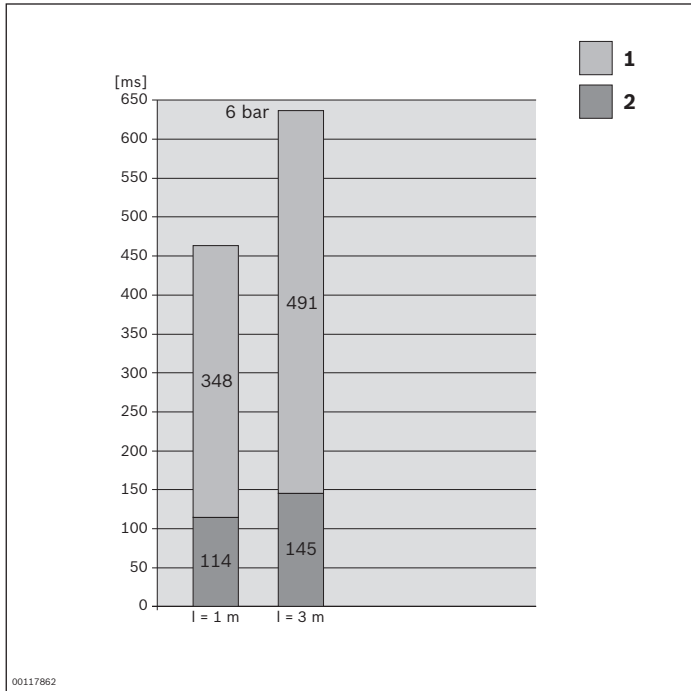


00116072

* Stroke

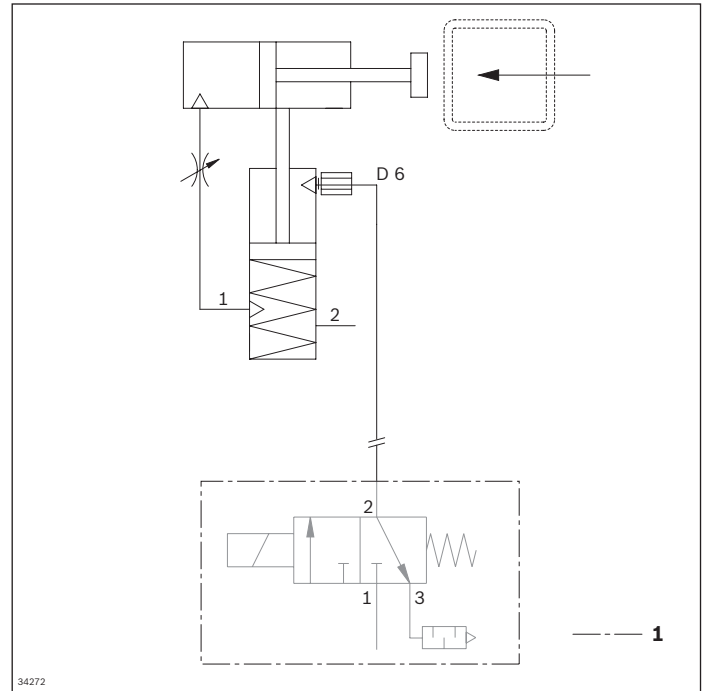
Circuit diagrams

Opening and shutting times



l = Hose length
 1 Close
 2 Open at 4 bar

Circuit diagram



1 Not included in delivery



VE 2/D100-H stop gate



- ▶ Pneumatic stop gate
- ▶ For central separation of the WT 2/H and WT 2/F-H workpiece pallets
- ▶ Suitable for accumulation loads up to 1000 kg
- ▶ Continuously adjustable damping
- ▶ Optimal damping for workpiece pallet total weights up to 100 kg
- ▶ Can be combined with WT 2/H and WT 2/F-H

8

Dampened stopping of the first accumulating workpiece pallet. The stop gate stops one or more accumulating workpiece pallets at the defined stop surface of the workpiece pallet. For central separation, the stop gate is mounted inside the tracks on the conveyor section using

the supplied cross connectors. When the pressure is released the stop gate is closed by a spring and the workpiece pallet is stopped.

Accessories

Recommended accessories

- ▶ VE 2/RS-H return stop, see p. 8-42

Delivery notes

Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor sections

Condition on delivery

- ▶ Not assembled

Ordering information

Material number		3842998747
b (mm)	Track width	400; 480; 640; 800; 1040; 1200
b (mm)	Track width	400 ... 1200 ¹⁾

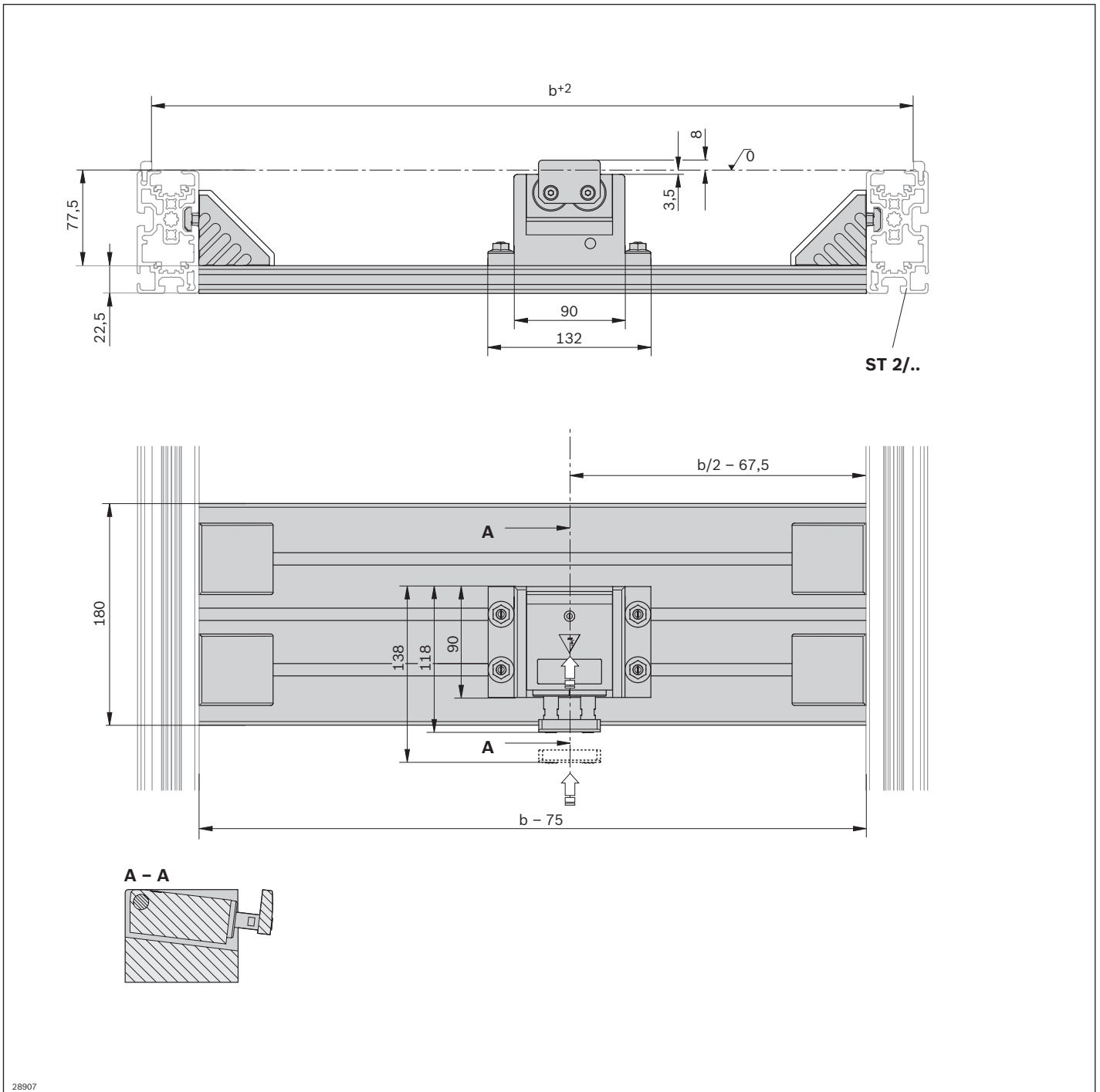
¹⁾ Individual width variants possible

Technical data

Material number		3842998747	
Load			
Max. total workpiece pallet weight	m _G	kg	100
Min. workpiece pallet weight	m	kg	5
Features			
Material specification			Housing: Steel Lug cam: Steel Cross strut: Aluminum
Operating temperature ¹		°C	0 ... +60

¹ High-temperature stop gate on request

Dimensions

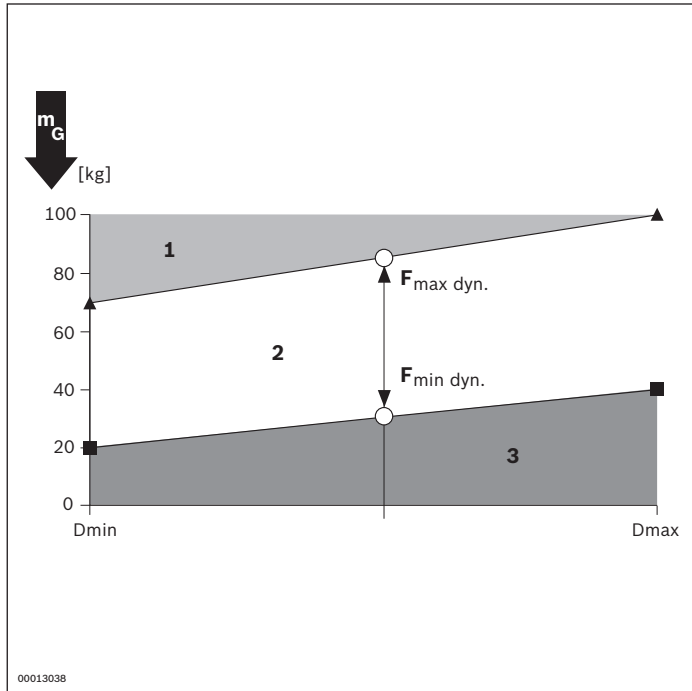


28907

0 Transport level

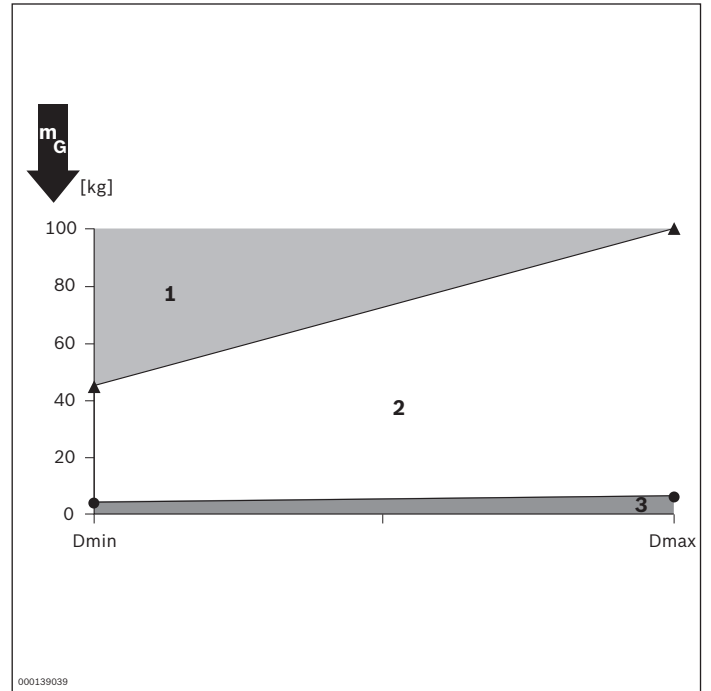
Characteristic curve diagram

Damping setting, accumulation roller chain $\mu = 0.02$



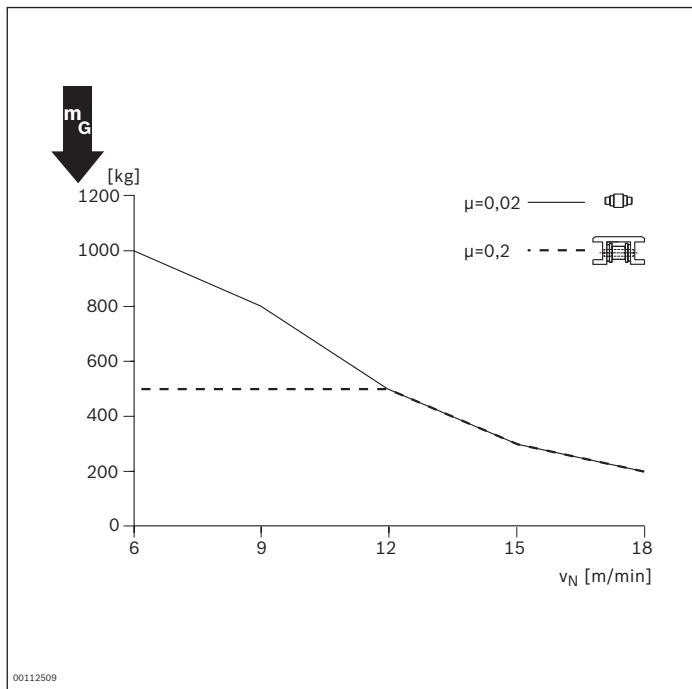
- 1 Damping effect limited, use of a VE 2/RS-H return stop recommended
 - 2 Recommended range
 - 3 Not possible
- Dmax/min damping setting

Damping setting, flat top chain $\mu = 0.2$

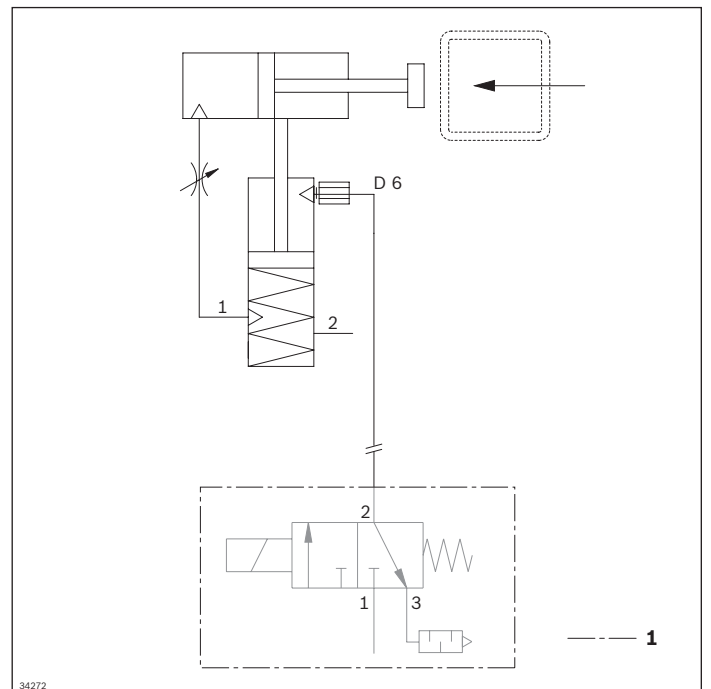


- 1 Damping effect limited, use of a VE 2/RS-H return stop recommended
 - 2 Recommended range
 - 3 Not possible
- Dmax/min damping setting

Max. permitted section load



Circuit diagram





VE 2/D250-H stop gate



- ▶ Pneumatic stop gate
- ▶ For central separation of the WT 2/H and WT 2/F-H workpiece pallets
- ▶ Suitable for accumulation loads up to 2250 kg
- ▶ Continuously adjustable damping
- ▶ Optimal damping for total weights up to 250 kg
- ▶ Can be combined with WT 2/H and WT 2/F-H

8

Dampened stopping of the first accumulating workpiece pallet. The stop gate stops one or more accumulating workpiece pallets at the defined stop surface of the workpiece pallet. For central separation, the stop gate is mounted inside the tracks on the conveyor section using

the supplied cross connectors. When the pressure is released the stop gate is closed by a spring and the workpiece pallet is stopped.

Accessories

Recommended accessories

- ▶ VE 2/RS-H return stop, see p. 8-42

Delivery notes

Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor sections

Condition on delivery

- ▶ Not assembled

Ordering information

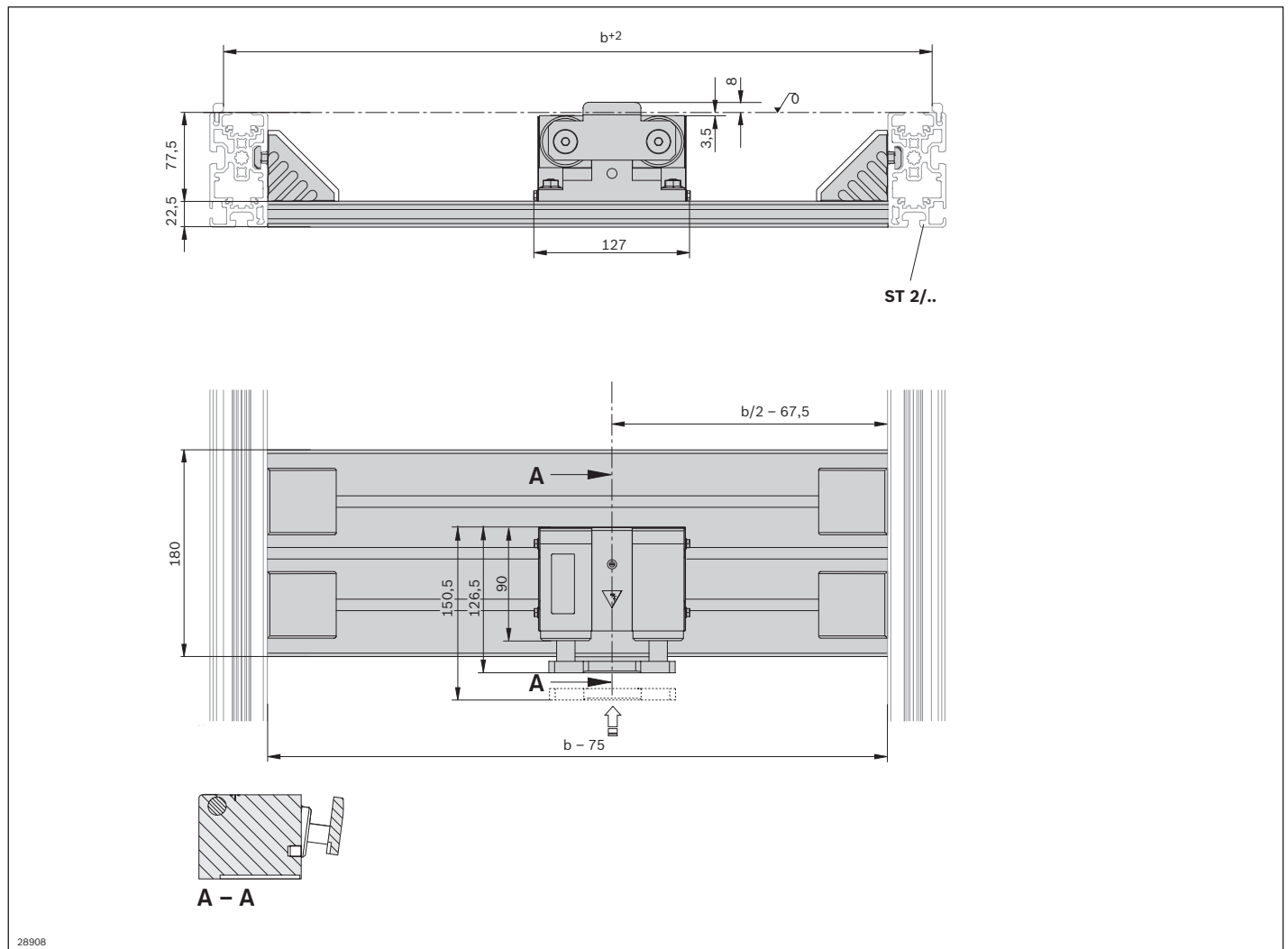
Material number		3842998748
b (mm)	Track width	400; 480; 640; 800; 1040; 1200
b (mm)	Track width	400 ... 1200 ¹⁾

¹⁾ Individual width variants possible

Technical data

Material number		3842998748	
Load			
Max. total workpiece pallet weight	m_G	kg	250
Min. workpiece pallet weight	m	kg	5
Features			
Material specification		Housing: Steel; coated Lug cam: Steel; coated Cross strut: Aluminum, natural; anodized	
Operating temperature ¹		°C	0 ... +60
¹ High-temperature stop gate on request			

Dimensions

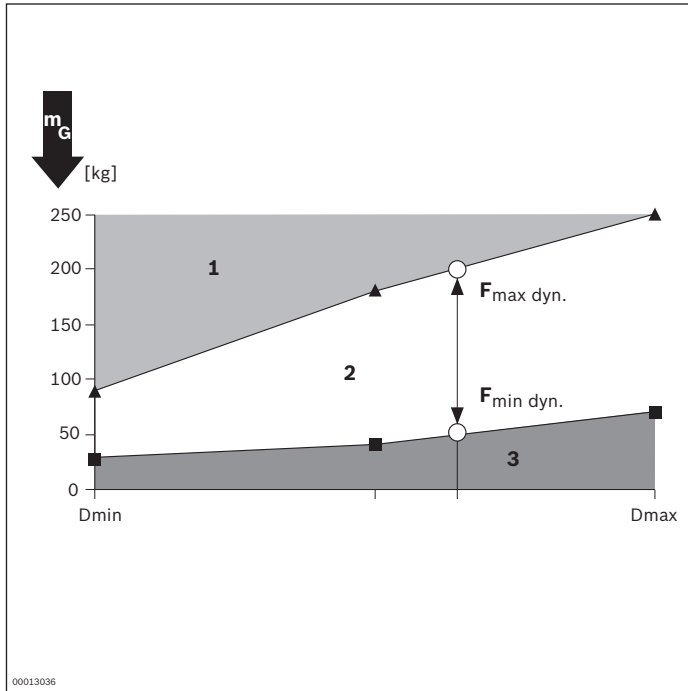


28908

0 Transport level

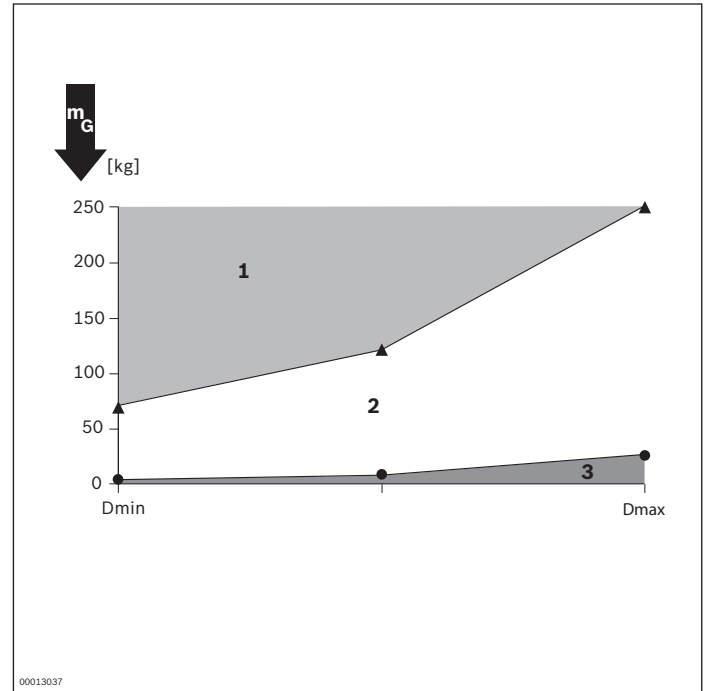
Characteristic curve diagram

Damping setting, accumulation roller chain $\mu = 0.02$



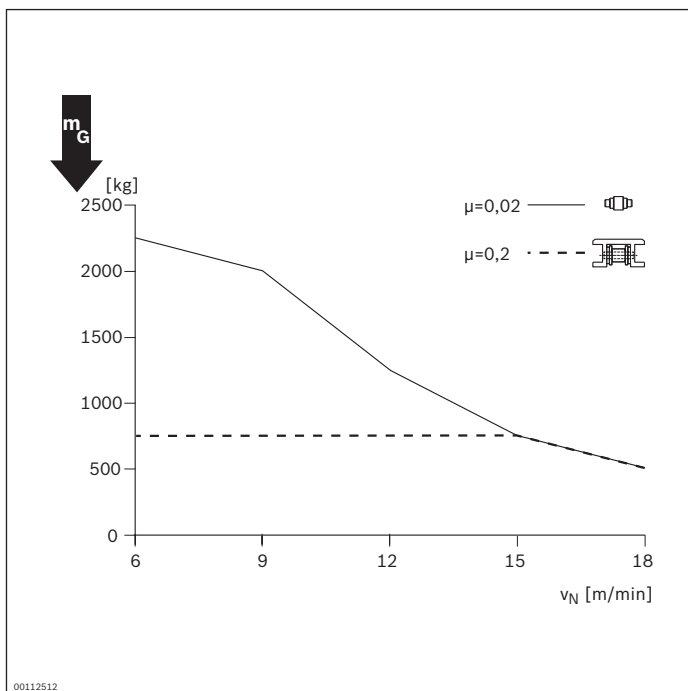
- 1 Damping effect limited, use of a VE 2/RS-H return stop recommended
 - 2 Recommended range
 - 3 Not possible
- Dmax/min damping setting

Damping setting, flat top chain $\mu = 0.2$

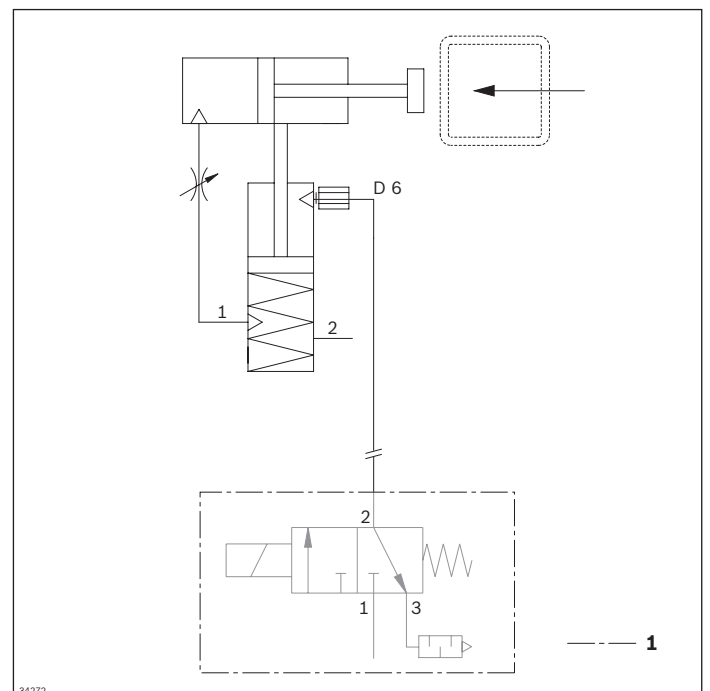


- 1 Damping effect limited, use of a VE 2/RS-H return stop recommended
 - 2 Recommended range
 - 3 Not possible
- Dmax/min damping setting

Max. permitted section load



Circuit diagram



VE 2/RS return stop



- ▶ Spring-loaded safety catch
- ▶ Can be used on the left or right
- ▶ Use for one direction of transport, reversible operation not permitted
- ▶ Can be combined with WT 2/E, WT 2, WT 2/F, WT 2/H and WT 2/F-H

Note: The VE 2/RS return stop can only be installed outside the workpiece pallet surface on the WT2/H and WT 2/F-H.

The return stop prevents the rebound impact of the workpiece pallet from the stop gate. The use of the VE 2/RS return stop is especially recommended when the accumulation roller chain is used as conveyor medium in connection with undamped stop gates. In normal condition

the stop gate is moved into the lock position by a spring and the workpiece pallet overtravels the VE 2/RS in the direction of transport and is stopped against the transport direction. Mounted inside the tracks, directly on the conveyor section.

Delivery notes

Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor section

Condition on delivery

- ▶ Fully assembled

Ordering information

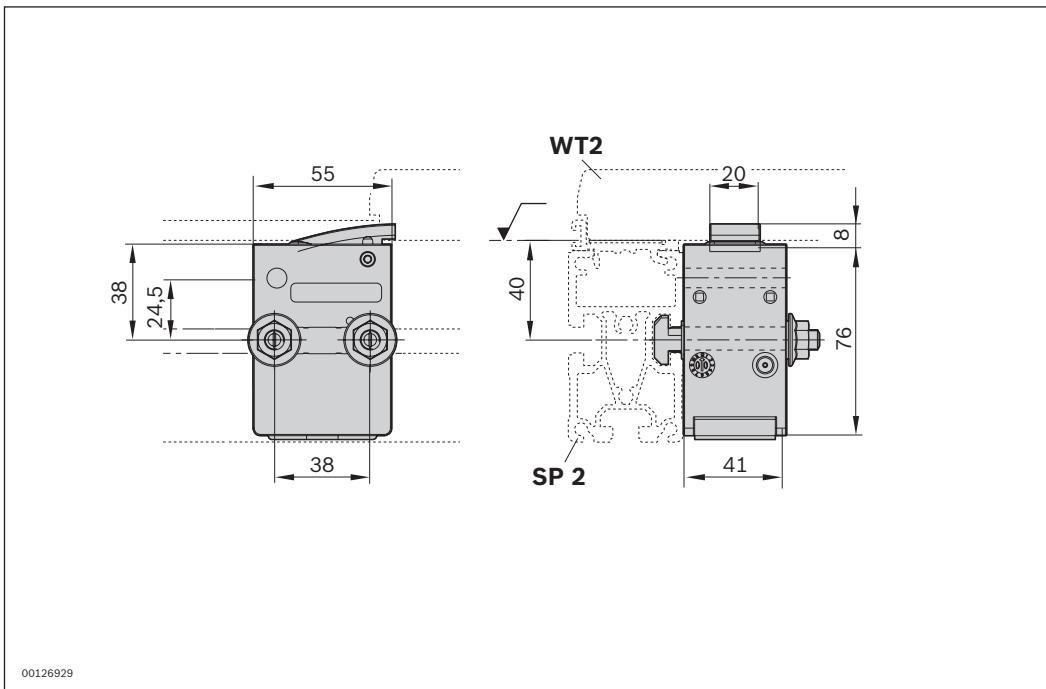
Product designation	Material number
VE 2/RS return stop	3842531696

Technical data

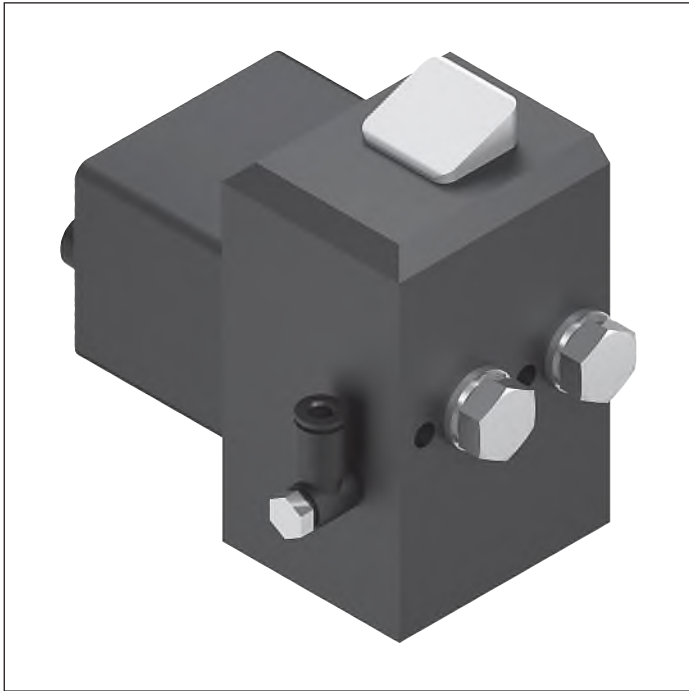
Material number		3842531696	
Load			
Max. total workpiece pallet weight	m_G	kg	250
Min. workpiece pallet weight	m	kg	3
Features			
Material specification		Housing: PA6 Lug cam: PA66	
Operating temperature ¹		°C	0 ... +60

¹ High-temperature stop gate on request

Dimensions



VE 2/RS-H return stop



- ▶ Spring-loaded safety catch
- ▶ Can be used on the left or right
- ▶ Easy fastening in the groove of the ST 2 or BS 2 section profile
- ▶ Pneumatic version, including pneumatic cylinder to open the safety catch. Necessary for reversible operation
- ▶ Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H

Note: The VE 2/RS-H return stop can only be installed on the WT 2 and WT 2/F without spacers.

The return stop prevents the workpiece pallet from rebounding off the VE 2/D stop gate or the DA 2 damper. The use of the VE 2/RS is especially recommended for high total weights and low damping.

In normal condition the stop gate is moved into the lock position by a spring and the workpiece pallet overtravels the VE 2/RS in the direction of transport and is stopped against the transport direction. Mounted inside the tracks, directly on the conveyor section.

Note: Reversible operation is only possible with the pneumatic version.

Delivery notes

Condition on delivery

- ▶ Not assembled

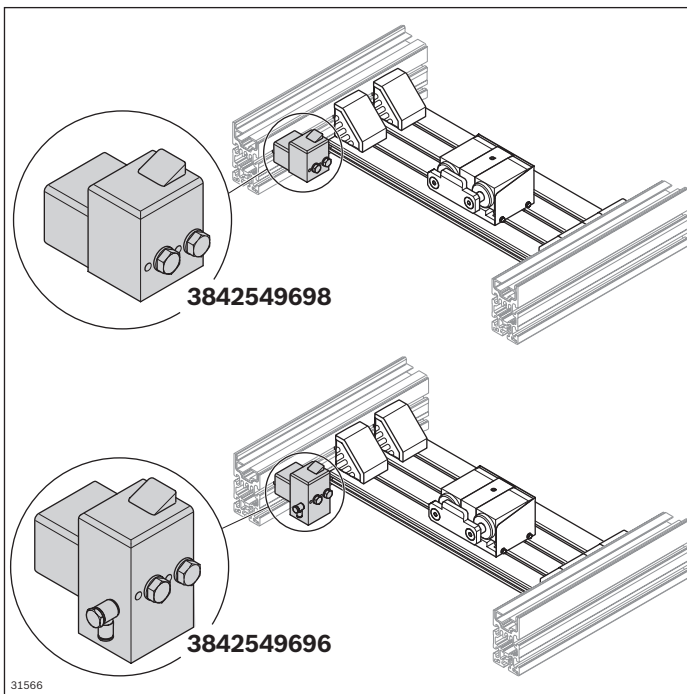
Ordering information

Product designation	Material number
VE 2/RS-H return stop	3842549698
VE 2/RS-H return stop, pneumatic	3842549696

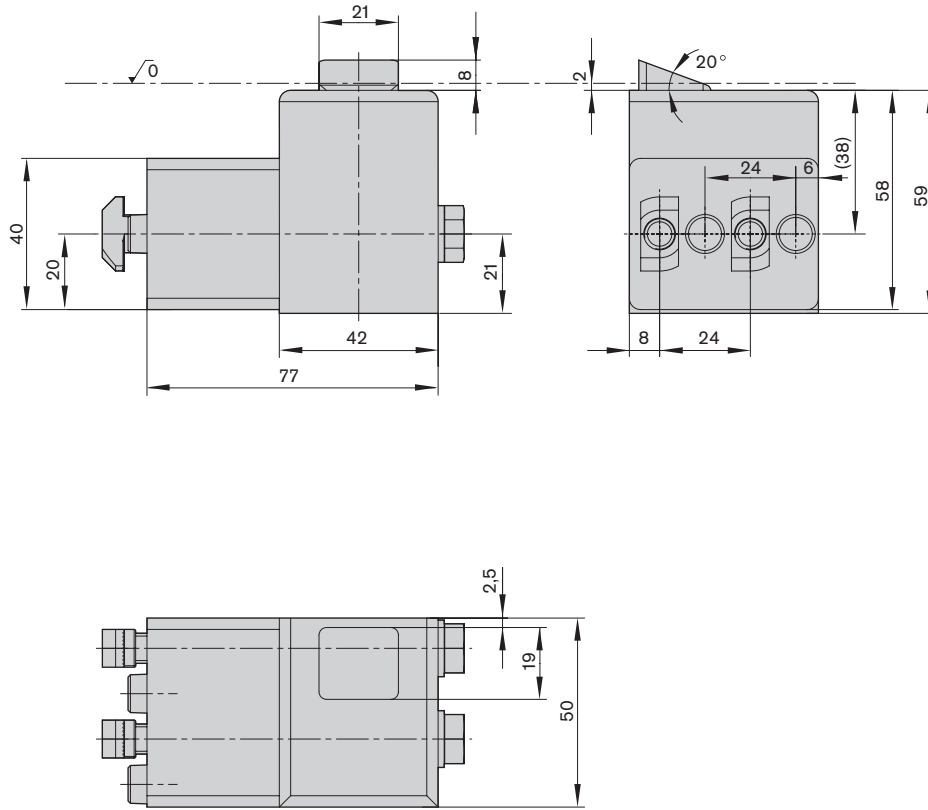
Technical data

Material number		3842549696		3842549698	
Load					
Max. total workpiece pallet weight	m _G	kg	250		250
Min. workpiece pallet weight	m	kg	3		3
Features					
Material specification			Housing: Aluminum, hard anodized Lug cam: Steel, hardened	Housing: Aluminum, hard anodized Lug cam: Steel, hardened	
Operating temperature ¹		°C	0 ... +60		0 ... +60

¹ High-temperature stop gate on request



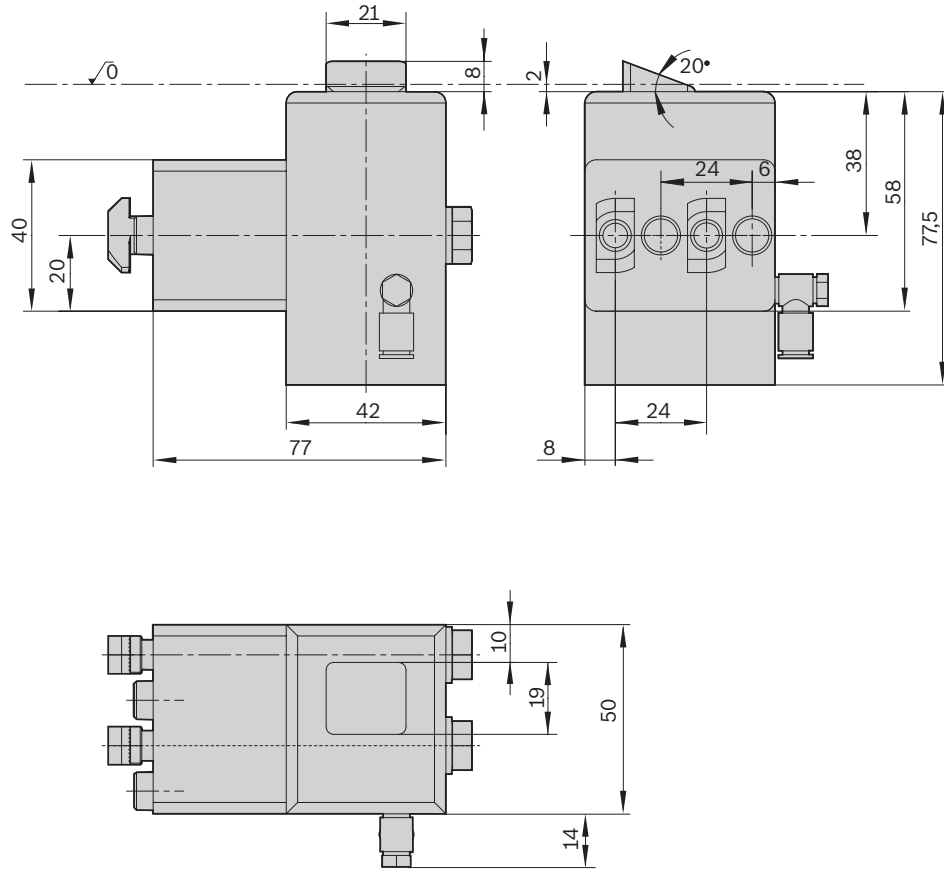
VE 2/RS-H return stop



00013092

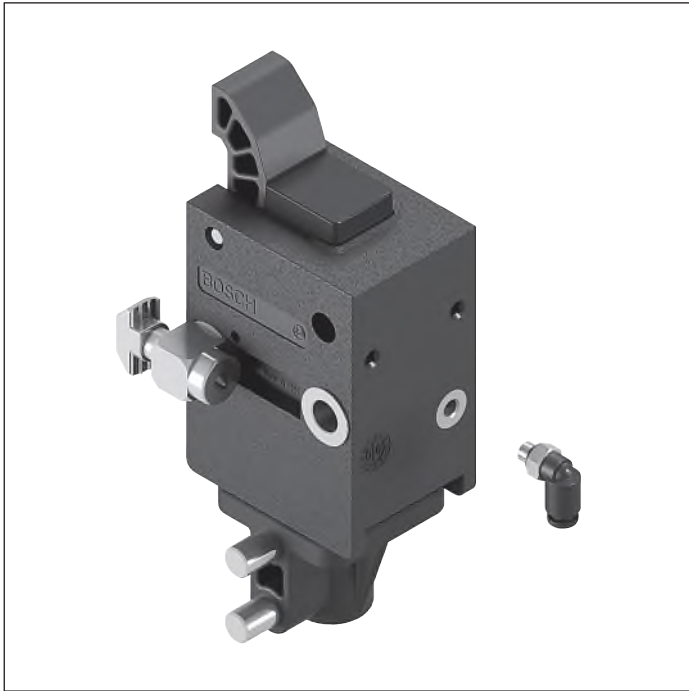
00013092

VE 2/RS-H return stop, pneumatic



31565

VA 2/50 slide stop



- ▶ Slide stop, can be lowered pneumatically
- ▶ Reversible operation not permitted
- ▶ Removable slide stop position sensor
- ▶ Not suitable for ST 2...-H sections
- ▶ Can be combined with WT 2/E, WT 2 and WT 2/F

The slide stop is used in a transverse section that connects more than two longitudinal sections and that requires supplementary stops. A lift transverse unit can feed in the workpiece pallet onto the longitudinal section when the

slide stop is activated.

When depressurized, the pneumatically lowered slide stop is extended to the upper end position. Mounted inside the tracks, directly on the conveyor section.

Accessories

Recommended accessories

- ▶ 2x M8x1 sensor, see p. 8-112

Delivery notes

Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor section
- ▶ Position sensor

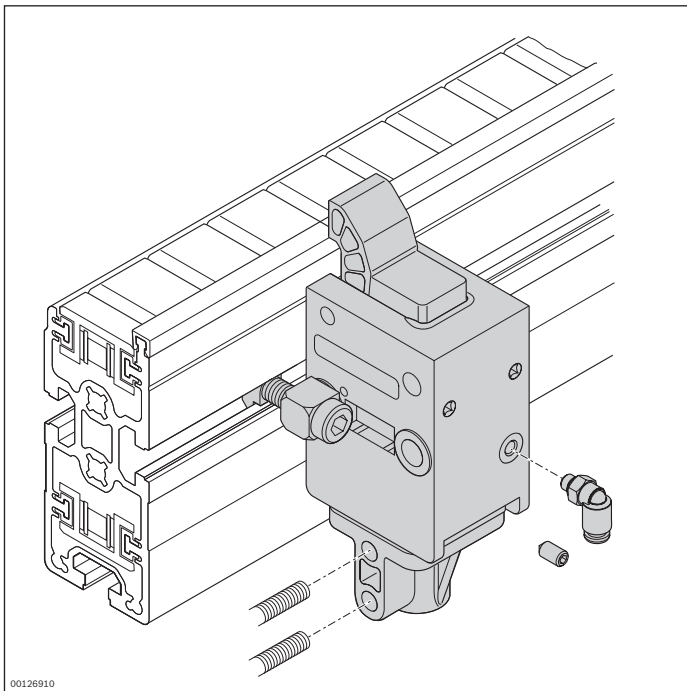
Ordering information

Product designation	Material number
VA 2/50 slide stop	3842528808

Technical data

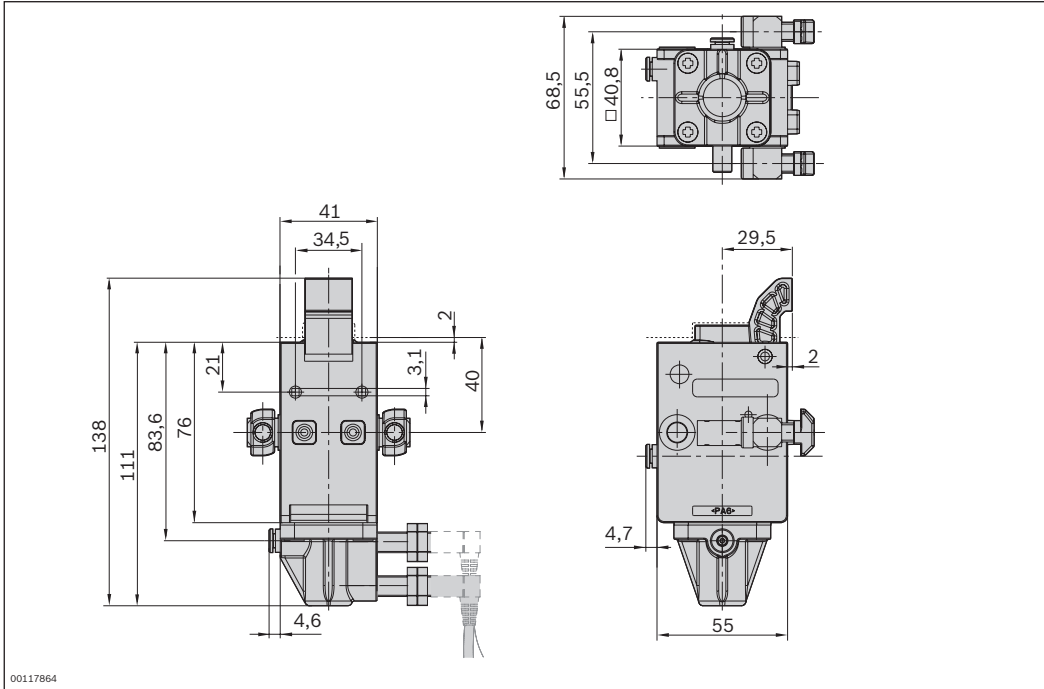
Material number		3842528808	
Load			
Max. total workpiece pallet weight	m_G	kg	50
Features			
Material specification			Housing: PA6 Safety catch: PA66 Lug cam: PA66
Max. operating temperature		°C	60
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	d	mm	4

	Permitted total weight of workpiece pallet		Nominal speed
	m_G	(kg)	v_N (m/min)
	50		6
	50		9
	35		12
	25		15
	20		18

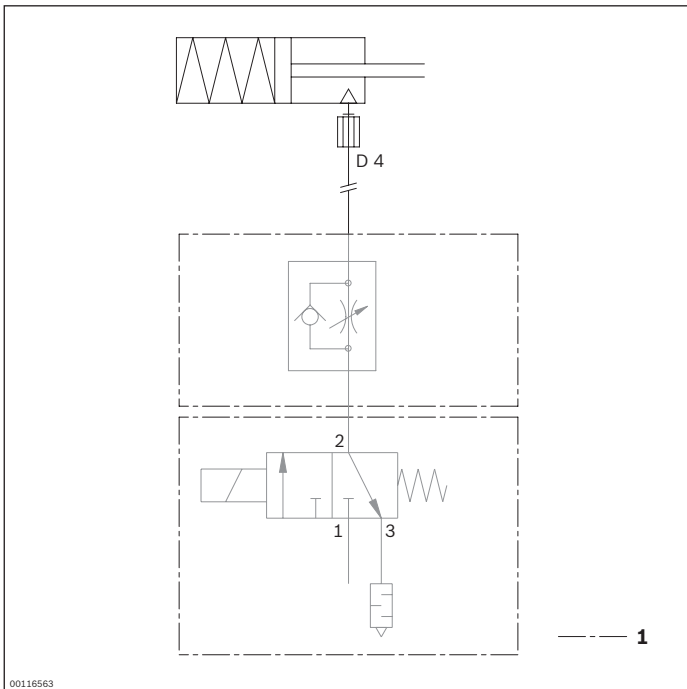


00126910

Dimensions



Circuit diagrams



1 Not included in delivery

VA 2/50 slide stop – reversible



- ▶ Slide stop, can be extended pneumatically
- ▶ Integrated switch bracket
- ▶ Reversible operation possible
- ▶ Not suitable for ST 2...-H sections
- ▶ Inquiry of the slide stop upper position via sensors
- ▶ Can be combined with WT 2 and WT 2/F

8

The slide stop is used in a transverse section that connects more than two longitudinal sections and that requires supplementary stops. A lift transverse unit can feed in the workpiece pallet onto the longitudinal section when the slide stop is activated.

When depressurized, the pneumatically extended slide stop is lowered to the lower end position. The slide stop upper position can be detected using sensors. Mounted inside the tracks, directly on the conveyor section.

Accessories

Recommended accessories

- ▶ M12x1 sensor, see p. 8-108

Delivery notes

Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor section
- ▶ Pivoting elbow fitting

Ordering information

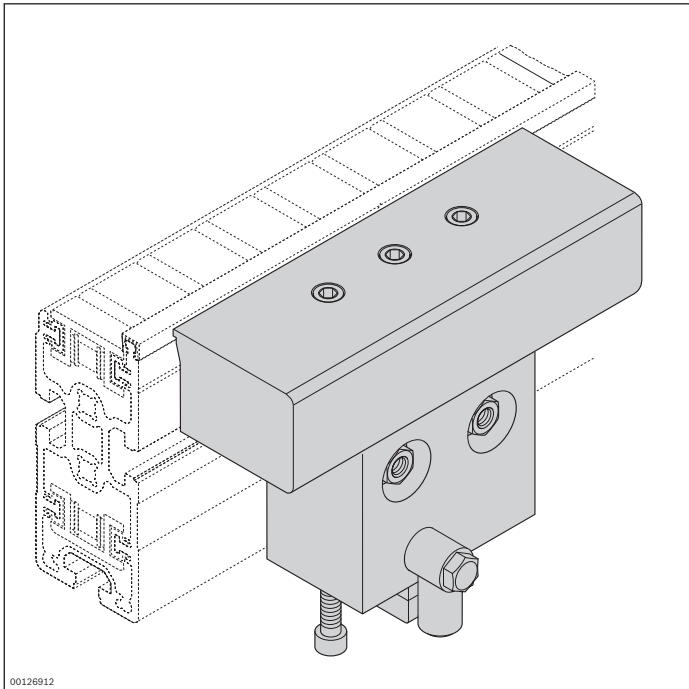
Product designation	Material number
VA 2/50 slide stop – reversible	3842191721

Technical data

Material number			3842191721
Load			
Max. total workpiece pallet weight	m_G	kg	50
Features			
Material specification			Housing: Aluminum Stop: Aluminum
Max. operating temperature ¹			°C 60
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	d	mm	6

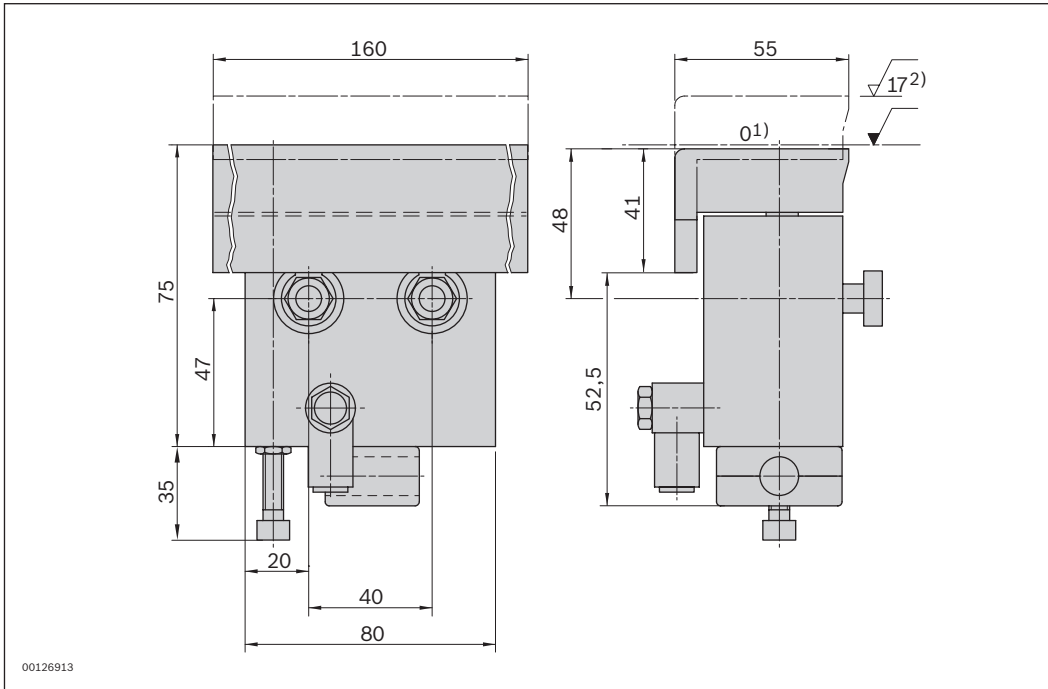
¹ High-temperature stop gate on request

	Permitted total weight of workpiece pallet		Nominal speed
	m_G (kg)		v_N (m/min)
	50		6
	50		9
	35		12
	25		15
	20		18



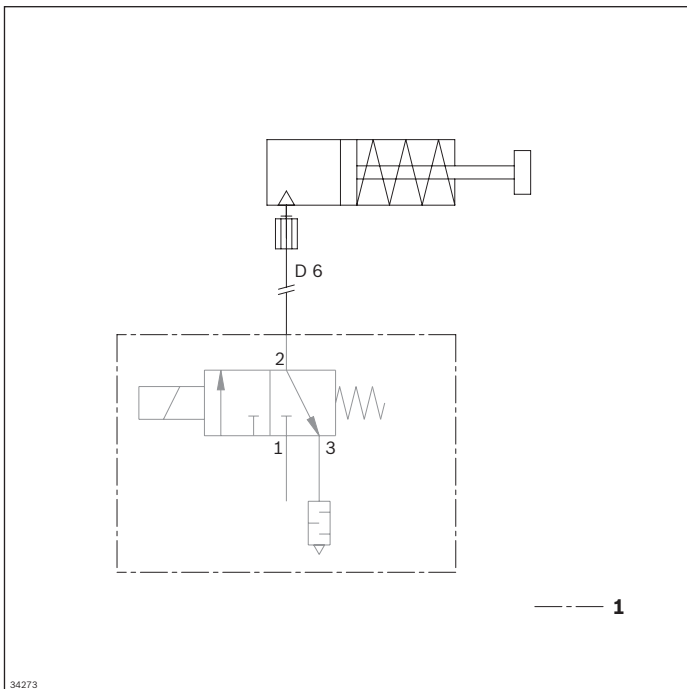
00126912

Dimensions



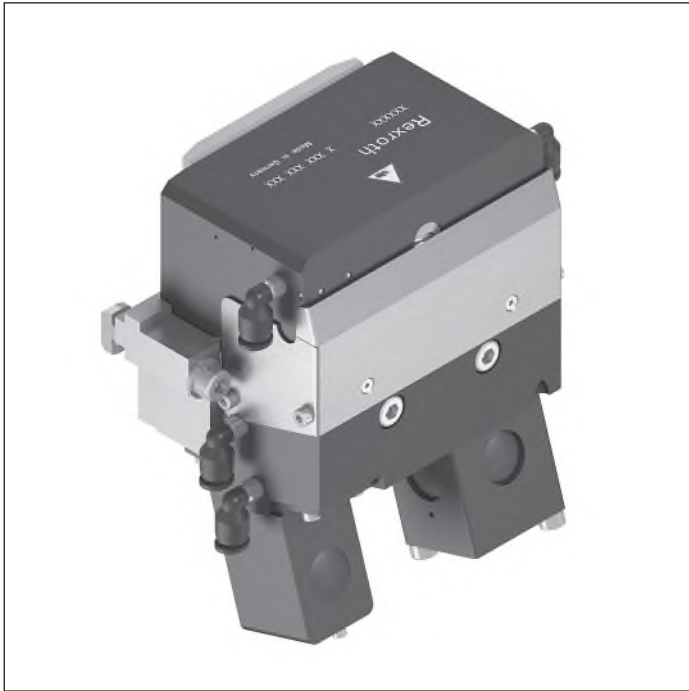
- 1 Conveying level
- 2 Limit stop activated

Circuit diagrams



- 1 Not included in delivery

VA 2/D-130 slide stop



- ▶ Slide stop; can be lowered pneumatically, dampened stop
- ▶ Stopping on the outside of the frame module
- ▶ Can be used in reversible operation
- ▶ Design permits installation to a = 90 mm where space is limited
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ 4 positions, can be moved to pneumatically:
 - Upper, lower position and latch in the extended and retracted state
- ▶ 3 positions can be detected:
 - Top, bottom and extended stop rail
 - Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H

The slide stop is used in a transverse section that connects more than two longitudinal sections and that requires supplementary stops. A lift transverse unit can feed in the workpiece pallet onto the longitudinal section when the

slide stop is activated.

The pneumatically adjustable slide stop is extended to the upper end position when the system is depressurized. Mounted inside the tracks, directly on the conveyor section.

Accessories

Recommended accessories

- ▶ M12x1 sensor (3842549814) with $S_N \geq 4$ mm rated sensing range, length 45 mm, see p. 8-108
- ▶ Clamping holder, see p. 8-55

Delivery notes

Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor section
- ▶ Right-angle connector for the Quickfix air connections
- ▶ Position sensor

Condition on delivery

- ▶ Fully assembled

Ordering information

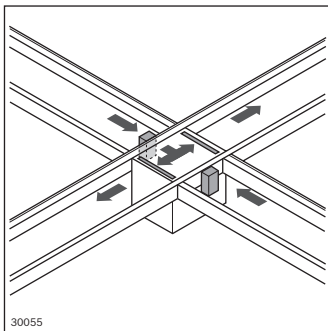
Product designation	Material number
VA 2/D-130 slide stop	3842559001

Technical data

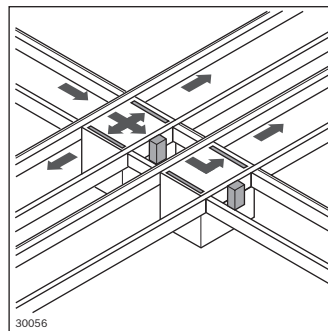
Material number			3842559001
Load			
Max. total workpiece pallet weight	m_G	kg	130
Min. workpiece pallet weight	m	kg	15
Features			
Material specification			Housing: Aluminum, hard anodized Latch: Steel
Max. operating temperature		°C	60
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	d	mm	6
Minimum width for mounting between sections	b_L	mm	320

Permitted total weight of workpiece pallet m_G (kg)	Nominal speed v_N (m/min)
130	6
110	9
110	12
100	15
100	18

Possible installation location for VA2/D-130

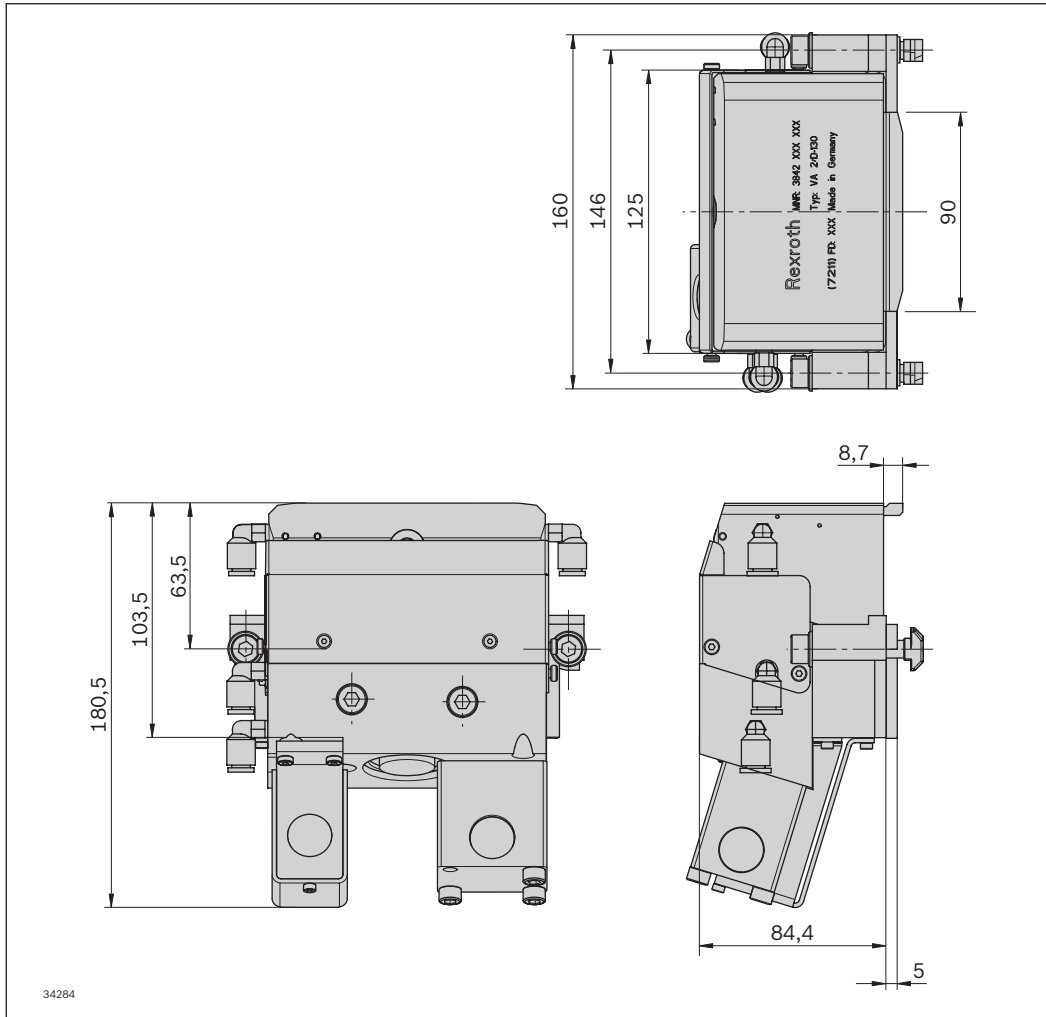


As a node point

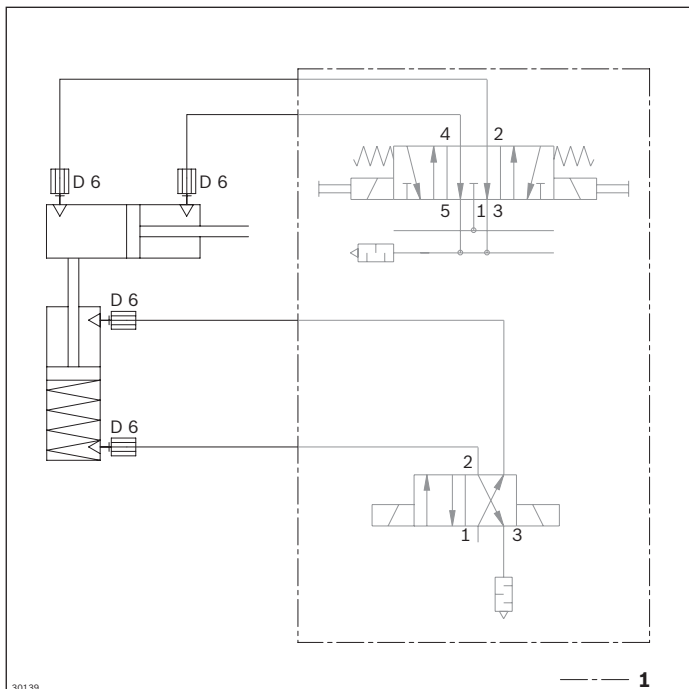


During outfeeding on parallel section

Dimensions



Circuit diagram



Clamping holder

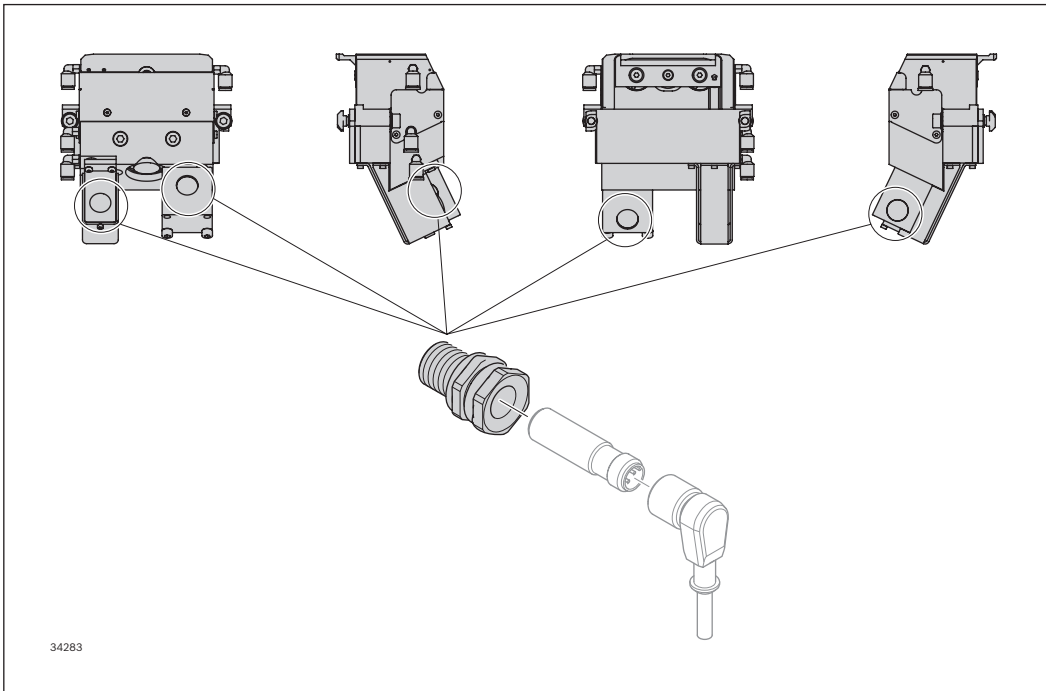


- ▶ Clamping holder for sensor for screwing into VA 2/D-130 slide stop, d = 12 mm
- ▶ Adapter for variable positioning of the sensor

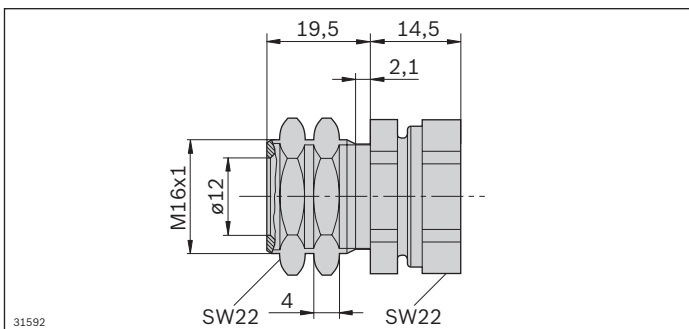
Ordering information

Product designation	Packaging unit	Material number
Clamping holder	1	3842545974

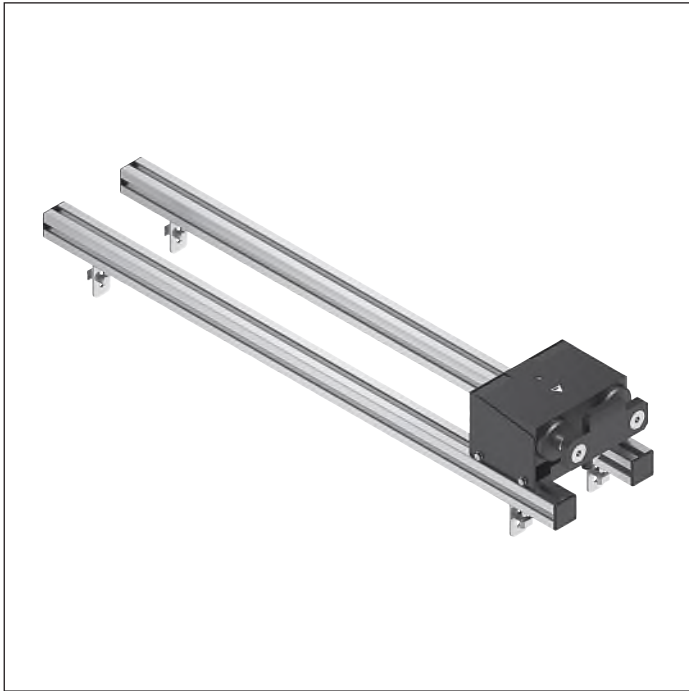
Technical data



Dimensions



VA 2/D-250 slide stop



- ▶ Slide stop, pneumatically lowered, dampened stop for use with HQ 2/C-H only (minimum longitudinal width from $b_Q = 480$ mm, minimum transverse width from $b_L = 640$ mm)
- ▶ Stopping on the inside of the WT frame module
- ▶ Continuously adjustable damping
- ▶ When the pressure is released by a spring into the lock position
- ▶ Can be combined with WT 2/H and WT 2/F-H

The slide stop is used in a transverse section that connects more than two longitudinal sections and that requires supplementary stops. A lift transverse unit can feed in the workpiece pallet onto the longitudinal section when the

slide stop is activated.

The pneumatically adjustable slide stop is extended to the upper end position when the system is depressurized. Mounting inside the HQ 2/C-H lift transverse unit.

Delivery notes

Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor section
- ▶ Right-angle connector for the Quickfix design air connection
- ▶ Position sensor

Condition on delivery

- ▶ Not assembled

Ordering information

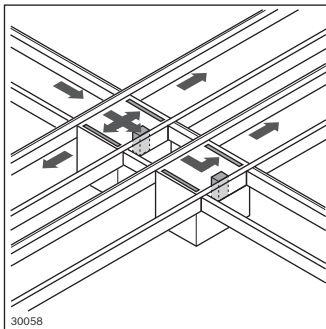
Material number		3842998796
b_L (mm)	Track width in the longitudinal conveyor	640; 800; 1040; 1200
b_L (mm)	Track width in the longitudinal conveyor	640 ... 1200
b_Q (mm)	Track width in the transverse conveyor	480; 640; 800; 1040; 1200; 480 ... 1200

Technical data

Material number		3842998796	
Load			
Max. total workpiece pallet weight	m_G	kg	250
Features			
Material specification	Housing: Aluminum, hard anodized Stop: Steel, hardened		
Operating temperature ¹		°C	-20 ... +80
Dimensions			
Minimum length of workpiece pallet	l_{wt}		400
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	d	mm	6

¹ High-temperature stop gate on request

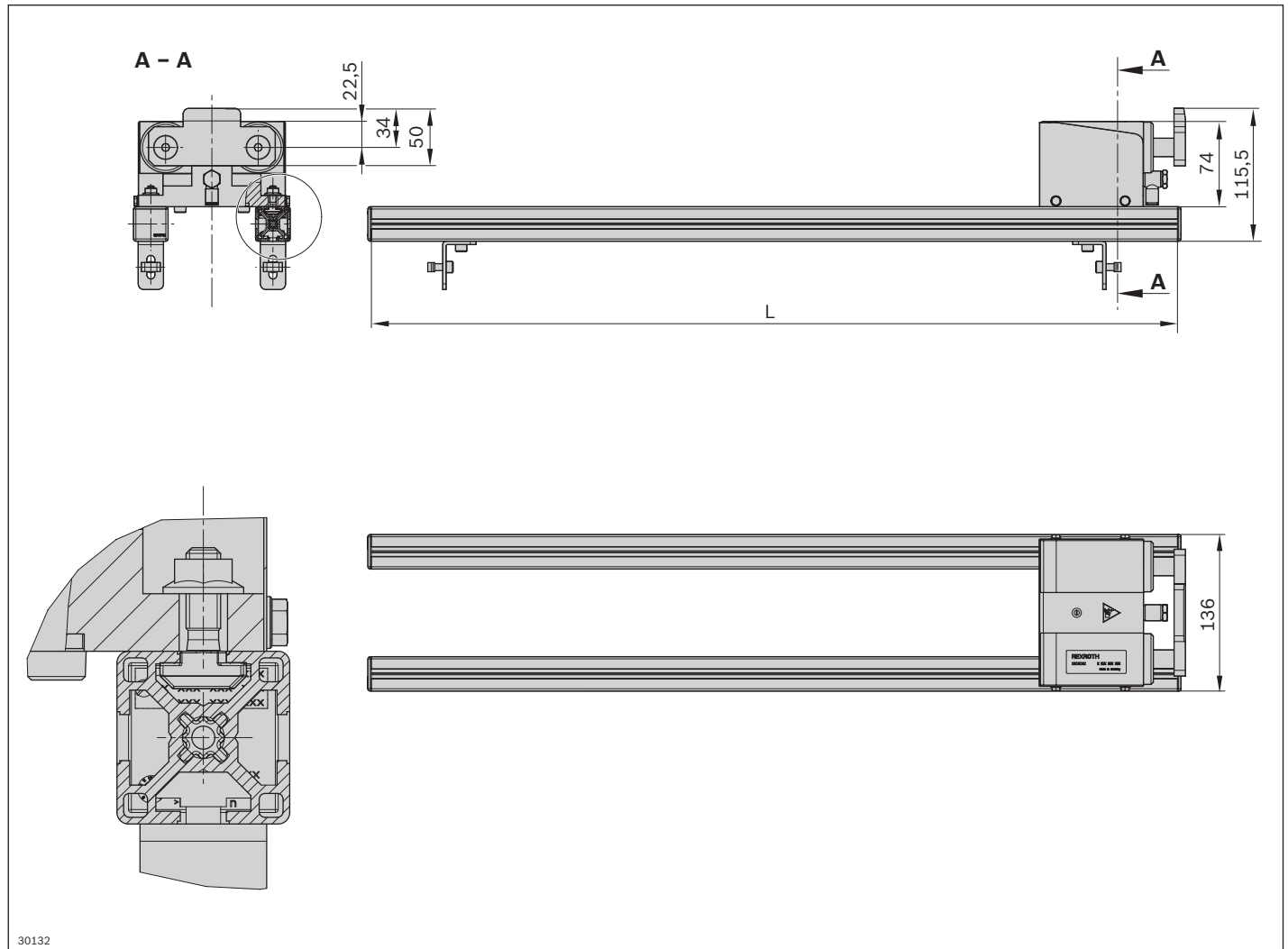
Possible installation location for VA 2/D-250



During outfeeding on parallel section

When attaching inside an HQ 2/C-H, the VA 2/D-250 must be positioned on the opposite side of the hexagonal shaft in each case.

Dimensions

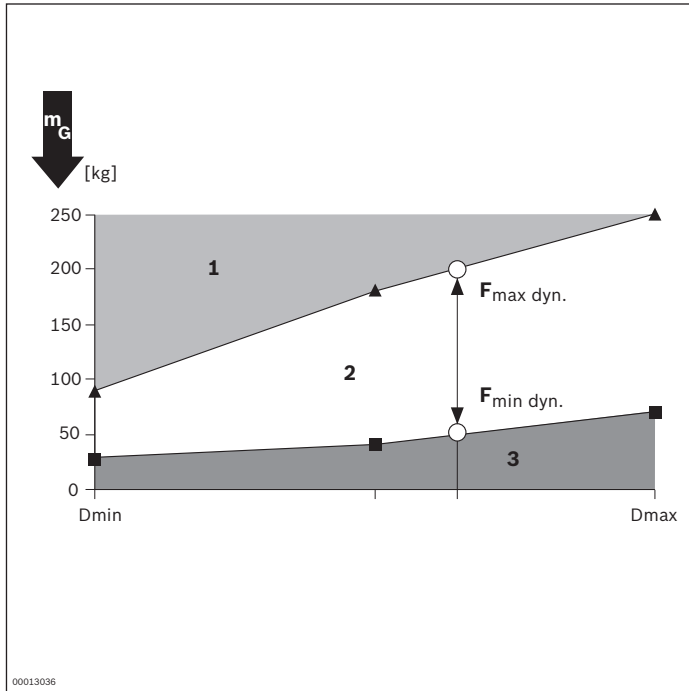


30132

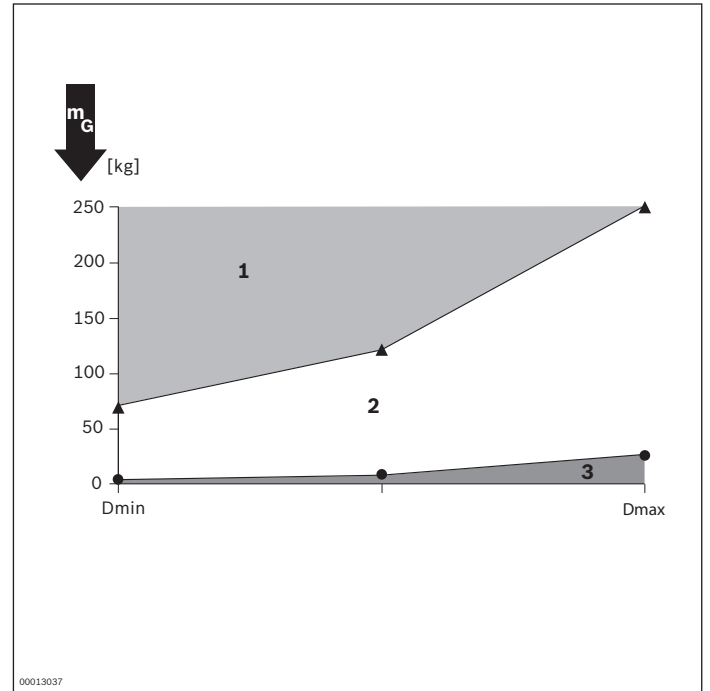
Track width in the longitudinal conveyor b_L (mm)	Dimension L (mm)
640	519
800	679
1040	919
1200	1079

Characteristic curve diagram

Damping setting, accumulation roller chain $\mu = 0.02$

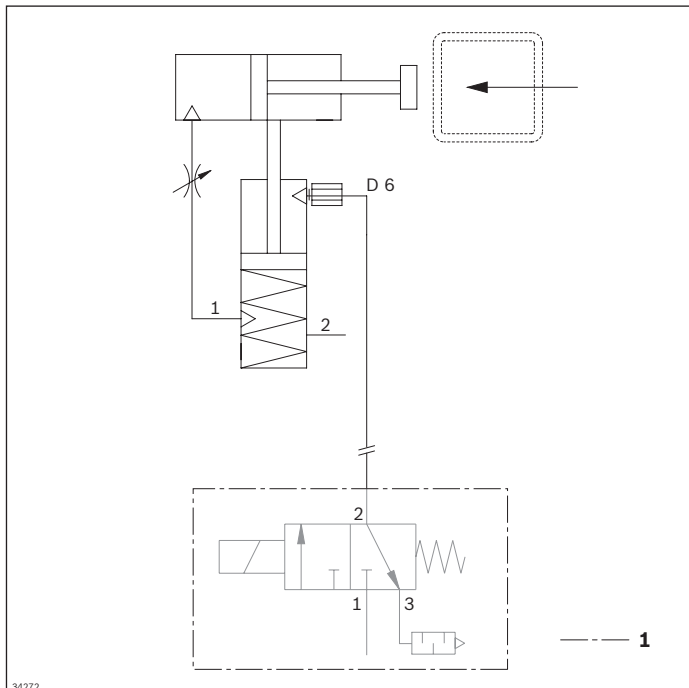


Damping setting, flat top chain $\mu = 0.2$

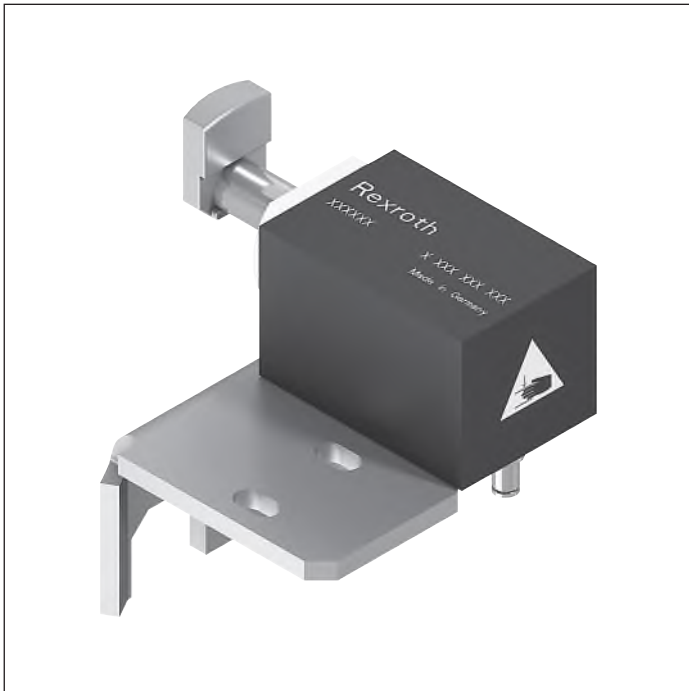


8

Circuit diagram



Damper



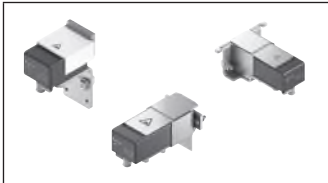
DA 2 dampers are used to cushion the impact of workpiece pallets when they are moved from a transverse conveyor section into a longitudinal conveyor section or vice versa.



DA 2/60 damper



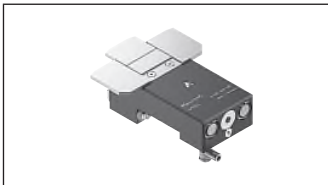
8-62



**DA 2/100, DA 2/100-C,
DA 2/100-E damper**



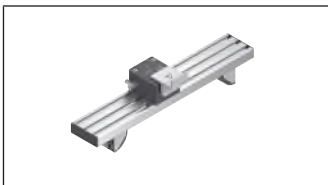
8-67



DA 2/150-E damper



8-79

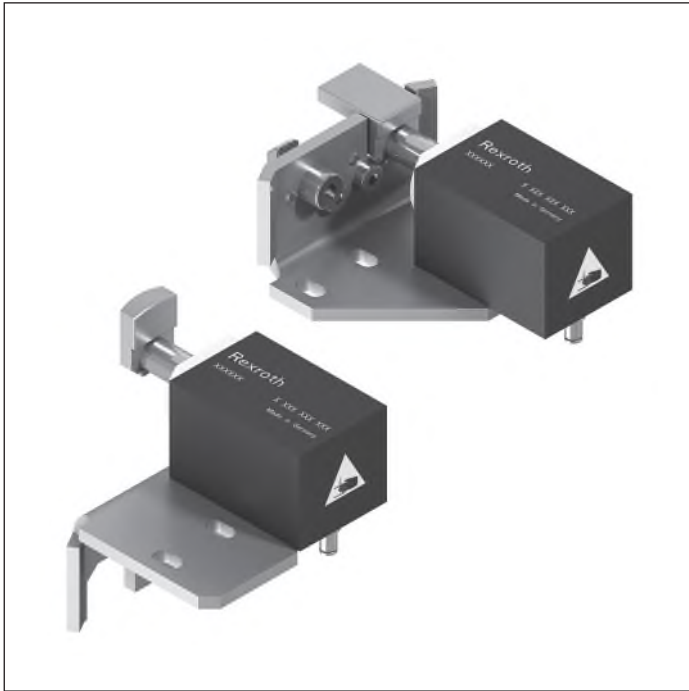


DA 2/100-H, DA 2/250-H damper



8-82

DA 2/60 damper



- ▶ For permitted total weight of workpiece pallets up to 60 kg
- ▶ Pneumatic damper
- ▶ Continuously adjustable
- ▶ Optimal damping at a ratio of 2:1 between heavy and light workpiece pallets
- ▶ Can be combined with WT 2/E, WT 2, WT 2/F, WT 2/H and WT 2/F-H
- ▶ Installation location: ST 2 section, BS 2 belt section and HQ 2 lift transverse unit
- ▶ Not suitable for HQ 2/U2 and HQ 2/...-H

The damper cushions the impact of workpiece pallets when they are moved from a transverse conveyor section into a longitudinal section and vice versa. The pneumatic return

occurs as the stop gate opens, which permits the workpiece pallet to move toward the damper.

Delivery notes

Scope of delivery

- ▶ Includes fastening material for mounting on an ST 2 or a BS 2, and EQ 2 or HQ 2/U, HQ 2/T, HQ 2/S or HQ 2/O
- ▶ DA 2/60 damper with two different stops for optional use infeeding or outfeeding use

Condition on delivery

- ▶ Not assembled

Ordering information

Product designation	Material number
DA 2/60 damper	3842557983

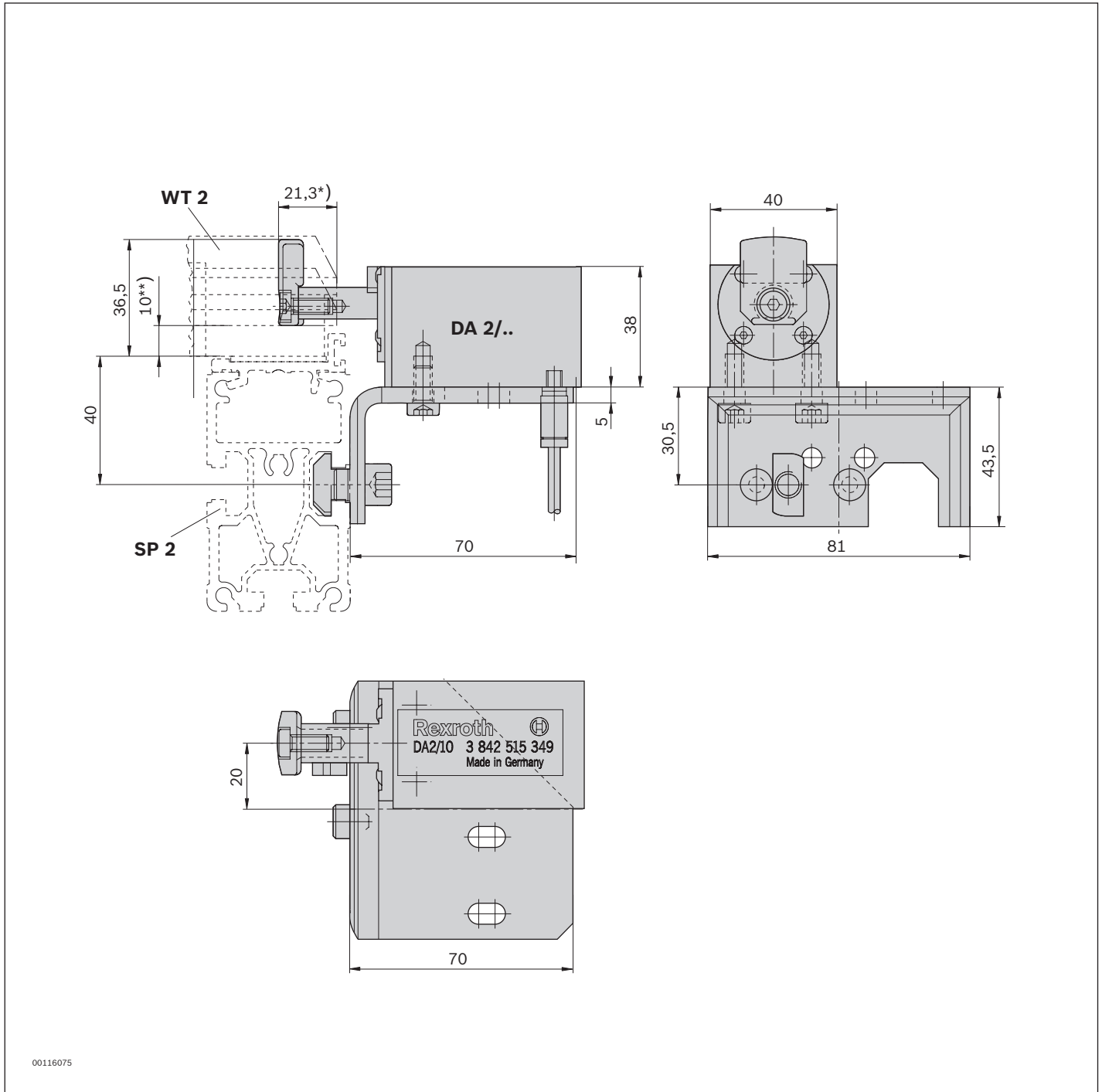
Technical data

Material number		3842557983	
Load			
Max. total workpiece pallet weight	m _G	kg	60
Min. workpiece pallet weight	m	kg	1
Features			
Material		Housing: Aluminum, hard anodized Stop: Steel, hardened	
Operating temperature ¹		°C	0 ... +60
Additional information			
Pneumatic connector	d	mm	4

¹ High-temperature damper on request

Permitted total weight of workpiece pallet m _G (kg)	Nominal speed v _N (m/min)
60	6
40	9
35	12
30	18
24	24
18	30
10	36

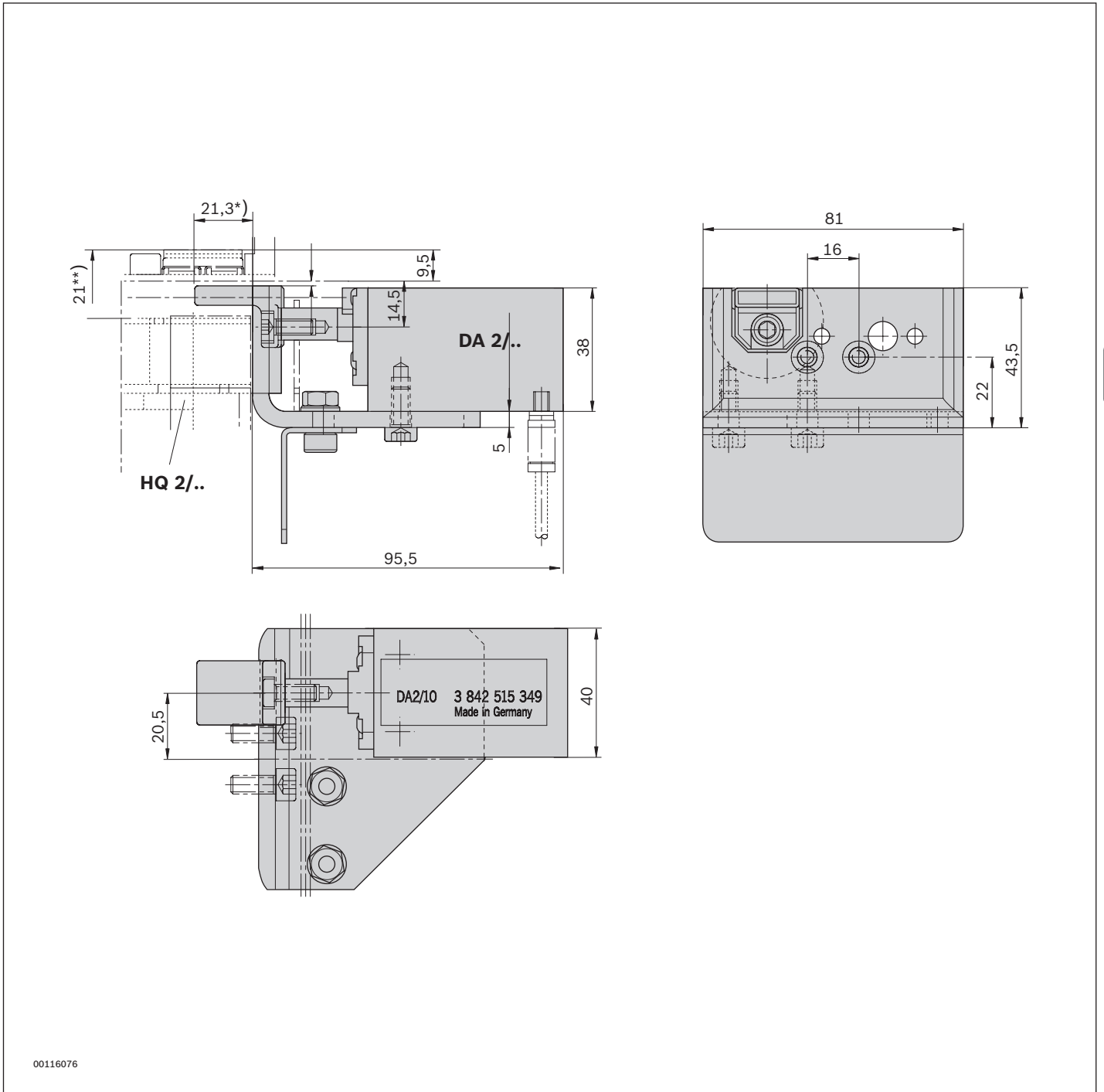
Dimensions
DA 2 - SP 2



* = Stroke of damper

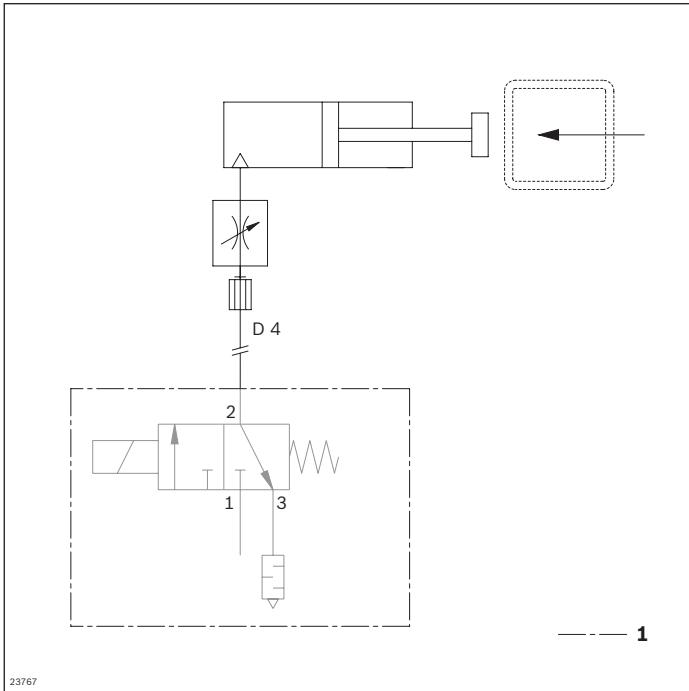
** = Stroke of WT 2

DA 2 - HQ 2



* = Stroke of damper
** = Stroke of HQ 2
*** = Center HQ 2

Circuit diagrams



1 Not included in delivery

DA 2/100-B damper



- ▶ For permitted total weight of workpiece pallets up to 100 kg
- ▶ Pneumatic damper
- ▶ Continuously adjustable
- ▶ Before outfeeding via an HQ 2/U2 lift transverse unit
- ▶ Optimal damping at a ratio of 2:1 between heavy and light workpiece pallets
- ▶ Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H
- ▶ Installation location: HQ 2/U2 lift transverse unit

8

The damper cushions the impact of the arriving workpiece pallet. The DA 2/100 is suitable for outfeeding via an HQ 2/U2 lift transverse unit.

The pneumatic return occurs as the stop gate opens, which

permits the workpiece pallet to move toward the damper. Mounted at the end or in the transverse conveyor directly on the conveyor section, since the damper is not traversable.

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ DA 2/100-B damper for outfeeding the WT 2, WT 2/F, WT 2/H or WT 2/F-H workpiece pallets, via an HQ 2/U2, required at $v_N > 12$ m/min or total weight of the workpiece pallet > 1 kg/cm

Condition on delivery

- ▶ Not assembled

Ordering information

Product designation	Material number
DA 2/100-B damper	3842525733

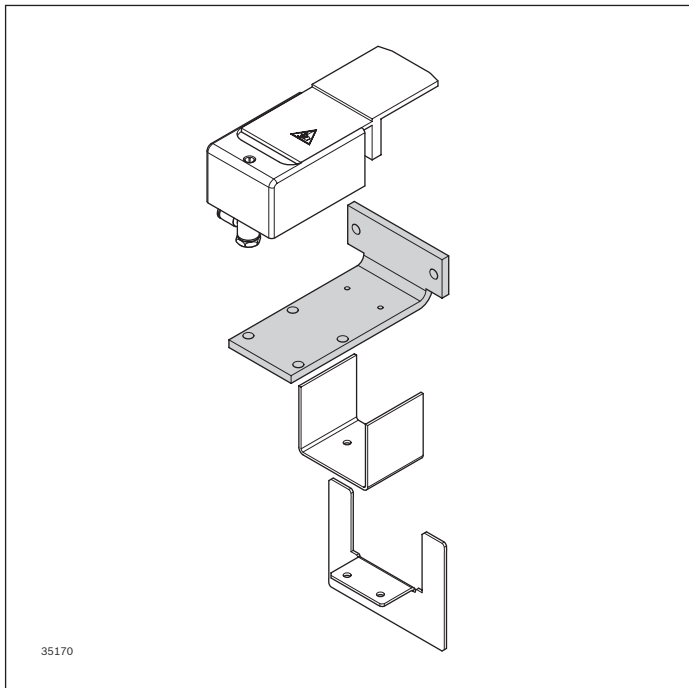
Technical data

Material number			3842525733
Load			
Max. total workpiece pallet weight	m_G	kg	100
Min. workpiece pallet weight	m	kg	5
Features			
Material specification			Housing: Aluminum, hard anodized Stop: Steel, hardened
Operating temperature ¹		°C	0 ... +60
Additional information			
Pneumatic connector	d	mm	6

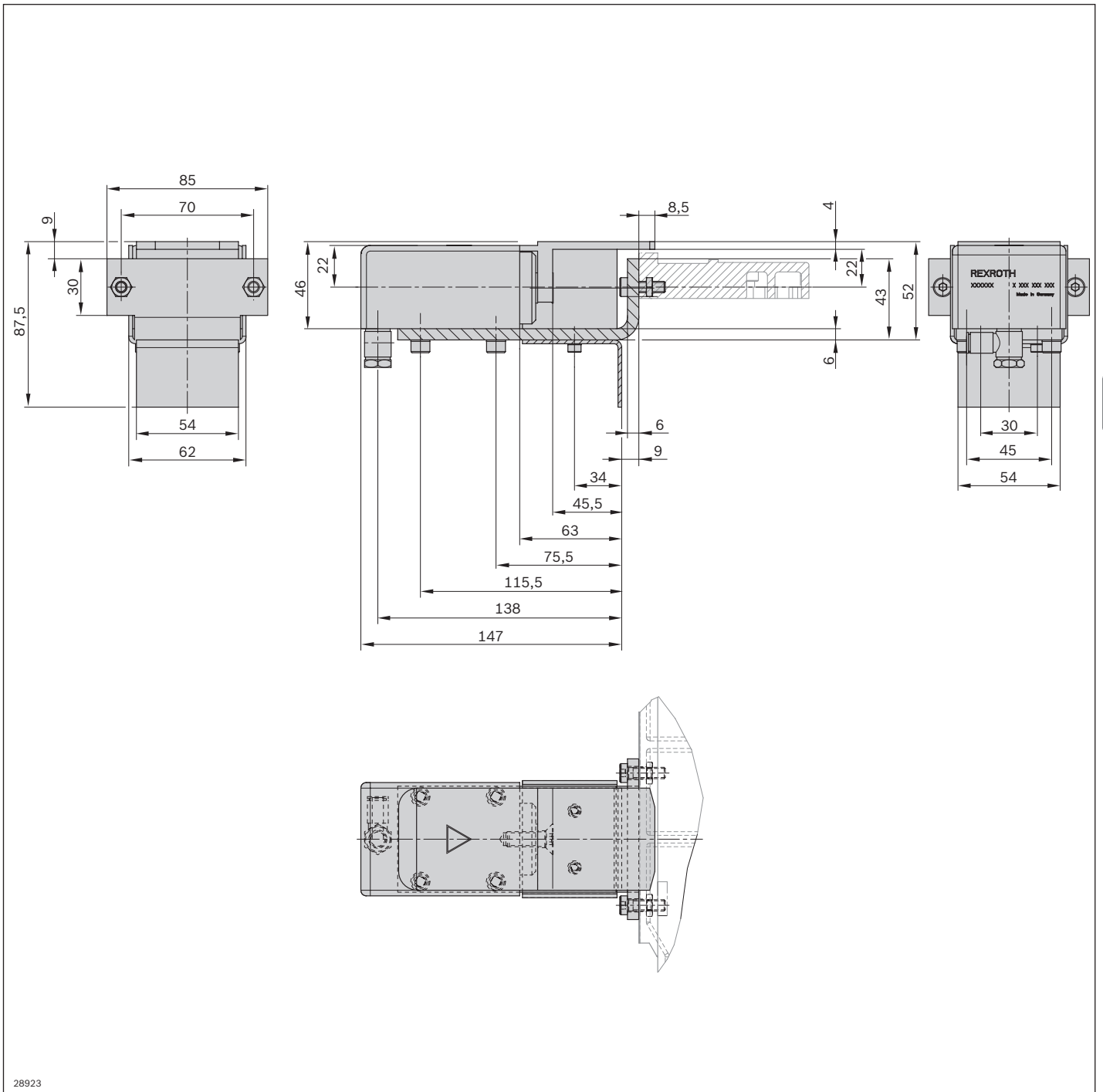
¹ High-temperature damper on request

	Permitted total weight of workpiece pallet	Nominal speed
	m_G (kg)	v_N (m/min)
	100	6
	100	9
	100	12
	95	15
	55	18

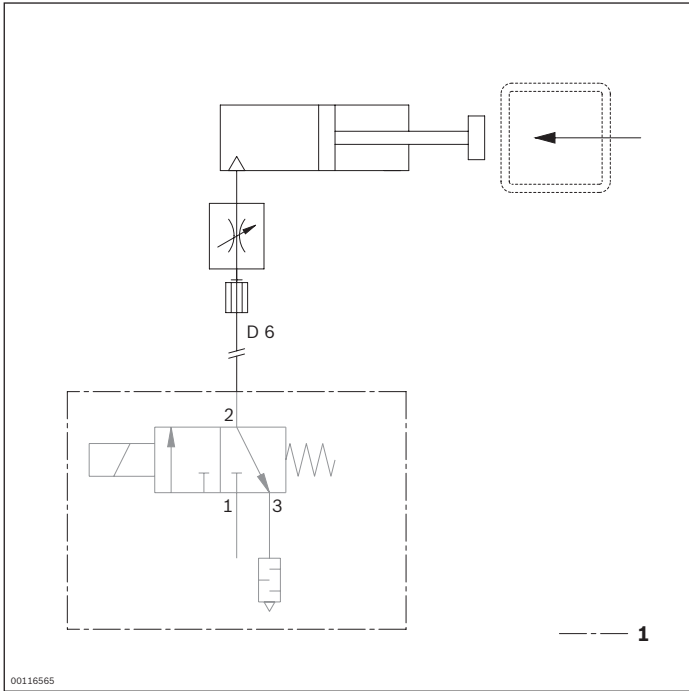
Attachment plate



Dimensions



Circuit diagrams



DA 2/100-C damper



- ▶ For permitted total weight of workpiece pallets up to 100 kg
- ▶ Pneumatic damper
- ▶ Continuously adjustable
- ▶ During infeeding in a longitudinal section
- ▶ Optimal damping at a ratio of 2:1 between heavy and light workpiece pallets
- ▶ Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H
- ▶ Installation location: ST 2 section or BS 2 belt section

8

The damper cushions the impact of the arriving workpiece pallet. The DA 2/100-C is suitable for infeeding from a transverse section into a longitudinal section. It is mounted directly on the section profile of the longitudinal section.

The pneumatic return occurs as the stop gate opens, which permits the workpiece pallet to move toward the damper. The damper is not traversable.

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ DA2/100-C damper for infeeding the WT 2 and WT 2/F workpiece pallets

Condition on delivery

- ▶ Not assembled

Ordering information

Product designation	Material number
DA 2/100-C damper	3842525734

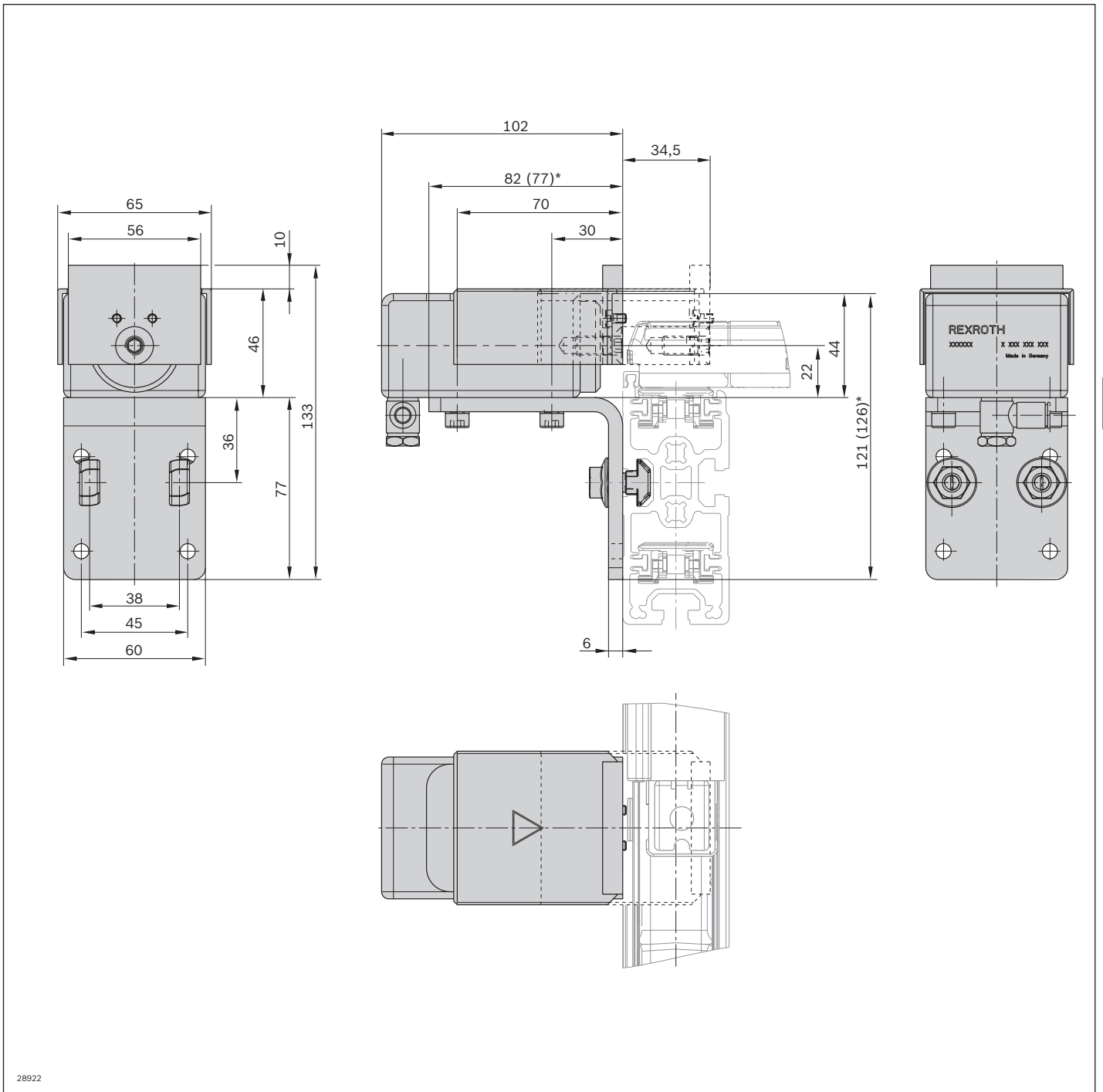
Technical data

Material number		3842525734	
Load			
Max. total workpiece pallet weight	m_G	kg	100
Min. workpiece pallet weight	m	kg	5
Features			
Material specification		Housing: Aluminum, hard anodized Stop: Steel, hardened	
Operating temperature ¹		°C	0 ... +60
Additional information			
Pneumatic connector	d	mm	6

¹ High-temperature damper on request

	Permitted total weight of workpiece pallet	Nominal speed
	m_G (kg)	v_N (m/min)
	100	6
	100	9
	100	12
	95	15
	55	18

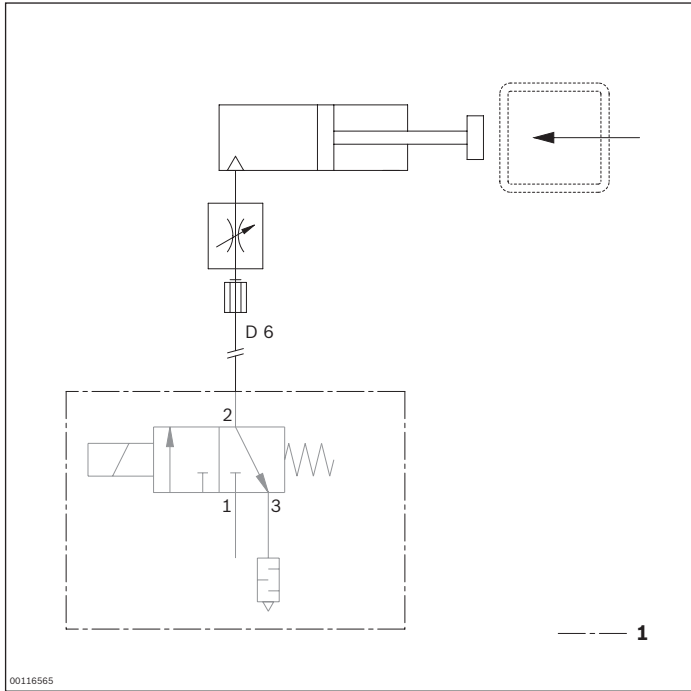
Dimensions



28922

* Dimension in brackets apply to mounting on ST 2/...-H section profile

Circuit diagrams



1 Not included in delivery

DA 2/100-E damper



- ▶ For permitted total weight of workpiece pallets up to 100 kg
- ▶ Pneumatic damper
- ▶ Continuously adjustable
- ▶ Optimal damping at a ratio of 2:1 between heavy and light workpiece pallets
- ▶ Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H
- ▶ Installation location: HQ 2/C-H or HQ 2 lift transverse unit

8

The damper cushions the impact of the arriving workpiece pallet. The DA 2/100-E is suitable for outfeeding via an HQ 2/U-H. The pneumatic return is parallel to opening of the

stop gate, which permits the workpiece pallet to move towards the damper. The damper is traversable.

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ DA 2/100-E damper for outfeeding the WT 2, WT 2/F, WT 2/H or WT 2/F-H workpiece pallets via an HQ 2/U-H

Condition on delivery

- ▶ Not assembled

Ordering information

Product designation	Material number
DA 2/100-E damper	3842548585

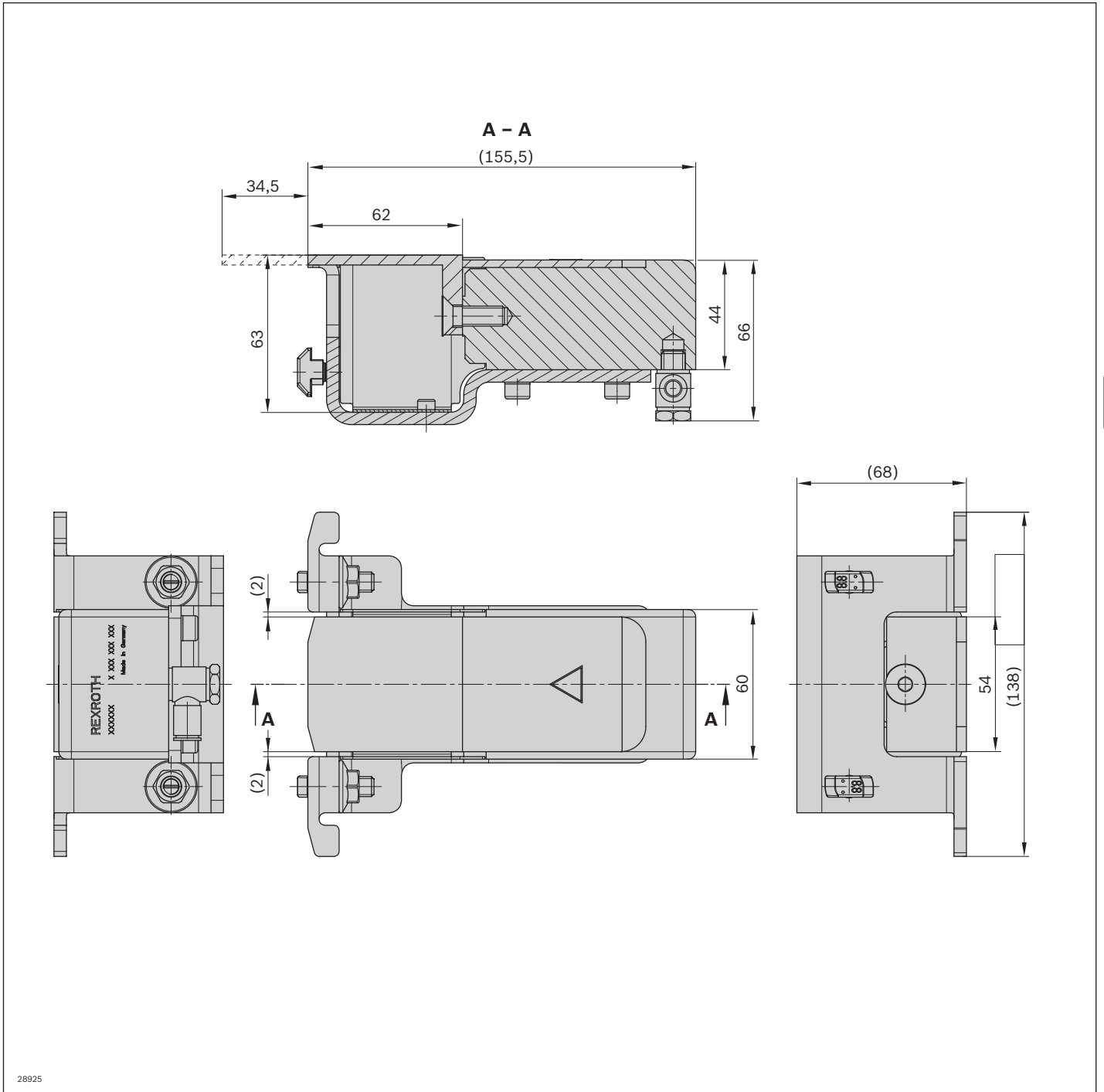
Technical data

Material number		3842548585	
Load			
Max. total workpiece pallet weight	m _G	kg	100
Min. workpiece pallet weight	m	kg	5
Features			
Material specification		Housing: Aluminum, hard anodized Stop: Steel, hardened	
Operating temperature ¹		°C	0 ... +60
Additional information			
Pneumatic connector	d	mm	6

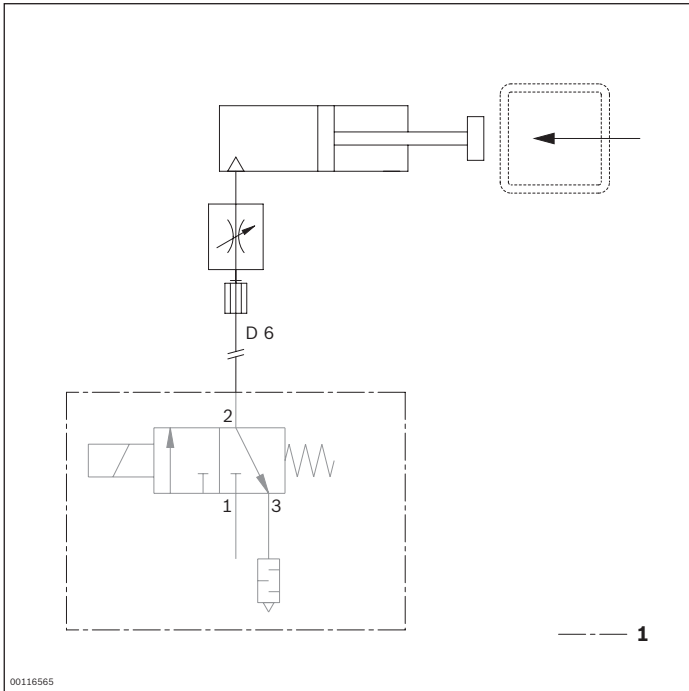
¹ High-temperature damper on request

	Permitted total weight of workpiece pallet m _G (kg)	Nominal speed v _N (m/min)
	100	6
	100	9
	100	12
	95	15
	55	18

Dimensions

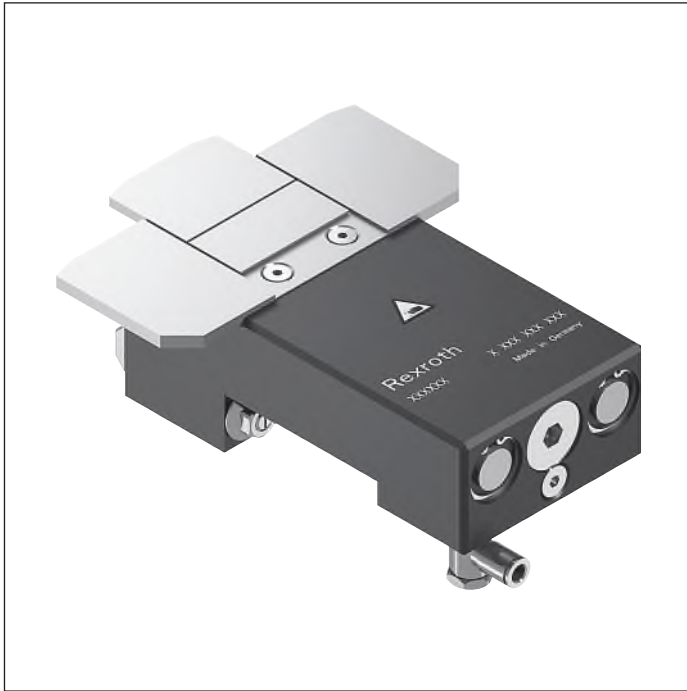


Circuit diagrams



1 Not included in delivery

DA 2/150-E damper



- ▶ Hydraulic damper with closed damping system
- ▶ Before outfeeding via an HQ 2/U-H lift transverse unit
- ▶ For permitted total weight of workpiece pallets up to 130 kg with belts, toothed belts or flat top chains
- ▶ For permitted total weight of workpiece pallets up to 150 kg with accumulation roller chains
- ▶ Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H
- ▶ Installation location: HQ 2/C-H or HQ 2 lift transverse unit

8

The damper cushions the impact of the arriving workpiece pallet. The DA 2/150-E damper is suitable for outfeeding a workpiece pallet via an HQ 2/U-H. The pneumatic return is parallel to opening of the stop gate, which permits the

workpiece pallet to move towards the damper. The damper is traversable.

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ DA 2/150-E damper for outfeeding the WT 2, WT 2/F, WT 2/H or WT 2/F-H workpiece pallets via an HQ 2/U-H

Condition on delivery

- ▶ Not assembled

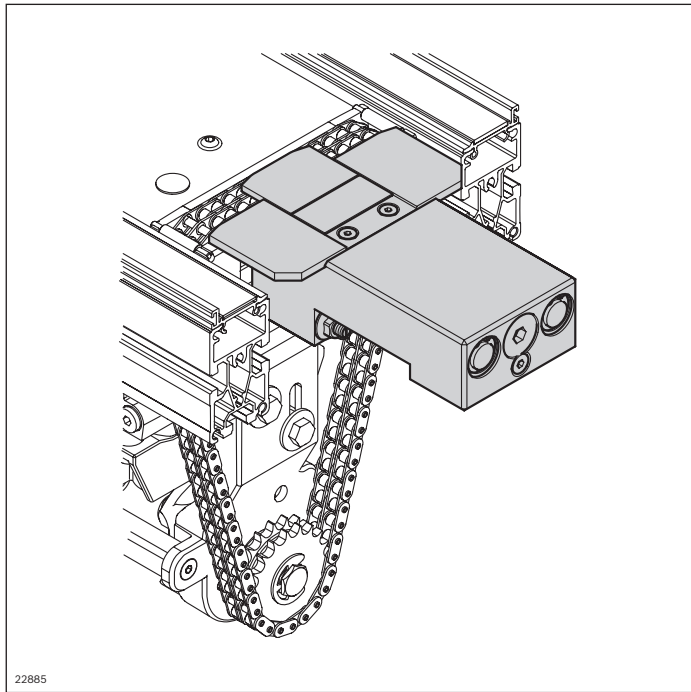
Ordering information

Product designation	Material number
DA 2/150-E damper	3842548644

Technical data

Material number		3842548644	
Load			
Max. total workpiece pallet weight	m_G	kg	Belt, toothed belt, flat top chain 130 Accumulation roller chain 150
Min. workpiece pallet weight	m	kg	Belt, toothed belt, flat top chain 15 Accumulation roller chain 40
Features			
Material specification		Housing: Aluminum, hard anodized Stop: Steel, hardened	
Operating temperature ¹		°C	0 ... +60
Additional information			
Pneumatic connector	d	mm	6

¹ High-temperature damper on request



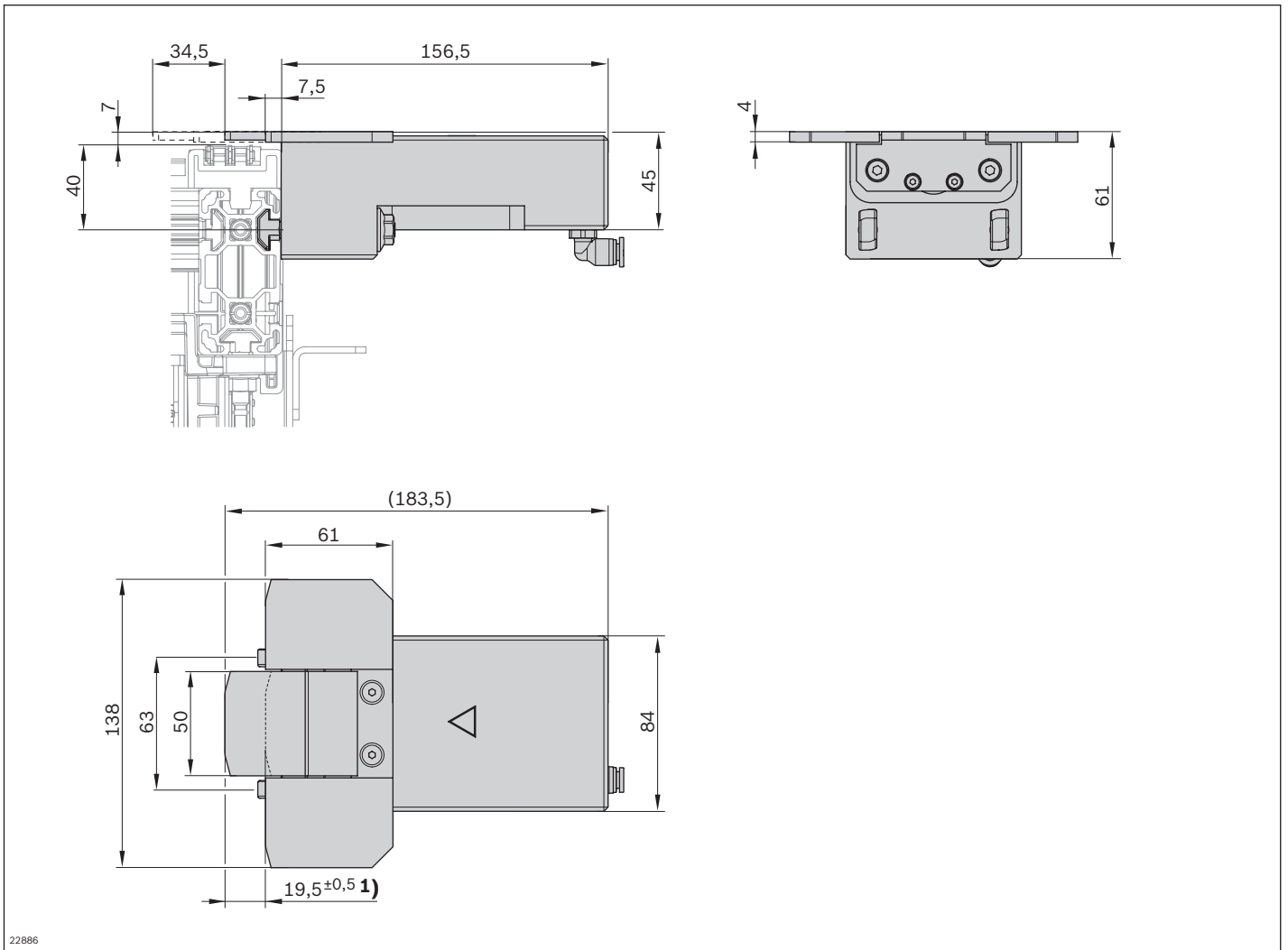
Belt, toothed belt, or flat top chain

Permitted total weight of workpiece pallet	Nominal speed
130	6
130	9
130	12
130	15
130	18

Accumulation roller chain

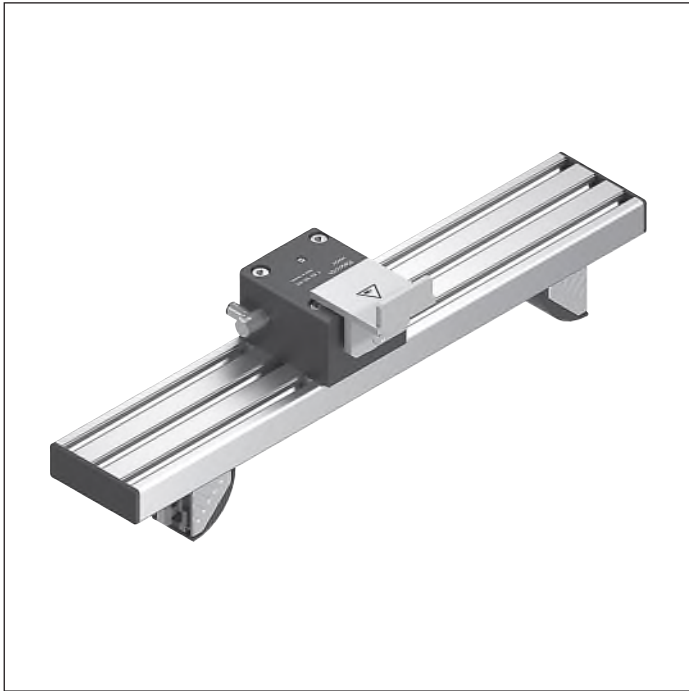
Permitted total weight of workpiece pallet	Nominal speed
150	6
150	9
150	12
150	15
150	18

Dimensions



1 Stroke

DA 2/100-H damper



- ▶ For permitted total weight of workpiece pallets up to 100 kg
- ▶ Pneumatic damper
- ▶ Continuously adjustable
- ▶ Installation location: HQ 2/C-H lift transverse unit
- ▶ Can be combined with WT 2/H and WT 2/F-H

The damper cushions the impact of workpiece pallets when they are moved from a transverse conveyor section into a longitudinal section and vice versa. The pneumatic return occurs as the stop gate opens, which permits the

workpiece pallet to move toward the damper. For installation in a HQ 2/C-H lift transverse unit. The damper is traversable.

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ DA 2/100-H damper for infeeding or outfeeding the WT 2/H or WT 2/F-H workpiece pallets via an HQ 2/C-H

Condition on delivery

- ▶ Not assembled

Ordering information

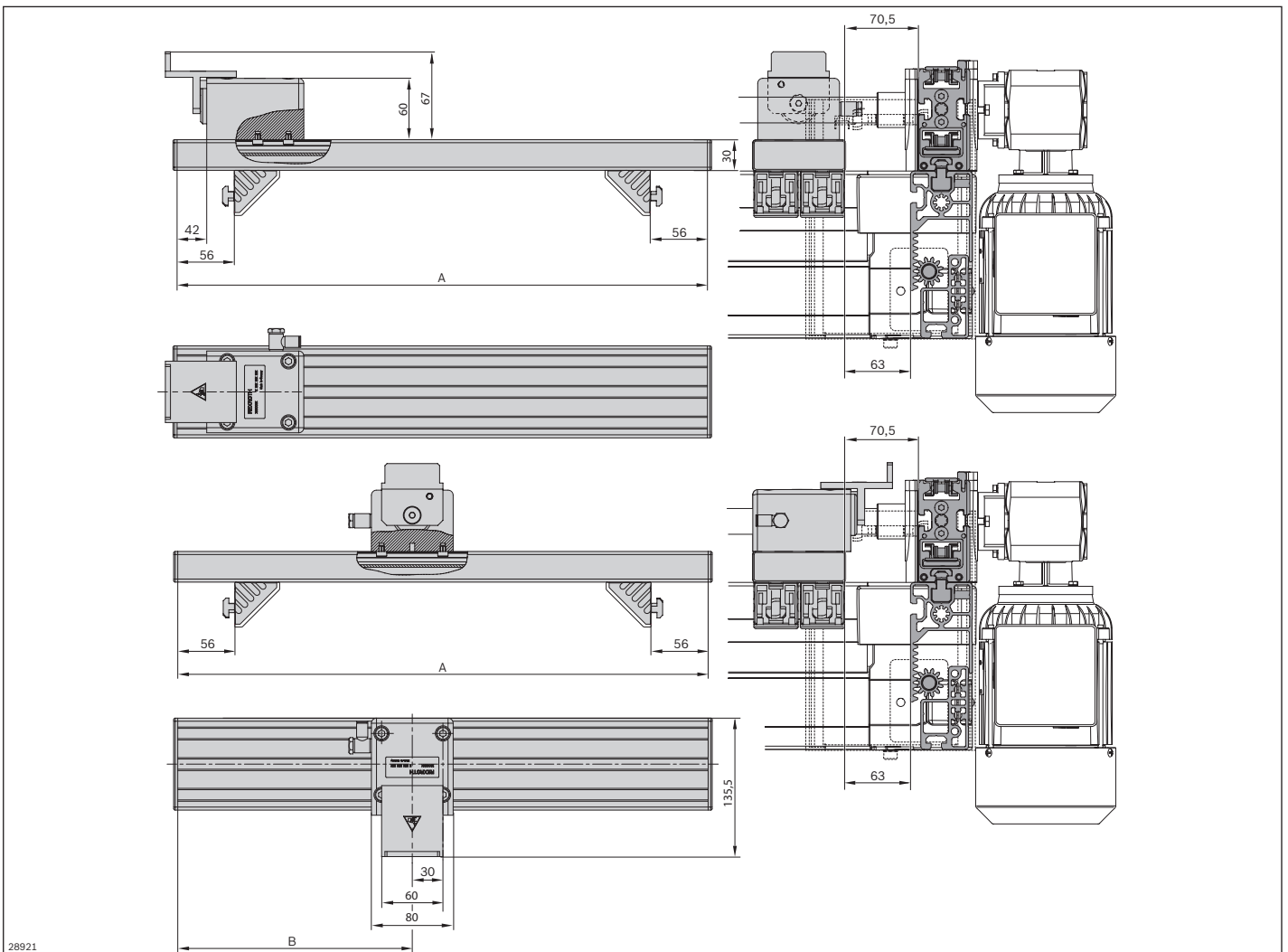
Material number		3842998745
b _L (mm)	Track width in the longitudinal conveyor	480, 640, 800, 1040, 1200
b _L (mm)	Track width in the longitudinal conveyor	480 ... 1200

Technical data

Material number		3842998745	
Load			
Max. total workpiece pallet weight	m_G	kg	100
Min. workpiece pallet weight	m	kg	5
Features			
Material specification		Housing: Aluminum; hard anodized Stop: Steel; hardened Section profile: Aluminum, natural; anodized	
Operating temperature ¹		°C	0 ... +60
Pneumatic connector	d	mm	6

¹ High-temperature damper on request

Dimensions



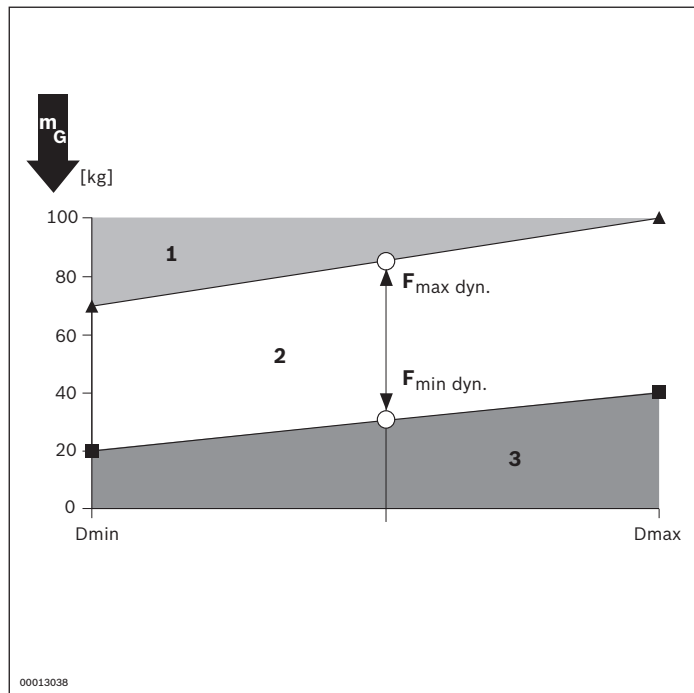
28921

Track width in the longitudinal conveyor b_L (mm)	Dimension A (mm)
480	359
640	519
800	679
1040	919
1200	1079

Track width in the longitudinal conveyor b_L (mm)	Dimension B (mm)
480	149.5
640	229.5
800	309.5
1040	429.5
1200	509.5

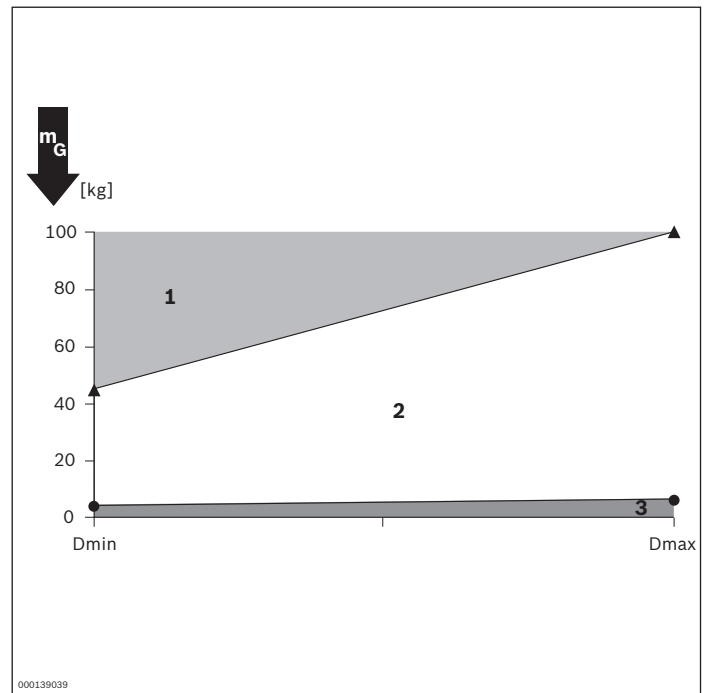
Characteristic curve diagram

Damping setting, accumulation roller chain $\mu = 0.02$



- 1 Damping effect limited, use of a VE 2/RS-H return stop recommended
 - 2 Recommended range
 - 3 Not possible
- Dmax/min damping setting

Damping setting, flat top chain $\mu = 0.2$



- 1 Damping effect limited, use of a VE 2/RS-H return stop recommended
 - 2 Recommended range
 - 3 Not possible
- Dmax/min damping setting

DA 2/250-H damper



- ▶ For permitted total weight of workpiece pallets up to 250 kg
- ▶ Pneumatic damper
- ▶ Continuously adjustable
- ▶ Installation location: HQ 2/C-H lift transverse unit
- ▶ Can be combined with WT 2/H and WT 2/F-H

8

The damper cushions the impact of workpiece pallets when they are moved from a transverse conveyor section into a longitudinal section and vice versa. The pneumatic return occurs as the stop gate opens, which permits the

workpiece pallet to move toward the damper. For installation in a HQ 2/C-H lift transverse unit. The damper is traversable.

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ DA 2/100-H damper for infeeding or outfeeding the WT 2/H or WT 2/F-H workpiece pallets via an HQ 2/C-H

Condition on delivery

- ▶ Not assembled

Ordering information

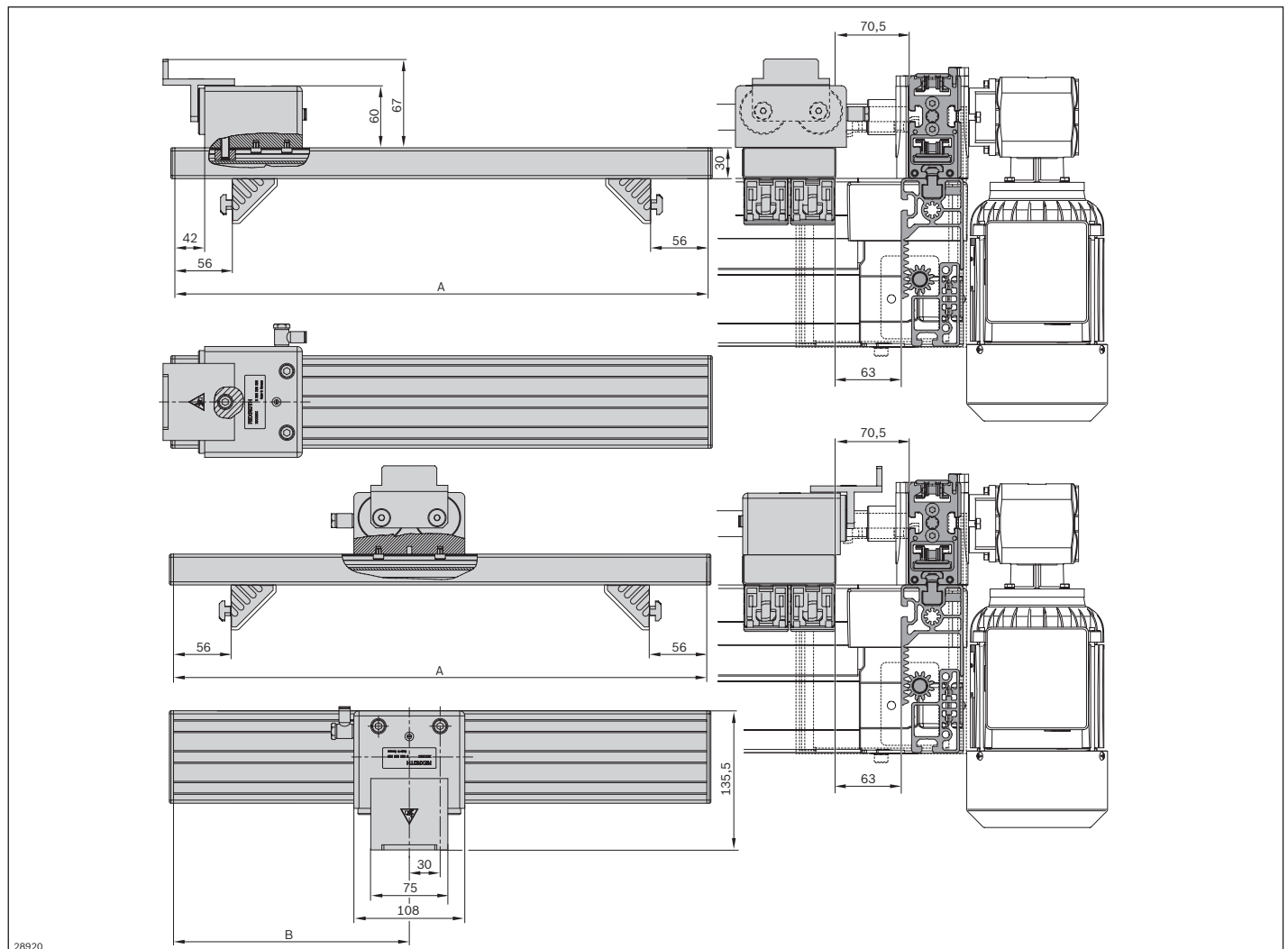
Material number		3842998746
b _L (mm)	Track width in the longitudinal conveyor	480, 640, 800, 1040, 1200
b _L (mm)	Track width in the longitudinal conveyor	480 ... 1200

Technical data

Material number		3842998746	
Load			
Max. total workpiece pallet weight	m_G	kg	250
Min. workpiece pallet weight	m	kg	5
Features			
Material specification		Housing: Aluminum, hard anodized Stop: Steel; hardened Section profile: Aluminum, natural; anodized	
Operating temperature ¹		°C	0 ... +60
Pneumatic connector	d	mm	6

¹ High-temperature damper on request

Dimensions



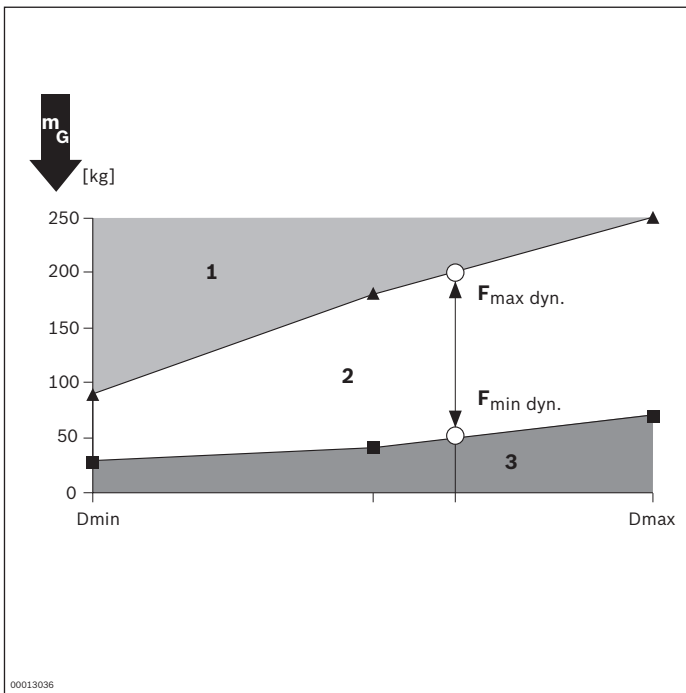
28920

Track width in the longitudinal conveyor b_L (mm)	Dimension A (mm)
480	359
640	519
800	679
1040	919
1200	1079

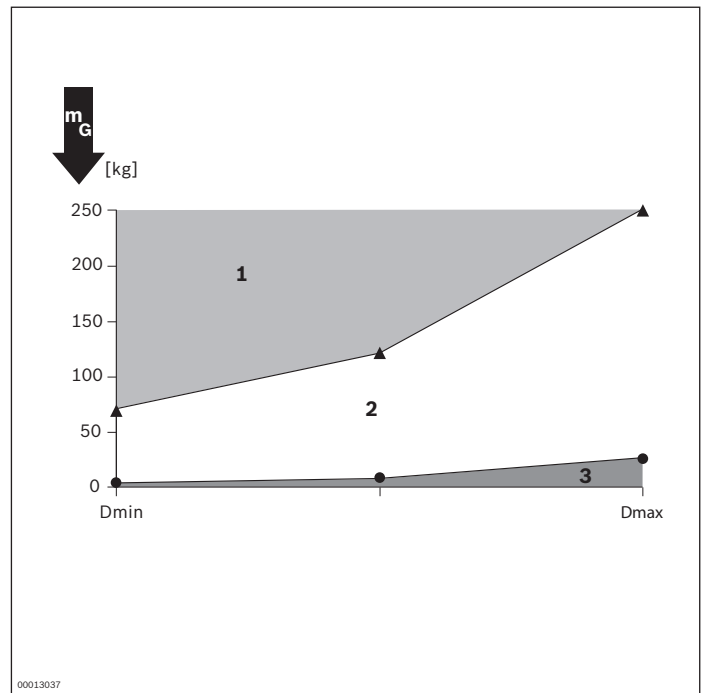
Track width in the longitudinal conveyor b_L (mm)	Dimension B (mm)
480	149.5
640	229.5
800	309.5
1040	429.5
1200	509.5

Characteristic curve diagram

Damping setting, accumulation roller chain $\mu = 0.02$



Damping setting, flat top chain $\mu = 0.2$



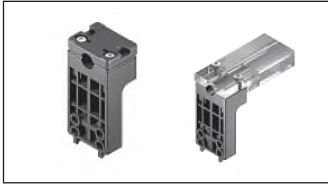
- 1 Damping effect limited, use of a VE 2/RS-H return stop recommended
 - 2 Recommended range
 - 3 Not possible
- Dmax/min damping setting

- 1 Damping effect limited, use of a VE 2/RS-H return stop recommended
 - 2 Recommended range
 - 3 Not possible
- Dmax/min damping setting

SH 2/... switch bracket

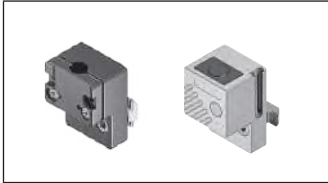


There are five types of sensor switch brackets available for use in the TS *2plus* transfer system.



SH 2/S, SH 2/ST, SH 2/S-H switch bracket

8-90



SH 2/U, SH 2/UV, SH 2/U-H switch bracket

8-96



SH 2/SF switch bracket

8-102



SH 2/EP switch bracket

8-104

SH 2/S switch bracket



- ▶ For fastening a sensor
- ▶ Suitable for lateral sensing of the workpiece pallet position
- ▶ Mounted in the upper groove on the side of a conveyor section

The switch bracket can be used to fix an M12x1 sensor in place for lateral sensing of the workpiece pallet position.

Accessories

Required accessories

- ▶ M12x1 sensor with $S_N \geq 4$ mm rated sensing range, length 50 mm, see p. 8-108

Delivery notes

Scope of delivery

- ▶ Incl. all fastening material to mount on ST 2 conveyor sections

Condition on delivery

- ▶ Not assembled

Ordering information

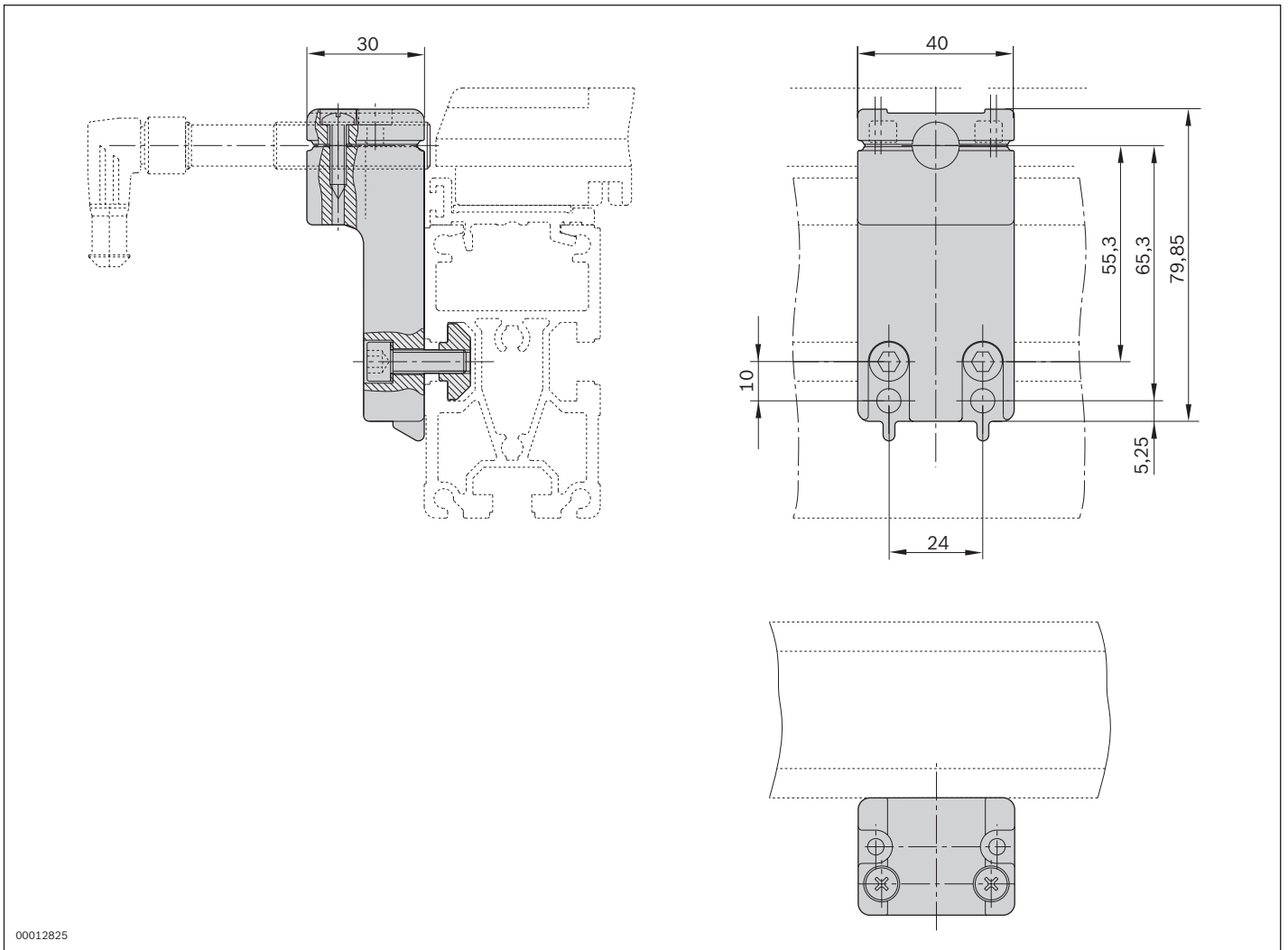
Product designation	Material number
SH 2/S switch bracket	3842168830

Technical data

Material number	3842168830
Features	
Material specification	Housing: PA 6; black Switch cover: PA 6; black

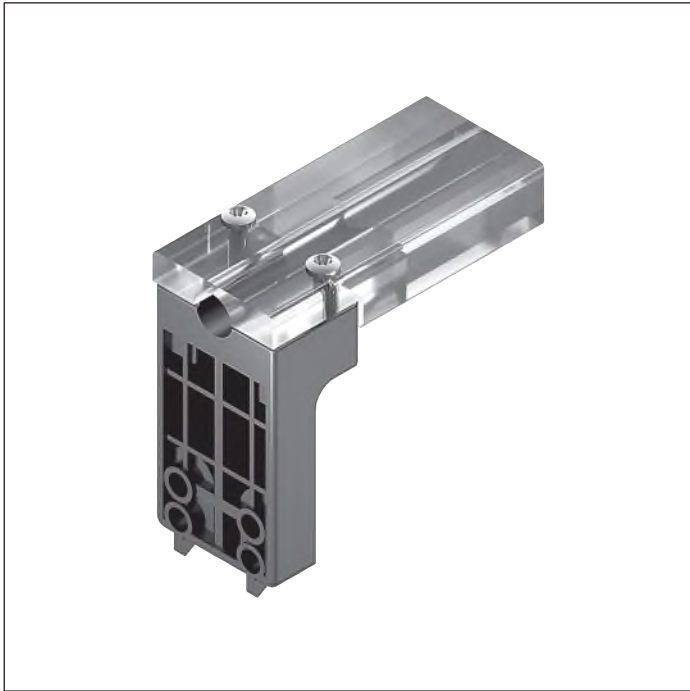
Dimensions			
Length	l	mm	30

Dimensions



00012825

SH 2/ST switch bracket



- ▶ For fastening a sensor
- ▶ Switch cover to protect switches and cables
- ▶ Suitable for lateral sensing of the workpiece pallet position
- ▶ Mounted in the upper groove on the side of a conveyor section

The switch bracket can be used to fix an M12x1 sensor in place for lateral sensing of the workpiece pallet position.

Accessories

Required accessories

- ▶ M12x1 sensor with $S_N \geq 4$ mm rated sensing range, length 70 mm, see p. 8-108

Delivery notes

Scope of delivery

- ▶ Incl. fastening material

Condition on delivery

- ▶ Not assembled

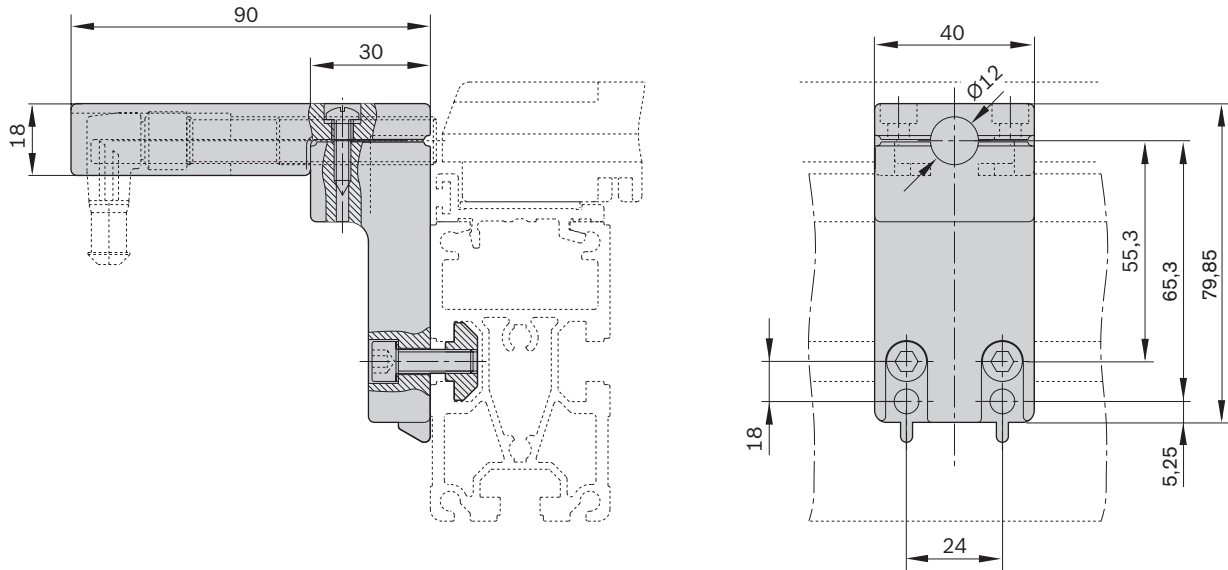
Ordering information

Product designation	Material number
SH 2/ST switch bracket	3842168850

Technical data

Material number	3842168850		
Features			
Material specification	Housing: PA 6; black Switch cover: ABS; transparent		
Dimensions			
Length	l	mm	90

Dimensions



00012826

SH 2/S-H switch bracket



- ▶ For fastening a sensor
- ▶ Especially sturdy metal design
- ▶ Able to bear loads of up to 100 kg
- ▶ Centering lugs for pre-positioning and quick assembly in the profile groove
- ▶ Integrated stop for 12 mm sensor
- ▶ Integrated cable guide
- ▶ Mounting on the outer profile groove of the section profile.

The switch bracket can be used to fix an M12x1 sensor in place for lateral sensing of the workpiece pallet position.

Accessories

Required accessories

- ▶ M12x1 sensor with $S_N = 7$ mm rated sensing range, see p. 8-108

Delivery notes

Scope of delivery

- ▶ Incl. fastening material

Condition on delivery

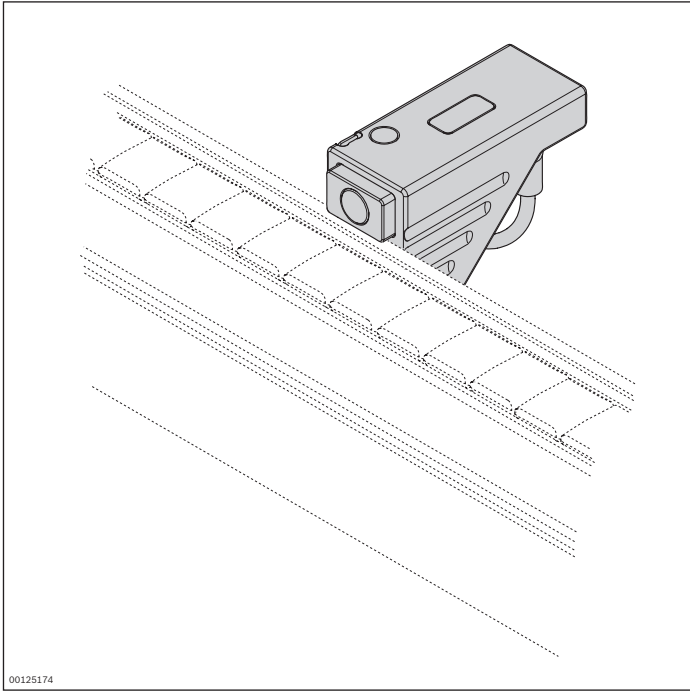
- ▶ Not assembled

Ordering information

Product designation	Material number
SH 2/S-H switch bracket	3842537280

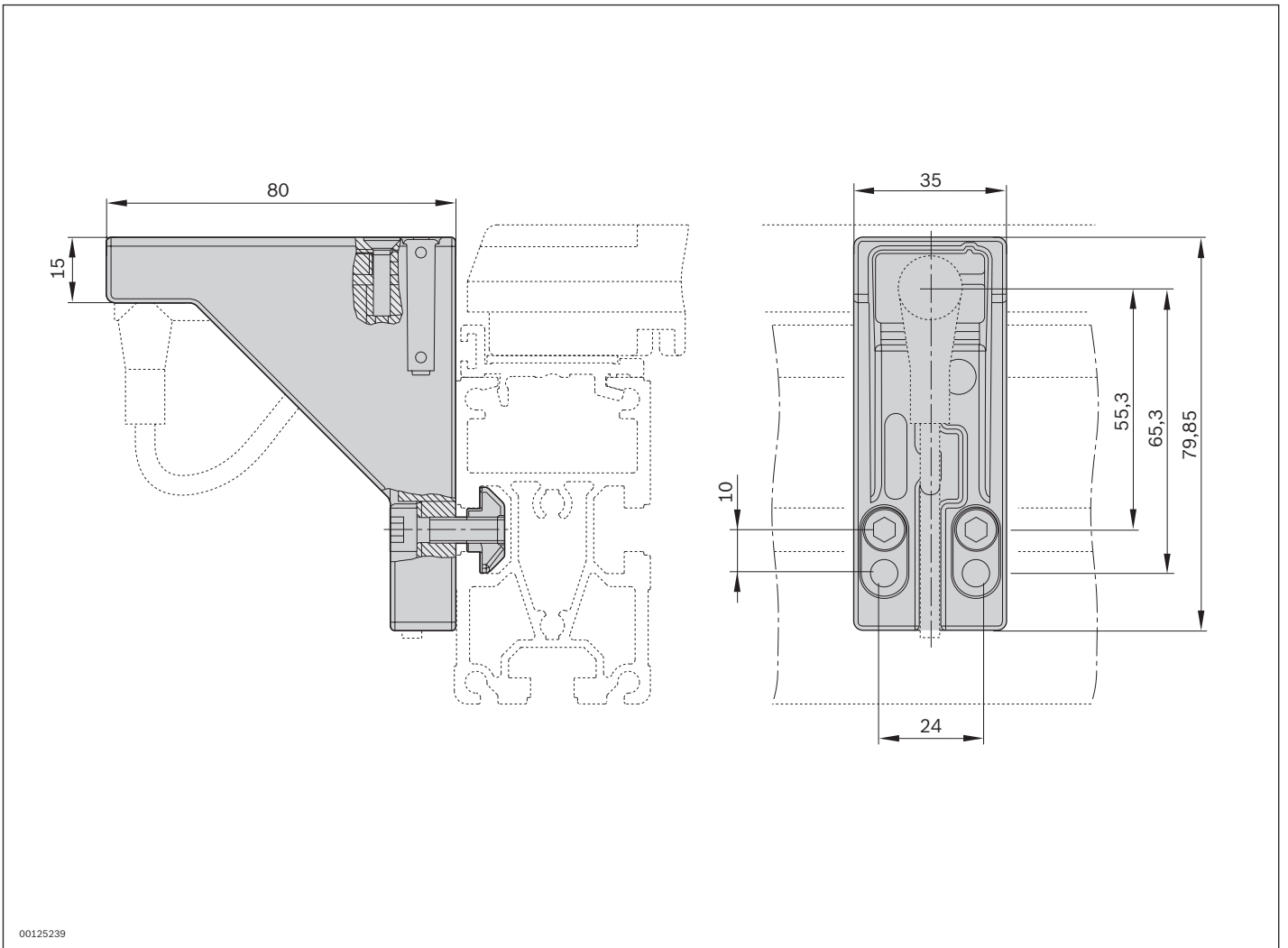
Technical data

Material number	3842537280
Features	
Material specification	Die-cast aluminum



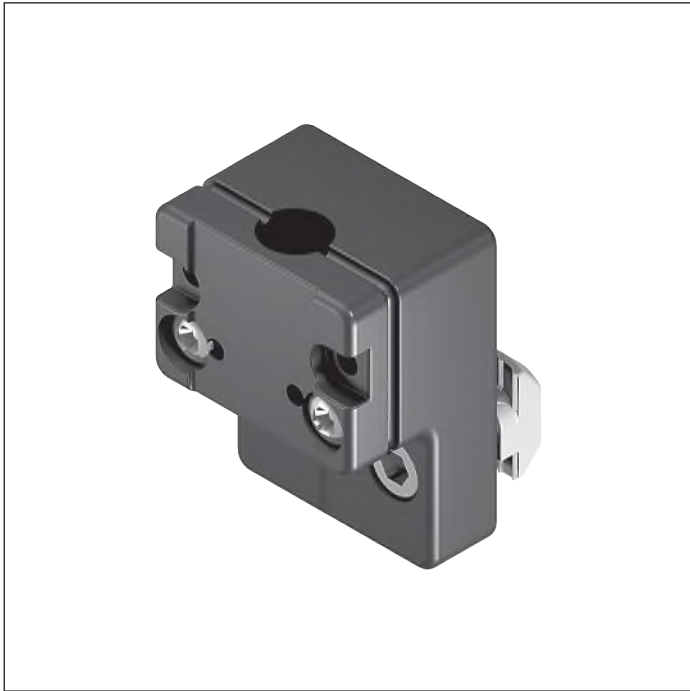
00125174

Dimensions



00125239

SH 2/U switch bracket



- ▶ For fastening a sensor
- ▶ Installation location in the upper groove on the side of a conveyor section
- ▶ For sensing of the workpiece pallet position from below

The switch bracket is used for fastening an M12x1 sensor for inquiry of the workpiece pallet position from below.

Accessories

Required accessories

- ▶ M12x1 sensor with $S_N = 4$ mm rated sensing range, see p. 8-108

Delivery notes

Scope of delivery

- ▶ Incl. fastening material

Condition on delivery

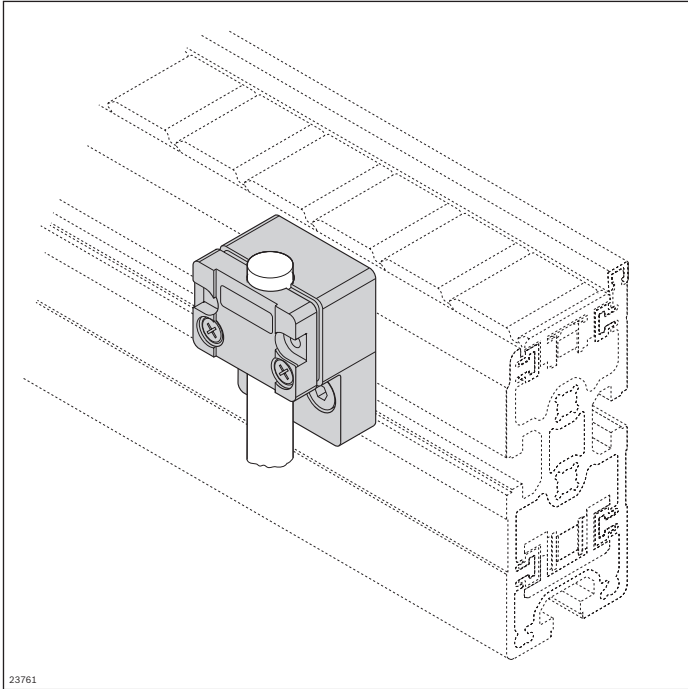
- ▶ Not assembled

Ordering information

Product designation	Material number
SH 2/U switch bracket	3842168820

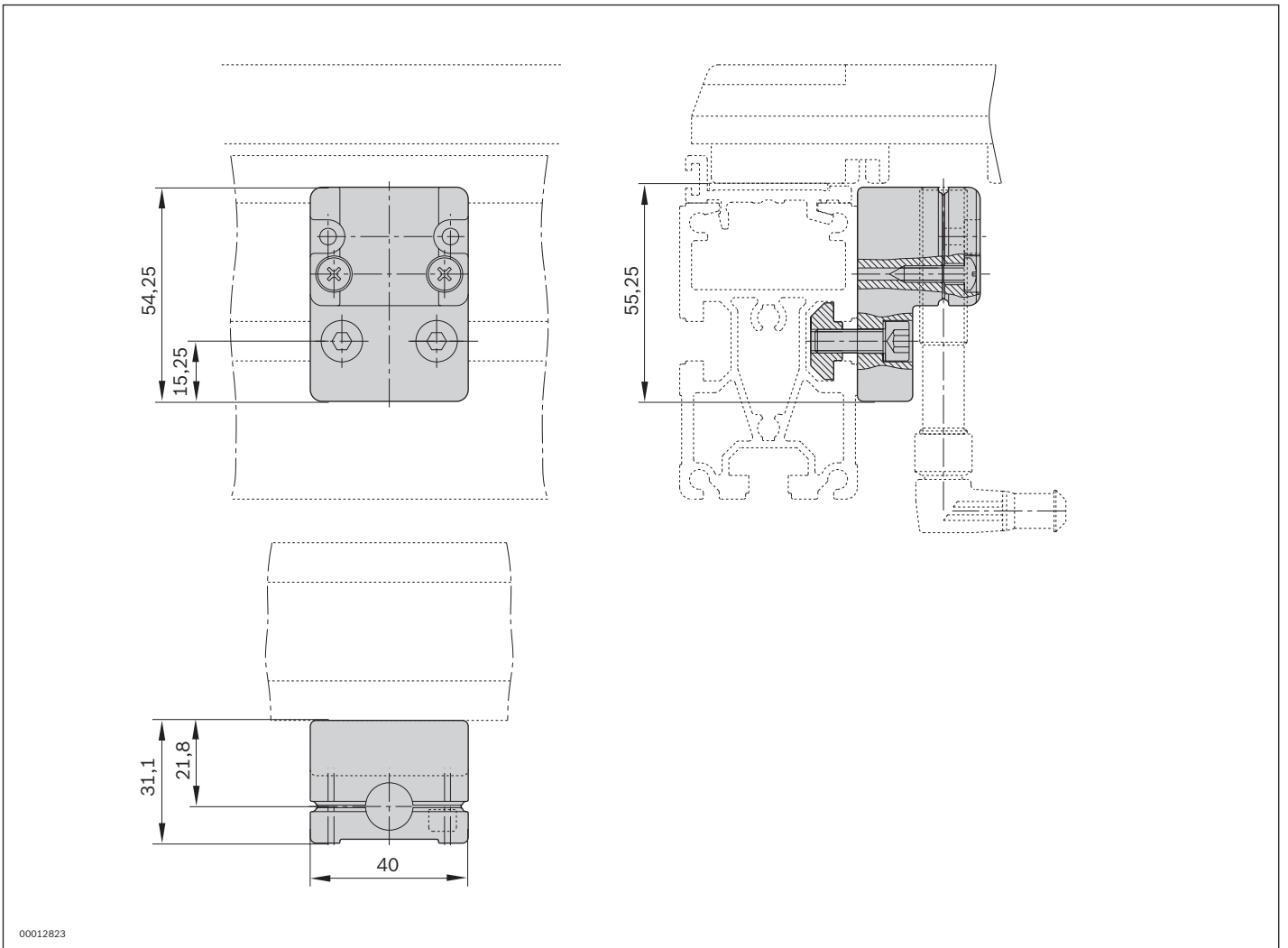
Technical data

Material number	3842168820
Features	
Material specification	PA6



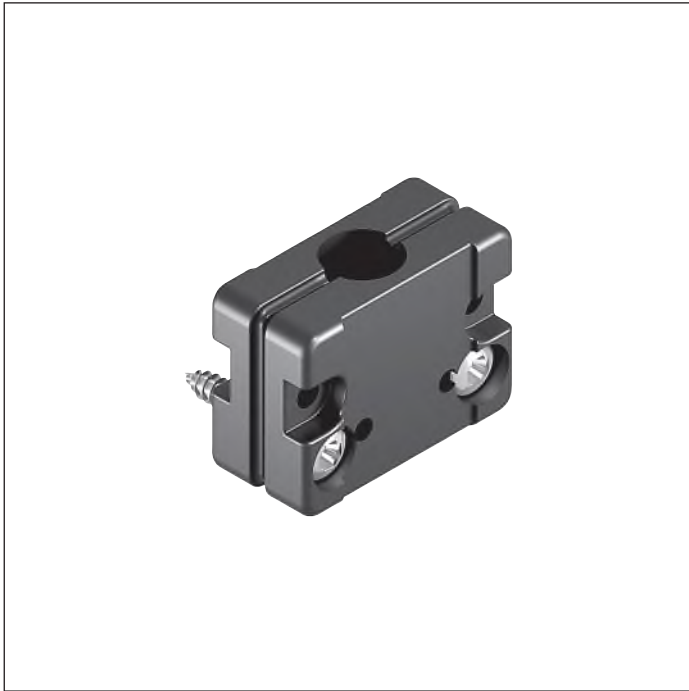
23761

Dimensions



00012823

SH 2/UV switch bracket



- ▶ For fastening a sensor
- ▶ Installation location on the VE 2 stop gate
- ▶ For sensing of the workpiece pallet position from below

The switch bracket is used for fastening an M12x1 sensor for inquiry of the workpiece pallet position from below.

Accessories

Required accessories

- ▶ M12x1 sensor with $S_N = 4$ mm rated sensing range, see p. 8-108

Delivery notes

Scope of delivery

- ▶ Incl. fastening material

Condition on delivery

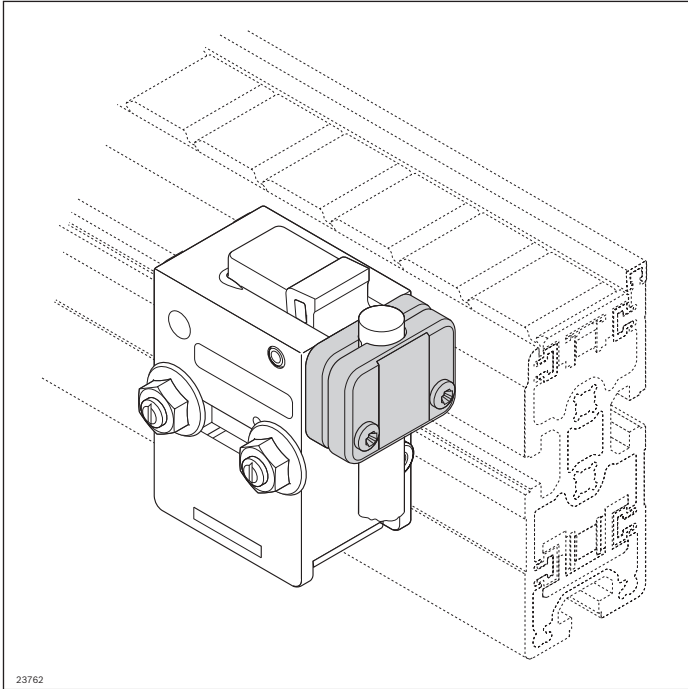
- ▶ Not assembled

Ordering information

Product designation	Material number
SH 2/UV switch bracket	3842168600

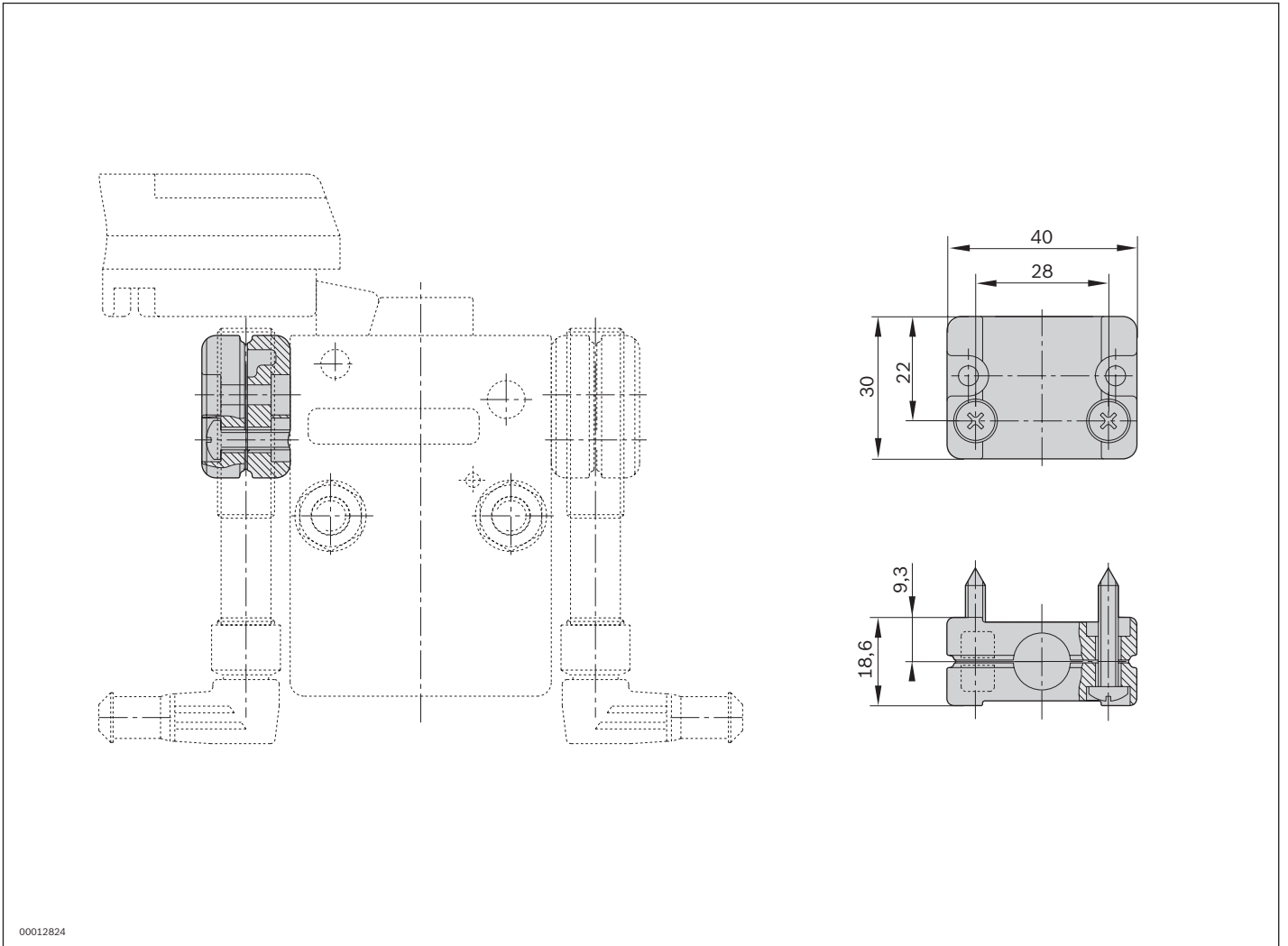
Technical data

Material number	3842168600
Features	
Material specification	PA6



23762

Dimensions



00012824

SH 2/U-H switch bracket



- ▶ For fastening a sensor
- ▶ For sensing the workpiece pallet position from below
- ▶ Especially sturdy metal design
- ▶ Able to bear loads of up to 100 kg
- ▶ Centering lugs for pre-positioning and quick assembly in the profile groove
- ▶ Installation location on the inner profile groove of the section profile
- ▶ Integrated stop for 12 mm sensor

The switch bracket is used for fastening an M12x1 sensor for detecting the workpiece pallet position from below.

Accessories

Required accessories

- ▶ M12x1 sensor with $S_N = 7$ mm rated sensing range, see p. 8-108

Delivery notes

Scope of delivery

- ▶ Incl. fastening material

Condition on delivery

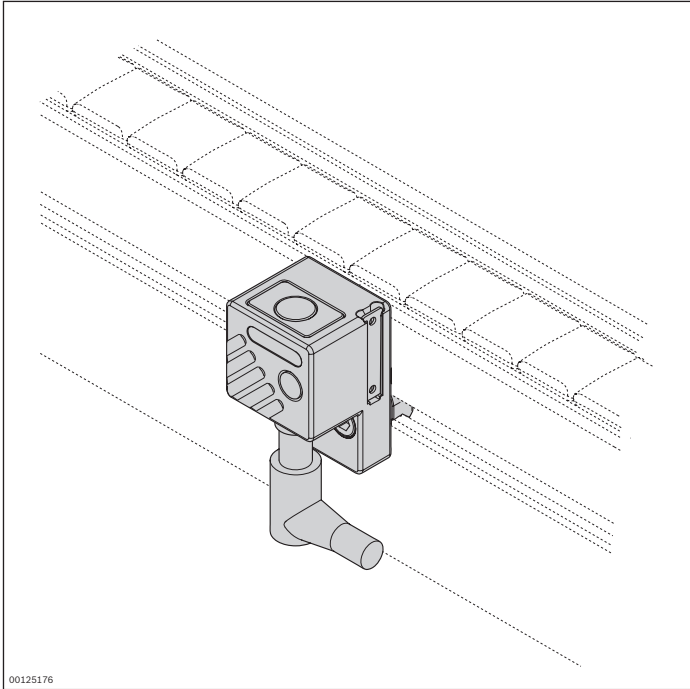
- ▶ Not assembled

Ordering information

Product designation	Material number
SH 2/U-H switch bracket	3842537289

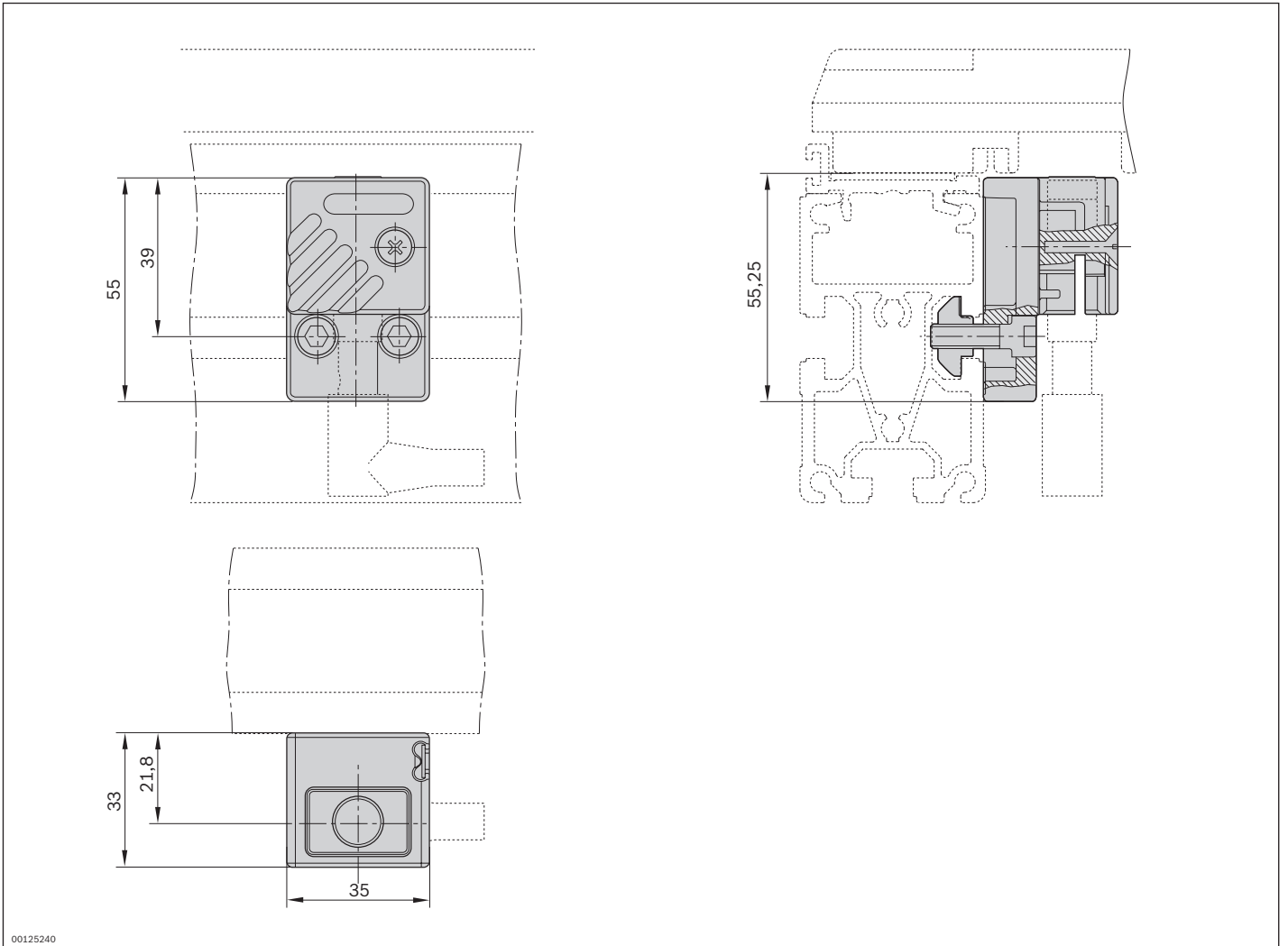
Technical data

Material number	3842537289
Features	
Material specification	Die-cast aluminum



00125176

Dimensions



00125240

SH 2/SF switch bracket



- ▶ For fastening a sensor with special flat design
- ▶ Installation in the upper groove on the side of a conveyor section

The switch bracket is used for fastening a sensor with special flat design for lateral inquiry of the workpiece pallet position.

Note: Not suitable for use in heavy duty profiles and sections with a profile width of 50 mm, for example ST 2/C-H, ST 2/R-H, BS 2/R-H, BS-2/C-H

Accessories

Required accessories

- ▶ Sensor with special flat design, rated sensing range $S_N \leq 4$ mm, e.g., Balluff BES 516-347-SA-2-03

Delivery notes

Scope of delivery

- ▶ Incl. fastening material

Condition on delivery

- ▶ Not assembled

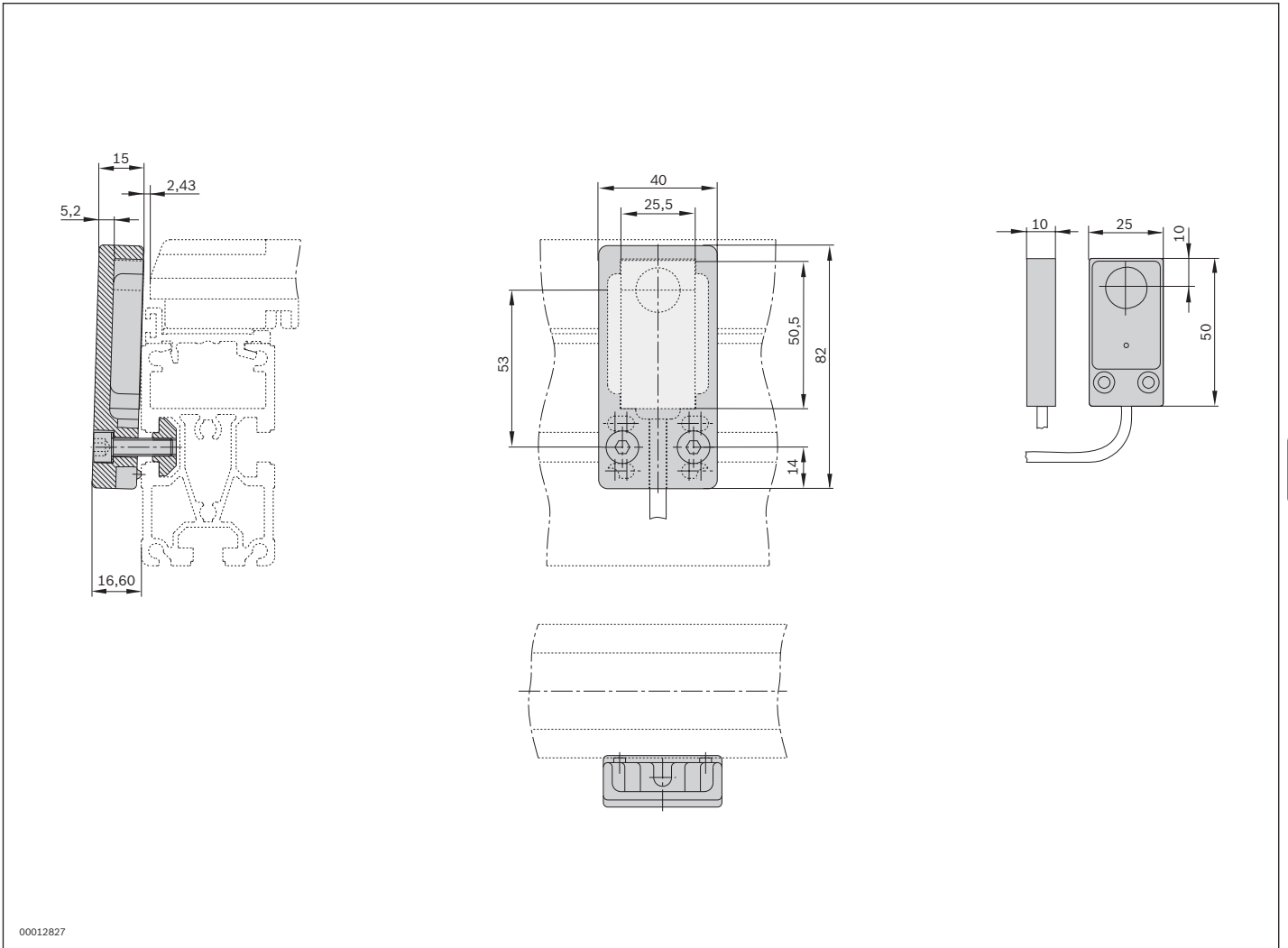
Ordering information

Product designation	Material number
SH 2/SF switch bracket	3842168840

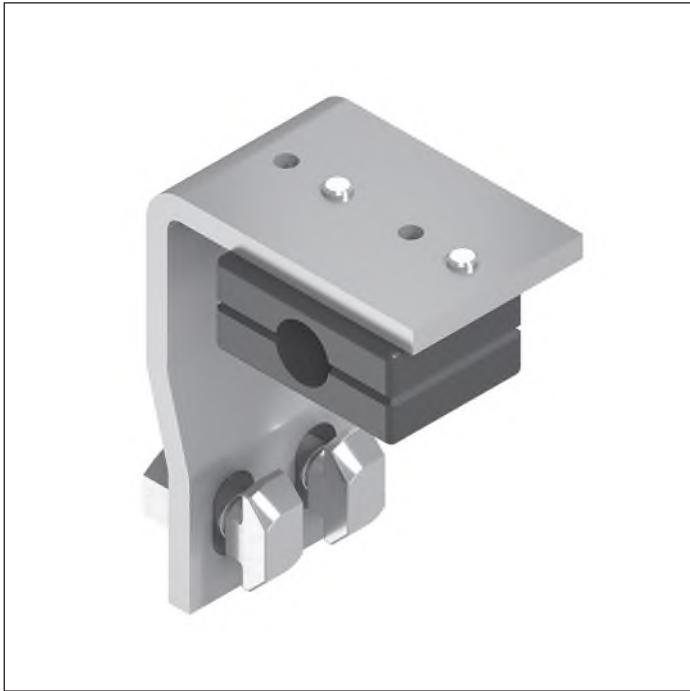
Technical data

Material number	3842168840
Features	
Material specification	PA6

Dimensions

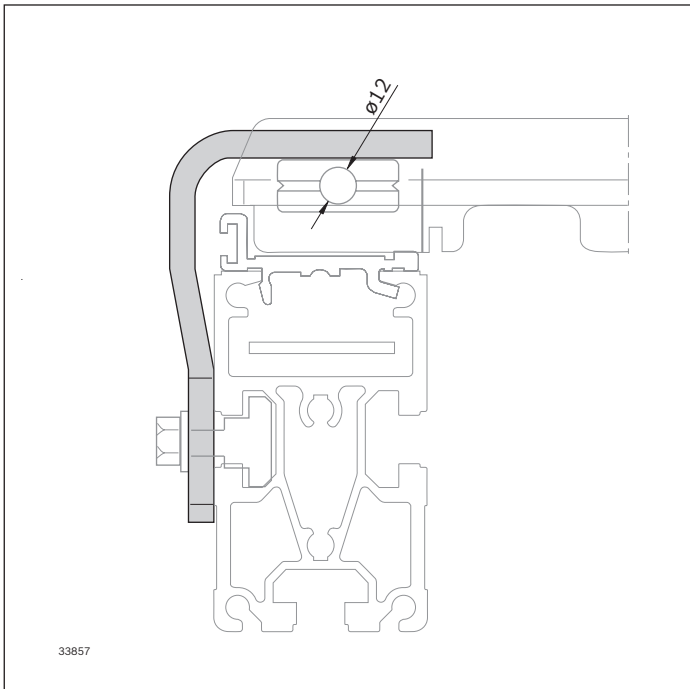


SH 2/EP switch bracket



- ▶ For fastening a sensor
- ▶ For sensing the workpiece carrier at the end of the line, not traversable
- ▶ Installation location on the inner or outer profile groove of the section profile

Ordering information



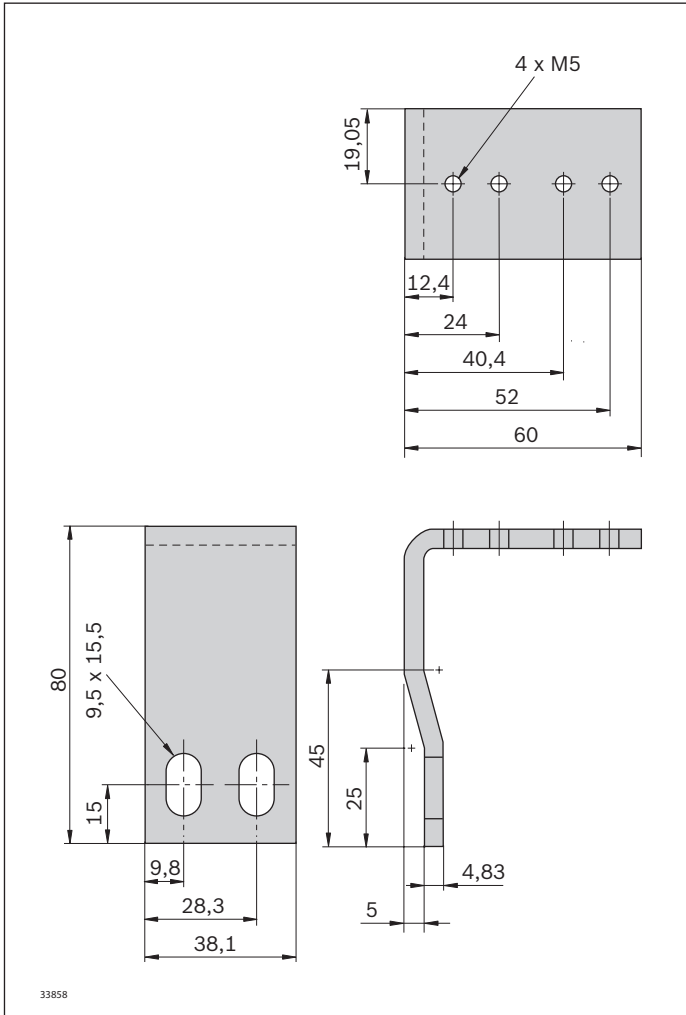
33857

Product designation	Material number
SH 2/EP switch bracket	8981022903

Technical data

Material number	8981022903
Features	
Material specification	Steel; PA66

Dimensions



Sensors



M12 and M8 inductive sensors with M12 or M8 connector for workpiece pallet detection, position sensing for lift/transverse units, positioning units, and rotate units.



M12 inductive sensors with M12 connector

8-108



M12 inductive sensors with M8 connector

8-110



M8 inductive sensors with M8 connector

8-112

M12 sensors with M12x1 connector



Workpiece pallet position detection, lift/transverse unit,

lift position unit and lift transverse unit position detection.

Accessories

Required accessories

- Switch bracket, see p. 8-90

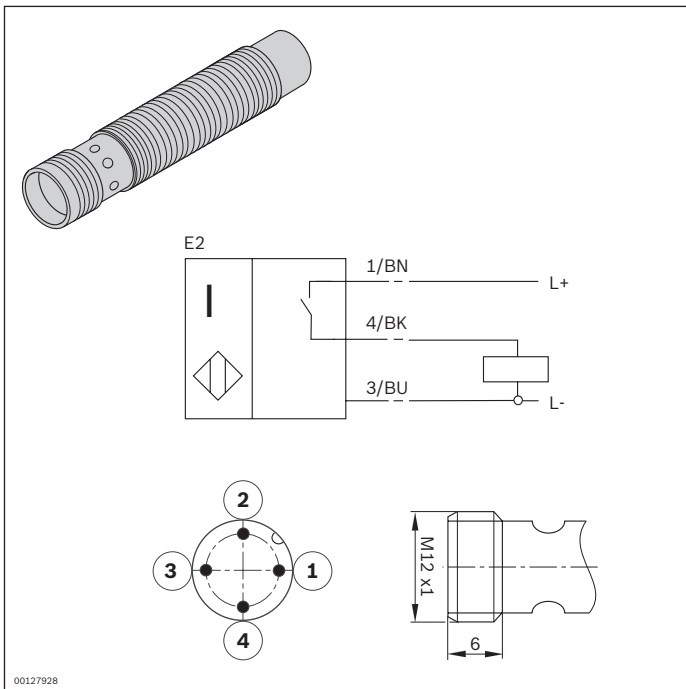
Ordering information

Product designation	Material number
M12x50 sensor	3842557633
M12x45 sensor	3842549814
M12x70 sensor	3842501548

Technical data

Material number			3842557633	3842549814	3842501548
Features					
IP rating			IP 68	IP 67	IP 68
Material specification			Housing: CuZn; active surface has nickel-free coating: LCP	Housing: CuZn; active surface has nickel-free coating: LCP	Housing: Stainless steel, rustless Active surface: LCP
Max. operating temperature	T	°C	-25 ... +70 °C	-25 ... +70 °C	-40 ... +85 °C
Dimensions		mm	M12 x 45	M12 x 45	M12 x 70
Connector			M12x1	M12x1	M12x1
Additional information					
Rated sensing range	S _N	mm	8	4	4
Switching frequency		Hz	500	300	2500
Operating current		mA	200	200	200
Mechanical installation			Not flush	Flush	Not flush
Function indicator			LED	LED	LED
Switching output			PNP	PNP	PNP
Switching function			Normally open (NO)	Normally open (NO)	Normally open (NO)
Operating voltage		V DC	10 ... 30	10 ... 30	10 ... 30
Approvals			CE, UL, CSA, EAC	CE, UL, CSA	CE, UL, CSA, EAC
Conformity with standards			IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2

Circuit diagrams



M12 sensors with M8x1 connector



Workpiece pallet position detection, lift/transverse unit,

lift position unit and lift transverse unit position detection.

Accessories

Required accessories

- Switch bracket, see p. 8-90

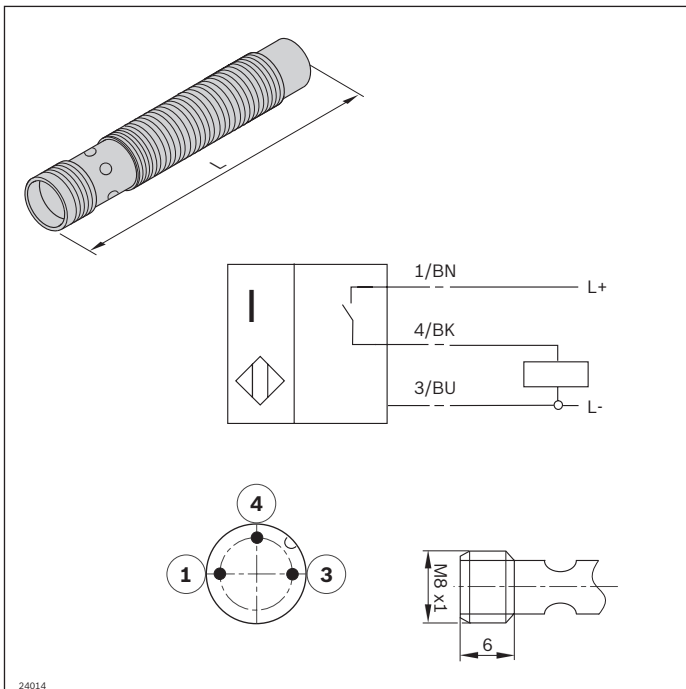
Ordering information

Product designation	Material number
M12x44 sensor	3842549813
M12x67 sensor	3842549812
M12x44 sensor	3842549811

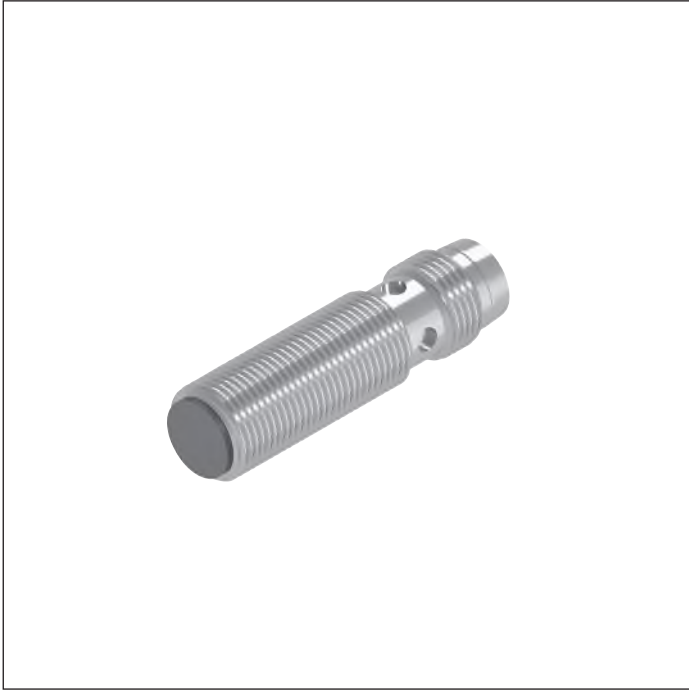
Technical data

Material number			3842549813	3842549812	3842549811
Features					
IP rating			IP 67	IP 67	IP 67
Material specification			Housing: CuZn; active surface has nickel-free coating: PBT	Housing: CuZn; active surface has nickel-free coating: LCP	Housing: CuZn; active surface has nickel-free Active surface: LCP
Max. operating temperature	T	°C	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
Dimensions		mm	M12 x 44	M12 x 67	M12 x 44
Connector			M8x1	M8x1	M8x1
Additional information					
Rated sensing range	S _N	mm	8	4	4
Switching frequency		Hz	800	2500	2500
Operating current		mA	200	200	200
Mechanical installation			Not flush	Flush	Flush
Function indicator			LED	LED	LED
Switching output			PNP	PNP	PNP
Switching function			Normally open (NO)	Normally open (NO)	Normally open (NO)
Operating voltage		V DC	10 ... 30	10 ... 30	10 ... 30
Approvals			CE, UL, CSA	CE, UL, CSA	CE, UL, CSA
Conformity with standards			IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2

Circuit diagrams



M8 sensors with M8x1 connector



For VE 2, VE 2/L, VE 2/M or VE 2/S position sensing in connection with 3842528817 (see p. 8-18). For VA 2/50

position sensing or for chain tensioner sensing with AS/BS 2/C-100, -250, AS/BS 2/R-300, -700, KU 2

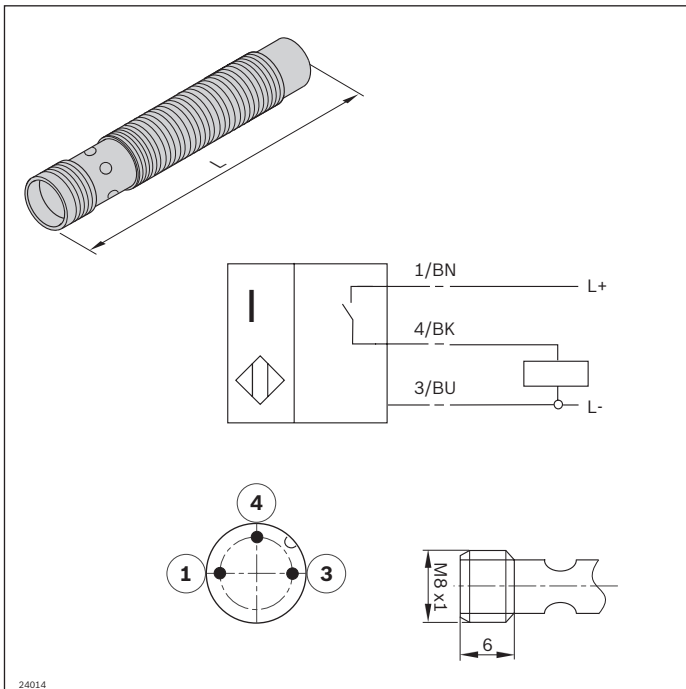
Ordering information

Product designation	Material number
M8x30 sensor	3842551761

Technical data

Material number		3842551761	
Features			
IP rating		IP 68	
Material specification		Housing: Stainless steel, rustless Active surface: PBT	
Operating temperature	T	°C	-25 ... +70 °C
Dimensions		M8 x 30	
Connector		M8x1	
Additional information			
Rated sensing range	S _N	mm	2
Switching frequency		Hz	1500
Operating current		mA	200
Mechanical installation		Flush	
Function indicator		LED	
Switching output		PNP	
Switching function		Normally open (NO)	
Operating voltage		V DC	10 ... 30
Approvals		CE, cULus	
Conformity with standards		IEC 60947-5-2	

Circuit diagrams

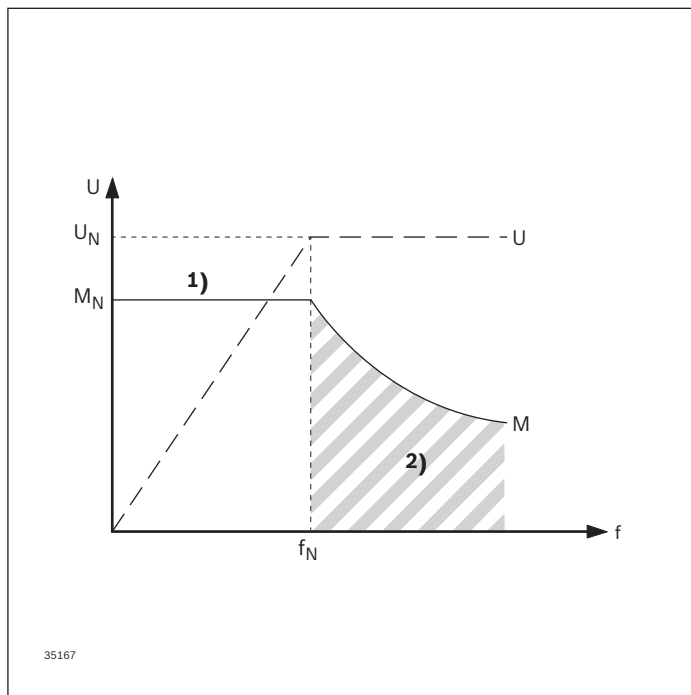


Sensor application matrix

	Diameter with connector	Sensor			
	M12 with M12	3842557633	3842501548	3842549814	
	M12 with M8	3842549813	3842549812	3842549811	
	M8 with M8			3842551761	
Position sensor	AS 2/C-100, AS 2/C-250			X	
	AS 2/R-300, AS 2/R-700			X	
	BS 2/R-300, BS 2/R-700			X	
	BS 2/C-100, BS 2/C-250			X	
	EQ 2/TR		X		
	EQ 2/TR-90		X		
	EQ 2/T		X		
	EQ 2/TE		X		
	HQ 2/S		X		
	HQ 2/O		X		
	HQ 2/T		X		
	HQ 2/U		X		
	HQ 2/U2		X		
	HQ 2/H			X	X
	HQ 2/U-H			X	X
	HQ 2/C-H		X		
	HD 2		X		
	HD 2/H			X	X
	KU 2				X
	PE 2			X	X
	PE 2/X, PE 2/H, PE 2/XP		X		
	RA (HP 2/L)	X			
	HP 2			X	X
	VE 2 position indication				X
	VA 2/D-130/clamping holder				X
	WT position sensing	SH 2/S	X		
		SH 2/ST		X	
		SH 2/S-H	X		
		SH 2/U	X		
		SH 2/UV	X		
		SH 2/U-H	X		
		WI/M		X	
WI 2			X		
WI 2/H			X		
WI 2/D			X		
HQ 2/U-H			X	X	

FU frequency converter

U/f mode



A frequency converter is a power converter that adjusts the frequency and amplitude of AC voltage in order to directly power three-phase motors.

- ▶ VFCplus: U/f open loop, linear and quadratic
- ▶ SLVC: Sensorless vector control (torque/speed)
- ▶ VFC eco (energy-saving function)

1 M = const.
 2 Field weakening mode
 f = frequency
 f_N = nominal frequency

M = torque
 M_N = nominal torque
 U = voltage
 U_N = nominal voltage

Operating modes

U/f mode, U/f characteristic curve

The converter regulates motor voltage and keeps the frequency constant. Frequency and voltage are proportional to each other. Due to the inductive nature of the motor, this results in a constant torque over an extensive range without overloading the motor.

In U/f mode, the speed of the connected motor varies depending on the load.

For this reason, U/f mode is only adequate when speed does not need to be constant at all times and there is no heavy starting.

Field-oriented controller

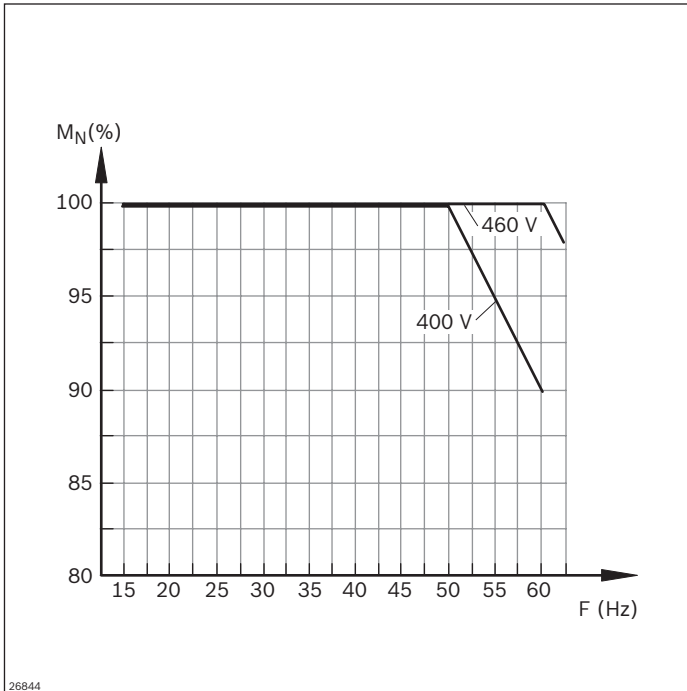
The vector controller, also called the field-oriented controller, is a speed regulator that is based on an underlying current regulator.

The instantaneous active and reactive current components are regulated. In an electronic motor model saved in the converter, the motor parameters can be saved or, if necessary, automatically detected and adapted. The instantaneous current is the only returned value used for control.

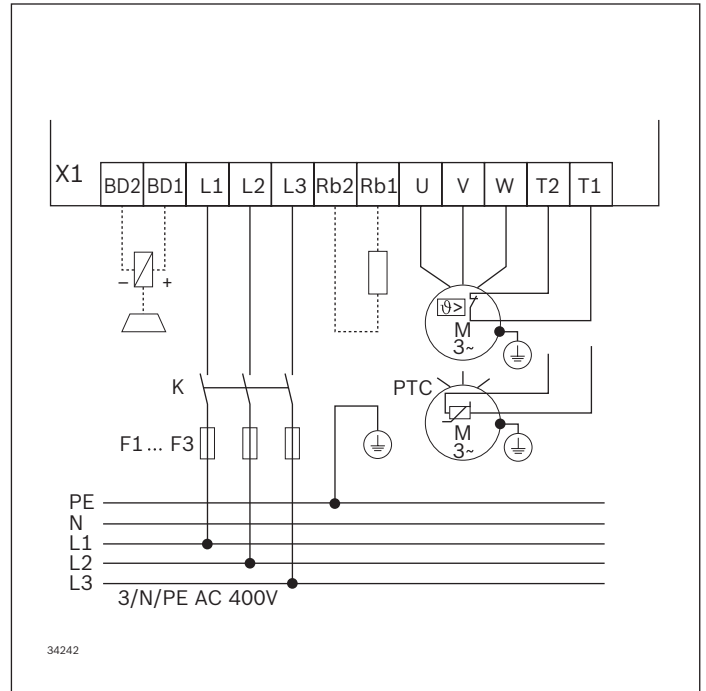
This value and voltage phasing is used to determine all necessary motor states (speed, slip, torque and thermal dissipation loss).

This makes very high speed and torque calibration ranges possible.

Drive range of motors with frequency converters (FU)



Principle circuit diagram



Circuit diagram for moltec 8400

- 1 Minimum wiring required for operation
- *)---- 2 Additional wiring to change direction of rotation

Technical information:

At rotating field frequencies of ≥ 15 Hz, the motor can be operated under normal operating conditions without an external fan. The motor's thermal conditions should be considered at rotating field frequencies of ≤ 20 Hz. In the range 20 ... 50 Hz, the full torque is available.

In order to operate a drive with a frequency converter (FU), the user needs to work out the minimum wiring required for the internal and external voltage supply (see terminal assignment plan).

Technical data

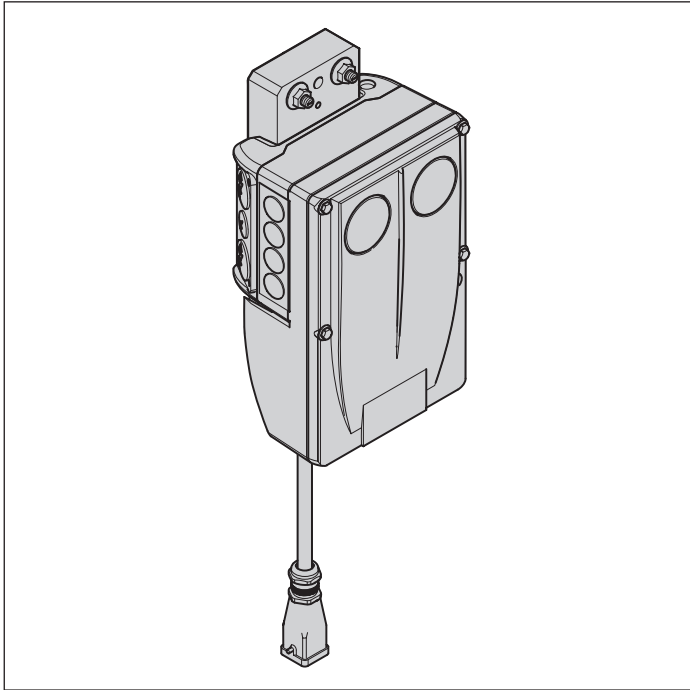
Note: The speed range of the frequency converter is based on the base speed of the motor.

(By accepting a resulting loss of power, a higher bandwidth can be covered.)

Base speed of motor at 50 Hz (m/min)	Min. (m/min)	Max. (m/min)	Max. at max. 80% (m/min)
4	2*	4.5	6
6	2*	6	8
9	3.5	10	13
12	4	13	17
15	5	15	20
18	6	18.5	25

* Additional measures may be necessary

Frequency converter selection guide



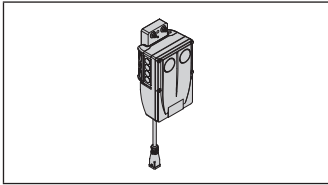
FU/motec 8400 frequency converter

- ▶ Decentralized frequency converter for motor wall mounting
- ▶ U/f controller motor control, sensorless vector control
- ▶ Communication via field buses: ASInterface, CANopen, EtherCAT, PROFIBUS, PROFINET, Ethernet I/P
- ▶ Built-in brake chopper
- ▶ IP 65 rating
- ▶ Output: 0.55 kW



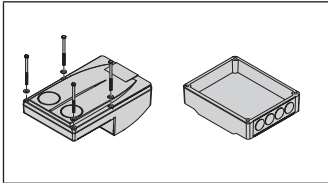
EFC 3610 and EFC 5610 frequency converters

- ▶ Frequency converters for control cabinet installation
- ▶ U/f controller and SVC motor control (only possible with EFC 5610)
- ▶ Multi-Ethernet interface (sercos III, EtherCAT, Ethernet I/P, PROFINET, Modbus TCP, CAN, PROFIBUS)
- ▶ Built-in brake chopper (max. 22 kW)
- ▶ Removable control panel for quick and easy start-up
- ▶ I/Os: Analog voltage/current input/output switching
- ▶ IP 20 rating
- ▶ Output: 0.44 kW; 0.75 kW



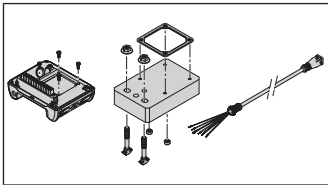
FU/motec 8400 frequency converter

8-120



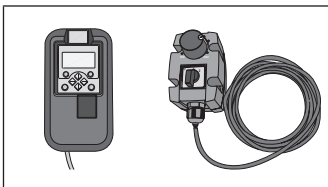
**FU frequency converter: power unit
Communication module**

8-121



**Connection unit
Attachment kit
Connection cable**

8-122



Hand-held control panel, Switching/potentiometer unit

8-123



EFC 3610, EFC 5610 frequency converters

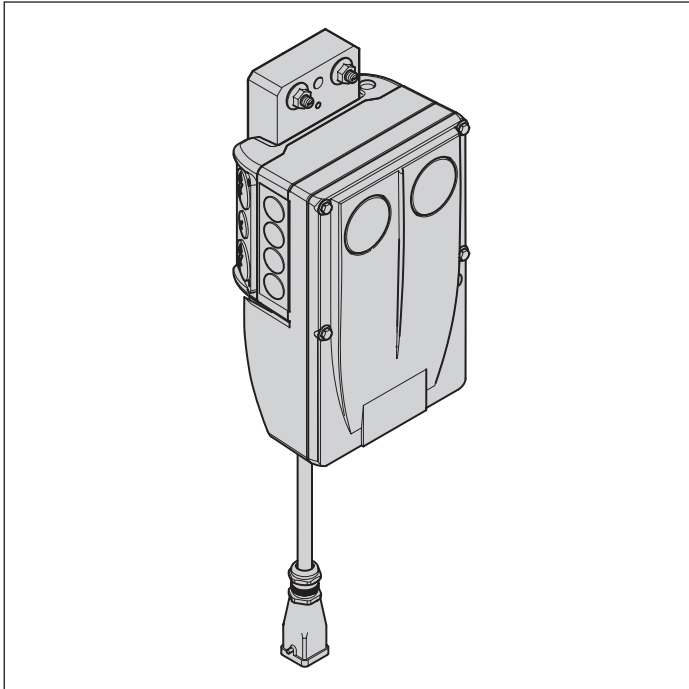
8-126



Option cards

8-127

FU/motec 8400 frequency converter



In order to operate a gear motor with adjustable speed, the motor needs to be retrofitted with a frequency converter (FU). The frequency converter has a modular design so that it can be easily mounted on a leg set and connected to the motor by cable.

- ▶ Connected load: 0.55 kW
- ▶ (Connected voltage: 400 V \pm 10% ... 460 V/480 V \pm 10%)
- ▶ Speed (v_N) depends on the base speed of the gear motor used

Complete frequency converter (FU) consisting of the following modules:

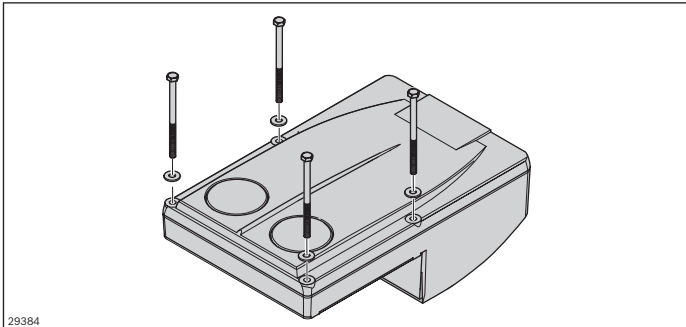
- Frequency converter power unit
- Communication module
- Connection unit
- Attachment kit
- Optional: Connection cable for the plug-in connection to the gear motor (AT = S)

The individual modules can be ordered separately and are easy to connect with the screws supplied with the scope of delivery. For the internal and external voltage supply, the modules must be wired by the user.

Required accessories

- ▶ Manual control unit, see p. 8-123
- ▶ Switching/potentiometer unit, see p. 8-123

FU frequency converter: power unit

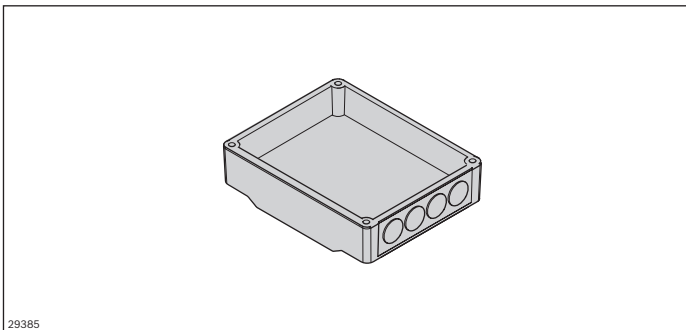


- ▶ Power unit: 0.55 kW
(400 V ± 10% ... 460 V/480 V ± 10%)
- ▶ Easy start-up via hand-held control panel
- ▶ Easy-to-replace memory module
- ▶ Large LED status indicator

Ordering information

Product designation	Material number
Frequency converter: 0.55 kW power unit	3842553447

Communication module



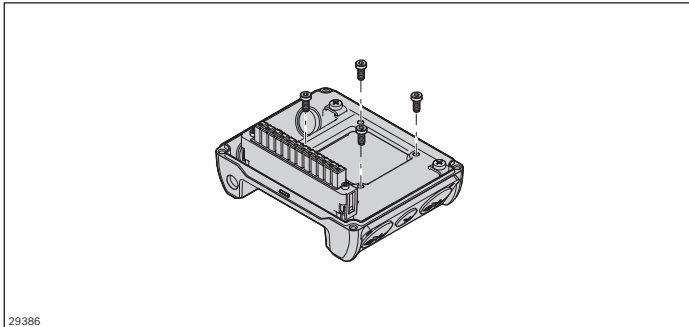
- ▶ Used to control the frequency converter
- ▶ Cable connection options

Ordering information

Product designation	Material number
Standard I/O communication module	3842553449
AS-I communication module	3842553453
CANopen communication module	3842553454
EtherNet/IP communication module	3842553451
EtherCAT communication module	3842553459
PROFIBUS communication module	3842553452
PROFINET communication module	3842553450

Depending on their function, the individual communication modules are provided with the corresponding connections.

Connection unit

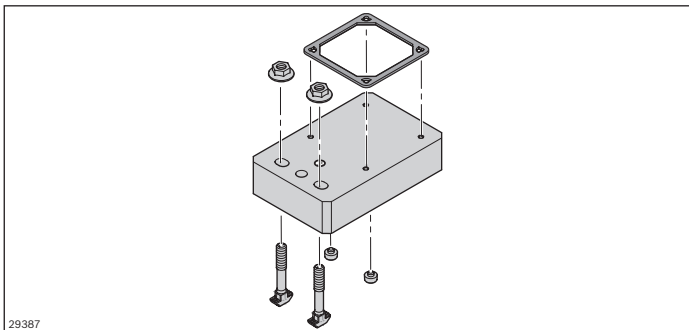


- ▶ Power grid connection options

Ordering information

Product designation	Material number
Connection unit	3842553445

Attachment kit

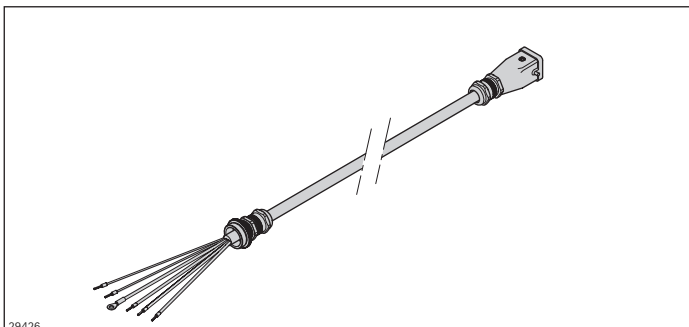


- ▶ For the simple attachment of the frequency converter to the AL leg set (grooves of a 60 mm or 80 mm strut profile)

Ordering information

Product designation	Material number
Attachment kit	3842553457

Connection cable

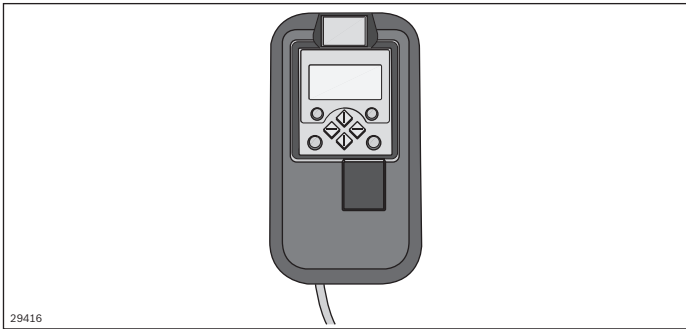


- ▶ For connecting the gear motor to the frequency converter (length: 1 m)

Ordering information

Product designation	Material number
Connection cable	3842553512

Hand-held control panel



- ▶ For the parameterization of drives with frequency converters
- ▶ For controlling (e.g., block and release)
- ▶ For displaying operating data
- ▶ For infinitely variable control of the transport speed on drives
- ▶ For transferring parameter sets to other base units

Delivery notes

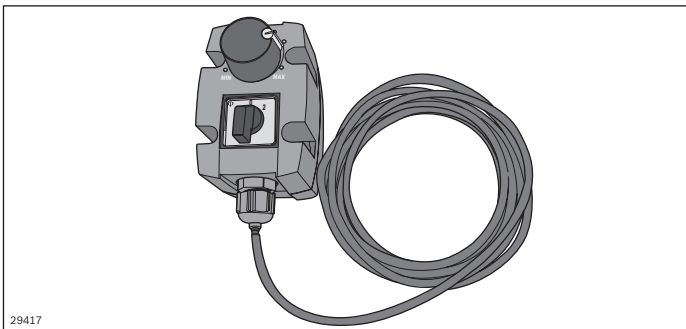
Scope of delivery

- ▶ Incl. 2.5 m connection cable

Ordering information

Product designation	Material number
Hand-held control panel	3842552821

Switching/potentiometer unit



The switching/potentiometer unit is used to fine tune the transport speed within a range that has been preset with the manual control unit. The switching/potentiometer unit is connected to the frequency converter by a cable. The drive can be started or stopped with the rotary switch.

Note: It is imperative that the direction in which the chain conveyor is running is checked prior to start-up.

Delivery notes

Scope of delivery

- ▶ Incl. 2.5 m connection cable

Ordering information

Product designation	Material number
Switching/potentiometer unit	3842553184

Technical data

Connection conditions			
Motor connection			
4-pin ASM motor cable	P_{aN}	kW	0.55
No. phases			3
Motor cable length	m		< 20 (system cable, shielded)
Control			
Control method			VFCplus: U/f control (linear or quadratic), SLVC: sensorless vector control (torque/speed); VFCplus eco: energy-efficient U/f control
Switching frequency	kHz		4; 8; 16
Torque response			
Max. torque when rated motor output = rated controller output			1.5 x M_N for 60 s; 2.0 x M_N for 3 s
Sensorless vector control (speed)			
Min. output frequency	Hz		0.5 (0 ... M_N)
Accuracy in 3 ... 50 Hz speed range	%		±0.5
Concentricity in 3 ... 50 Hz speed range	Hz		±0.1
Output frequency			
Range	Hz		-300 ... +300
Absolute resolution	Hz		0.2
Standardized resolution	%		Parameter data: 0.01; Process data: 0.006 (= 2 ¹⁴)
Grid			
Grid			3 PE/AC
Line voltage	U_{LN}	V	320 -0% ... 528 +0%
Line frequency range	f	Hz	45 -0% ... 65 +0%
Output voltage	U_{LN}		0 ... line voltage
Output frequency	f	Hz	0 ... 300
Line current at I_{aN}	I_{aN}	A	1.8

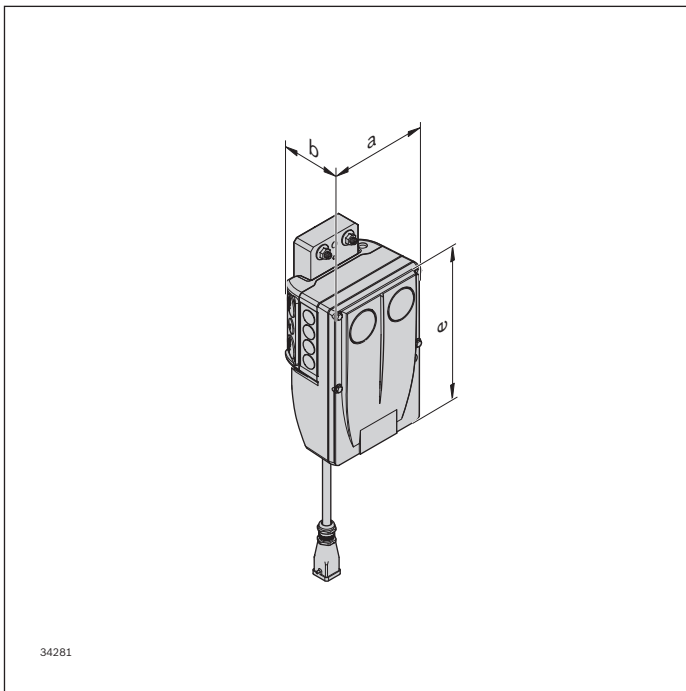
Note:

The max. output voltage possible is approx. 88% of the line voltage.

Safety technology		
STO		SIL 3, PLe Cat.4
Drive unit IP rating		IP 65
Certifications		CE, UL, CSA, EAC
Climate conditions		
In operation	°C	-30 ... +55
Derating	%/K	2.5

	Digital inputs	Digital outputs	Relay outputs	Analog inputs
	No.	No.	No.	No.
I/O modules				
Basic I/O	2	–	1	–
Standard I/O	5	1	1	1
Extended I/O	8	1	1	2

Dimensions



Dimension	Dimension	Dimension	Mass
a	b	e	m
(mm)	(mm)	(mm)	(kg)¹
161	109	241	2.6

¹ For the Basic I/O version without cable gland

EFC 3610, EFC 5610 frequency converters



FU for control cabinet installation

- ▶ No control panel (-NN-)
- ▶ 7-segment display (7 digits) (-7P-)
- ▶ LCD display (extra option)
- ▶ Languages: DE, EN, FR, ES, IT, PT, KR, RU, ZH

Optional module with two slots:

Multi-Ethernet interface (sercos III, EtherCAT, Ethernet I/P, PROFINET, Modbus TCP, CAN, PROFIBUS)



I/O extension

- ▶ Relay module (250 V AC, 3 A/30 V DC, 3 A)
- ▶ Standard I/O extension:
 - 4 digital inputs (24 V DC, 8 mA/12 V DC, 4 mA)
 - 1 digital output (24 V DC/50 mA)
 - 1 relay output (250 V AC, 3 A/30 V DC, 3 A)
 - 1 analog input (-10 ... 10 V/0[2] ... 10 V/0[4] ... 20 mA)
 - 1 analog output (0[2] ... 10 V/0[4] ... 20 mA)
- ▶ U/f controller and SVC motor control (only possible with EFC 5610)
- ▶ Output: 0.44 kW; 0.75 kW



You can find more detailed information on both frequency converters in the "EFC 3610/EFC 5610 frequency converter" catalog.

	Material number
DE	R999000429
EN	R999000430
PL	R999001226
TW	EFC/VFC x610

EFC 3610, EFC 5610 frequency converters



- ▶ FU for control cabinet installation
- ▶ U/f controller and SVC motor control (only possible with EFC 5610)
- ▶ Loadable, application-specific firmware (ASF)
- ▶ Integrated line filter
- ▶ Built-in brake chopper (max. 22 kW)
- ▶ Removable control panel for quick and easy start-up
- ▶ I/Os: Analog voltage/current input/output switching
- ▶ EFC 5610: STO, Cat. 4 SIL3 PLe safety function
- ▶ IP 20 rating

Ordering information

Product designation	Material number
EFC 3610 0.4 kW, 3 AC 380 ... 480 V, 50/60 Hz, 1.3 A, LED display	R912005717
EFC 3610 0.75kW, 3 AC 380 ... 480 V, 50/60 Hz, 2.3A, LED display	R912005718
EFC 5610 0.4kW, 3 AC 380 ... 480 V, 50/60 Hz, 1.3A, LED display	R912007272
EFC 5610 0.75kW, 3 AC 380 ... 480 V, 50/60 Hz, 2.3A, LED display	R912007273

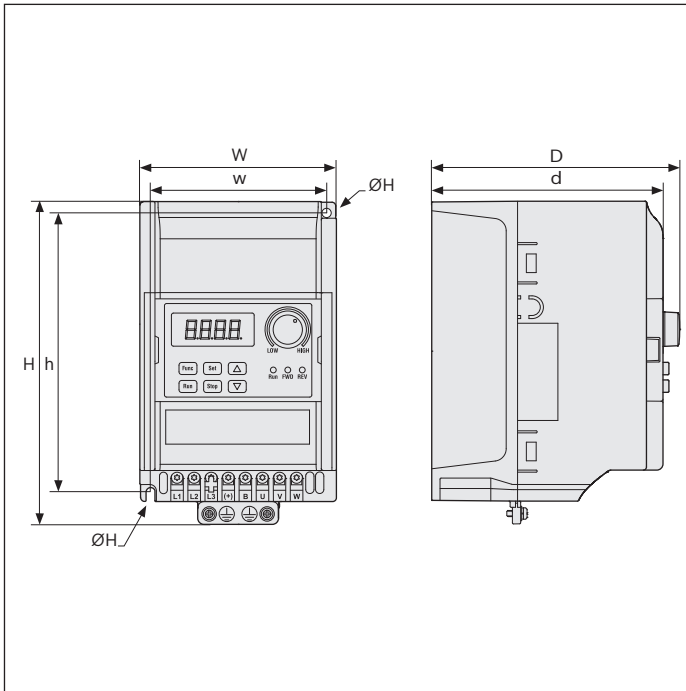
Option cards



Description	Material number
Option terminal base	R912006052
Relay card	R912006051
I/O card	R912006050
I/O plus extension	R912007257
CANopen interface	R912006133
PROFIBUS interface	R912006132
Multi-Ethernet interface	R912006134

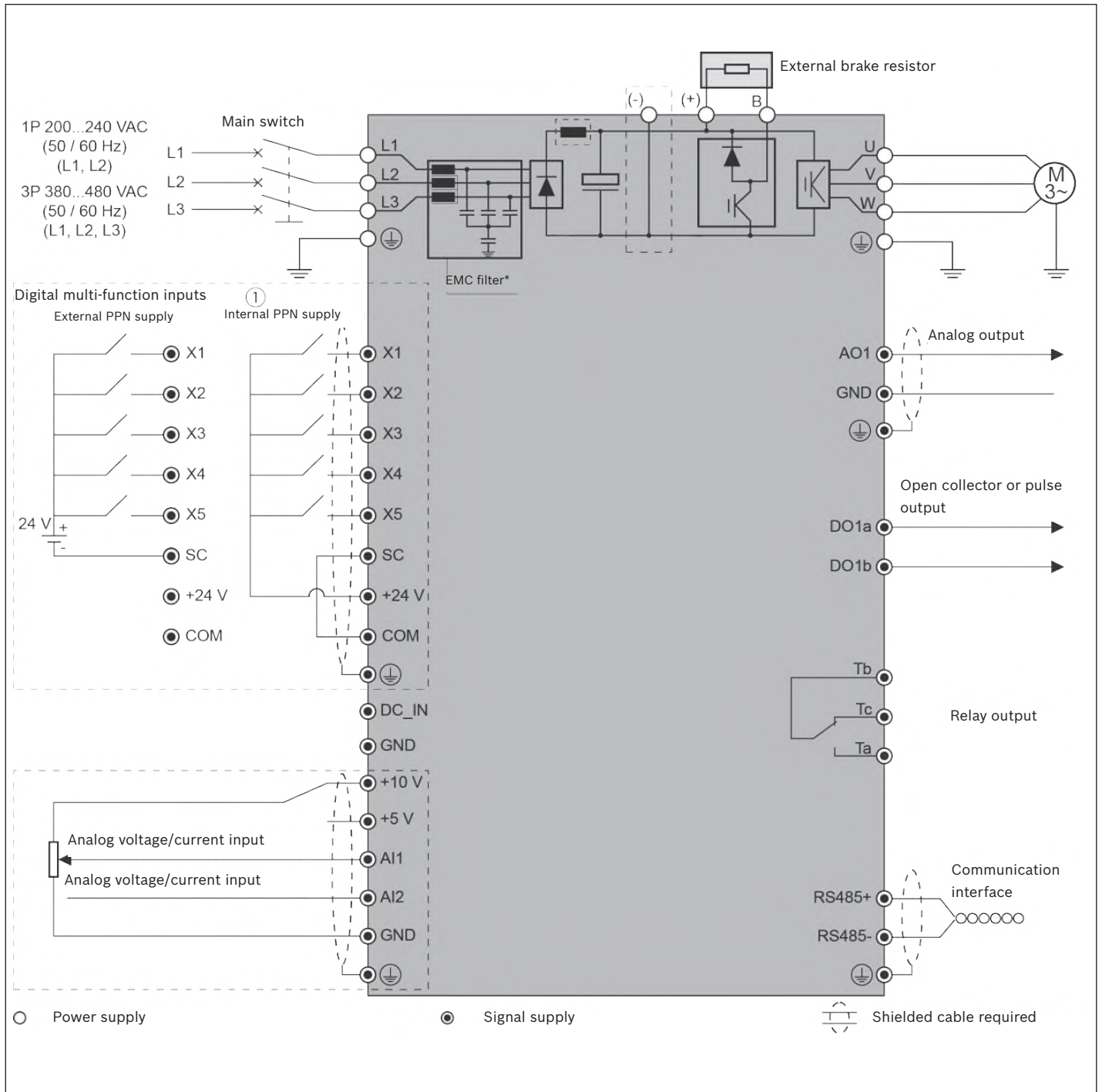
Technical data

			EFC 3610		EFC 5610	
(3P 380 ... 480 V AC -15%/+10%)			Max. rated current (A)	Rated motor output (kW)	Max. rated current (A)	Rated motor output (kW)
EFC3610-0K40-3P4-.../EFC5610-0K40-3P4-...			1.3	0.4	1.3	0.4
EFC3610-0K75-3P4-.../EFC5610-0K75-3P4-...			2.3	0.75	2.3	0.75
Type						
Line voltage	V		3 AC 380 ... 480 (-15%/+10%)			
Line frequency	Hz		50 ... 60 (±5%)			
Rated motor voltage	V		3-phase, 0 ... line voltage			
Output voltage	V		0 ... line voltage			
Output frequency	Hz		0 ... 400			
Overload capacity, heavy-duty mode			150% for 60 s, 200% for 1 s			
Functions						
Control technology			U/f	U/f or SVC (sensorless vector control)		
Pulse width modulation (PWM)			1 ... 15 kHz, adjustable in 1 kHz increments			
Speed control range			1:50			
Starting torque	U/f	100% at 1,5 Hz; 150% at 3 Hz				
	SVC	Not available		200% at 0.5 Hz		
Frequency resolution	Analog	1/1000 of output frequency				
	Digital	Hz	0.01			
Frequency setting accuracy	Analog	%	0.1			
	Digital	%	0.01			
U/f characteristic curve			Linear, quadratic, openly definable			
Acceleration and brake ramps			Linear, S-curve			
DC brake	Starting frequency	Hz	0 ... 50			
	Brake time	s	0 ... 10			
Integrated controller			Integrated stepping mechanism			
Controller			PID			
Bus systems			On-board: Modbus/Ext. Options: PROFIBUS, CANopen, multi-Ethernet			
No. digital 24 V DC inputs			5 (with 1x 50 kHz pulse train)			
No. digital 24 V DC/50 mA outputs			1 (32 kHz pulse train)			
No. 230 V AC/30 V DC/3 A relay outputs			1			
No. analog 0 ... 10 V or 0 ... 20 mA inputs			2			
No. analog 0 ... 10 V or 0 ... 20 mA outputs			1			
Display			Dust cover with 5 diagnostic LEDs; 5-point LED (optional); LCD (optional)			
Status LED			Direction of rotation and operating state			
Brake						
Brake chopper			Internal up to 22 kW			
Brake resistor			External			
Motor cable length						
Internal C3 filter	0.4 kW ... 4 kW	m	15			
External C3 filter	0.4 kW ... 4 kW	m	30			
Ambient conditions						
Ambient temperature (during operation)			-10 ... 45 °C (derating 1.5% of output per 1° from 45 ... 55 °C)			
Relative humidity	%		< 90 (no condensation)			
IP rating			IP20			
Certifications			CE, UL, cUL, EAC, RCM			

Dimensions


Type	Dimen-	Dimen-	Dimen-	Dimen-	Dimen-	Dimen-	Dimen-	Mass
	sion	sion	sion	sion	sion	sion	sion	
	W	w	H	h	D	d	dH	
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(kg)
EFC3610-0K40-3P4-.../EFC5610-0K40-3P4-...	95	66	166	156	167	159	4.5	1.5
EFC3610-0K75-3P4-.../EFC5610-0K75-3P4-...	95	66	166	156	167	159	4.5	1.5

Circuit diagram



WI/M, WI 2/... rockers



Rockers are used for the following areas:

- For area monitoring
- As a stop for transverse conveying of workpiece pallets
- For workpiece pallet detection

Depending on the desired function, the WI/M, WI 2/... rockers should be fitted with either one (WI/M) or two (WI 2) sensors (see p. 8-114).

Rocker functions



Area monitoring

The stop rail leans slightly to one side and, together with a sensor, signals the presence of a workpiece pallet in the area of this rail. The length of the monitored area depends on the length of the stop rail.

The sensor for the stop rail is damped when the rocker is deactivated. For WI/M, the sensor is dampened when the rocker is activated.



Stop

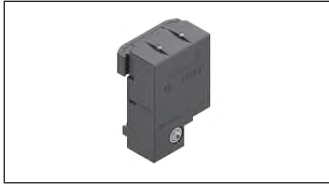
At the end of a lift transverse unit the workpiece pallet is stopped by the slide stop or by the rocker in its capacity as a stop.

Dampened WI 2/D rockers are recommended for total workpiece pallet weights of > 35 kg.



Workpiece pallet detection

If a WI 2 rocker is fitted with a second sensor, not only can an area be monitored, but the position of a WT 2 workpiece pallet – in position on the lift transverse unit – can also be detected. This is necessary, for example, if rockers are used together with EQ 2 reversible lift transverse units. The second sensor, which can be fitted later whenever required, is attenuated if the workpiece pallet is positioned centrally in front of the activated rocker.



WI/M rockers

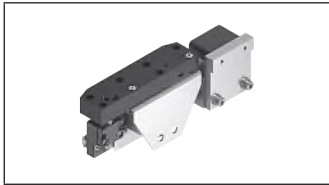
8-133



WI 2 rockers



8-139



WI 2/X rockers



8-143



WI 2/D rockers



8-145

WI/M rocker



- ▶ For area monitoring
- ▶ For workpiece pallet detection
- ▶ For accumulation pressure control
- ▶ Simple and compact construction
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2, WT 2/F, WT 2/H and WT 2/F-H

8

The WI/M rocker is used for area monitoring on transfer systems. The WI/M rocker is unsuitable for use as a stop for workpiece pallets arriving from the transverse conveyor. In addition, a stop or damper must be installed to absorb the impact pulse corresponding to the workpiece pallet weight. The spring-mounted rocker switch physically detects workpiece pallets. The metal element in the rocker switch

engages a sensor to enable detection. Alternatively, a pneumatic cylinder switch can be used to convert the rocker activation directly into a pneumatic signal. Simple, purely pneumatic accumulation pressure regulation can be established in conjunction with a VE 2 stop gate.

Accessories

Recommended accessories

- ▶ M12x1 sensor with $S_N \geq 4$ mm rated sensing range, length 70 mm, see p. 8-108
- ▶ Pneumatic cylinder switch, see p. 8-136

Delivery notes

Scope of delivery

- ▶ Including fastening material for installation on ST 2 conveyor sections or BS 2 belt sections.

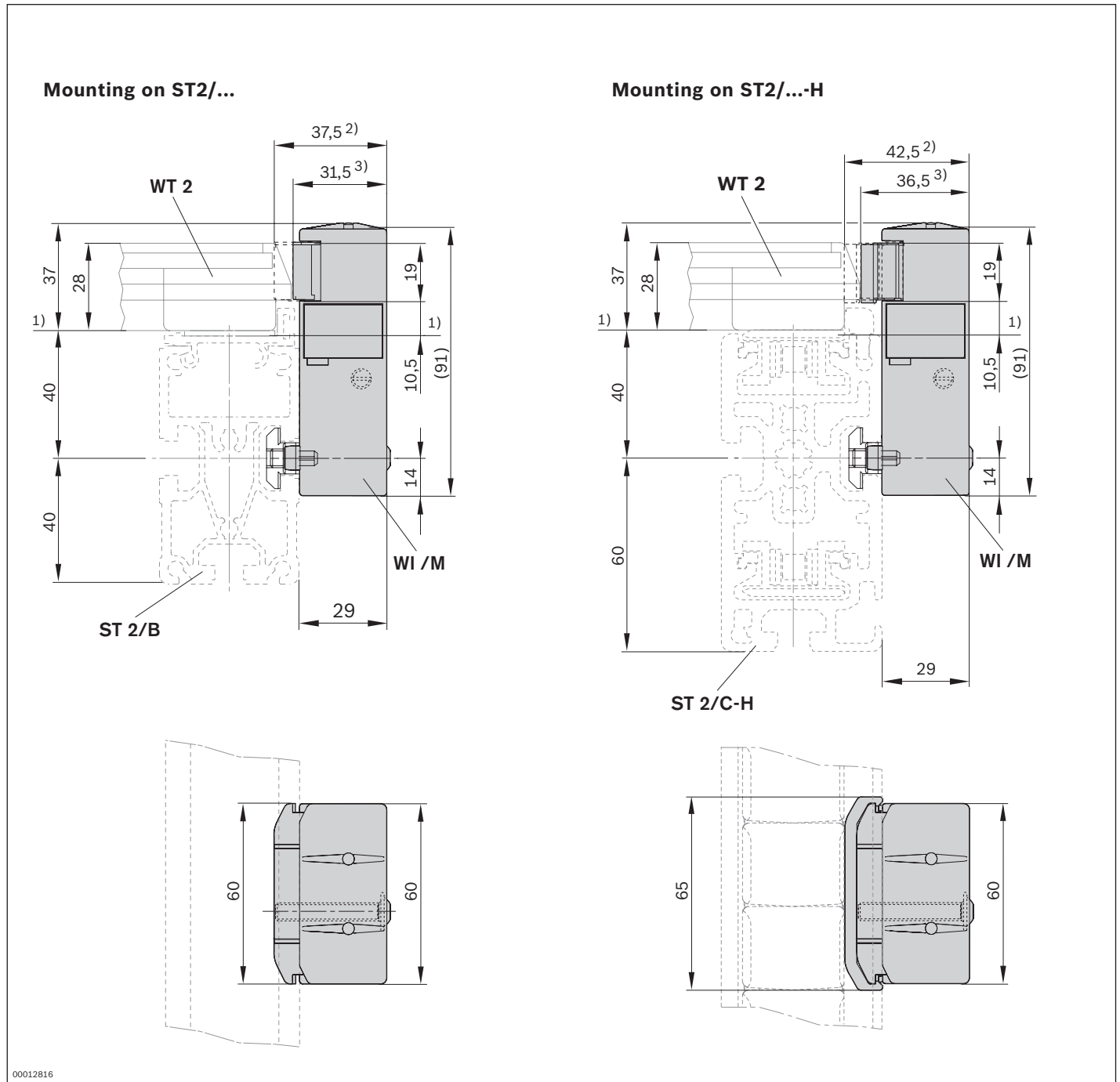
Ordering information

Product designation	Material number
WI/M rocker	3842530797

Technical data

Material number	3842530797	
Features		
Monitoring range	mm	60

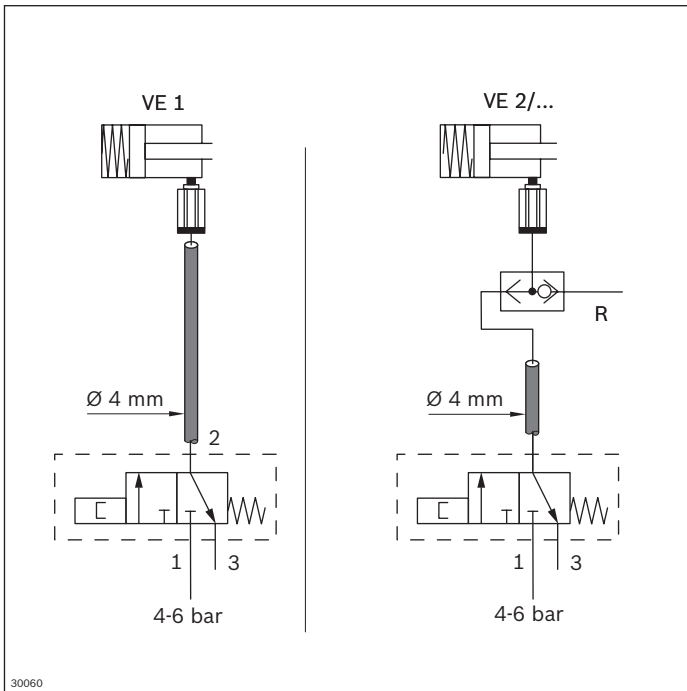
Dimensions



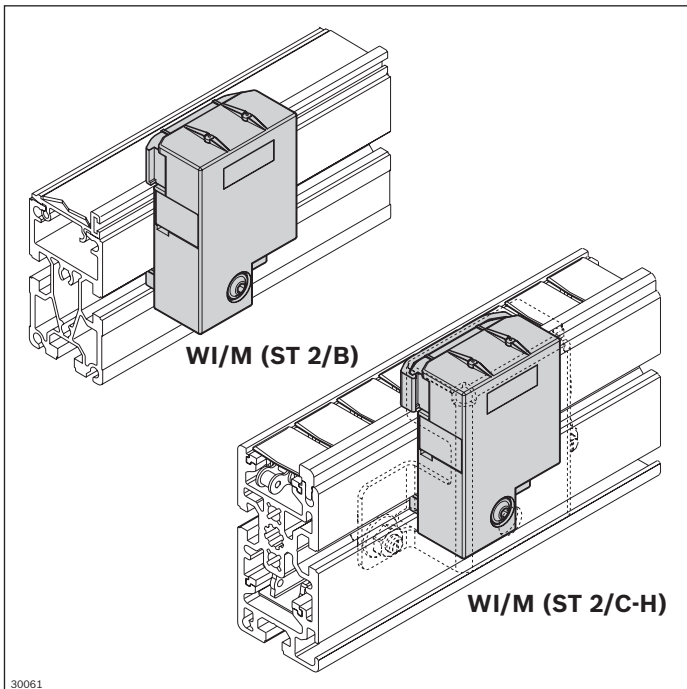
- 1 Conveying level
- 2 Limit stop not activated
- 3 Limit stop activated

Note: Rocker activated, electrical sensor dampened

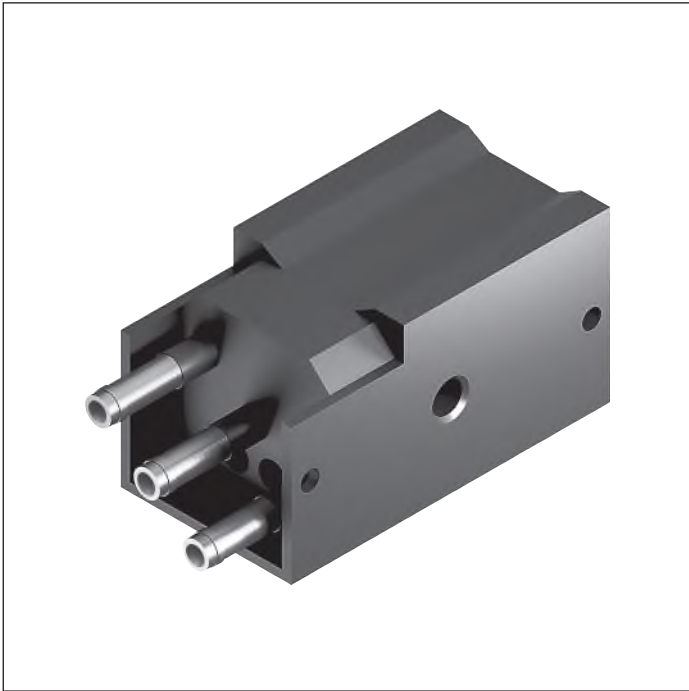
Circuit diagrams



Installation locations on ST 2 or ST 2/...-H



Pneumatic cylinder switch



The pneumatic cylinder switch is used for direct conversion of the slide activation into a pneumatic signal. Simple, purely pneumatic accumulation pressure regulation can be

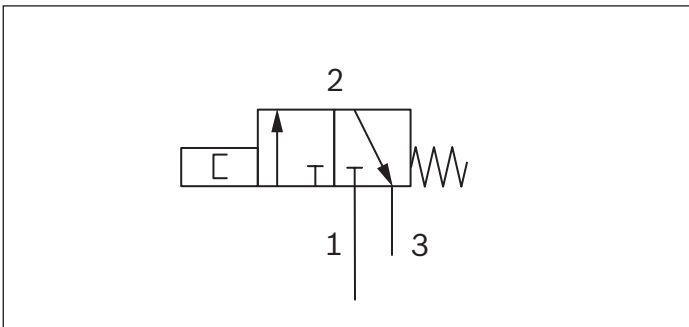
established in conjunction with a VE 2 stop gate.

Ordering information

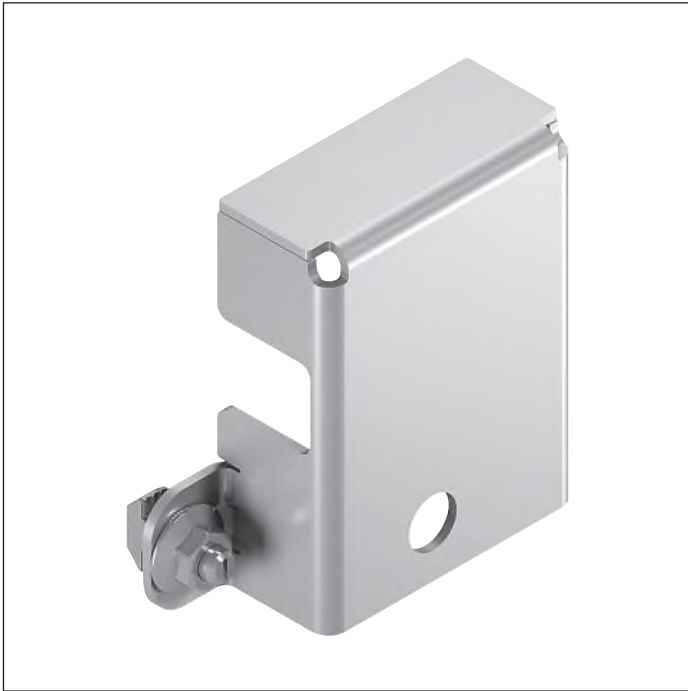
Product designation	Material number
Pneumatic cylinder switch	3842532151

Note: Rocker not activated, pneumatic cylinder switch in operating position.

Circuit diagrams



WI/M protective cover



The protective cover enables the WI/M rocker to be used in harsh industrial environments.

Delivery notes

Scope of delivery

- ▶ Incl. fastening material

Condition on delivery

- ▶ Not assembled

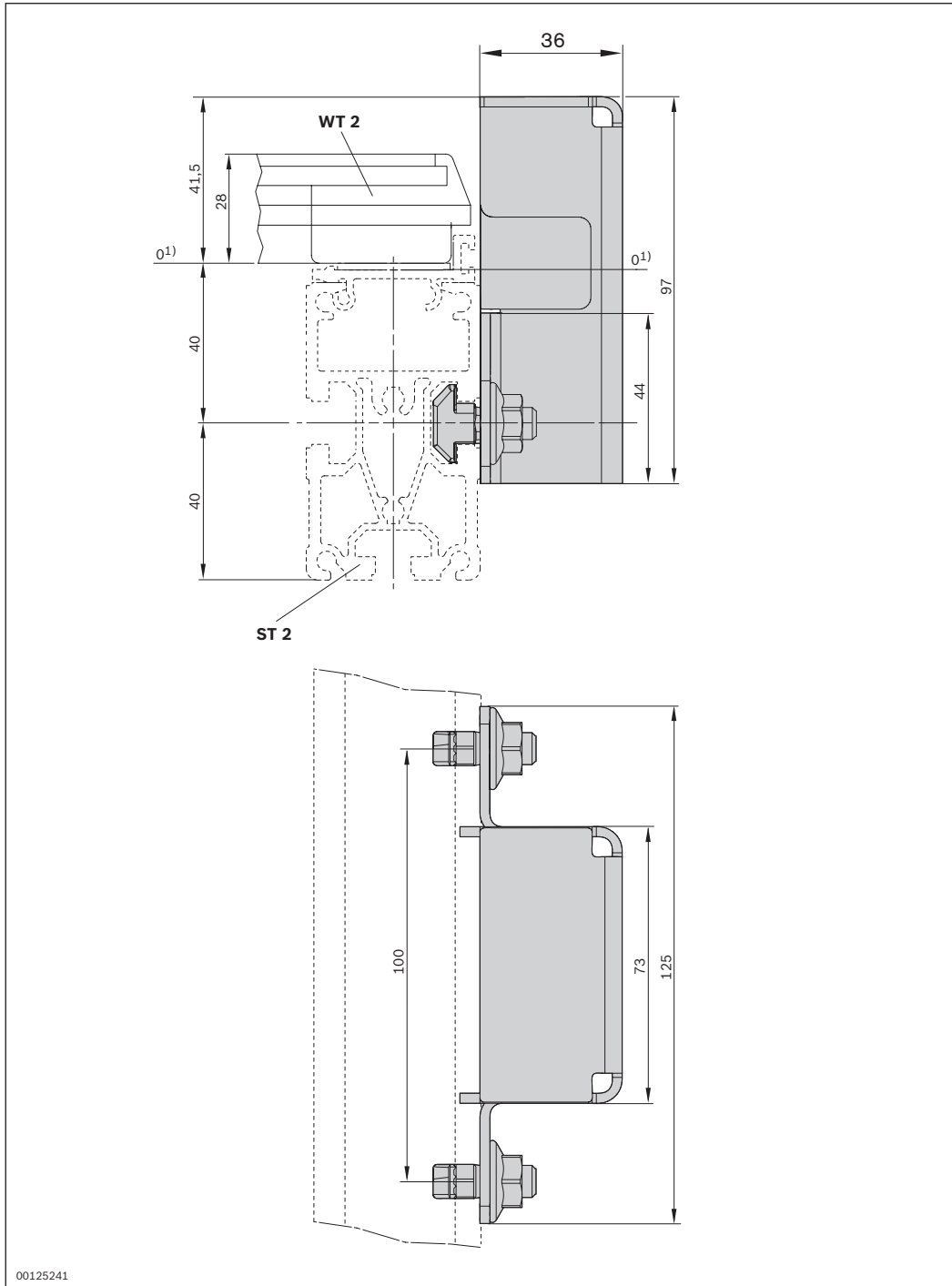
Ordering information

Product designation	Material number
WI/M protective cover	3842537855

Technical data

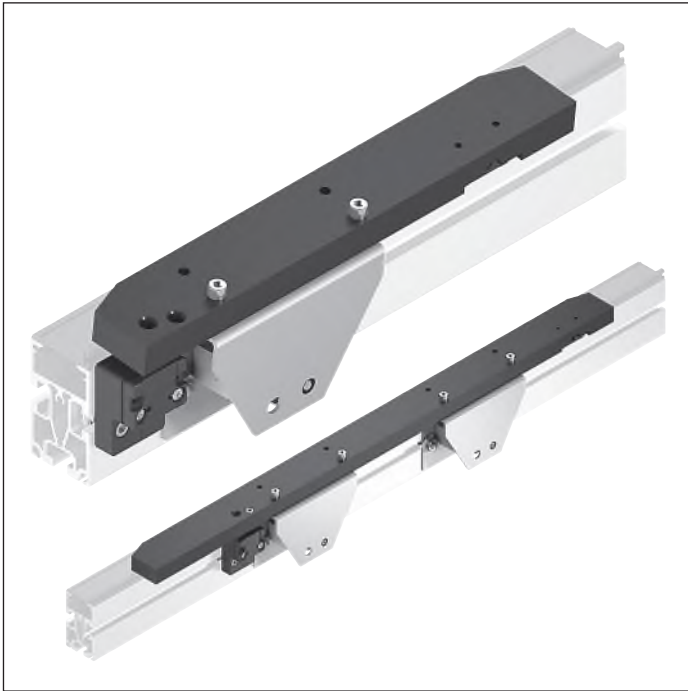
Material number	3842537855
Features	
Material specification	Sheet steel; corrosion-resistant

Dimensions



1 Conveying level

WI 2 rocker



- ▶ For area monitoring
- ▶ For workpiece pallet detection
- ▶ As a stop for transverse transportation of workpiece pallets
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2 and WT 2/F
- ▶ Suitable for use in an EPA

One basic rocker element for workpiece pallet lengths of ≤ 480 mm

Two basic rocker elements for workpiece pallet lengths of ≥ 640 mm

Delivery notes

Scope of delivery

- ▶ Including fastening material for installation on the ST 2 conveyor section or BS 2 belt section.

Ordering information

Product designation	Material number
WI 2 rocker b ₀ = 160	3842348780
WI 2 rocker b ₀ = 240	3842348781
WI 2 rocker b ₀ = 320	3842348782
WI 2 rocker b ₀ = 400	3842348783
WI 2 rocker b ₀ = 480	3842348784
WI 2 rocker b ₀ = 640	3842348786
WI 2 rocker b ₀ = 800	3842348788

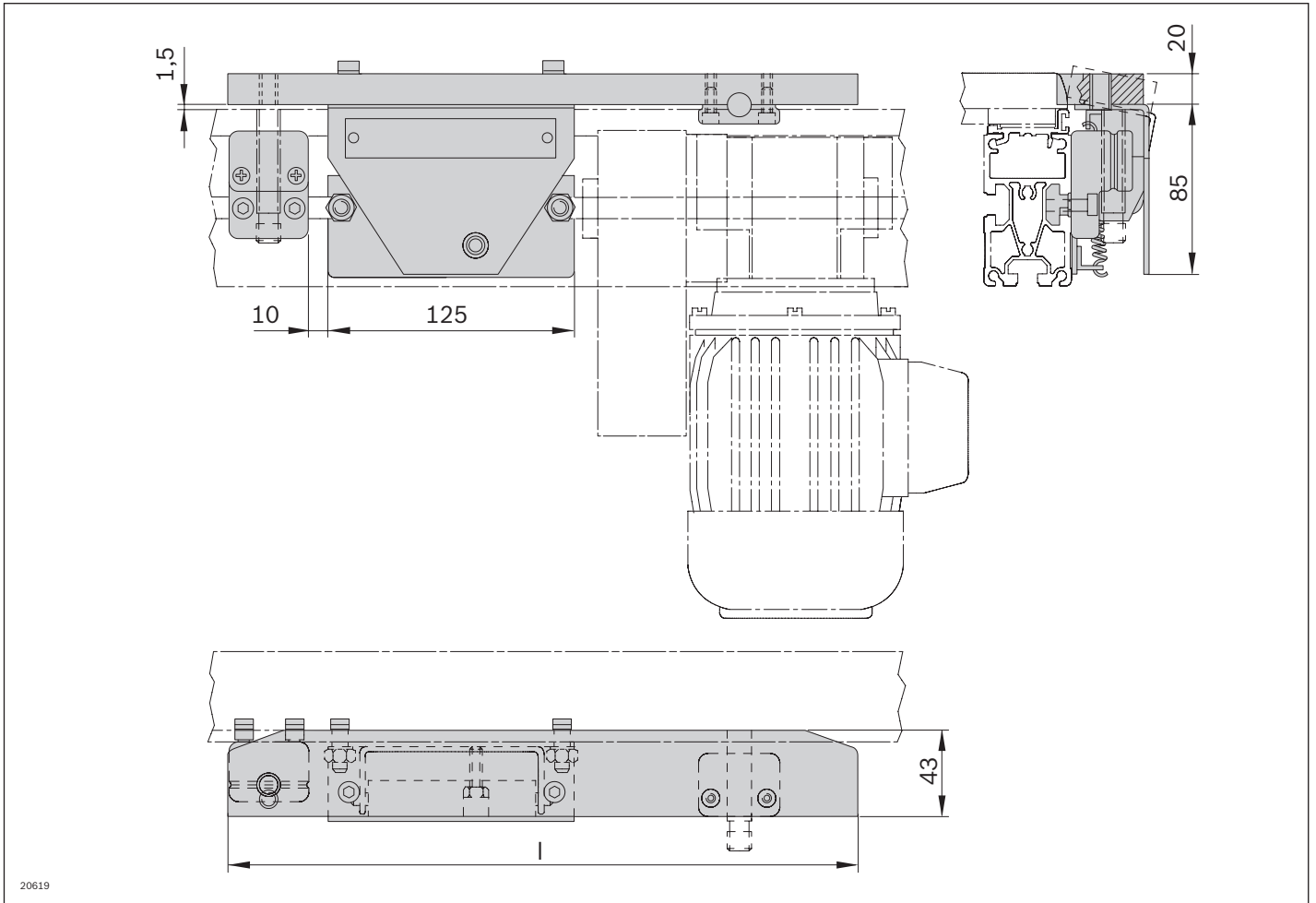
Technical data

Material number			3842348780	3842348781	3842348782	3842348783
Load						
Max. total workpiece pallet weight ¹	m _G	kg	30	30	30	30
Min. workpiece pallet weight ²	m	kg	1.5	1.5	1.5	1.5
Features						
ESD			Yes	Yes	Yes	Yes
Monitoring range		mm	165	270	350	430
Dimensions						
Length	l	mm	320	320	400	480
Material number				3842348784	3842348786	3842348788
Load						
Max. total workpiece pallet weight ¹	m _G	kg		30	30	30
Min. workpiece pallet weight ²	m	kg		1.5	3.0	3.0
Features						
ESD				Yes	Yes	Yes
Monitoring range		mm		510	670	830
Dimensions						
Length	l	mm		560	720	880

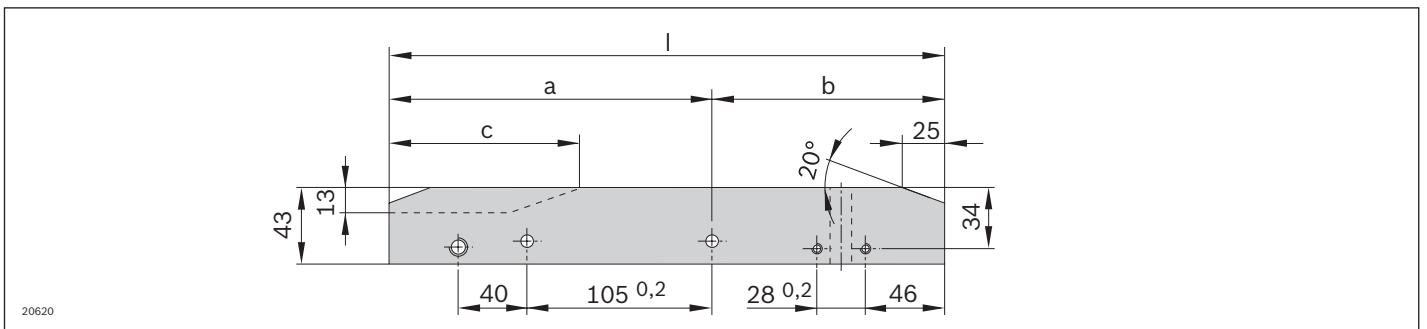
¹ Max. total WT weight applies when feeding from a transverse section into a main section; for area monitoring, only the max. system weight of 240 kg cannot be exceeded.

² Min. WT weight applies per rocker

For workpiece pallet lengths of ≤ 480 mm



20619

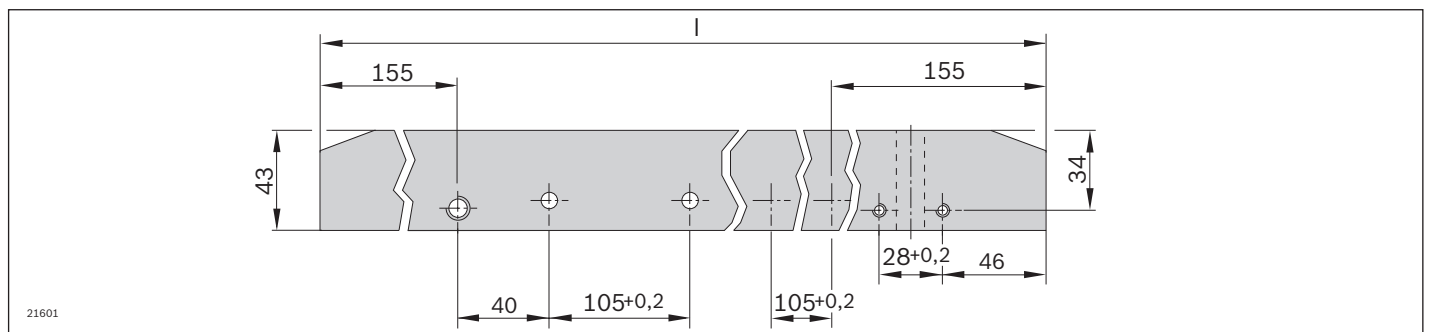
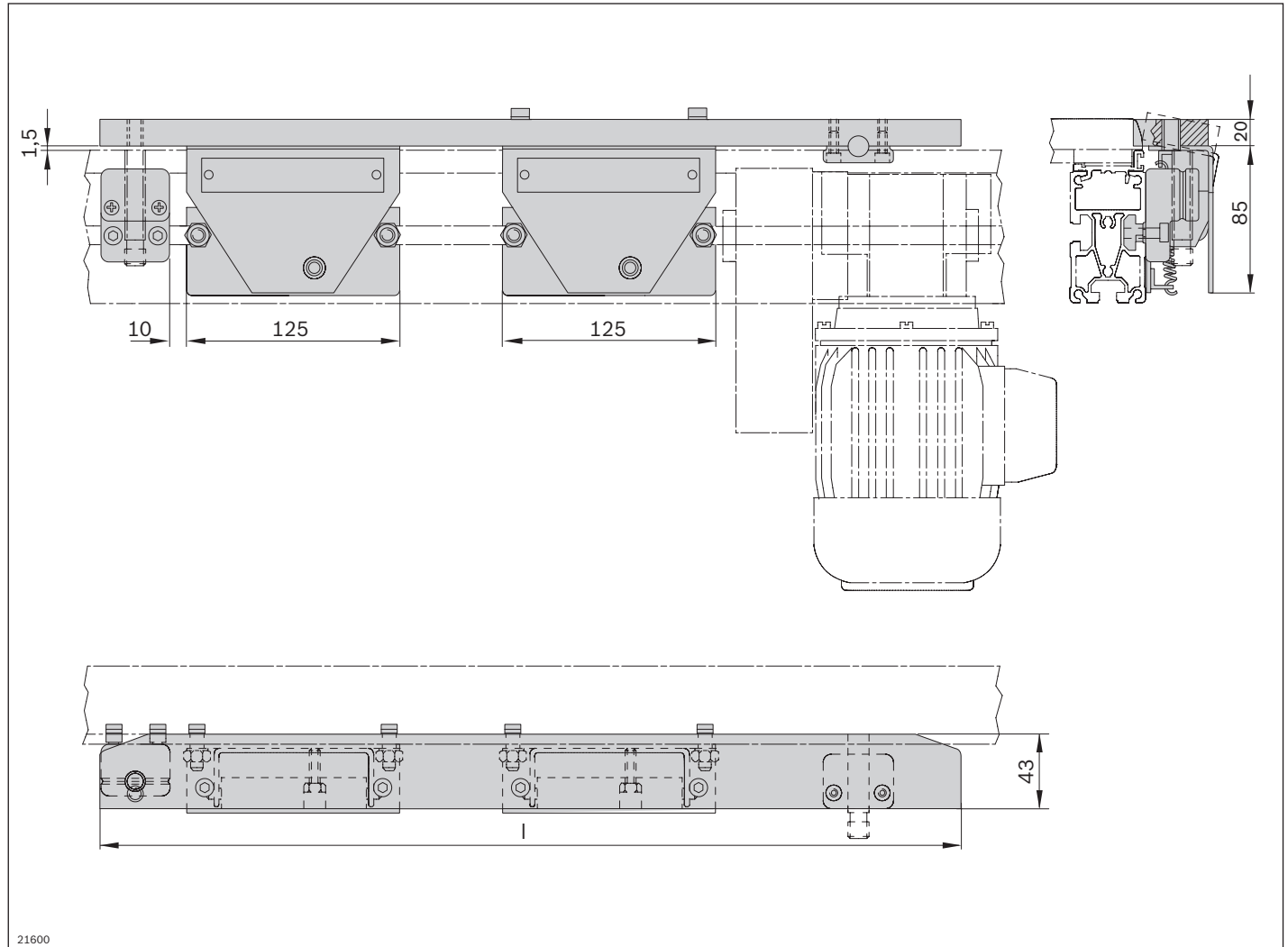


20620

Track width in the transverse conveyor b_0 (mm)	Dimension a (mm)	Dimension b (mm)	Dimension c (mm)	Dimension l (mm)
160	165	155	105	320
240	165	155	25	320
320	245	155	25	400
400	292	188	25	480
480	332	228	25	560

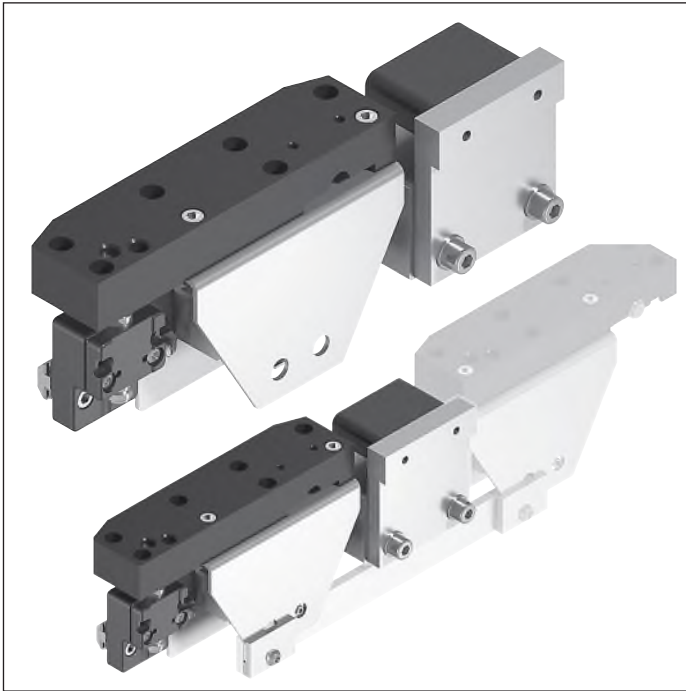
Dimensions

For workpiece pallet lengths of ≥ 640 mm



Track width in the transverse conveyor b_o (mm)	Dimension l (mm)
640	720
800	880

WI 2/X rocker



- ▶ Fixed stop for workpiece pallet in the transverse conveyor
- ▶ For area monitoring
- ▶ For workpiece pallet detection
- ▶ For permitted total weight of workpiece pallets > 30 kg
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2 and WT 2/F
- ▶ Suitable for use in an EPA

8

Accessories

Required accessories

- ▶ Round M12 sensor with a rated sensing range $S_N \geq 4$ mm, see p. 8-108

Delivery notes

Scope of delivery

- ▶ Including fastening material for fastening to ST 2 conveyor sections or BS 2 belt sections.

Ordering information

Product designation	Material number
WI 2/X rocker	3842524447
MS rocker extension $l_{wt} = 400$	3842524449
MS rocker extension $l_{wt} = 480$	3842524450
MS rocker extension $l_{wt} = 640$	3842524451
MS rocker extension $l_{wt} = 800$	3842524452
MS rocker extension $l_{wt} = 1040; 1200$	3842524453

Recommended accessories

- ▶ Additional MS rocker extension with second rocker and connecting strip for installation of a rocker positioned between the start and end of the conveyor section.

Technical data

Material number	3842524447		
Load			
Max. total workpiece pallet weight ¹	m _G	kg	100
Min. workpiece pallet weight ²	m	kg	1.5
Features			
ESD			Yes
Monitoring range	mm		430 ... 1230

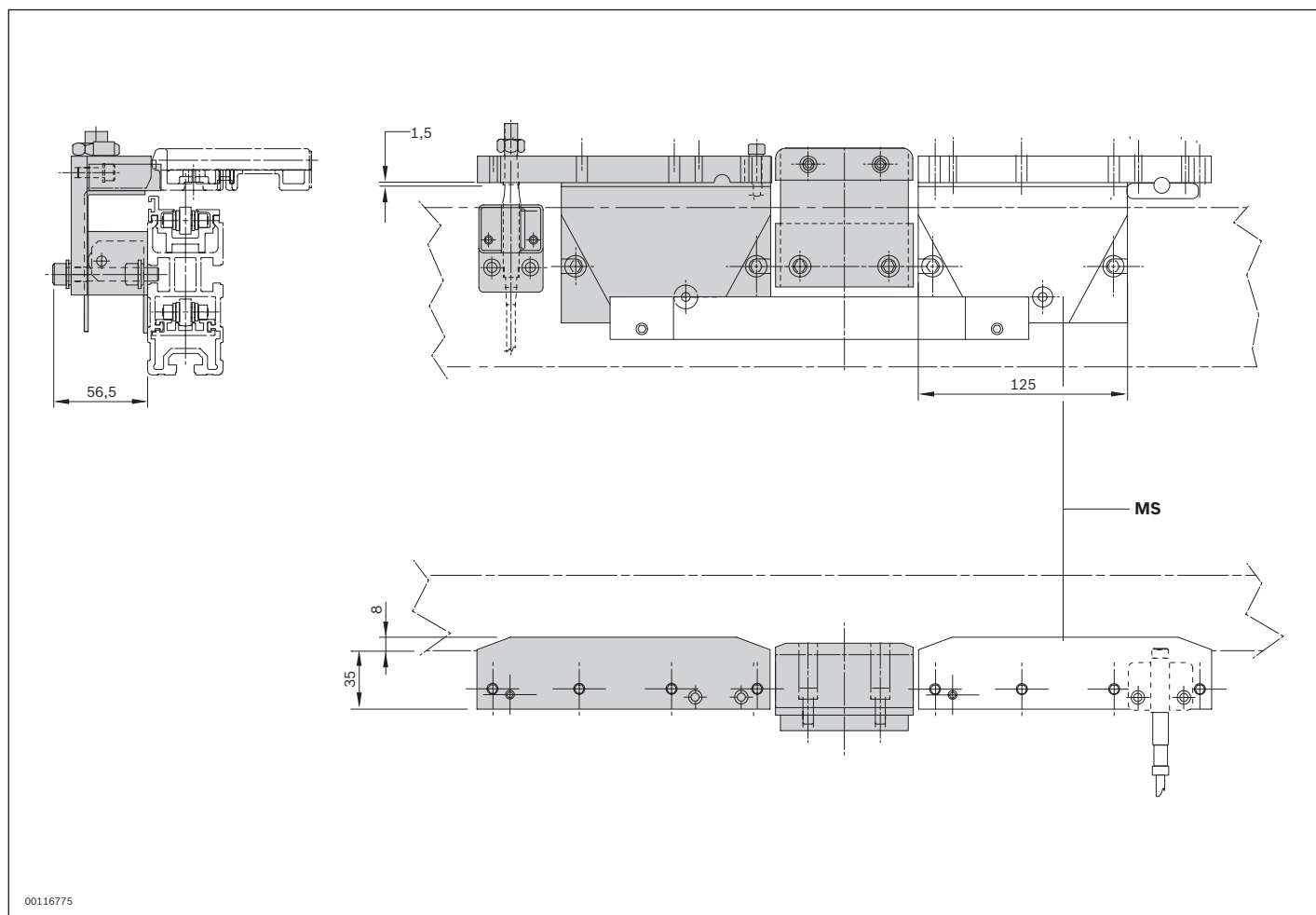
¹ Max. total WT weight applies when feeding from a transverse section into a main section; for area monitoring, only the max. system weight of 240 kg cannot be exceeded.

² Min. WT weight applies per rocker

MS rocker extension

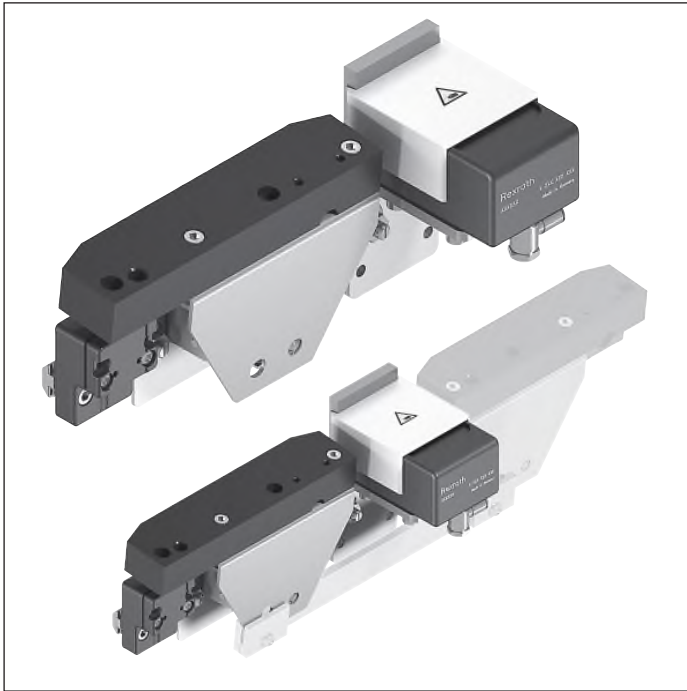
Material number	3842524449	3842524450	3842524451	3842524452	3842524453	
Dimensions						
Length of workpiece pallet l _{WT}	mm	400	480	640	800	1040; 1200
Features						
ESD		Yes	Yes	Yes	Yes	Yes
Monitoring range	mm	430	510	670	830	1230

Dimensions



MS Additional rocker extension

WI 2/D rocker



- ▶ As a dampened stop for workpiece pallets in the transverse conveyor
- ▶ For area monitoring
- ▶ For workpiece pallet detection
- ▶ For permitted total weight of workpiece pallets > 35 kg
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2 and WT 2/F
- ▶ Suitable for use in an EPA

8

Accessories

Required accessories

- ▶ Round M12 sensor with a rated sensing range $S_N \geq 4$ mm, see p. 8-108

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ Incl. DA 2/100 damper

Ordering information

Product designation	Material number
WI 2/D rocker	3842524448

Recommended accessories

- ▶ Additional MS rocker extension with second rocker and connecting strip for installation of a rocker positioned between the start and end of the conveyor section from a monitoring range of 400 mm.

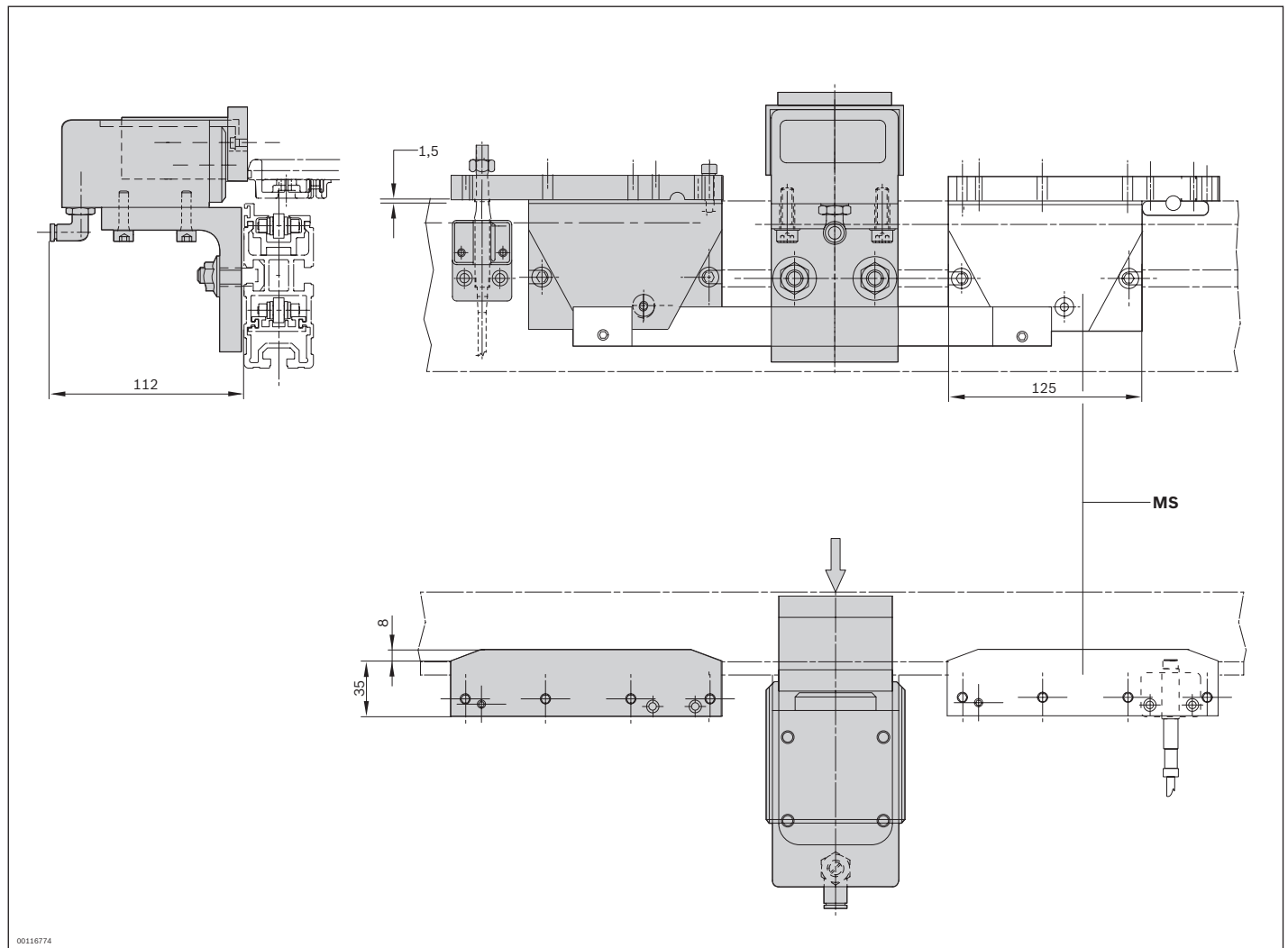
Technical data

Material number	3842524448		
Load			
Max. total workpiece pallet weight ¹	m _G	kg	100
Min. workpiece pallet weight ²	m	kg	5
Features			
ESD			Yes
Monitoring range	mm		430 ... 1230

¹ Max. total WT weight applies when feeding from a transverse section into a main section; for area monitoring, only the max. system weight of 240 kg cannot be exceeded.

² Min. WT weight applies per rocker

Dimensions



00116774

MS Additional rocker extension

MS rocker extension



► Suitable for use in an EPA

Rocker extension as a second rocker with connecting strip for installation of a rocker positioned between the start and end of the conveyor section.

Required accessories

► WI 2/X or WI 2/D rocker, see p. 8-143/8-145

Ordering information

Product designation	Material number
MS rocker extension $l_{WT} = 400$	3842524449
MS rocker extension $l_{WT} = 480$	3842524450
MS rocker extension $l_{WT} = 640$	3842524451
MS rocker extension $l_{WT} = 800$	3842524452
MS rocker extension $l_{WT} = 1040; 1200$	3842524453

Technical data

Material number	3842524449	3842524450	3842524451	3842524452	3842524453	
Dimensions						
Length of workpiece pallet l_{WT}	mm	400	480	640	800	1040; 1200
Features						
ESD		Yes	Yes	Yes	Yes	Yes
Monitoring range	mm	430	510	670	830	1230

WT 2 stop



- ▶ Fixed stop in the transverse conveyor
- ▶ Installation location: ST 2 section and BS 2. belt section
- ▶ Not suitable for mounting on ST 2/...-H or BS 2/...-H sections

The WT 2 stop is used as a fixed stop for workpiece pallets entering a longitudinal section from a transverse section.

Delivery notes

Scope of delivery

- ▶ Including fastening material for installation between two ST 2 conveyor sections or BS 2 belt sections.

Condition on delivery

- ▶ Not assembled

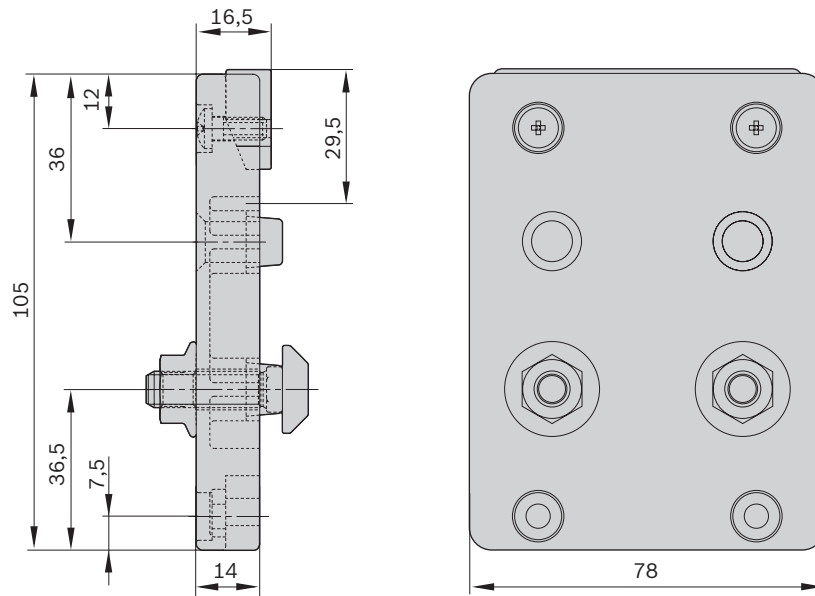
Ordering information

Product designation	Material number
WT 2 stop	3842519717

Technical data

Material number	3842519717		
Load			
Max. total workpiece pallet weight	m_G	kg	30
Features			
ESD			Yes
Material specification			PA66

Dimensions



00125246

Identification systems

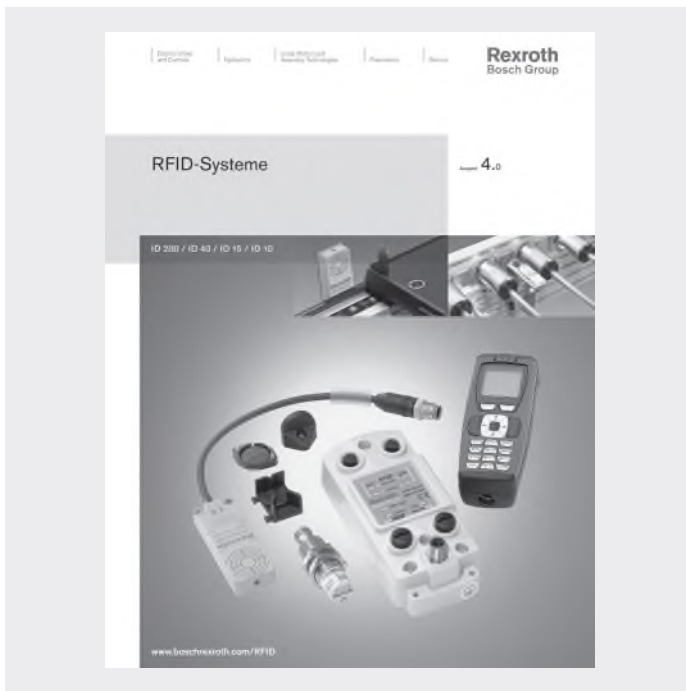
Identification systems

9-3

9



Identification systems



Identification and data tag systems are used to control numerous production and transport systems in assembly technology applications.

Data related to objects is the basis for

- ▶ VE, VE 2/M, VE 2/L or VE 2/S stop gates
- ▶ M8x1 sensor with rated sensing range $S_N \geq 2$ mm, can be installed flush

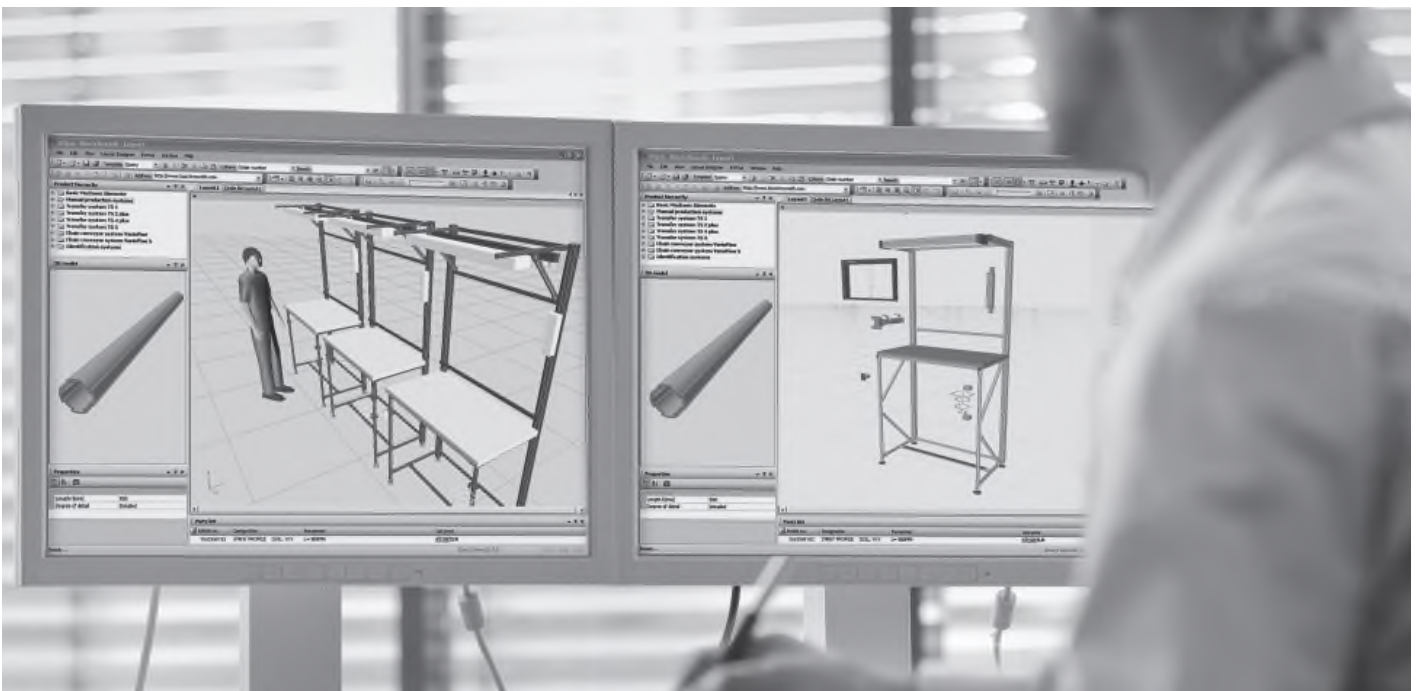
You can find our current range of identification and data tag systems in the RFID systems catalog.

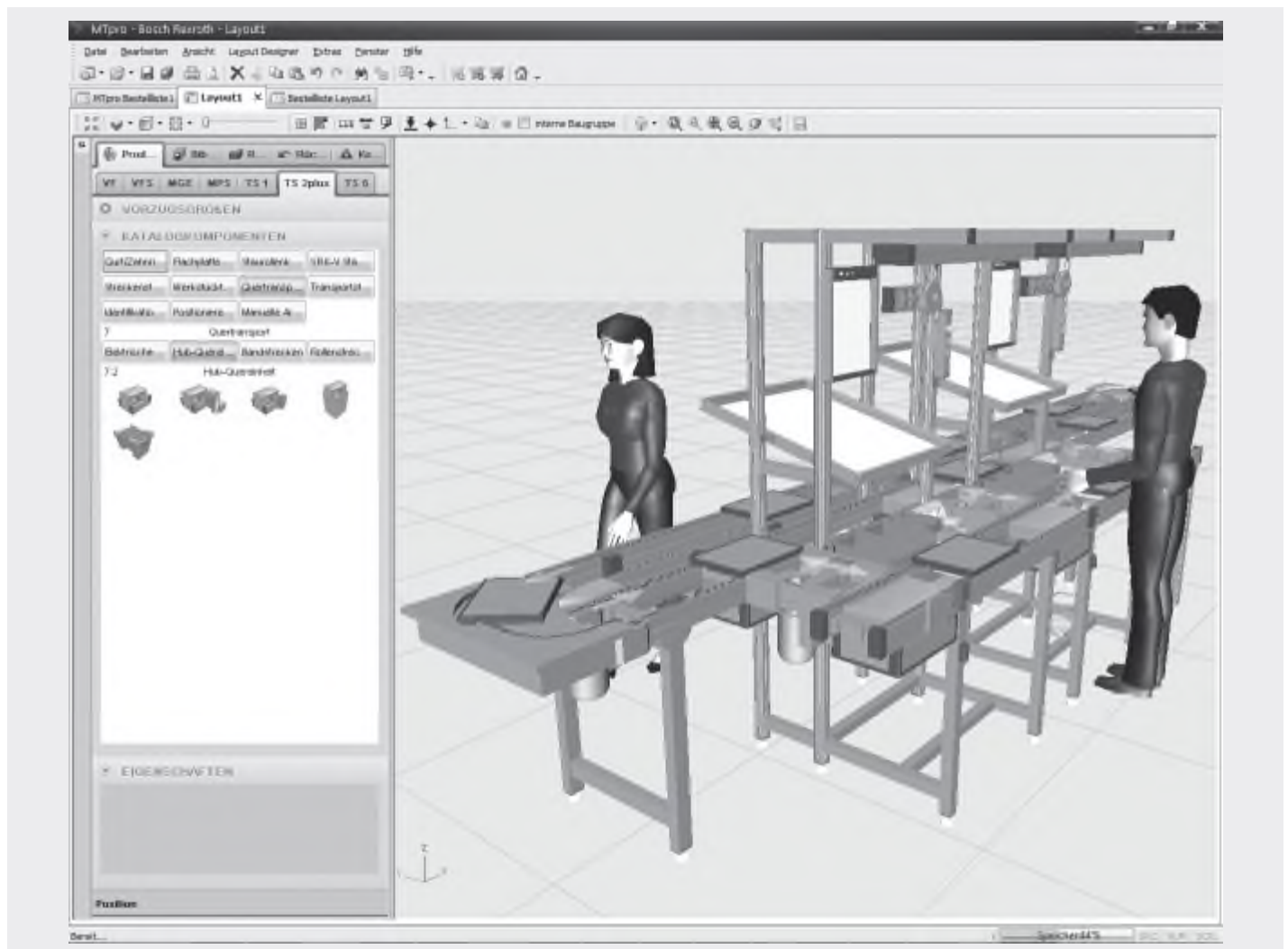


MTpro planning software

MTpro planning software

10-3





MTpro planning software

MTpro is a software program used for planning assembly systems. It assists you from selection to configuration and ordering of the Rexroth products. The program offers the following functions and full content in seven languages (en/de/fr/es/it/ja/zh):

Layout Designer for planning and designing complete frames and conveyor systems

- ▶ Simple design using the drag & drop and snap functions without a CAD system
- ▶ Design logic for automatic configuration and assembly adaptation
- ▶ Automatic order list generation of all small parts and accessories
- ▶ Export of 3D volume models
- ▶ Library for saving and reusing your own modules and layouts

Product information

- ▶ Technical data
- ▶ Catalog data sheets
- ▶ Assembly instructions
- ▶ Spare parts lists and drawings

Configuration and calculation

- ▶ Product configuration and generation of ordering information
- ▶ Issuing of order lists in user-specific presentations
- ▶ Direct connection to Rexroth eShop
- ▶ Quick & Easy profile configuration and drafting
- ▶ Other design and calculation programs

CAD library

- ▶ Configurable CAD models
- ▶ Memories in standard formats
- ▶ Direct integration into all common CAD systems

System requirements

- ▶ Windows from version 7 onwards
- ▶ DVD-ROM drive
- ▶ At least 6 GB of free disk space hard disk space
- ▶ Adobe Reader from version 10 onwards
- ▶ Internet access for layout designer licensing and automatic updates

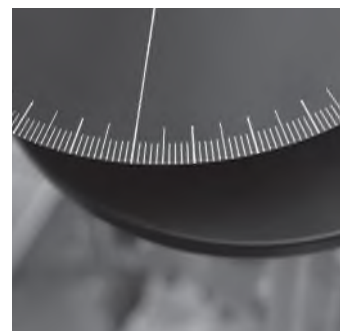


Technical data

System specifications

11-2

11



System specifications

Application

The Rexroth transfer systems all form a program of fine-tuned mechanical components that are used to convey, separate, and position workpiece pallets. With these components, you can create almost any system layout you need.

The systems are primarily used to convey workpieces (on Rexroth workpiece pallets) to and from manual or automatic work stations on an assembly line.

Planning

Transfer system planning (the combination of components into a modular system), setup, initial start up and maintenance should only be done by trained personnel. Rexroth offers training courses for this.

Scope of delivery – small parts

The sensors, pneumatic valves, and electrical and pneumatic installation material that are necessary for operation are usually not included in the scope of delivery. These parts are only preassembled if doing so guarantees special functional safety or if installing them at a later point would require a disproportionate effort. Please note the references for the required flow control valves and check valves in the pneumatic switching plan (listed in the assembly and operation instructions) must be followed.

Note

Examples

Installation references, pneumatic switching plans and typical function processes are described in the catalogs and assembly instructions. These must be followed when setting up and starting the initial operation of the system.

CE identification, responsibility

Components that fall under the EC Machinery Directive are delivered with the corresponding declaration of incorporation. Overall responsibility for system safety (declaration of conformity, CE identification) lies with the system builder. The references in the assembly instructions and in the Instructions for Employees on Safety – 3842527147 – must be followed.

Media resistance

Our products are guaranteed to be resistant to numerous media common to manufacturing, such as water, mineral oil, grease and detergents. Contact your Rexroth representative if you have any doubts about resistance to specific chemicals, e.g., test oil, doped oils, aggressive detergents, solvents, or brake fluid.

Avoid prolonged contact with highly reactive acidic or alkaline materials.

Contamination

Wear may increase dramatically if the system is contaminated due to environmental factors, particularly with abrasive media such as sand and silicates, but also due to processes running on the transfer system (e.g., welding beads, pumice dust, glass shards, shavings, or lost parts, etc.). In such cases, maintenance intervals must be substantially shortened.

Functional safety

Resistance to media and contamination does not mean that functional safety is guaranteed in every case.

- ▶ Liquids that thicken on evaporation and are highly viscous or adhesive (sticky) could lead to a disruption in function.
- ▶ Media with lubricating properties may reduce the driving power that is caused by friction if they are transported on systems with belts or round belts.
- ▶ The chain lubricant used on conveyor chains can be washed away with solvents or detergents.

Such cases require special attention when planning the system and adjusting the maintenance intervals.

Environmental sustainability, recycling

The materials used are environmentally friendly. They can be recycled or reused (components may have to be processed and replaced). Recyclability is ensured by the selection of materials and the ability to take the components apart.

Pneumatic connection data

Oiled or non-oiled, filtered, dry compressed air.
Operating pressure 4 to 6 bar
Performance data is for an operating pressure of 5 bar.

Maintenance

The TS components require very little maintenance. Maintenance instructions are included in the operating manual.

Wear

Wear is caused by the basic principle of this system and cannot be avoided. Design measures and appropriate materials help ensure functional safety over the life of the product. However, wear depends on the operating, maintenance, and ambient conditions of the system and the location (resistance, contamination).

Measures to reduce wear

The following measures reduce wear and the friction caused by it:

- ▶ Switch off conveyor sections when the system is not running, e.g., during breaks, overnight, on the weekend.
- ▶ Do not select conveyor section speeds that are higher than those required for the particular function
- ▶ Minimize the weight of the workpiece pallet – do not overload workpiece supports with material.
- ▶ Avoid unnecessary accumulation sections, e.g., by reducing the number of workpiece pallets
- ▶ Switch off accumulation sections carrying heavy workpiece pallets if transport is not necessary.
- ▶ Very important: Avoid contamination by abrasive media or reduce contamination with regular cleaning

Load specifications

Permitted loads apply for conveyor sections under the condition that only workpiece pallets with the maximum total permitted weight have accumulated.

Higher loads are permitted if accumulation can be safely avoided.

Accumulation operation is not permitted on lift-transverse units.

Wear and conveyor speed

Nominal data for the permitted workpiece pallet weight describe operation at standard speeds and under normal operating conditions.

Wear on the workpiece pallet wear pads and the conveyor medium will not influence system function throughout the service life.

Wear and higher/lower loads

Higher loads may lead to more wear and thus require, among other measures, shorter maintenance intervals. A linear decrease in wear can be calculated for lower loads (half load = half the wear = twice the service life).

System specifications

Loading the workpiece pallet, combination of empty and loaded workpiece pallet

When setting up and testing the modular units, the workpieces pallets should not all have the same weight on the conveyor sections, i.e., full and empty pallets should all come through the circuit.

Extreme differences in weight may require special measures to avoid functional disruptions. This applies, e.g., to the permitted accumulation length before stop gates, for the function of dampers and damped stop gates, and also for accumulation in curves.

Function is usually not limited if the weight ratio is 2:1 between heavy (loaded with a workpiece) and light workpiece pallets (empty).

Loading the workpiece pallet, minimum weight

The minimum weight of the workpiece pallet is generally not relevant. In special cases – depending on the marginal conditions – an application-specific minimum weight may be required for safe and continuous transport. This can occur, for example, if switching elements have to be manually operated (on the rocker), or if a lighter workpiece pallet does not run smoothly when changing directions, e.g., jumps out of the guide on the HQ. In such unusual cases, additional weight should be added when designing the workpiece pallet.

Overloading

Overloading the conveyor sections may damage the conveyor medium and cause the motor and gears to break down.

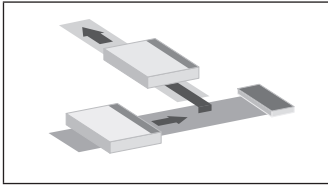
When overloading of pneumatic components occurs function cannot be guaranteed.

Transportation speed, Influence on wear

Wear on the conveyor medium, slide rails, workpiece pallet wear pads and the like is proportional to the conveying speed. This means that, in comparison to the standard speed of 12 m/min, when running at 18 m/min the wear limit is already reached at $12/18 = 2/3$ of the running time.

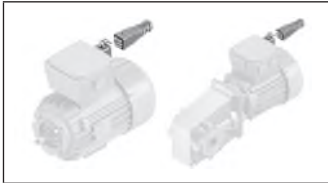
Transportation speed, dynamic influences

When the conveying speed increases bumps when changing directions and the rebound force on the stop gates also increase. This may require longer damping periods or shock absorbers before the next movement. If accumulation roller chains are the conveyor medium a return stop combined with stop gates is recommended for operation at higher speeds.



Function plans

11-12



Motor data/motor connection

11-24


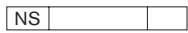
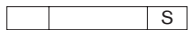
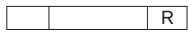
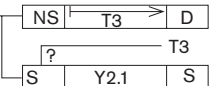
**Transportation and nominal speeds v_N
Compressed air consumption of the
TS 2plus units**

11-28

Function plans

On the following pages, you can find proven fundamental function plans for control tasks in transfer systems.

Characters used in the action blocks that deviate from DIN IEC 61131-3. They are explained in the following table.

Action block	Explanation
	Storing
	Non-storing
	Set
	Reset
	Non-storing triggering of a time function (with runtime T), after which a switching function is triggered.

Simple VE 2 stop gates are used to stop workpiece pallets. The position of the workpiece pallets is queried with separate sensors.

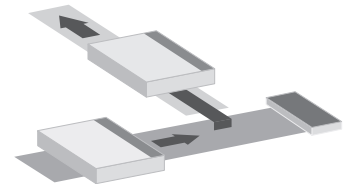
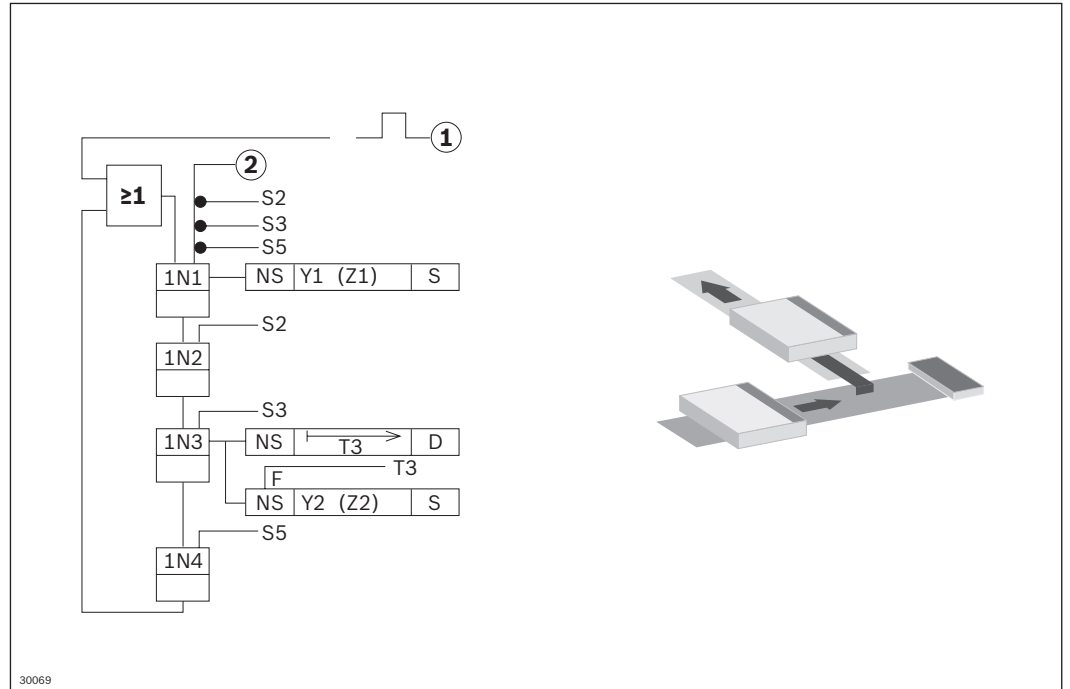
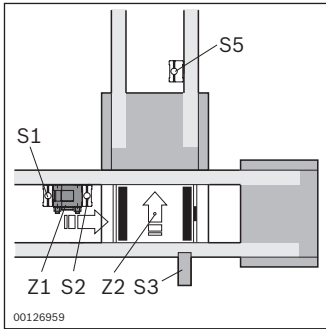
The function plans are simplified accordingly if using stop gates with integrated sensors and internal switching logic.

General abbreviations

WT	=	Workpiece pallet
VE	=	Stop gate
S...	=	Signaling device
Y...	=	Valve
Z...	=	Cylinder
LT	=	Longitudinal conveyor (main section)
QT	=	Transverse conveyor (adjacent section)
HQ	=	Lift transverse unit
DA	=	Damper
①	=	Start pulse after end of start-up
②	=	Release cyclic travel

Function plans

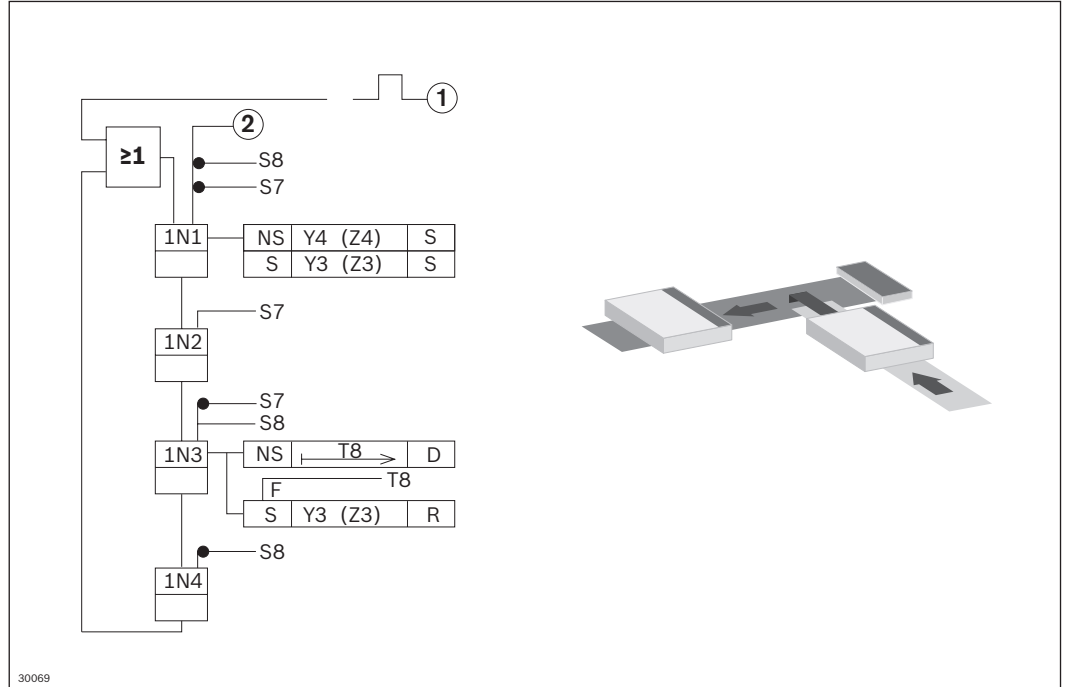
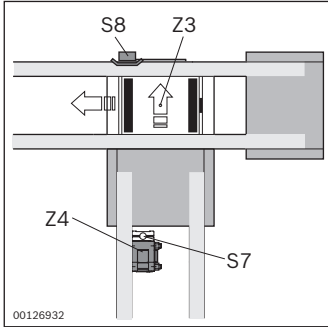
Transfer to transverse section (TFE 1)



- S2 = WT after VE1 (Z1)
- S3 = WT in position on HQ (Z2) (WI/M rocker)
- T3 = Delaying time 100 ... 200 ms
- S5 = Enable main section 1
- Y1 = Main section VE (Z1)
- Y2 = Lifting cylinder HQ (Z2)

Function plans

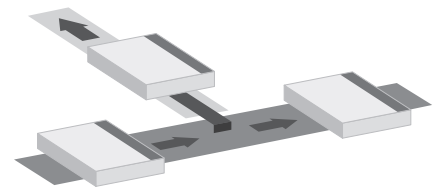
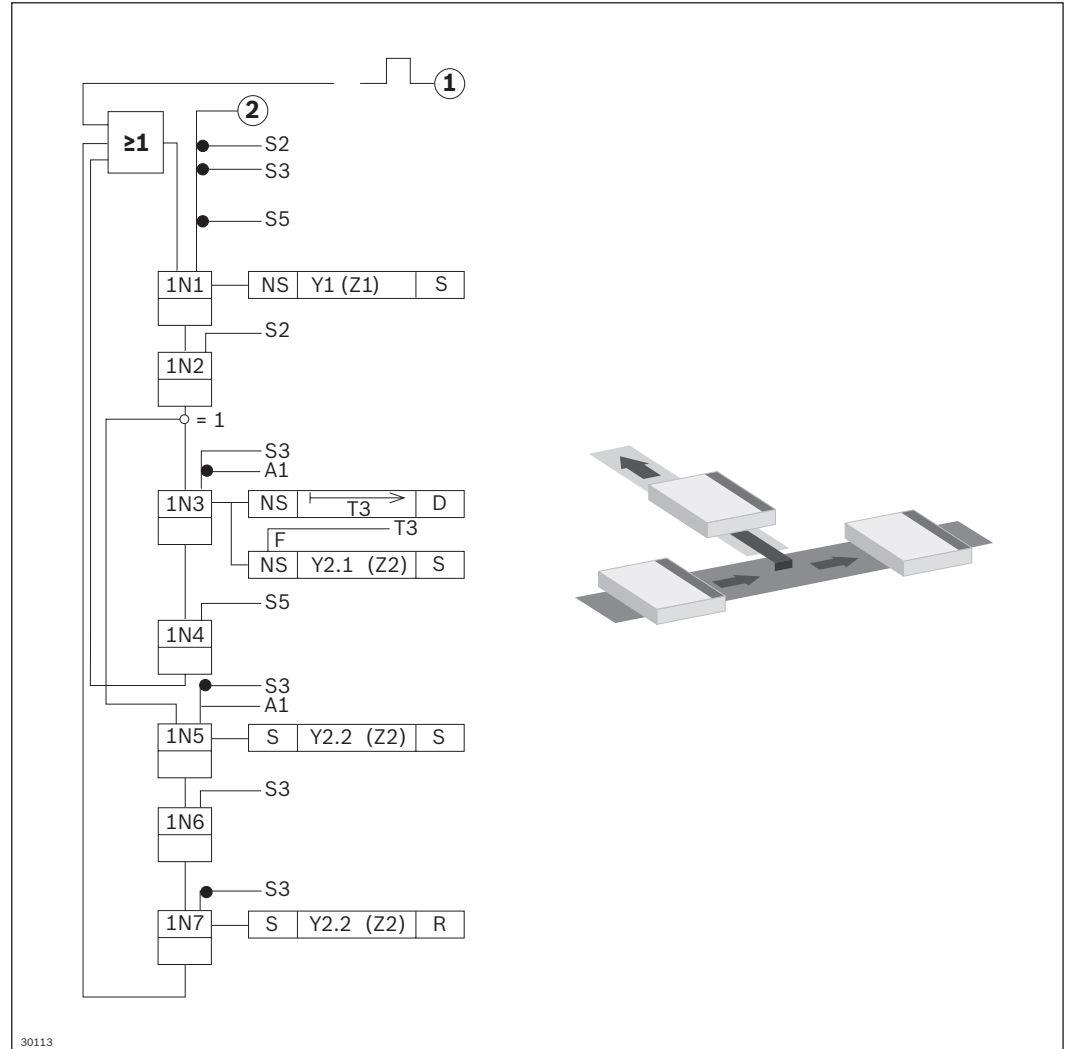
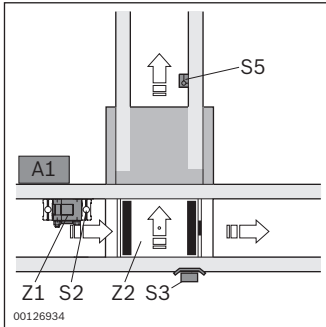
Transfer to longitudinal section (TFE 2)



- S7 = WT after VE4 (Z4)
- S8 = WT in position on HQ (WI/M rocker)
- T8 = Delaying time 100 ... 200 ms
- Y3 = EQ lifting cylinder (Z3)
- Y4 = Adjacent section VE (Z4)

Function plans

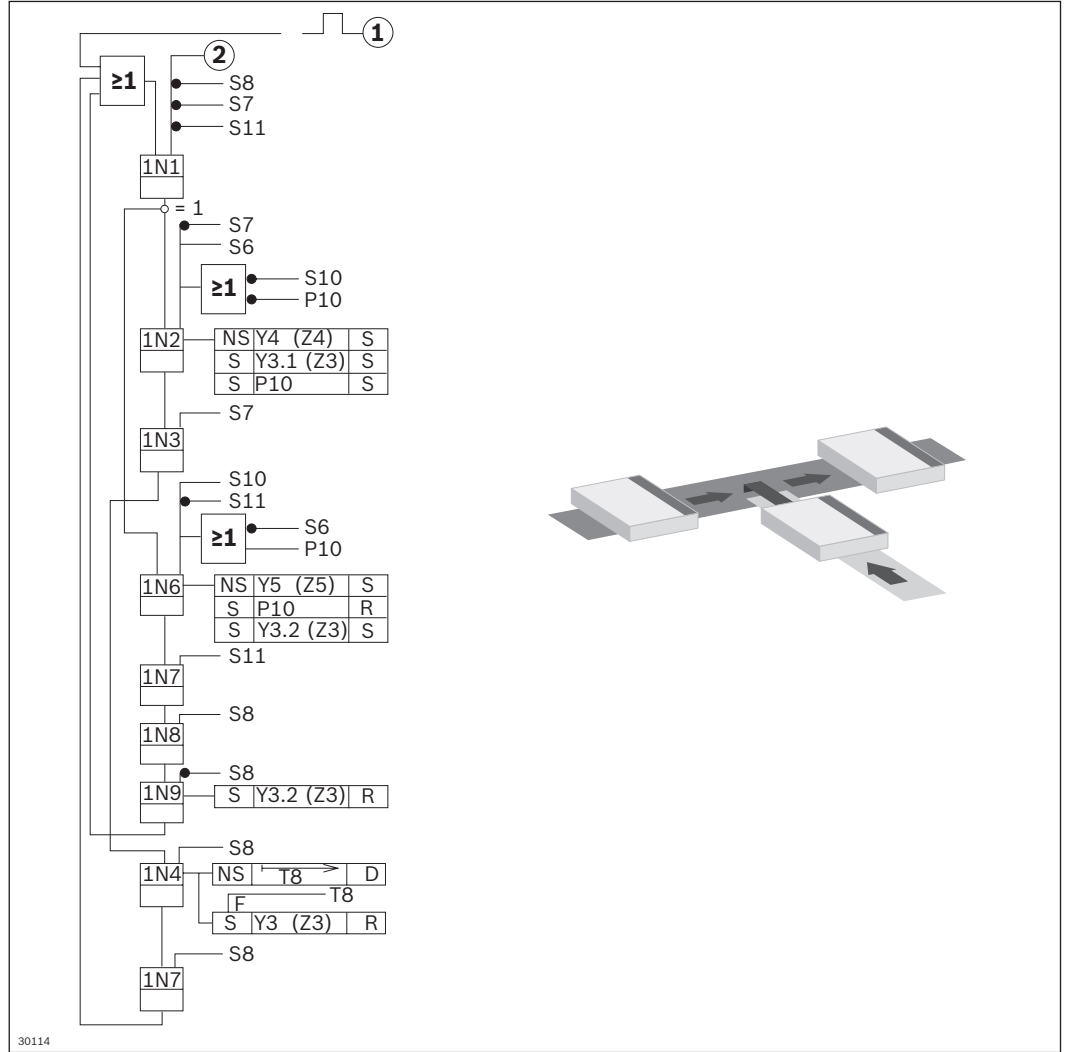
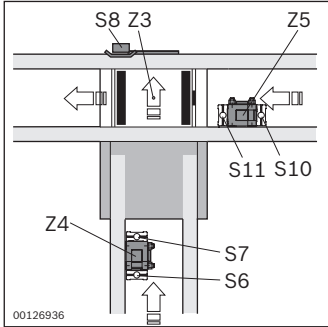
Transverse conveyor (separating, outfeeding) (TFE 3)



- S2 = WT after VE1 (Z1)
- S3 = WT in position on HQ
- T3 = Delaying time 100 ... 200 ms
- S5 = Enable branch section
- Y1 = Main section VE (Z1)
- Y2 = Lifting cylinder HQ (Z2)
- P10 = Priority main section
- A1 = Identification system with straight-ahead signal
(0 = branching
1 = straight)

Function plans

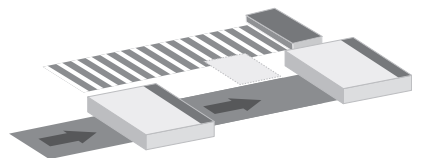
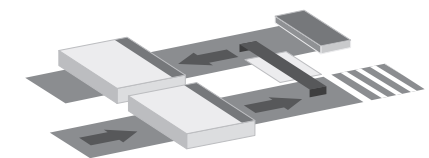
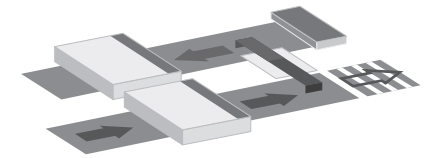
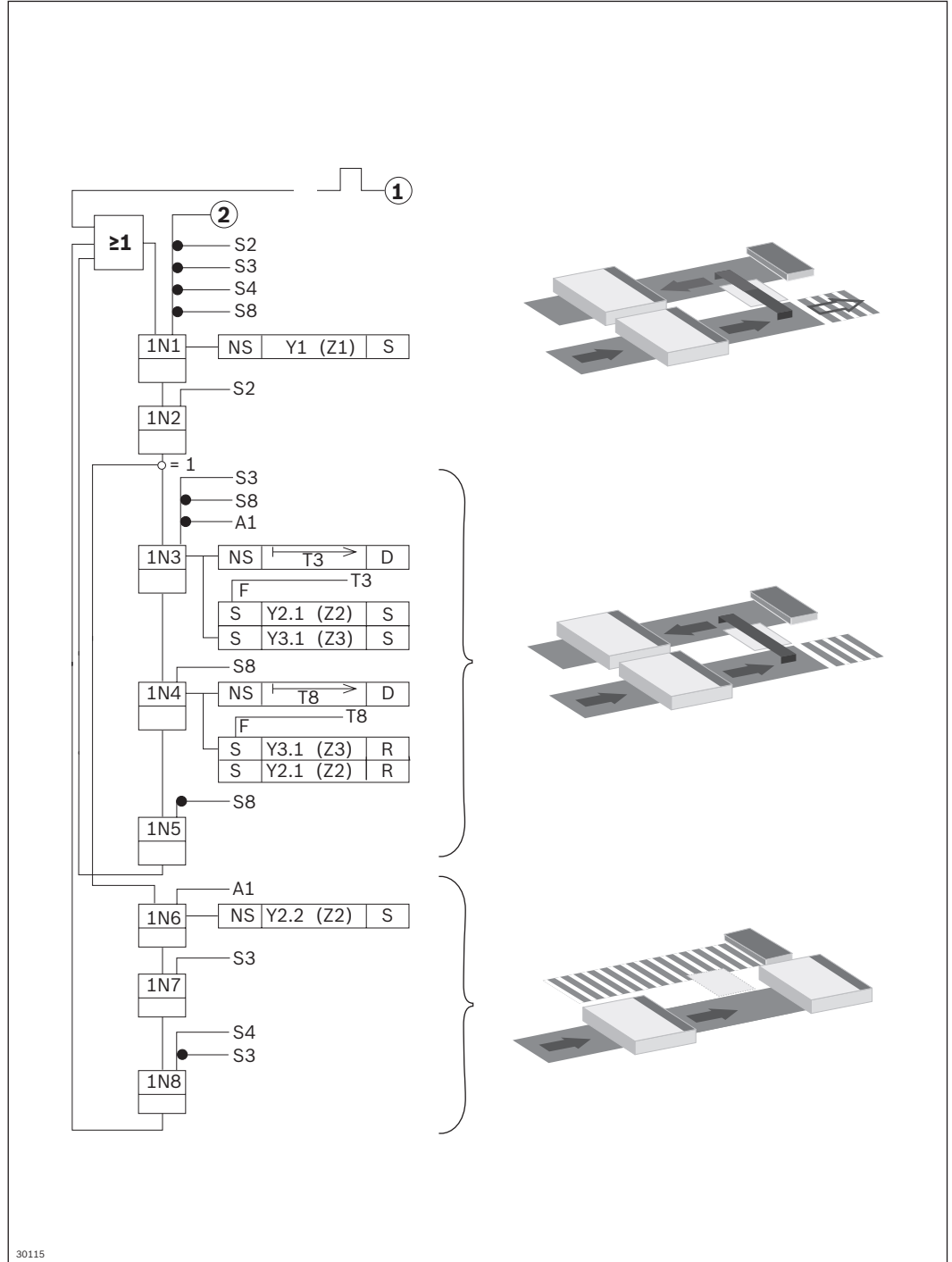
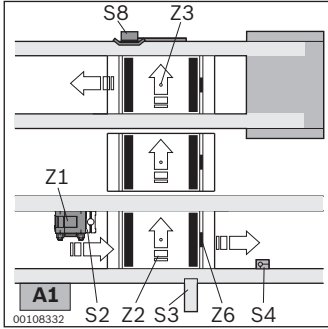
Transverse conveyor (separating, feeding) (TFE 4)



- T8 = Delaying time 100 ... 200 ms
- S6 = WT before VE4 (Z4)
- S7 = WT after VE4 (enable branch section)
- S8 = WT in position on HQ (WI/M rocker)
- S10 = WT before VE5 (Z5)
- S11 = WT after VE5 (Z5)
- Y3 = HQ lifting cylinder (Z3)
- Y4 = Adjacent section VE (Z4)
- Y5 = Main section VE (Z5)
- Y6 = VE in EQ (Z6)
- P10 = Priority main section

Function plans

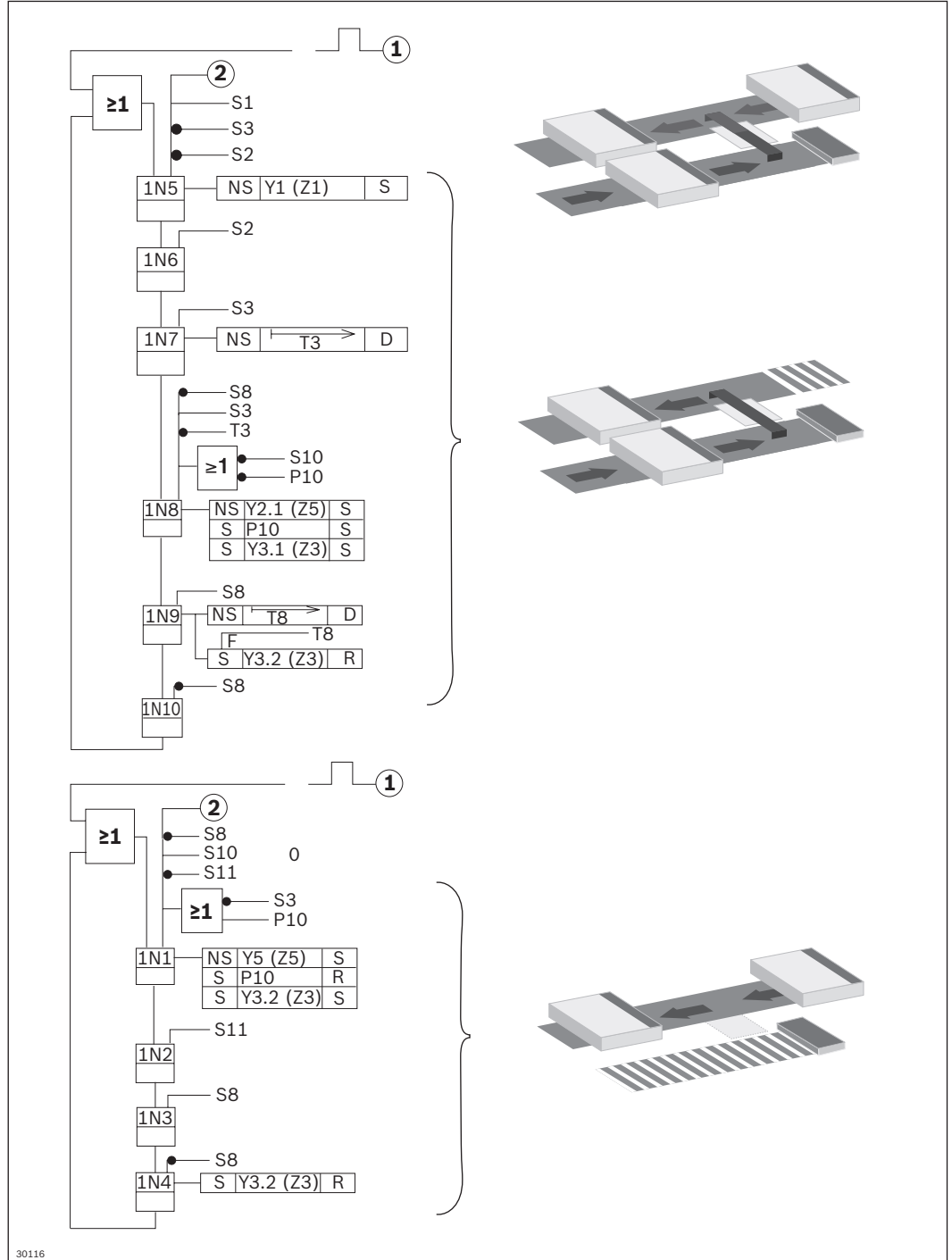
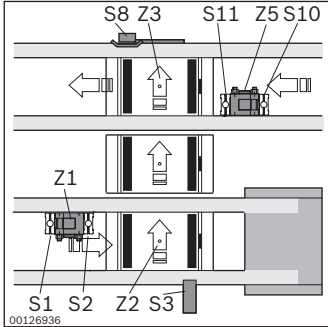
EQ 2/TR transverse conveyor (separating, outfeeding) (TFE 5)



S1	=	WT in position at VE1 (Z1)
S2	=	WT after VE1 (Z1)
S3	=	WT in position on EQ Part 1
T3	=	Switch-on delay 100 ... 200 ms
T8	=	Switch-on delay 100 ... 200 ms
S4	=	Enable main section 1
S6	=	WT before VE4 (Z4)
S7	=	WT after VE4
S8	=	WT on EQ Part 2 (Wl/M rocker)
Y1	=	Main section VE (Z1)
Y2.1/2.2	=	EQ lifting cylinder (Z2)
Y3.1/3.2	=	EQ lifting cylinder (Z3)
A1	=	Straight-ahead signal (0 = branching 1 = straight)

Function plans

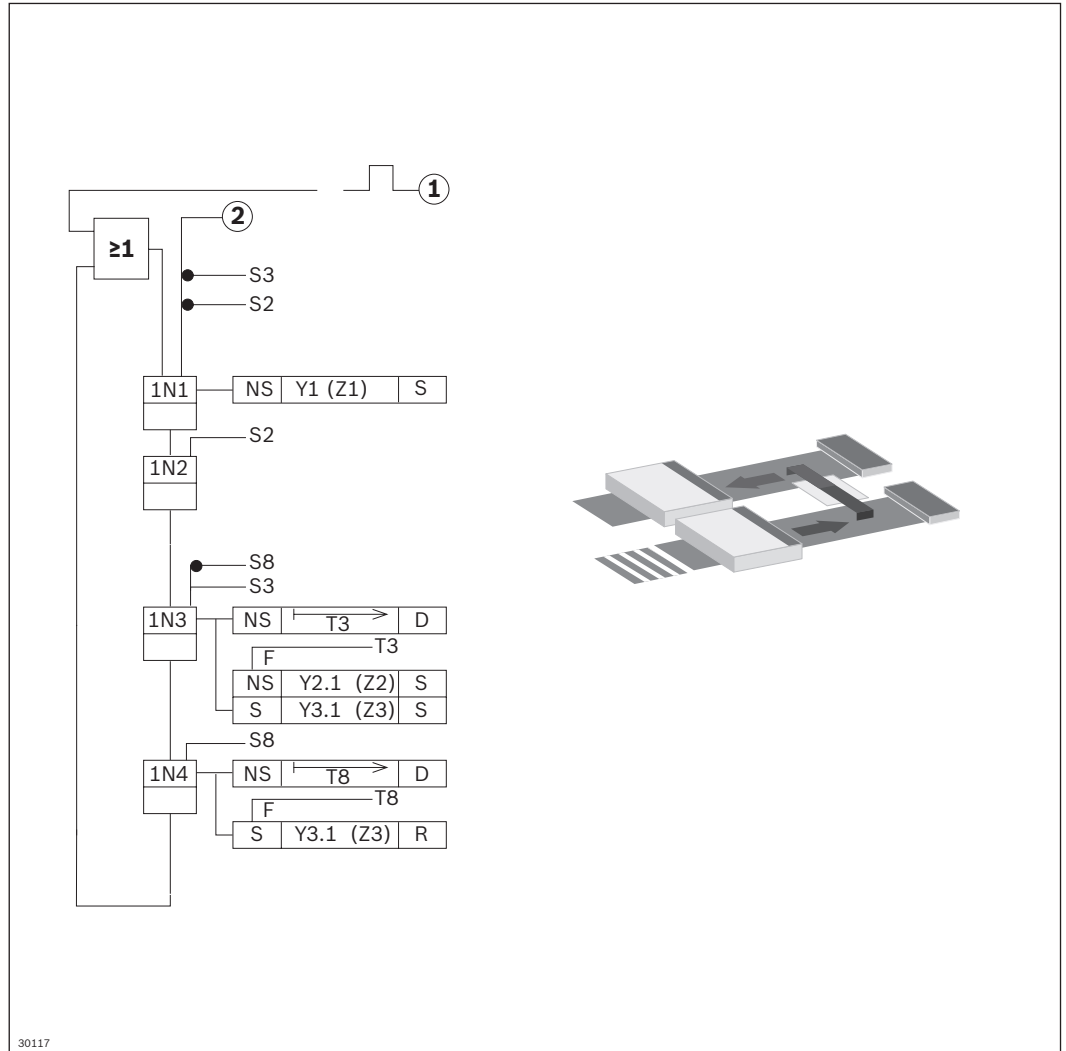
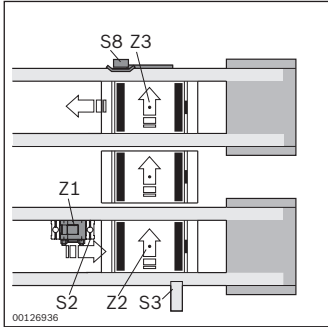
EQ 2/TR transverse conveyor (feeding) (TFE 6)



S1	=	WT in position at VE1 (Z1)
S2	=	WT after VE1 (Z1)
S3	=	WT in position on EQ Part 1
T3	=	Switch-on delay 100 ... 200 ms
T8	=	Switch-on delay 100 ... 200 ms
S8	=	WT on EQ-part 2
S10	=	WT before VE5 (Z5)
S11	=	WT after VE5 (Z5)
Y1	=	Main section VE (Z1)
Y2.1/2.2	=	EQ lifting cylinder (Z2)
Y3.1/3.2	=	EQ lifting cylinder (Z3)
Y5	=	Main section VE (Z5)
P10	=	Priority

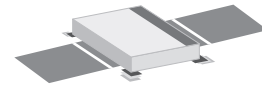
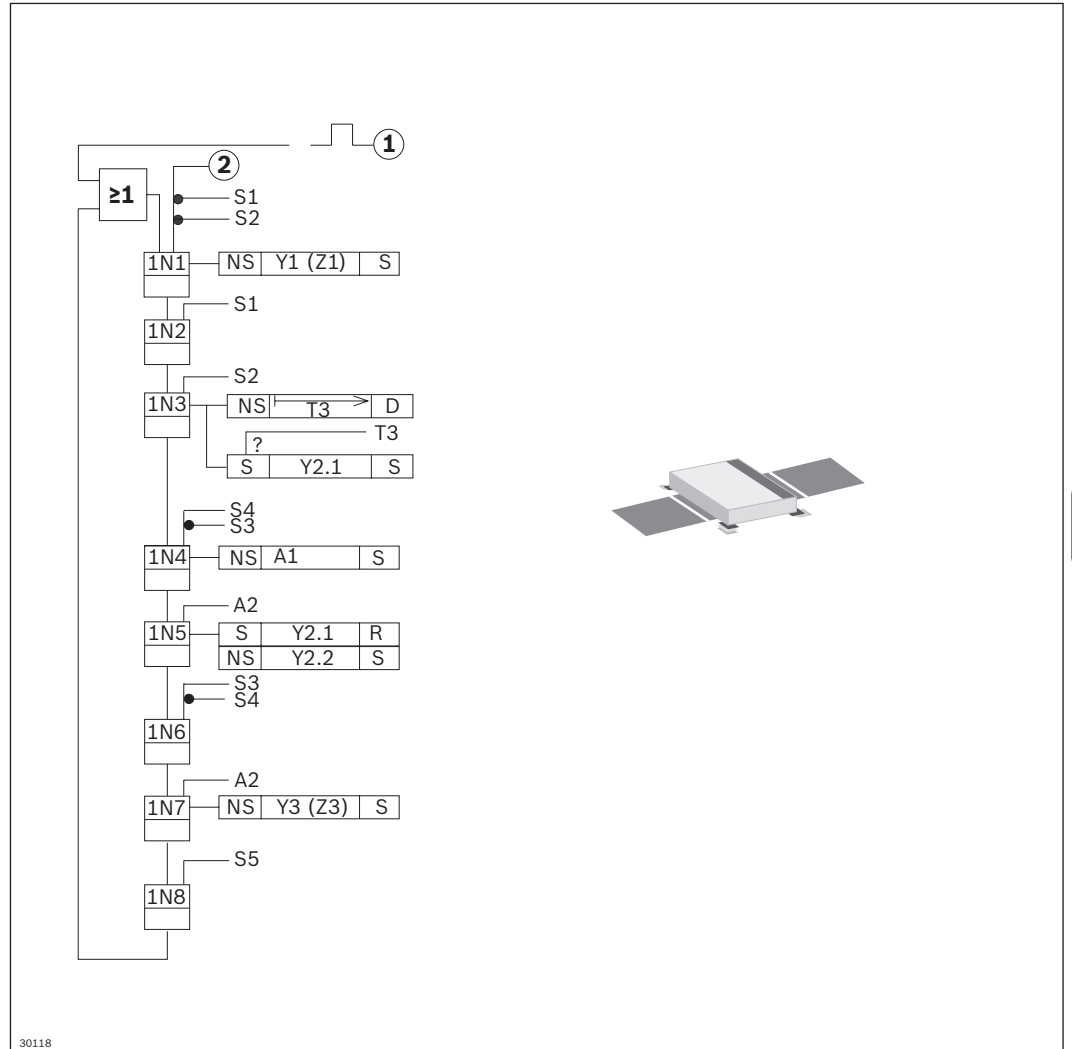
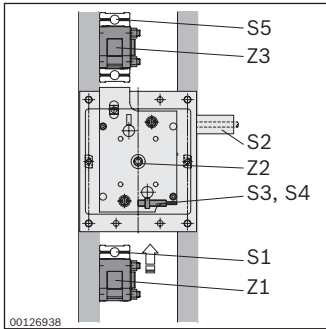
Function plans

EQ 2/TR transverse conveyor (transfer) (TFE 7)



- S1 = WT in position at VE1 (Z1)
- S2 = WT after VE1 (Z1)
- S3 = WT in position on EQ Part 1
- T3 = Switch-on delay 100 ... 200 ms
- T8 = Switch-on delay 100 ... 200 ms
- S8 = WT on EQ Part 2 Enable main section 1 (WI/M rocker)
- Y1 = Main section VE (Z1)
- Y2.1/2.2 = EQ lifting cylinder (Z2)
- Y3.1/3.2 = EQ lifting cylinder (Z3)

PE conveyor function unit



- S1 = WT after VE1
- S2 = WT arrival
- S3 = Bottom end lifting position
- S4 = Top end lifting position
- S5 = WT after VE2
- Y1 = Open VE1 (Z1)
- Y2 = WT lift
- Y3 = Open VE (Z3)
- A1 = Start process
- A2 = Process ended

Function plans

HQ 2

- No HQ 2 position sensing

VE 2

- Stop gate remains open in joint standby position

General

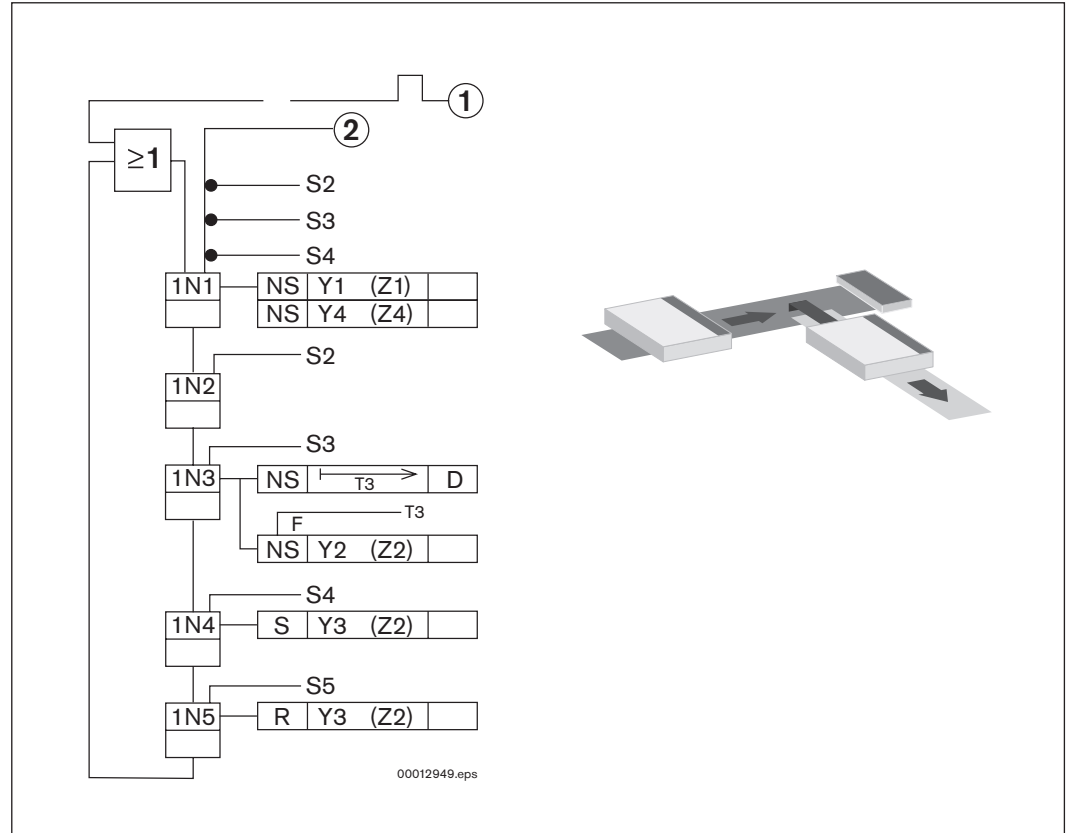
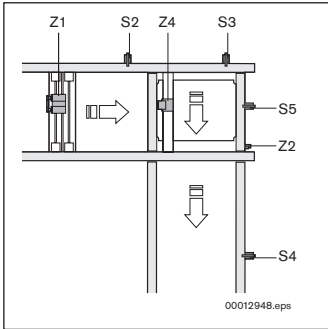
- WT 2 cannot be detected from below by proximity switch

DA 2

- For TFE 2 and TFE 4 conveyor function units, damper extension must be delayed. This ensures that the HQ 2 is already in the upper position

Function plans

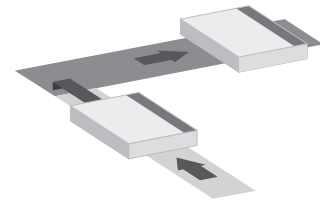
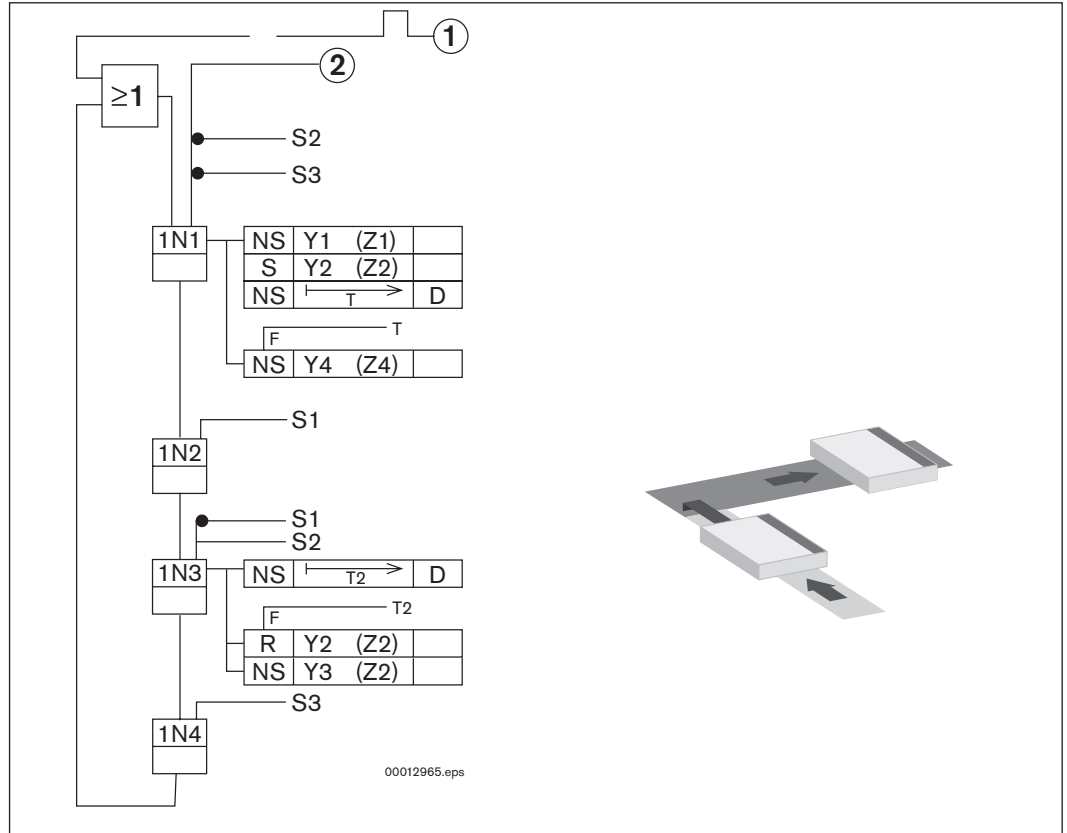
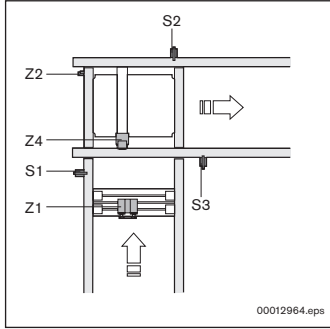
Transfer to transverse section (TFE 1) function plan for HQ 2/C-H



- ① = Start pulse after end of start-up
- ② = Enable cyclic travel
- S2 = WT after VE2
- S3 = WT in position on HQ 2
- S4 = Enable adjacent section, HQ 2 free
- S5 = HQ 2 down
- Y1 = Main section VE 2 (Z1)
- Y2 = HQ 2 up (Z2)
- Y3 = HQ 2 down (Z2)
- Y4 = Extend DA 2 damper (Z4), stop position
- Note: Central position of HQ 2 is centered by springs (without pressurization)
- Note: Distance Z1–Z3 IWT +200 mm

Function plans

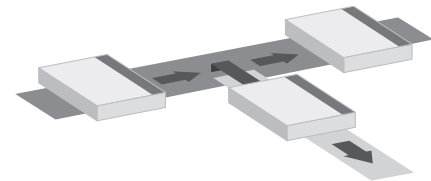
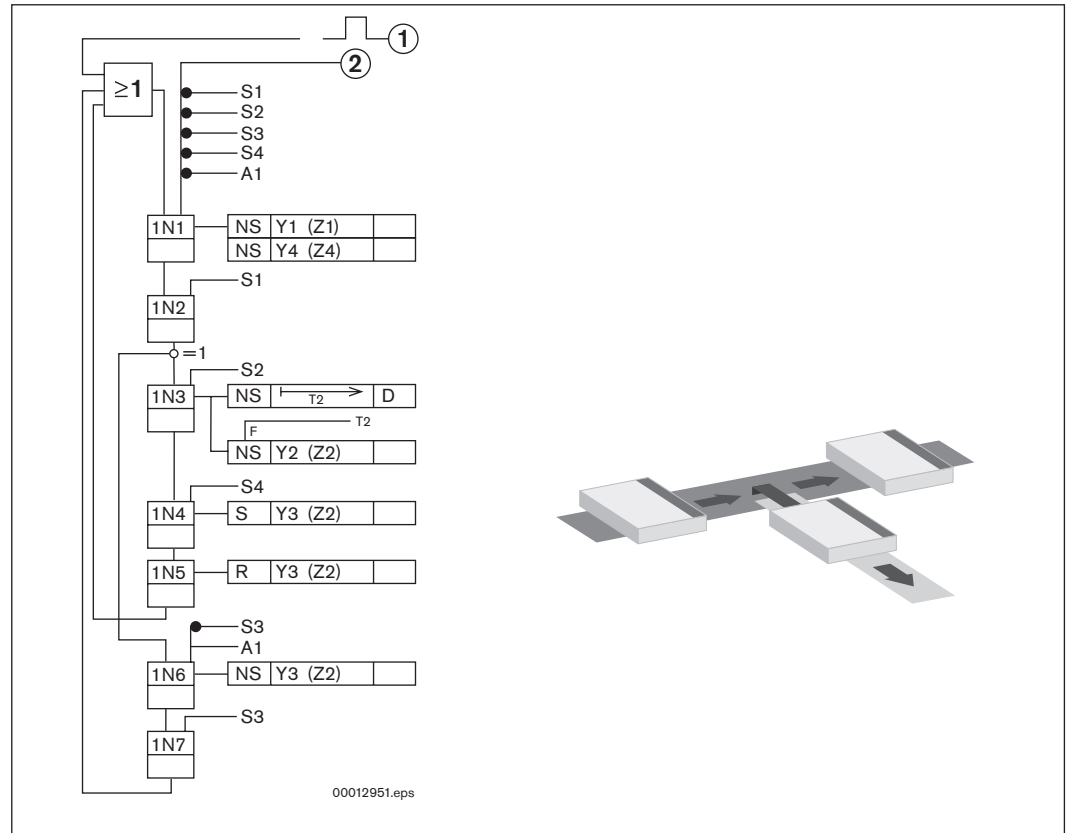
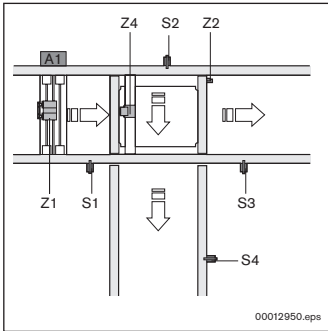
Transfer to transverse section (TFE 2) function plan for HQ 2/C-H



- ① = Start pulse
- ② = Enable cyclic travel
- S1 = WT after VE 2
- S2 = WT in position on HQ 2
- S3 = Enable main section, HQ 2 free
- Y1 = Adjacent section VE 2 (Z1)
- Y2 = HQ 2 up (Z2)
- Y3 = HQ 2 down
- Y4 = Extend DA 2 damper
- Note: Distance Z1–Z3 bWT +200 mm

Function plans

Outfeeding from longitudinal conveyor (TFE 3) function plan for HQ 2/C-H



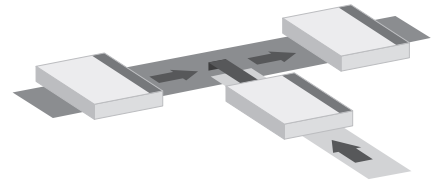
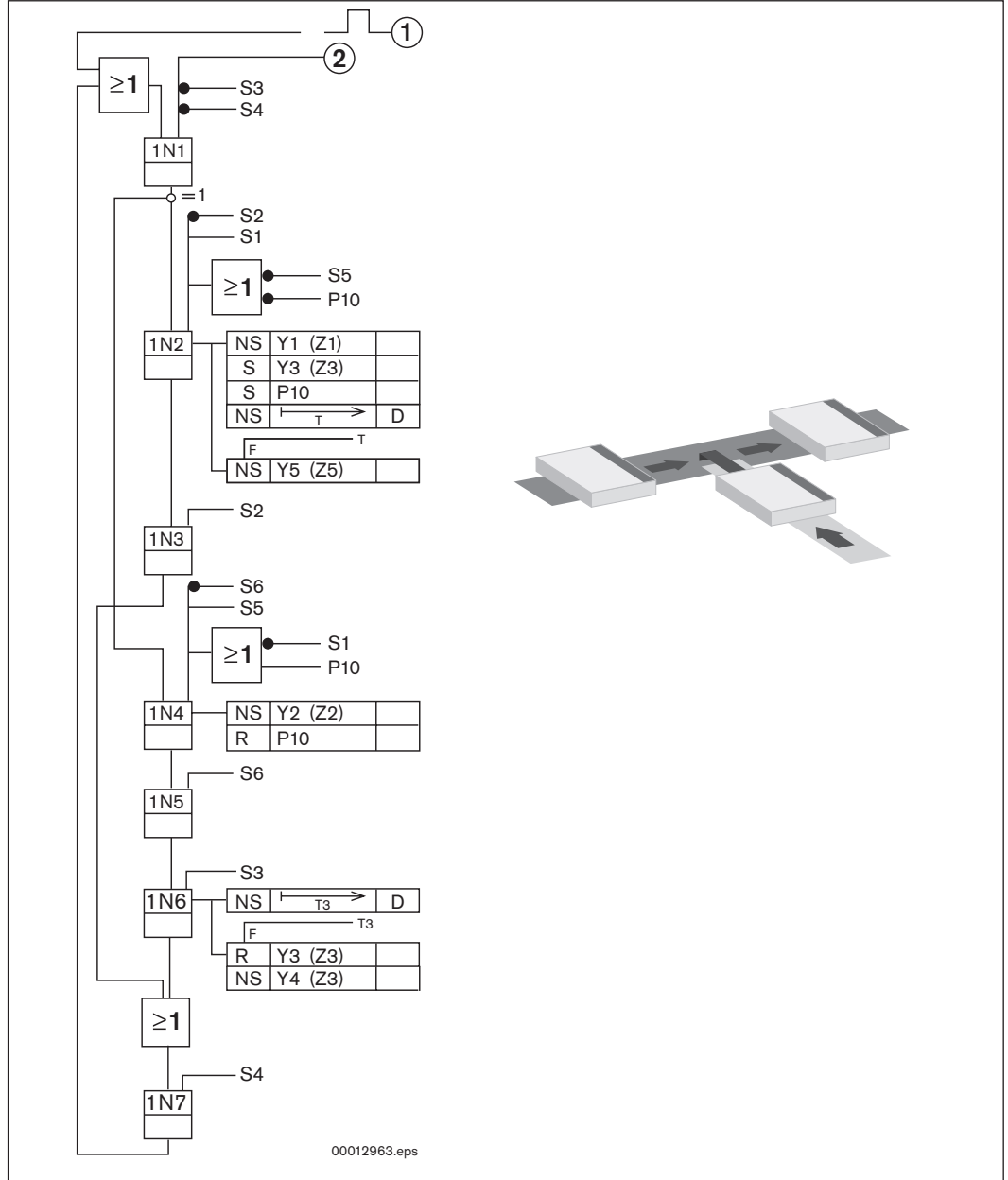
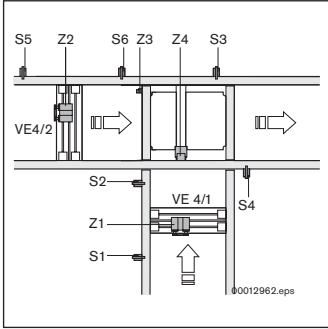
- ① = Start pulse
- ② = Enable cyclic travel
- S1 = WT after VE4
- S2 = WT in position on HQ 2
- S4 = Enable adjacent section, HQ 2 free
- S3 = Enable main section, HQ 2 free
- S5 = HQ 2 down (Z2)
- Y1 = Main section VE 2 (Z1)
- Y2 = HQ 2 up (Z")
- Y3 = HQ 2 down (Z2)
- Y4 = Extend DA 2 damper
- A1 = Straight-ahead signal

Note: Central position (WT 2 stop position) of HQ 2 is centered by springs (without pressurization)

Note: Distance Z1–Z3 IWT +200 mm
Distance S2–S3 = min. 200 mm

Function plans

Infeding to longitudinal conveyor (TFE 4) function plan for HQ 2/C-H



①	=	Start pulse after end of start-up
②	=	Enable cyclic travel
S1	=	WT before VE 2
S2	=	WT after VE 2
S3	=	WT in position on HQ 4
S4	=	WT after VE 4
S5	=	WT before VE 2
S6	=	WT after VE 2
Y1	=	Adjacent section VE 2 (Z1)
Y2	=	Adjacent section VE 2 (Z2)
Y3	=	HQ 2 up (Z3)
Y4	=	HQ 4 down; not required
Y5	=	Extend DA 2 damper (Z4)
P10	=	Priority

Motor data

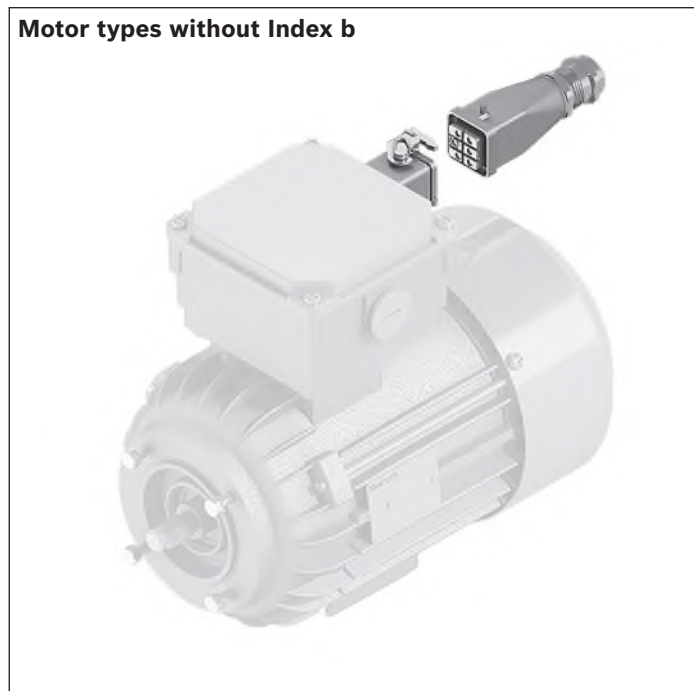
Electrical connection requirements:

Connection to a 3-phase, 5-wire system (L1, L2, L3, N, PE); a connection plan is included in the terminal box.

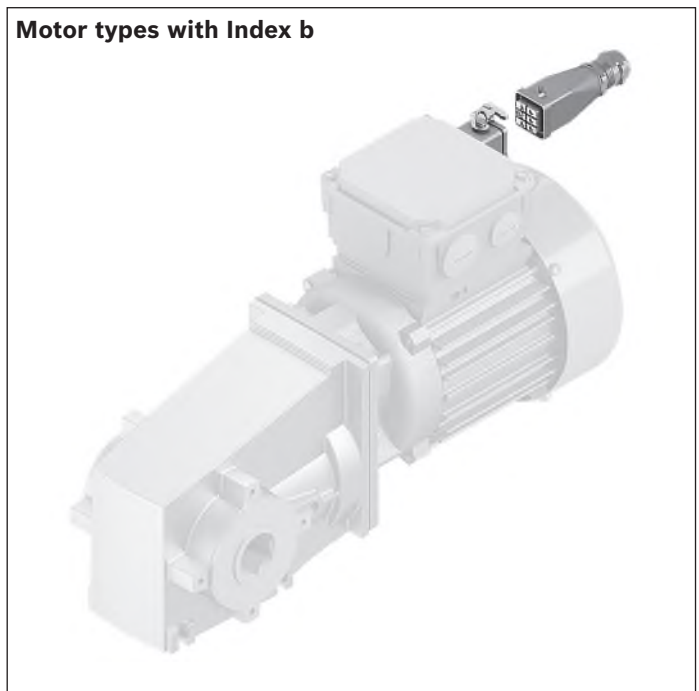
All motors are equipped with a thermal contact*, which has to be connected to an overload switch-off.

All of the motors have an IP 55 rating.

* Bi-metal thermal contact, tripping at $150\text{ °C} \pm 5\text{ °C}$



Motor connection with plug (AT = S) and 3A metal industrial plug-in connector for motor types without Index b, e.g., 734



Motor connection with plug (AT = S) and 3A metal industrial plug-in connector for motor types without Index b, e.g., 734b

Motor data

Performance data

Note: Values are typical. Subject to change. See motor type plate for official data. Please note the country assignment.

Voltage class	A	A	B	D
Circuit	Δ	Y	Y	Y
Voltage U at f = 50 Hz	200 V ±10%		400 V ±10%	
	200 V ±10%		400 V +10...-12%	
Voltage U at f = 60 Hz	220 V ±10%	400 V ±10%	460 V ±10%	575 V ±10%
	220 V ±10%	400 V ±10%	460 V +10...-12%	575 V ±10%

Motor type	IE3	Current consumption at rated power				Power factor cos φ	Power output at	
		I _N (A)	I _N (A)	I _N (A)	I _N (A)		(50Hz) P (kW)	(60Hz) P (kW)
524	x	0.65	0.35	0.32	0.24	0.6	0.09	0.1
614b	-	-	-	0.49	-	0.56	0.12	0.14
624	x	1.15	0.65	0.55	0.45	0.66	0.18	0.22
634	x	1.65	0.9	0.85	0.65	0.6	0.25	0.29
644b	-	-	-	-	0.75	0.6	0.25	0.29
714b	-	1.75	1	0.8	-	0.64	0.25	0.3
716b	-	1.45	0.85	0.6	0.55	0.66 ... 0.68	0.18	0.22
716	x	1.3	0.75	0.6	0.62	0.68	0.18	0.22
734b	-	2.3	1.35	0.95	0.95	0.72 ... 0.77	0.37	0.45
734	x	1.9	1.05	0.95	0.72	0.74	0.37	0.42
734a	x	2.5	1.4	1.3	1	0.66	0.45	0.52
738b	-	1.4	0.8	0.55	0.5	0.60 ... 0.63	0.12	0.14
744b	-	-	-	1.4	-	0.77	0.55	0.68
814b	-	3	1.75	-	1.27	0.68 ... 0.69	0.55	0.64
814	x	3.1	1.7	1.45	1.1	0.69	0.55	0.63
824	x	4.1	2.25	2	1.6	0.66	0.75	0.86

Suitable for continuous operation, start-stop operation with an operating time of up to 70% and frequency converter operation.

Certification for the motor, cable and plug components:

IE3 motors: CE, cURURS, CCC

Motors with Index b: CE/CCC (50 Hz), CE/cURUS (60 Hz)

< 40	1 ¹
45	0.95
50	0.90
55	0.85
60	0.8

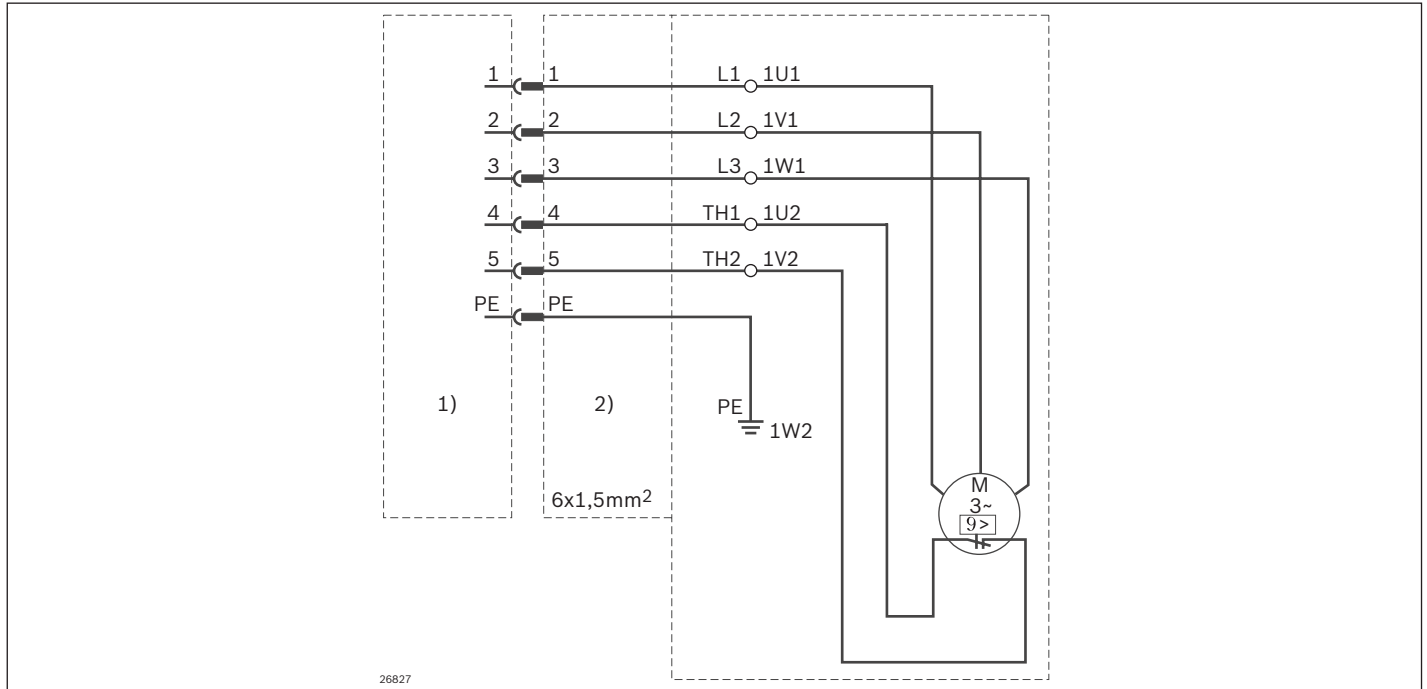
¹ Rated motor power (0.37; 0.25; 0.12 kW)

Rated motor power

The ambient operating temperature T_U influences the rated power P_N of the gear motors.

Motor connection

Motor connection with cable/plug (AT = 1), circuit diagram



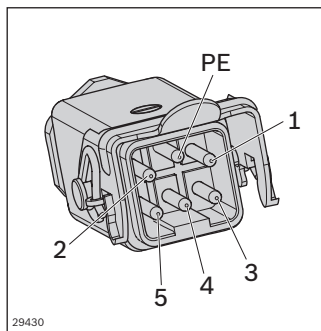
1 Connection cable side

2 Motor side

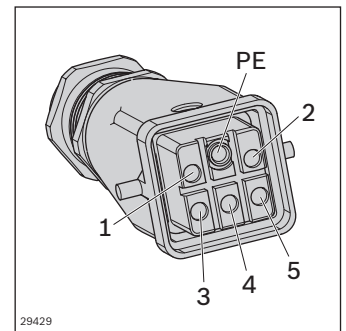
The plug connection consists of UL components.

Connection list

3~ motor connection terminals	Pin no.	Code
U1	1	L1
V1	2	L2
W1	3	L3
TW1	4	Th1
TW2	5	Th2
	PE	PE



Motor side



Connection cable side

Motor protection switch

Motor type	50 Hz			60 Hz			Motor protection switch	
	Rated output	Voltage Δ (V)	Y (V)	Rated output	Voltage Δ (V)	Y (V)	Δ (A)	Y (A)
524	0.09	200	N/A	0.10	220	400	0.75	0.43
		N/A	400		N/A	460	N/A	0.37
		N/A	N/A		N/A	575	N/A	0.30
624	0.18	200	N/A	0.22	220	400	1.30	0.75
		N/A	400		N/A	460	N/A	0.65
		N/A	N/A		N/A	575	N/A	0.55
634	0.25	200	N/A	0.29	220	400	1.90	1.10
		N/A	400		N/A	460	N/A	1.00
		N/A	N/A		N/A	575	N/A	0.80
734	0.37	200	N/A	0.42	220	400	2.15	1.25
		N/A	400		N/A	460	N/A	1.10
		N/A	N/A		N/A	575	N/A	0.90
734a	0.45	200	N/A	0.52	220	400	2.75	1.60
		N/A	400		N/A	460	N/A	1.40
		N/A	N/A		N/A	575	N/A	1.15
814	0.55	200	N/A	0.63	220	400	3.30	1.95
		N/A	400		N/A	460	N/A	1.70
		N/A	N/A		N/A	575	N/A	1.30
824	0.75	200	N/A	0.86	220	400	4.40	2.55
		N/A	400		N/A	460	N/A	2.25
		N/A	N/A		N/A	575	N/A	1.90
716	0.18	200	N/A	0.22	220	400	1.50	0.85
		N/A	400		N/A	460	N/A	0.70
		N/A	N/A		N/A	575	N/A	0.60

Country applicability

	Europe	Switzerland	USA	Canada	Brazil	Australia	New Zealand	South Korea	China	India
Line voltage (3x....)	400 V	400 V	480 V	480 V 575 V	220 V 380 V 440 V	400 V 415 V	400 V 415 V	220 V 380 V 440 V	380 V	415 V
Line voltage tolerance	±10%	±10%	±10%	±10%	±10%	±5%	±5%			±5%
Line frequency	50 Hz	50 Hz	60 Hz	60 Hz	60 Hz	50 Hz	50 Hz	60 Hz	50 Hz	50 Hz

Transportation and nominal speeds v_N

Modular unit	50 Hz		Motor type	60 Hz	
	v_N (m/min)	v [m/min]		v [m/min]	Motor type
AS 2/B-150	18	18.5	734a	18.9	734
	15	15.7	734	13.4	734
	12	11.2	734	13.4	734
	9	8.5	734	10.2	734
	6	5.7	716	6.8	716
AS 2/B-250	18	18.5	824	18.9	824
	15	15.7	824	15.7	824
	12	10.9	824	11.1	814
	9	9.2	814	8.9	734
	6	5.9	734	5.9	716
AS 2/C-100	18	18.5	634	16.6	624
BS 2/C-100	15	13.9	624	13.3	624
CS/C	12	11.1	624	11.1	624
AS 2/R-300	9	9.2	624	8.3	624
BS 2/R-300	6	5.5	624	6.7	624
KU 2/90					
KU 2/180					
BS 2/C-H	18	16.8	744b ¹ /814b ²	15.8	734b
AS 2/C-400	15	13.2	734b	15.8	734b
BS 2/R-H	12	10.4	734b	12.5	734b
AS 2/R-1200	9	8.1	714b	9.8	714b
	6	5.4	716b	6.5	716b
AS 2/C-700	18	16.8	824	17.2	824
AS 2/R-2200	15	14.4	824	14.3	824
	12	11.9	824	12.0	824
	9	8.4	814	8.1	734
	6	5.4	734	6.5	734
AS 2/C-250	18	18.5	734b	17.5	734b
BS 2/C-250	15	14.6	734b	14.5	734b
AS 2/R-700	12	12.0	734b	11.5	734b
BS 2/R-700	9	9.6	734b	9.0	734b
	6	5.9	734b	5.5	714b
BS 2	18	18.0	634	18.0	634
BS 2/M, BS 2/M	15	15.0	634	14.4	634
BS 2/T, BS 2/TE	12	12.0	634	10.8	624
CU 2/90	9	9.0	624	8.7	624
BS 2/K	9	9.0	624	8.7	624
EQ 2/T, EQ 2/TE	6	6.0	624	5.4	624
EQ 2/M					
BS 2/130					

v_N = nominal speed

v = conveyor medium speed

¹ For voltage class: B (see p. 11-25)

² For voltage class: A, D (see p. 11-25)

Transportation and nominal speeds v_N

Modular unit	50 Hz		Motor type	60 Hz	
	v_N (m/min)	v [m/min]		v [m/min]	Motor type
HQ 2/U	18	15.8	524	19.0	524
	15	13.2	524	15.8	524
	12	10.6	524	12.7	524
	9	8.3	524	10.0	524
	6	5.7	524	6.8	524
KE 2	18	18.0	524	18.0	524
EQ 2/TR, EQ 2/TR-90	15	15.0	524	14.4	524
	12	12.0	524	10.8	524
	9	9.0	524	9.0	524
HQ 2/S, HQ2/U2	6	6.0	524	5.7	524
HQ 2/C-H	18	18.5	634	16.6	624
	15	13.9	624	13.3	624
	12	11.1	624	11.1	624
	9	9.2	624	8.3	624
	6	5.5	624	6.7	624
HQ 2/U-H	18	16.7	624	20.4	624
	15	16.7	624	15.3	624
	12	12.5	624	10.2	624
	9	8.4	624	7.6	624
	6	6.3	624	6.1	624

v_N = nominal speed
 v = conveyor medium speed

Modular unit	50 Hz			Motor type	60 Hz		Motor type
	v_N (m/min)	v [m/min]	v_T (m/min)		v [m/min]	v_T (m/min)	
BS 2/R-V-1200	18	16.8	42.0	744b ¹ /814b ²	–	–	–
AS 2/R-V-1200	15	13.2	33.0	734b	15.8	39.5	734b
	12	10.4	26.0	734b	12.5	31.3	734b
	9	8.1	20.3	714b	9.8	24.5	714b
	6	5.4	13.5	716b	6.5	16.3	716b
	AS 2/R-V-2200	18	16.8	42.0	824	17.2	43.0
15		14.4	36.0	824	14.3	35.8	824
12		11.9	29.8	824	12.0	30.0	824
9		8.4	21.0	814	8.1	20.3	734
6		5.4	13.5	734	6.5	16.3	734

v_N = nominal speed
 v = conveyor medium speed
 v_T = max. transportation speed

¹ For voltage class: B (see p. 11-25)

² For voltage class: A, D (see p. 11-25)

Compressed air consumption of TS 2plus units

Unit	Type	Rotation angle (°)	Diameter d (mm)	Lift (mm)	Volume* (cm³)
Block cylinder	PE 2, HQ 2 (BG 1)	–	50	25	59
	EQ 2, HQ 2 (BG 2) HQ 2/U2	–	2 x 50	25	118
	HQ 2/U-H	–	2 x 50	25	118
		–	3 x 50	25	177
		–	4 x 50	25	236
HP 2 lift positioning unit	–	–	63	80	249
	–	–	–	125	390
	–	–	–	175	546
	–	–	–	225	701
	–	–	–	275	856
	–	–	–	325	1011
	–	–	–	375	1166
–	–	–	425	1321	
PE 2/X, PE 2/H positioning unit, HQ 2/C-H lift transverse unit	–	–	4 x 63	33	103
PE 2/XP positioning unit	BG 1	–	40	34	43
	BG 2	–	50	34	67
HD 2 lift rotate unit	–	–	50	40	201
	–	–	50	90	452
	–	90	80	125	628
	–	180	80	180	905
HD 2/H lift rotate unit	BG 1 rotating cylinder	90; 180	–	–	146
	BG 2, 3 rotating cylinder	90; 180	–	–	283
	BG 1 lifting cylinder	90	40	185	232.4
		180	40	80	100.5
	BG 2 lifting cylinder	90	63	185	576
		180	63	80	249.4
	BG 3 lifting cylinder	90	100	185	1452.9
		180	100	80	628.3
Stop gate	VE 2, VE 2/L, VE 2/M	–	32	20	16
	VE 2/X	–	44	9	11
	VE 2/D-60	–	34	8	5
	VE 2/D-175	–	38	6	5
	VE 2/D-200	–	50	10	16
	VE 2/D-100H	–	25	20	10
	VE 2/D-250H	–	40	24	30
	DA 2/100H	–	35	24	20
	DA 2/250H, VA 2/250-H	–	40	24	30
	Damper	DA 2/60	–	20	18
DA 2/100		–	35	35	34
VA 2 slide stop	3 842 528 808	–	32	20	16
	3 842 191 721	–	20	17	5

* Details on request

Material number overview

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TS 2pv

Version **2.2**

The Drive & Control Company



Symbols












	Permissible section load (here: 120 kg)
	Toothed belt conveyor medium
	Reversible operation permissible (here: max. 1500 mm section length)
	Suitable for use in ESD sensitive areas. We recommend that you contact your Rexroth representative.
	Unit with energy-efficient drive available
	Compressed air connection required (here: 4 to 6 bar)
	Pushlock-type clamped connection for compressed air (here: 4 mm diameter)
	Temperature of the transported material (here: 160°C)
	Reference to technical data/dimensions
	Reference to further information
	Page reference

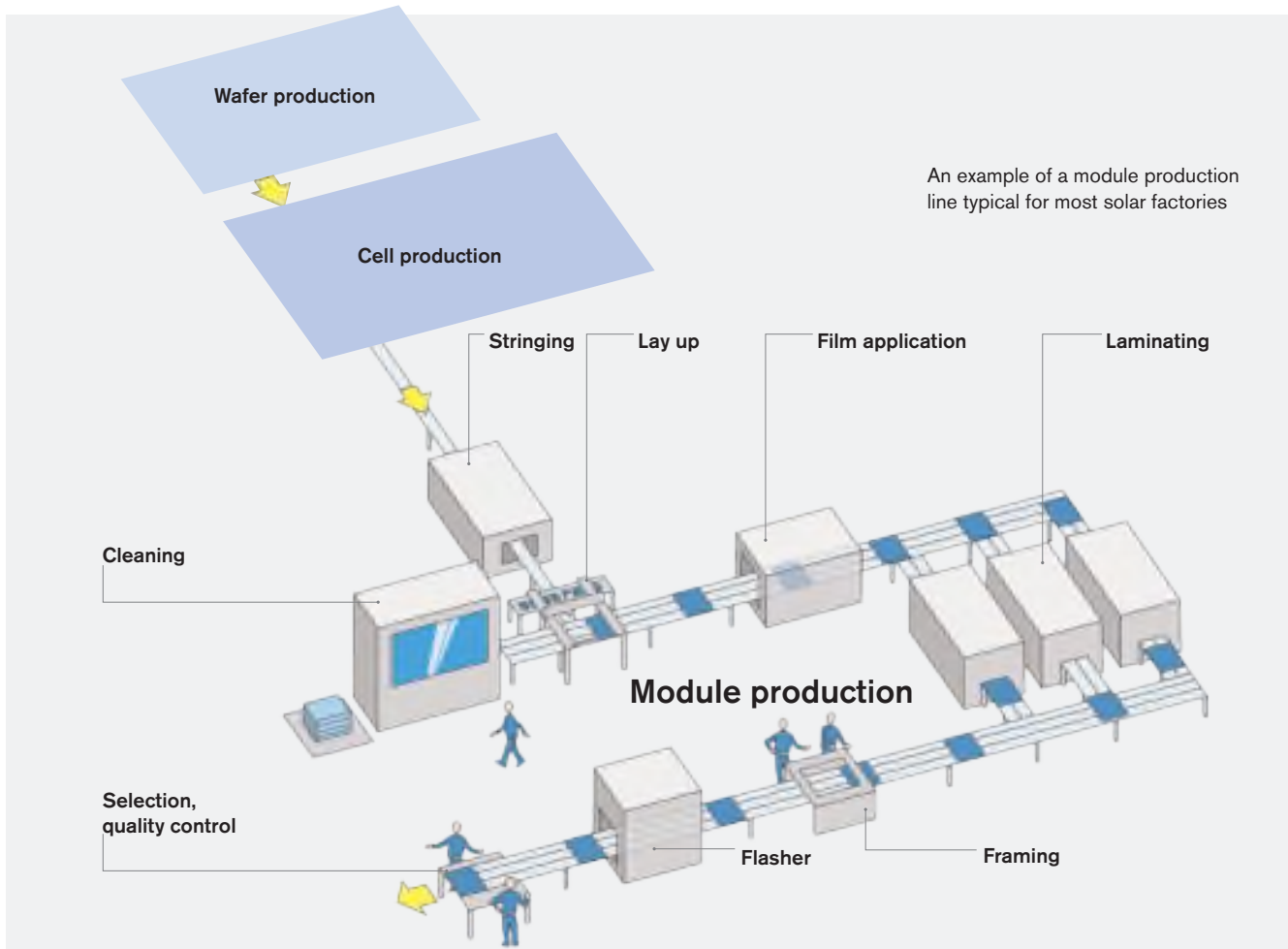
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Rexroth – We bring movement into module production

Whether wafer-based solar modules or thin-film technology modules – production of these products is an extremely sensitive and complex process that consists of numerous processing steps, and also places the highest demands on material transport before, during, and after the individual processing stations.

The glass plates are not only relatively large and extremely fragile, but also extremely sensitive to contamination. Rexroth has developed a special transfer system that takes these high demands into consideration and is characterized by a high level of cost-effectiveness: the TS 2pv.



Special demands require customized solutions. The TS 2pv transfer system has been consistently adapted to product- and process-specific concerns in the solar industry.

In use for many years in various industries, our “classic” transfer technology forms the basis for customization.

Individual systems can be implemented quickly and inexpensively through the use of numerous standard components. Included is Rexroth's well-known quality and comprehensive, worldwide service. System implementation also includes individual consultation on how to configure your TS 2pv transfer system.

1



Ideal for gentle material flow

The production process for solar modules demands jolt and vibration-free transport without accumulation operation. To accomplish this, the conveyor sections are divided into short segments:

- Depending on the respective module dimensions, the individual segments are usually two to three meters long, 0.6 to 1.5 meters wide, and are made of two to five tracks.
- Each segment has its own drive.
- The drive stops to position the module for processing, or if the following section segment is still occupied by another module.
- Frequency converters ensure soft braking and accelerating.
- The LTS lift transverse unit gently moves the modules from longitudinal sections to transverse sections.

Created for clean production

A clean production environment is decisive when manufacturing modules, as this is the only way to ensure a uniformly high level of product quality. As a result, suitability for cleanrooms was at the forefront during the development of the TS 2pv and its associated components.

- Components that fulfill the requirements for cleanroom class 6 in accordance with EN ISO 14644-1 (corresponds to class 1000 in accordance with U.S. Fed. Standard 209E)
- No contamination by silicone, grease, or oil
- Almost fully wear-resistant toothed belts with an extremely tight textile coating and singed edge
- ESD-compatible components to avoid electrostatic charge, which prevents the attraction of dust particles



00136111

A hot tip for hot plates

The temperature-resistant solar conveyor has been specially designed for transporting hot glass plates with temperatures of up to 160°C. It can be implemented with up to 5 tracks, depending on the size of the solar panels.

Special features:

- Heat-resistant toothed belt and guide profile
- Hexagon shaft and flange for TS gear motors
- Integrated dynamic toothed belt tensioner



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Energy efficiency – Rexroth 4EE

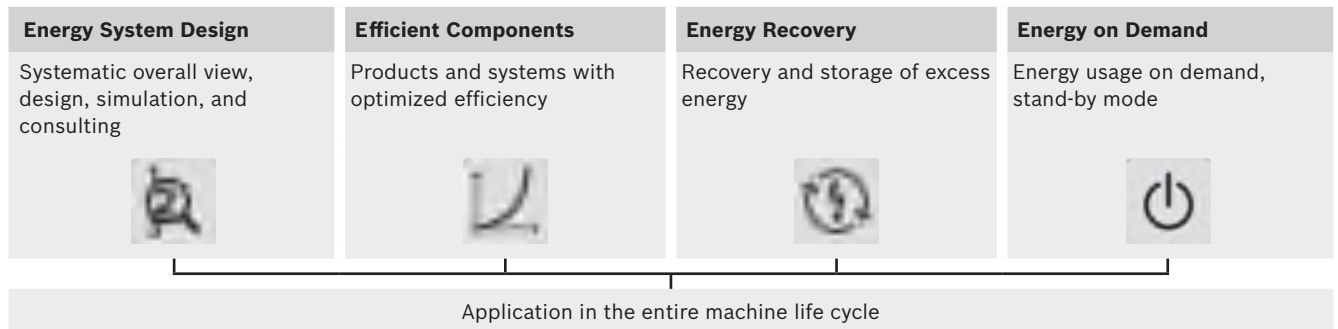


Energy efficiency – a key factor for corporate success

From an economic point of view, energy efficiency and reduced emissions lower operating costs and offer a competitive edge in the fiercely competitive global market. In addition, they help support compliance with environmental standards.

All potentials for optimization are used effectively when not only the details of a system but the system as a whole is optimized.

The 4EE system features four levers:



Efficient system layout

To achieve high energy efficiency, the system must be examined as a whole – as early as in the planning phase. The TS 2plus modular system offers numerous modules, all of which enable you to implement a transfer system tailored precisely to your application. This effectively prevents over-dimensioning and high energy losses in advance.



Energy-efficient modules

The TS 2plus modules are equipped with particularly energy-efficient drives. The efficiency of most of the motors already exceed requirements planned for the future. The interplay of friction-optimized materials, e.g. on slide rails, friction-minimizing gear oils, and numerous further design details ensures an optimized overall system.



Energy use on demand

Minimal energy consumption requires the ability to be able to switch off system components on demand. The majority of motors in the TS 2plus system are designed for start-stop operation and frequency converter operation.



Worldwide approval

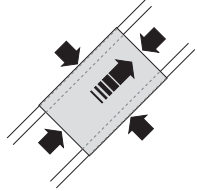
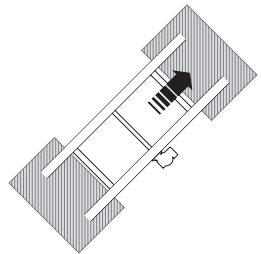
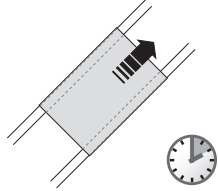
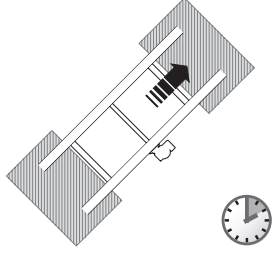
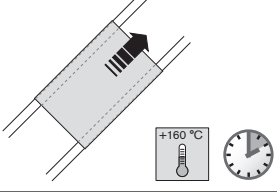
For international use, most of the motors feature CE, cURus, and CCC approvals.

Components for longitudinal conveyors

Components for longitudinal conveyors

CSS/B belt section	2-2
CSS/BM belt section	2-3
CSS/F belt section	2-4
CSS/FM belt section	2-5
CSS/NT belt section	2-6
Transmission drive	2-7

2

CSS/B	<ul style="list-style-type: none"> Slight corrections to the end position of the solar modules possible on the belt section Cost-efficient solution 	
CSS/BM	<ul style="list-style-type: none"> Slight corrections to the end position of the solar modules possible on the belt section Center motor mounting position 	
CSS/F	<ul style="list-style-type: none"> Conveyor medium with a high friction coefficient enables fast acceleration and deceleration Modules do not slide on the belt section System dimensions identical to CSS/B 	
CSS/FM	<ul style="list-style-type: none"> Conveyor medium with a high friction coefficient enables fast acceleration and deceleration Center motor mounting position System dimensions identical to CSS/B 	
CSS/NT	<ul style="list-style-type: none"> Transport of plates up to 160°C, e.g. after lamination Conveyor medium with a high friction coefficient enables fast acceleration and deceleration Modules do not slide on the belt section 	

Components for longitudinal conveyors

CSS/B belt section

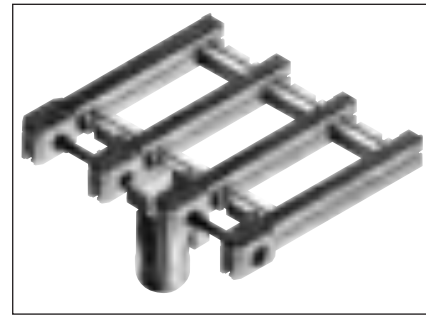


Application:

- Longitudinal conveyors to transport glass modules of varying dimensions
- Longitudinal conveyors to transport wafer trays
- Not designed for accumulation operation

Version:

- Belt section of 2 to 5 tracks to securely support glass modules over the entire width. Distance between tracks can be determined individually (b1 to b4).
- Permissible load:
 - Per track: max. 0.15 kg/cm of support surface length and max. 60 kg
 - Per belt section: max. 120 kg
- Suitable for reversible operation (up to 3000 mm)
- Conveyor medium: special textile toothed belt. Ideal for lateral positioning processes due to its low friction coefficient with the workpiece.
- Easy replacement of the toothed belts due to disassembly from above; no realignment necessary.
- Gear motors are suitable for operation with frequency converters.
- Motor mounting at right (MA = R) or left (MA = L) is possible at any track of the belt section (MS = 1 to 5; MS = 1 indicates the left-hand track in the direction of transport). Observe the min. distance of 165 mm if motor is mounted between the tracks (b1 to b4)
- Outside motor mounting: suspended or horizontal; motor mounting between the tracks: suspended
- Motor connection either with cable/plug (AT = S) or terminal box (AT = K)
- Version with lateral guide (FP = 1) ideal for framed glass modules; version without lateral guide (FP = 0) for unprocessed glass modules with rough edges
- Suitable for use in cleanroom environments up to cleanroom class 6 according to ISO 14644-1



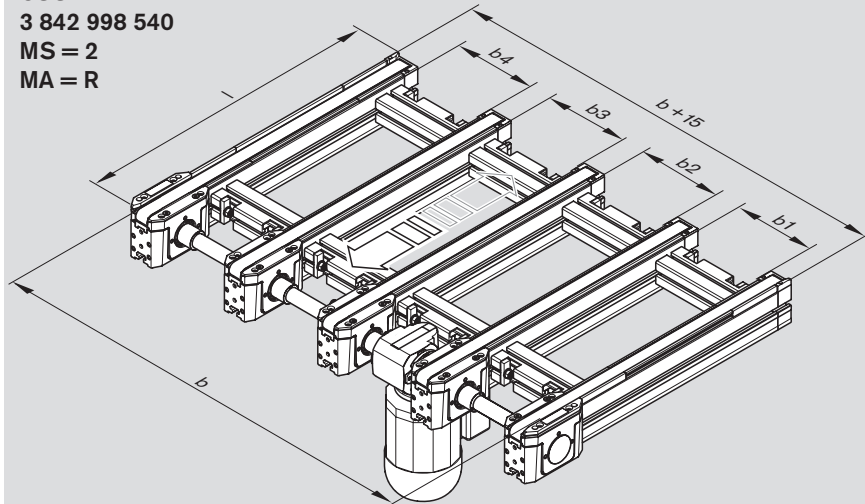
00136113

CSS/B

3 842 998 540

MS = 2

MA = R



00136114

3 842 998 537:	b _{min} = 160 mm
3 842 998 538:	b _{min} = 290 mm
3 842 998 539:	b _{min} = 420 mm
3 842 998 540:	b _{min} = 550 mm

CSS/B

Tracks	No.	Ordering parameters
2	3 842 998 537	b (160 ... 3000 mm)
3	3 842 998 538	b1 ¹⁾ (85 ... 1000 mm)
4	3 842 998 539	b2 ^{1) 3)} (85 ... 1000 mm)
5	3 842 998 540	b3 ^{1) 3)} (85 ... 1000 mm)
		b4 ^{1) 3)} (85 ... 1000 mm)
		l (290 ... 6000 mm)
		FP Lateral guide (1 = with; 0 = without)
		v _N ²⁾ (0; 6; 9; 12; 15; 18; 21; 36)
		U (☞ 7-11)
		f (☞ 7-11)
		AT Motor connection (S = cable/plug; K = terminal box)
		MS Motor mounting on track (1 = left ... 5 = right)
		MA Motor mounting (R = right; L = left)

¹⁾ b_{x min} = 165 mm if motor is mounted between the tracks

²⁾ v_N = 0, U = 0, f = 0: without motor and without gear

v_N = 0, U = 0, f = 50/60 Hz: without motor, with gear (if technically practical)

³⁾ Distance with the highest index is calculated

Special versions on request.

Delivery condition:

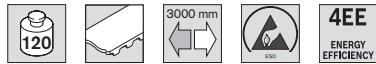
- b ≤ 2000 mm: assembled
- b > 2000 mm: partially assembled
- Motor is enclosed separately.

Optional accessories:

- SFS frames, ☞ 4-2
- SZS/B leg set, ☞ 4-3
- FC frequency converter, ☞ 7-15

Components for longitudinal conveyors

CSS/BM belt section



Application:

- Longitudinal conveyors to transport glass modules of varying dimensions
- Longitudinal conveyors to transport wafer trays
- For installation situations that have no space for the motor at the ends of the belt section
- Not designed for accumulation operation

Version:

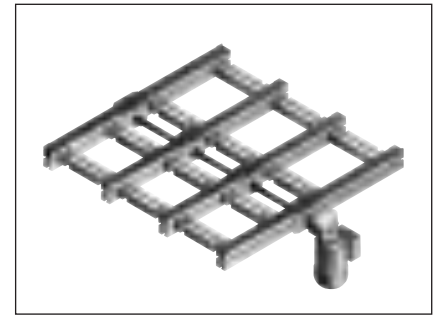
- Lengthwise motor mounting position can be specified by the user (see dimension l1)
- Other features as with CSS/B

Delivery condition:

- $b \leq 2000$ mm: assembled
- $b > 2000$ mm: partially assembled
- Motor is enclosed separately.

Optional accessories:

- SFS frames, 4-2
- SZS/B leg set, 4-3
- FC frequency converter, 7-15



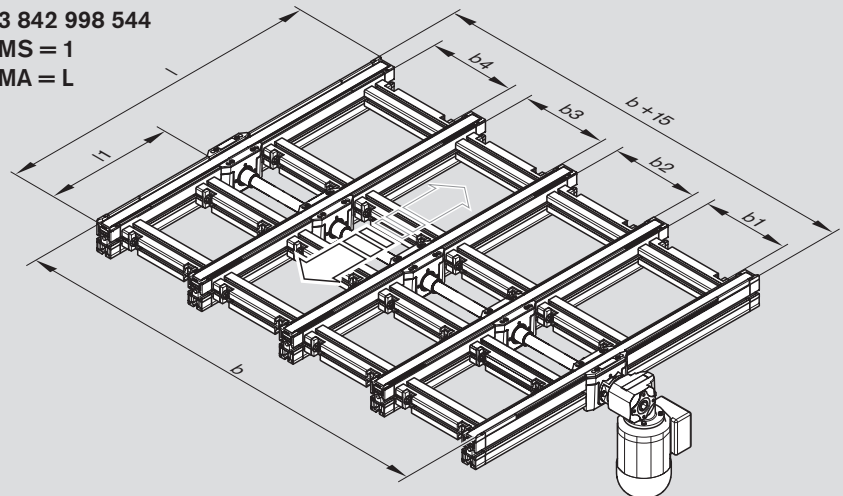
00136116

CSS/BM

3 842 998 544

MS = 1

MA = L



3 842 998 541:	$b_{\min} = 160$ mm
3 842 998 542:	$b_{\min} = 290$ mm
3 842 998 543:	$b_{\min} = 420$ mm
3 842 998 544:	$b_{\min} = 550$ mm

00136115

CSS/BM

Tracks	No.	Ordering parameters
2	3 842 998 541	b (160 ... 3000 mm)
3	3 842 998 542	b1 ^{1) 3)} (85 ... 1000 mm)
4	3 842 998 543	b2 ^{1) 3)} (85 ... 1000 mm)
5	3 842 998 544	b3 ^{1) 3)} (85 ... 1000 mm)
		b4 ^{1) 3)} (85 ... 1000 mm)
		l (450 ... 6000 mm)
		l1 (160 - l-290 mm)
		FP Lateral guide (1 = with; 0 = without)
		v_N ²⁾ (0; 6; 9; 12; 15; 18; 21; 36)
		U (7-11)
		f (7-11)
		AT Motor connection (S = cable/plug; K = terminal box)
		MS Motor mounting on track (1 = left ... 5 = right)
		MA Motor mounting (R = right; L = left)

¹⁾ $b_{x_{\min}} = 165$ mm if motor is mounted between the tracks

²⁾ $v_N = 0$, $U = 0$, $f = 0$: without motor and without gear

$v_N = 0$, $U = 0$, $f = 50/60$ Hz: without motor, with gear (if technically practical)

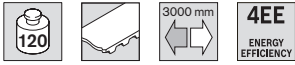
³⁾ Distance with the highest index is calculated

Special versions on request.



Components for longitudinal conveyors

CSS/F belt section

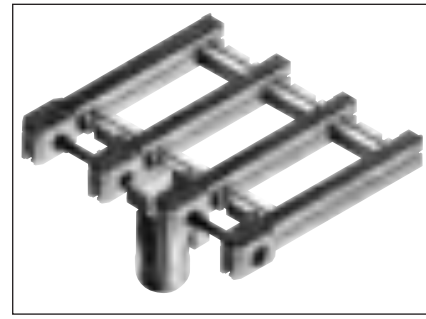


Application:

- Longitudinal conveyors to transport glass modules of varying dimensions
- Not designed for accumulation operation

Version:

- Belt section of 2 to 5 tracks to securely support glass modules over the entire width. Distance between tracks can be determined individually (b1 to b4). Observe the minimum dimensions.
- Permissible load:
 - Per track: max. 0.15 kg/cm of support surface length and max. 40 kg
 - Per belt section: max. 120 kg
- Suitable for reversible operation (up to 3000 mm)
- Textile toothed belt with PU layer for high friction coefficients and improved static friction when starting and accelerating
- Easy replacement of the toothed belts due to disassembly from above; no realignment necessary.
- Gear motors are suitable for operation with frequency converters.
- Motor mounting at right (MA = R) or left (MA = L) is possible at any track of the belt section (MS = 1 to 5; MS = 1 indicates the left-hand track in the direction of transport). Observe the min. distance of 165 mm if motor is mounted between the tracks (b1 to b4)
- Outside motor mounting: suspended or horizontal; motor mounting between the tracks: suspended
- Motor connection either with cable/plug (AT = S) or terminal box (AT = K)
- Version with lateral guide (FP = 1) ideal for framed glass modules; version without lateral guide (FP = 0) for unprocessed glass modules with rough edges
- Suitable for use in cleanroom environments up to cleanroom class 6 according to ISO 14644-1



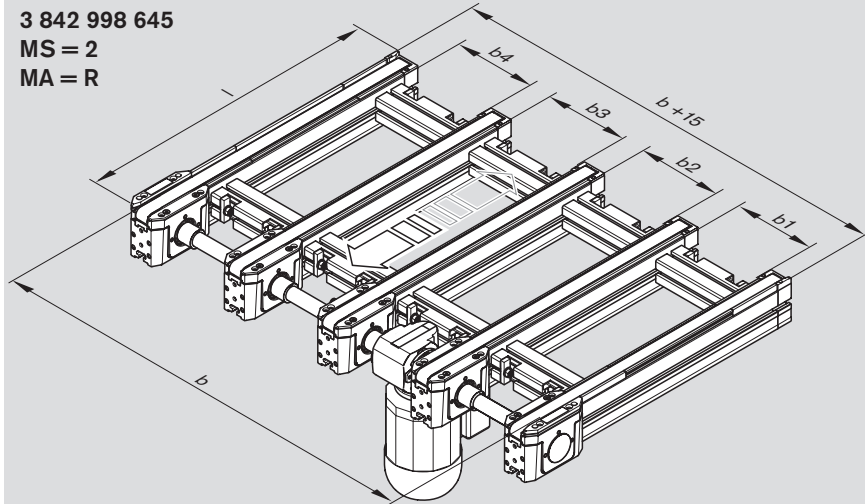
00136113

CSS/F

3 842 998 645

MS = 2

MA = R



00136114

3 842 998 642:	b _{min} = 160 mm
3 842 998 643:	b _{min} = 290 mm
3 842 998 644:	b _{min} = 420 mm
3 842 998 645:	b _{min} = 550 mm

CSS/F

Tracks	No.	Ordering parameters
2	3 842 998 642	b (160 ... 3000 mm)
3	3 842 998 643	b1 ¹⁾ (85 ... 1000 mm)
4	3 842 998 644	b2 ^{1) 3)} (85 ... 1000 mm)
5	3 842 998 645	b3 ^{1) 3)} (85 ... 1000 mm)
		b4 ^{1) 3)} (85 ... 1000 mm)
		l (290 ... 6000 mm)
		FP Lateral guide (1 = with; 0 = without)
		v _N ²⁾ (0; 6; 9; 12; 15; 18; 21; 36)
		U (☞ 7-11)
		f (☞ 7-11)
		AT Motor connection (S = cable/plug; K = terminal box)
		MS Motor mounting on track (1 = left ... 5 = right)
		MA Motor mounting (R = right; L = left)

¹⁾ b_{x min} = 165 mm if motor is mounted between the tracks

²⁾ v_N = 0, U = 0, f = 0: without motor and without gear

v_N = 0, U = 0, f = 50/60 Hz: without motor, with gear (if technically practical)

³⁾ Distance with the highest index is calculated

Special versions on request.

Delivery condition:

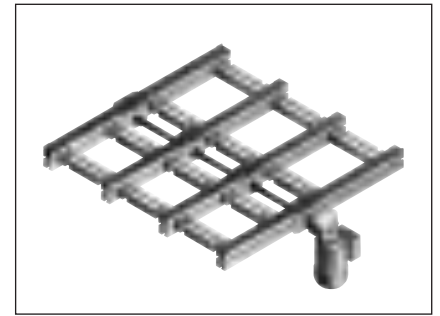
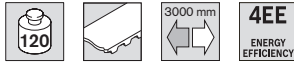
- b ≤ 2000 mm: assembled
- b > 2000 mm: partially assembled
- Motor is enclosed separately.

Optional accessories:

- SFS frames, ☞ 4-2
- SZS/B leg set, ☞ 4-3
- FC frequency converter, ☞ 7-15

Components for longitudinal conveyors

CSS/FM belt section



00136116

Application:

- Longitudinal conveyors to transport glass modules of varying dimensions
- For installation situations that have no space for the motor at the ends of the belt section
- Not designed for accumulation operation

Version:

- Lengthwise motor mounting position can be specified by the user (see dimension l1)
- Other features as with CSS/F

Delivery condition:

- $b \leq 2000$ mm: assembled
- $b > 2000$ mm: partially assembled
- Motor is enclosed separately.

Optional accessories:

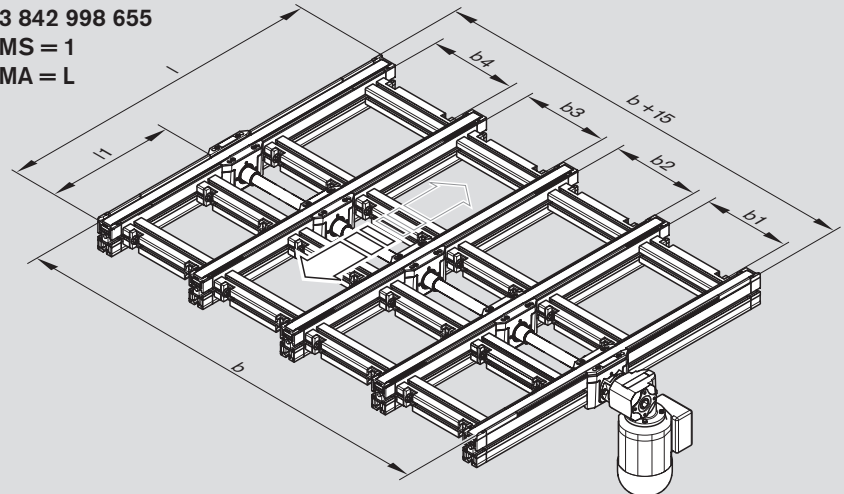
- SFS frames, 4-2
- SZS/B leg set, 4-3
- FC frequency converter, 7-15

CSS/FM

3 842 998 655

MS = 1

MA = L



3 842 998 652:	$b_{\min} = 160$ mm
3 842 998 653:	$b_{\min} = 290$ mm
3 842 998 654:	$b_{\min} = 420$ mm
3 842 998 655:	$b_{\min} = 550$ mm

00136115

CSS/FM

Tracks	No.	Ordering parameters
2	3 842 998 652	b (160 ... 3000 mm)
3	3 842 998 653	b1 ¹⁾ (85 ... 1000 mm)
4	3 842 998 654	b2 ^{1) 3)} (85 ... 1000 mm)
5	3 842 998 655	b3 ^{1) 3)} (85 ... 1000 mm)
		b4 ^{1) 3)} (85 ... 1000 mm)
		l (450 ... 6000 mm)
		l1 (160 ... l-290 mm)
		FP Lateral guide (1 = with; 0 = without)
		v_N ²⁾ (0; 6; 9; 12; 15; 18; 21; 36)
		U (7-11)
		f (7-11)
		AT Motor connection (S = cable/plug; K = terminal box)
		MS Motor mounting on track (1 = left ... 5 = right)
		MA Motor mounting (R = right; L = left)

¹⁾ $b_{x_{\min}}$ = 165 mm if motor is mounted between the tracks

²⁾ v_N = 0, U = 0, f = 0: without motor and without gear

v_N = 0, U = 0, f = 50/60 Hz: without motor, with gear (if technically practical)

³⁾ Distance with the highest index is calculated

Special versions on request.



Components for longitudinal conveyors

CSS/NT belt section



00136117a

Application:

- Longitudinal conveyors to transport glass modules
- Suitable for transporting plates up to 160°C, e.g. as a transport system after lamination.
- Not designed for accumulation operation

Version:

- Belt section of 2 to 5 tracks to securely support glass modules over the entire width. Distance between tracks can be determined individually (b1 to b4). Observe the minimum dimensions.
- Permissible load:
 - Per track: max. 0.3 kg/cm of support surface length and max. 60 kg
 - Per belt section: max. 120 kg
- Suitable for reversible operation on section lengths of up to 1500 mm
- Special textile toothed belt with Viton coating
- Dynamic belt tensioner to compensate for belt elongation due to temperature
- Easy replacement of the endless toothed belts due to lateral disassembly; no realignment necessary. Also possible on inside tracks, due to couplings on the hexagonal shaft.
- Gear motors are suitable for operation with frequency converters.
- Price advantage for orders of specific standard lengths as well as significant reduction in delivery times for toothed belts in service cases
- Suitable for use in cleanroom environments up to cleanroom class 7 according to ISO 14644-1

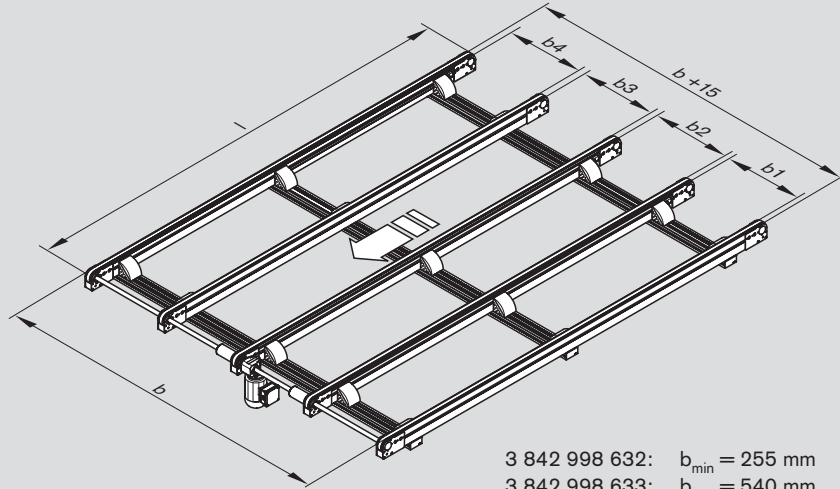
Delivery condition:

- Motor is enclosed separately.

Optional accessories:

- SFS frames, 4-2
- SZS/N leg set, 4-4
- FC frequency converter, 7-15
- Toothed belt tensioner (tool for belt exchange), **3 842 541 202**

CSS/NT
3 842 998 635
MS = 3
MA = L



00136116a

3 842 998 632:	b _{min} = 255 mm
3 842 998 633:	b _{min} = 540 mm
3 842 998 634:	b _{min} = 825 mm
3 842 998 635:	b _{min} = 1050 mm

CSS/NT

Tracks	No.	Ordering parameters
2	3 842 998 632	b (255 ... 2300 mm)
3	3 842 998 633	b1 ¹⁾ (180 ... 1000 mm)
4	3 842 998 634	b2 ^{1) 4)} (240 ... 1000 mm)
5	3 842 998 635	b3 ^{1) 4)} (240 ... 1000 mm)
		b4 ^{1) 4)} (180 ... 1000 mm)
		l ²⁾ (550 ... 3000 mm)
		Standard lengths: 550, 1000, 1500, 2000, 2500, 3000
		FP Lateral guide (1 = with; 0 = without)
		v _N ³⁾ (0; 6; 9; 12; 15; 18; 36)
		U (7-11)
		f (7-11)
		AT Motor connection (S = cable/plug; K = terminal box)
		MS Motor mounting on track (1 = left ... 5 = right)
		MA Motor mounting (R = right; L = left)
		TU Toothed belt tensioner (1 = on every track; 0 = none)

¹⁾ b_{x, min} = 350 mm if motor is mounted between the tracks

²⁾ Length deviation ± 0.5%

³⁾ v_N = 0, U = 0, f = 0: without motor and without gear

v_N = 0, U = 0, f = 50/60 Hz: without motor, with gear (if technically practical)

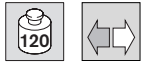
⁴⁾ Distance with the highest index is calculated

Special versions on request.



Components for longitudinal conveyors

Transmission drive



00139058

Application:

- For the installation of larger external motors to transfer higher torque values (maximum section loads of the belt sections may not be exceeded)

Version:

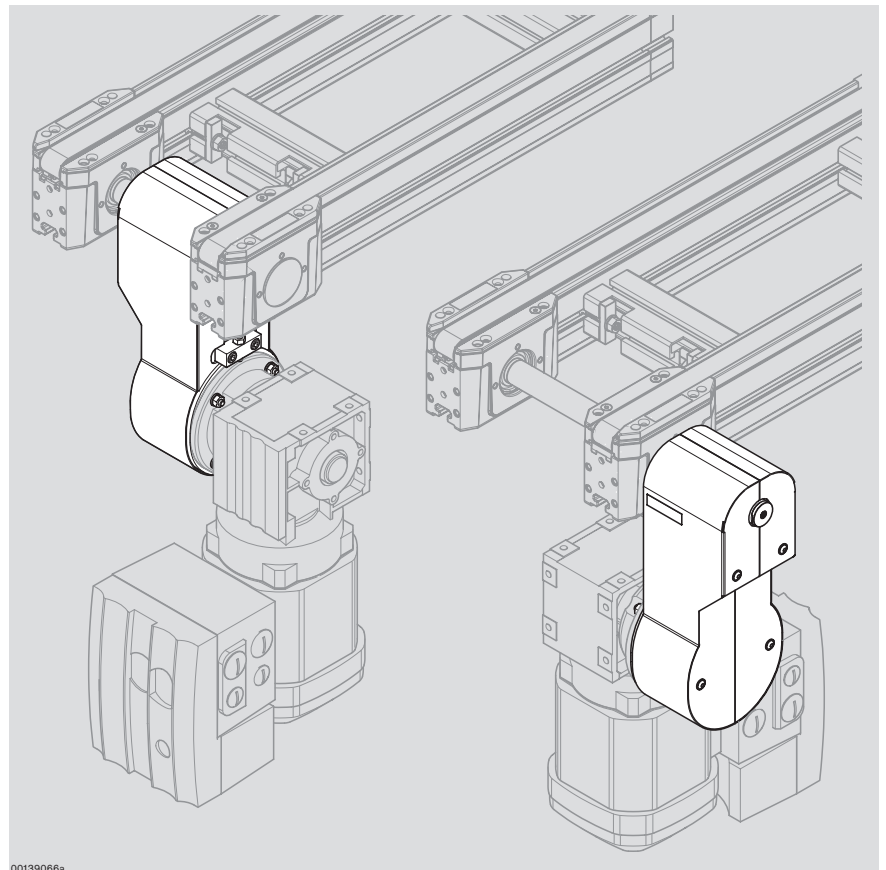
- Belt drive gear for gear motors that need to be installed at a lower depth so they can be passed over.
- Suitable for flange gear versions, flange diameter 120 mm (B5 version for worm gears), and hollow shaft, diameter 20 mm
- Designed for Spiroplan right-angle gear motors WAF20, WAF30 or WAF37 and worm gear motors SAF37
- Maximum transferable torque (at gear output):
 - CSS/B, CSS/BM, CSS/F, CSS/FM: $M_{max} = 12 \text{ Nm}$
 - CSS/NT: $M_{max} = 12 \text{ Nm}$
- Suspended mounting of gear motor required

Delivery condition:

- Not assembled, in single parts
- Pre-pressed bearing
- Including adapter set and additional hexagon shaft for mounting on CSS/B, CSS/BM, CSS/F and CSS/FM. The adapter set is omitted with CSS/NT.

Required accessories:

- Torque support – provided by system owner



00139066a

Transmission drive:

3 842 542 550

Components for transverse conveyors

Components for transverse conveyors

LTS/... lift transverse unit	3-2
TTS/B, TTS/F, TTS/NT rotary modules	3-4
RES/M rotary modules	3-5

Components for transverse conveyors

LTS/... lift transverse unit



21513



Application:

- LTS/... lift transverse unit, consisting of a CSS/... belt section and a lift unit for constructing right-angled section branches.

Version:

- Version with two to four tracks. The distance between tracks can be determined individually (b1 to b3). Observe the minimum dimensions.
- Permissible load:
 - Per track:
 - max. 0.15 kg/cm of support surface length,
 - max. 40 kg for LTS/F,
 - max. 60 kg for LTS/B.
 - Per belt section: max. 120 kg
- O-rings for high friction coefficients and improved static friction in transverse transport.
- Tracks without lateral guide.
- Reversible over the entire value range.
- Easy toothed belt exchange.
- Gear motors are suitable for operation with frequency converters.
- Motor mounting at right (MA = R) or left (MA = L) is possible at any track of the belt section (MS = 1 to 4; MS = 1 indicates the left-hand track in the direction of transport).
- Motor connection either with cable/plug (AT = S) or terminal box (AT = K)
- Two lift positions

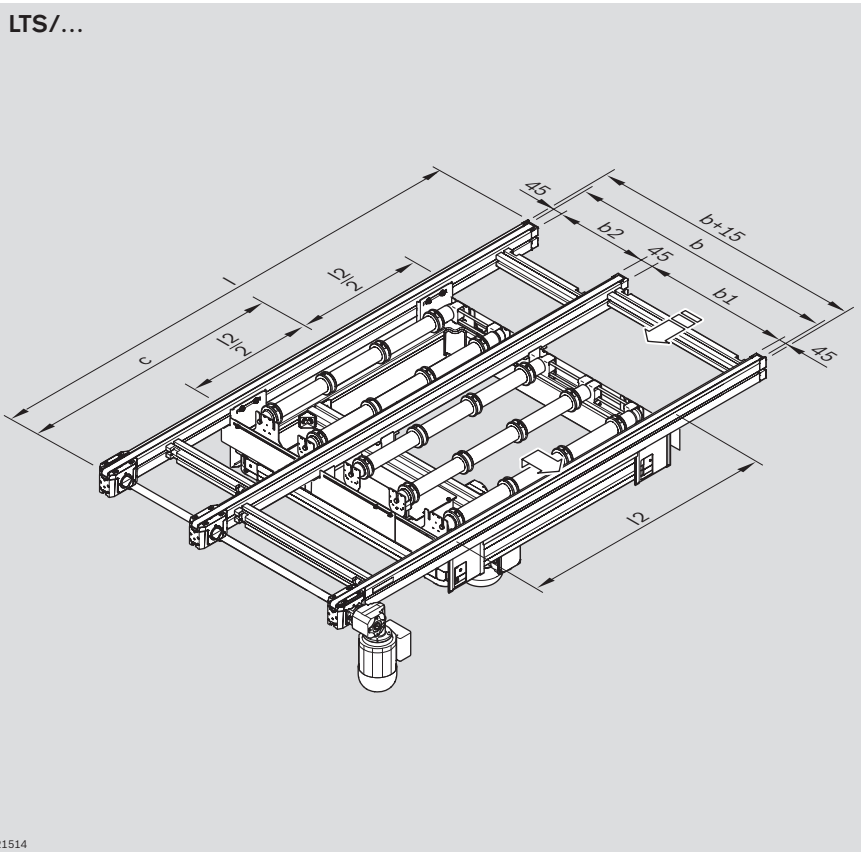
Condition on delivery:

- Assembled
- Motors are included separately.

Required accessories:

- SZS/B leg set, 4-3

LTS/...



21514

Recommended size (BG) for plate length:

Plate length	BG	c	l	l2
l = 500 mm to 800 mm	BG1	c = 697 mm to	l = 567 mm	l2 = 734 mm
l = 800 mm to 1100 mm	BG2	c = 817 mm to	l = 717 mm	l2 = 1034 mm
l = 1100 mm to 1400 mm	BG3	c = 967 mm to	l = 867 mm	l2 = 1334 mm
l = 1400 mm to 1750 mm	BG4	c = 1150 mm to	l = 1050 mm	l2 = 1700 mm
l = 1750 mm to 2100 mm	BG5	c = 1300 mm to	l = 1200 mm	l2 = 2000 mm

Components for transverse conveyors

LTS/B-... / LTS/F-...

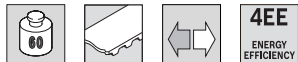
Tracks	LTS/B-... No.	LTS/F-... No.	Ordering parameters		
2	3 842 998 672	3 842 998 682	2 tracks	3 tracks	4 tracks
3	3 842 998 673	3 842 998 683	b (450 to 675 mm)	(576 to 1320 mm)	(812 to 1965 mm)
4	3 842 998 674	3 842 998 684	b1 (375 to 600 mm)	(240 to 600 mm)	(216 to 600 mm)
			b2 (216 to 600 mm)	(216 to 600 mm)	(216 to 600 mm)
			b3 (216 to 600 mm)	(216 to 600 mm)	(216 to 600 mm)
			l	1264 to 6000 mm, when BG = 1) (1564 to 6000 mm, when BG = 2) (1864 to 6000 mm, when BG = 3) (2230 to 6000 mm, when BG = 4) (2530 to 6000 mm, when BG = 5)	
			BG	Sizes 1 to 5	
			c	Lift unit center position	
			$v_N^{2)}$	(0; 6; 9; 12; 15; 18; 21; 36)	
			U	(☞ 7-11)	
			f	(☞ 7-11)	
			AT	Motor connection (S = cable/plug; K = terminal box)	
			MS	Motor mounting on track (1 = left to 5 = right)	
			MA	Motor mounting (R = right; L = left)	

²⁾ v_N = 0, U = 0, f = 0: without motor and without gear



Components for transverse conveyors

TTS/B, TTS/F, TTS/NT rotary module



Application:

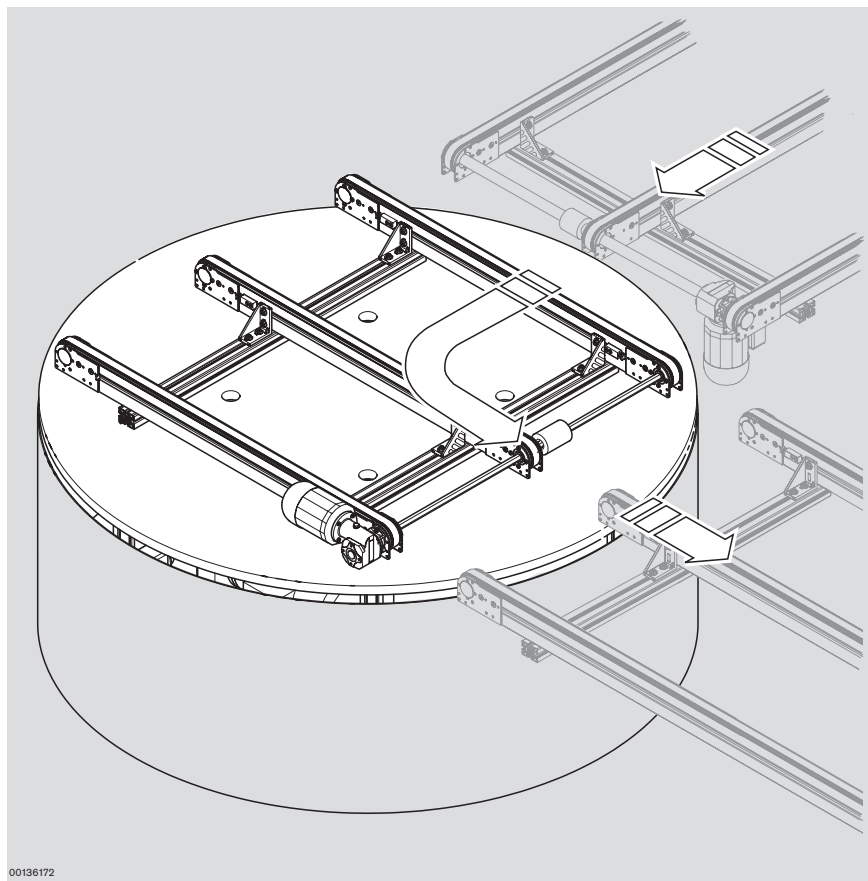
- Particularly gentle transport for direction changes or as a corner return unit
- Direction change of 90°, 180° or 270° while maintaining orientation (front remains in the front)
- Diverter function to outfeed from a main transport section

Version:

- 2 to 5-track CSS/B, CSS/BM, CSS/F, CSS/FM, or CSS/NT belt section with rotating bearing
- Rotary movement generated by electric motor with adjustable acceleration and deceleration ramp
- Optional version: Rotary movement generated pneumatically
- Conveyor medium with varying friction coefficients
- Optionally available with protective enclosure
- Section load: max. 60 kg

Scope of delivery:

- Incl. base frame



00136172

TTS/B, TTS/F, TTS/NT:

Order on request

Components for transverse conveyors

RES/M rotary module



Application:

Manual rotation of solar modules at a manual workstation

Version:

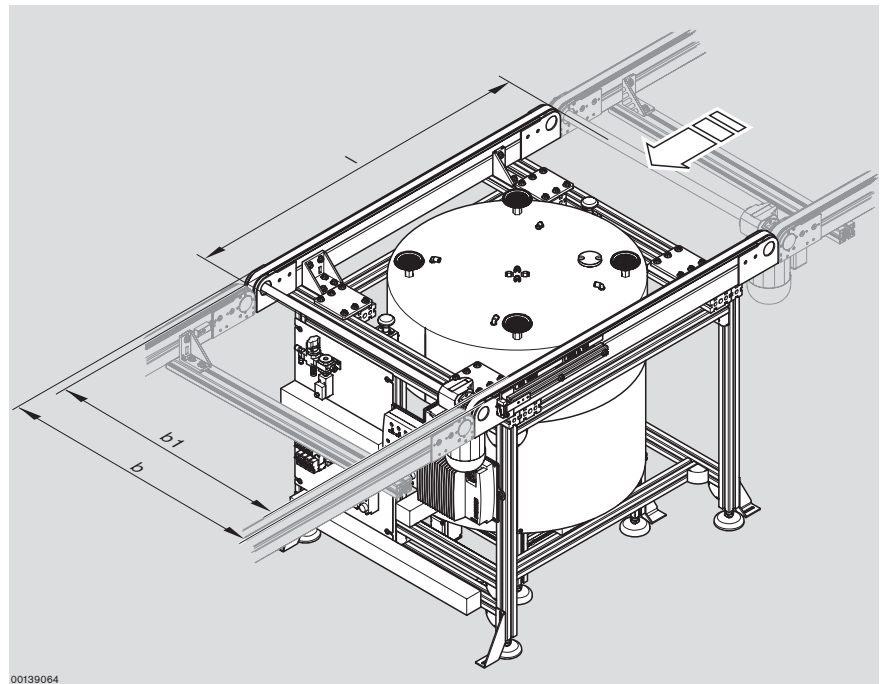
- Automatic lift unit with manual rotary table
- Prevents solar modules from sliding during manual rotation
- Mechanical safeguard against lowering
- Unobstructed edges for assembly, framing or gluing
- 2 rotational directions
- Section load up to 60 kg

Scope of delivery:

- Incl. base frame



00139063



3

RES/M:
Order on request

Leg sets

Frames, leg sets

SFS frames	4-2
SZS leg sets	4-3
Accessories: Basic Mechanical Elements	4-5

Leg sets

SFS frames



00139065

Application:

- Free-standing, stable frames for CSS/B, CSS/BM, CSS/F, CSS/FM and CSS/NT belt sections

Version:

- Extruded aluminum profiles
- Height-adjustable bases
- Easy assembly

Scope of delivery:

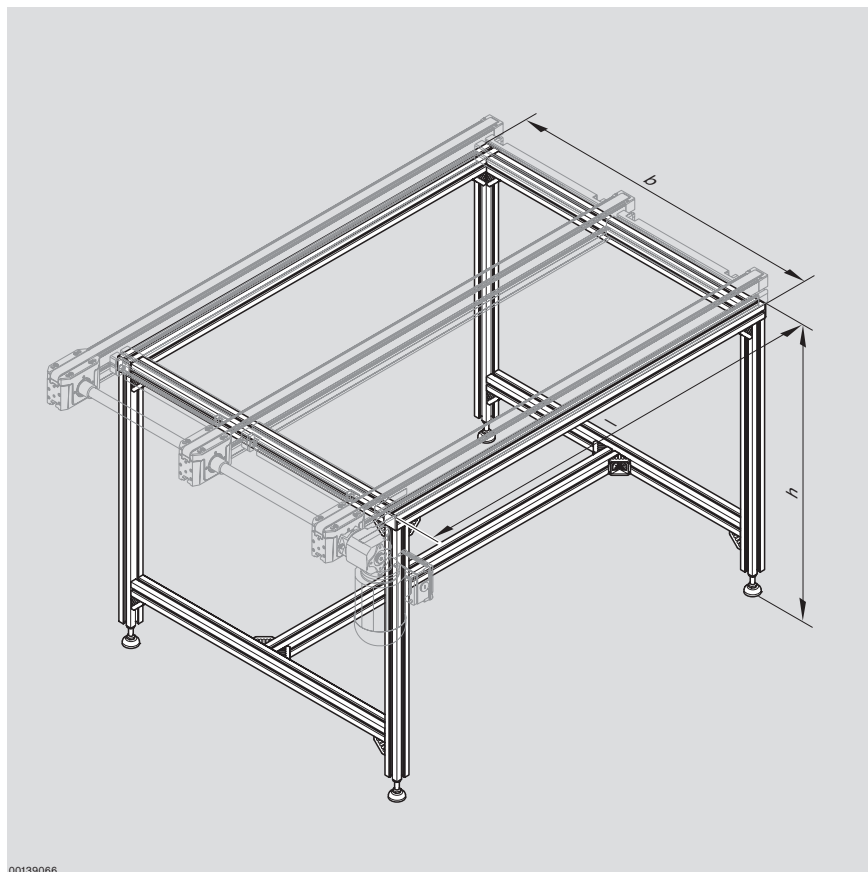
Incl. height-adjustable bases

Delivery condition:

Unassembled kit

Required accessories:

- Connection kit for fastening the unit



00139066

SFS frame:
Order on request

Leg sets

SZS/B leg set



Application:

Leg sets for belt sections

- CSS/B
- CSS/BM
- CSS/F
- CSS/FM

Leg sets must be installed close to the ends of the belt sections. They must be mounted at a uniform distance of max. 2000 mm and anchored to the floor with foundation brackets.

Version:

- Extruded aluminum profiles
- Height-adjustable bases
- The leg set comes with two, three, or four vertical struts, depending on the width.
- Reinforcement required, either by mounting to machines or installing braces with Basic Mechanical Elements, 4-5

Scope of delivery:

Incl. height-adjustable bases, incl. fastening material for mounting the legs sets on the belt section.

Delivery condition: unassembled

Required accessories:

- Foundation bracket **3 842 146 815**, 4-5
- Anchor bolts **3 842 526 560**, 4-5

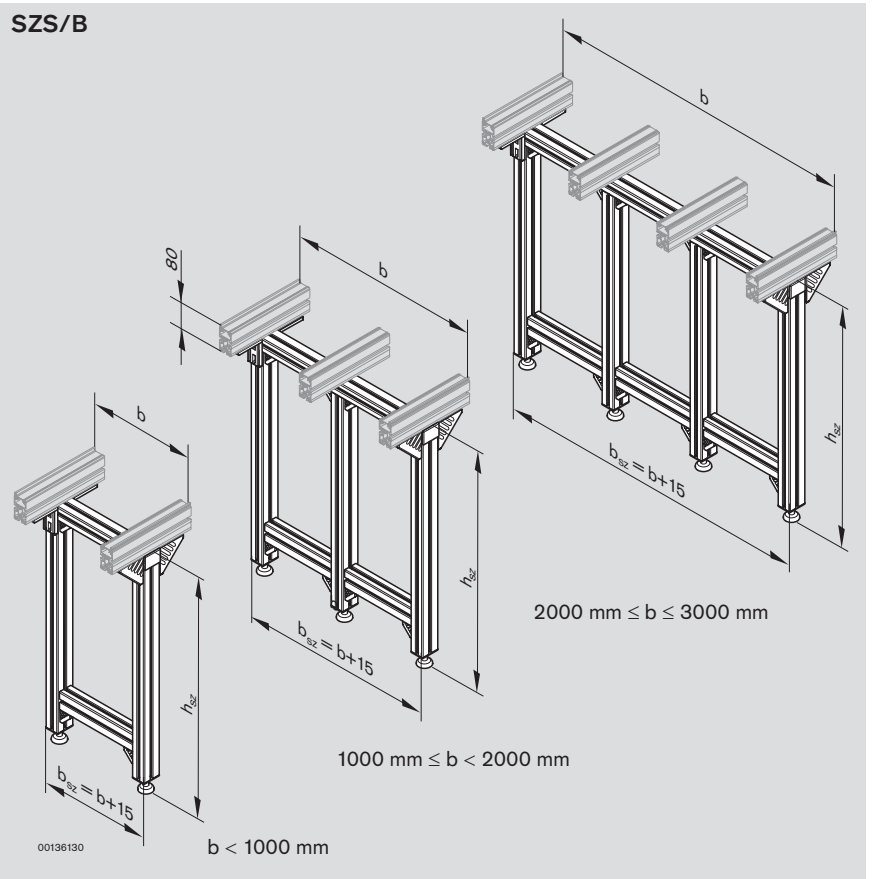
Optional accessories:

- Reinforcement made of Basic Mechanical Elements, 4-5



00136157

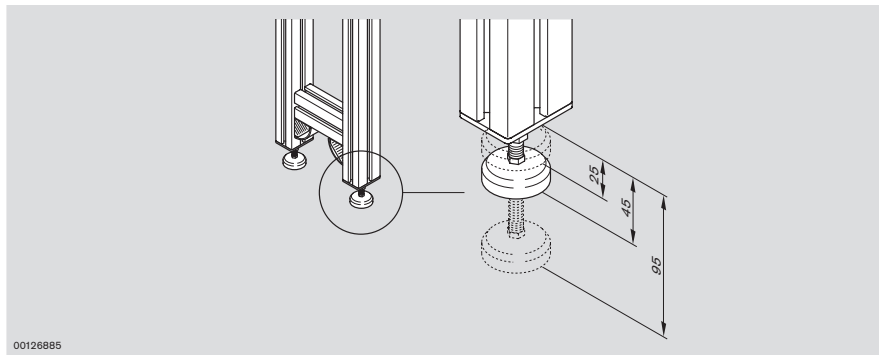
SZS/B



00136130

SZS/B

	No.	Ordering parameters	
SZS/B	3 842 998 585	b	(160 - 3000 mm)
		h _{SZ}	(250 - 2000 mm)



00126885

Leg sets

SZS/N leg set



Application:

Leg sets for belt sections
 – CSS/NT

Leg sets must be installed close to the ends of the belt sections. They must be mounted at a uniform distance of max. 2000 mm and anchored to the floor with foundation brackets.

Version:

- Extruded aluminum profiles
- Height-adjustable bases
- The leg set is equipped with two, three, or four vertical struts, depending on the width.
- Reinforcement required, either by mounting to machines or installing braces with Basic Mechanical Elements, 4-5

Scope of delivery:

Incl. height-adjustable bases, incl. fastening material for mounting the legs sets on the belt section.

Delivery condition: unassembled

Required accessories:

- Foundation bracket **3 842 146 815**, 4-5
- Anchor bolts **3 842 526 560**, 4-5

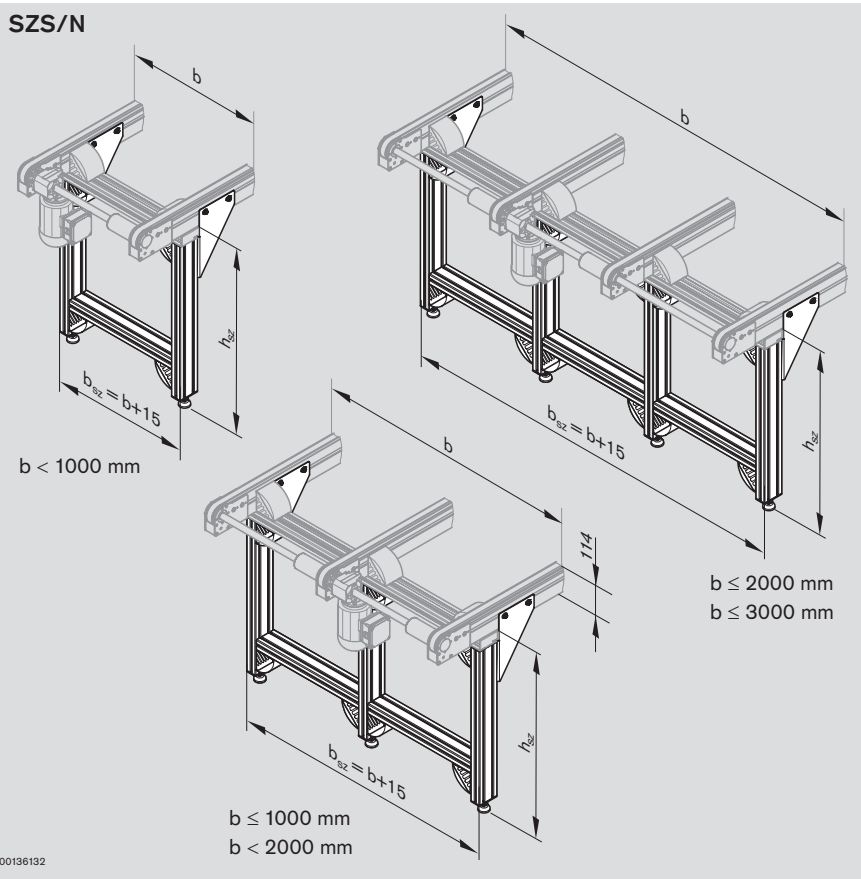
Optional accessories:

- Reinforcement made of Basic Mechanical Elements, 4-5



00136131

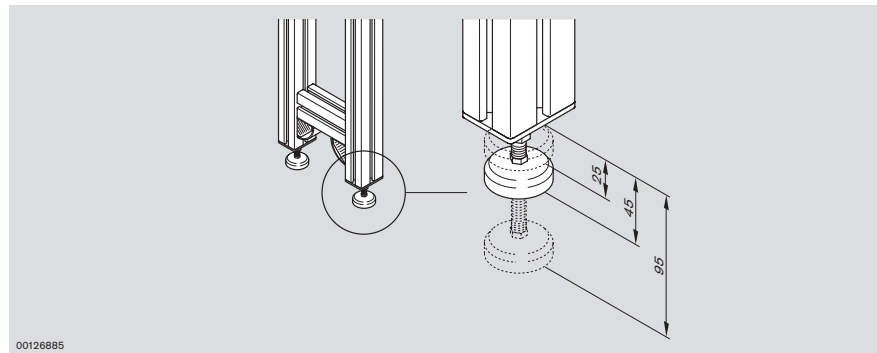
SZS/N



00136132

SZS/N

	No.	Ordering parameters
SZS/N	3 842 998 593	b (160 - 3000 mm)
		h_{sz} (250 - 2000 mm)



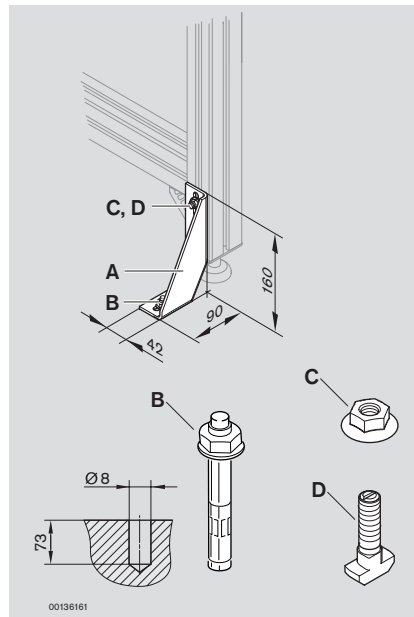
00126885

Leg sets

Accessories: Basic Mechanical Elements

Application:

Foundation bracket (A) to secure the leg sets with anchor bolts (B).
45x45L profile (E), 45° connector (F) for reinforcing the frame.



Foundation bracket

		No.
A	20	3 842 146 815 ^{*)}

Anchor bolt

		No.
B	1	3 842 526 560 ^{*)}

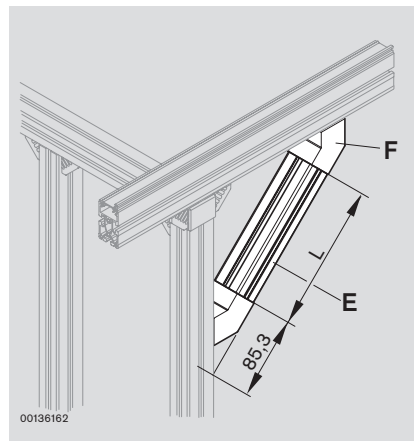
T-head bolt, flange nut

		No.
C	100	3 842 345 081 ^{*)}
D	100	3 842 528 715 ^{*)}

Foundation bracket set

		No.
(A + C + D)	20	3 842 338 979 ^{*)}

^{*)} Part number. Article can only be ordered in the quantity specified as a packing unit ().



45x45L profile

		No.
E	1	3 842 992 425/L

45° connector

		No.
F	1	3 842 535 428

Positioning and orientation, transportation control

Positioning and orientation Transportation control

Stop	5-2
Fixed stop with air nozzle	5-3
DAS/30 damper	5-4
Damper with blower	5-5
VE 2/D-60 stop gate	5-6
Air nozzle	5-7

Positioning and orientation, transportation control

Stop



Application:

- As a stop for solar modules moving from a transverse section to a longitudinal section
- For simple lateral positioning processes
- Used only with toothed belts with a low friction coefficient
- Max. stop weight 60 kg for $v_{\max} \leq 3$ m/min

Installation location:

- CSS/B, CSS/BM belt section
- LTS/B, LTS/F lift transverse unit

Version:

- Polymer in an anti-static version with screw-on stop rail

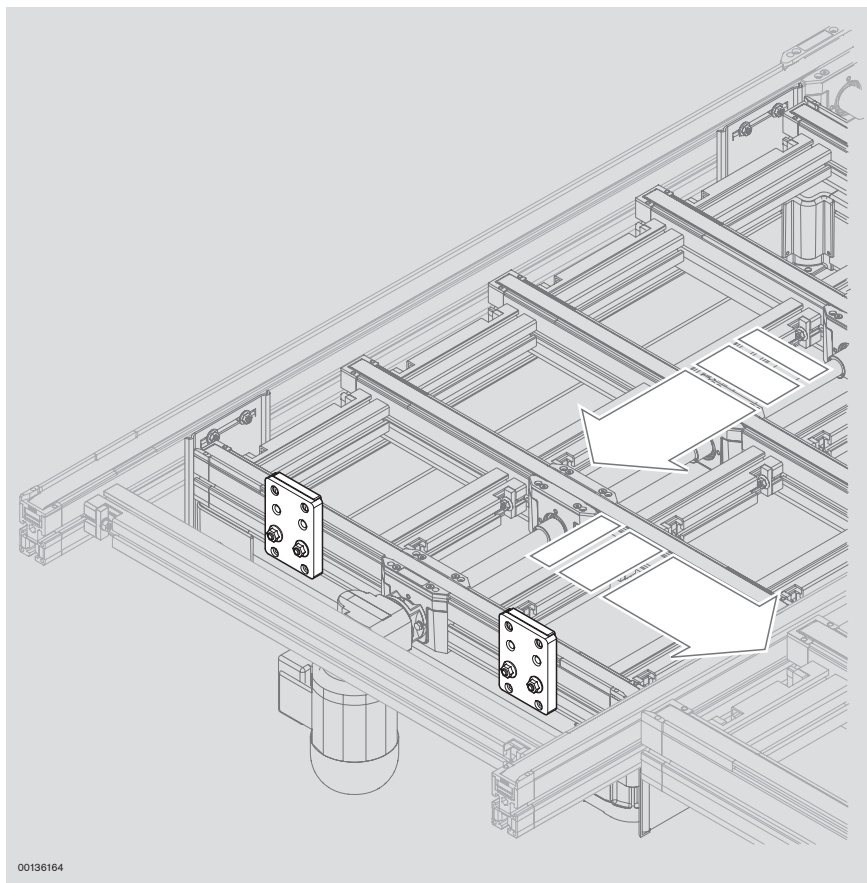
Scope of delivery:

Incl. fastening material for mounting to the belt section or lift transverse unit

Delivery condition: unassembled



00136139



00136164

Stop

No.

3 842 519 717

Positioning and orientation, transportation control

Fixed stop with air nozzle



Application:

- As a stop for solar modules moving from a transverse section to a longitudinal section
- With blower to prevent EVA or PVF films from being caught
- Used only with toothed belts with a low friction coefficient
- Max. stop weight 60 kg for $v_{\max} \leq 3$ m/min

Installation location:

- CSS/B, CSS/BM belt section
- LTS/B, LTS/F lift transverse unit

Version:

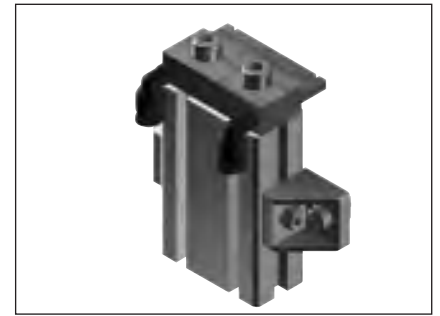
- A soft jet of air on the front side prevents hanging film from being caught when the solar module hits the stop
- Compressed air supply with approx. 4-6 bar
- Compressed-air connection via 4-mm pushlock-type connection
- Individually adjustable
- Nozzle outlet diameter: 1-1.5 mm

Scope of delivery:

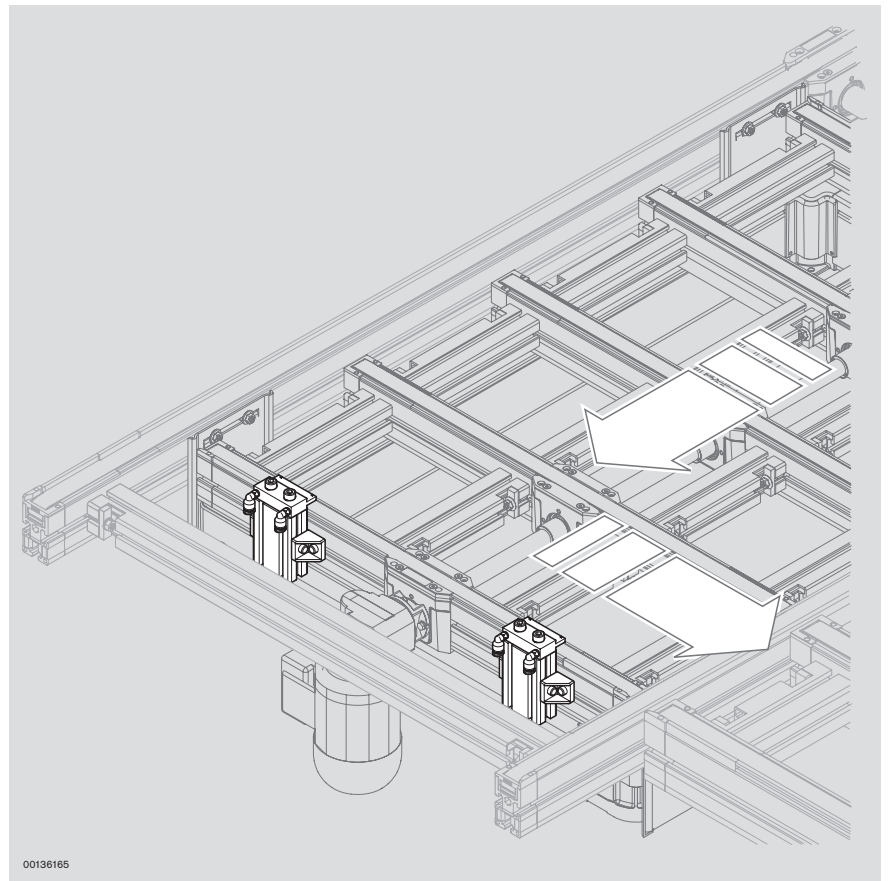
Incl. fastening material for mounting to the belt section or lift transverse unit

Delivery condition: assembled

Stop with blower:
Order on request



00136140



00136165

Positioning and orientation, transportation control

DAS/30 damper



Application:

- As a stop for solar modules with cushioned movement from a transverse section to a longitudinal section or vice versa
- For solar modules with a total weight of 30-60 kg
- Transport speed when impacting the damper $v_{\max} \leq 3$ m/min
- Used only with toothed belts with a low friction coefficient

Installation location:

- CSS/B, CSS/BM belt section
- LTS/B, LTS/F lift transverse unit

Version:

- Pneumatic damper with infinitely adjustable damping
- Pneumatic return parallel to opening of the stop gate, which permits the solar module to move towards the damper.

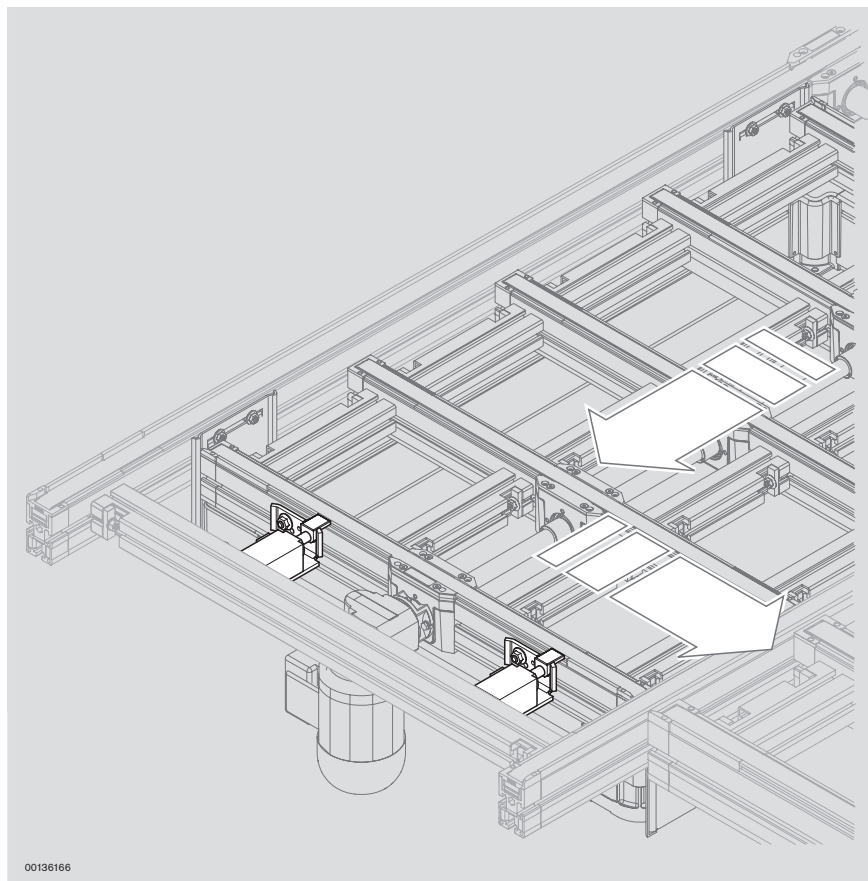
Scope of delivery:

Incl. fastening material for mounting to the lift transverse unit

Delivery condition: unassembled



00136160



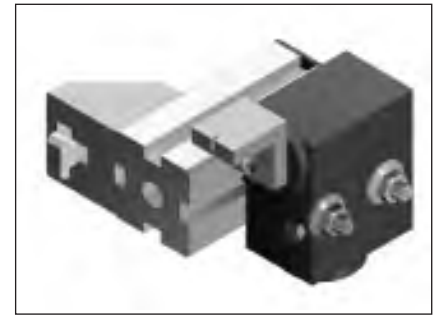
00136166

DAS/30

Load (kg)	No.
30-60	3 842 515 351

Positioning and orientation, transportation control

Damper with blower



00136143

Application:

- As a stop for solar modules with cushioned movement from a transverse section to a longitudinal section or vice versa
- With blower to prevent EVA or PVF films from being caught
- For solar modules with a total weight of 30-60 kg
- Transport speed when approaching the damper $v_{\max} \leq 3$ m/min
- Used only with toothed belts with a low friction coefficient

Installation location:

- CSS/B, CSS/BM belt section
- LTS/B, LTS/F lift transverse unit

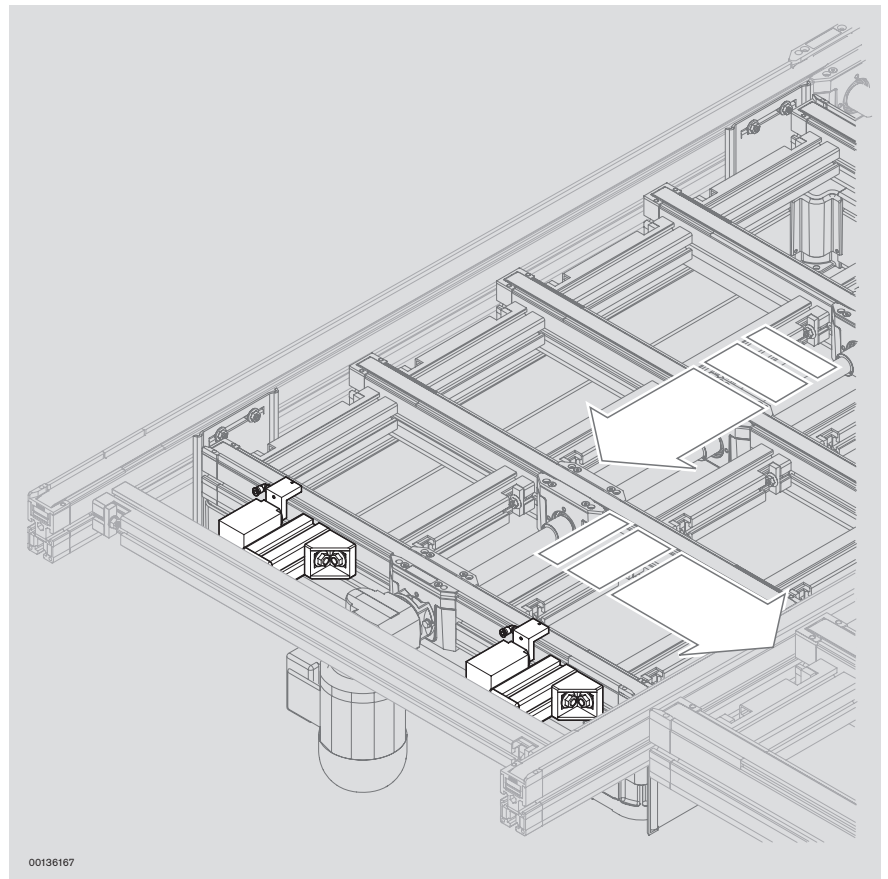
Version:

- Pneumatic damper with infinitely adjustable damping
- Pneumatic return parallel to opening of the stop gate, which permits the solar module to move towards the damper.
- A soft jet of air on the front side prevents hanging film from being caught when the solar module hits the fixed stop
- Compressed air supply with approx. 4-6 bar
- Compressed air connection via 4-mm pushlock-type connection
- Individually adjustable

Scope of delivery:

Incl. fastening material for mounting to the lift transverse unit

Delivery condition: assembled



Damper with blower:
Order on request

Positioning and orientation, transportation control

VE 2/D-60 stop gate



Application:

- Dampened stopping of a solar modular on defined bearing surfaces
- Transport speed when approaching the damper $v_{\max} \leq 3$ m/min
- Used only with toothed belts with a low friction coefficient
- Correction of the position (centering) of a module on the belt section. Can be realized through a lateral mounting to the belt section.

Installation location:

- CSS/B, CSS/BM belt section

Version:

- Pneumatic stop gate with infinitely adjustable damping
- Optimum damping for small plate weights of up to 60 kg

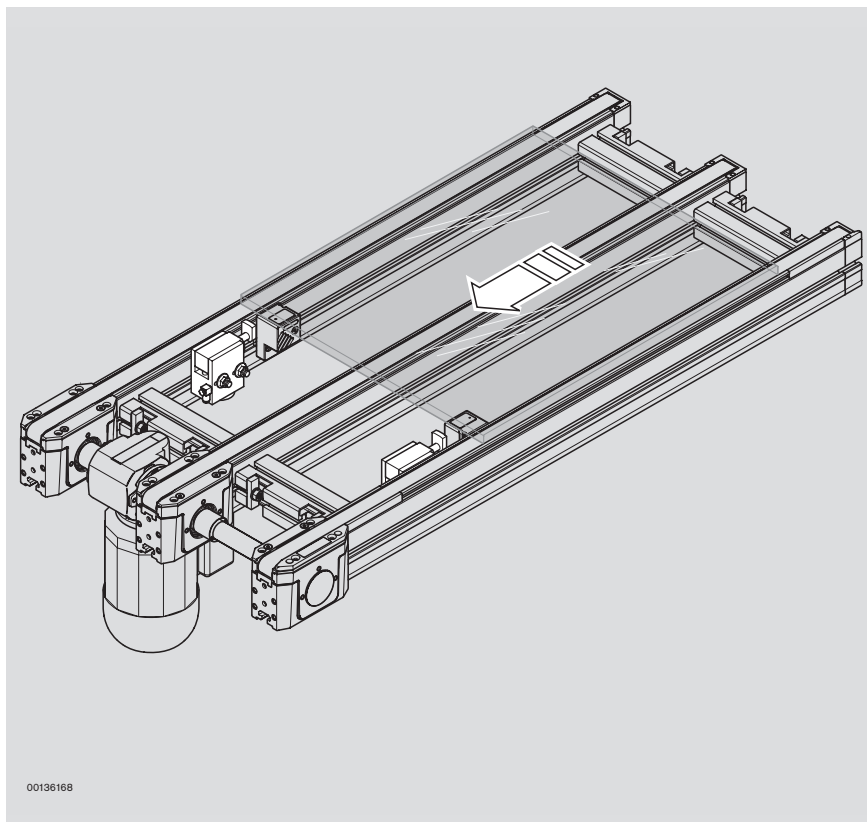
Scope of delivery:

Incl. fastening material for mounting to the belt section

Delivery condition: assembled



00136144

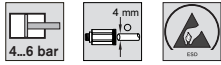


00136168

VE 2/D-60 stop gate:
Order on request

Positioning and orientation, transportation control

Air nozzle



Application:

- Prevents hanging film from being caught, e.g. when the solar module hits a stop gate or stop
- Used in conjunction with a stop gate or stop

Installation location:

- CSS/... belt section

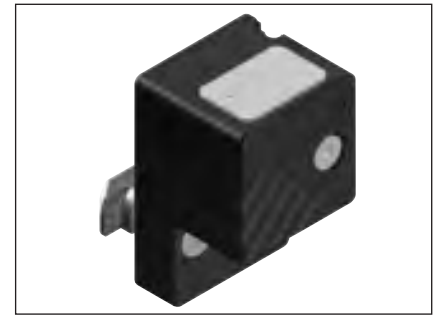
Version:

- Outlet on the top blows a soft jet of air below the protruding film on an approaching solar module, thus lifting the film. This prevents it from being caught when the module hits a subsequent stop.
- Compressed air supply with approx. 4-6 bar
- Compressed-air connection via 4-mm pushlock-type connection
- Individually adjustable

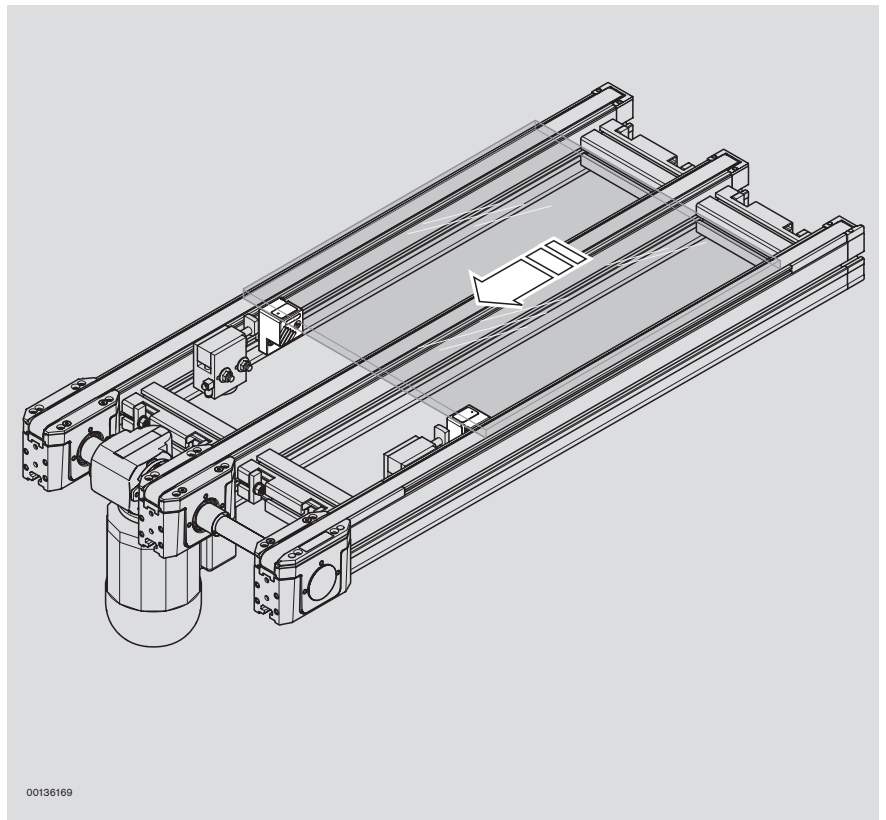
Scope of delivery:

Incl. fastening material for mounting to the belt section

Delivery condition: assembled



00136146



Air nozzle:
Order on request

Special modules

Special modules

LIFO storage	6-2
Lift	6-3

Special modules

LIFO storage



Application:

- Vertical temporary storage for 10 to 30 solar modules. Functions in accordance with the “last in, first out” principle.
- Mounted within the line in the longitudinal or transverse conveyor

Version:

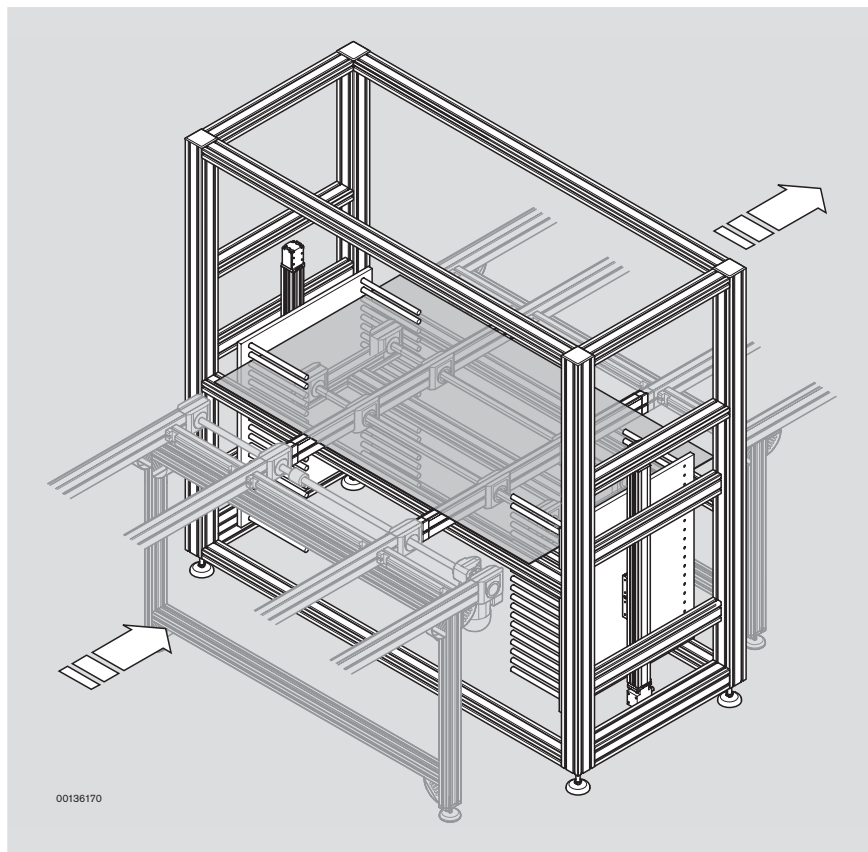
- Independent module
- Expanding mandrel to lift the solar modules from the belt section. Stored above the conveying level.
- Vertical movement via electrical axles

Scope of delivery:

- Incl. CSS belt section
- Incl. enclosure
- Incl. complete sensor system



00136158

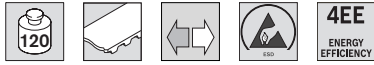


00136170

LIFO storage:
Order on request

Special modules

Lift



00139068

Application:

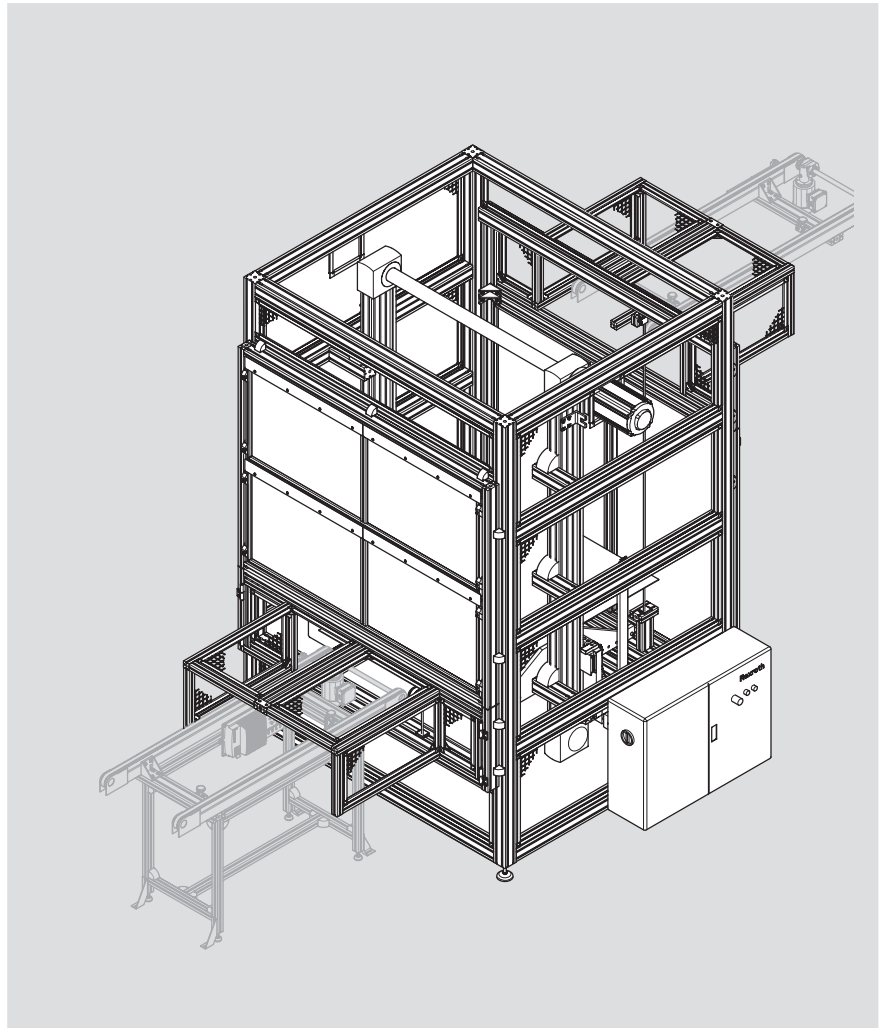
- To bridge differences in the transport level

Version:

- Lift of up to 550 mm (larger lifts are also possible)
- Lifting movement via servo drive for the vertical axis
- Optional version: pneumatic lifting movement (lift \leq 50 mm)

Scope of delivery:

- Incl. CSS/BM, CSS/NT, or CSS/FM belt section
- Incl. frequency converter
- Incl. complete sensor system
- Optional version:
Incl. enclosure



6

Lift:
Order on request

Special modules

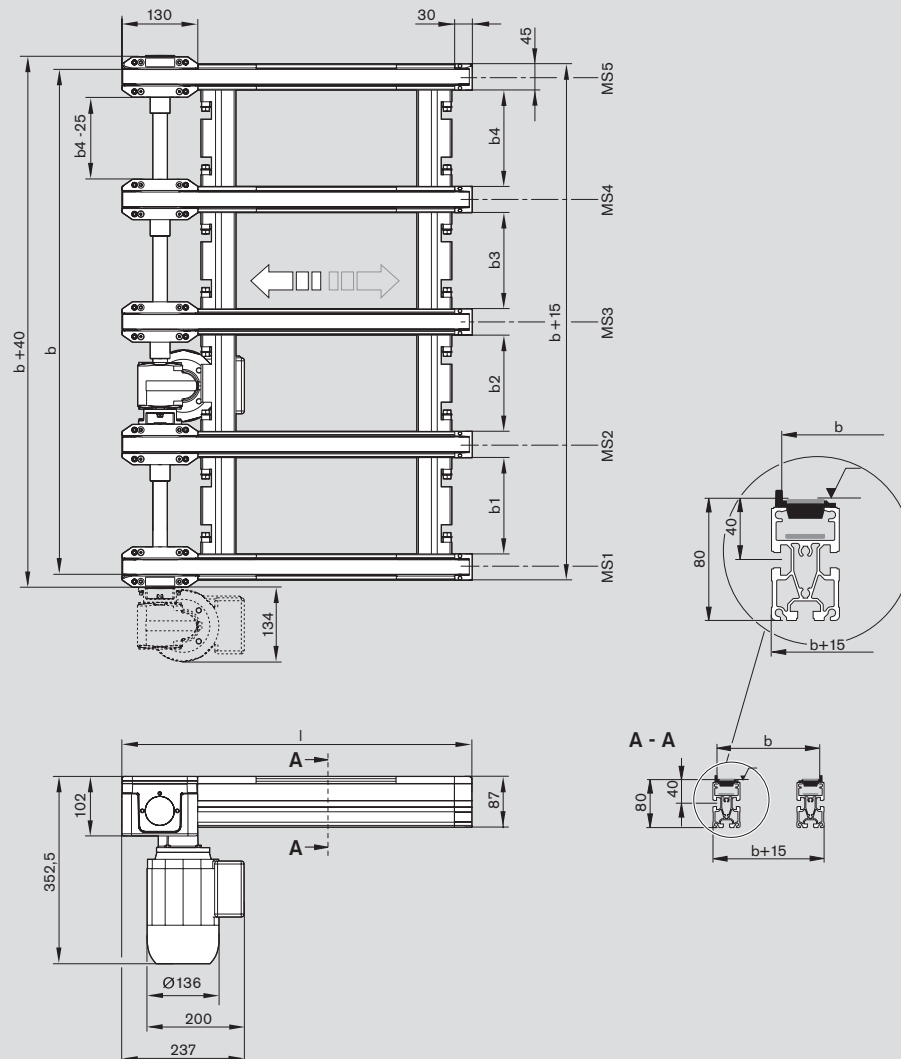
Technical data

Technical data

CSS/B, CSS/F belt section	7-2
CSS/BM, CSS/FM belt section	7-3
CSS/NT belt section	7-4
Transmission drive	7-5
LTS/... lift transverse unit	7-6
Stop, fixed stop with air nozzle	7-7
DAS/30 damper, damper with blower	7-8
VE 2/D-60 stop gate, air nozzle	7-9
Motor data	7-10
Transportation speed, motor connection	7-14
Layout of the belt sections and drive	7-15

Technical data

CSS/B, CSS/F belt section



00196147

The position of the cross connector may deviate from that in the figure.

$$3\ 842\ 998\ 537: b_{\min} = 160\ \text{mm}$$

$$3\ 842\ 998\ 538: b_{\min} = b1_{\min} + b2_{\min} + 3 \times 45 - 15 = 290\ \text{mm}$$

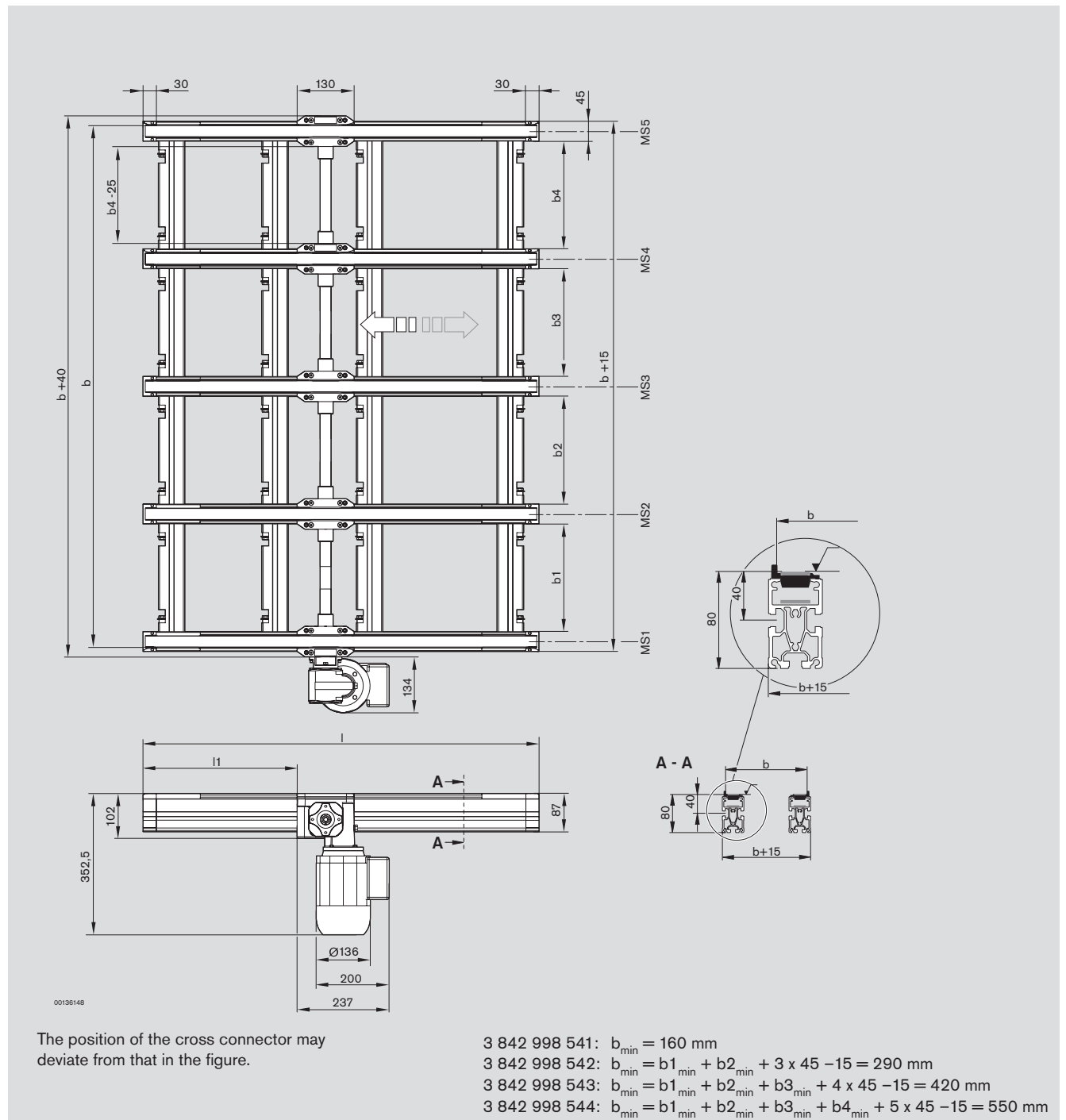
$$3\ 842\ 998\ 539: b_{\min} = b1_{\min} + b2_{\min} + b3_{\min} + 4 \times 45 - 15 = 420\ \text{mm}$$

$$3\ 842\ 998\ 540: b_{\min} = b1_{\min} + b2_{\min} + b3_{\min} + b4_{\min} + 5 \times 45 - 15 = 550\ \text{mm}$$



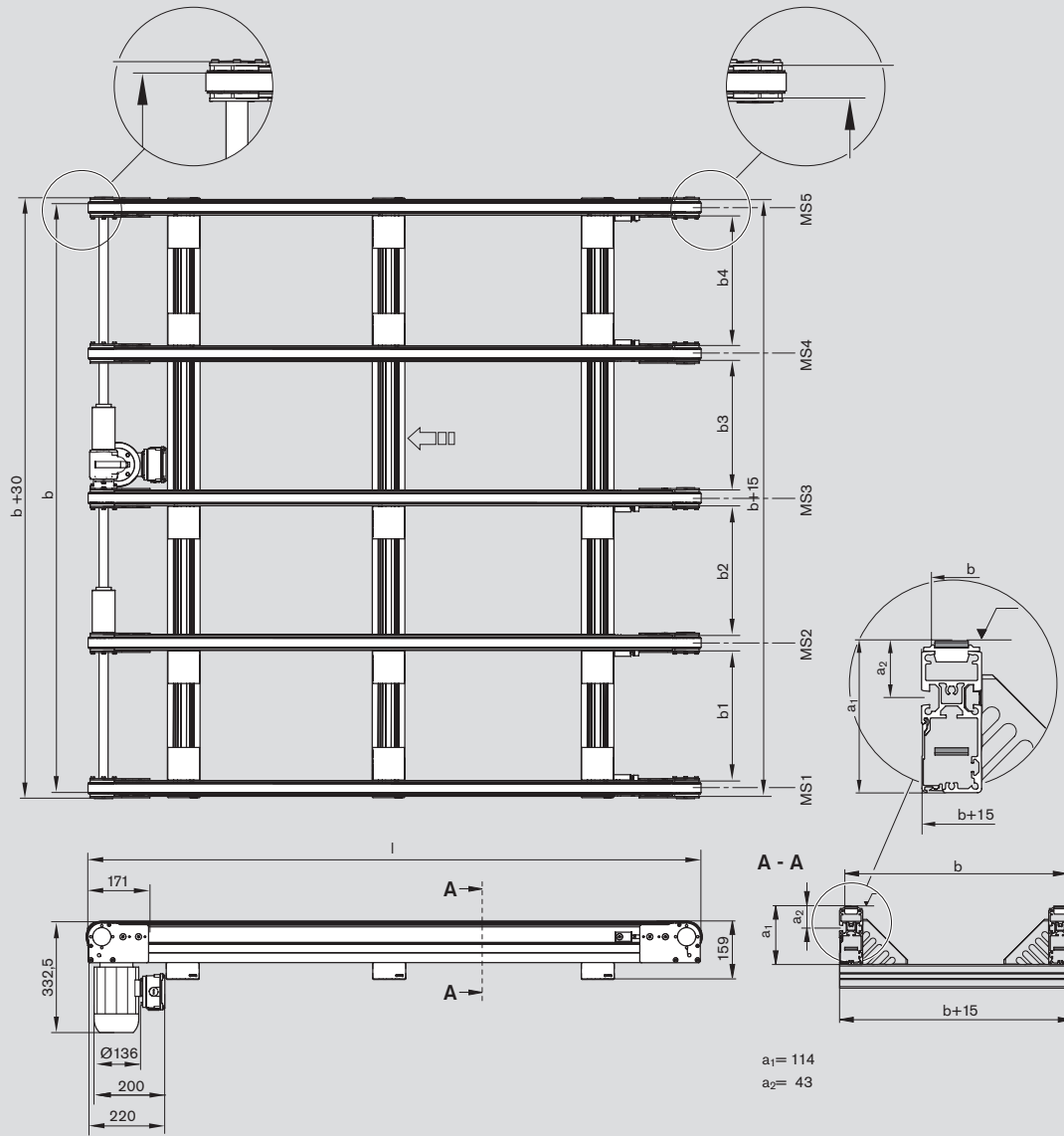
Technical data

CSS/BM, CSS/FM belt section



Technical data

CSS/NT belt section

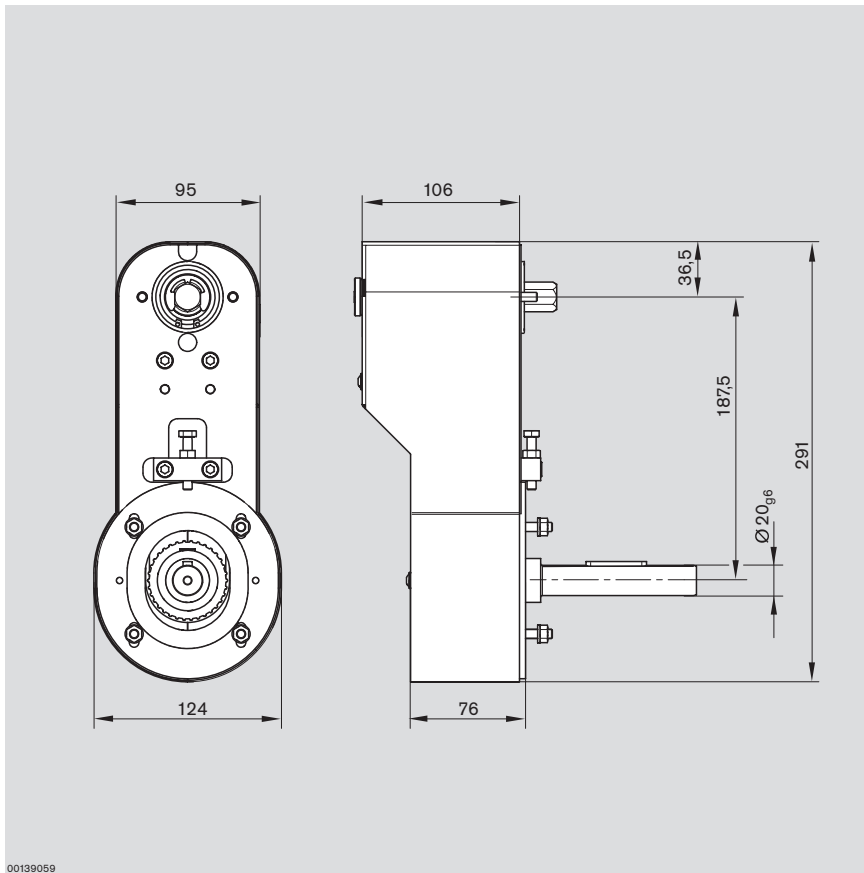


00136149

- 3 842 998 632: $b_{\min} = 255 \text{ mm}$
 3 842 998 633: $b_{\min} = b1_{\min} + b2_{\min} + 3 \times 45 - 15 = 540 \text{ mm}$
 3 842 998 634: $b_{\min} = b1_{\min} + b2_{\min} + b3_{\min} + 4 \times 45 - 15 = 825 \text{ mm}$
 3 842 998 635: $b_{\min} = b1_{\min} + b2_{\min} + b3_{\min} + b4_{\min} + 5 \times 45 - 15 = 1050 \text{ mm}$

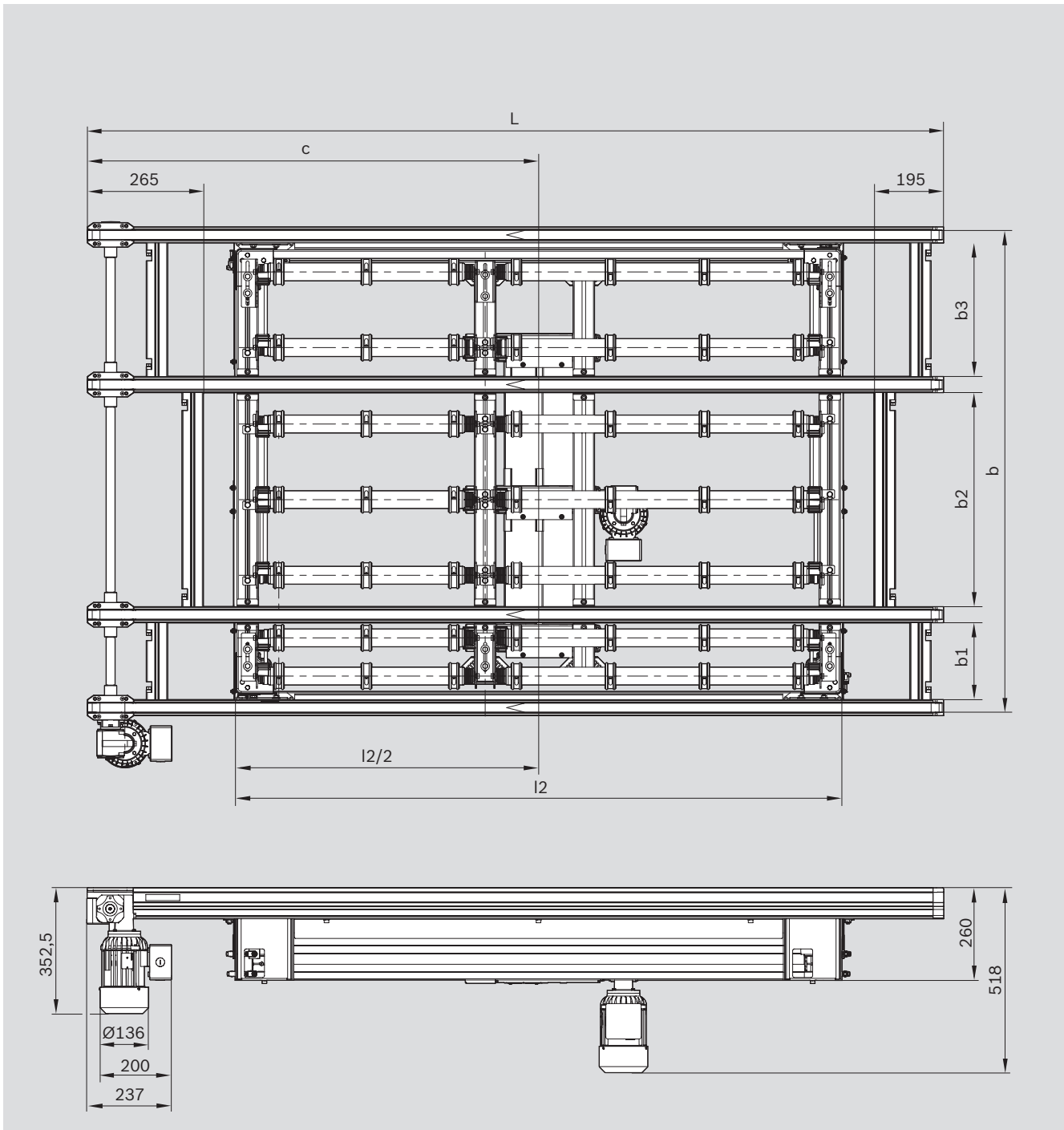
Technical data

Transmission drive



Technical data

LTS/... lift transverse unit

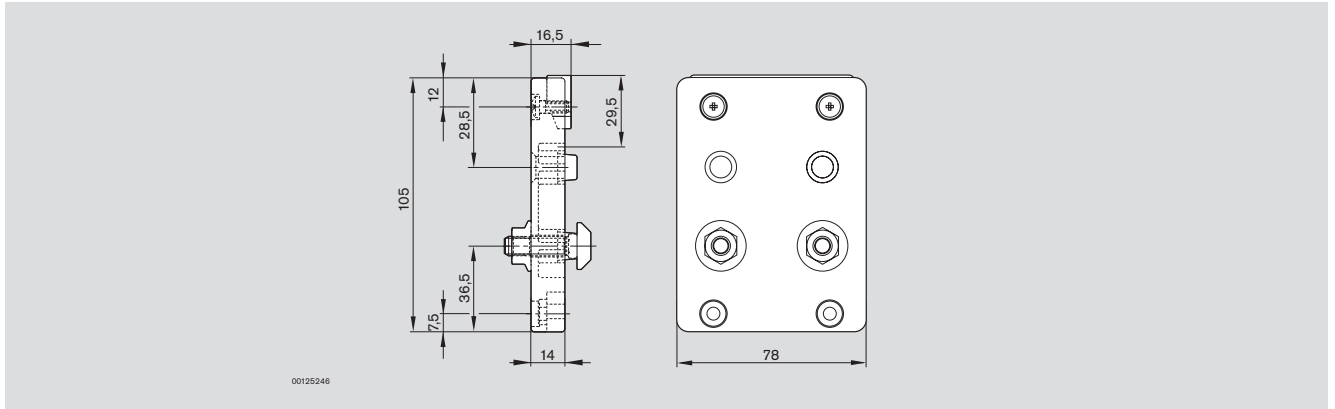


Technical data

Stop

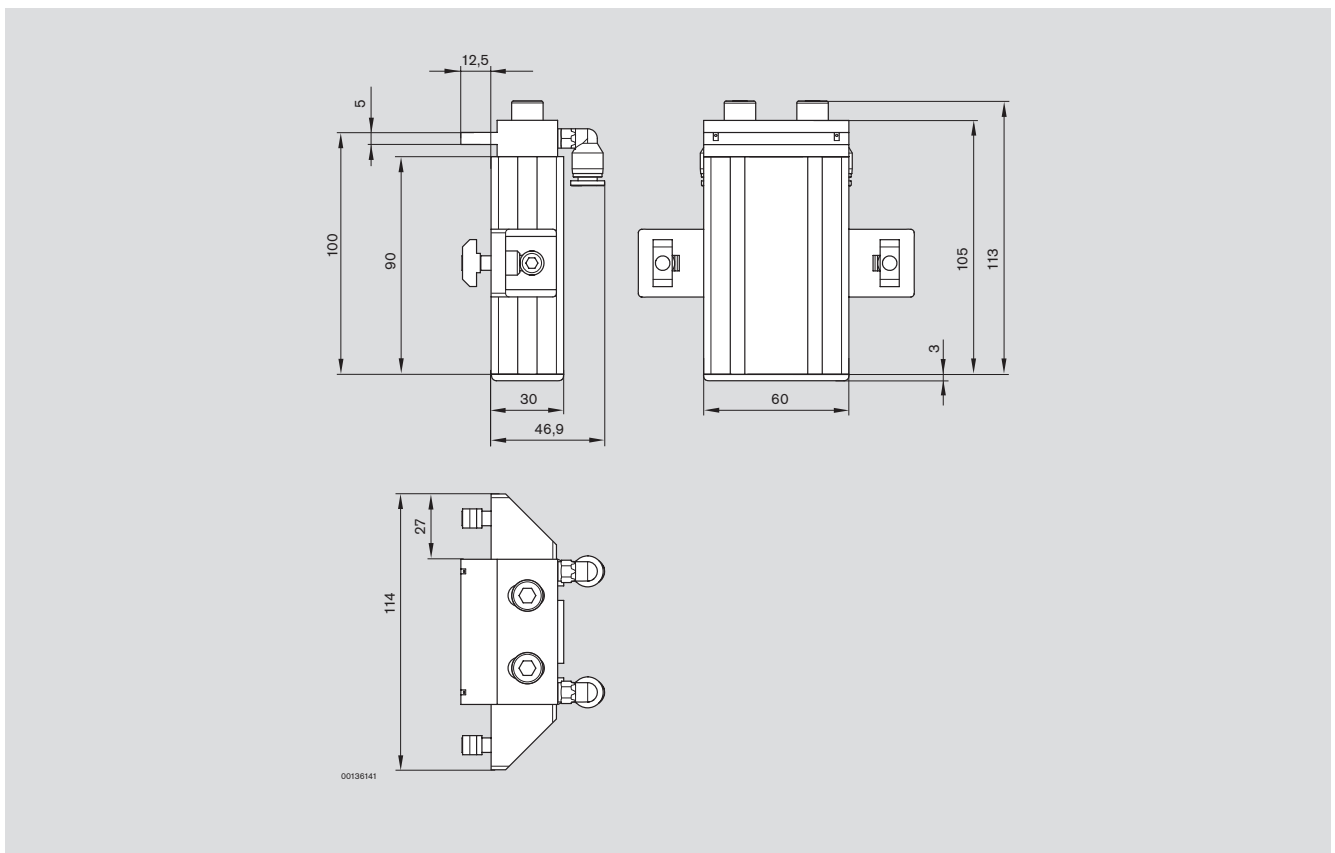
Fixed stop with air nozzle

Stop



7

Fixed stop with air nozzle

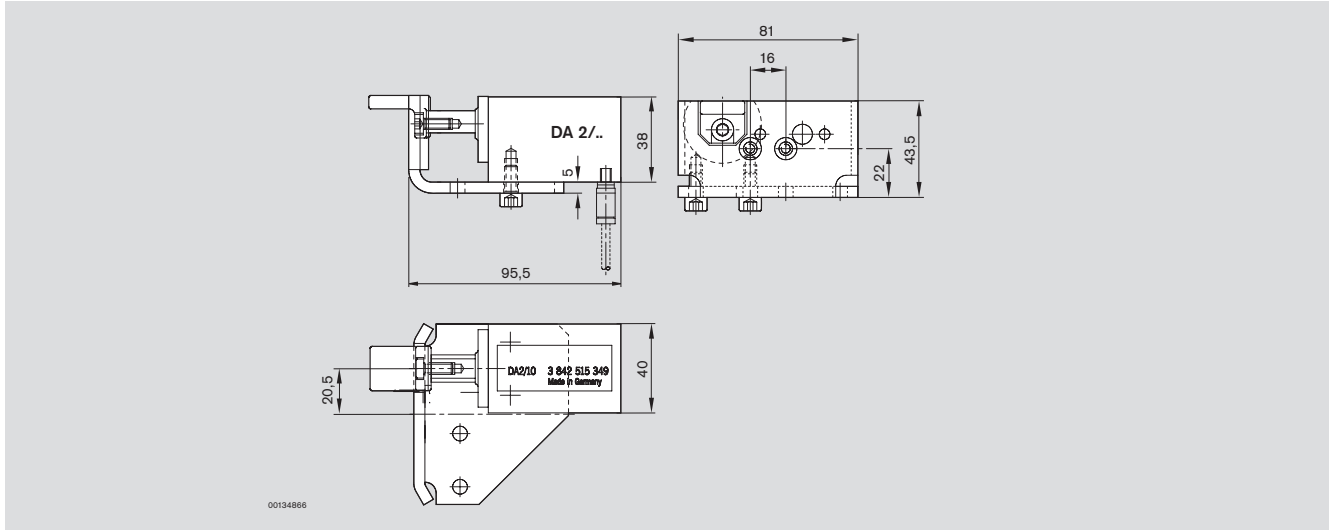


Technical data

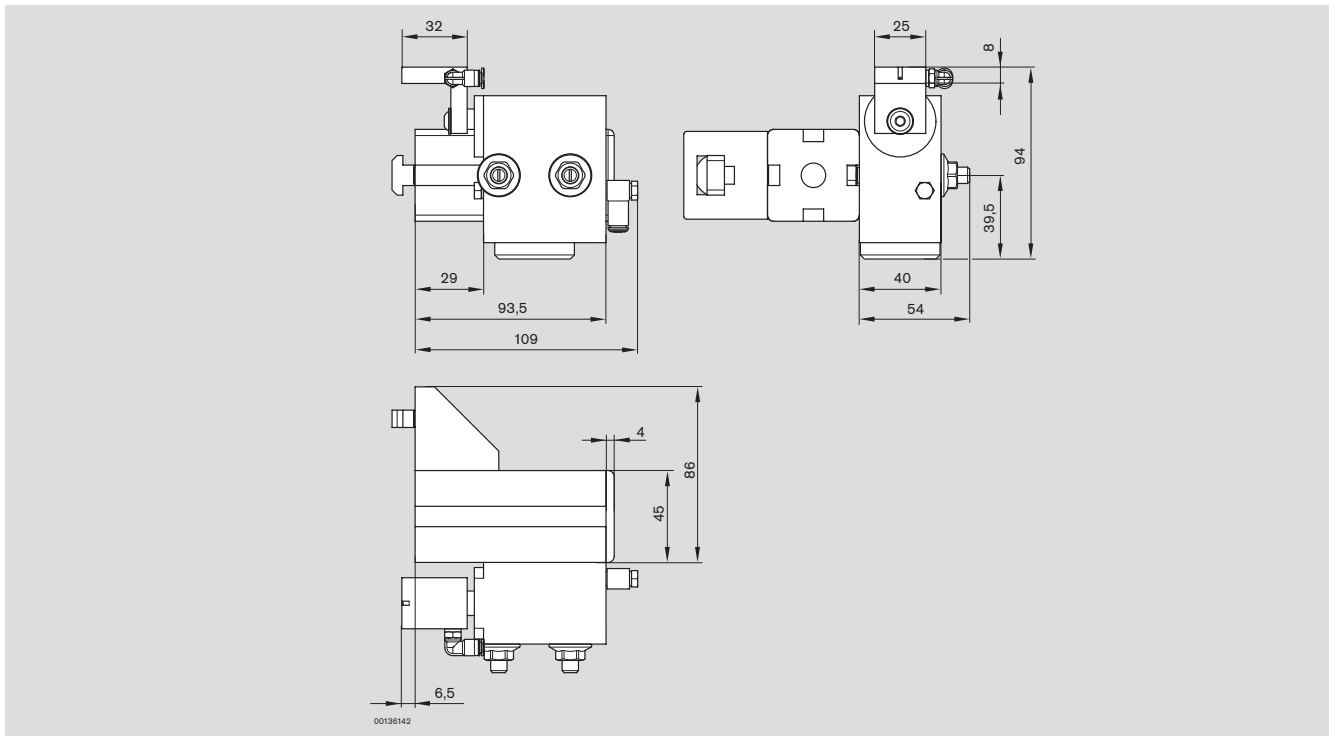
DAS/30 damper

Damper with blower

DAS/30 damper



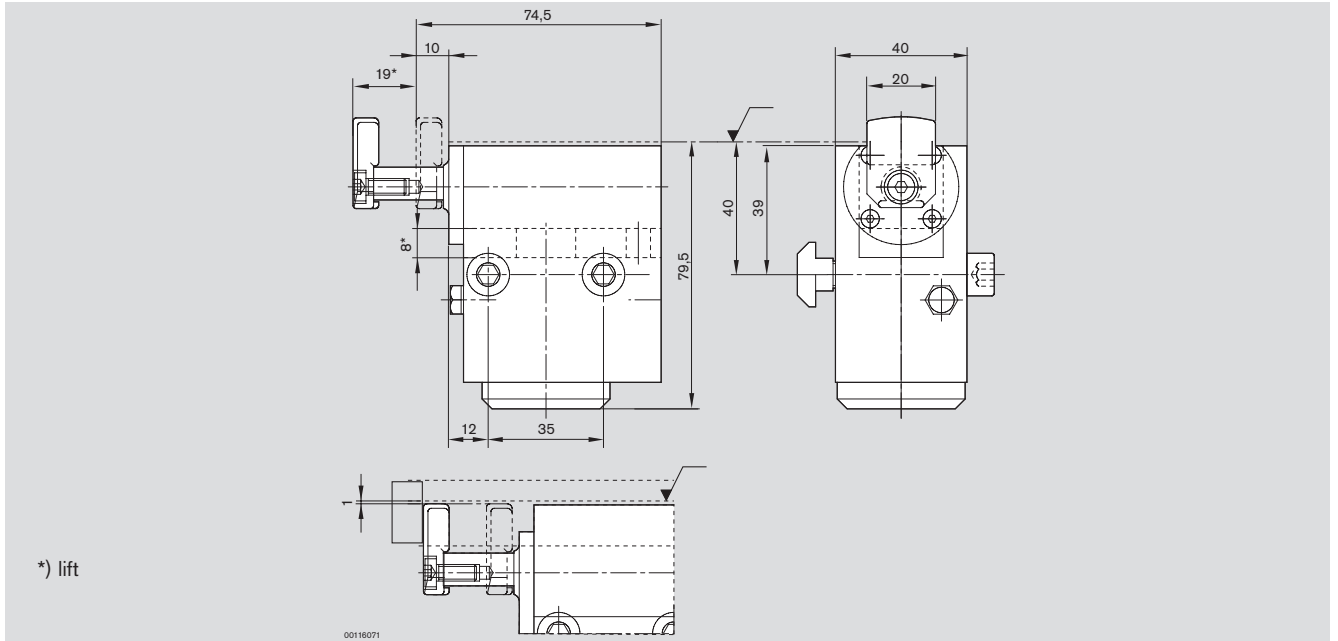
Damper with blower



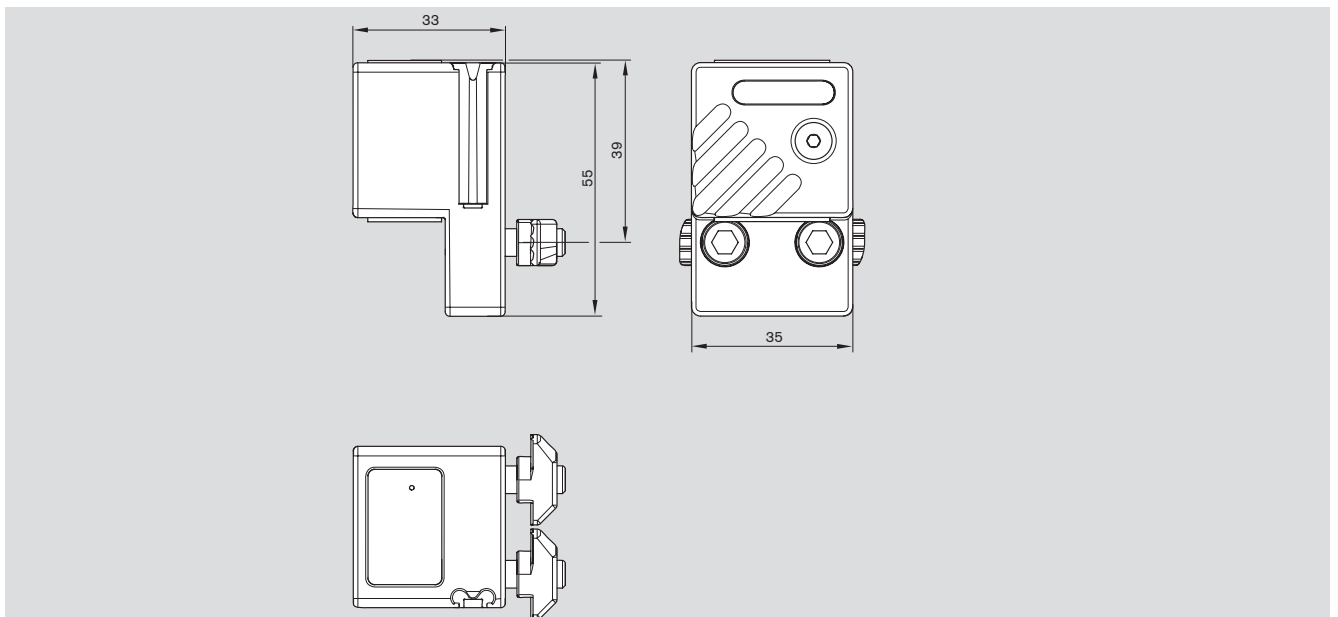
Technical data

VE 2/D-60 stop gate Air nozzle

VE 2/D-60 stop gate



Air nozzle



Technical data

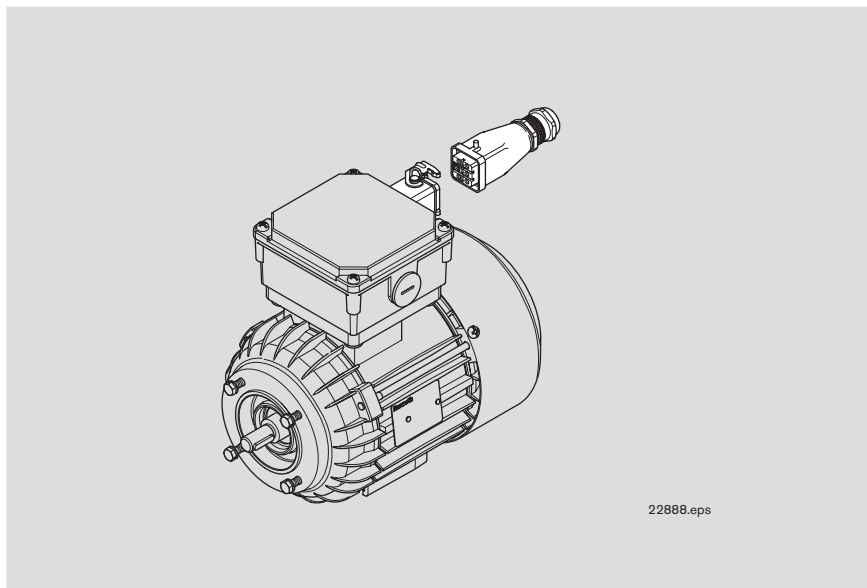
Motor data

Electrical connection requirements:

Connection to a 3-phase, 5-wire system (L1, L2, L3, N, PE), a connection plan is included with the terminal box. All motors are equipped with a thermal contact*), which has to be connected to an overload switch-off.

*) Bi-metal thermal contact, tripping at $150\text{ °C} \pm 5\text{ °C}$

Motor types without Index b



Motor connection with plug (AT = S) and 3A metal industrial plug-in connector

Technical data

Motor data

Performance data

Note:

The data is typical values.

We reserve the right to make changes.

See motor type plate for official data.

Please note the country applicability.

Voltage class	IE 3	A	A	B	D
Circuit type		Δ	Y	Y	Y
Voltage U at f = 50 Hz	x	200 V \pm 10 %		400 V +10...-12 %	
Voltage U at f = 60 Hz	x	220 V \pm 10 %	400 V \pm 10 %	460 V +10...-12 %	575 V \pm 10 %

Motor type ¹⁾	IE 3	Current consumption at nominal power				Power factor $\cos \varphi$	Power output at	
		I_N (A)	I_N (A)	I_N (A)	I_N (A)		(50Hz) P (kW)	(60Hz) P (kW)
634	x	1,65	0,9	0,85	0,65	0,6	0,25	0,29

¹⁾ Suitable for continuous operation, start-stop operation with an operating time of up to 70% and frequency converter operation.

Certification for the motor, cable and plug components:

IE3 motors: CE, cURus, CCC

3-phase motors T_U (°C)	P_V/P_N
< 40	1 ¹⁾
45	0,95
50	0,90
55	0,85
60	0,8

¹⁾ Motor rating (0.37; 0.25; 0.12 kW)

Motor rating

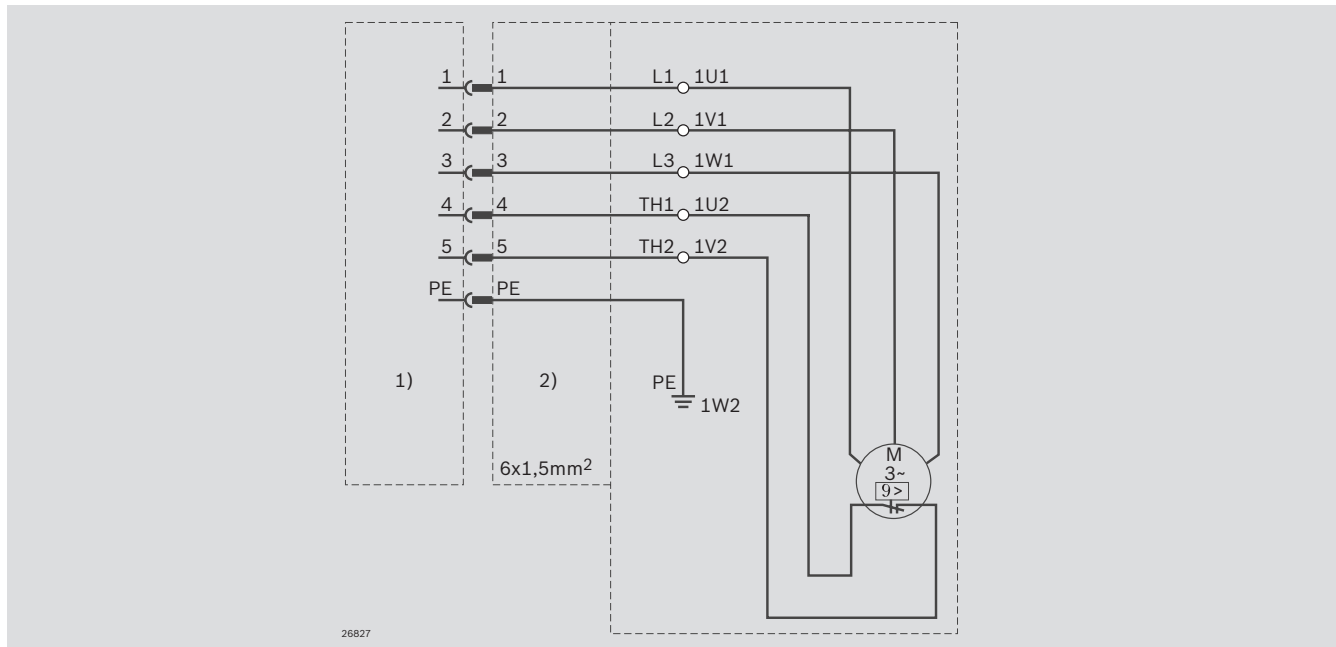
The ambient operating temperature T_U influences the rated power P_N of the gear motors.

Technical data

Motor connection

Motor connection with cable/plug (AT = 1)

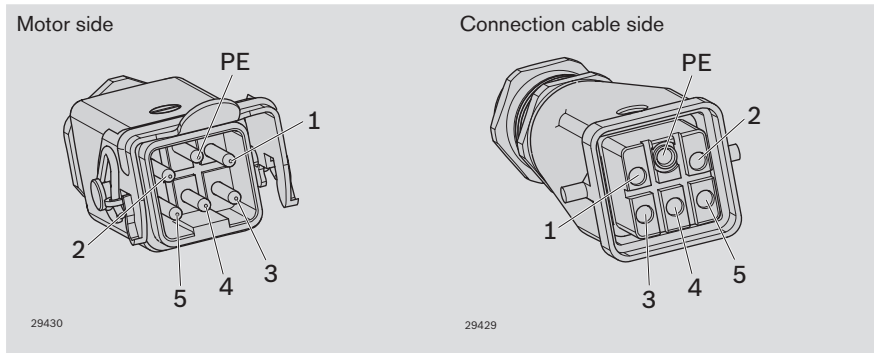
Circuit diagram



- 1) Connection cable side
- 2) Motor side

Connection list

Connection terminals, Pin no.	Code	motor 3~
U1	1	L1
V1	2	L2
W1	3	L3
TW1	4	Th1
TW2	5	Th2
	PE	PE



Technical data

Motor connection

Motor protection switch

Motor type	50 Hz			60 Hz			Motor protection switch	
	Rated output	Voltage		Rated output	Voltage		Δ [A]	Y [A]
		Δ [V]	Y [V]		Δ [V]	Y [V]		
634	0,25	200	N/A	0,29	220	400	1,90	1,10
		N/A	400		N/A	460	N/A	1,00
		N/A	N/A		N/A	575	N/A	0,80

Country applicability

	Europe	Switzerland	USA	Canada	Brazil	Australia	New Zealand	South Korea	China	India
Line voltage (3x...)	400 V	400 V	480 V ¹⁾	480 V ¹⁾ 575 V	220 V 380 V ³⁾ 440 V ¹⁾	400 V 415 V ²⁾	400 V 415 V ²⁾	220 V 380 V ³⁾ 440 V ¹⁾	380 V ²⁾	415 V ²⁾
Line voltage tolerance	± 10 %	± 10 %	± 10 %	± 10 %	± 10 %	± 5 %	± 5 %			± 5 %
Line frequency	50 Hz	50 Hz	60 Hz	60 Hz	60 Hz	50 Hz	50 Hz	60 Hz	50 Hz	50 Hz

1) ~460V/60Hz

2) ~400V/50Hz

3) ~400V/60Hz

Technical data

Transportation speed v_N

Motor connection

Unit	v_N (m/min)	50 Hz		60 Hz	
		v (m/min)	Motor type	v (m/min)	Motor type
CSS/B	36	37,4	634	(45,0)	634
CSS/BM	21	–	–	21,6	634
CSS/F	18	18,0	634	18,0	634
CSS/FM	15	15,0	634	14,4	634
	12	12,0	634	10,8	634
	9	9,0	634	8,7	634
	6	6,0	634	5,4	634
CSS/NT	36	33,8	634	33,9	634
	18	16,9	634	20,3	634
	15	13,5	634	16,3	634
	12	11,3	634	13,6	634
	9	8,5	634	8,1	634
	6	5,6	634	6,8	634

Technical data

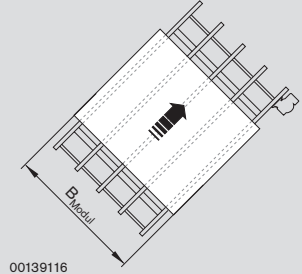
Layout of the belt sections and drive

The width and mass of the transported solar modules influence the layout of the belt sections (number of tracks) and the permissible operating time of the motor.

No. of tracks

- Lateral protrusion of the solar modules is permissible.
- For track spacing: $bx_{\max} = 600$ mm; this limits deflection of the glass modules (glass strength: 4 mm).
- For framed modules, the entire longitudinal side must lie on the track.

Table 1: Minimum number of tracks for 4 mm thick glass plates



Module width W_{module} (mm)	0 ... 1600	1601 ... 2100	> 2100
Minimum no. of tracks	2 ... 3	4	5

00139116

We recommend using the following frequency converters in regions with 230 V (single-phase)/400 V (3-phase) line voltage:

- Bosch Rexroth IndraDrive FC 230 V, 0.37 kW (**R911311055**)
- Bosch Rexroth IndraDrive FC 400 V, 0.55 kW (**R911311061**)

The frequency converter is supplied with a standard I/O module. Further available modules:

- PROFIBUS DP (**R911311072**)
- CANopen (**R911311074**)
- DeviceNet (**R911311075**)

Technical data:

- T_{ambient} : 0–50 °C (in control cabinet)
- Protection class IP20 (control cabinet installation)
- Altitude ≤ 1000 m above sea level.
At higher altitudes, performance decreases by 1% for each 100 m of altitude.

Please ask your Rexroth representative for information on other operating conditions.

Technical data

Observe the following information for the drive layout:

- The permissible section load per track must not be exceeded.
- The permissible section load for all belt sections for $v_N = 18$ m/min or 36 m/min depends on the operating time of the drive; see Diagrams 1 to 3.

The operating time (OT) is valid for a travel time of $3 \text{ s} \leq t \leq 20 \text{ s}$.

Acceleration and braking times of at least 0.5 s are included in the cycle times. To ensure sufficient self-cooling of the motors, the motor frequency must not fall below 16 Hz when at a standstill. The operating time must not exceed 66%.

The diagrams apply to a motor ambient temperature of 25°C. The motor temperatures may reach 60°C with a high number of cycles.

Permissible length of the shielded motor cable: max. 20 m

Example:

Glass plate with $m = 20$ kg on a 2-track CSS/B or CSS/BM with $v_N = 36$ m/min.

Based on Diagram 1:

Operating time $OT \leq 60\%$

Given a travel time of 6 s, the minimum cycle time $t_{\text{min}} = 10$ s

Diagram 1: CSS/B, CSS/BM; permissible section load

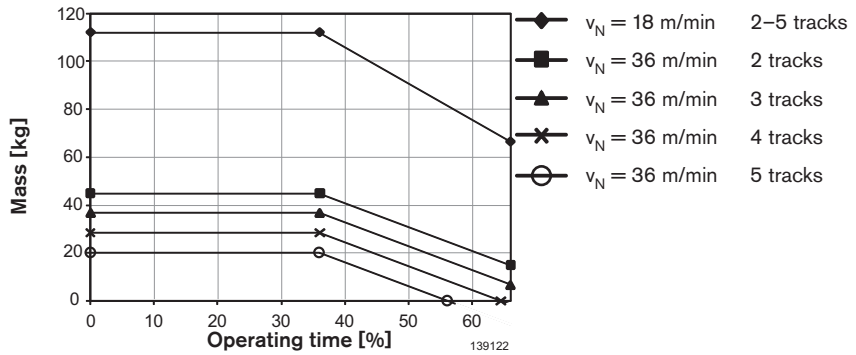


Diagram 2: CSS/F, CSS/FM; permissible section load

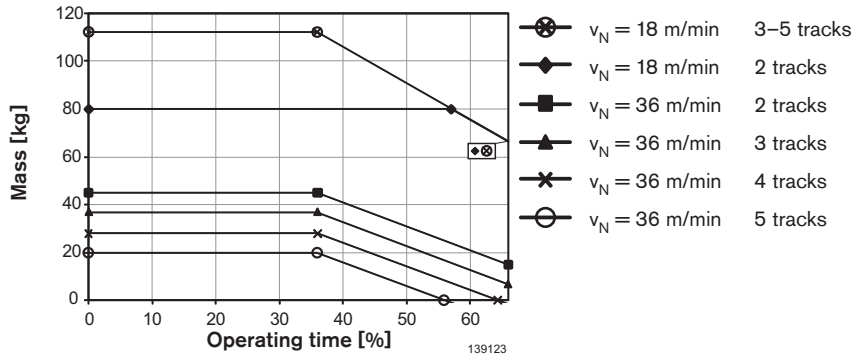
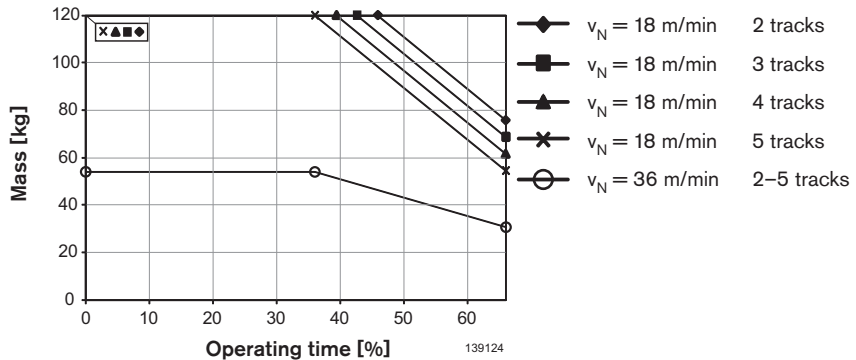


Diagram 3: CSS/NT; permissible section load



Material number overview, index

Material number overview

Material number	Page
3 842 146 815	4-5
3 842 338 979	4-5
3 842 345 081	4-5
3 842 515 351	5-4
3 842 519 717	5-2
3 842 526 560	4-5
3 842 528 715	4-5
3 842 535 428	4-5
3 842 541 202	2-6
3 842 542 550	2-7
3 842 992 425/L	4-5
3 842 998 537	2-2, 7-2
3 842 998 538	2-2, 7-2
3 842 998 539	2-2, 7-2
3 842 998 540	2-2, 7-2
3 842 998 541	2-3, 7-3
3 842 998 542	2-3, 7-3
3 842 998 543	2-3, 7-3
3 842 998 544	2-3, 7-3
3 842 998 585	4-3
3 842 998 593	4-4
3 842 998 632	2-6, 7-4
3 842 998 633	2-6, 7-4
3 842 998 634	2-6, 7-4
3 842 998 635	2-6, 7-4
3 842 998 642	2-4
3 842 998 643	2-4
3 842 998 644	2-4
3 842 998 645	2-4
3 842 998 652	2-5
3 842 998 653	2-5
3 842 998 654	2-5
3 842 998 655	2-5
3 842 998 672	3-3
3 842 998 673	3-3
3 842 998 674	3-3
3 842 998 682	3-3
3 842 998 683	3-3
3 842 998 684	3-3

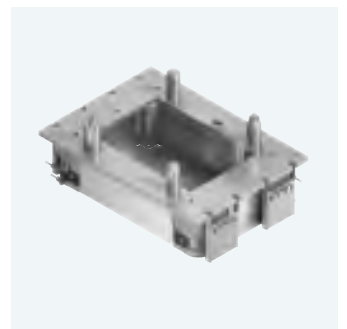
Material number overview, index

Index

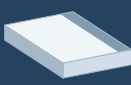

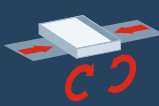



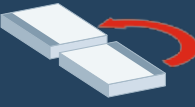

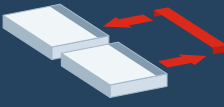



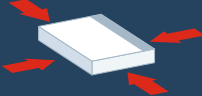
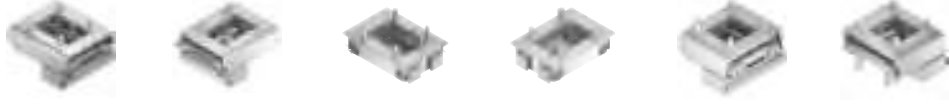


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TS 5 Transfer System

4.0



TS 5 system overview

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Parameters

Recurring parameters:

b	width (track width in direction of transport)	TR	Roller material
l	length graduated according to the roller dimensions $l = p \times N$ (stored default values)		1: steel, galvanized; 2: steel, nitrocarburized
p	Roller spacing (pitch) 130 mm; 195 mm; 260 mm; 325 mm	b_{WT}	workpiece pallet width, note the interdependencies for p and b _{WT} !
N	number of rollers, multiplier for length ($l = p \times N$), pricing factor in the price list	l_{WT}	workpiece pallet length, note the interdependencies for p and l _{WT} !
LG	Lateral guide material 1: steel; 2: plastic; 3: aluminum	bx	Variable width details for different components
BG	Bevel wheel material 1: plastic; 2: sintered metal	lx	Variable length details for different components
		n1	Motor speed
		n2	gear output speed
		P/P_N	Motor power/rated motor power

Specific parameters:

f/U	Frequency/voltage		AB 5
AT	Motor connection K: with terminal box; S: with cable/plug		AS 5/HQ 5
DP	Drive position		AS 5
DP_r	drive position, right (only for Open Center drive unit)		AS 5
DP_l	drive position, left (only for Open Center drive unit)		AS 5
DD	King shaft for drive units 1: on one side with 1 gear motor 2: on two sides with 1 gear motor 3: on two sides with 2 gear motors	for conveyor units 1: on one side 2: on two sides	AS 5, ST 5
GM	Gear motor 0: without (interface SW27); 1: with gear motor SW27; 2: without (interface to SEW connection, round shaft Ø20)		AS 5
MA	Motor mounting: L: left; R: right		AS 5
v_N	nominal speed (m/min)		AS 5, HQ 5
CD	curve direction / diverter direction 1: left; 2: right		CU 5, DI 5
DSM	King shaft installation on main section 1: left; 2: right		CU 5, DI 5, JU 5
DST	King shaft installation on secondary section 1: left; 2: right		CU 5, DI 5, JU 5
JD	Junction direction 1: left; 2: right		JU 5
SC	protective covers / protective casing (see product pages) 1: without protective covers/protective casing; 2: with protective covers/protective casing		CU 5, DI 5, JU 5, HQ 5, PE 5, PE 5/...
b_L (b_{WT})	track width in direction of transport (longitudinal conveyor)		HQ 5, PE 5, PE 5/...
b_O (l_{WT})	track width in direction of transport (transverse conveyor)		HQ 5, PE 5, PE 5/...
OFD	direction of the outfeed (see product pages) 1: left; 2: right; 3: to both sides		HQ 5
b_{PE}	Positioning unit width		PE 5, PE 5/...
l_{PE}	Positioning unit length		PE 5, PE 5/...
AO/AO₁	Installation location/installation location lower section 1: ST 5/H; 2: ST 5/XH		SZ 5
AO	= 1: Main section (stop gate is 35 mm eccentric) = 2: Transverse section (stop gate is in the center, only applies for transverse section HQ 5)		VE 5/D-301
MT	Condition on delivery 0: assembled; 1: not assembled		SZ 5
H/H1	Transport height/transport height lower section		SZ 5
b_{PL}	Ordered width of the carrying plate		WT 5
l_{PL}	Ordered length of the carrying plate		WT 5
d_{PL}	Plate thickness		WT 5
m_G/m_{Gzul}	WT total mass/permmissible WT total mass		WT 5
m_{WT}	Workpiece pallet mass		VE 5, VE 5/..., WT 5

Symbols

Product features:



Width of profile T-slot
(for fixtures on the profile T-slot)



Energy efficiency

Material number

Indicate the desired parameters on the order

3 842 998 786

b = ... mm

l = ... mm

SC = ...

Potential applications:



Suitable for use in ESD sensitive areas. A contact with your Rexroth representative is recommended.



Suitable for use in clean rooms



Suitable for use in dry rooms



Suitable for use in oily environments

Ordering information:

Explanation

Packing unit = minimum order quantity (📦 : here 20 units)

Example: Packing unit contains 20 units, material number 3 842 548 865, i.e. the order quantity must at least equal the specified quantity or a multiple of it; differing quantities will be rounded up

Order examples:

Order 1x 3 842 548 865 = delivery 1x minimum order quantity 3 842 548 865 = 20 items

Order 35x 3 842 548 865 = delivery 2x minimum order quantity 3 842 548 865 = 40 items

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TS 5 transfer system

1

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TS 5 – the roller conveyor in a class by itself

The TS 5 transfer system transports loads of up to 400 kg and more. Rexroth offers you a comprehensive system of conveyor modules: drive modules, workpiece pallets, roller sections, curves, diverters, lift transverse units, positioning units and components for transportation control. Everything is designed for modular flexibility and pre-assembled and can be combined as needed using a single interface.

Driven by high-quality technology: the king shaft

The TS 5 transfer system with king shaft offers you considerable advantages compared to the usual chain drives:

- ▶ Low maintenance
- ▶ Noise-free operation
- ▶ High energy efficiency through effective performance with low drive force requirements
- ▶ Friction can be adjusted by hand (after removing the protective cover on the king shaft)

New possibilities in all directions

In contrast to a chain-driven conveyor system, the TS 5 with its king shaft installation can be used without any limitations. Its drive concept gives you a great amount of planning freedom. You can, for example, branch the system off to the right or to the left. This is very economical because no additional drive modules are needed in many system layouts.

Flexible planning, simple set-up, quick commissioning

As a system supplier for all areas of automation, we offer you an extensive, industrially manufactured modular product line-up. The new TS 5 transfer system is also based on a flexible system of modular components. As a Rexroth customer, this offers you many advantages, including the fact that you will be operating in a familiar environment right from the start of assembly – with everything proceeding quickly and smoothly. As the components for the TS 5 are included in our MT*pro*-program, the parts list is generated automatically, which considerably simplifies the entire planning process.

A choice of transport types

Different products require different types of conveyor sections. Accordingly, you can choose whether to transport

your goods on a workpiece pallet or directly on a continuous roller conveyor.

Advantages at a glance

- ▶ Fast, cost-effective system planning and expansion: The conveyor section design allows branching in both directions. And because the assembly space required for the drive is lower than the conveyor height, you can choose to have the drive mounted on either side. As always, all components are available in the MT*pro* planning tool.
- ▶ Reliable construction and fast commissioning: Industrially manufactured modular system with standardized components, resulting in short delivery times.
- ▶ High availability of the system thanks to the low-maintenance drive concept of the king shaft. No more need for lubrication and greasing.
- ▶ Sturdy design: Suitable for particularly harsh production environments and heavy loads.
- ▶ Everything from a single source: Easy ordering thanks to compatibility with the entire assembly technology product range.

New features

New assemblies

With new assemblies, we increase flexibility in terms of individual planning.

These include:

- ▶ AB 5 drive kit (p. 3-20)
- ▶ Three-way diverter DI 5/...-3W (p. 5-18)
- ▶ Lift transverse unit HQ 5 (p. 5-18)
- ▶ PE 5 positioning unit... (p. 8-3)
- ▶ VE 5/...-301 stop gates (p. 9-9)

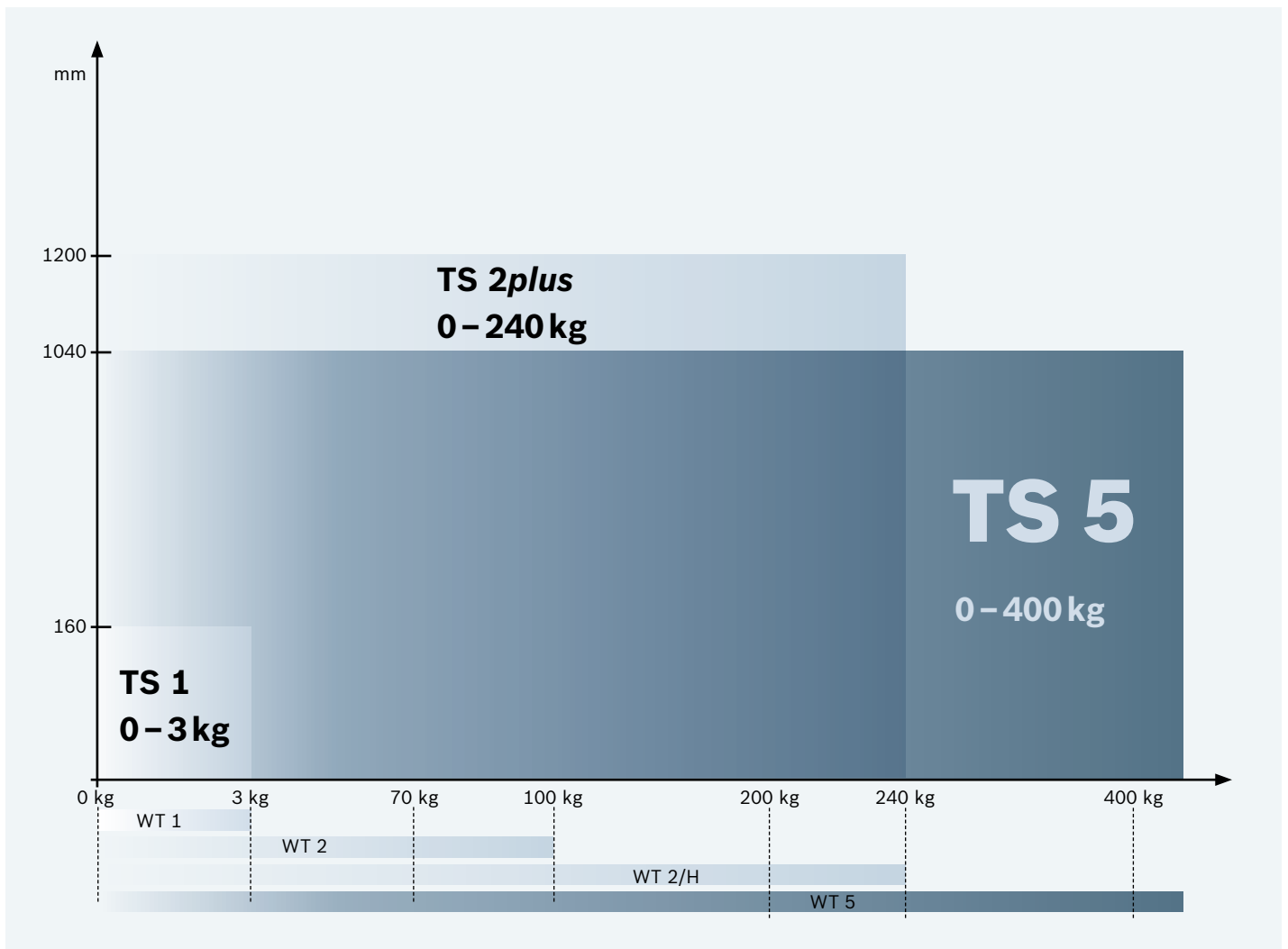
Operating principle

Choice of system

To ensure the most economical operation possible, an assembly line requires precise forward planning. Later conversions must be as simple and cost-effective to execute as possible in order to be able to respond to future market requirements. The key factors when selecting a suitable transfer system are the weight and quality of the workpieces to be conveyed as well as the particular production environment.

The flexible modular TS 5 transfer system from Rexroth covers a very wide range of requirements: With the wide

range of mutually compatible units and macro modules permit a large variety of layouts with manual and automatic processing stations to be created. Solutions for maximum positioning accuracy or for especially heavy workpieces can be implemented easily using standard components. The future-proof TS 5 transfer systems are designed for high availability, even under the harshest conditions.





TS 5

TS 5
0 – 400 kg

The roller conveyor of the TS 5 transfer system conveys loads of up to 400 kg, over long distances where necessary, while its robust construction make it especially suitable for harsh environments.



TS 2plus

TS 2plus
0 – 240 kg

In the automotive industry and the electronics industry, household appliances and electronics manufacturing: With their diverse system components, TS 2plus assembly lines are suitable for use in a wide range of industries.



TS 1

TS 1
0 – 3 kg

The TS 1 transfer system is specifically tailored to small, lightweight products and assemblies, which require high positioning accuracy and repeatability.

TS 5 features

Selection data



Available workpiece pallet (WT) dimensions

Workpiece pallets with system widths of 455 ... 1 040 mm allow adjustment to the respective workpiece geometry as needed. If necessary, a number of workpieces can be accommodated on a single workpiece pallet (WT).

Permissible workpiece pallet (WT) masses

To ensure that the permissible surface pressure between the WT and conveyor medium is not exceeded, the WT total mass is limited for each WT size.

The WT total mass results from:

- ▶ Workpiece pallet mass
- ▶ Workpiece pallet load (workpiece, pick-up, etc.)
- ▶ Mass of the special equipment (data carrier, etc.)

For workpiece pallets that are not square, please note that the permissible WT total mass may be different for longitudinal conveyors and transverse conveyors.

Ambient conditions

Materials used, resistance to media

Rexroth transfer systems are manufactured with high-quality materials to ensure continuous use. They are resistant to lubricating and cleansing agents that are common in an industrial environment. However, we cannot guarantee that the products contained in this catalog are resistant to all combinations of testing liquids, gases, or solvents. Please contact your Rexroth representative if you have any doubts.



Environmental conditions – climatic

The transfer systems have been designed for stationary use in a location that is protected from the elements.

Operating temperature

+5 ... +40 °C
-5 ... +60 °C at 20%
less load

Storage temperature

-25 °C ... +70 °C

Relative humidity

5 ... 85%, non-condensing
1 ... 2% (dry room) on request

Air pressure

> 84 kPa as appropriate
Installation altitude < 1400 m above mean sea level.
Load values are reduced by 15% when the system is set up at a location that is over 1,400 m above sea level.

Environmental conditions – biological

Avoid molds, fungi, rodents, and other vermin.

Environmental conditions – chemical

Do not set up near industrial systems with chemical emissions.

Environmental conditions – physical

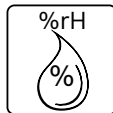
Do not set up in areas that are regularly jarred by high forces caused by e.g. presses, heavy machinery, etc.





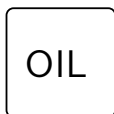
Suitability for electrostatically sensitive areas

Almost all of the components and parts in Rexroth transfer systems are ESD-compatible or available in ESD-compatible design. They can thus principally be used in EPA (ESD protected areas). We do, however, recommend that you contact your Rexroth representative.



Use in dry rooms

TS 5 has been tested and approved with all conveyor media for use in dry rooms with a relative humidity of 1 ... 2%, e.g. for the production of Li-Ion battery cells. Your Rexroth representative will be pleased to advise you about this.



Use in oily environments

Almost all of the TS 5 components are suitable for use in oily environments. The transfer system has a high resistance to many oils commonly found in manufacturing. In case of doubt regarding resistance to test oils and doped oils, we recommend you contact your Rexroth specialist.



Use in clean rooms

Almost all the components have been approved by the IPA^{*)} for use in clean rooms and for clean room class 8 according to DIN EN ISO 14644-1. Please note that some clean room-compatible components have been specially modified. Please contact your Rexroth representative if you require clean room components.

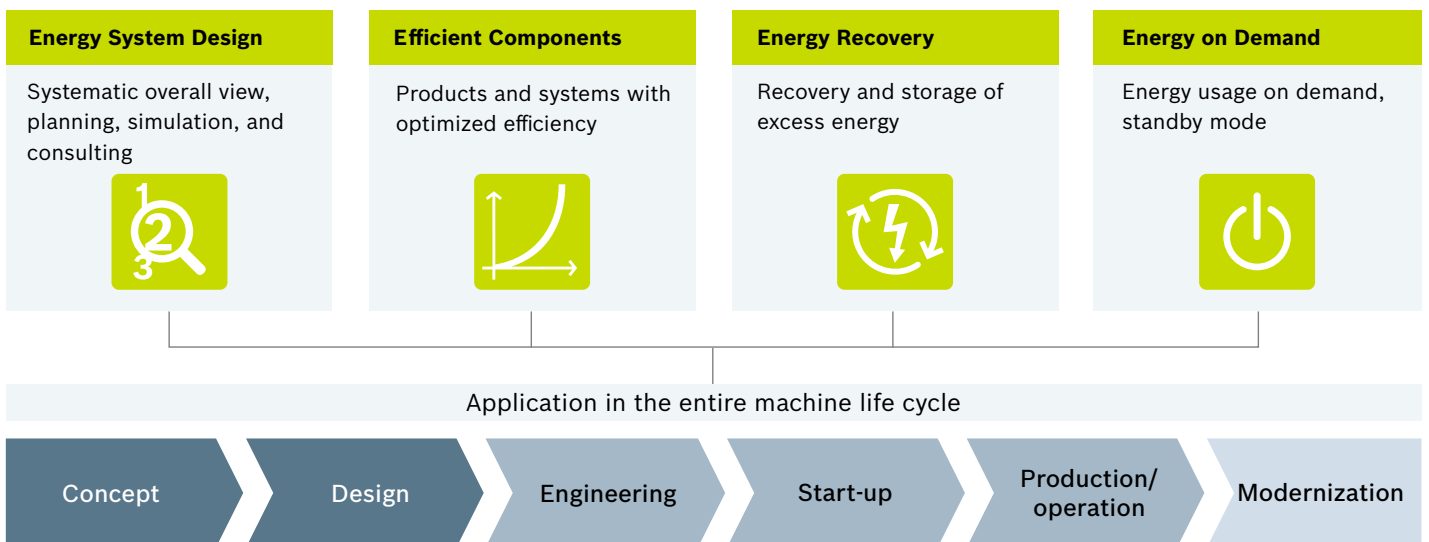
^{*)} Fraunhofer Institute for Manufacturing Engineering and Automation, Stuttgart, Germany

Energy efficiency – Rexroth 4EE

Energy efficiency – a key factor for corporate success

From an economic point of view, energy efficiency and reduced emissions lower operating costs and offer a competitive edge in the fiercely competitive global market. In addition, they help support compliance with environmental standards.

All potentials for optimization are used effectively when not only the details of a system but the system as a whole is optimized. The 4EE system features four levers:

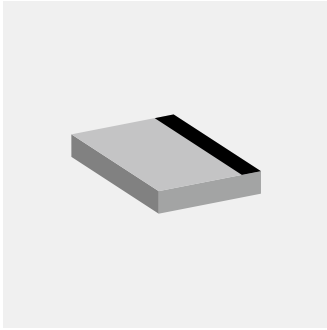


Efficient system layout
 To achieve high energy efficiency, the system must be examined as a whole as early as in the planning phase. The TS 5 modular system offers numerous modules, all of which enable you to implement a transfer system tailored precisely to the particular application. This effectively prevents over-dimensioning and high energy losses from the outset.

Energy-efficient modules
 The TS 5 modules are equipped with particularly energy-efficient drives. The efficiency of most of the motors already exceed future requirements. The interplay of friction-optimized materials, e.g. on slide rails, friction-minimizing gear oils and numerous further design details ensures perfect coordination in the overall system.

Energy use on demand
 Minimal energy consumption requires the ability to be able to switch off system components on demand. The majority of motors in the TS 5 system are designed for start-stop operation and frequency converter operation.

Worldwide approval
 For international use, most of the motors feature CE, cURus and CCC approvals.

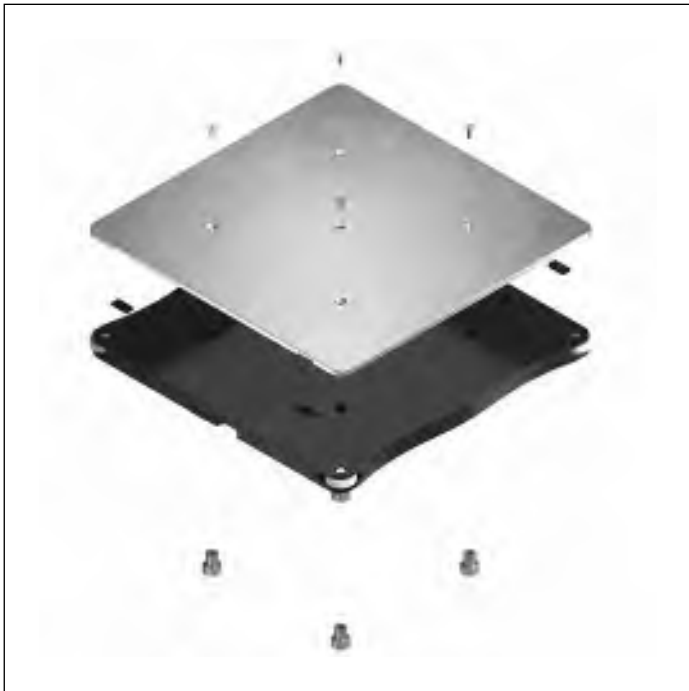


Workpiece pallet

2

Workpiece pallet selection	2-2
Base pallets	2-4
Accessories	2-6
Permissible workpiece pallet load	2-8
Selection of workpiece pallets in accordance with load limits	2-9
Carrying plates, standard sizes	2-10
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Workpiece pallet selection



Versions

The workpiece pallet is a modular system consisting of a base pallet and carrying plate. The positioning bushings (see page 2-6) and an attachment kit (see page 2-6) comprising sensor plates, damping elements and rollers with pins are available separately.

- ▶ Workpiece pallets available in 6 standard sizes, see page 2-4
- ▶ Side rollers reduce friction, particularly in curves, diverters, and junctions
- ▶ Aluminum carrying plates available in 2 thicknesses (see page 2-10) and with variable dimensions (see page 2-13).

The carrying plate may extend over the front and rear of the base pallet.

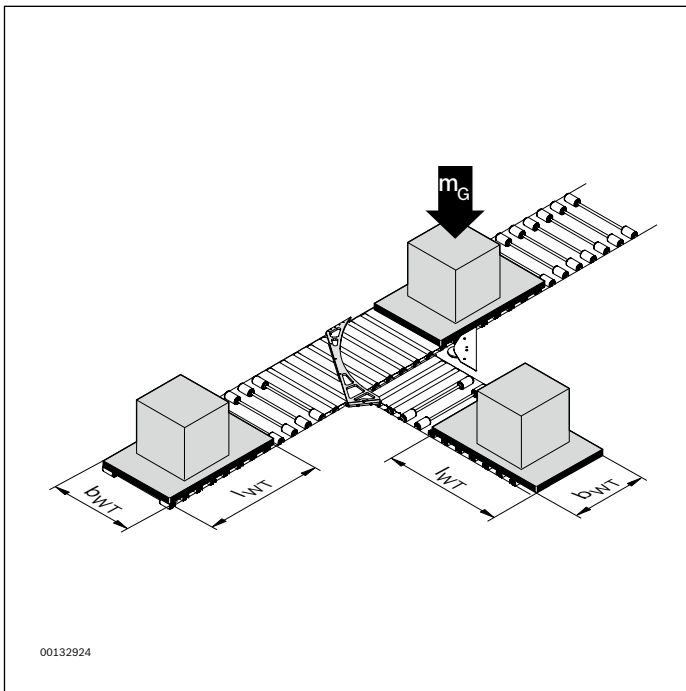
Application and functions

The workpiece pallet transports the workpiece in the transfer system as it goes through the processing stations.

- ▶ Defined positioning of the supported workpiece in the processing station is enabled through integrated positioning bushings.
- ▶ Integrated damping elements help to avoid noise and damage when workpiece pallets run into each other.
- ▶ Workpiece-related information can be transferred with the workpiece during processing using optional data tags. This information can be evaluated on-site and also updated.

The orientation of the workpiece pallet on the conveyor section must strictly be observed:

- ▶ Traveling through curves/diverters is only possible in a longitudinal conveyor direction (see arrow on workpiece pallet).
- ▶ Separating workpiece pallets is only possible in a longitudinal conveyor direction (see arrow on workpiece pallet). A WT can also be brought cleanly to a halt on the outside of a transverse conveyor.
- ▶ In order to read out data tags, the workpiece pallet must cross the reader in the proper position.



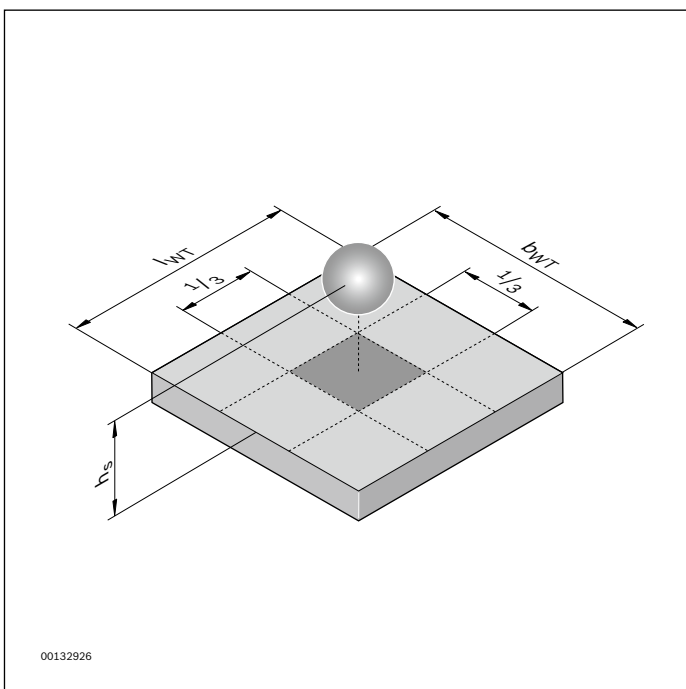
Size and load carrying capacity

The total mass of a workpiece pallet m_G is the sum of the

- ▶ Base pallet mass
- ▶ Carrying plate mass
- ▶ Workpiece support mass
- ▶ Workpiece mass
- ▶ Identification system mass

Depending on the total mass m_G of the workpiece pallet, the transport system can be set up with various parameters:

- ▶ roller spacing
- ▶ Load class of the conveyor unit



Permissible gravity center position

In order to absorb acceleration forces without any problems when separating and changing the direction of the pallets (in curves, when changing to transverse conveyors), the location of the load center position on the workpiece pallet must be noted.

Generally we recommend that:

- the load should be positioned in the center of the workpiece pallet
- the center of gravity should not exceed a height h_s of $1/3 b_{WT}$ (with $b_{WT} \leq l_{WT}$).

Limits with junctions and diverters, see page 5-17 and 5-22

Base pallets



Condition on delivery:

- ▶ Not assembled, attachment kit available, without carrying plate

Required accessories:

- ▶ Attachment kit incl. rollers, roller pins, damping elements and sensor plates, see page 2-6

Use:

- ▶ The base pallet is the interface between the transfer system and the carrying plate with workpiece fixtures
- ▶ The base pallet is designed to deal with the highest loads

Version:

- ▶ 6 standard sizes
- ▶ Optimized contours for easier movement through curves
- ▶ Stop gate stop on interior and exterior of the workpiece pallet surface (in the longitudinal conveyor direction)
- ▶ Can be combined with mobile data tags from the ID 40 and ID 200 identification systems, see RFID systems catalog

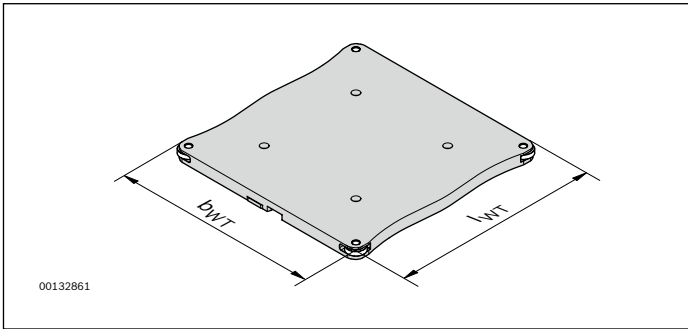
Material:

- ▶ PE UHMW, ESD-capable

Recommended accessories:

- ▶ Positioning bushing kit, see page 2-6
- ▶ Carrying plate, see page 2-10; 2-13

Ordering information

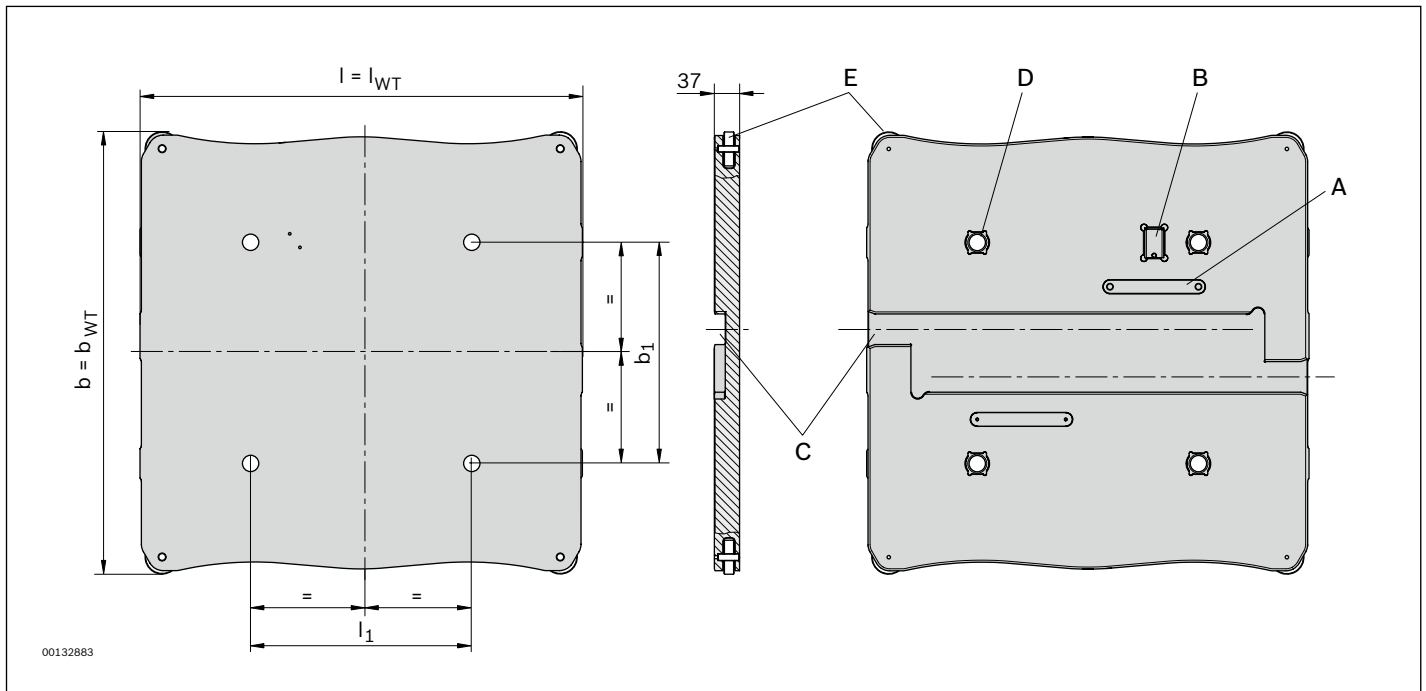


b_{WT} (mm)	l_{WT} (mm)	m_{WT} (kg)	b₁ (mm)	l₁ (mm)	Material number
455	455	6.4	195	195	3 842 545 080
455	650	8.9	195	325	3 842 545 083
650	650	13.5	325	325	3 842 545 086
650	845	17.2	325	520	3 842 545 089
845	845	23.2	520	520	3 842 545 092
845	1040	27.2	520	715	3 842 545 095

m_{WT} = weight of the workpiece pallet itself
Description of further parameters, see page 0-3

Dimensions

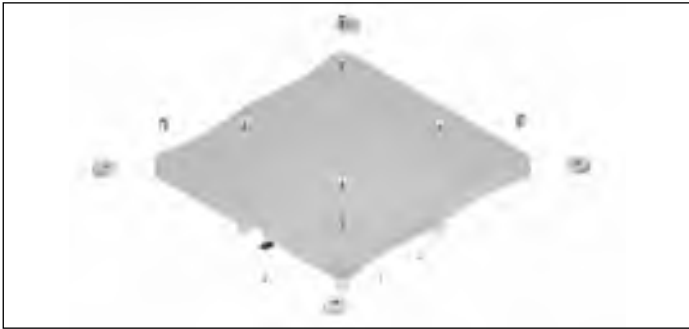
WT 5 workpiece pallet



- A Damping element
- B Holder for ID data tag ...
- C Stop gate feed-through
- D Mounting for positioning bushing
- E Guide rollers

3D models can be found in the eShop or in MTpro see page 12-3

Accessories



Attachment kit

Use:

- ▶ Attachment kit for mounting the workpiece pallet

Version:

- ▶ 4 rollers for lateral guides
- ▶ 4 roller pins for adjusting the rollers
- ▶ 2 sensor plates for damping inductive sensors
- ▶ 4 damping elements help to avoid noise and damage when workpiece pallets run into each other.

Material:

- ▶ PUR, POM

Attachment kit

	b_{WT} (mm)	Material number
	455	3 842 554 931
	650; 845	3 842 554 932



Positioning bushing kit

Use:

- ▶ For fixing the carrying plate on the base pallet
- ▶ For a defined workpiece pallet entry in the positioning unit


Scope of delivery:

- ▶ 4 positioning bushings, 4 screws for fixing the carrying plate

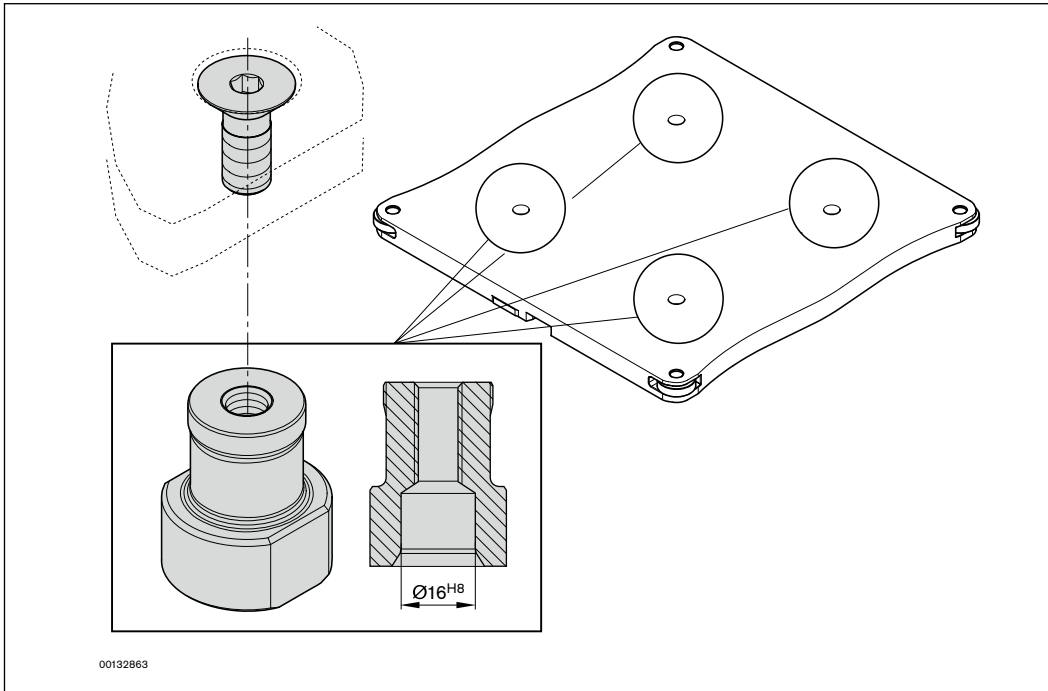
Material:

- ▶ hardened steel

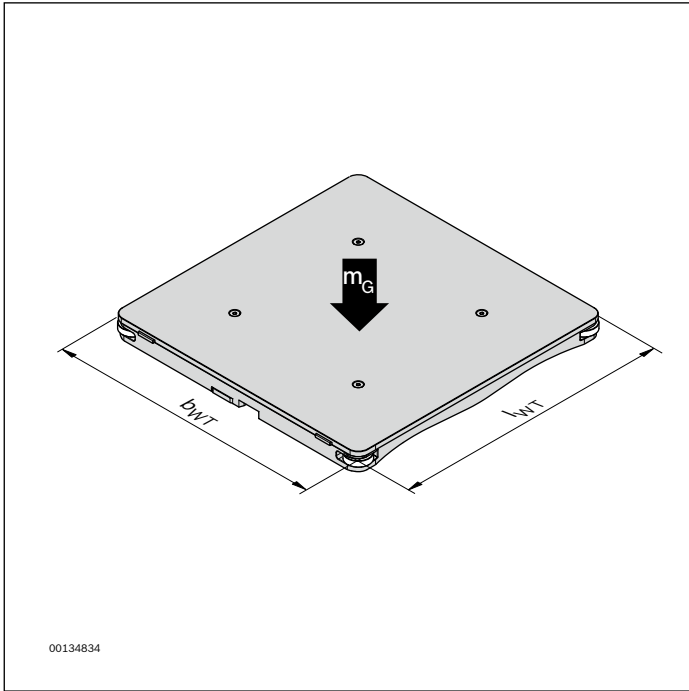
Positioning bushing kit

		Material number
	Set	3 842 545 264

Dimensions

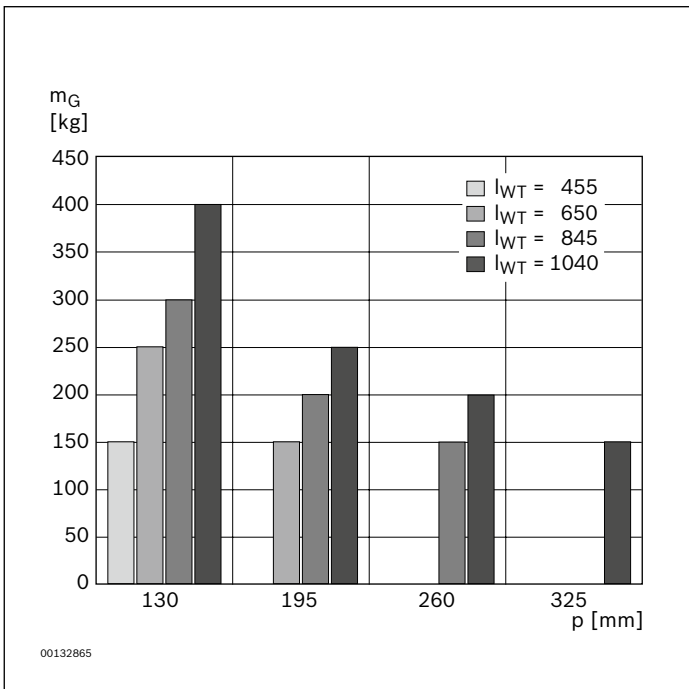


Permissible workpiece pallet load



The permissible load from the conveyed goods is calculated based on the permissible WT total mass less the weight of the workpiece pallet itself including supports and special equipment etc.

The permissible total mass depends on the length of the workpiece pallet l_{WT} , and on the roller spacing.



The carrying force per roller is 50 kg, and the WT must always be on at least 3 rollers. The resulting load limits for the longitudinal conveyor are illustrated in the graphic.

Note:

For curves, junctions and diverters, alternative load limits must be observed.

Selection of workpiece pallets in accordance with load limits

For workpiece pallets that are not square, please note that the permissible WT total mass m_{Gzul} is different for longitudinal and transverse conveyors. In the transverse conveyor the shorter side (b_{WT}) is to be used for the calculation.

The resulting permissible WT total masses are shown in the table opposite.

The WT total mass m_G results from:

- ▶ Workpiece pallet mass
- ▶ WT load (workpiece, support, etc.)
- ▶ Mass of the special equipment (data carrier, etc.)

The WT total mass m_G must not exceed the permissible WT total mass m_{Gzul} :

$$m_G \leq m_{Gzul}$$

The workpiece pallet must be designed with sufficient rigidity for the load. The deflection of the workpiece pallet (base pallet can be ignored) must not exceed 1 mm.

Permissible load according to the number of rollers

b_{WT} (mm)	l_{WT} (mm)	p (mm)	m_{Gzul} Longitudinal conveyor (kg)	m_{Gzul} Transverse conveyor (kg)	m_{WT1} (kg)	m_{WT2} (kg)	m_{WT3} (kg)
455	455	130	150	150	13.6	17.4	6.7
455	650	130	250	150	18.8	24.3	8.9
455	650	195	150	–	18.8	24.3	8.9
650	650	130	250	250	28.8	35.3	13.9
650	650	195	150	150	28.8	35.3	13.9
650	845	130	300	250	36.3	45.5	17.7
650	845	195	200	150	36.3	45.5	17.7
650	845	260	150	–	36.3	45.5	17.7
845	845	130	300	300	48.0	60.0	23.8
845	845	195	200	200	48.0	60.0	23.8
845	845	260	150	150	48.0	60.0	23.8
845	1040	130	400	300	57.6	72.4	27.7
845	1040	195	250	200	57.6	72.4	27.7
845	1040	260	200	150	57.6	72.4	27.7
845	1040	325	150	–	57.6	72.4	27.7

- p = Roller spacing (pitch)
- m_{Gzul} = Permissible WT total mass
- m_{WT1} = mass of workpiece pallet, fully installed with carrying plate (mass of base plate + mass of carrying plate $d_{pi} = 12.7$)
- m_{WT2} = mass of workpiece pallet, fully installed with carrying plate (mass of base plate + mass of carrying plate $d_{pi} = 19.05$)
- m_{WT3} = mass of workpiece pallet, fully installed without carrying plate (mass of base plate)

Carrying plates, standard sizes



Use:

- ▶ For combination with a base pallet to form a WT 5 workpiece pallet
- ▶ For finishing fixtures by the user

Version:

- ▶ 6 standard sizes in 2 thicknesses
- ▶ Carrying plate, ready to assemble with mounting holes

Material:

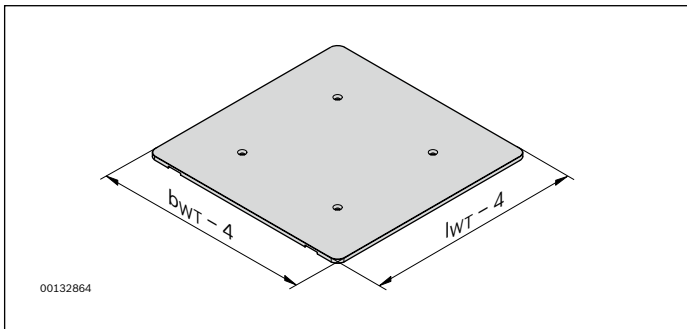
- ▶ aluminum

Note:

To assemble the carrying plate on the base pallet:

- ▶ positioning bushing kit 3 842 545 264, see page 2-6

Ordering information

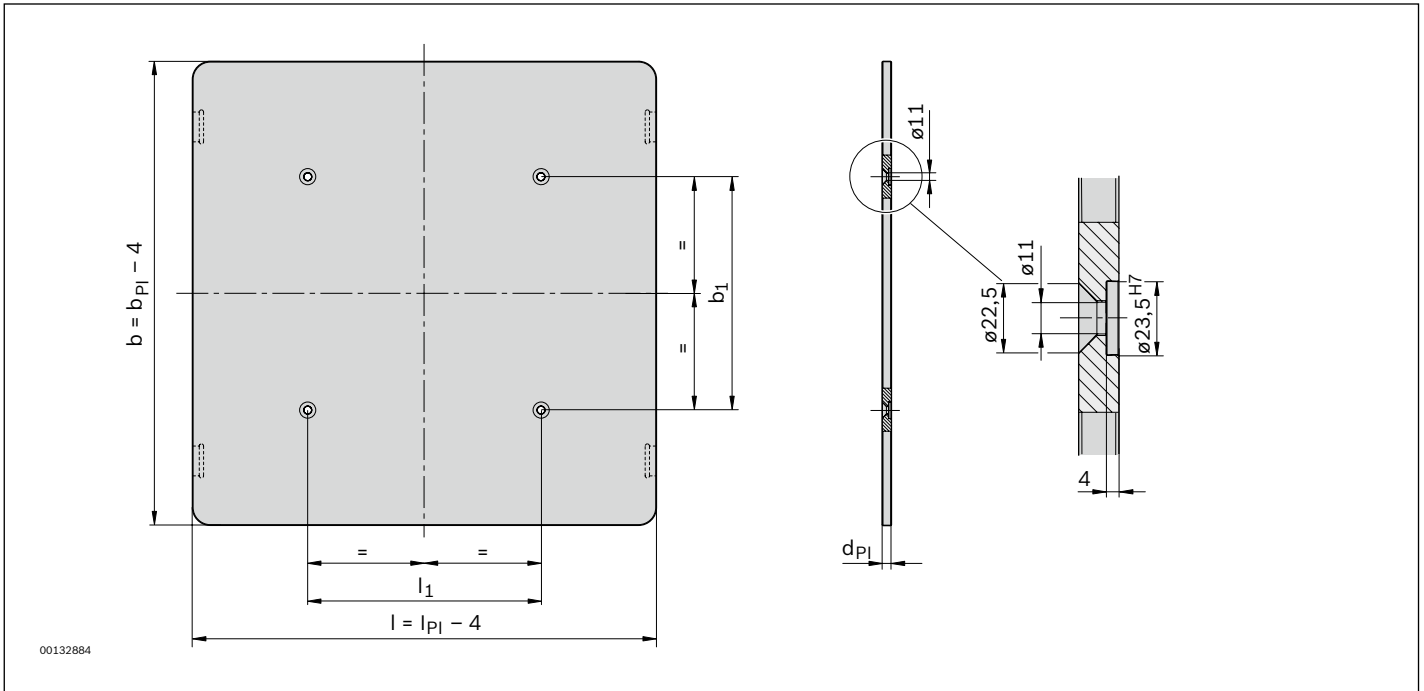


b_{WT} (mm)	l_{WT} (mm)	d_{PL} (mm)	□* (mm)	m_{PL} (kg)	Material number
455	455	12.7	0.6	6.6	3 842 545 081
455	650	12.7	0.8	9.4	3 842 545 084
650	650	12.7	0.8	14.2	3 842 545 087
650	845	12.7	1.0	18.6	3 842 545 090
845	845	12.7	1.0	24.2	3 842 545 093
845	1040	12.7	1.2	29.8	3 842 545 096
455	455	19.05	0.6	10.4	3 842 545 266
455	650	19.05	0.8	14.9	3 842 545 267
650	650	19.05	0.8	21.3	3 842 545 268
650	845	19.05	1.0	27.8	3 842 545 269
845	845	19.05	1.0	36.2	3 842 545 270
845	1040	19.05	1.2	44.6	3 842 545 271

- b_{WT} = width of workpiece pallet
- l_{WT} = length of workpiece pallet
- d_{PL} = plate thickness
- * = evenness
- m_{PL} = plate weight

Dimensions

WT 5: carrying plate, standard sizes



Carrying plates, variable dimensions



Use:

- ▶ For combination with a base pallet to form a WT 5 workpiece pallet
- ▶ For finishing fixtures by the user

Version:

- ▶ Variable sizes in 2 thicknesses
- ▶ Carrying plate, ready to assemble with mounting holes

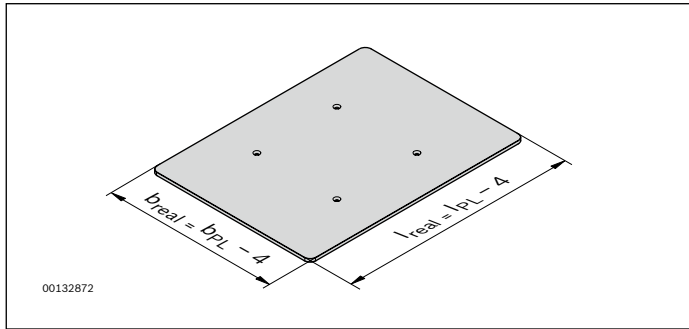
Material:

- ▶ aluminum

Note:

The carrying plate may extend beyond all sides of the base pallet. Exception: The HQ 5 cannot be passed through if the carrying plate protrudes on the sides. The user must install dampers in the direction of transport. To assemble the carrying plate on the base pallet: positioning bushing kit 3 842 545 264, see page 2-6.

Ordering information



l_{PL} = ordered length of the carrying plate
 b_{PL} = ordered width of the carrying plate

Carrying plates in various dimensions, adapted to the base pallets $b_{WT} \times l_{WT}$

$b_{WT} \times l_{WT}$ (mm)	b_{PL} (mm)	l_{PL} (mm)	d_{PL} (mm)	\square^* (mm)	b_1 (mm)	l_1 (mm)	Material number
455 x 455	$455 \leq b_{PL} \leq 650$	$455 \leq l_{PL} \leq 650$	12.7	0.6	195	195	3 842 998 562
455 x 650	$455 \leq b_{PL} \leq 650$	$650 \leq l_{PL} \leq 845$	12.7	0.8	195	195	3 842 998 564
650 x 650	$650 \leq b_{PL} \leq 845$	$650 \leq l_{PL} \leq 845$	12.7	0.8	195	195	3 842 998 566
650 x 845	$650 \leq b_{PL} \leq 845$	$845 \leq l_{PL} \leq 1040$	12.7	1.0	195	195	3 842 998 568
845 x 845	$845 \leq b_{PL} \leq 1040$	$845 \leq l_{PL} \leq 1040$	12.7	1.0	195	195	3 842 998 570
845 x 1040	$845 \leq b_{PL} \leq 1040$	$1040 \leq l_{PL} \leq 1250$	12.7	1.2	195	195	3 842 998 572
455 x 455	$455 \leq b_{PL} \leq 650$	$455 \leq l_{PL} \leq 650$	19.05	0.6	195	195	3 842 998 563
455 x 650	$455 \leq b_{PL} \leq 650$	$650 \leq l_{PL} \leq 845$	19.05	0.8	195	195	3 842 998 565
650 x 650	$650 \leq b_{PL} \leq 845$	$650 \leq l_{PL} \leq 845$	19.05	0.8	195	195	3 842 998 567
650 x 845	$650 \leq b_{PL} \leq 845$	$845 \leq l_{PL} \leq 1040$	19.05	1.0	195	195	3 842 998 569
845 x 845	$845 \leq b_{PL} \leq 1040$	$845 \leq l_{PL} \leq 1040$	19.05	1.0	195	195	3 842 998 571
845 x 1040	$845 \leq b_{PL} \leq 1040$	$1040 \leq l_{PL} \leq 1250$	19.05	1.2	195	195	3 842 998 573

$b_{WT} \times l_{WT}$ = base pallet dimensions

b_{PL} = carrying plate width (b_{real}) + 4 mm = ordered width

l_{PL} = carrying plate length (l_{real}) + 4 mm = ordered length

d_{PL} = plate thickness

\square^* = evenness

Description of further parameters, see page 0-3

Formula for calculating the weight of a carrying plate:

$$m_{PL} \text{ (kg)} = (b_{PL} - 4) \text{ (mm)} \times (l_{PL} - 4) \text{ (mm)} \times d_{PL} \text{ (mm)} \times 0.0000027 \text{ (kg/mm}^3\text{)}$$

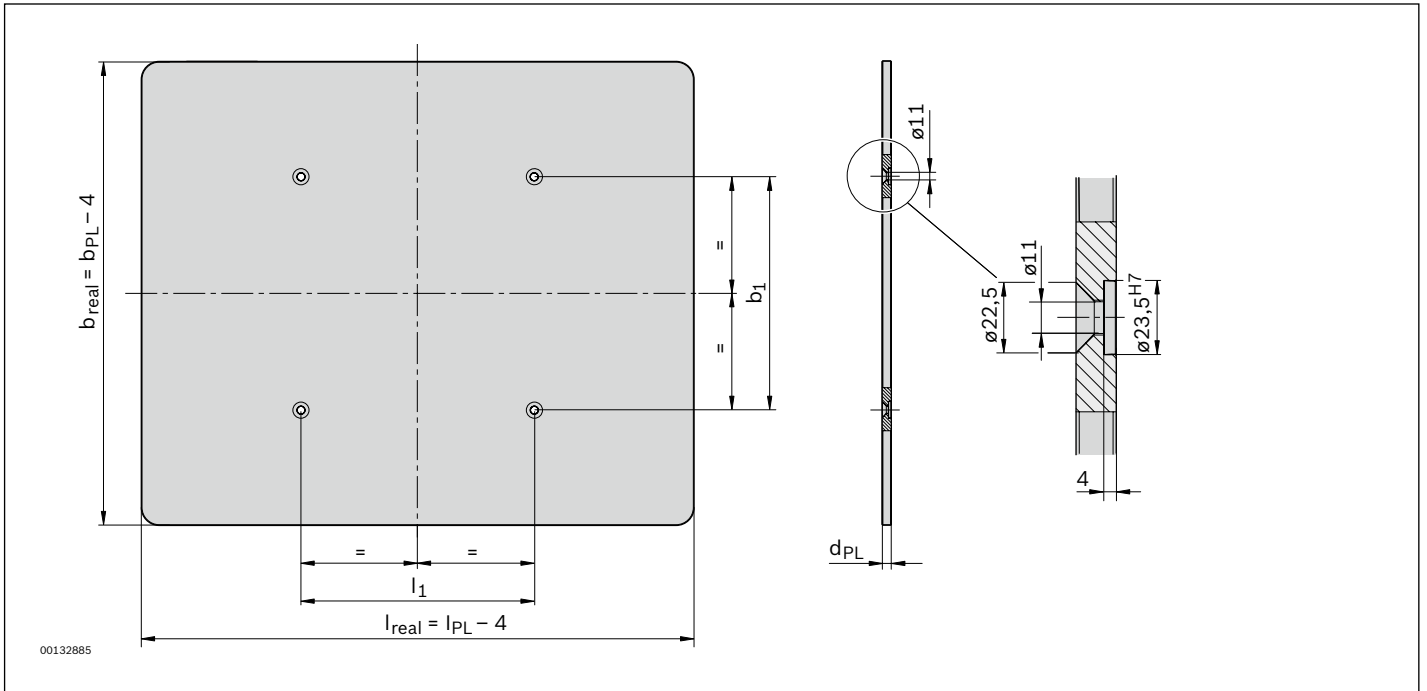
Order examples:

Standard plate without cut-out for damping element:

- ▶ $b_{PL} = b_{WT} = 455$ mm;
 $l_{PL} = l_{WT} = 455$ mm
Delivery dimensions: 451 mm x 451 mm
- ▶ $b_{PL} = b_{WT} = 650$ mm;
 $l_{PL} = l_{WT} = 650$ mm
Delivery dimensions: 646 mm x 646 mm
- ▶ $b_{PL} = b_{WT} = 845$ mm;
 $l_{PL} = l_{WT} = 845$ mm
Delivery dimensions: 841 mm x 841 mm

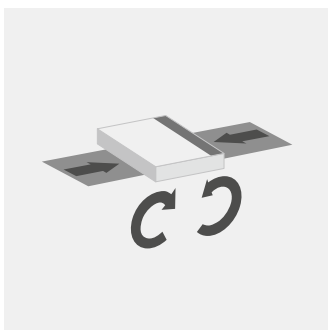
Dimensions

WT 5: carrying plate, variable dimensions



Formula for calculating the weight of a carrying plate:

$$m_{PL} \text{ (kg)} = (b_{PL} - 4) \text{ (mm)} \times (l_{PL} - 4) \text{ (mm)} \times d_{PL} \text{ (mm)} \times 0.0000027 \text{ (kg/mm}^3\text{)}$$

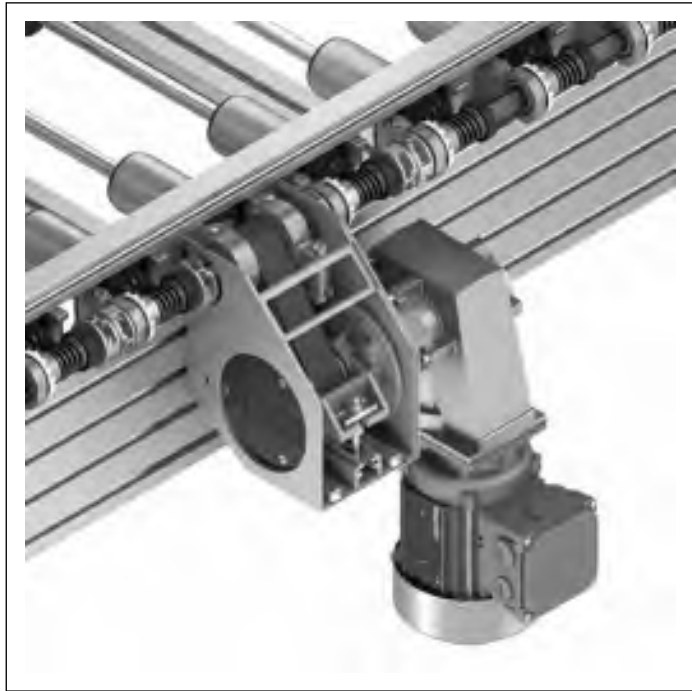


Drive unit

3

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Drive layout	3-3
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AS 5/XH-FR, AS 5/H-FR drive units (with full rollers)	3-9
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AB 5 drive kit	3-20
Frequency converter (FU)	3-25
Frequency converter (FU) accessories	3-29

Design



Drive units

Ready-for-operation module to drive conveyor units, curves, diverters, and junctions in 4 system widths and 2 load classes. Versions available with split rollers (standard) or full rollers.

The rollers in the conveyor section are driven by a king shaft in the drive unit.

The king shaft is located behind a protective cover below the transport level; the workpiece pallet can pass over the king shaft.

The length of the driven conveyor section depends on the roller spacing. A drive torque of up to 45 Nm (in reversible operation: 20 Nm) is enough to drive a section of up to 10 m with 2 curves/diverters, or a straight section of up to 21 m, with roller spacing of 195 mm and 80% of the section in accumulation operation.

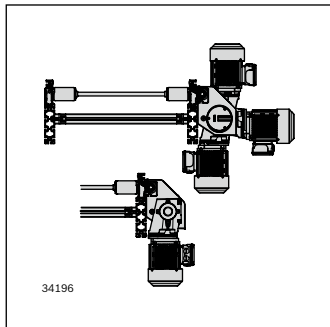
Required accessories:

- ▶ SZ 5/... leg sets, see page 7-1
- ▶ Connection kit, see page 4-25

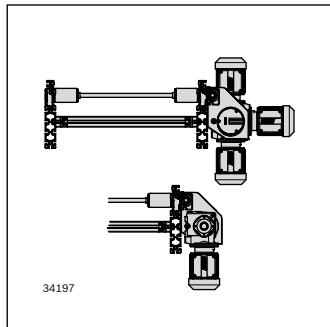
Note:

The AB 5 drive kit (see page 3-20) is available for implementing a face-side drive.

Attachment options for the gear motor



Standard



Customer-specific motor

Drive layout

When laying out the system, make sure that there is enough driving power for the entire conveyor section.

The rollers are driven by the drive unit or by the drive kit via a king shaft. A friction clutch on each roller prevents blocking of the drive.

The maximum transferable total torque results from the torque present briefly before an individual clutch slides, multiplied by the total number of rollers in the section.

Example layout:

Drive torque 45 Nm, each roller loads the drive with 0.5 Nm (with a sliding clutch). Each curve, diverter, or junction loads the drive with 12 Nm.

Note:

Install the motor as close as possible to the center of the section.

The driven rollers of the drive module itself are included in the calculation (if $p = 130$ one drive module roller is not being driven).

Example A:

Section, $b = 650$ mm, with roller pitch $p = 130$ mm and a curve; 100% of the section in accumulation operation
Question: If one drive unit is used, how long may the straight section be?

Calculation:

$45 \text{ Nm} - 12 \text{ Nm (for curve)} = 33 \text{ Nm}$ remaining for the straight section
 $33 \text{ Nm} \div 0.5 \text{ Nm} = 66$ (driven rollers)

$66 \times 130 \text{ mm} = 8580 \text{ mm}$ straight section.

Note:

If a section is not operated completely in accumulation operation, the section length can be multiplied by a corresponding factor. For example, with 50% accumulation operation in the case of example A the section length is doubled to 17160 mm ($2 \times 66 \times 130 \text{ mm}$).

Example B:

Section, $b = 650$ mm, length 20 m, $p = 130$, includes 1 diverter and 1 curve; 100% of the section in accumulation operation

Question: Will one drive unit be sufficient?

Calculation:

$45 \text{ Nm} - 12 \text{ Nm (diverter)} - 12 \text{ Nm (curve)} = 21 \text{ Nm}$ remaining for the straight section

$20000 \text{ mm} - 1560 \text{ mm (diverter)} - 1149 \text{ mm (curve)} = 17291 \text{ mm}$ straight section

Values taken from the following tables:

Diverter, page 5-8 and curve, page 5-4

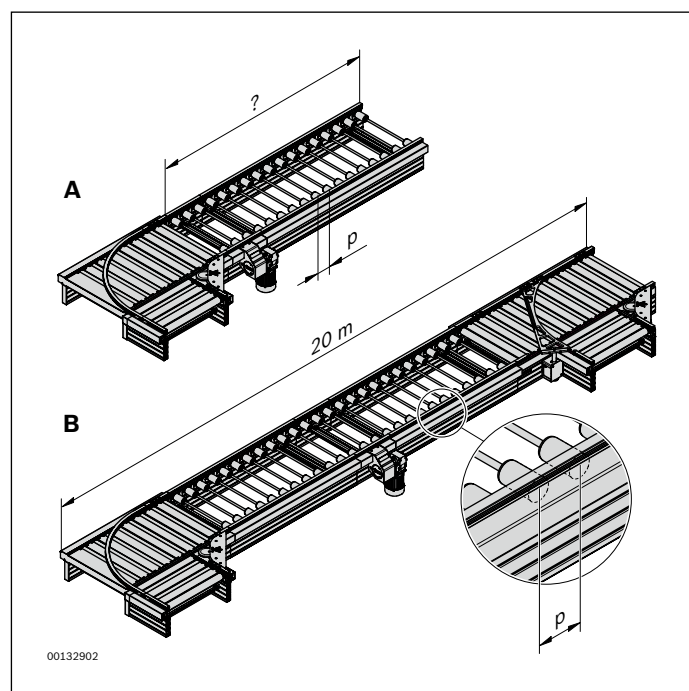
$17291 \text{ mm} \div 130 \text{ mm} = 133$ rollers

$133 \times 0.5 \text{ Nm} = 66.5 \text{ Nm}$

$66.5 \text{ Nm} > 21 \text{ Nm}$, 2 drives are therefore needed in order to attain the torque to be transferred.

Note:

If a section is not operated completely in accumulation operation, the section length can be multiplied by a corresponding factor. For example, with 30% accumulation operation in the case of example B the required torque is reduced to: $66.5 \text{ Nm} \times 30\% = 19.95 \text{ Nm} < 21 \text{ Nm}$. In this case, only one drive would be needed.



AS 5/XH, AS 5/H drive units (with split rollers)



Condition on delivery:

- ▶ Ready-to-install, gear motor enclosed separately
- ▶ Mounting option for the gear motor on the right/left possible, see page 3-2

Use:

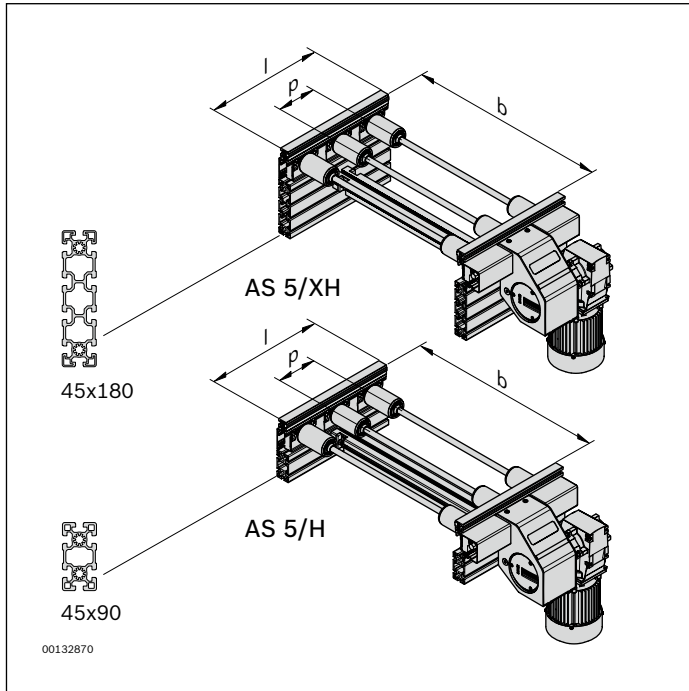
To drive

- ▶ ST 5/... conveyor units
- ▶ CU 5/... curves
- ▶ DI 5/... diverters
- ▶ JU 5/... junctions
- ▶ HQ 5/... lift transverse unit

Version:

- ▶ Reversible operation possible
- ▶ Accumulation operation possible
- ▶ Motor connection with cable/plug (AT = S) or terminal box (AT = K)
- ▶ Freely selectable motor position and length
- ▶ Gear motor can be mounted on both sides on the transmission drive (MA = R and MA = L)
- ▶ Viewing window for checking the toothed belt
- ▶ Due to the simple and space-saving disassembly of the cover, adjacent components/machines can be positioned at a distance of 20 mm from the AS 5
- ▶ Frequency converter, optional, see page 3-25

Ordering information



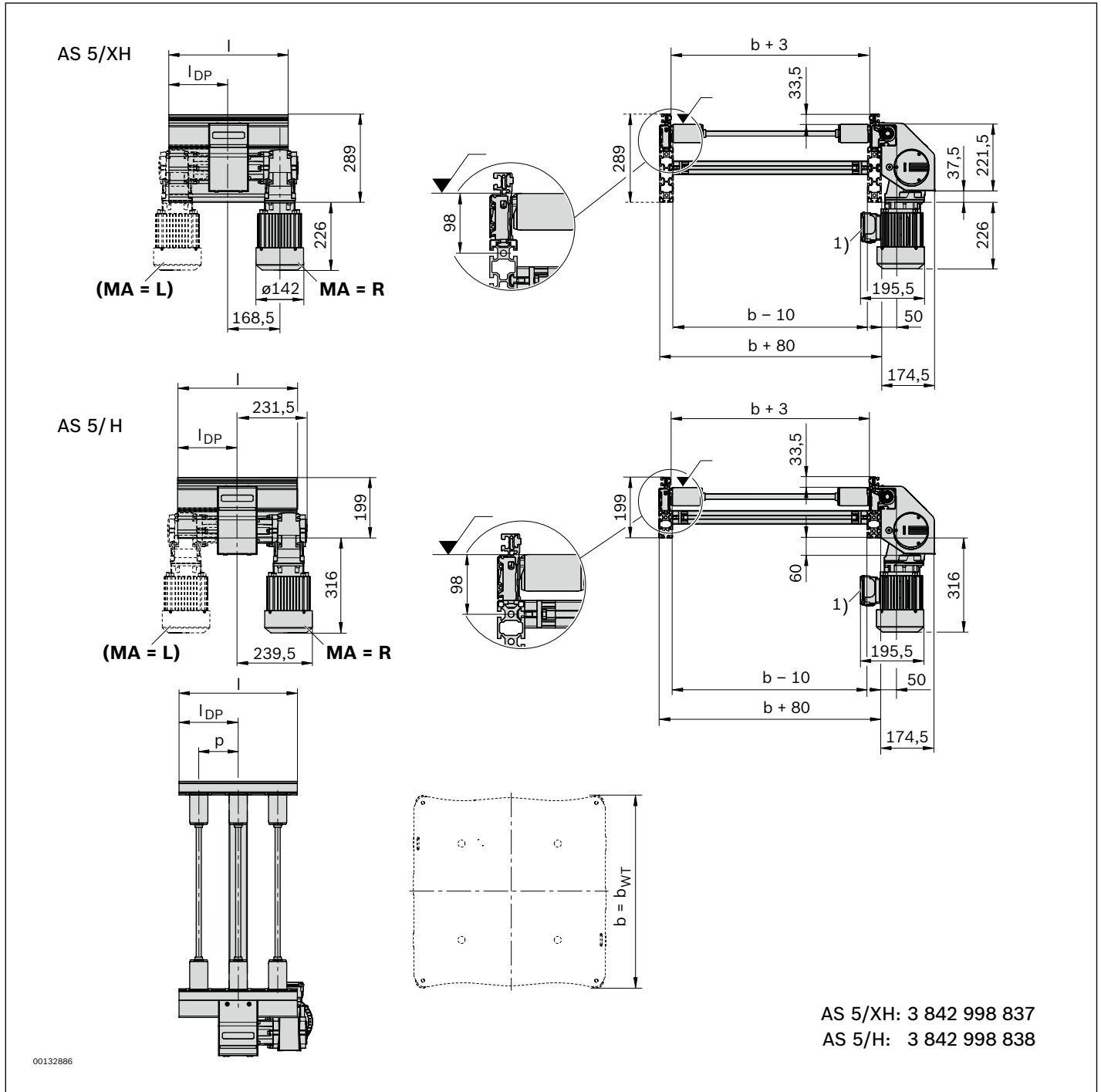
AS 5/XH, AS 5/H drive units

b (mm)	l_{WT} (mm)	p (mm)	l (mm)	N	LG	BG	GM	TR	DP	AT	MA	Material number
455	455; 650	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	0; 1; 2	1; 2 1; 2; 3 ... 31	K; S	R; L		3 842 998 837 (AS 5/XH)
455	650	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	0; 1; 2	1; 2 1; 2; 3 ... 20	K; S	R; L		3 842 998 838 (AS 5/H)
650	650; 845	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	0; 1; 2	1; 2 1; 2; 3 ... 31	K; S	R; L	b = ... mm	
650	650; 845	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	0; 1; 2	1; 2 1; 2; 3 ... 20	K; S	R; L	p = ... mm, see page 3-8	
650	845	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	0; 1; 2	1; 2 1; 2; 3 ... 15	K; S	R; L	l = ... mm	
845	845; 1040	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	0; 1; 2	1; 2 1; 2; 3 ... 31	K; S	R; L	LG = ...	
845	845; 1040	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	0; 1; 2	1; 2 1; 2; 3 ... 20	K; S	R; L	BG = ...	
845	845; 1040	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	0; 1; 2	1; 2 1; 2; 3 ... 15	K; S	R; L	TR = ...	
845	1040	325	975 ... 3900	3; 4; 5 ... 12	1; 2; 3	1; 2	0; 1; 2	1; 2 1; 2; 3 ... 11	K; S	R; L	DP = ..., see page 3-8	
1040	845	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	0; 1; 2	1; 2 1; 2; 3 ... 31	K; S	R; L	v_N = ... m/min, see page 13-8	
1040	845	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	0; 1; 2	1; 2 1; 2; 3 ... 20	K; S	R; L	U = ... V, see page 13-9	
1040	845	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	0; 1; 2	1; 2 1; 2; 3 ... 15	K; S	R; L	f = ... Hz, see page 13-9	
												AT = ...
												MA = ...

b = width (track width in direction of transport)	BG = Bevel wheel material 1: plastic 2: sintered metal	v_N = nominal speed (m/min); 2*: 4; 6; 9; 12; 15; 18 = 0 (without gear motor)
l_{WT} = Length of workpiece pallet	GM = Gear motor 0: without (SW27 interface) 1: with SW27 gear motor 2: without (interface to SEW connection, round shaft Ø 20)	AT = Motor connection K: with terminal box S: with cable/plug
p = Roller spacing (pitch)	TR = Roller material 1: steel, galvanized 2: steel, nitrocarburized	MA = Motor mounting R: Right L: Left
l = Length graduated according to the roller dimensions ($l = p \times N$)	DP = Drive position	
N = number of rollers, multiplier for length ($l = p \times N$), pricing factor in the price list.		
LG = Lateral guide material 1: steel 2: plastic 3: aluminum		* Additional measures may be necessary

Dimensions

Drive module AS 5/XH, AS 5/H, pitch $p = 130$ mm



¹⁾ Note: In this depiction, the terminal box can collide with the leg sets. It protrudes into the section.

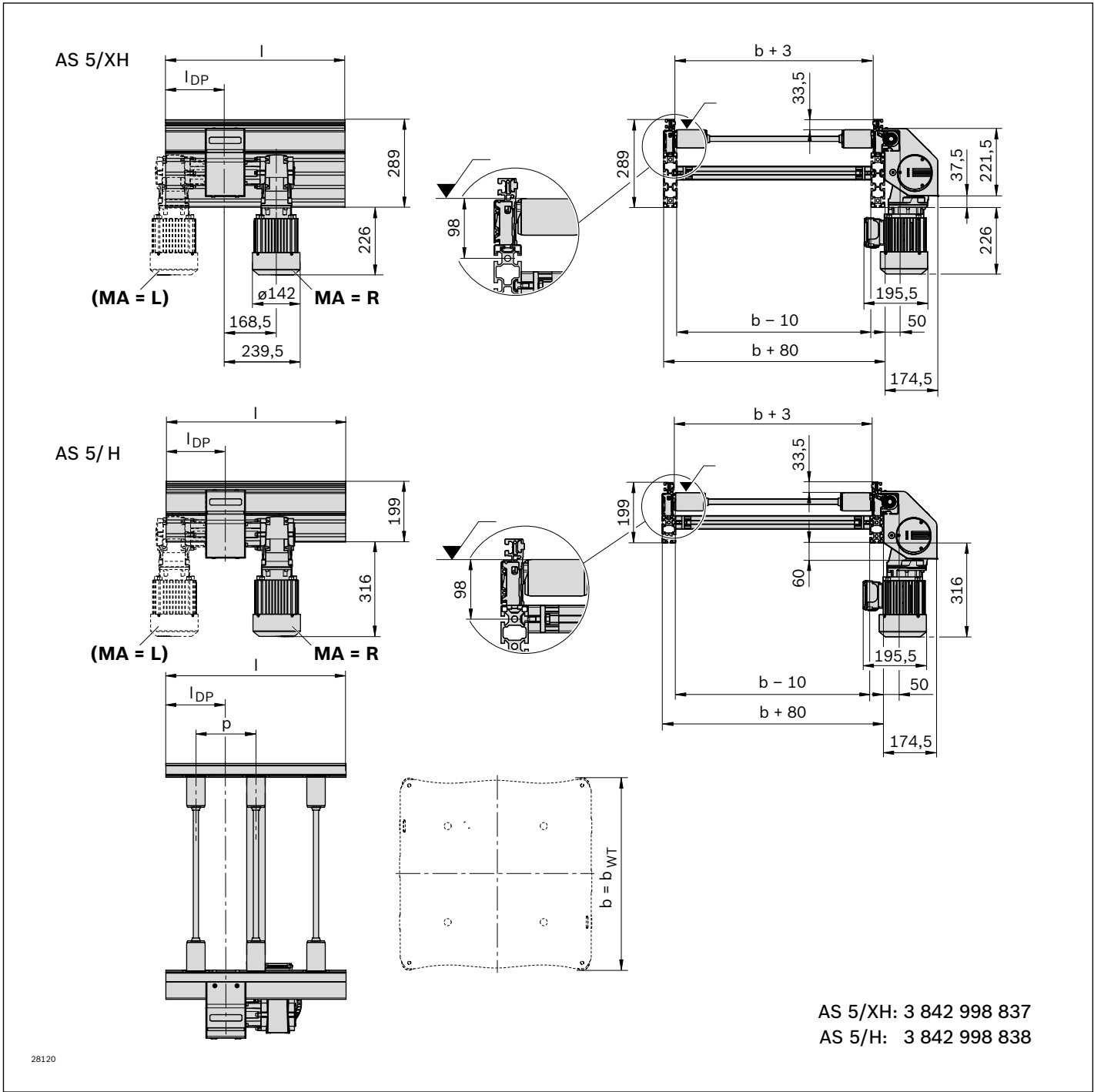
I = $p \times n$
 I_{DP} = $DP \times p - p/2$

p = roller spacing (pitch)
 n = number of rollers
 DP = drive position

Description of parameters, see page 3-5

Dimensions

Drive module AS 5/XH, AS 5/H, pitch $p = 195 \text{ mm}$; $p = 260 \text{ mm}$; $p = 325 \text{ mm}$



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l = $p \times n$
 l_{DP} = $DP \times p$

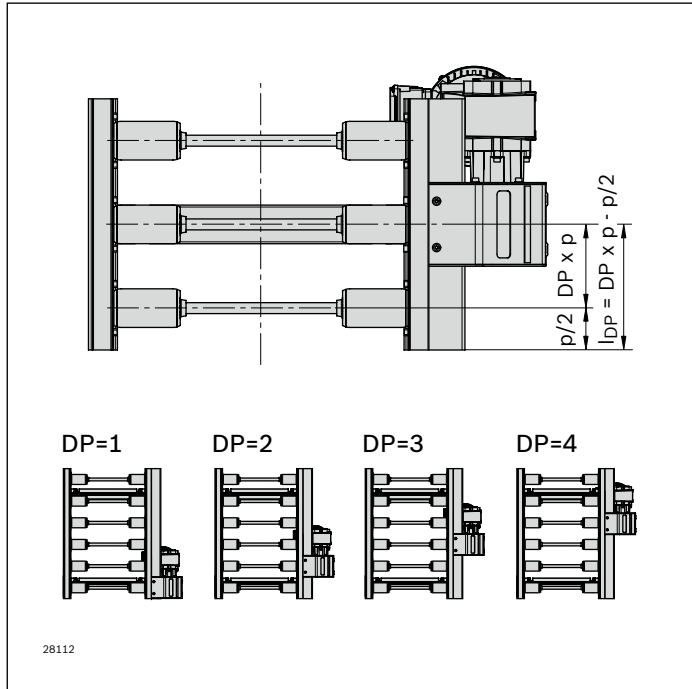
p = roller spacing (pitch)
 n = number of rollers
 DP = drive position

Description of parameters, see page 3-5

Pitch p and drive position DP

p = 130 mm

DP is the roller to which the transmission drive is fitted.
 This roller is not driven.



Example: DP = 2

Possible drive positions DP with pitch p

p (mm)	MA	DP
130	R; L	1 ... 31

Note:

Only if p = 130 mm: Roller corresponding to DP is not driven.
 Gear motor can be mounted on both sides.

Permissible position l_{DP} (mm) after start of section:

$$l_{DP} = DP \times p - p/2$$

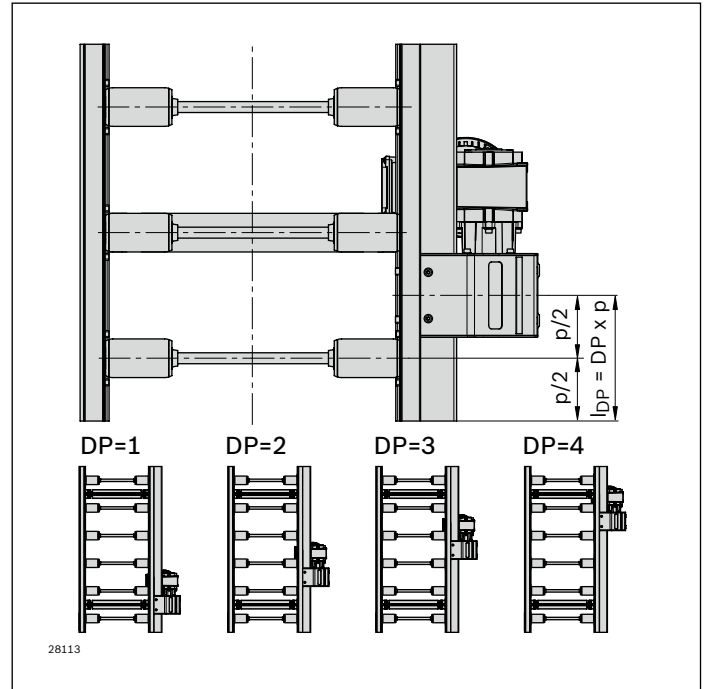
Example for p = 130 mm and DP = 10:

$$l_{DP} = 10 \times 130 \text{ mm} - 65 \text{ mm} = 1235 \text{ mm}$$

Description of further parameters, see page 3-5

p = 195 mm; p = 260 mm; p = 325 mm

DP is the space between two rollers in which the
 transmission drive is fitted.



Example: DP = 1

Possible drive positions DP with pitch p

p (mm)	MA	DP
195	R; L	1 ... 20
260	R; L	1 ... 15
325	R; L	1 ... 11

Permissible position l_{DP} (mm) after start of section:

$$l_{DP} = DP \times p$$

Example for p = 260 mm and DP = 5:

$$l_{DP} = 5 \times 260 \text{ mm} = 1300 \text{ mm}$$

AS 5/XH-FR, AS 5/H-FR drive units (with full rollers)



Condition on delivery:

- ▶ Ready-to-install, gear motor enclosed separately
- ▶ Mounting option for the gear motor on the right/left possible, see page 3-2

Use:

To drive

- ▶ ST 5/...-FR conveyor units
- ▶ CU 5/...-FR curves
- ▶ DI 5/...-FR diverters
- ▶ JU 5/...-FR junctions
- ▶ HQ 5/... lift transverse unit

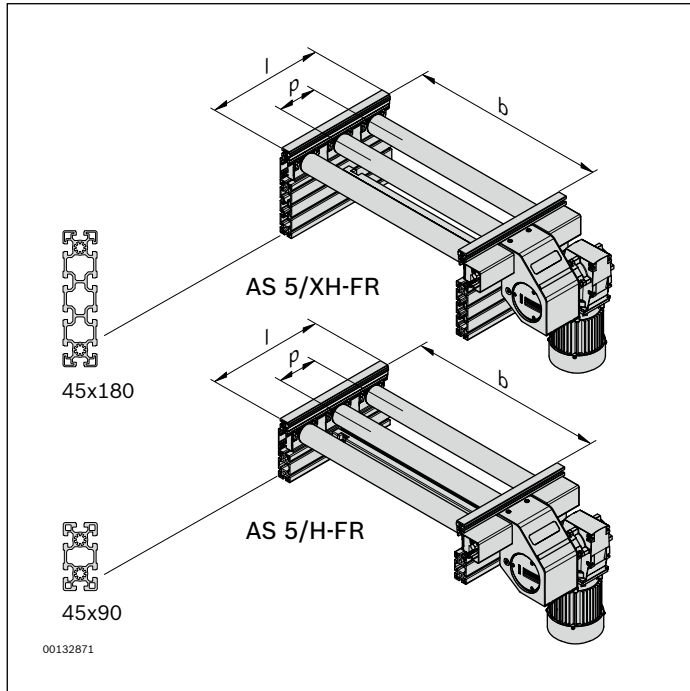
Version:

- ▶ Reversible operation possible
- ▶ Accumulation operation possible
- ▶ Motor connection with cable/plug (AT = S) or terminal box (AT = K)
- ▶ Freely selectable motor position and length
- ▶ Gear motor can be mounted on both sides on the transmission drive (MA = R and MA = L)
- ▶ Viewing window for checking the toothed belt
- ▶ Due to the simple and space-saving disassembly of the cover, adjacent components/machines can be positioned at a distance of 20 mm from the AS 5
- ▶ Frequency converter, optional, see page 3-25

Note:

To transport workpieces without workpiece pallets. Use plastic lateral guides to ensure the workpiece is not damaged!

Ordering information



AS 5/XH-FR, AS 5/H-FR drive units

b (mm)	l_{WT} (mm)	p (mm)	l (mm)	N	LG	BG	GM	TR	DP	AT	MA	Material number
455	455; 650	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	0; 1; 2	1; 2	1; 2; 3 ... 31	K; S	R; L	3 842 998 839 (AS 5/XH-FR)
455	650	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	0; 1; 2	1; 2	1; 2; 3 ... 20	K; S	R; L	3 842 998 840 (AS 5/H-FR)
650	650; 845	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	0; 1; 2	1; 2	1; 2; 3 ... 31	K; S	R; L	b = ... mm
650	650; 845	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	0; 1; 2	1; 2	1; 2; 3 ... 20	K; S	R; L	p = ... mm, see page 3-13
650	845	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	0; 1; 2	1; 2	1; 2; 3 ... 15	K; S	R; L	l = ... mm
845	845; 1040	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	0; 1; 2	1; 2	1; 2; 3 ... 31	K; S	R; L	LG = ...
845	845; 1040	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	0; 1; 2	1; 2	1; 2; 3 ... 20	K; S	R; L	BG = ...
845	845; 1040	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	0; 1; 2	1; 2	1; 2; 3 ... 15	K; S	R; L	TR = ...
845	1040	325	975 ... 3900	3; 4; 5 ... 12	1; 2; 3	1; 2	0; 1; 2	1; 2	1; 2; 3 ... 11	K; S	R; L	DP = ..., see page 3-13
1040	845	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	0; 1; 2	1; 2	1; 2; 3 ... 31	K; S	R; L	v_N = ... m/min, see page 13-8
1040	845	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	0; 1; 2	1; 2	1; 2; 3 ... 20	K; S	R; L	U = ... V, see page 13-9
1040	845	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	0; 1; 2	1; 2	1; 2; 3 ... 15	K; S	R; L	f = ... Hz, see page 13-9
												AT = ...
												MA = ...

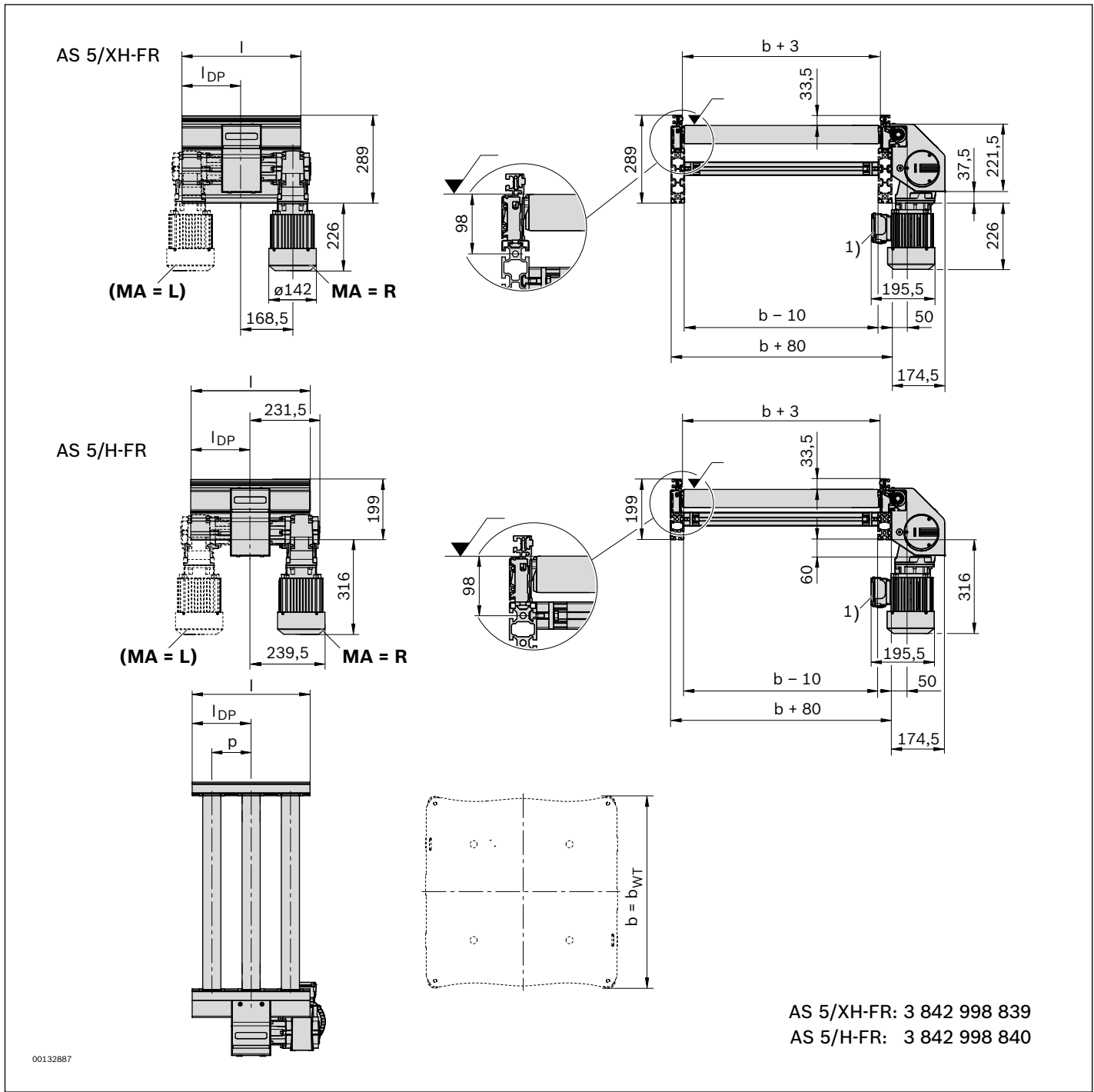
- b = width (track width in direction of transport)
- l_{WT} = Length of workpiece pallet
- p = Roller spacing (pitch)
- l = Length graduated according to the roller dimensions ($l = p \times N$)
- N = number of rollers, multiplier for length ($l = p \times N$), pricing factor in the price list.
- LG = Lateral guide material
 - 1: steel
 - 2: plastic
 - 3: aluminum

- BG = Bevel wheel material
 - 1: plastic
 - 2: sintered metal
- GM = Gear motor
 - 0: without (SW27 interface)
 - 1: with SW27 gear motor
 - 2: without (interface to SEW connection, round shaft $\varnothing 20$)
- TR = Roller material
 - 1: steel, galvanized
 - 2: steel, nitrocarburized
- DP = Drive position

- v_N = nominal speed (m/min);
 - 2*; 4; 6; 9; 12; 15; 18
 - = 0 (without gear motor)
 - AT = Motor connection
 - K: with terminal box
 - S: with cable/plug
 - MA = Motor mounting
 - R: Right
 - L: Left
- * Additional measures may be necessary

Dimensions

Drive module AS 5/XH-FR, AS 5/H-FR, pitch $p = 130$ mm



¹⁾ Note: In this depiction, the terminal box can collide with the leg sets. It protrudes into the section.

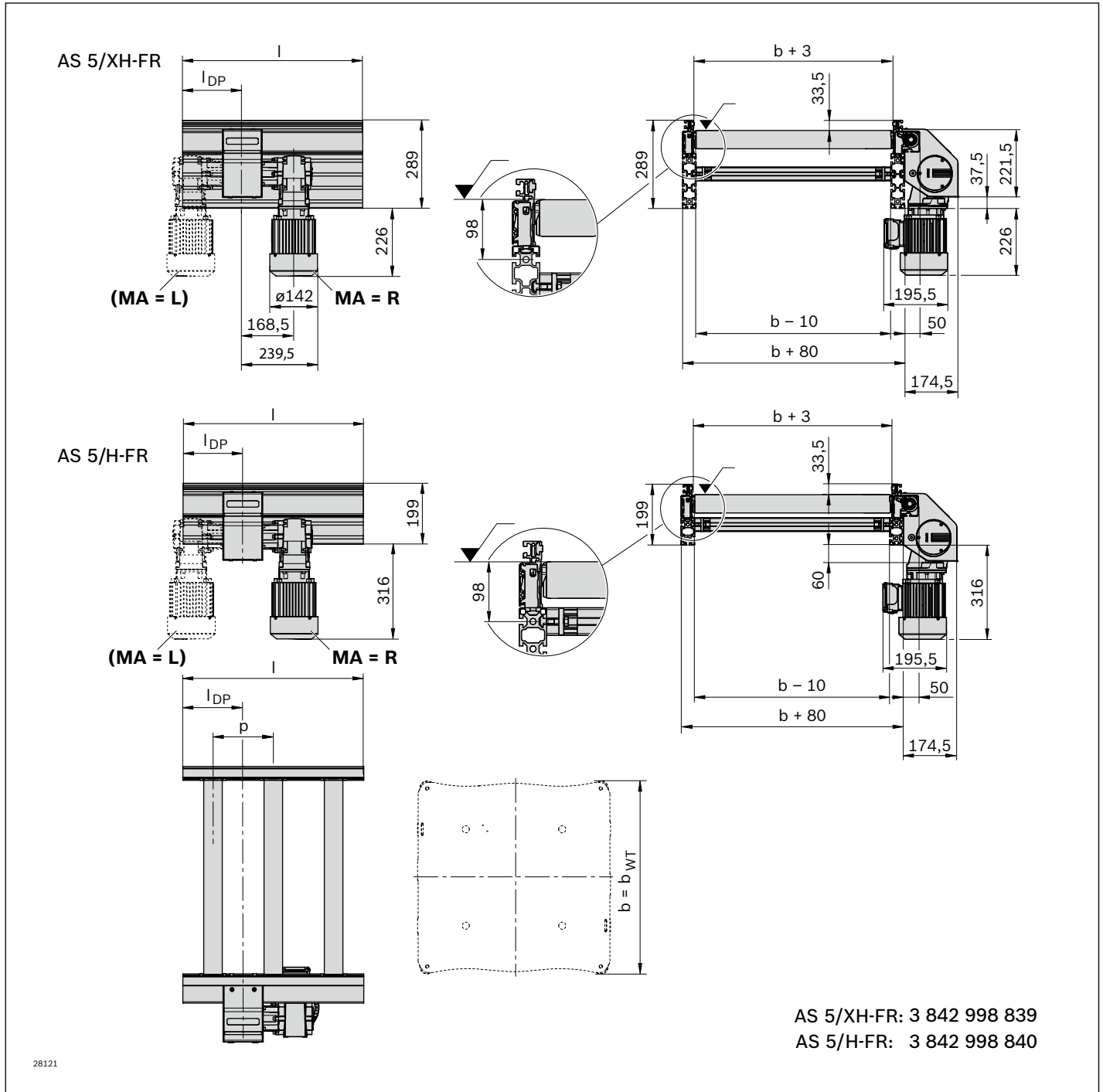
l = $p \times n$
 l_{DP} = $DP \times p - p/2$

p = roller spacing (pitch)
 n = number of rollers
 DP = drive position

Description of parameters, see page 3-5

Dimensions

Drive module AS 5/XH-FR, AS 5/H-FR, pitch $p = 195 \text{ mm}$; $p = 260 \text{ mm}$; $p = 325 \text{ mm}$



l = $p \times n$
 l_{DP} = $DP \times p$

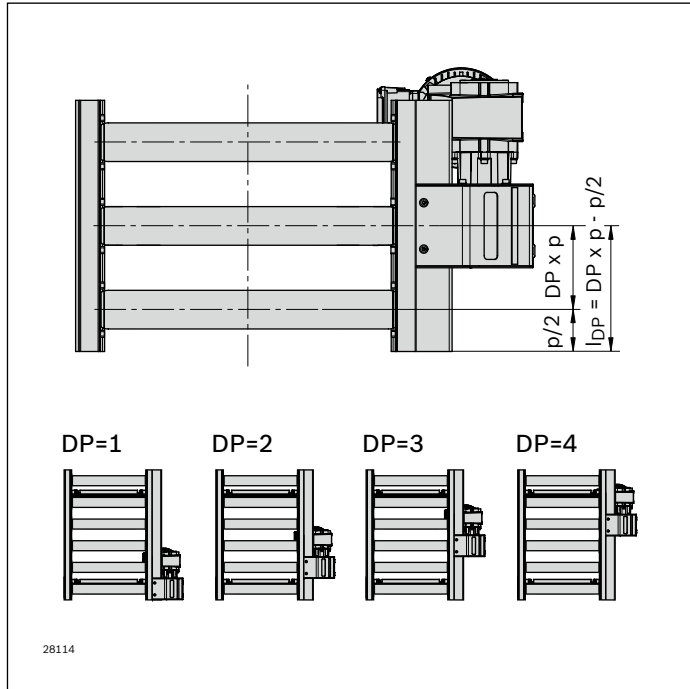
p = roller spacing (pitch)
 n = number of rollers
 DP = drive position

Description of parameters, see page 3-5

Pitch p and drive position DP

p = 130 mm

DP is the roller to which the transmission drive is fitted.
 This roller is not driven.



Example: DP = 2

Possible drive positions DP with pitch p

p (mm)	MA	DP
130	R; L	1 ... 31

Note:

Only if p = 130 mm: Roller corresponding to DP is not driven.
 Gear motor can be mounted on both sides.

Permissible position l_{DP} (mm) after start of section:

$$l_{DP} = DP \times p - p/2$$

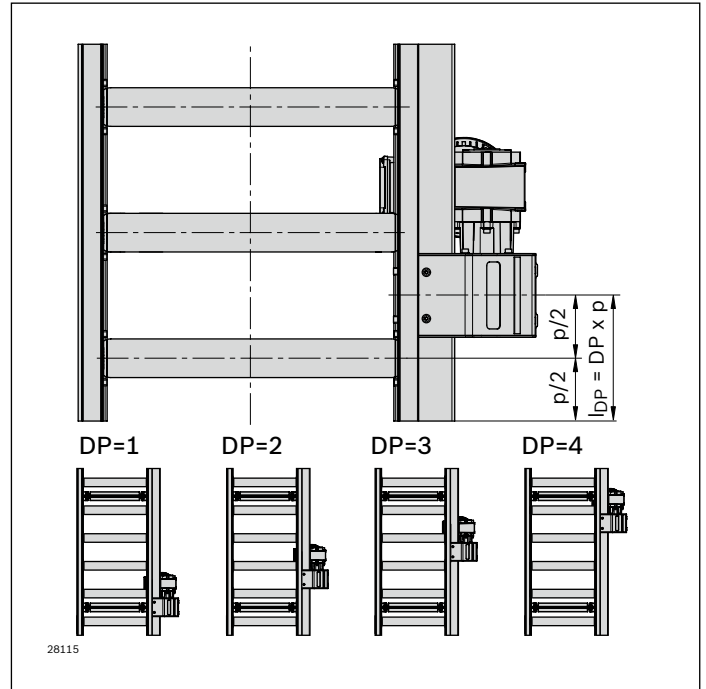
Example for p = 130 mm and DP = 10:

$$l_{DP} = 10 \times 130 \text{ mm} - 65 \text{ mm} = 1235 \text{ mm}$$

Description of further parameters, see page 3-10

p = 195 mm; p = 260 mm; p = 325 mm

DP is the space between two rollers in which the transmission drive is fitted.



Example: DP = 1

Possible drive positions DP with pitch p

p (mm)	MA	DP
195	R; L	1 ... 20
260	R; L	1 ... 15
325	R; L	1 ... 11

Permissible position l_{DP} (mm) after start of section:

$$l_{DP} = DP \times p$$

Example for p = 260 mm and DP = 5:

$$l_{DP} = 5 \times 260 \text{ mm} = 1300 \text{ mm}$$

Drive units AS 5/OC (Open Center)



Condition on delivery:

- ▶ Ready-to-install, gear motor enclosed separately
- ▶ Mounting option for the gear motor on the right/left possible, see page 3-2

Use:

To drive

- ▶ ST 5/OC... conveyor units

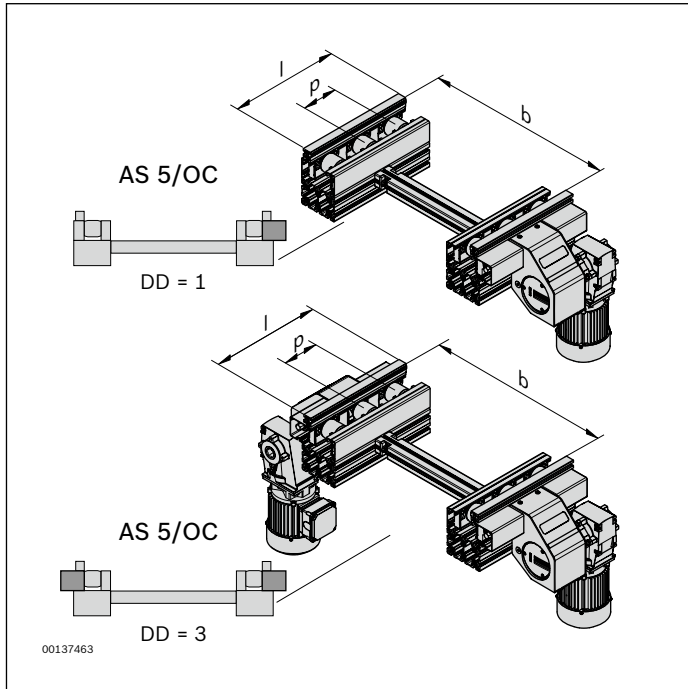
Version:

- ▶ Reversible operation possible
- ▶ Accumulation operation possible
- ▶ Motor connection with cable/plug (AT = S) or terminal box (AT = K)
- ▶ Freely selectable motor position and length
- ▶ Gear motor can be mounted on both sides on the transmission drive (MA = R and MA = L)
- ▶ Viewing window for checking the toothed belt
- ▶ Due to the simple and space-saving disassembly of the cover, adjacent components/machines can be positioned at a distance of 20 mm from the AS 5
- ▶ Frequency converter, optional, see page 3-25

Note:

Please take account of the load center of gravity when selecting the drive, see page 3-19

Ordering information



AS 5/OC drive units

b (mm)	l_{WT} (mm)	p (mm)	l (mm)	N	LG	BG	GM	DD	TR	DP _r /DP _l	AT	MA	Material number
455	455; 650	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	0; 1; 2	1; 2; 3	1; 2 1; 2; 3 ... 31	K; S	R; L		3 842 998 841
455	650	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	0; 1; 2	1; 2; 3	1; 2 1; 2; 3 ... 20	K; S	R; L	b = ... mm	
650	650; 845	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	0; 1; 2	1; 2; 3	1; 2 1; 2; 3 ... 31	K; S	R; L	p = ... mm, see page 3-18	
650	650; 845	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	0; 1; 2	1; 2; 3	1; 2 1; 2; 3 ... 20	K; S	R; L	l = ... mm	
650	845	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	0; 1; 2	1; 2; 3	1; 2 1; 2; 3 ... 15	K; S	R; L	LG = ...	
845	845; 1040	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	0; 1; 2	1; 2; 3	1; 2 1; 2; 3 ... 31	K; S	R; L	BG = ...	
845	845; 1040	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	0; 1; 2	1; 2; 3	1; 2 1; 2; 3 ... 20	K; S	R; L	TR = ...	
845	845; 1040	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	0; 1; 2	1; 2; 3	1; 2 1; 2; 3 ... 15	K; S	R; L	DP _r /DP _l = ..., see page 3-18	
845	1040	325	975 ... 3900	3; 4; 5 ... 12	1; 2; 3	1; 2	0; 1; 2	1; 2; 3	1; 2 1; 2; 3 ... 11	K; S	R; L	v_N = ... m/min, see page 13-8	
1040	845	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	0; 1; 2	1; 2; 3	1; 2 1; 2; 3 ... 31	K; S	R; L	U = ... V, see page 13-9	
1040	845	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	0; 1; 2	1; 2; 3	1; 2 1; 2; 3 ... 20	K; S	R; L	f = ... Hz, see page 13-9	
1040	845	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	0; 1; 2	1; 2; 3	1; 2 1; 2; 3 ... 15	K; S	R; L	AT = ...	
												MA = ...	

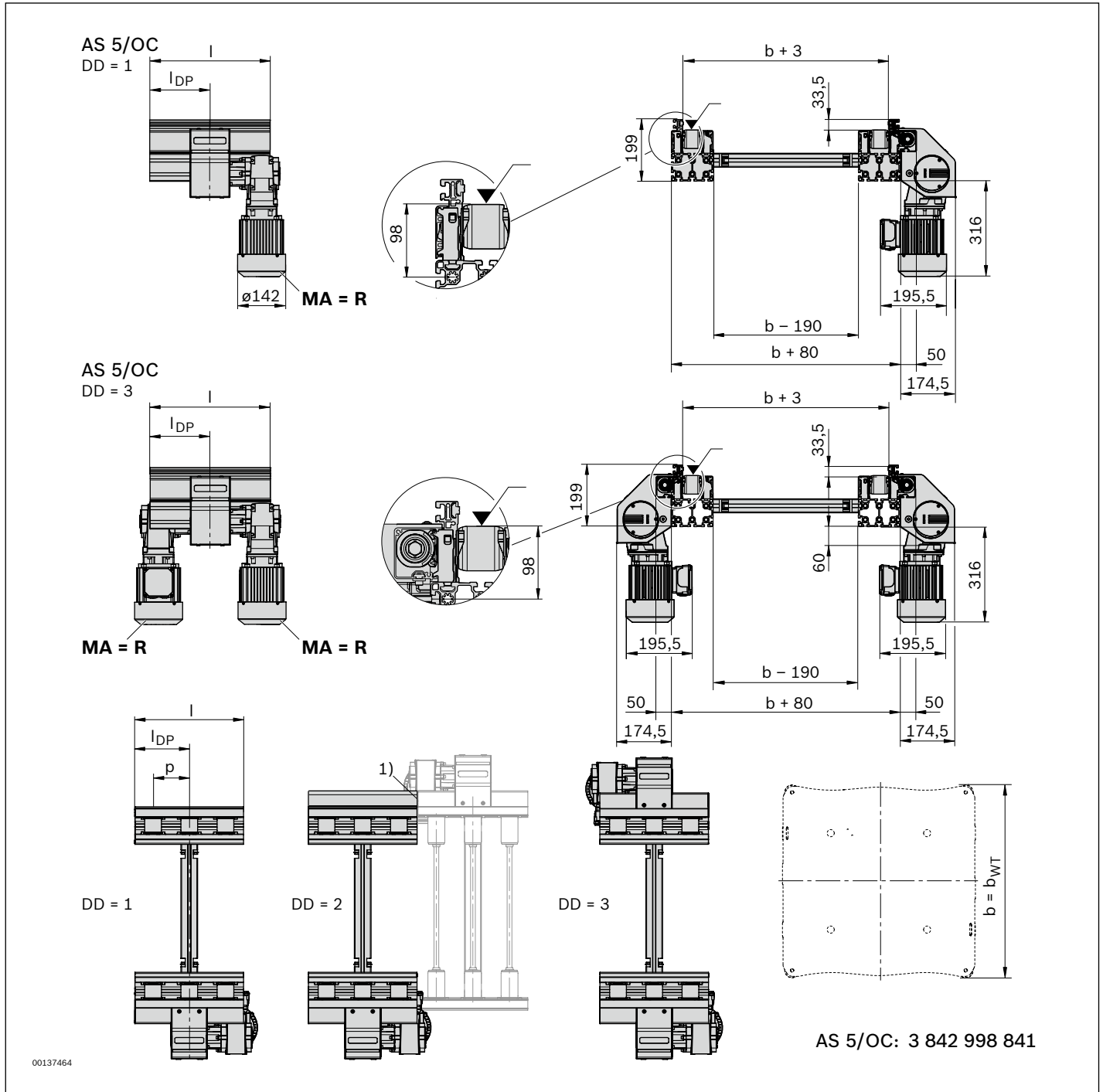
b = width (track width in direction of transport)
 l_{WT} = Length of workpiece pallet
 p = Roller spacing (pitch)
 l = Length graduated according to the roller dimensions ($l = p \times N$)
 N = number of rollers, multiplier for length ($l = p \times N$), pricing factor in the price list.
 LG = Lateral guide material
 1: steel
 2: plastic
 3: aluminum

BG = Bevel wheel material
 1: plastic
 2: sintered metal
 GM = Gear motor
 0: without (SW27 interface)
 1: with SW27 gear motor
 2: without (interface to SEW connection, round shaft $\varnothing 20$)
 DD = King shaft
 1: on one side with 1 gear motor
 2: on two sides with 1 gear motor
 3: on two sides with 2 gear motors
 TR = Roller material
 1: steel, galvanized
 2: steel, nitrocarburized

DP_r/DP_l = Drive position
 DP_l
 v_N = nominal speed (m/min);
 2*; 4; 6; 9; 12; 15; 18
 = 0 (without gear motor)
 AT = Motor connection
 K: with terminal box
 S: with cable/plug
 MA = Motor mounting
 R: Right
 L: Left
 * Additional measures may be necessary

Dimensions

Drive module AS 5/OC (Open Center), pitch $p = 130$ mm



¹⁾ DD = 2: Join the drive side without the gear motor to a gear-driven section.

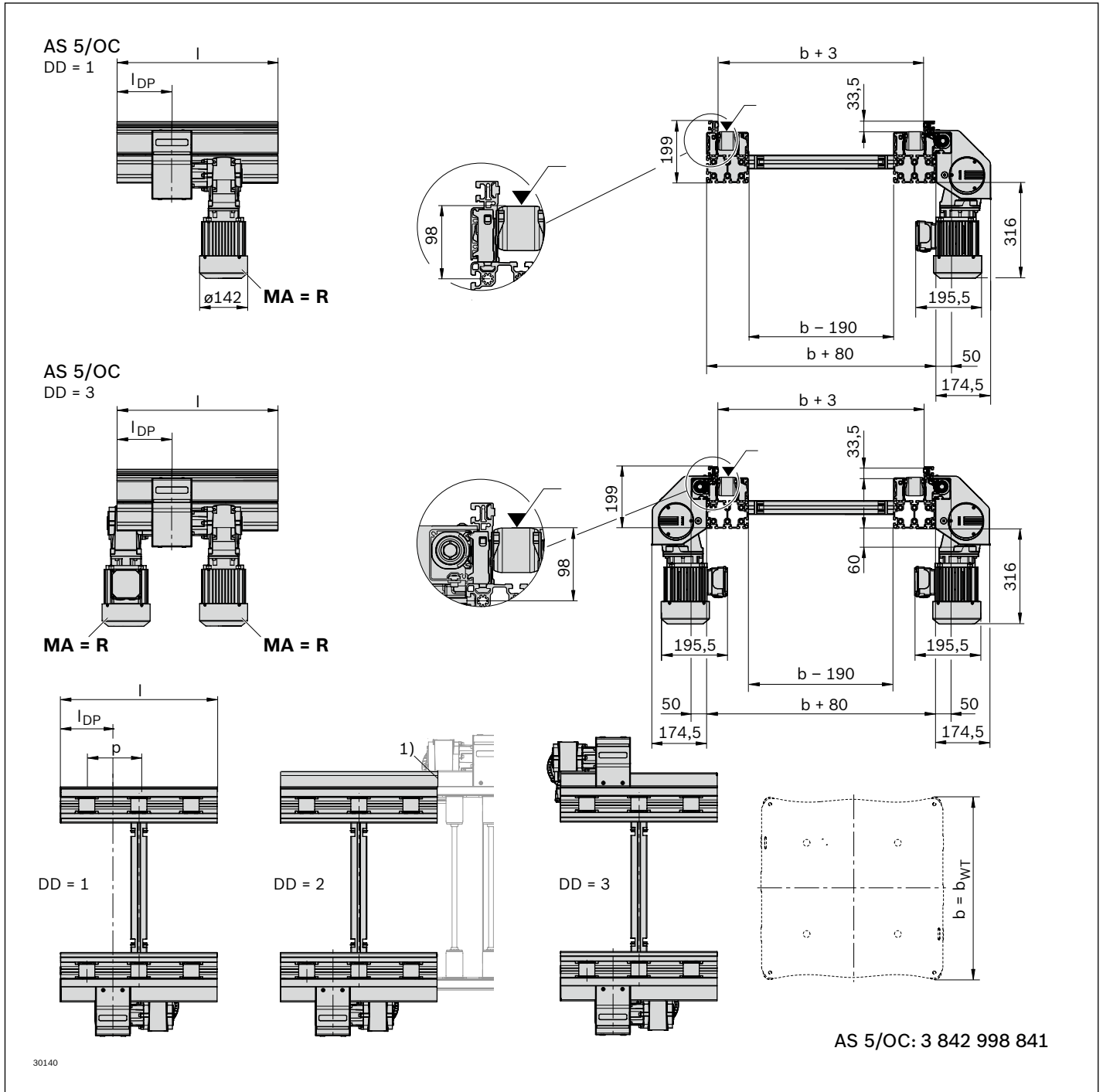
l = $p \times n$
 l_{DP} = $DP \times p - p/2$

p = roller spacing (pitch)
 n = number of rollers
 DP = drive position

Description of parameters, see page 3-15

Dimensions

Drive module AS 5/OC (Open Center), pitch $p = 195 \text{ mm}$; $p = 260 \text{ mm}$; $p = 325 \text{ mm}$



¹⁾ DD = 2: Join the drive side without the gear motor to a gear-driven section.

l = $p \times n$
 l_{DP} = $DP \times p$

p = roller spacing (pitch)
 n = number of rollers
 DP = drive position

Description of parameters, see page 3-15

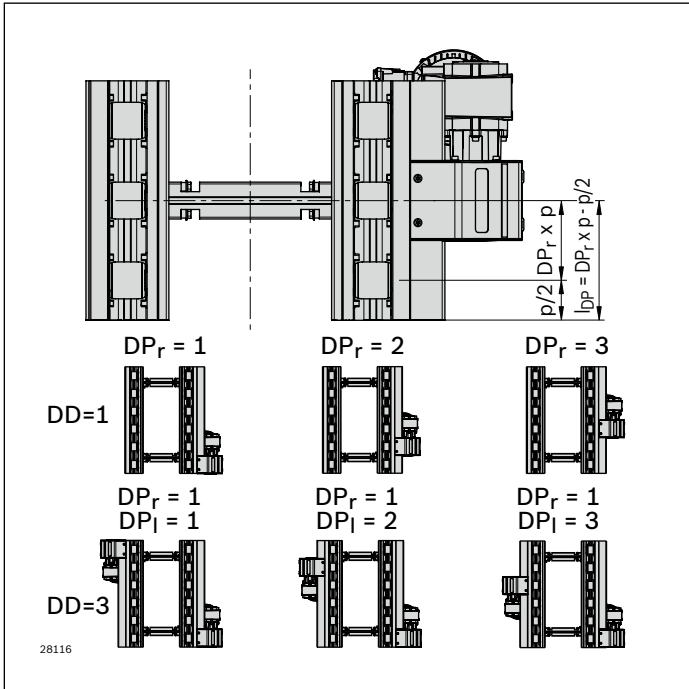
Pitch p and drive position DP

p = 130 mm

DP is the roller to which the transmission drive is fitted.
 This roller is not driven.

p = 195 mm; p = 260 mm; p = 325 mm

DP is the space between two rollers in which the
 transmission drive is fitted.



Example: DP = 2

Possible drive positions DP with pitch p

p (mm)	MA	DP
130	R; L	1 ... 31

Note:

Only if p = 130 mm: Roller corresponding to DP is not driven.
 Gear motor can be mounted on both sides.

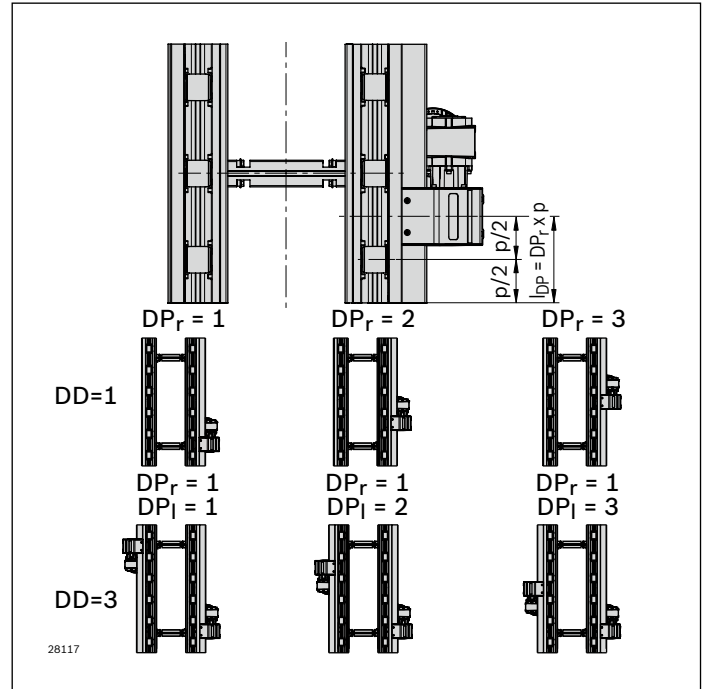
Permissible position l_{DP} (mm) after start of section:

$$l_{DP} = DP \times p - p/2$$

Example for p = 130 mm and DP = 10:

$$l_{DP} = 10 \times 130 \text{ mm} - 65 \text{ mm} = 1235 \text{ mm}$$

Description of further parameters, see page 3-15



Example: DP = 1

Possible drive positions DP with pitch p

p (mm)	MA	DP
195	R; L	1 ... 20
260	R; L	1 ... 15
325	R; L	1 ... 11

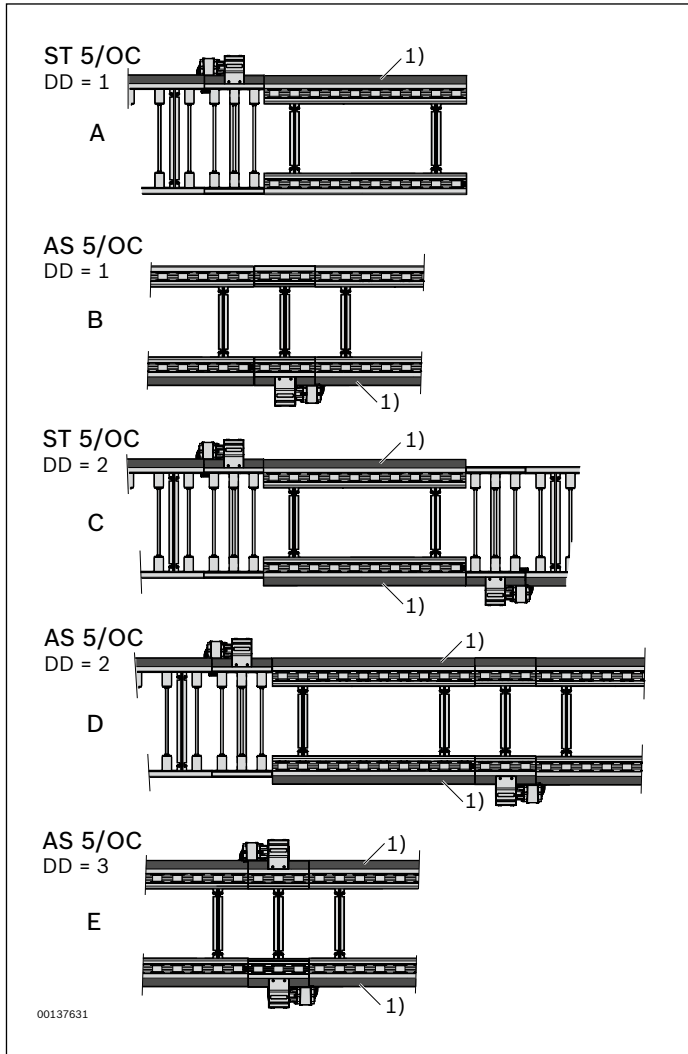
Permissible position l_{DP} (mm) after start of section:

$$l_{DP} = DP \times p$$

Example for p = 260 mm and DP = 5:

$$l_{DP} = 5 \times 260 \text{ mm} = 1300 \text{ mm}$$

Drive options for an Open Center section



The TS 5 drive concept enables one- or two-sided drive of an Open Center section connected to adjacent sections. Depending on the loading situation, a separate AS 5/OC drive may not be required.

- ¹⁾ Drive side
- A, B: Drive on one side
- C, D, E: Drive on both sides

Load position centered on WT

$b_{WT} \times l_{WT}$ (mm)	m_{WTmax} (kg)	DD =
455 x 455	150	1 ²⁾
455 x 650	250	1 ²⁾
650 x 650	250	1 ²⁾
650 x 845	300	1 ²⁾
845 x 845	300	1 ²⁾
845 x 1040	300	1 ²⁾

Load position off-center and within the permissible load area

$b_{WT} \times l_{WT}$ (mm)	m_{WTmax} (kg)	DD =	m_{WTmax} (kg)	DD =
455 x 455	100	1 ²⁾	150	x ³⁾
455 x 650	160	1 ²⁾	250	x ³⁾
650 x 650	160	1 ²⁾	250	x ³⁾
650 x 845	200	1 ²⁾	300	x ³⁾
845 x 845	200	1 ²⁾	300	x ³⁾
845 x 1040	200	1 ²⁾	300	x ³⁾

²⁾ drive on one side sufficient (DD = 1)
³⁾ drive on both sides required (DD = 2 or DD = 3)

AB 5 drive kit



Material:

- ▶ Flange (Lenze): aluminum
- ▶ Flange (SEW): steel
- ▶ Bracket: aluminum
- ▶ Motor flange: die-cast aluminum
- ▶ Shaft: brass
- ▶ Coupling: cast steel; brass

Condition on delivery:

- ▶ Not assembled, incl. fastening material and flange
- ▶ Mounting option for the gear motor at the top/horizontally/bottom possible, see page. 3-2

Use:

For face-side driving of

- ▶ ST 5/... conveyor units
- ▶ Adaptation of the sheet metal parts is required, adapter may be required for hexagonal shaft

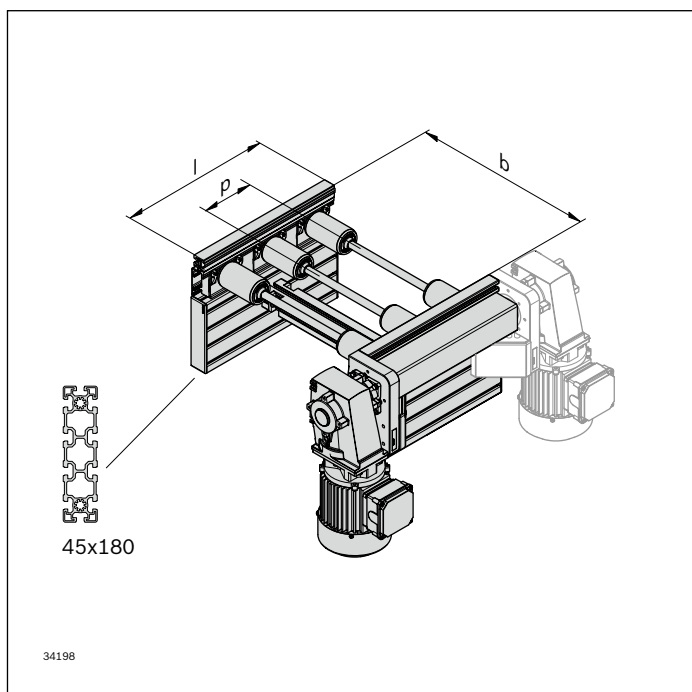
Version:

- ▶ Suitable for reversible operation (max. 20 Nm)
- ▶ With a Lenze gear motor (GM = 1) or with interface for installing a SEW gear motor (GM = 2)
- ▶ Motor connection with cable/plug (AT = S) or terminal box (AT = K)
- ▶ Frequency converter, optional, see page 3-25

Note:

- ▶ Maximum length of the driven total section at $p = 130$ and 45 Nm motor output = 19.5 m (longer sections on request)
- ▶ Suitable for driving two connected curves
- ▶ Assembly in curves, diverters, junctions and lift transverse units on request

Ordering information

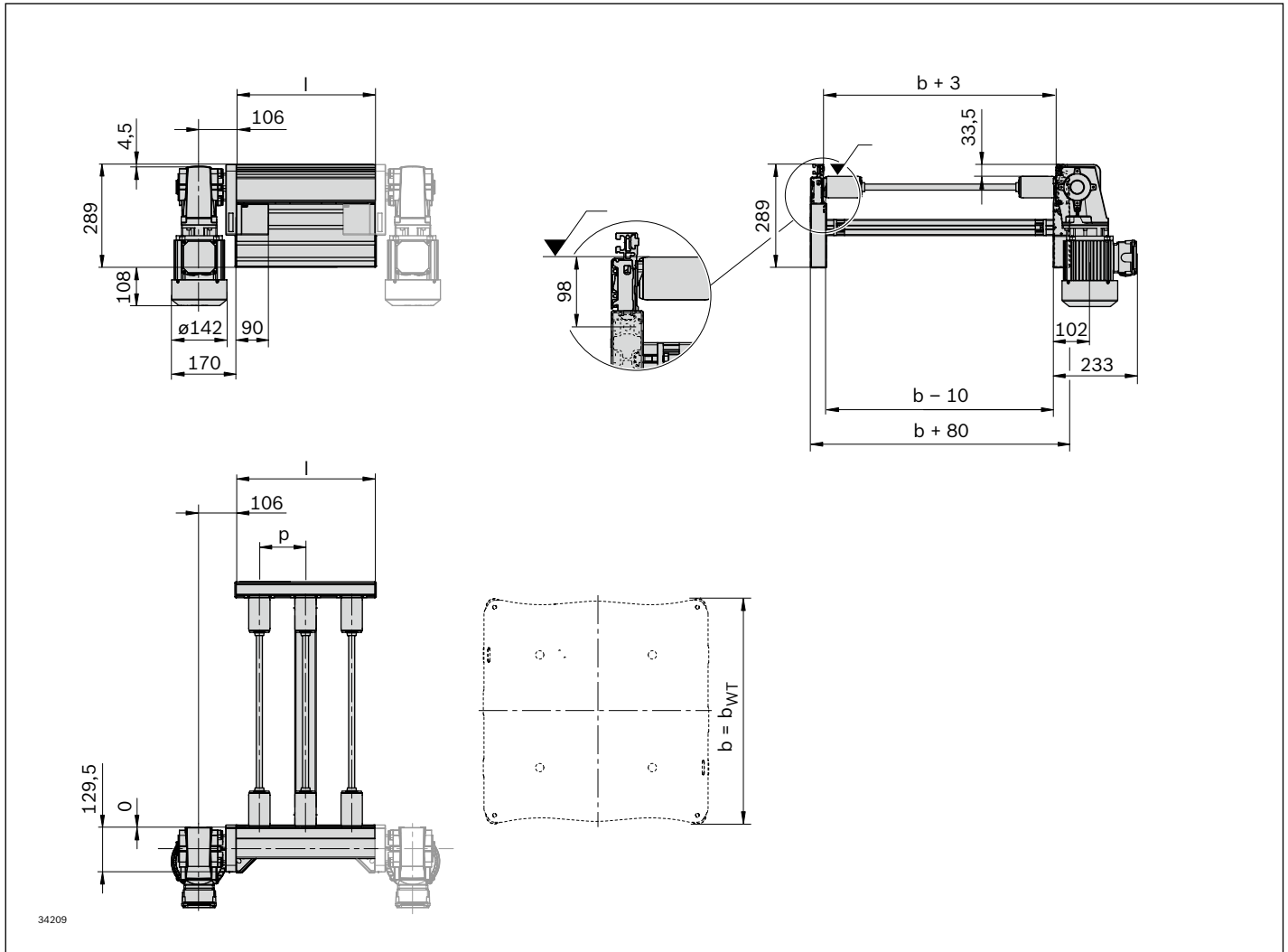


AB 5 drive kit

Material number		3 842 998 842
v_N (m/min)	Nominal speed	2*; 4; 6; 9; 12; 15; 18 0: without gear motor
U (V)	Voltage	see motor data, p. 13-9
f (Hz)	Frequency	see motor data, p. 13-9
GM	Gear motor 0: without (SW27 interface) 1: with SW27 gear motor 2: without (interface to SEW connection, round shaft $\varnothing 20$)	0; 1; 2
AT	Motor connection K: with terminal box S: with cable/plug	K; S
p (mm)	Roller spacing (pitch)	130; 195; 260; 325
MA	Motor mounting R: Right L: Left	R; L

* Additional measures may be necessary
 Description of further parameters, see page 0-3

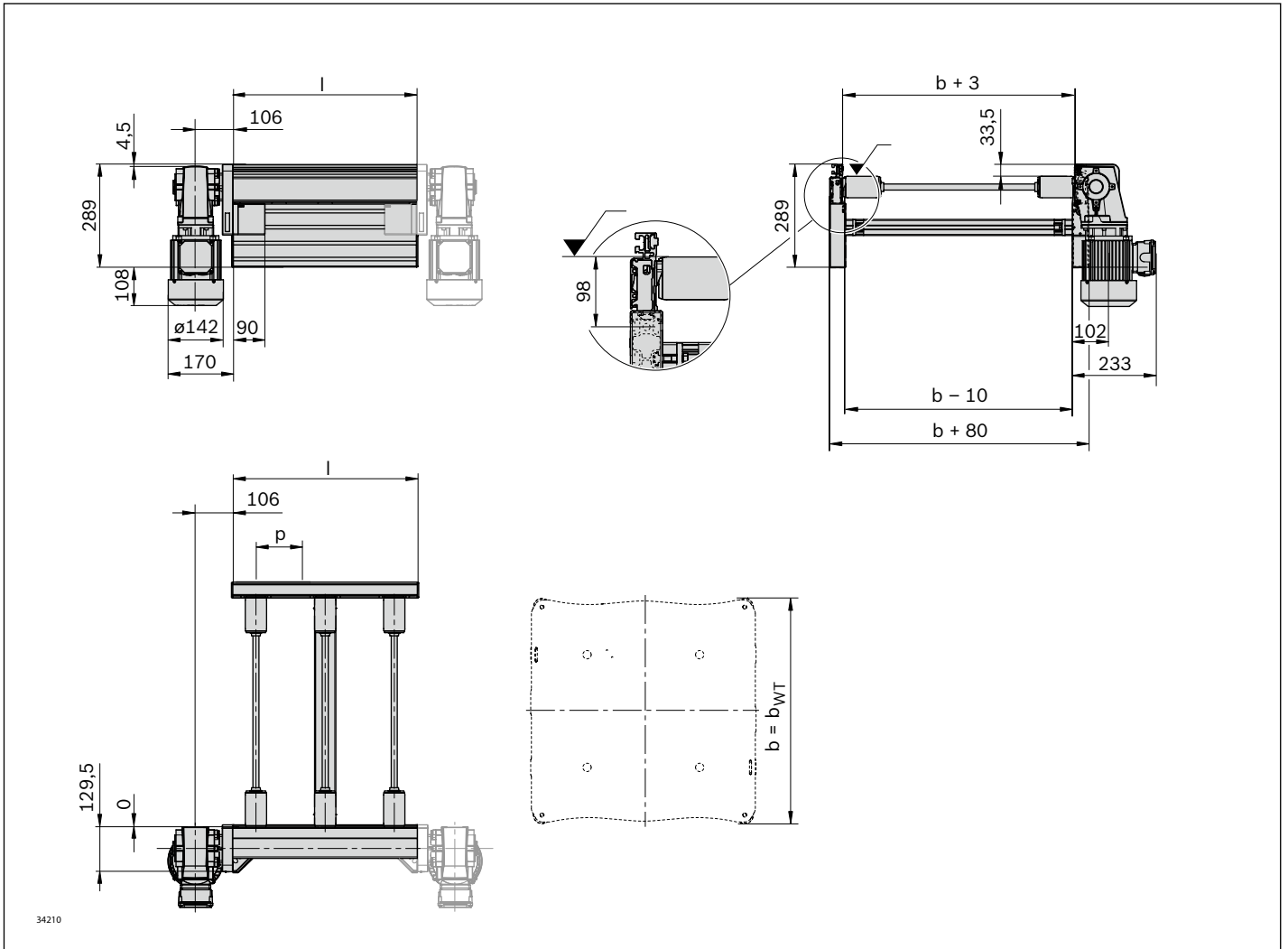
Dimensions
AB 5 drive kit



- l = $p \times n$
- p = roller spacing (pitch)
- n = number of rollers

Description of parameters, see page 3-21

Dimensions
AB 5 drive kit



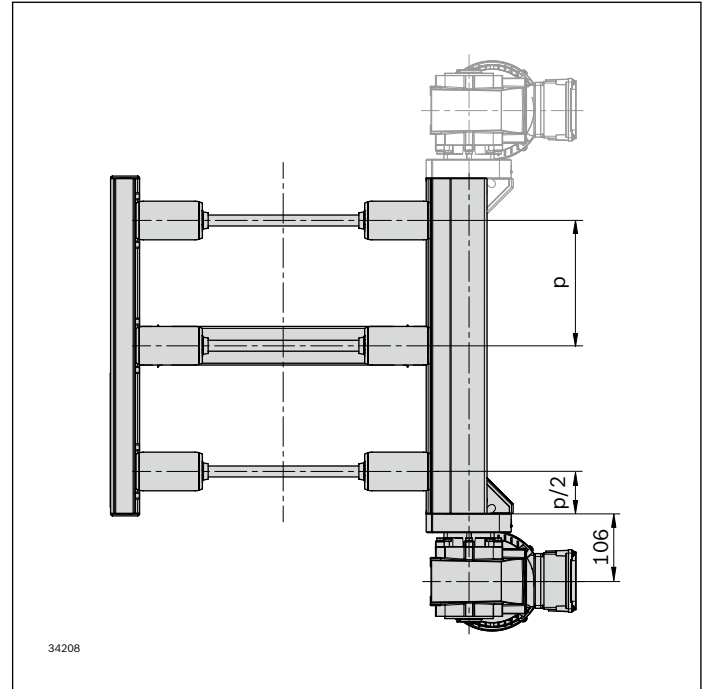
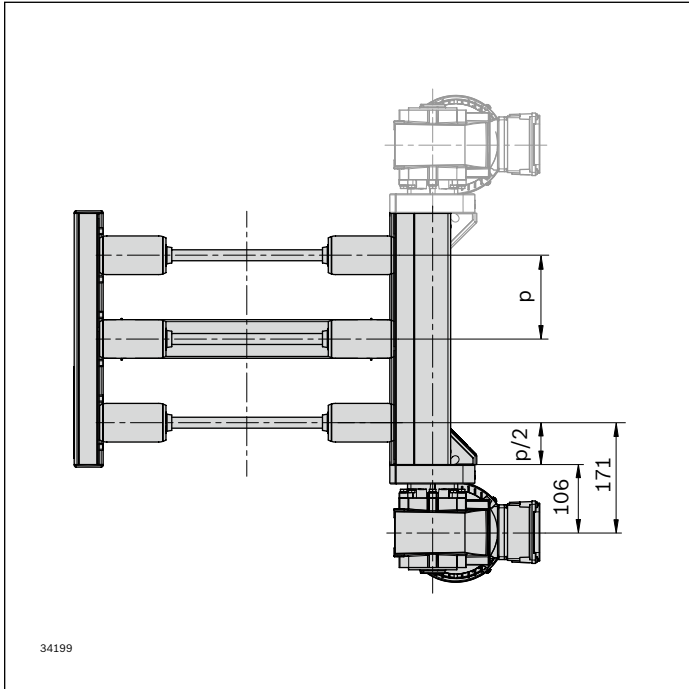
- l = $p \times n$
- p = roller spacing (pitch)
- n = number of rollers

Description of parameters, see page 3-21

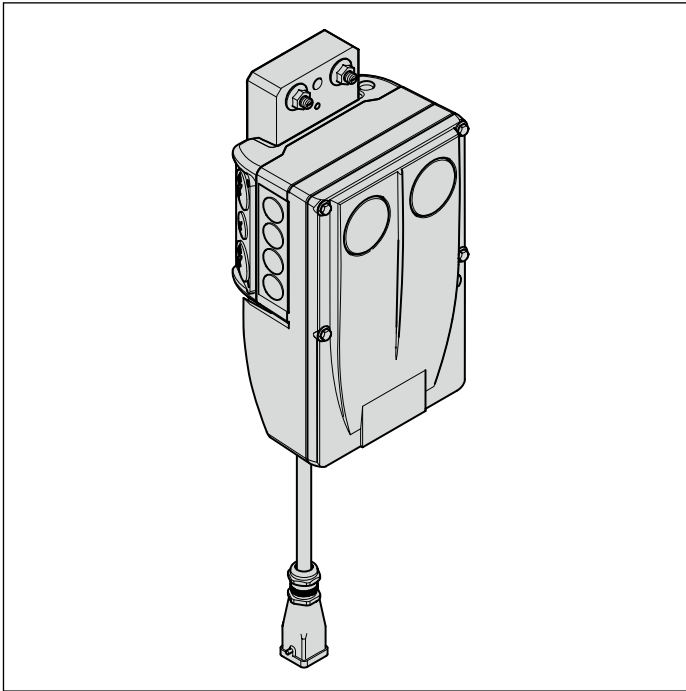
Roller spacing (pitch)

$p = 130 \text{ mm}$

$p = 195 \text{ mm}; p = 260 \text{ mm}; p = 325 \text{ mm}$



Frequency converter (FU)



Required accessories:

- ▶ Manual control unit, see page 3-29
- ▶ Switch/potentiometer unit, see page 3-29

In order to operate a gear motor with adjustable speed, the motor needs to be retrofitted with a frequency converter (FU). The frequency converter has a modular design so that it can be easily mounted on a leg set and connected to the motor by cable.

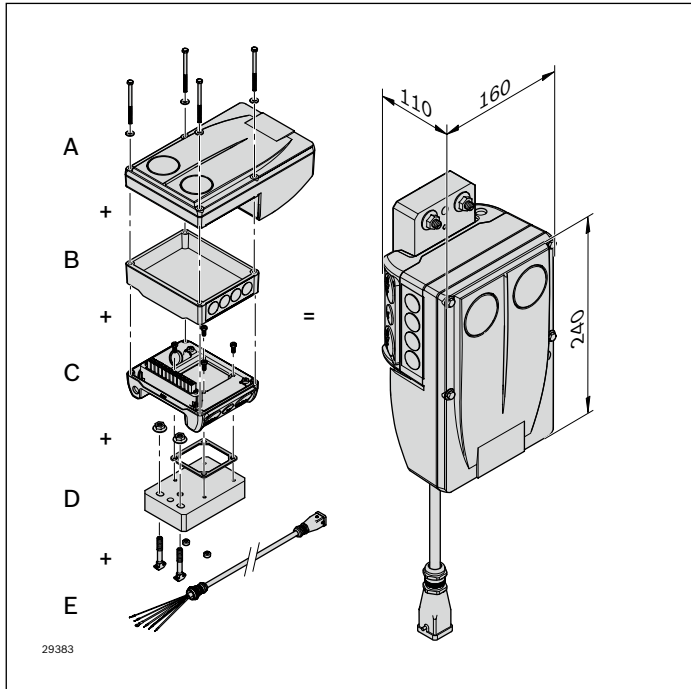
- Connection power: 0.55 kW (connection voltage: 400 V \pm 10% ... 460 V/480 V \pm 10%)
- Speed (v_N) depending on the base speed of the gear motor used

Permissible speed range: 2 ... 21 m/min

Complete frequency converter (FU) consisting of the modules

- Frequency converter power unit
- Communication module
- Connection unit
- Attachment kit
- Optional: Connection cable for the plug-in connection to the gear motor (AT = S)

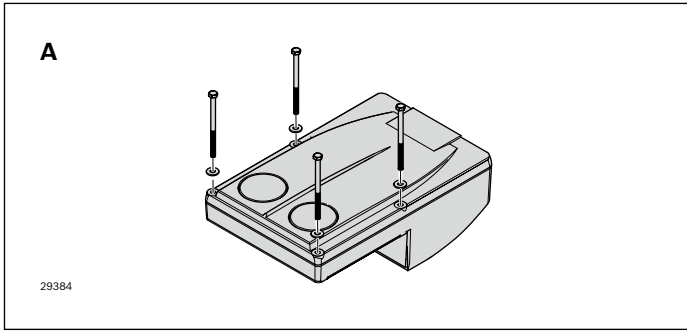
The individual modules can be ordered separately and are easy to connect using the supplied screws. For the internal and external voltage supply, the modules must be wired by the user.



Complete frequency converter consisting of the modules

- ▶ Frequency converter power unit (A)
- ▶ Communication module (B)
- ▶ Connection unit (C)
- ▶ Attachment kit (D)
- ▶ Optional: Connection cable (E) for the plug-in connection to the gear motor (AT = S)

The individual modules can be ordered separately and are easy to connect using the supplied screws. For the internal and external voltage supply, the modules must be wired by the user (see terminal assignment plan, see page 13-12).



Frequency converter (A)

Power unit: 0.55 kW
 (400 V ±10% ... 460 V/480 V ±10%)

- ▶ Easy commissioning via hand-held terminal
- ▶ Easy to replace memory module
- ▶ Large LED as status display

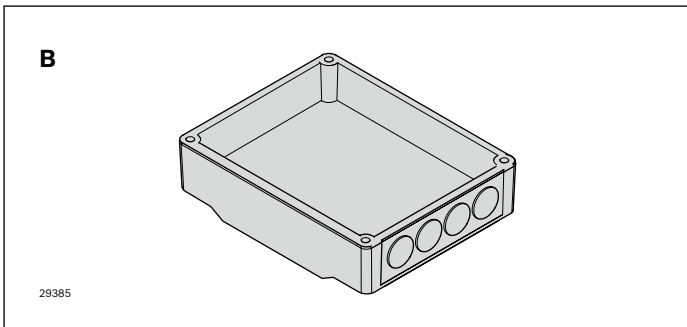
Product designation	Material number
Power element 0.55 kW	3 842 553 447

Motor base speed	Min	Max	Max (m/min)
(m/min) at 50 Hz	(m/min)	(m/min)	at max. 80% torque
4	2*	4.5	6
6	2*	6	8
9	3.5	10	13
12	4	13	17
15	5	15	20
18	6	18.5	25

*Additional measures may be necessary

The speed range of the frequency converter is based on the base speed of the motor¹⁾:

¹⁾ By accepting a resulting loss of power, a higher bandwidth can be covered (see page 13-11)

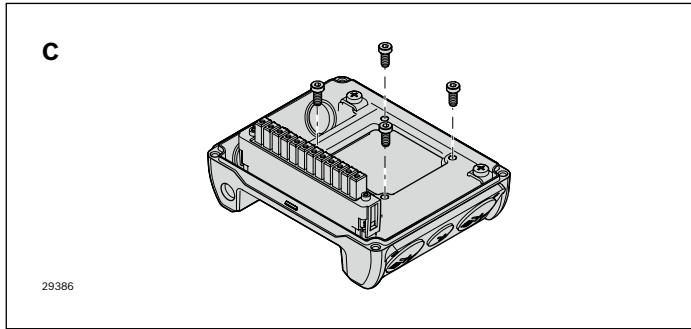


Communication module (B)

- ▶ To control the frequency converter
- ▶ Cable connection options

Depending on their function, the individual communication modules are provided with the corresponding connections.

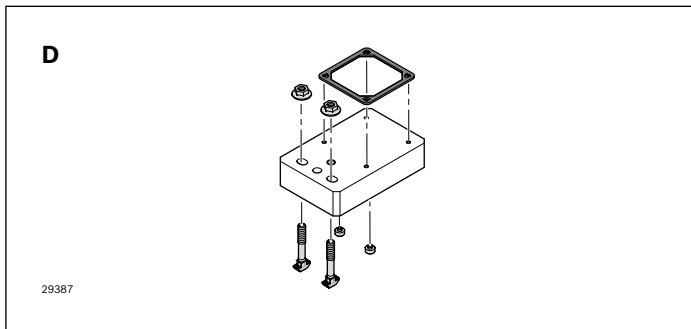
Product designation	Material number
Standard I/O	3 842 553 449
AS-i	3 842 553 453
CANopen	3 842 553 454
EtherNet/IP	3 842 553 451
EtherCAT	3 842 553 459
PROFIBUS	3 842 553 452
PROFINET	3 842 553 450



Connection unit (C)

- Power grid connection options

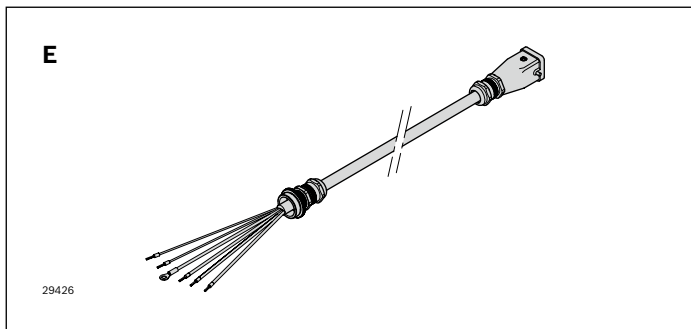
Product designation	Material number
Connection unit	3 842 553 445



Attachment kit (D)

- For the simple attachment of the frequency converter to the AL leg set (slot/s of a 60 or 80 strut profile)

Product designation	Material number
Attachment kit	3 842 553 457

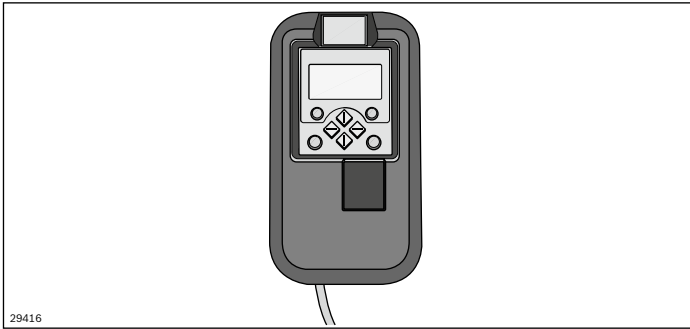


Connection cable (E)

- For connecting the gear motor with the frequency converter (length: 1 m)

Product designation	Material number
Connection cable	3 842 553 512

Frequency converter (FU) accessories



29416

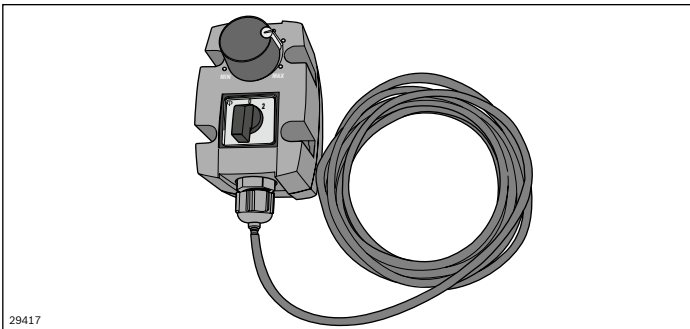
Manual control unit (A)

The manual control unit is required for the parameterization of drives with frequency converters.

In addition, you can:

- ▶ Control (e.g. block and release)
- ▶ Display operating data
- ▶ Steplessly regulate the transport speed
- ▶ Transfer parameter sets to other basic devices

Product designation	Material number
Manual control unit	3 842 552 821



29417

Switch/potentiometer unit (B)

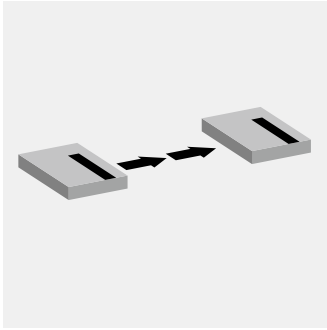
The switch/potentiometer unit is used to fine tune the transport speed within a range that has been preset with the manual control unit. The switch/potentiometer unit is connected to the frequency converter by a cable. The drive can be started or stopped with the rotary switch.

Note: It is imperative that the direction in which the roller conveyor is running is checked prior to commissioning.

Product designation	Material number
Switch/potentiometer unit	3 842 553 184

Scope of delivery:

A, B: Incl. 2.5 m connection cable



Longitudinal conveyor

4

Conveyor unit selection	4-2
ST 5/XH, ST 5/H conveyor units (with split rollers)	4-3
End plates for ST 5/XH, ST 5/H	4-6
Protective covers for ST 5/XH, ST 5/H	4-8
ST 5/XH-FR, ST 5/H-FR conveyor units (with full rollers)	4-10
End plates for ST 5/XH-FR, ST 5/H-FR	4-13
Protective covers for ST 5/XH-FR, ST 5/H-FR	4-15
ST 5/OC (Open Center) conveyor units	4-17
End plates for ST 5/OC	4-20
Protective covers for ST 5/OC	4-22
Cover for OC/XH, OC/H transition	4-23
Connection kits	4-25

Conveyor unit selection

Application and functions

Conveyor units are available in 2 load classes and 3 different system widths (455, 650, 845 mm) for longitudinal conveyors, as well as a further width for transverse conveyors (1040 mm). All rollers in the conveyor unit are driven by a king shaft in the respective drive unit. The king shaft is located behind a protective cover below the transport level; the workpiece pallet can pass over the king shaft. The conveyor units have a symmetrical design and there is no drive side selection.

The rollers are driven by bevel wheels; a friction clutch protects the drive during accumulation operation.

2 roller types:

- ▶ Split rollers as standard for longitudinal conveyors
- ▶ Full rollers (FR) as standard for curves, diverters, and junctions
- ▶ Full rollers for longitudinal conveyors to transport workpieces without workpiece pallets

Note:

The use of conveyor units with full rollers with WTs is limited. Depending on the roller dimensions, it may not be possible to assemble stop gates, sensor supports, and supports for ID systems due to insufficient space.

Required accessories:

- ▶ AS 5/... drive unit, see page 3-2
- ▶ SZ 5/... leg sets, see page 7-2
- ▶ Connection kits, see page 4-25

Conveyor unit load carrying capacity

- ▶ Permissible section load with a leg distance ≤ 2 m:
 - ST 5/XH: 380 kg/m
 - ST 5/H: 200 kg/m

The permissible loads apply only on condition that workpiece pallets with the maximum permitted weight m_{Gzul} have accumulated.

Accumulation operation is not permitted in curves, diverters, junctions, or the positioning unit.

Max. permissible WT weight m_{Gzul} with various WT lengths and roller spacings (pitch p)

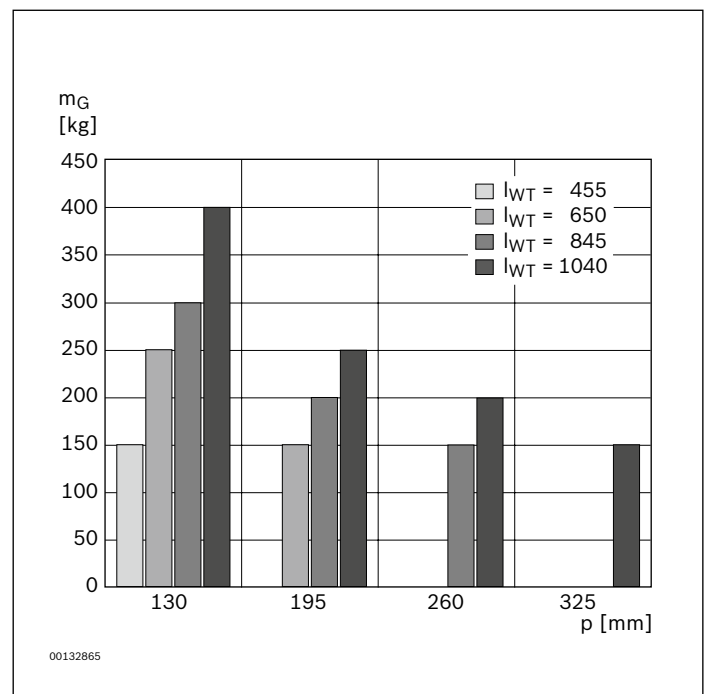
When designing the transfer system, the WT length, WT total weight m_G and roller spacing (pitch p) must be adjusted to each other.

The carrying force per roller is 50 kg. The workpiece pallet must always be on at least 3 rollers. The resulting load limits are shown in the graphic (see page 2-8).

Use of the customer's own workpiece pallets

The indicated interdependencies between b_{WT} and l_{WT} must be taken into account when using curves, diverters and lift transverse units.

If a workpiece pallet is only conveyed on a straight section, it can be any length; observe the permissible section load and roller load.



m_G = WT total mass
 p = roller spacing

ST 5/XH, ST 5/H conveyor units (with split rollers)



Condition on delivery:

- ▶ Ready-to-install.

Use:

- ▶ The conveyor unit is a ready-for-operation module used to transport workpiece pallets

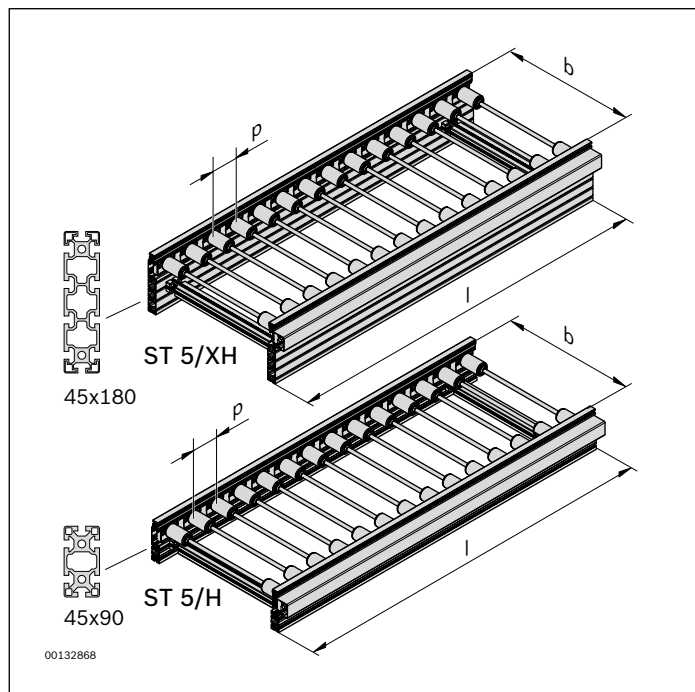
Version:

- ▶ Reversible operation possible
- ▶ Accumulation operation possible
- ▶ Support profile made of anodized aluminum
- ▶ Permissible section load:
 - ST 5/XH: 380 kg/m
 - ST 5/H: 200 kg/m
- ▶ Lateral guide profile made of steel, polymer, or aluminum in an anodized aluminum support
- ▶ Driven via king shaft with bevel wheels made of polymer or sintered metal

Note:

Other roller spacings available on request.

Ordering information



ST 5/XH, ST 5/H conveyor units

b (mm)	l_{WT} (mm)	p (mm)	l (mm)	N	LG	BG	TR	Material number
455	455; 650	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	1; 2	3 842 998 521 (ST 5/XH)
455	650	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	1; 2	3 842 998 520 (ST 5/H)
650	650; 845	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	1; 2	b = ... mm
650	650; 845	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	1; 2	p = ... mm
650	845	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	1; 2	l = ... mm
845	845; 1040	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	1; 2	LG = ...
845	845; 1040	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	1; 2	BG = ...
845	845; 1040	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	1; 2	TR = ...
845	1040	325	975 ... 3900	3; 4; 5 ... 12	1; 2; 3	1; 2	1; 2	
1040	845	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	1; 2	
1040	845	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	1; 2	
1040	845	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	1; 2	

b = width (track width in direction of transport)
l_{WT} = workpiece pallet length, note the interdependencies for p and l_{WT}!
p = Roller spacing (pitch)
l = Length graduated according to the roller dimensions (l = p × N)

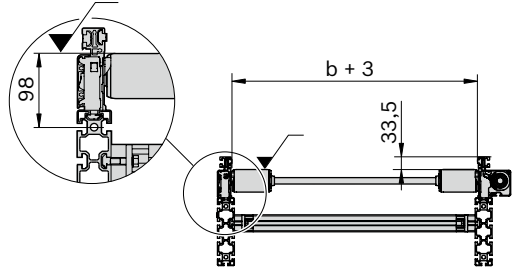
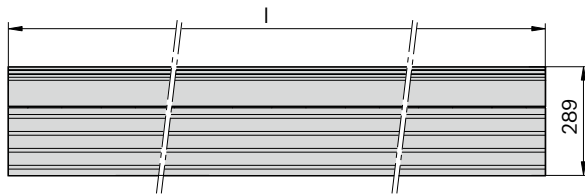
N = number of rollers, multiplier for length (l = p × N), pricing factor in the price list.
LG = Lateral guide material
 1: steel
 2: plastic
 3: aluminum

BG = Bevel wheel material
 1: plastic
 2: sintered metal
TR = Roller material
 1: galvanized steel
 2: steel, nitrocarburized

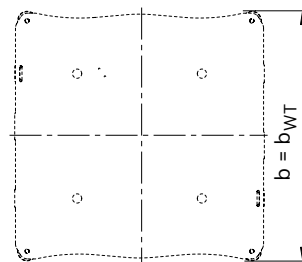
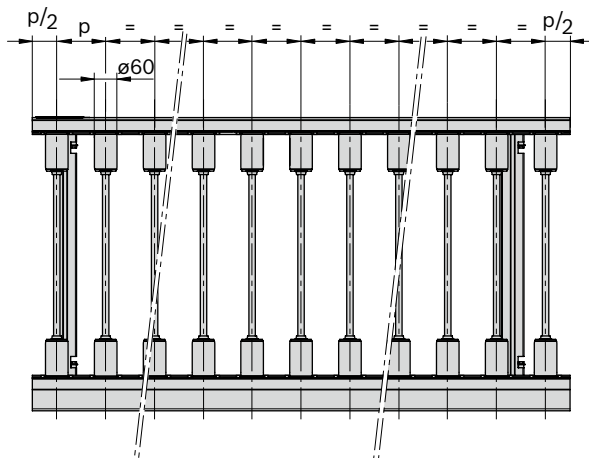
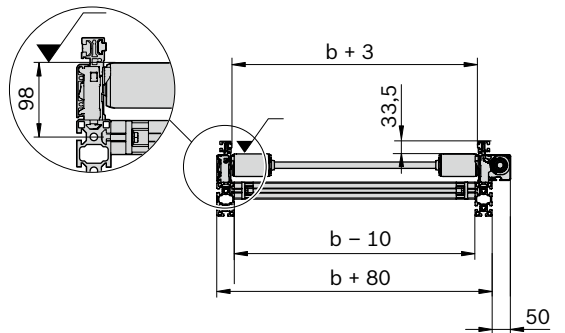
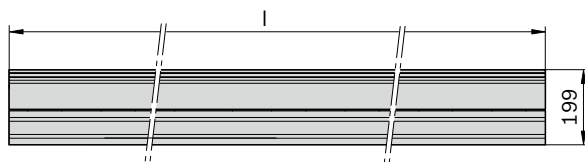
Dimensions

ST 5/XH, ST 5/H conveyor unit

ST 5/XH



ST 5/H



ST 5/XH: 3 842 998 521
 ST 5/H: 3 842 998 520

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End plates for ST 5/XH, ST 5/H



Use:

The protective covers and end plates are provided in working areas to increase safety. They can be ordered separately for conveyor units; for curves, diverters, and junctions they are optionally included in the scope of delivery (SC = 2).

The protective covers and end plates are clipped between the rollers using spring elements.

Note:

Do not walk on the protective covers or end plates.

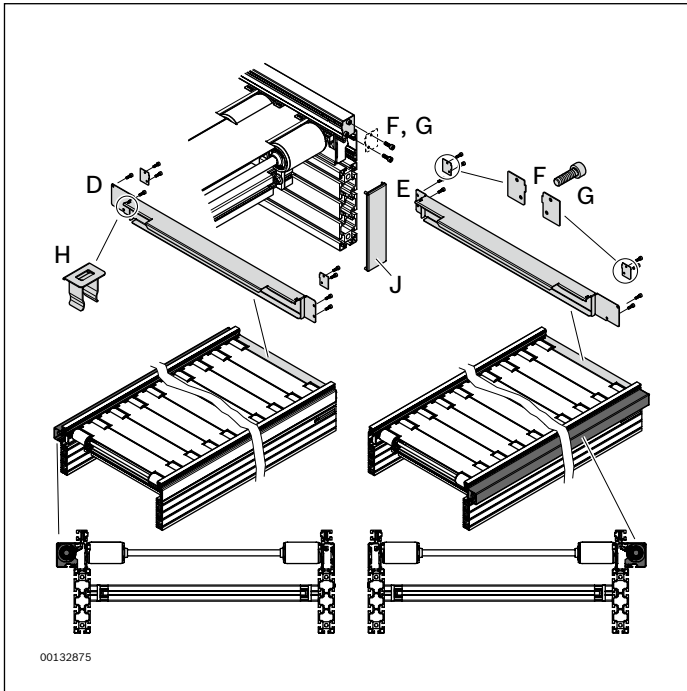
Versions:

- ▶ Protective covers for various widths and roller spacings.
- ▶ Special covers for conveyor section center, transitions, and ends.

Material:

- ▶ galvanized steel

Ordering information



End plates

- ▶ End plate, left drive side (**D**)
- ▶ End plate, right drive side (**E**)


	b¹⁾ (mm)	p²⁾ (mm)	Material number
D	455	130	3 842 545 679
	455	195	3 842 545 680
	650	130	3 842 545 681
	650	195	3 842 545 682
	650	260	3 842 545 683
	845	130	3 842 545 684
	845	195	3 842 545 685
	845	260	3 842 545 686
	845	325	3 842 545 687
	1040	130	3 842 545 476
	1040	195	3 842 545 477
E	455	130	3 842 545 689
	455	195	3 842 545 690
	650	130	3 842 545 691
	650	195	3 842 545 692
	650	260	3 842 545 693
	845	130	3 842 545 694
	845	195	3 842 545 695
	845	260	3 842 545 696
	845	325	3 842 545 697
	1040	130	3 842 545 474
	1040	195	3 842 545 475
1040	260	3 842 545 698	

¹⁾ b = Track width in direction of transport

²⁾ p = roller spacing


Lateral guide cover

- ▶ Lateral guide protective cover (**F**), 2 required
- ▶ Screw DIN 7500-EEM5X16-8.8 (**G**), 4 required for each end plate, 2 for each lateral guide cover. The screws must be sourced by the customer.

		Material number
F	2	3 842 545 276


Spring element

- ▶ Spring element (**H**), 2 required for each end plate

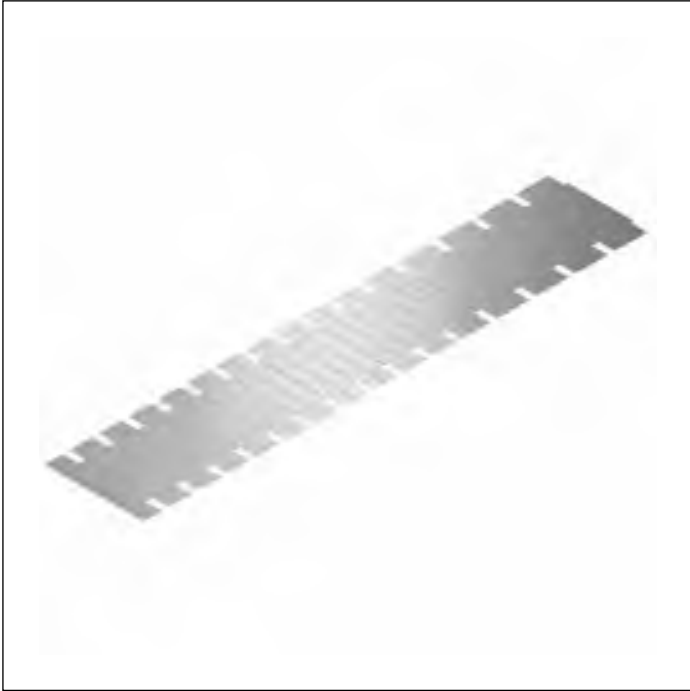
		Material number
H	50	3 842 545 214

Cover caps

- ▶ Cover cap for the open profile ends (**J**), 2 required for each section end

			Material number
J	ST 5/XH (45x180)	20	3 842 503 845
	ST 5/H (45x90)	20	3 842 511 783

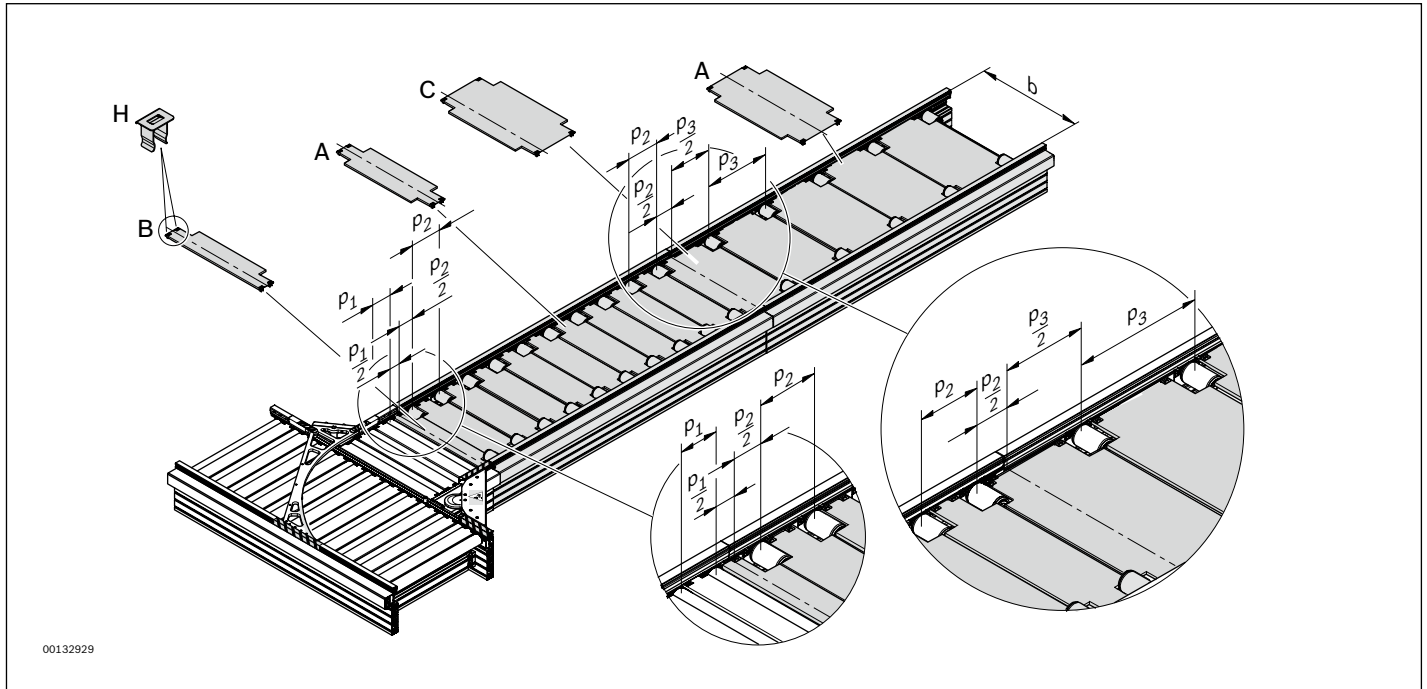
Protective covers for ST 5/XH, ST 5/H



- ▶ Section center protective cover (**A**)
- ▶ Protective covers for transition between curve (diverter, junction) / conveyor unit (**B**)
- ▶ Protective covers for transition between conveyor unit/ conveyor unit with different rollers (**C**)
- ▶ Spring element (**H**), 4 required for each protective cover, see page 4-9

The different dimensions of the protective covers can be found on page 4-9.

Ordering information



Protective covers for center (A) and transitions (B, C)

	b ¹⁾ (mm)	p ²⁾ (mm)	Material number
A	455	130	3 842 545 404
	455	195	3 842 545 609
	650	130	3 842 545 405
	650	195	3 842 545 360
	650	260	3 842 545 612
	845	130	3 842 545 361
	845	195	3 842 545 362
	845	260	3 842 545 363
	845	325	3 842 545 403
	1040	130	3 842 545 638
	1040	195	3 842 545 641
	1040	260	3 842 545 365

	b ¹⁾ (mm)	p1/p2 ²⁾ (mm)	Material number
B	455	130/130	3 842 545 482
	455	130/195	3 842 545 617
	650	130/130	3 842 545 483
	650	130/195	3 842 545 485
	650	130/260	3 842 545 621
	845	130/130	3 842 545 484
	845	130/195	3 842 545 506
	845	130/260	3 842 545 507
	845	130/325	3 842 545 508

- 1) b = Track width in direction of transport
- 2) p = roller spacing (pitch); p1/p2 and p2/p3
 = transition between different roller spacing dimensions

	b ¹⁾ (mm)	p2/p3 ²⁾ (mm)	Material number
C	455	130/195	3 842 545 616
	650	130/195	3 842 545 619
	650	195/260	3 842 545 644
	845	130/195	3 842 545 628
	845	195/260	3 842 545 629
	845	260/325	3 842 545 645
	1040	130/195	3 842 545 640
	1040	195/260	3 842 545 364

Spring element

► Spring element (H), 2 required for each end plate

		Material number
H	50	3 842 545 214

- 1) b = Track width in direction of transport
- 2) p = roller spacing (pitch); p1/p2 and p2/p3
 = transition between different roller spacing dimensions

ST 5/XH-FR, ST 5/H-FR conveyor units (with full rollers)



Condition on delivery:

- ▶ Ready-to-install.

Use:

- ▶ The conveyor unit is a ready-for-operation module, which is particularly suitable for transporting workpieces without workpiece pallets

Note:

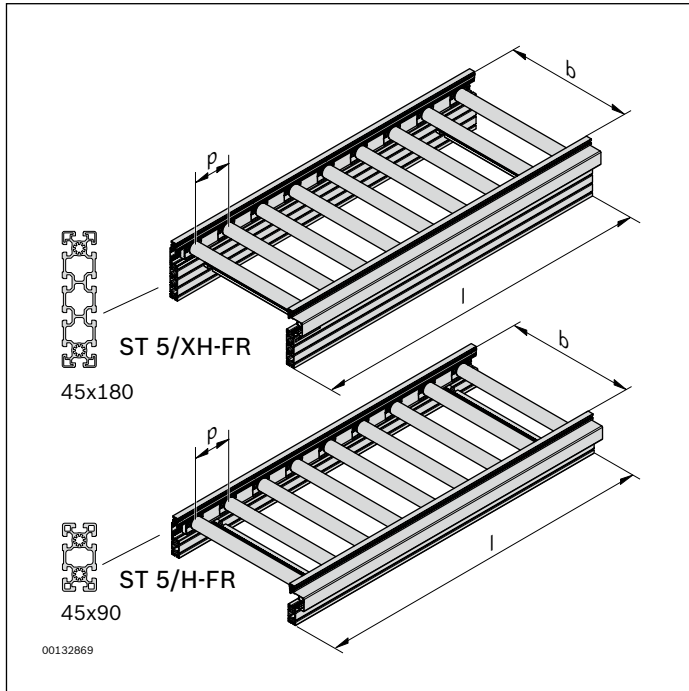
Depending on the roller spacing, the use of ST 5/...-FR conveyor units with workpiece pallets is limited, see page 4-2.

Other roller spacings available on request.

Version:

- ▶ Reversible operation possible
- ▶ Accumulation operation possible
- ▶ Support profile made of anodized aluminum
- ▶ Permissible section load:
 - ST 5/XH-FR: 380 kg/m
 - ST 5/H-FR: 200 kg/m
- ▶ Lateral guide profile made of steel, polymer, or aluminum in an anodized aluminum support
- ▶ Driven via king shaft with bevel wheels made of polymer or sintered metal

Ordering information



ST 5/XH-FR, ST 5/H-FR conveyor units

b (mm)	l _{WT} (mm)	p (mm)	l (mm)	N	LG	BG	TR	Material number
455	455; 650	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	1; 2	3 842 998 523 (ST 5/XH-FR)
455	650	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	1; 2	3 842 998 522 (ST 5/H-FR)
650	650; 845	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	1; 2	b = ... mm
650	650; 845	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	1; 2	p = ... mm
650	845	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	1; 2	l = ... mm
845	845; 1040	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	1; 2	LG = ...
845	845; 1040	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	1; 2	BG = ...
845	845; 1040	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	1; 2	TR = ...
845	1040	325	975 ... 3900	3; 4; 5 ... 12	1; 2; 3	1; 2	1; 2	
1040	845	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	1; 2	
1040	845	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	1; 2	
1040	845	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	1; 2	

b = width (track width in direction of transport)

l_{WT} = workpiece pallet length, note the interdependencies for p and l_{WT}!

p = Roller spacing (pitch)

l = Length graduated according to the roller dimensions
 (l = p × N)

N = number of rollers, multiplier for length
 (l = p × N), pricing factor in the price list.

LG = Lateral guide material

- 1: steel
- 2: plastic
- 3: aluminum

BG = Bevel wheel material

- 1: plastic
- 2: sintered metal

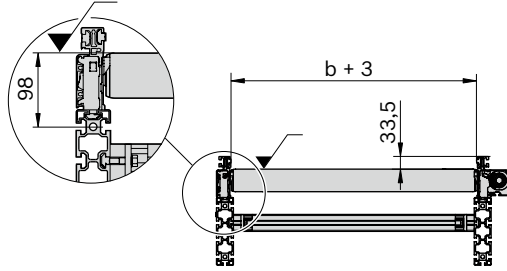
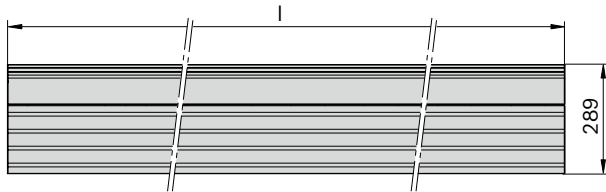
TR = Roller material

- 1: steel, galvanized
- 2: steel, nitrocarburized

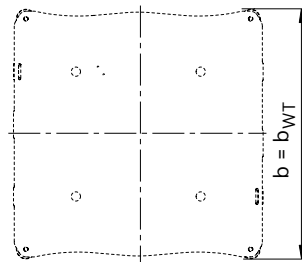
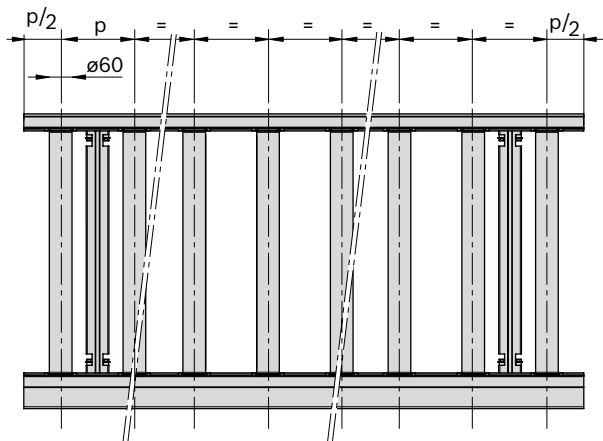
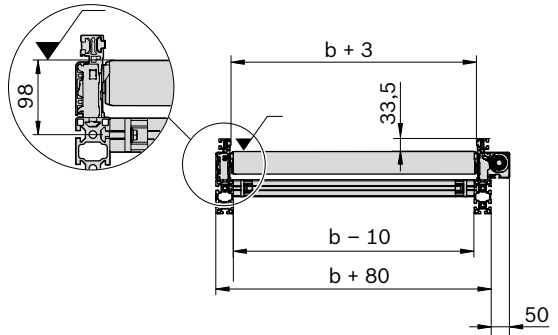
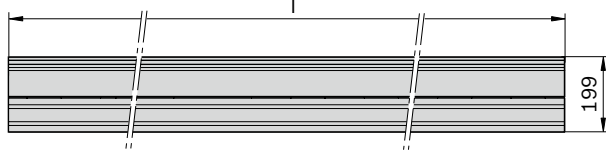
Dimensions

ST 5/XH-FR, ST 5/H-FR conveyor unit

ST 5/XH-FR



ST 5/ H-FR



ST 5/XH-FR: 3 842 998 523

ST 5/H-FR: 3 842 998 522

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End plates for ST 5/XH-FR, ST 5/H-FR



Use:

The protective covers and end plates are provided in working areas to increase safety. They can be ordered separately for conveyor units; for curves, diverters, and junctions they are optionally included in the scope of delivery (SC = 2). The protective covers and end plates are clipped between the rollers using spring elements.

Note:

Do not walk on the protective covers or end plates.

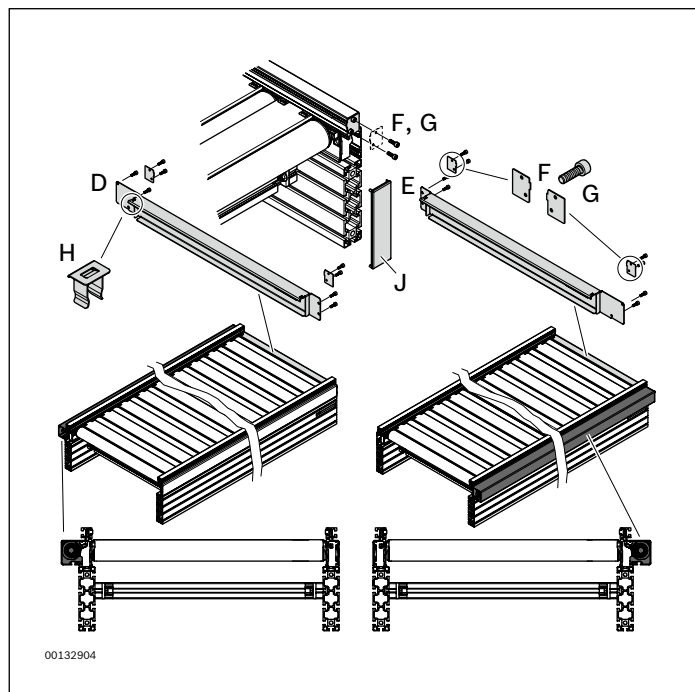
Version:

- ▶ Protective covers for various widths and roller spacings.
- ▶ Special covers for conveyor section center, transitions, and ends.

Material:

- ▶ galvanized steel

Ordering information



End plates

- ▶ End plate, left drive side (**D**)
- ▶ End plate, right drive side (**E**)

	b ¹⁾ (mm)	p ²⁾ (mm)	Material number
D	455	130	3 842 545 659
	455	195	3 842 545 660
	650	130	3 842 545 661
	650	195	3 842 545 662
	650	260	3 842 545 663
	845	130	3 842 545 664
	845	195	3 842 545 665
	845	260	3 842 545 666
	845	325	3 842 545 667
	1040	130	3 842 545 468
	1040	195	3 842 545 469
	1040	260	3 842 545 668
E	455	130	3 842 545 669
	455	195	3 842 545 670
	650	130	3 842 545 671
	650	195	3 842 545 672
	650	260	3 842 545 673
	845	130	3 842 545 674
	845	195	3 842 545 675
	845	260	3 842 545 676
	845	325	3 842 545 677
	1040	130	3 842 545 466
	1040	195	3 842 545 467
	1040	260	3 842 545 678

¹⁾ b = Track width in direction of transport

²⁾ p = roller spacing

Lateral guide cover

- ▶ Lateral guide protective cover (**F**), 2 required
 - ▶ Screw DIN 7500-EEM5X16-8.8 (**G**), 4 required for each end plate, 2 for each lateral guide cover
- The screws must be sourced by the customer.

	Material number
F	3 842 545 276

Spring element

- ▶ Spring element (**H**), 2 required for each end plate

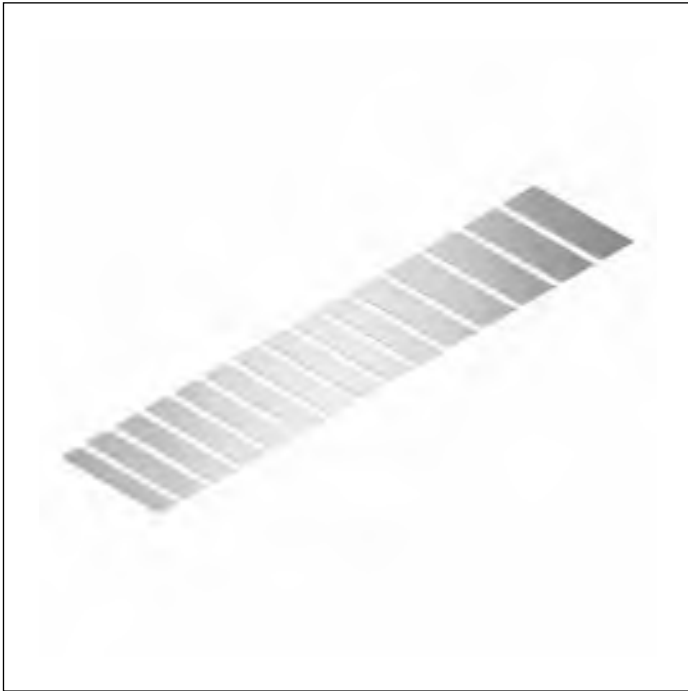
	Material number
H	3 842 545 214

Cover caps

- ▶ Cover cap for the open profile ends (**J**), 2 required for each section end

	Material number
J ST 5/XH (45x180)	3 842 503 845
ST 5/H (45x90)	3 842 511 783

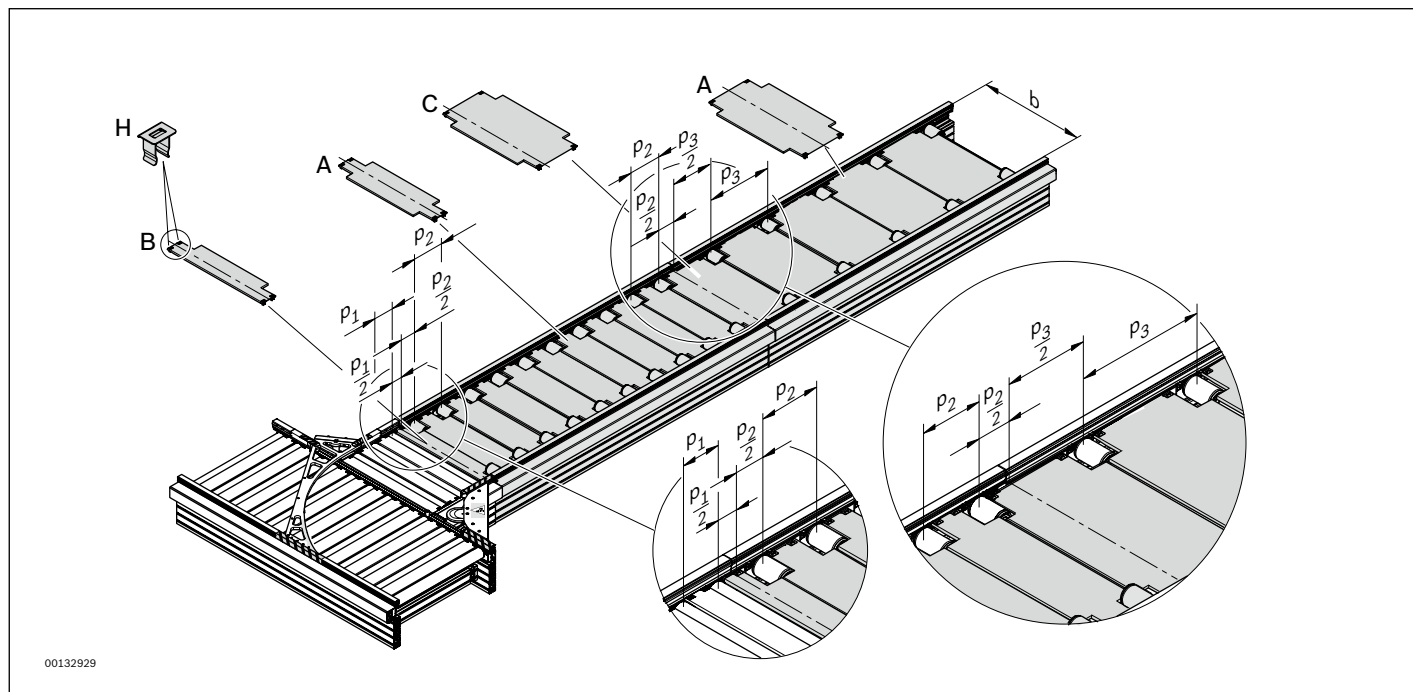
Protective covers for ST 5/XH-FR, ST 5/H-FR



- ▶ Section center protective cover (**A**)
- ▶ Protective covers for transition between curve (diverter, junction) / conveyor unit (**B**)
- ▶ Protective covers for transition between conveyor unit/ conveyor unit with different rollers (**C**)
- ▶ Spring element (**H**), 4 required for each protective cover, see page 4-16

The different dimensions of the protective covers can be found on page 4-16.

Ordering information



Protective covers for center (A) and transitions (B, C)

	b ¹⁾ (mm)	p ²⁾ (mm)	Material number
A	455	130	3 842 545 406
	455	195	3 842 545 610
	650	130	3 842 545 407
	650	195	3 842 545 408
	650	260	3 842 545 613
	845	130	3 842 545 409
	845	195	3 842 545 410
	845	260	3 842 545 411
	845	325	3 842 545 415
	1040	130	3 842 545 412
1040	195	3 842 545 413	
1040	260	3 842 545 414	

	b ¹⁾ (mm)	p ^{2)/p³⁾ (mm)}	Material number
C	455	130/195	3 842 545 614
	650	130/195	3 842 545 620
	650	195/260	3 842 545 642
	845	130/195	3 842 545 626
	845	195/260	3 842 545 630
	845	260/325	3 842 545 643
	1040	130/195	3 842 545 639
	1040	195/260	3 842 545 637

	b ¹⁾ (mm)	p ^{1)/p²⁾ (mm)}	Material number
B	455	130/130	3 842 545 406
	455	130/195	3 842 545 614
	650	130/130	3 842 545 407
	650	130/195	3 842 545 620
	650	130/260	3 842 545 408
	845	130/130	3 842 545 409
	845	130/195	3 842 545 626
	845	130/260	3 842 545 410
	845	130/325	3 842 545 630
	1040	130/130	3 842 545 412
1040	130/195	3 842 545 639	
1040	130/260	3 842 545 413	

- 1) b = Track width in direction of transport
 2) p = roller spacing (pitch); p₁/p₂ and p₂/p₃
 = transition between different roller spacing dimensions

Spring element

- Spring element (H), 2 required for each end plate

		Material number
H	50	3 842 545 214

ST 5/OC (Open Center) conveyor units



Condition on delivery:

- ▶ Ready-to-install.

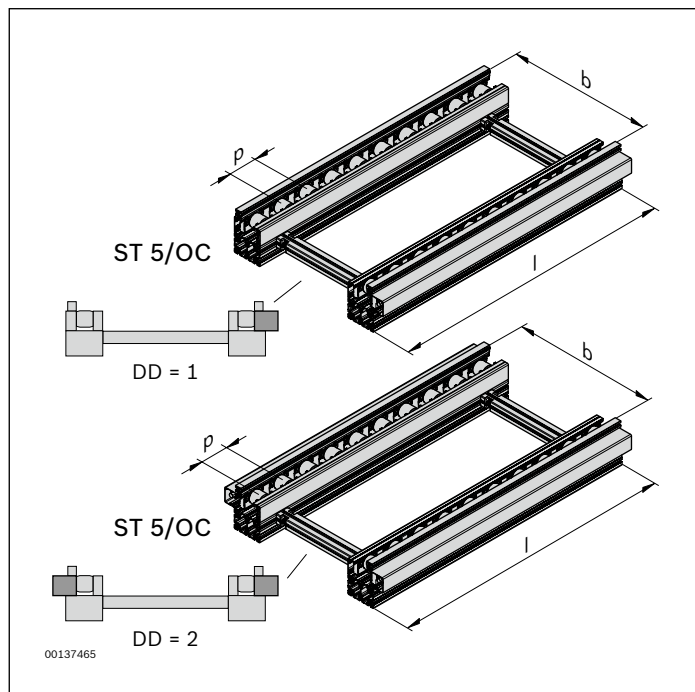
Use:

- ▶ The conveyor unit is a ready-for-operation module used to transport workpiece pallets. The open center allows processes from below

Version:

- ▶ Reversible operation possible
- ▶ Accumulation operation possible
- ▶ Support profile made of anodized aluminum
- ▶ Permissible section load: 380 kg/m
- ▶ Lateral guide profile made of steel, polymer, or aluminum in an anodized aluminum support
- ▶ Driven via king shaft with bevel wheels made of polymer or sintered metal

Ordering information



ST 5/OC (Open Center) conveyor units

b (mm)	l _{WT} (mm)	p (mm)	l (mm)	N	LG	BG	TR	DD	Material number
455	455; 650	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	1; 2	1; 2	3 842 998 574 (ST 5/OC)
455	650	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	1; 2	1; 2	b = ... mm
650	650; 845	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	1; 2	1; 2	p = ... mm
650	650; 845	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	1; 2	1; 2	l = ... mm
650	845	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	1; 2	1; 2	LG = ...
845	845; 1040	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	1; 2	1; 2	BG = ...
845	845; 1040	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	1; 2	1; 2	TR = ...
845	845; 1040	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	1; 2	1; 2	DD = ...
845	1040	325	975 ... 3900	3; 4; 5 ... 12	1; 2; 3	1; 2	1; 2	1; 2	
1040	845	130	390 ... 4160	3; 4; 5 ... 32	1; 2; 3	1; 2	1; 2	1; 2	
1040	845	195	585 ... 4095	3; 4; 5 ... 21	1; 2; 3	1; 2	1; 2	1; 2	
1040	845	260	780 ... 4160	3; 4; 5 ... 16	1; 2; 3	1; 2	1; 2	1; 2	

b = width (track width in direction of transport)

l_{WT} = workpiece pallet length, note the interdependencies for p and l_{WT}!

p = Roller spacing (pitch)

l = Length graduated according to the roller dimensions (l = p × N)

N = number of rollers, multiplier for length (l = p × N), pricing factor in the price list.

LG = Lateral guide material
1: steel
2: plastic
3: aluminum

BG = Bevel wheel material
1: plastic
2: sintered metal

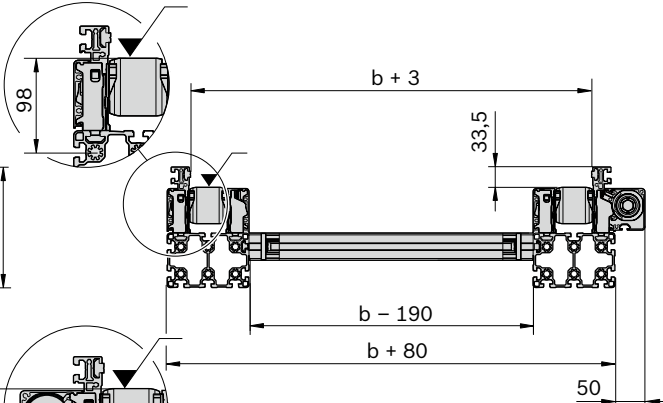
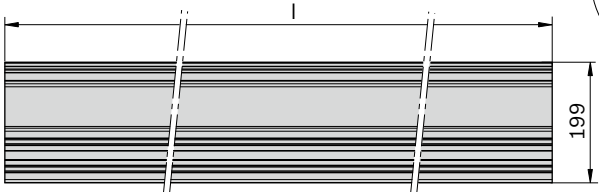
TR = Roller material
1: galvanized steel
2: steel, nitrocarburized

DD = drive
1: on one side
2: on two sides

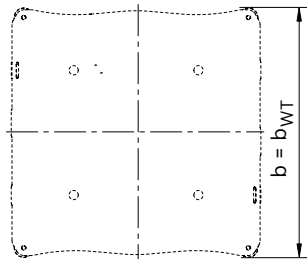
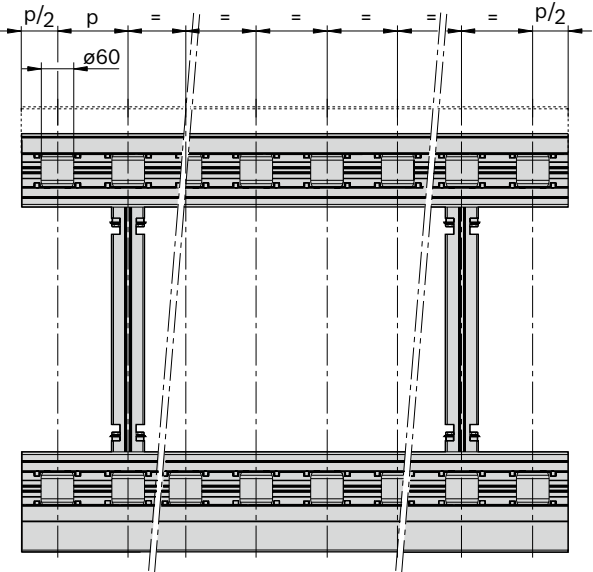
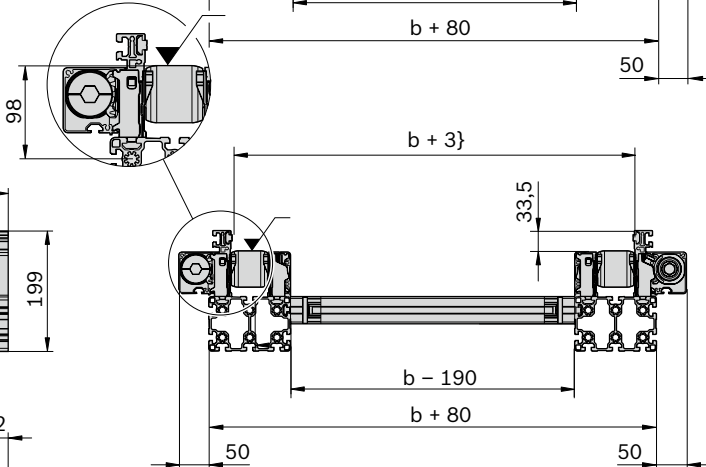
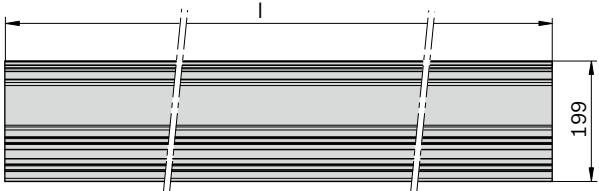
Dimensions

ST 5/OC (Open Center) conveyor unit

ST 5/OC
 DD = 1



ST 5/OC
 DD = 2



ST 5/OC: 3 842 998 574

00137466

End plates for ST 5/OC



Use:

The protective covers and end plates are provided in working areas to increase safety

Note:

Do not walk on the protective covers or end plates.

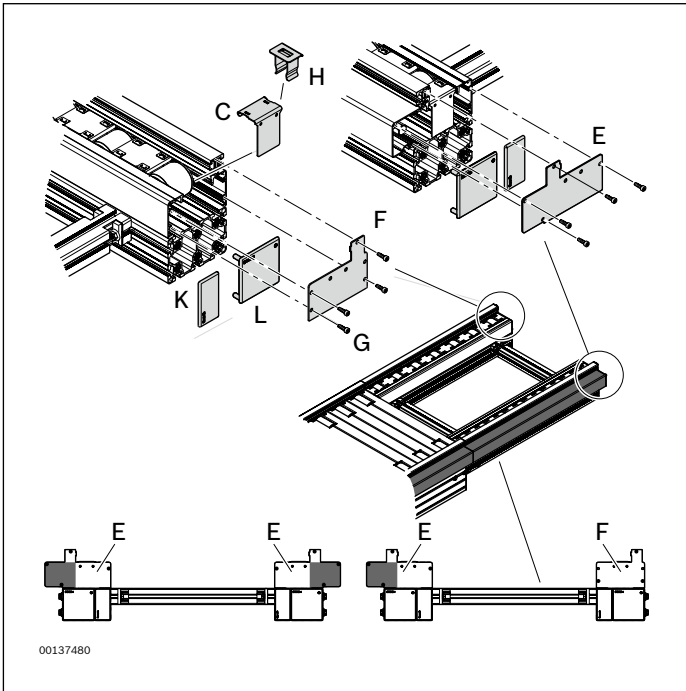
Version:

- ▶ Protective covers for various roller spacings
- ▶ Special covers for conveyor section center, transitions, and ends

Material:

- ▶ galvanized steel

Ordering information



00137480

End plates (C)

- ▶ End plate for drive side (**E**), left/right
- ▶ End plate for passive side (**F**), left/right
- ▶ Screw DIN 7500-EEM5X16-8.8 (**G**), 4 required for each end plate. The screws must be sourced by the customer.

	p ¹⁾ (mm)		Material number
C	130	2	3 842 545 573
	195	2	3 842 545 574
	260	2	3 842 545 575
	325	2	3 842 545 576
E			3 842 545 571
F			3 842 545 572

¹⁾ p = roller spacing

Spring element (H)

- ▶ Spring element, 2 required for each end plate

		Material number
H	50	3 842 545 214

End caps (K, L)

- ▶ Cover cap for the open profile ends, 2 required for each section end

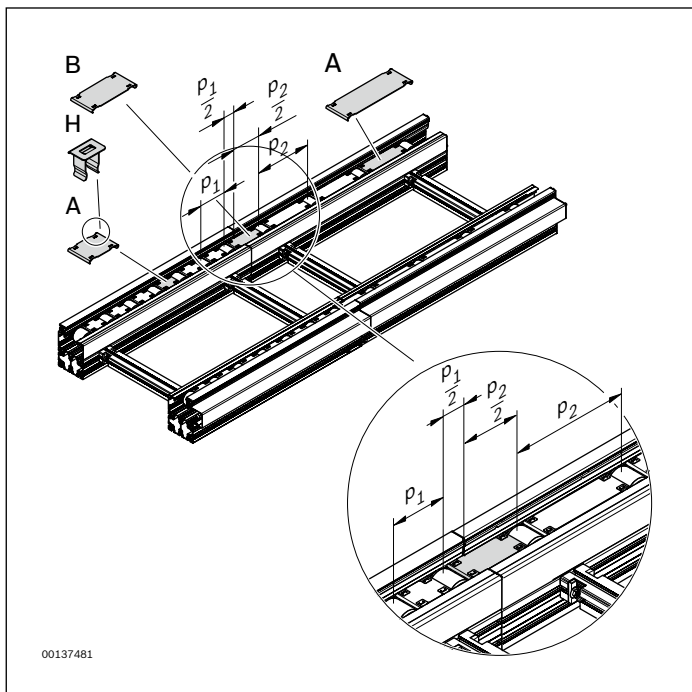
		Material number
K	20	3 842 511 783
L	20	3 842 516 214

Protective covers for ST 5/OC



- ▶ Section center protective cover (**A**)
- ▶ Protective covers for transition between conveyor unit/
conveyor unit with the same or different rollers (**B**)
- ▶ Spring element (**H**), 4 required for each protective cover

Ordering information



Protective covers for center (A) and transitions (B)

	p¹ (mm)	Material number
A	130	3 842 545 541
	195	3 842 545 543
	260	3 842 545 545
	325	3 842 545 547

¹⁾ p = roller spacing (pitch); p1/p2 = transition between different roller spacing dimensions

	p1/p2¹⁾ (mm)	Material number
B	130/130	3 842 545 541
	130/195	3 842 545 542
	195/195	3 842 545 543
	195/260	3 842 545 544
	260/260	3 842 545 545
	260/325	3 842 545 546
	325/325	3 842 545 547

¹⁾ p = roller spacing (pitch); p1/p2 = transition between different roller spacing dimensions

Spring element

		Material number
H	50	3 842 545 214

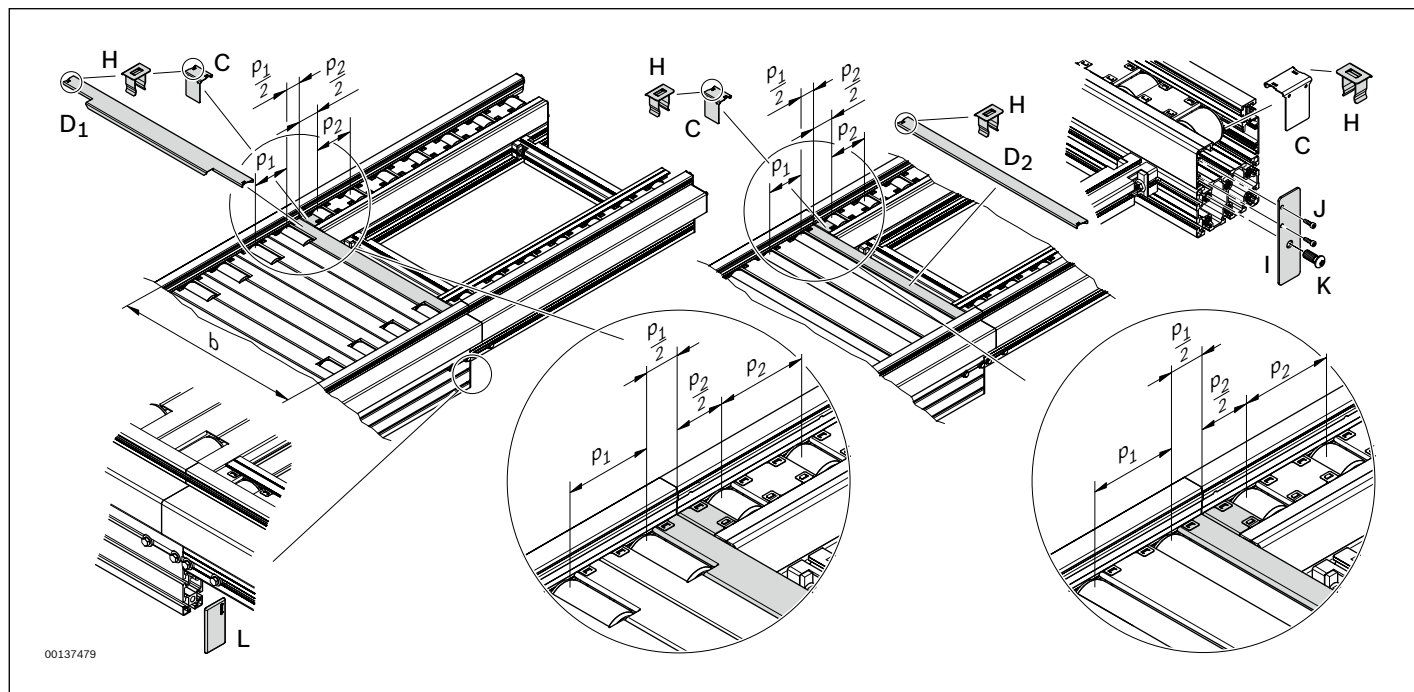
Cover for OC/XH, OC/H transition



- ▶ Protective cover (**C**)
- ▶ Cover for split rollers (**D1**)
- ▶ Cover for full rollers (**D2**)
- ▶ Spring element (**H**)
- ▶ End plate for open profile ends (**I**)
- ▶ Screw DIN7500-EEM5X16-8.8 (**J**), 2 required for each lateral guide cover
- ▶ Screw (**K**), 1 required for each end plate
- ▶ Cover cap for the open profile ends (**L**)

The different dimensions of the protective covers can be found on page 4-24.

Ordering information



Cover

	b ¹⁾ (mm)	p ²⁾ (mm)	Material number
D1	455	130	3 842 545 150
	455	195	3 842 545 151
	650	130	3 842 545 152
	650	195	3 842 545 153
	650	260	3 842 545 739
	845	130	3 842 545 154
	845	195	3 842 545 155
	845	260	3 842 545 740
	845	325	3 842 545 741
	1040	130	3 842 545 156
	1040	195	3 842 545 157
	1040	260	3 842 545 742
1040	325	3 842 545 745	

- ¹⁾ b = Track width in direction of transport
²⁾ p = roller spacing (pitch); p₁/p₂ = transition between different roller spacing dimensions

Cover

		p ²⁾ (mm)	Material number
C	2	130	3 842 545 573
		195	3 842 545 574
		260	3 842 545 575
		325	3 842 545 576
I	1		3 842 549 670

- ¹⁾ b = Track width in direction of transport
²⁾ p = roller spacing (pitch); p₁/p₂ = transition between different roller spacing dimensions

	b ¹⁾ (mm)	p ²⁾ (mm)	Material number
D2	455	130	3 842 545 158
	455	195	3 842 545 248
	650	130	3 842 545 321
	650	195	3 842 545 548
	650	260	3 842 545 577
	845	130	3 842 545 549
	845	195	3 842 545 550
	845	260	3 842 545 578
	845	325	3 842 545 579
	1040	130	3 842 545 551
	1040	195	3 842 545 599
	1040	260	3 842 545 600
1040	325	3 842 545 737	

- ¹⁾ b = Track width in direction of transport
²⁾ p = roller spacing (pitch); p₁/p₂ = transition between different roller spacing dimensions

Spring element

		Material number
H	50	3 842 545 214

Screw

		Material number
K	100	3 842 530 236

End cap

		Material number
L	20	3 842 511 855

Connection kits



Use:

To connect two TS 5 modules, you will need:

- ▶ 4 profile connectors for section profiles (**A**)
- ▶ 2 profile connectors for lateral guide (**B**)
- ▶ 2 intermediate plates (**C**)
- ▶ 1 coupling (**D**)

The coupling is used to connect the king shafts. A cross plate in the coupling compensates for alignment errors and concentricity tolerances.



Profile connectors for conveyor section profiles/lateral guides

- ▶ The profile ends are connected to each other using profile connectors.

Material:

- ▶ Galvanized steel

Scope of delivery:


- ▶ Profile connector, screws

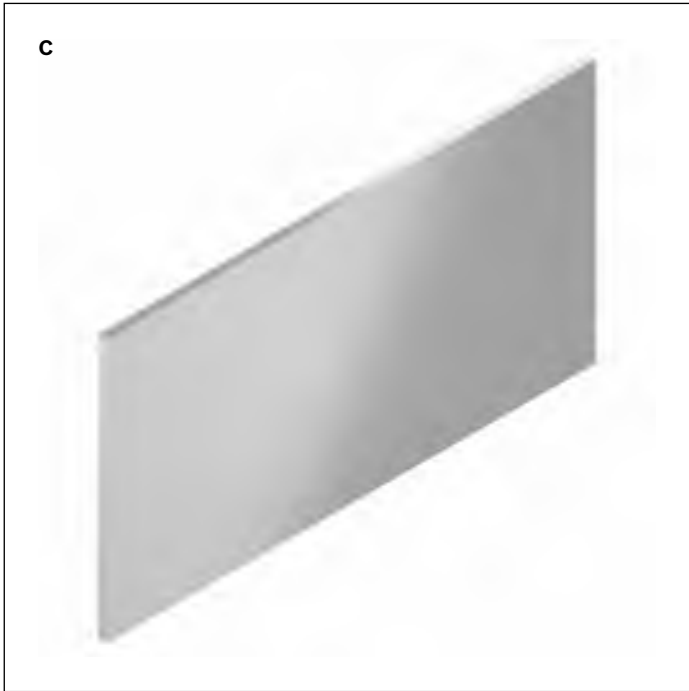


Profile connector for section profile

	Material number
A	3 842 528 746

Profile connectors for lateral guides

		Material number
B	10	3 842 545 699




Intermediate plates for module transitions

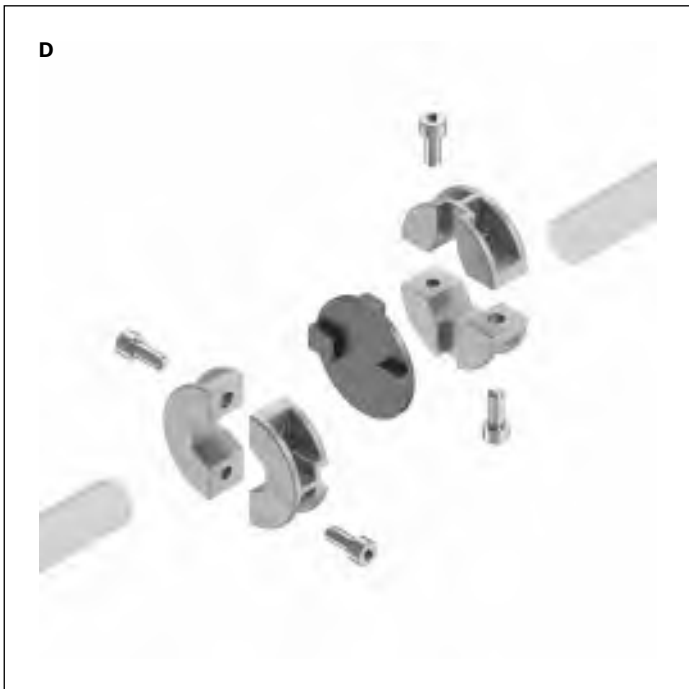
- ▶ The modules (conveyor sections, drives, curves, diverters) are separated using intermediate plates with the respective roller dimension p.

Material:

- ▶ galvanized steel

		p1/p2 ¹⁾ (mm)	Material number
C	10	130/130	3 842 545 215
	10	130/195	3 842 545 354
	10	130/260	3 842 545 216
	10	130/325	3 842 545 355
	10	195/195	3 842 545 216
	10	195/260	3 842 545 355
	10	260/260	3 842 545 217
	10	260/325	3 842 545 648
	10	325/325	3 842 545 218

¹⁾ Roller spacing of the respective modules



Coupling

- ▶ For connecting the king shaft. Compensates for alignment errors and concentricity tolerances.


Material:

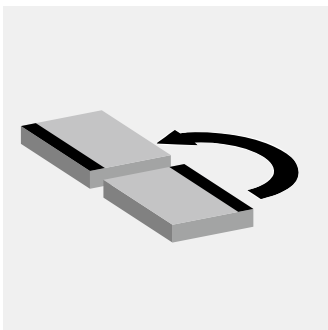
- ▶ galvanized steel
- ▶ brass

Scope of delivery:

- ▶ Couplings, screws

Coupling

		Material number
D	10	3 842 545 160

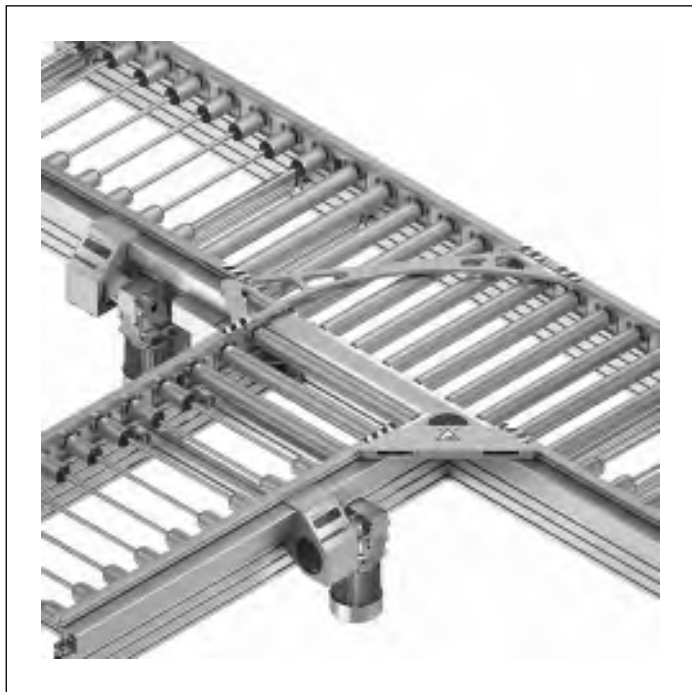


Curves/diverters/ junctions

5

Design	5-2
CU 5/XH, CU 5/H curves	5-4
DI 5/XH, DI 5/H diverters	5-8
JU 5/XH, JU 5/H junctions	5-13
Limits for the permissible gravity center position for junctions and diverters	5-17
Three-way diverter DI 5/XH-3W, DI 5/H-3W	5-18
Limits for the permissible gravity center position for the three-way diverter	5-22

Design



Curves, diverters, and junctions are available for branching transport of workpiece pallets. The inlet and outlet of these modules are separately driven via king shafts.

Due to the function, the transport height of the main and secondary sections (inlet and outlet) has a slight difference. This is why curves, diverters, and junctions must always be arranged with an opposite orientation (see the graphic).

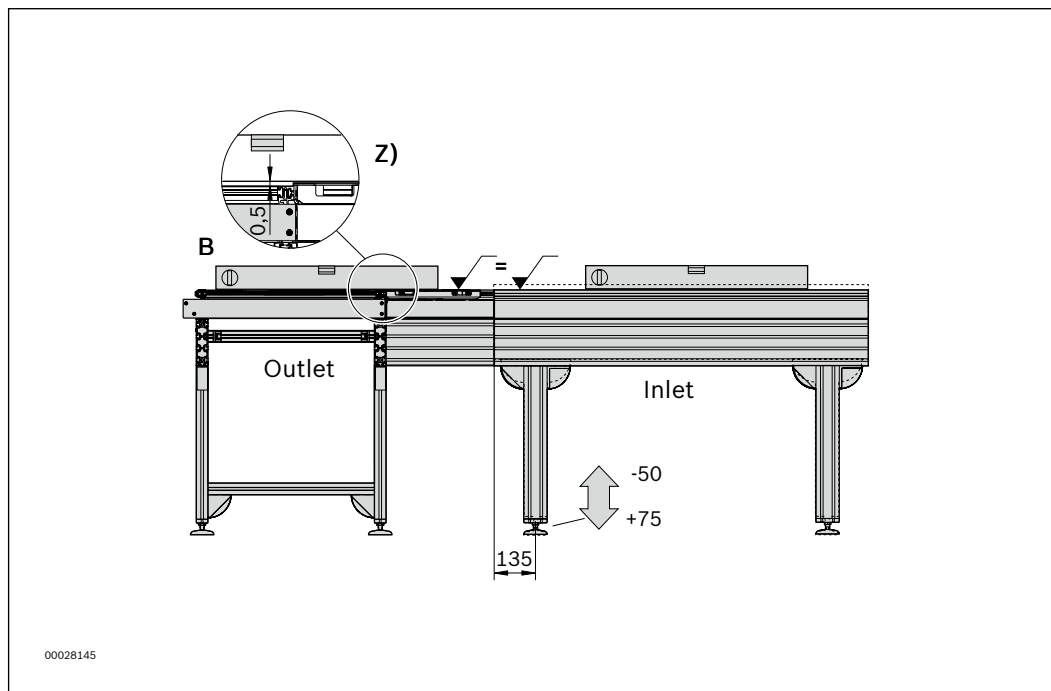
Permissible loads

m_G (kg)	v_N (m/min)
max. 260	12
max. 300	9

m_G = total mass of workpiece pallet

Higher weights available on request.

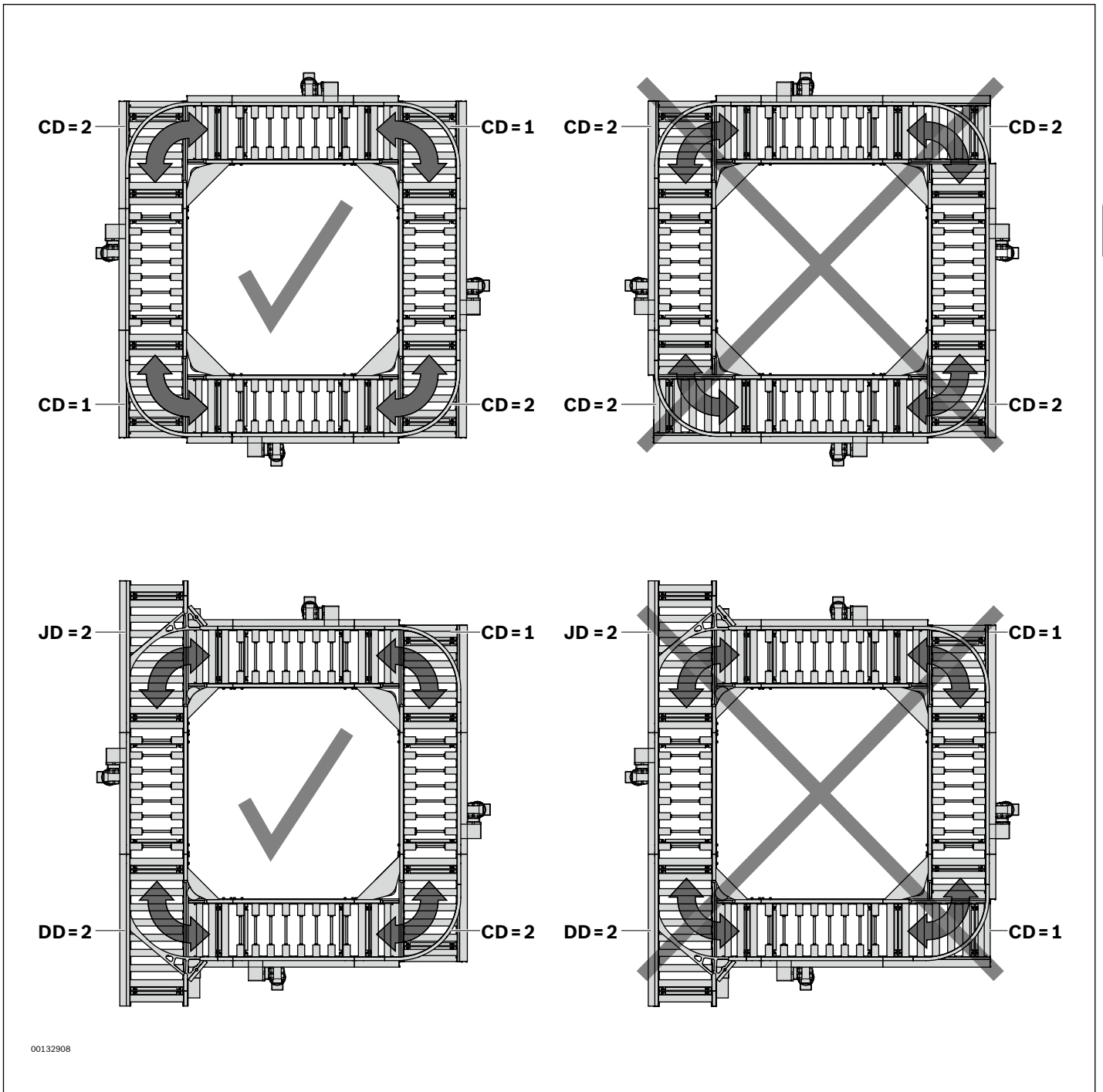
Can be adapted to different transport speeds.



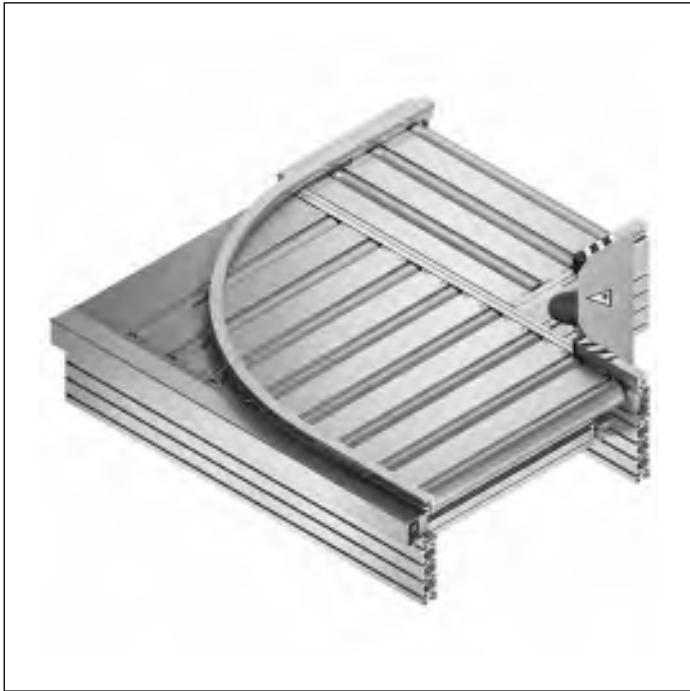
Note:

At curves, diverters and junctions, functional considerations mean that there is 0.5 mm difference between the transport height of the main and secondary section (inlet and outlet) (**Z**).

Arrangement of curves, diverters, and junctions



CU 5/XH, CU 5/H curves



Condition on delivery:

- ▶ Ready-to-install.

Optional:

- ▶ assembled protective covers
- ▶ (protective covers cannot be ordered separately)

Use:

The curve is a ready-for-operation module for branching transport of workpiece pallets. Curves can be driven either on the inside or on the outside.

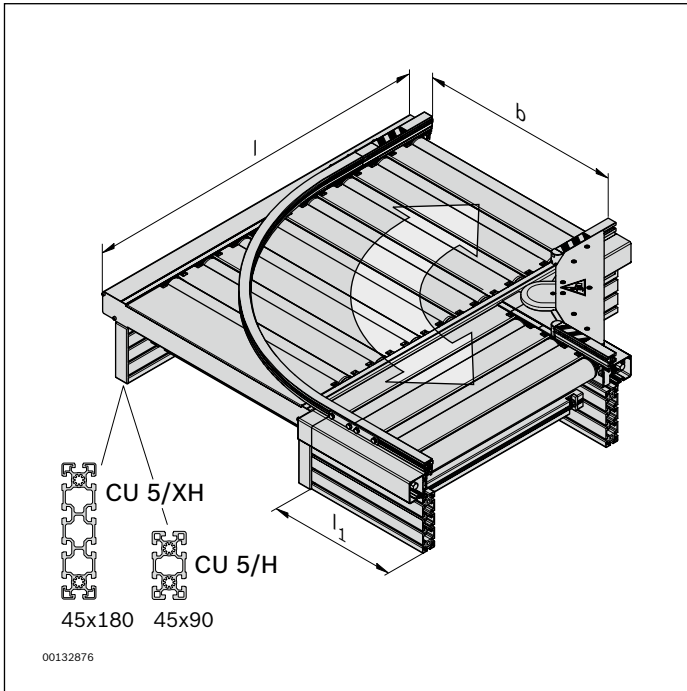
Note:

The curve is not suitable for accumulation operation. Permissible loads, see page 5-6

Version:

- ▶ Reversible operation possible
- ▶ Accumulation operation not permitted
- ▶ Support profile made of anodized aluminum
- ▶ Lateral guide profile made of steel, polymer, or aluminum in an anodized aluminum support
- ▶ Driven via king shaft with bevel gears made of sintered metal
- ▶ Roller spacing $p = 130$
- ▶ Full rollers
- ▶ m_g up to 300 kg (where $v = 9$ m/min)

Ordering information



CU 5/XH, CU 5/H curves

b (mm)	l_{WT} (mm)	N	LG	CD ¹⁾	DSM ²⁾	DST ³⁾	TR	SC ⁴⁾	Material number
455	455; 650	10	1; 2; 3	1; 2	1; 2	1; 2	1; 2	1; 2	3 842 998 526 (CU 5/XH)
650	650; 845	11	1; 2; 3	1; 2	1; 2	1; 2	1; 2	1; 2	3 842 998 525 (CU 5/H)
845	845; 1040	13	1; 2; 3	1; 2	1; 2	1; 2	1; 2	1; 2	b = ... mm

l_{WT} = ... mm
 N = ...
 LG = ...
 CD = ...
 DSM = ...
 DST = ...
 TR = ...
 SC = ...

¹⁾ CD = curve direction,
 1: left
 2: right

²⁾ DSM = King shaft installation on main section
 1: left
 2: right

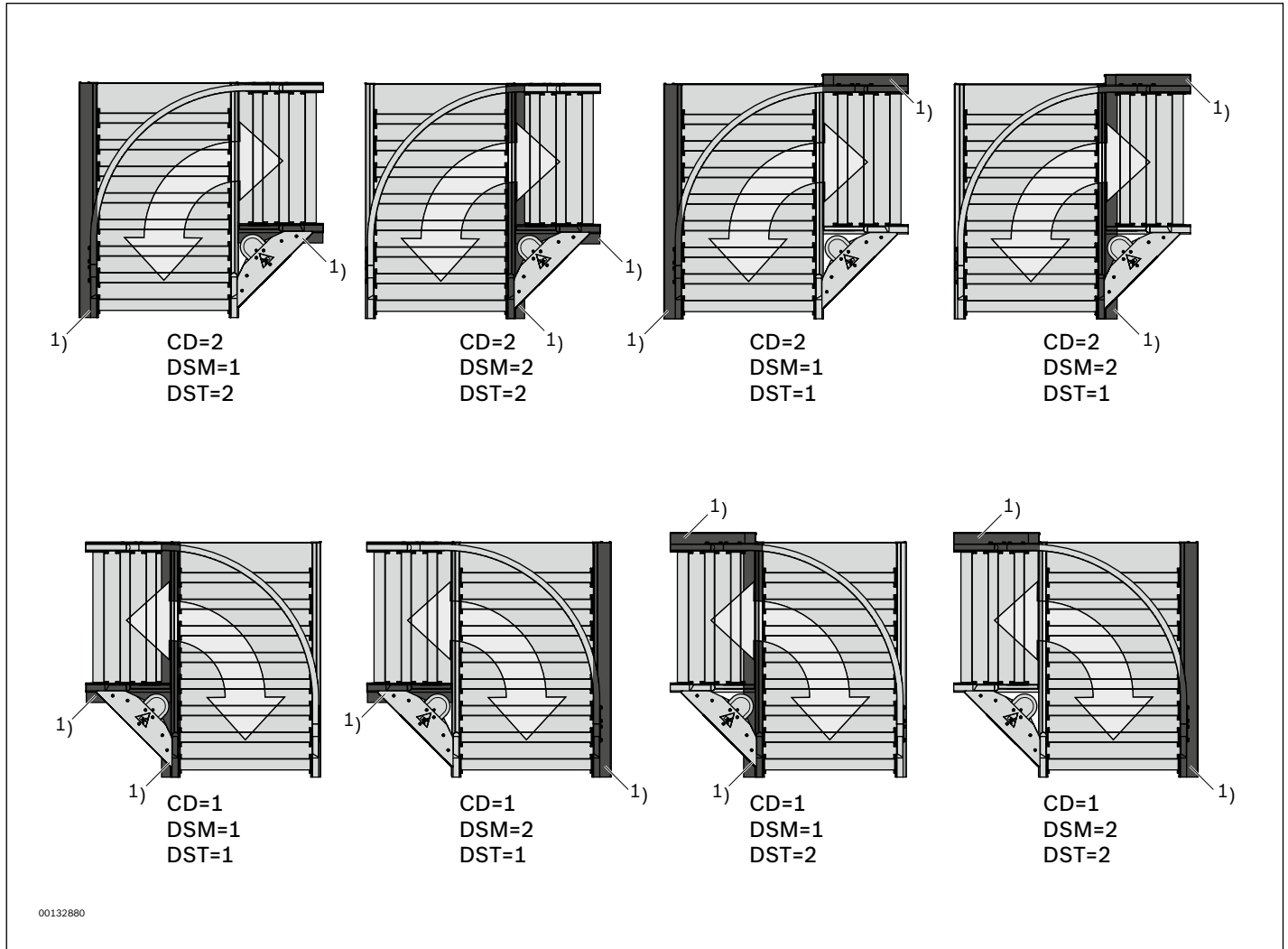
³⁾ DST = King shaft installation on secondary section
 1: left
 2: right

⁴⁾ SC = protective covers
 1: without protective covers
 2: with protective covers

Description of further parameters, see page 0-3

Ordering examples, see page 5-6

Order examples



¹⁾ Drive side

Permissible loads

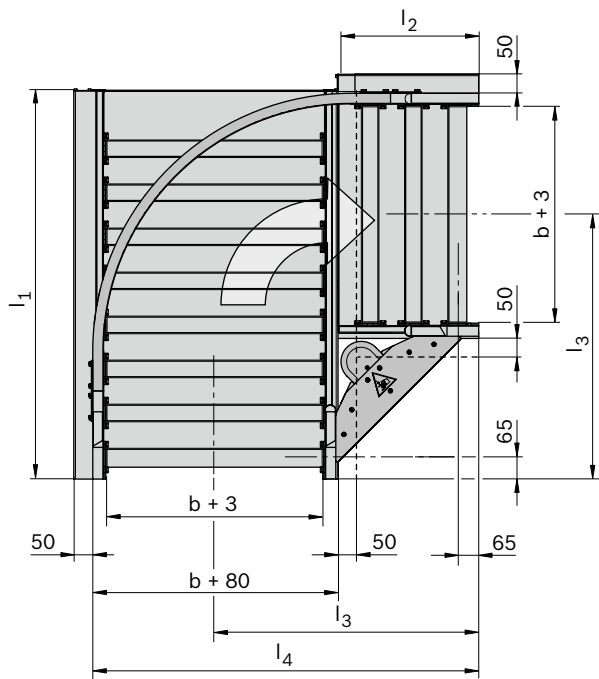
m_G (kg)	v_N (m/min)
max. 260	12
max. 300	9

m_G = total mass of workpiece pallet

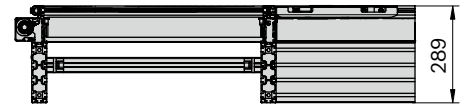
Higher weights available on request.
 Can be adapted to different transport speeds.

Dimensions

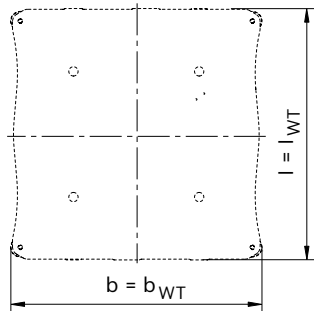
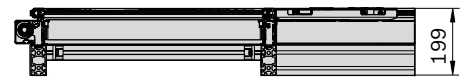
CU 5/H, CU 5/XH curve



CU 5/XH



CU 5/H



CU 5/XH: 3 842 998 526

CU 5/H: 3 842 998 525

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$b^{1)}$ (mm)	$l_{WT}^{2)}$ (mm)	N	$l_1^{3)}$ (mm)	$l_2^{4)}$ (mm)	$l_3^{5)}$ (mm)	l_4 (mm)
455	455; 650	10	921.5	382.5	650	917.5
650	650; 845	11	1149	415	780	1145
845	845; 1040	13	1376.5	447	910	1372.5

¹⁾ b = track width in direction of transport

²⁾ l_{WT} = workpiece pallet length (in direction of transport)

³⁾ l_1 = length of main section

⁴⁾ l_2 = length of secondary section

⁵⁾ l_3 = length of secondary section up to center of main section

Description of further parameters, see page 0-3

DI 5/XH, DI 5/H diverters



Condition on delivery:

- ▶ Ready-to-install.

Optional:

- ▶ Protective covers mounted (protective covers cannot be ordered separately)

Use:

The diverter is a ready-for-operation module for branching transport of workpiece pallets. The king shaft installation for the main or secondary section can be installed on either side. The diverter is controlled as an active element via a pneumatic cylinder ($p = 5 \dots 6$ bar).

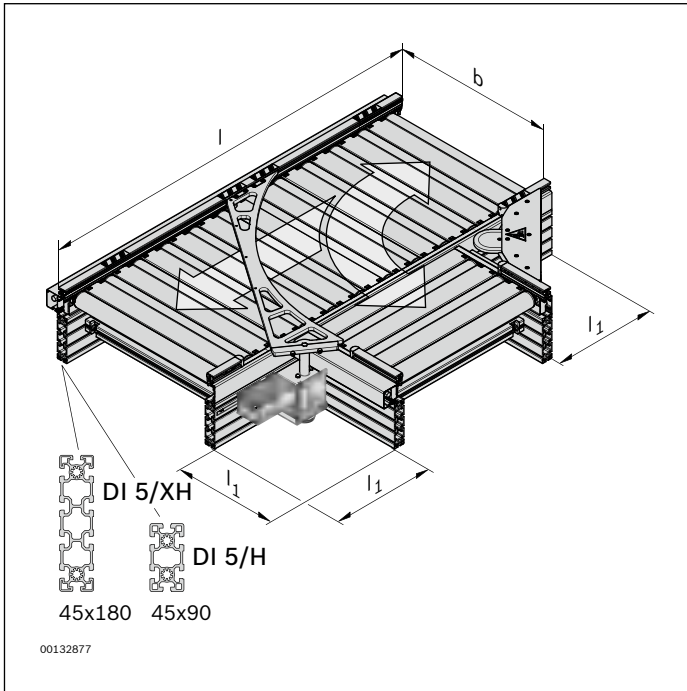
Note:

The diverter is not suitable for accumulation operation. Permissible loads, see page 5-10

Version:

- ▶ Reversible operation possible
- ▶ Accumulation operation not permitted
- ▶ Support profile made of anodized aluminum
- ▶ Lateral guide profile made of steel, polymer, or aluminum in an anodized aluminum support
- ▶ Driven via king shaft with bevel gears made of sintered metal
- ▶ Roller spacing $p = 130$
- ▶ Full rollers
- ▶ m_G up to 300 kg (where $v = 9$ m/min)
- ▶ Pneumatic push-in fitting: 6 mm

Ordering information



DI 5/XH, DI 5/H diverters

b (mm)	l_{WT} (mm)	N	LG	DD¹⁾	DSM²⁾	DST³⁾	TR	SC⁴⁾	Material number
455	455; 650	13	1; 2; 3	1; 2	1; 2	1; 2	1; 2	1; 2	3 842 998 529 (DI 5/XH)
650	650; 845	15	1; 2; 3	1; 2	1; 2	1; 2	1; 2	1; 2	3 842 998 528 (DI 5/H)
845	845; 1040	17	1; 2; 3	1; 2	1; 2	1; 2	1; 2	1; 2	b = ... mm l _{WT} = ... mm N = ... LG = ... DD = ... DSM = ... DST = ... TR = ... SC = ...

¹⁾ DD = diverter direction
1: left
2: right

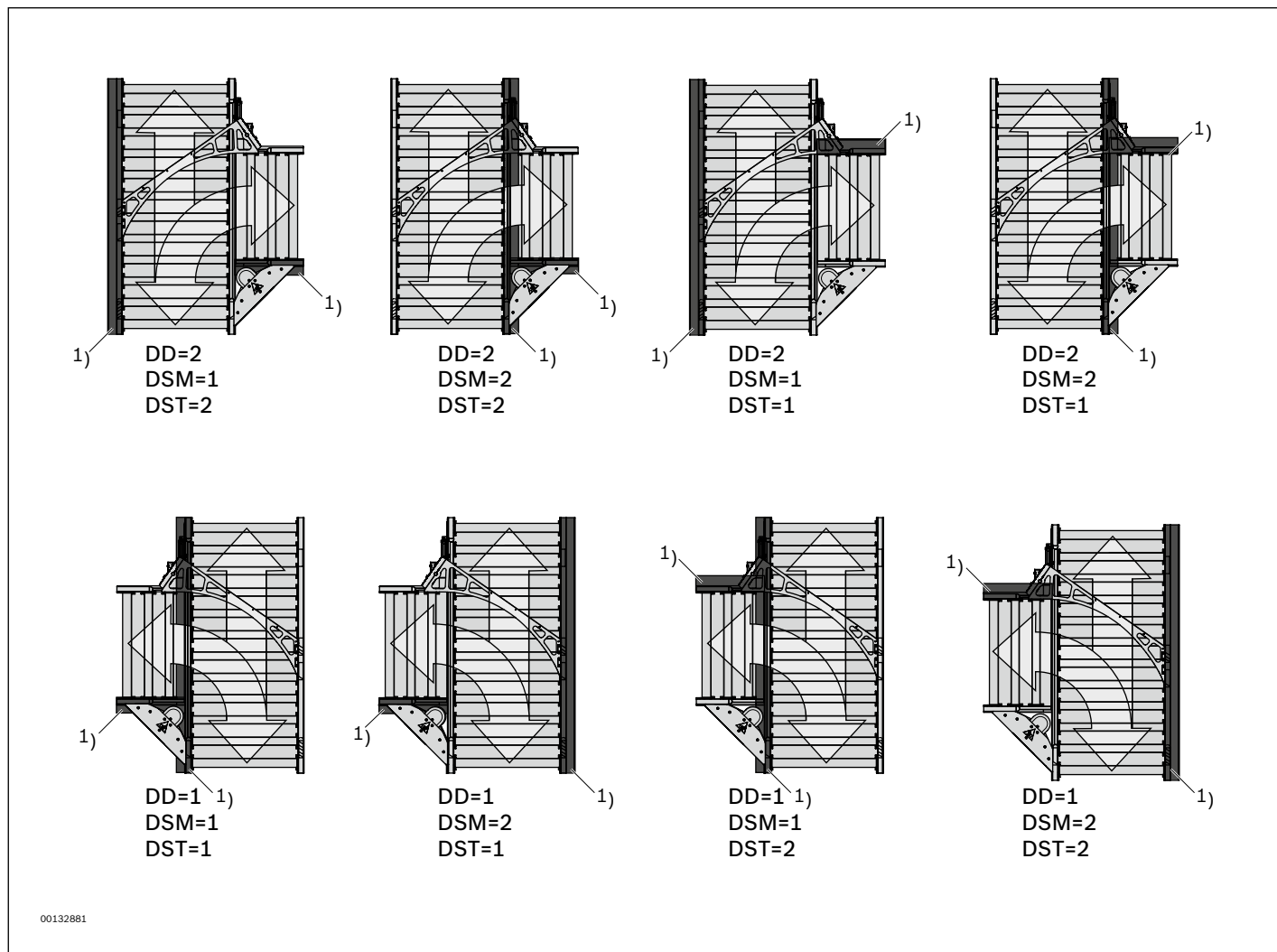
²⁾ DSM = King shaft installation on main section
1: left
2: right

³⁾ DST = King shaft installation on secondary section
1: left
2: right

⁴⁾ SC = protective covers
1: without protective covers
2: with protective covers

Description of further parameters, see page 0-3
Ordering examples, see page 5-10

Order examples



¹⁾ Drive side

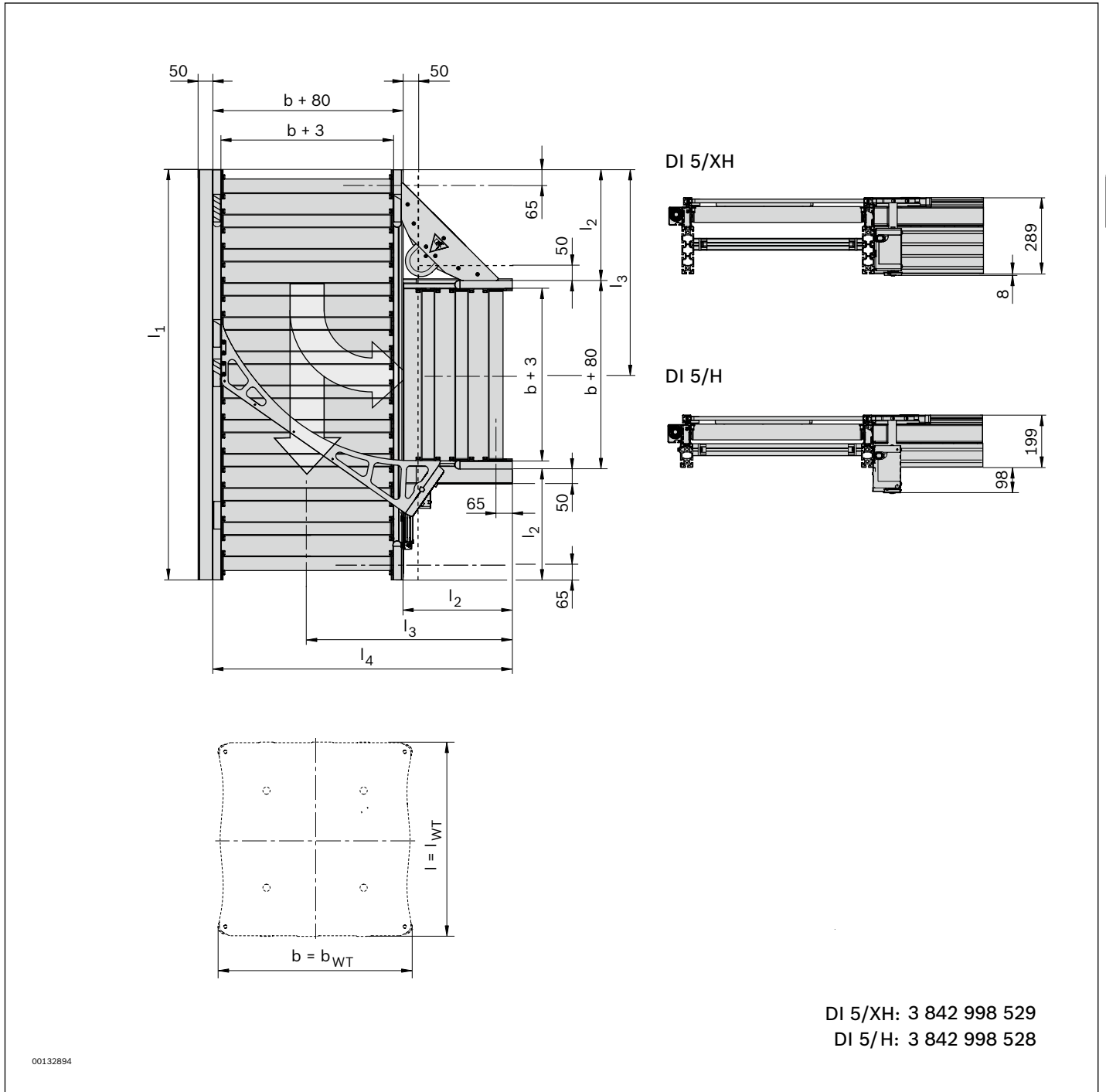
Permissible loads

m_G (kg)	v_N (m/min)
max. 260	12
max. 300	9

m_G = total mass of workpiece pallet

Higher weights available on request.
 Can be adapted to different transport speeds.
 Diverter arm position inquiry on request.

Dimensions
DI 5/H, DI 5/XH diverter



b¹⁾ (mm)	l_{WT}²⁾ (mm)	N	l₁³⁾ (mm)	l₂⁴⁾ (mm)	l₃⁵⁾ (mm)	l₄ (mm)
455	455; 650	13	1300	382.5	650	917.5
650	650; 845	15	1560	415	780	1145
845	845; 1040	17	1820	447	910	1372.5

¹⁾ b = track width in direction of transport

²⁾ l_{WT} = workpiece pallet length (in direction of transport)

³⁾ l₁ = length of main section

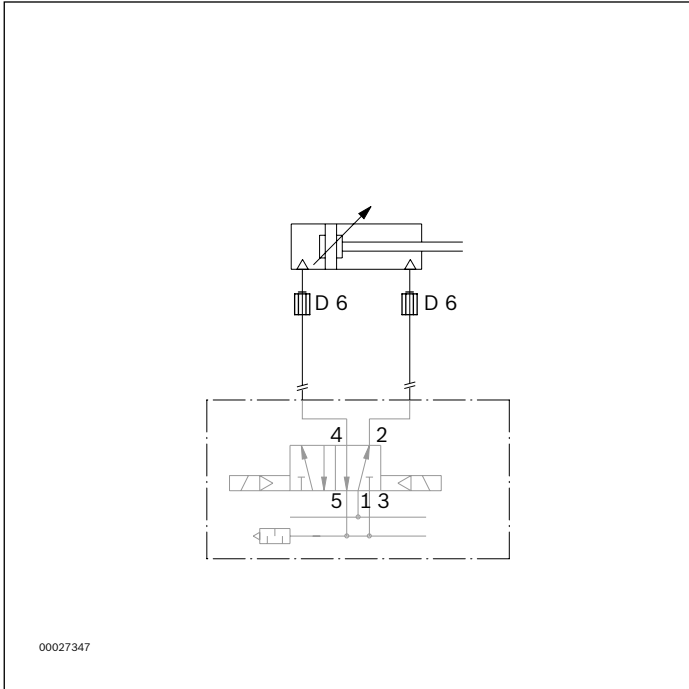
⁴⁾ l₂ = length of secondary section

⁵⁾ l₃ = length of secondary section up to center of main section

Description of further parameters, see page 0-3

Circuit diagram

DI 5/H, DI 5/XH diverter



JU 5/XH, JU 5/H junctions



Condition on delivery:

- ▶ Ready-to-install.

Optional:

- ▶ Protective covers mounted (protective covers cannot be ordered separately)

Use:

The junction is a module for branching transport of workpiece pallets. The king shaft installation for the main or secondary section can be installed on either side. The junction is a passive element without any control. The workpiece pallet moves the diverter arm into position.

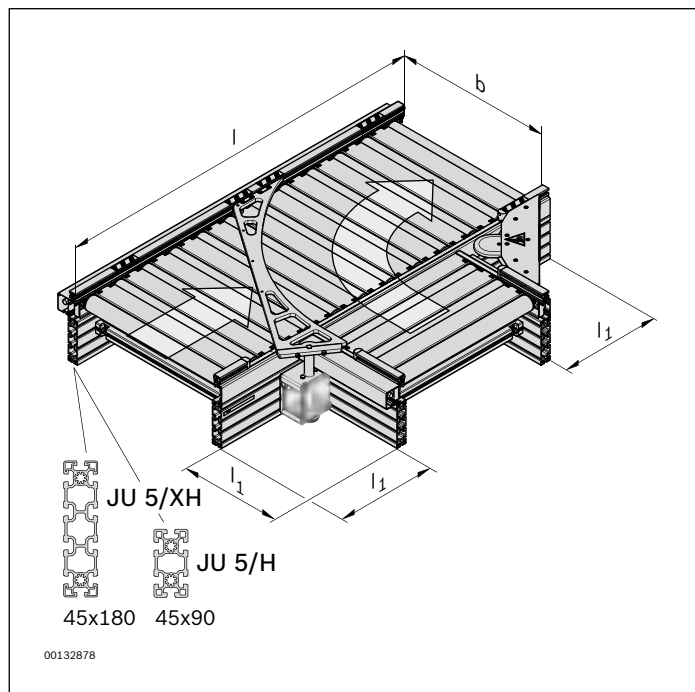
Note:

The junction is not suitable for accumulation operation. Permissible loads, see page 5-15

Version:

- ▶ Reversible operation not permitted
- ▶ Accumulation operation not permitted
- ▶ Support profile made of anodized aluminum
- ▶ Lateral guide profile made of steel, polymer, or aluminum in an anodized aluminum support
- ▶ Driven via king shaft with bevel gears made of sintered metal
- ▶ Roller spacing $p = 130$
- ▶ Full rollers
- ▶ m_e up to 300 kg (where $v = 9$ m/min)

Ordering information



JU 5/XH, JU 5/H junctions

b (mm)	l_{WT} (mm)	N	LG	JD¹⁾	DSM²⁾	DST³⁾	TR	SC⁴⁾	Material number
455	455; 650	13	1; 2; 3	1; 2	1; 2	1; 2	1; 2	1; 2	3 842 998 531 (JU 5/XH)
650	650; 845	15	1; 2; 3	1; 2	1; 2	1; 2	1; 2	1; 2	3 842 998 530 (JU 5/H)
845	845; 1040	17	1; 2; 3	1; 2	1; 2	1; 2	1; 2	1; 2	b = ... mm

l_{WT} = ... mm

N = ...

LG = ...

JD = ...

DSM = ...

DST = ...

TR = ...

SC = ...

¹⁾ JD = Junction direction
 1: left
 2: right

²⁾ DSM = King shaft installation on main section
 1: left
 2: right

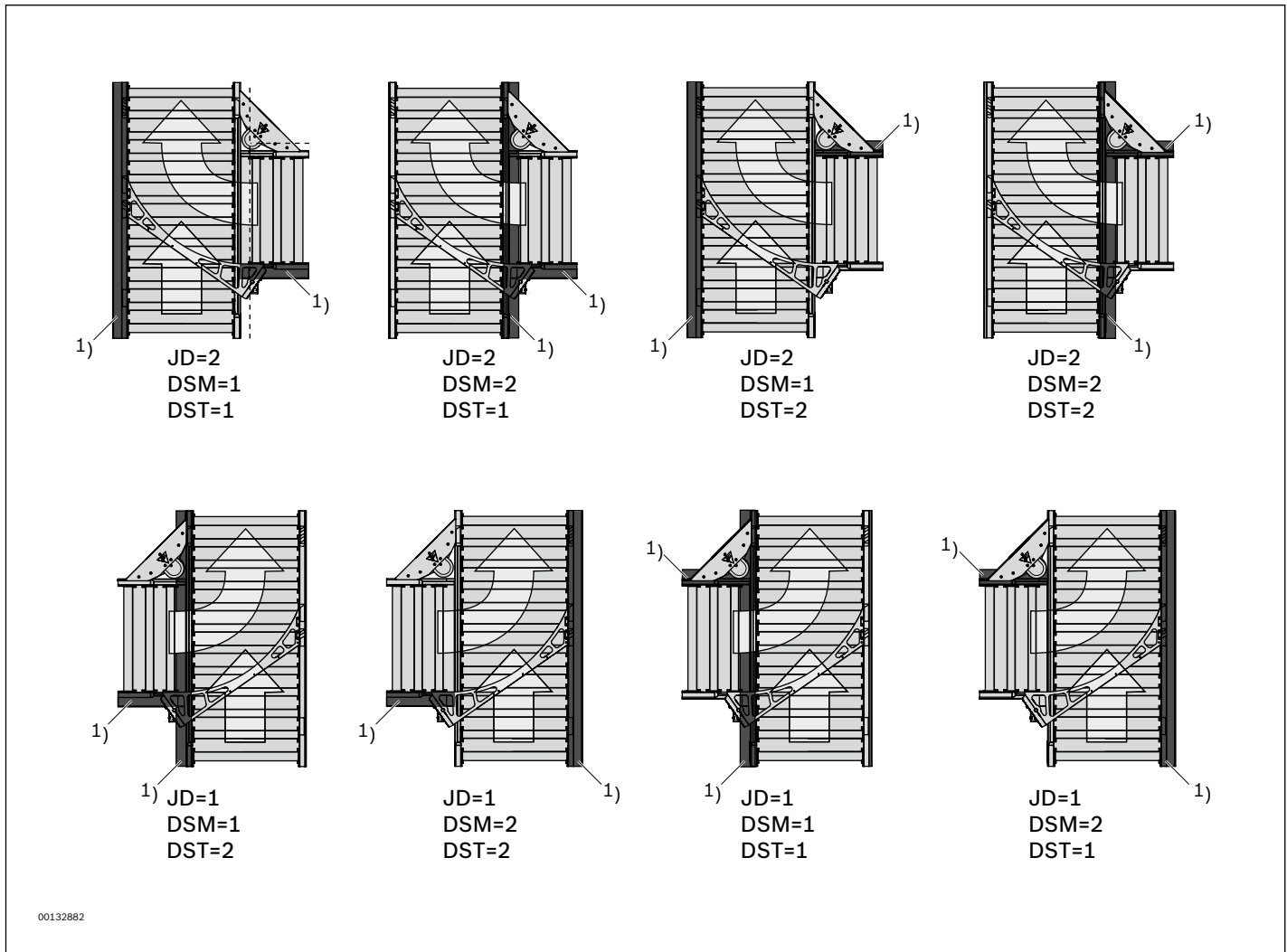
³⁾ DST = King shaft installation on secondary section
 1: left
 2: right

⁴⁾ SC = protective covers
 1: without protective covers
 2: with protective covers

Description of further parameters, see page 0-3

Ordering examples, see page 5-15

Order examples



¹⁾ Drive side

Permissible loads

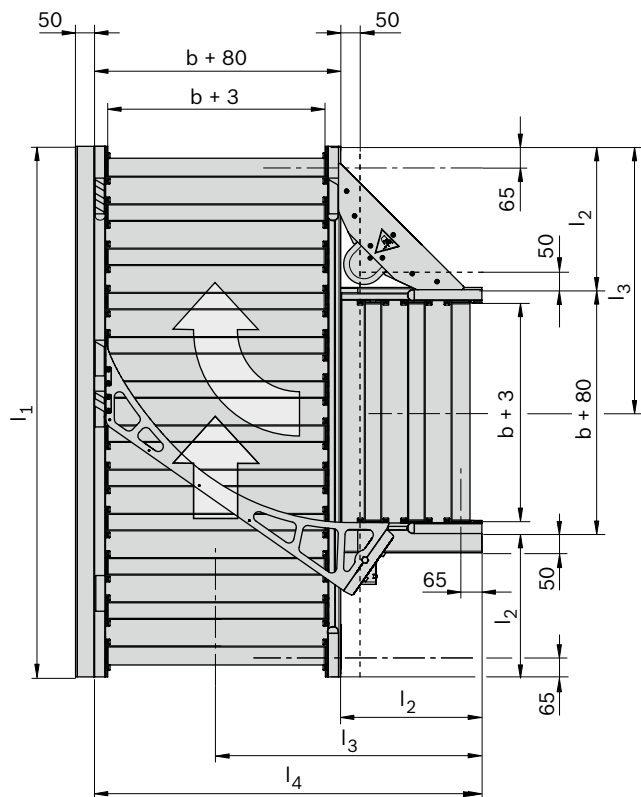
m_e (kg)	v_N (m/min)
max. 260	12
max. 300	9

m_e = total mass of workpiece pallet

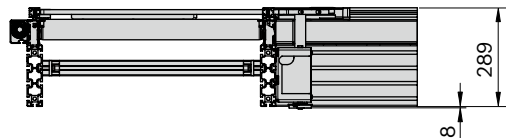
Higher weights available on request.
 Can be adapted to different transport speeds.

Dimensions

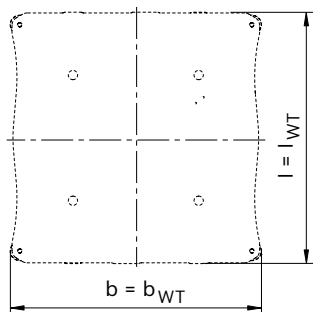
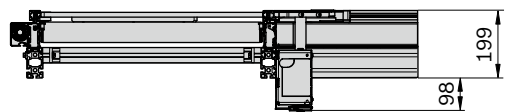
JU 5/H, JU 5/XH junction



JU 5/XH



JU 5/H



JU 5/XH: 3 842 998 531
 JU 5/H: 3 842 998 530

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$b^{1)}$ (mm)	$l_{WT}^{2)}$ (mm)	N	$l_1^{3)}$ (mm)	$l_2^{4)}$ (mm)	$l_3^{5)}$ (mm)	l_4 (mm)
455	455; 650	13	1300	382.5	650	917.5
650	650; 845	15	1560	415	780	1145
845	845; 1040	17	1820	447	910	1372.5

¹⁾ b = track width in direction of transport

²⁾ l_{WT} = workpiece pallet length (in direction of transport)

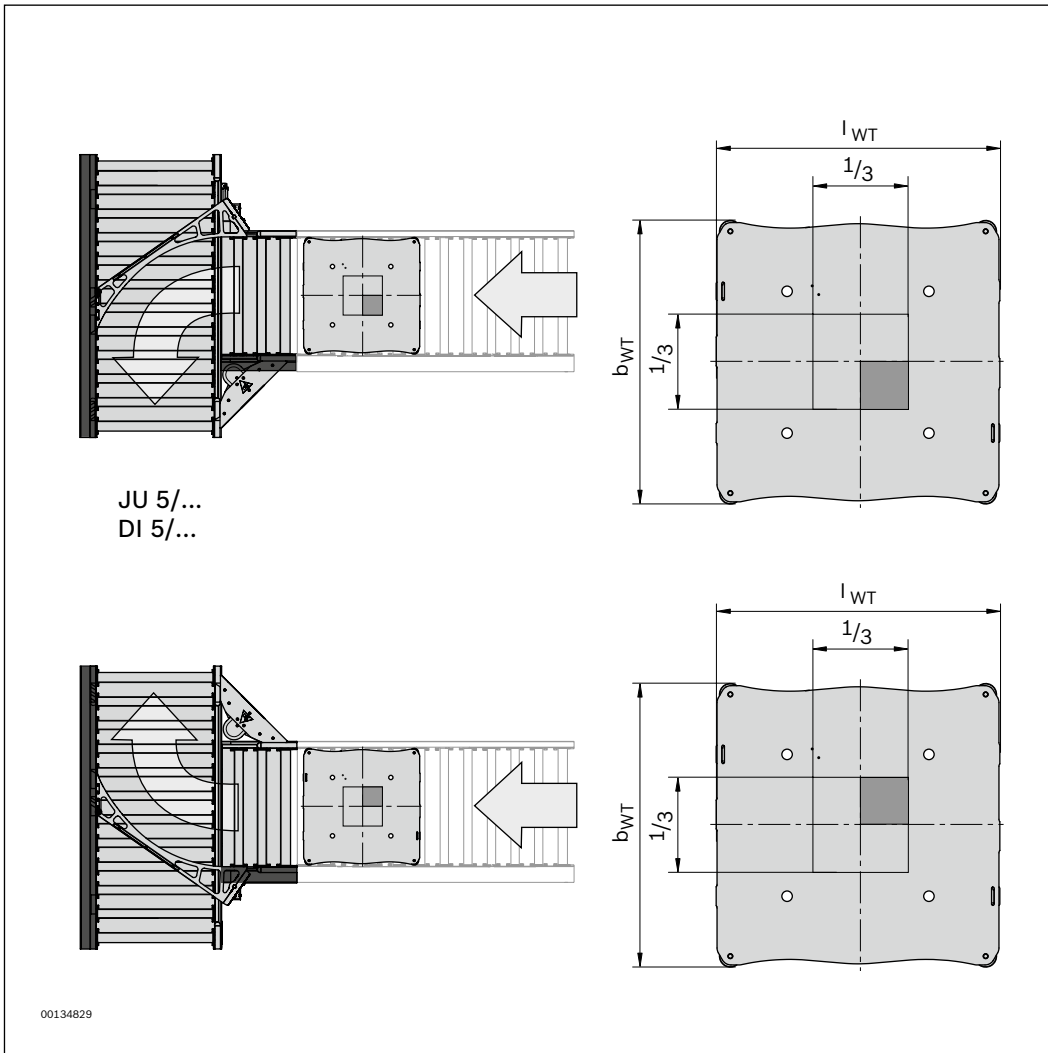
³⁾ l_1 = length of main section

⁴⁾ l_2 = length of secondary section

⁵⁾ l_3 = length of secondary section up to center of main section

Description of further parameters, see page 0-3

Limits for the permissible gravity center position for junctions and diverters



With the illustrated gravity center position transport problems may occur at the transition from the secondary section to the main section. General information on the gravity center position, see page 2-3

Three-way diverter DI 5/XH-3W, DI 5/H-3W



Condition on delivery:

- ▶ Ready-to-install.

Optional:

- ▶ Protective covers mounted (protective covers cannot be ordered separately)

Use:

The three-way diverter is a ready-for-operation module for branching off workpiece pallets in two directions or combining from two directions. The king shaft installation for the main or secondary section can be installed on either side. The diverter is controlled as an active element via a pneumatic cylinder ($p = 5 \dots 6$ bar).

Note:

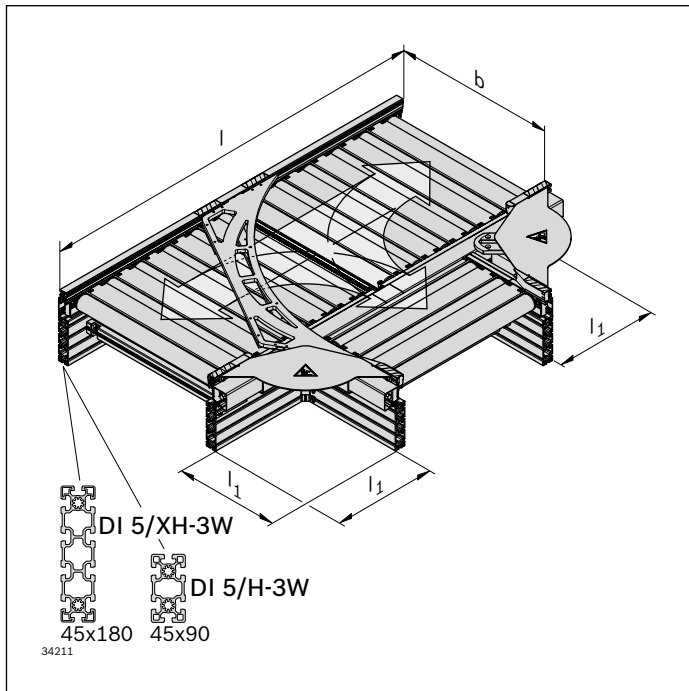
The three-way diverter is not suitable for accumulation operation.

Permissible loads, see page 5-20

Version:

- ▶ Reversible operation possible
- ▶ Accumulation operation not permitted
- ▶ Support profile made of anodized aluminum
- ▶ Lateral guide profile made of steel, polymer, or aluminum in an anodized aluminum support
- ▶ Driven via king shaft with bevel gears made of sintered metal
- ▶ Roller spacing $p = 130$
- ▶ Full rollers
- ▶ m_g up to 300 kg (where $v = 9$ m/min)
- ▶ Pneumatic push-in fitting: 6 mm

Ordering information



DI 5/XH, DI 5/H diverters

b (mm)	l _{WT} (mm)	N	LG	DSM ¹⁾	DST ²⁾	TR	SC ³⁾	Material number
455	455; 650	13	1; 2; 3	1; 2	1; 2	1; 2	1; 2	3 842 998 807 (DI 5/XH-3W)
650	650; 845	15	1; 2; 3	1; 2	1; 2	1; 2	1; 2	3 842 998 808 (DI 5/H-3W)
845	845; 1040	17	1; 2; 3	1; 2	1; 2	1; 2	1; 2	b = ... mm l _{WT} = ... mm N = ... LG = ... DSM = ... DST = ... TR = ... SC = ...

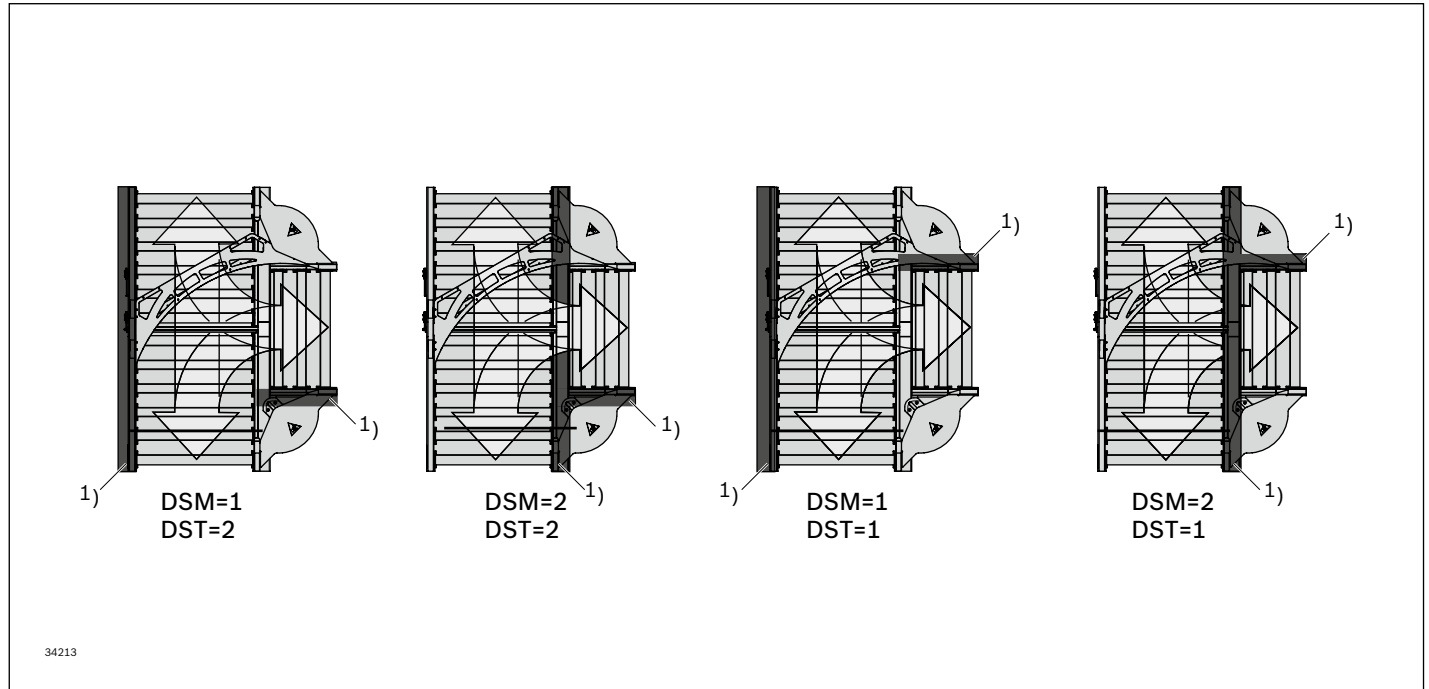
¹⁾ DSM = King shaft installation on main section
 1: left
 2: right

²⁾ DST = King shaft installation on secondary section
 1: left
 2: right

³⁾ SC = protective covers
 1: without protective covers
 2: with protective covers

Description of further parameters, see page 0-3
 Ordering examples, see page 5-20

Order examples



¹⁾ Drive side

Permissible loads

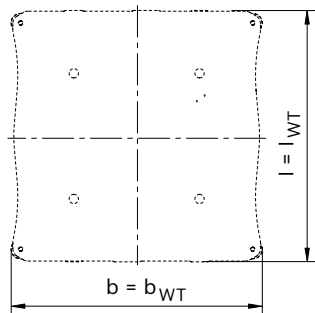
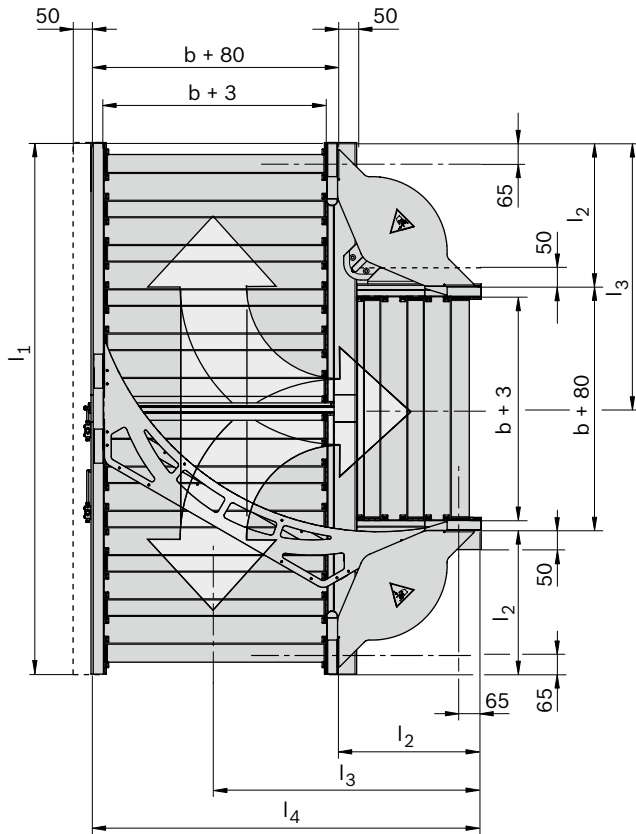
m_G (kg)	v_N (m/min)
max. 260	12
max. 300	9

m_G = total mass of workpiece pallet

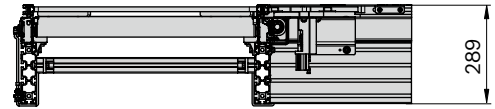
Higher weights available on request.
 Can be adapted to different transport speeds.
 Diverter arm position inquiry on request.

Dimensions

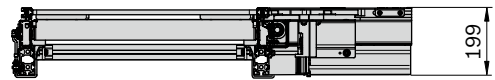
Diverter DI 5/XH-3W, DI 5/H-3W



DI 5/XH-3W



DI 5/H-3W



DI 5/XH-3W: 3 842 998 807
 DI 5/H-3W: 3 842 998 808

34214

$b^{1)}$ (mm)	$l_{WT}^{2)}$ (mm)	N	$l_1^{3)}$ (mm)	$l_2^{4)}$ (mm)	$l_3^{5)}$ (mm)	l_4 (mm)
455	455; 650	13	1300	382.5	650	917.5
650	650; 845	15	1560	415	780	1145
845	845; 1040	17	1820	447	910	1372.5

¹⁾ b = track width in direction of transport

²⁾ l_{WT} = workpiece pallet length (in direction of transport)

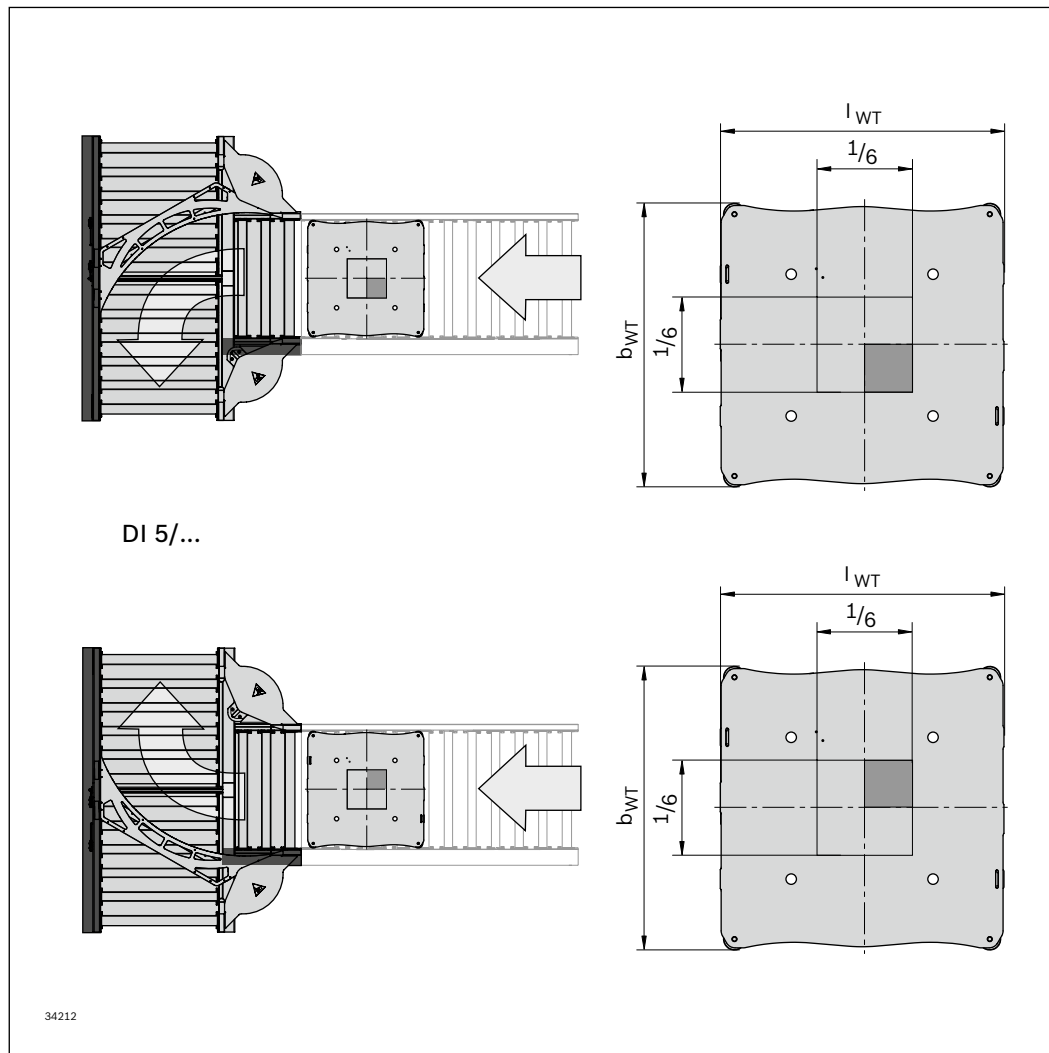
³⁾ l_1 = length of main section

⁴⁾ l_2 = length of secondary section

⁵⁾ l_3 = length of secondary section up to center of main section

Description of further parameters, see page 0-3

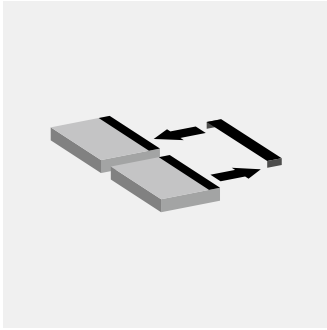
Limits for the permissible gravity center position for the three-way diverter



With the illustrated gravity center position transport problems may occur at the transition from the secondary section to the main section. General information on the gravity center position, see page 2-3

Note:

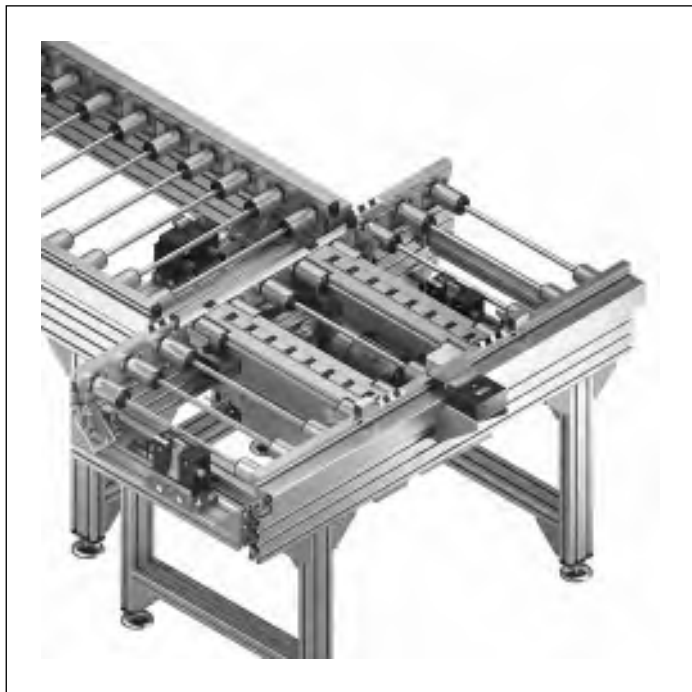
With $b_{WT} = 650$ mm and load center $1/6$, eccentric, $m_G = \text{max. } 200$ kg



Transverse conveyor

Design	6-2
HQ 5 lift transverse unit	6-4
Stop gate VE 5/200, VE 5/D-300, VE 5/D-301, VE 5/D-1000	6-9
Damper DA 5/200, damper DA 5/1000	6-11
Connection kit for connecting the transverse section	6-13
Connection bridge	6-15
HQ 5 lift transverse unit protective covers	6-17
Cover for lateral guide of HQ 5 lift transverse unit	6-19

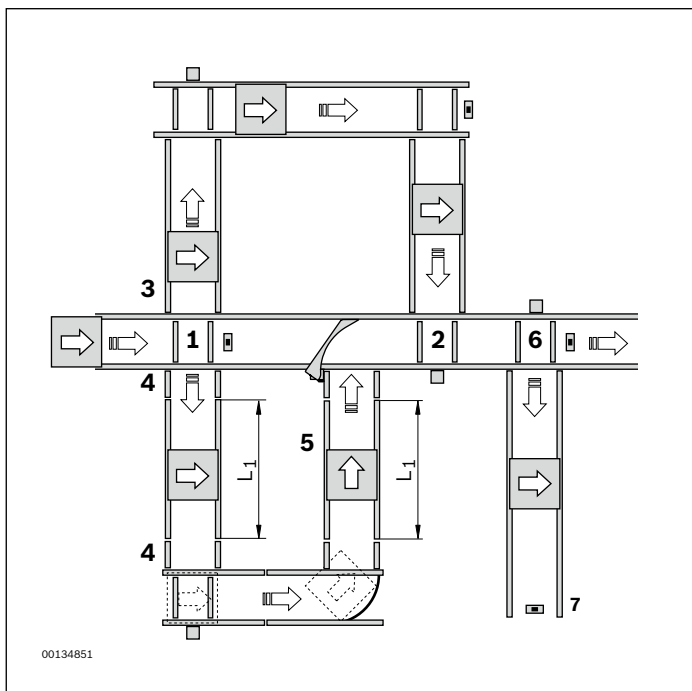
Design



Transverse conveyors are used to branch workpiece pallet paths into the individual processing stations. When changing from a longitudinal conveyor to a transverse conveyor and vice versa, the workpiece pallet also changes its orientation with regard to its direction of transport.

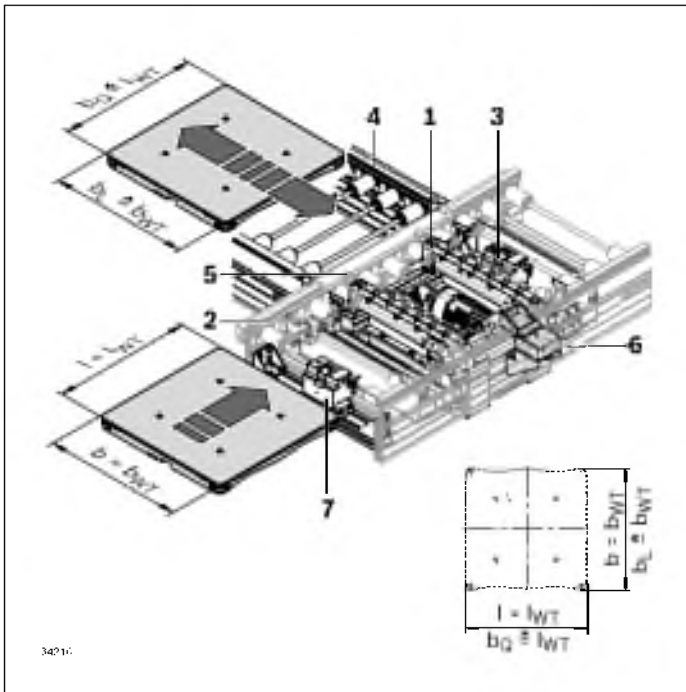
Note:

- ▶ Minimum speed of transverse section: 6 m/min
- ▶ Traveling through curves/diverters/junctions is only possible in a longitudinal direction (see arrow on workpiece pallet)!
- ▶ Accumulation is not permitted on HQ 5



HQ 5 infeeding and outfeeding options.

- ▶ Outfeeding to both sides
- ▶ Infeeding from just one side, see page 6-11
- ▶ Connection of the transverse section (standard section) in a circuit with 4 lift transverse units, see page 6-15
- ▶ Connection of the transverse section (2x connection bridge + standard section) with parallel use of lift transverse unit and curve/diverter/junction, see page 6-15
 L_1 : same section length
- ▶ Rotation of the workpiece pallet by 90° with the combination of lift transverse unit and curve/diverter
- ▶ Infeeding and outfeeding to dead end section
- ▶ Dead end section with stop gate as end stop



Transverse conveyor sections include the following components:

- ▶ Lift transverse unit HQ 5, see page 6-4
- ▶ Connection kit for connecting the transverse section, see page 6-13
- ▶ VE 5/D-300, VE 5/D-301 or VE 5/D-1000 stop gate to stop the workpiece pallet when outfeeding, see page 6-9
- ▶ Connection bridge (see page 6-15) to compensate for length with parallel use of lift transverse unit and curve/diverter/junction
- ▶ DA 5/... damper to stop the workpiece pallet when infeeding, see page 6-11
- ▶ Sensor 3 842 555 421 to query the position of the workpiece pallet, see page 9-16
- ▶ Stop gate, if required, to pre-stop the workpiece pallet, see page 9-6

HQ 5 lift transverse unit



Use:

The HQ 5 lift transverse unit is a ready-for-operation module for branching transport. It lifts the workpiece pallet from the rollers and moves it transversely to the original conveyor direction via a driven roller section.

Note:

Note the orientation of the workpiece pallet after branching.

Version:

- ▶ Can be used with all WT 5 workpiece pallets
- ▶ The transport level of the transverse section is 4.5 mm above the transport level of the longitudinal section
- ▶ Protective casing can also be removed in the case of low conveyor heights
- ▶ Compressed air connection 5 ... 6 bar
- ▶ Pneumatic push-in fitting: 6 mm

Scope of delivery:

- ▶ Incl. ST 5/XH or ST 5/H conveyor unit, dimensions, see page 4-4

Required accessories:

- ▶ Stop gate VE 5/200, VE 5/D-300, VE 5/D-301 or VE 5/D-1000, see page 6-9
- ▶ SH 2/U-H 3 842 537 289 switch bracket, see page. 9-18
- ▶ Clamping holder for sensor, see page 9-15

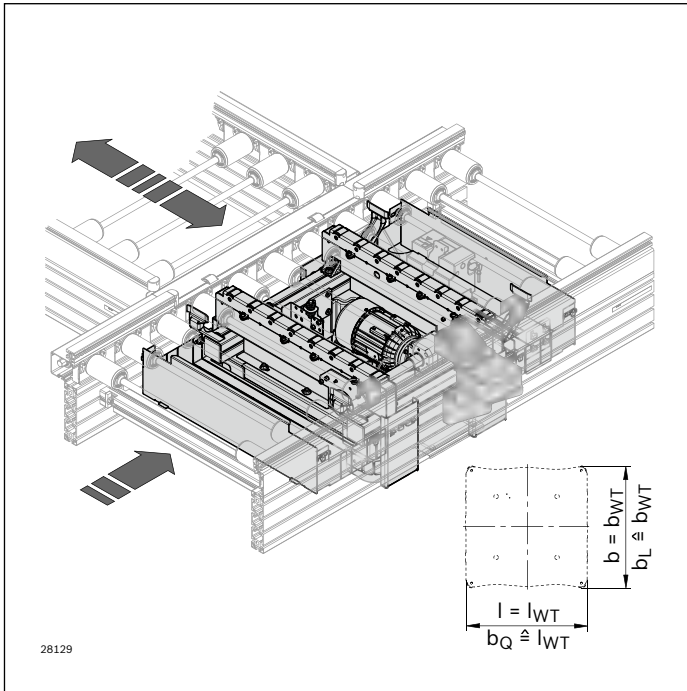
Condition on delivery:

- ▶ Fully assembled

Recommended accessories:

- ▶ Protective covers, see page 6-19
- ▶ For position inquiry WT sensor 3 842 555 421, see page 9-16

Ordering information



HQ 5 lift transverse unit

b_L (mm)	b_Q (mm)	p (mm)	v_N (m/min)	SC	DSM	OFD	TR	U, f	AT	Material number
455	455	130	6; 9; 12	1; 2	1; 2	1; 2; 3	1; 2	See page 13-9		3 842 998 855 (HQ 5/XH)
455	650	130; 195	6; 9; 12	1; 2	1; 2	1; 2; 3	1; 2			3 842 998 854 (HQ 5/H)
650	650	130; 195	6; 9; 12	1; 2	1; 2	1; 2; 3	1; 2			$b_L = \dots$ mm
650	845	130; 195; 260	6; 9; 12	1; 2	1; 2	1; 2; 3	1; 2			$b_Q = \dots$ mm
845	845	130; 195; 260	6; 9; 12	1; 2	1; 2	1; 2; 3	1; 2			$p = \dots$ mm
845	1040	130; 195; 260; 325	6; 9; 12	1; 2	1; 2	1; 2; 3	1; 2			$v_N = \dots$ m/min.

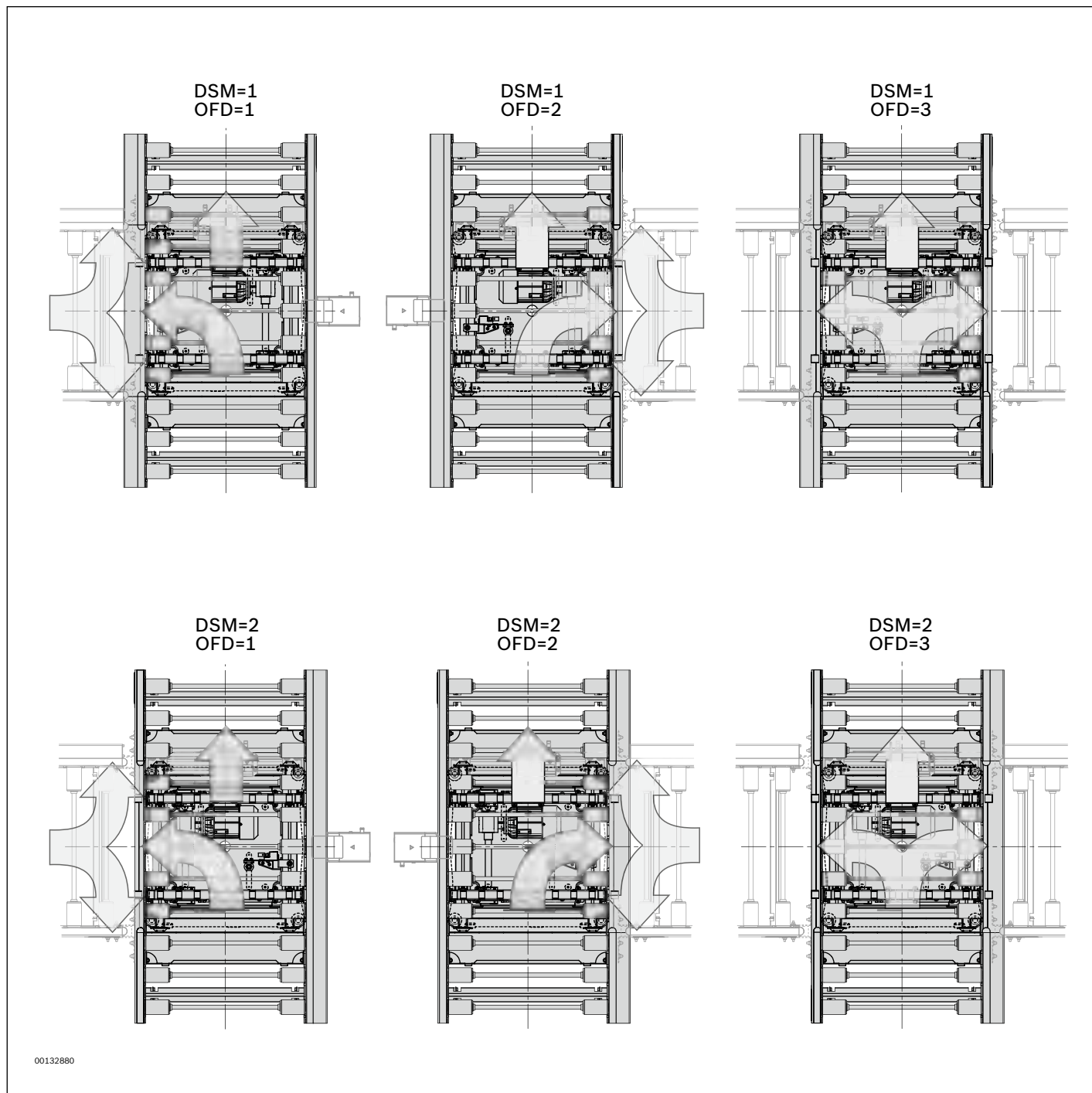
U = ... V, see page 13-9
 f = ... Hz, see page 13-9
 SC = ...
 OFD = ...
 DSM = ...
 TR = ...
 AT = ...

- | | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| b_L = track width in direction of transport (longitudinal conveyor) | SC = Housing element
1: without protective casing
2: with protective casing | AT = Motor connection
K: with terminal box
S: with cable/plug |
| b_Q = track width in direction of transport (transverse conveyor) | DSM = King shaft installation on main section
1: left
2: right | HQ 5 lift transverse unit position inquiry (top/bottom) on request |
| p = Roller spacing (pitch) | OFD = Direction of the outfeed
1: left
2: right
3: left and right | Description of further parameters, see page 0-3
Ordering examples, see page 6-6 |
| v_N = Nominal speed
U = 0, $v_N > 0$: with gear, without motor
$v_N = 0$: without motor and gear | | |

Order examples for the king shaft installation and direction of the outfeed

Size shown

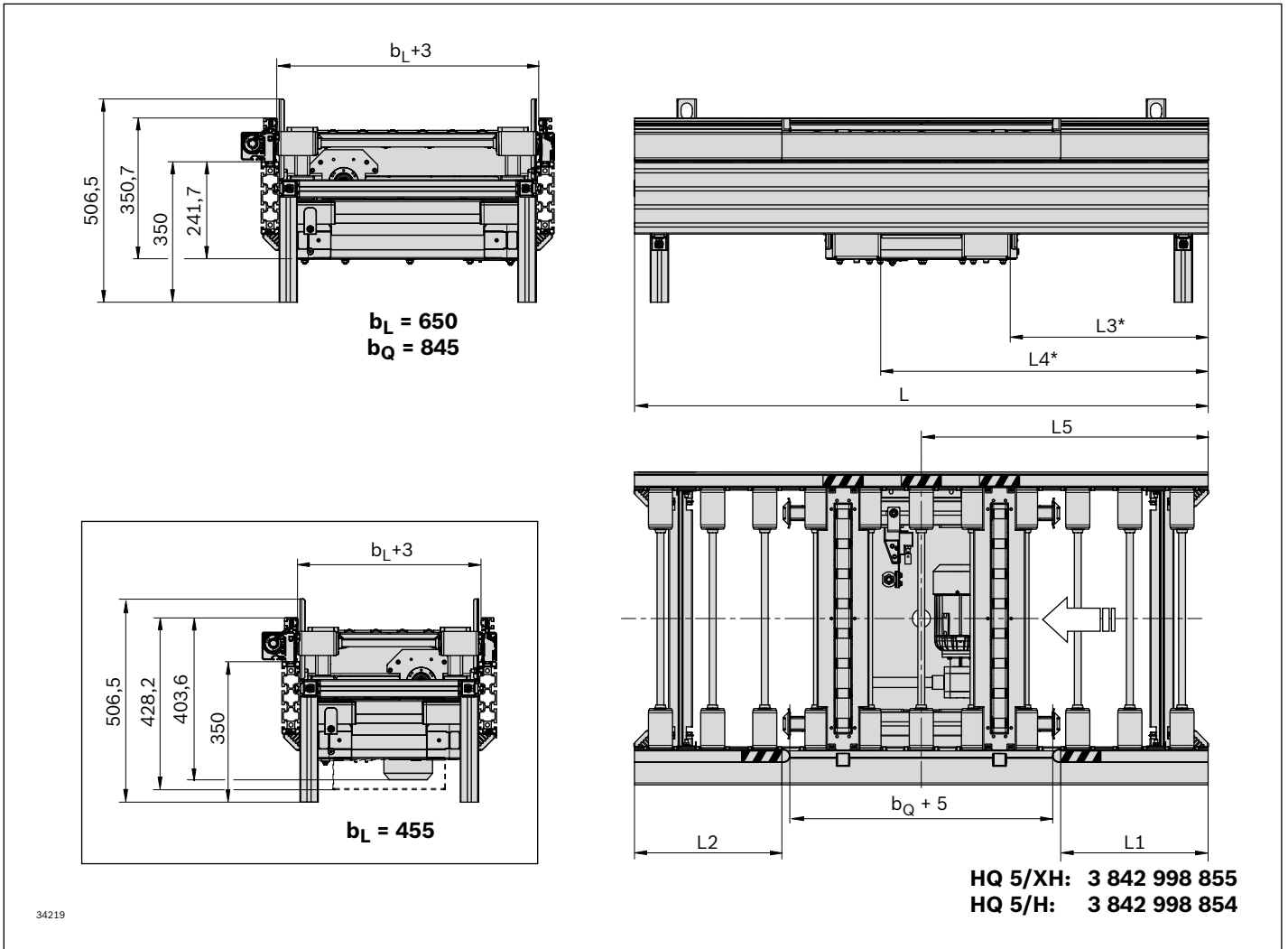
b = 650 x 650 mm



If infeeding in the main section takes place, the VE 5/... can be installed in the HQ as an alternative to the damper. In this case, the workpiece pallet is stopped in the center of the HQ and can then continue in any direction.

Dimensions

HQ 5 lift transverse unit



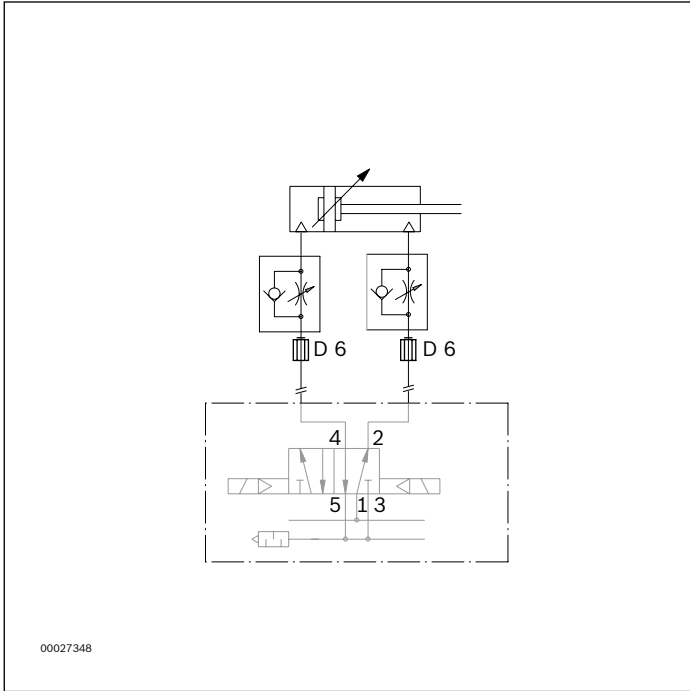
6

b (mm)	l_{WT} (mm)	p (mm)	L (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)
455	455	130	1300	400.0	400	493.8	686.3	650.0
455	650	130	1430	367.5	367.5	493.8	816.3	715.0
455	650	195	1560	432.5	432.5	558.8	881.3	780.0
650	650	130	1430	367.5	367.5	493.8	816.3	715.0
650	650	195	1560	432.5	432.5	558.8	881.3	780.0
650	845	130	1690	400.0	400.0	493.8	1076.3	845.0
650	845	195	1755	432.5	432.5	526.3	1108.8	910.0
650	845	260	1820	595.0	335.0	688.8	1271.3	650.0
845	845	130	1690	400.0	400.0	493.8	1076.3	845.0
845	845	195	1755	432.5	432.5	526.3	1108.8	877.5
845	845	260	1820	595.0	335.0	688.8	1271.3	650.0
845	1040	130	1820	367.5	367.5	493.8	1206.3	910.0
845	1040	195	1950	432.5	432.5	558.8	1271.3	975.0
845	1040	260	2080	432.5	562.5	558.8	1271.3	910.0
845	1040	325	1950	432.5	432.5	558.8	1271.3	975.0

Description of parameters, see page 0-3

Circuit diagram

HQ 5 lift transverse unit



Stop gate VE 5/200, VE 5/D-300, VE 5/D-301, VE 5/D-1000



Use:

- ▶ For non-damped (VE 5/200) or damped (VE 5/D-300, VE 5/D-301 and VE 5/D-1000) stopping of accumulating workpiece pallets for outfeeding, see page 9-3, 9-6, 9-12

Version:

- ▶ Pneumatic stop gate. When the pressure is released the stop gate is closed by a spring and the workpiece pallet is stopped.
- ▶ Compressed air connection 5 ... 6 bar
- ▶ Further technical details, see page 9-3

Scope of delivery:

- ▶ Incl. fastening material for assembly on the conveyor section, pneumatic push-in connector \varnothing 6 mm

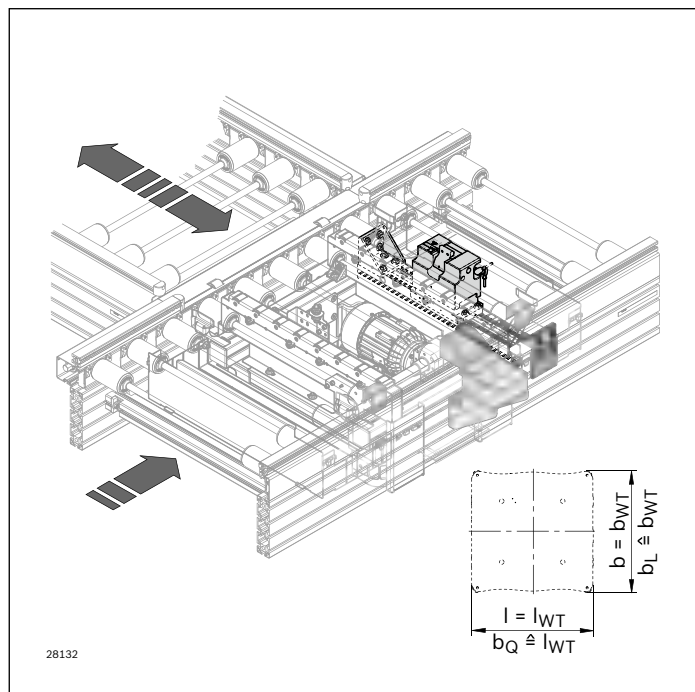
Recommended accessories:

- ▶ Sensor 3 842 549 811 or 3 842 537 814, see page 9-16
- ▶ Sensor for VE 5/D-301 3 842 551 761, see page 9-16
- ▶ Clamping holder for sensor, see page 9-15

Condition on delivery:

- ▶ Not assembled

Ordering information



VE 5/200 stop gates

b (b_L) (mm)	Material number
455; 650; 845; 1040	3 842 998 518
	b _L = ... mm

b_L = track width in direction of transport (longitudinal conveyor)

Permissible impact force per WT

m_{WT} (kg)	v_N¹⁾ (m/min)
200	2 ... 9

¹⁾ Conveyor speed

VE 5/D-300 stop gate

b (b_L) (mm)	Material number
455; 650; 845; 1040	3 842 998 517
	b _L = ... mm

b_L = track width in direction of transport (longitudinal conveyor)

VE 5/D-301 stop gate

b (b_L) (mm)	Material number
455; 650; 845; 1040	3 842 998 079
	b _L = ... mm

b_L = track width in direction of transport (longitudinal conveyor)

Permissible impact force per WT

m_{WT} (kg)	v_N¹⁾ (m/min)
max. 300	2 ... 9
max. 260	2 ... 12
max. 160	2 ... 18

¹⁾ Conveyor speed

VE 5/D-1000 stop gate

b (b_L) (mm)	Material number
455; 650; 845; 1040	3 842 998 805
	b _L = ... mm
	l _a = ... (1/2)

b_L = track width in direction of transport (longitudinal conveyor)

Permissible impact force per WT

m_{WT} (kg)	v_N¹⁾ (m/min)
min. 50 max. 1000	2 ... 9
min. 50 max. 900	2 ... 12
min. 50 max. 700	2 ... 18

¹⁾ Conveyor speed

Damper DA 5/200, damper DA 5/1000



Use:

- ▶ Damped stopping of an accumulating workpiece pallet during infeeding

Version:

- ▶ Damping steplessly adjustable (DA 5/200, DA /1000 self-adjusting)
- ▶ See table for workpiece pallet loads
- ▶ The damper is extended pneumatically into the damping position (infeeding of the workpiece pallet to the main section) and is pushed into the end position by the infeeding workpiece pallet. A workpiece pallet can only move onto the main section if the damper is in the end position.
- ▶ Compressed air connection 5 ... 6 bar

Note:

If the damper is extended, it moves into the main section and cannot be retracted pneumatically! The damper can only be retracted by infeeding a workpiece pallet.
Collision hazard if there are overhanging carrying plates.

Scope of delivery:

- ▶ Incl. fastening material for assembly on the conveyor section, pneumatic push-in connector \varnothing 6 mm

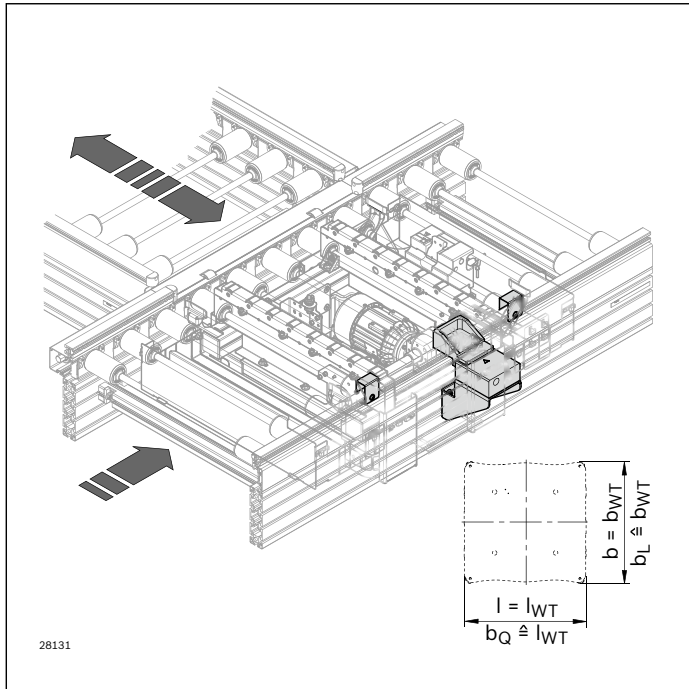
Recommended accessories:

- ▶ Cover for the lateral guide, see page 6-19f

Condition on delivery:

- ▶ Not assembled

Ordering information



DA 5/200 damper

	Material number
Set	3 842 545 128

Permissible impact force per WT

m_{WT} (kg)	$v_N^{1)}$ (m/min)
max. 280	2 ... 9
max. 240	2 ... 12
max. 140	2 ... 18

¹⁾ Conveyor speed

DA 5/1000 damper

	Material number
Set	3 842 545 130

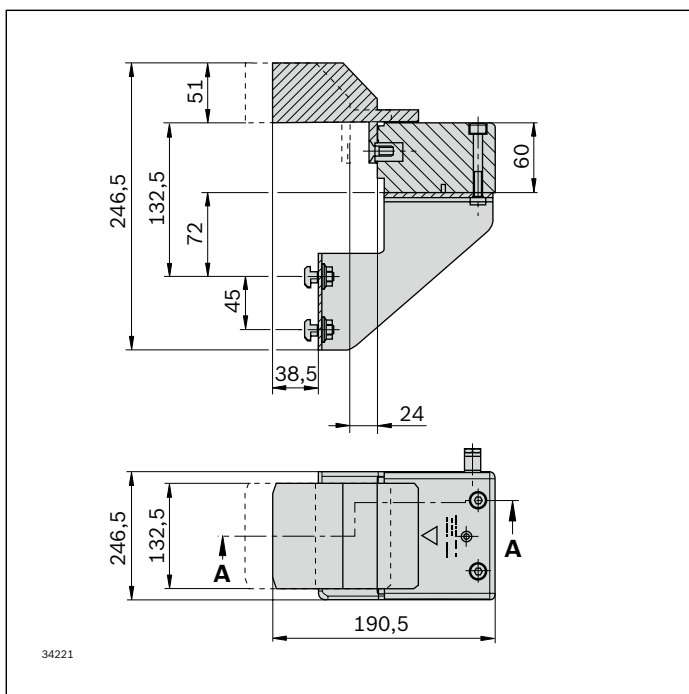
Permissible impact force per WT

m_{WT} (kg)	$v_N^{1)}$ (m/min)
min. 50 max. 1100	2 ... 9
min. 50 max. 1000	2 ... 12
min. 50 max. 800	2 ... 18

¹⁾ Conveyor speed

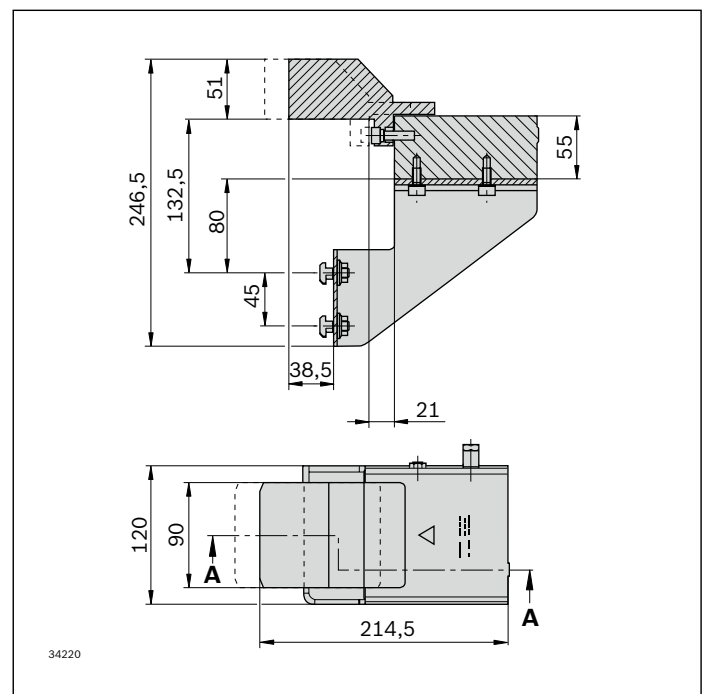
Dimensions

DA 5/200



Dimensions

DA 5/1000



Connection kit for connecting the transverse section



Use:

For connecting the transverse section, independent of the drive side of the main section. If a circuit only consists of lift transverse units, the transverse sections are connected directly to the longitudinal section.

The guide kit **(A)** is part of the connection bridge (see page 6-15).

For the connection of a standard section, the guide kit **(A)** must be ordered separately.

Version:

- ▶ Support brackets made from galvanized steel incl. covers for the open profile ends of the transverse section

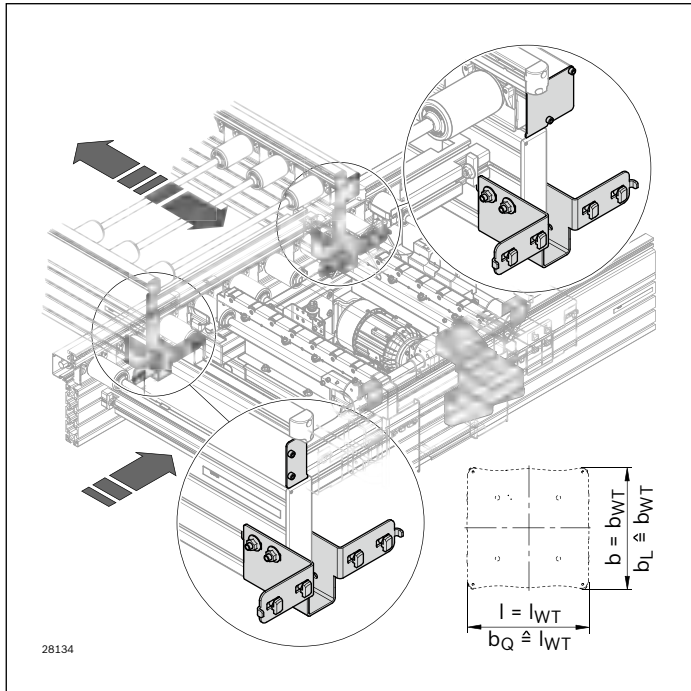
Scope of delivery:

- ▶ Connection kit for connecting the transverse section:
2 support brackets incl. fastening material for assembly
- ▶ Guide kit:
2 guide aids incl. fastening material for assembly


Condition on delivery:

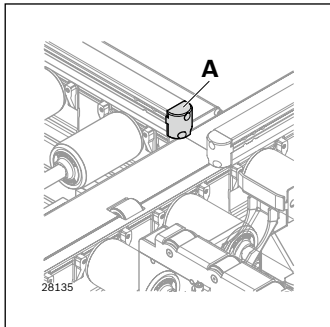
- ▶ Not assembled

Ordering information




Connection kit for connecting the transverse section

		Material number
ST 5/H, ST 5/XH	Set	3 842 549 782
ST 5/OC DD = 2 ¹⁾	Set	3 842 549 783
ST 5/OC DD = 1 ¹⁾	Set	3 842 549 784



Guide kit

		Material number
A	Set	3 842 545 975

- ¹⁾ DD = drive
 1: on one side
 2: on two sides

Connection bridge



Use:

- ▶ The connection bridge is used for length adjustment when parallel transverse sections are used with lift transverse units and curves/diverters/junctions

Version:

- ▶ Support profile made of anodized aluminum
- ▶ Permissible section load:
 - ST 5/XH: 380 kg/m
 - ST 5/H: 200 kg/m
- ▶ Lateral guide profile made of steel, polymer, or aluminum in an anodized aluminum support
- ▶ Driven via king shaft with bevel wheels made of polymer or sintered metal

Condition on delivery:

- ▶ Ready-to-install.

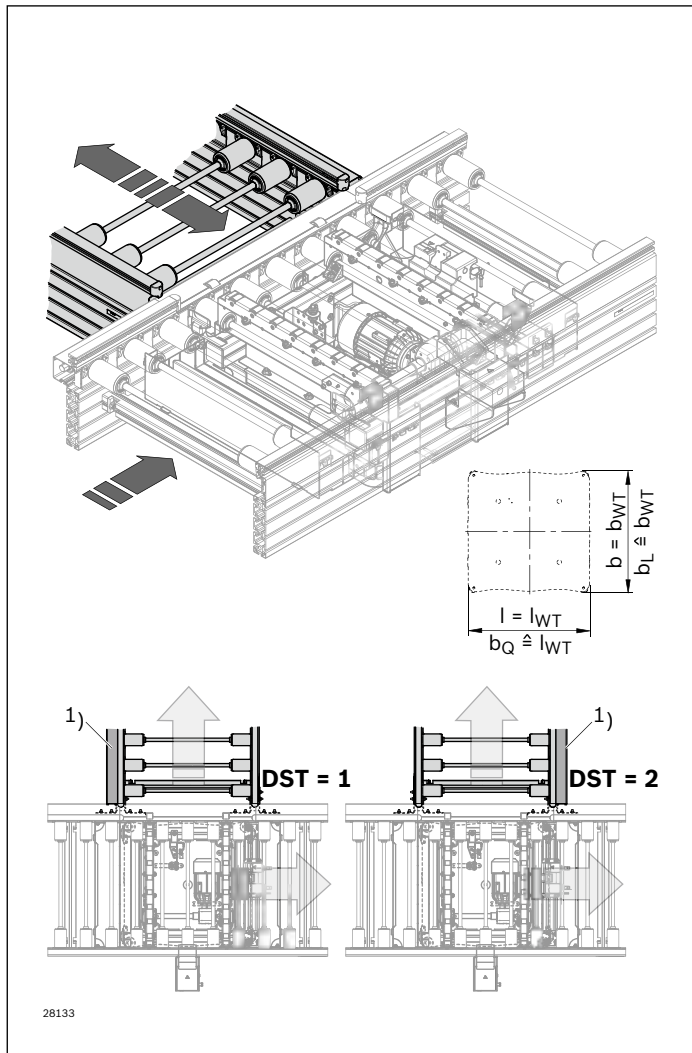
Required accessories:

- ▶ Connection kit for connecting the transverse section, see page 6-13

Material:

- ▶ Roller: galvanized steel

Ordering information



¹⁾ Drive side

Connection bridge

b_Q ¹⁾ (mm)	b_L ²⁾ (mm)	LG ³⁾	BG ⁴⁾	DST ⁵⁾	SC ⁶⁾	Material number
455	455	1; 2; 3	1; 2	1; 2	1; 2	3 842 998 605 (ST 5/XH)
650	455; 650	1; 2; 3	1; 2	1; 2	1; 2	3 842 998 604 (ST 5/H)
845	650; 845	1; 2; 3	1; 2	1; 2	1; 2	$b_Q = \dots$ mm
1040	845	1; 2; 3	1; 2	1; 2	1; 2	$b_L = \dots$ mm
						LG = ...; BG = ...
						DST = ...; SC = ...

¹⁾ b_Q = width of transverse section

²⁾ b_L = Width of workpiece pallet

³⁾ LG = Lateral guide material
 1: steel; 2: plastic; 3: aluminum

⁴⁾ BG = Bevel wheel material
 1: plastic
 2: sintered metal

⁵⁾ DST = King shaft installation on secondary section
 1: left
 2: right

⁶⁾ SC = protective covers
 1: without protective covers
 2: with protective covers

Description of further parameters, see page 0-3

Ordering examples, see page 6-6

HQ 5 lift transverse unit protective covers



Use:

The protective covers are provided in working areas to increase safety.

Mobile protective covers (**A, B**) are assembled to HQ 5, fixed protective covers (**C, D, E**) are clipped between the rollers using spring elements. The user must make the openings in the protective covers, see assembly instructions.

Note:

Do not walk on the protective covers.
Slots for add-on parts must be made by the customer, for details see assembly instructions.

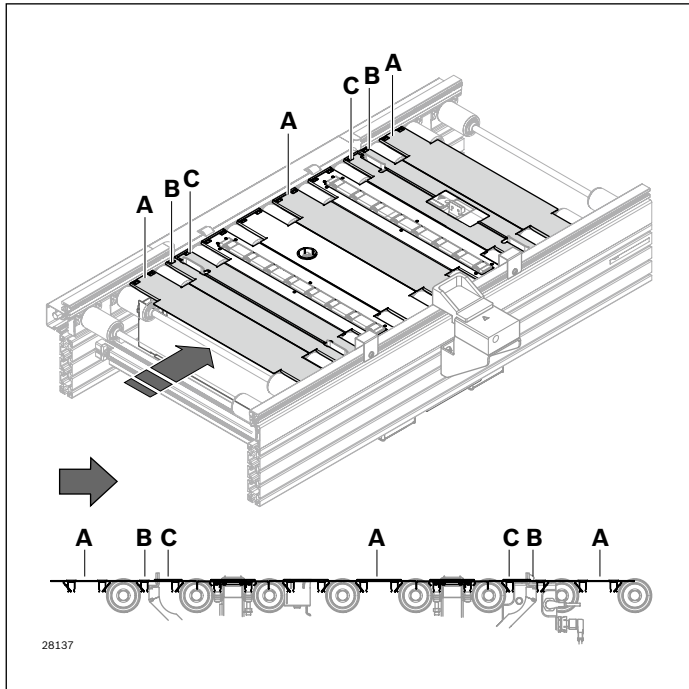
Versions:

- ▶ Protective covers for various widths and roller spacings

Material:

- ▶ galvanized steel

Ordering information



Required protective covers for HQ 5

b_L (mm)	b_Q (mm)	p (mm)	n	Material number A	n	Material number B	C
455	455	130	8x	3 842 545 404	1x	3 842 545 966	2x Delivered pre-assembled
455	650	130	9x	3 842 545 404	1x	3 842 545 966	
455	650	195	6x	3 842 545 609	1x	3 842 545 966	
650	650	130	9x	3 842 545 405	1x	3 842 545 966	
650	650	195	6x	3 842 545 360	1x	3 842 545 966	
650	845	130	11x	3 842 545 405	1x	3 842 545 966	
650	845	195	7x	3 842 545 360	1x	3 842 545 966	
650	845	260	5x	3 842 545 612	1x	3 842 545 966	
845	845	130	11x	3 842 545 361	1x	3 842 545 966	
845	845	195	7x	3 842 545 362	1x	3 842 545 966	
845	845	260	5x	3 842 545 363	1x	3 842 545 966	
845	1040	130	12x	3 842 545 361	1x	3 842 545 966	
845	1040	195	8x	3 842 545 362	1x	3 842 545 966	
845	1040	260	6x	3 842 545 363	1x	3 842 545 966	
845	1040	325	4x	3 842 545 403	1x	3 842 545 966	

- b_L = track width in direction of transport (longitudinal conveyor)
- b_Q = track width in direction of transport (transverse conveyor)
- p = Roller spacing (pitch)
- n = Required quantity

Cover for lateral guide of HQ 5 lift transverse unit



Use:

- ▶ Covers must be provided for the lateral guide in the vicinity of the HQ 5 lift transverse unit (see page 6-4) to increase safety.

Note:

Do not walk on the protective covers.

Versions:

- ▶ Covers with **(A)** a slot for DA 5/... dampers
- ▶ Covers without **(B)** a slot for DA 5/... dampers

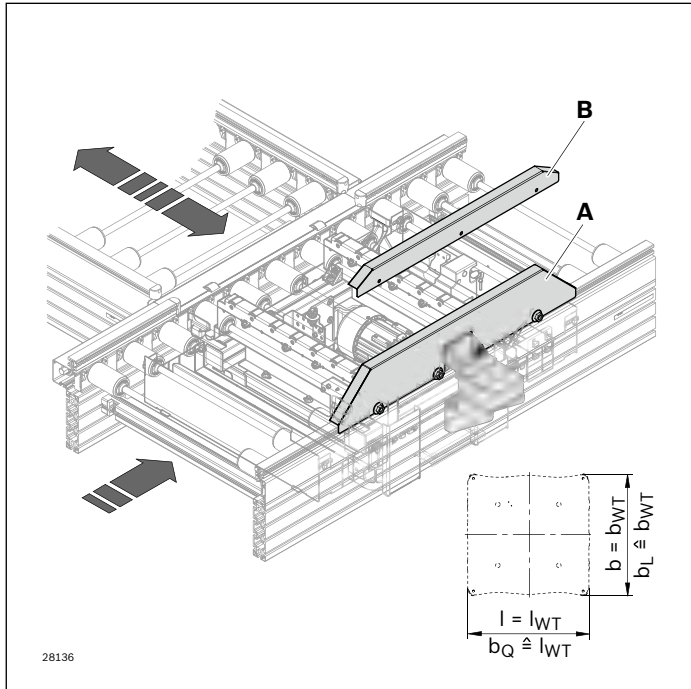
Required accessories:

- ▶ T-bolt, see page 6-20
- ▶ Flange nut, see page 6-20

Material:

- ▶ galvanized steel

Ordering information




Covers for lateral guide of HQ 5

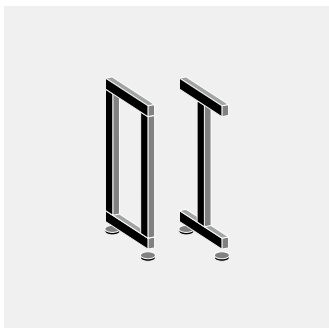
	b_Q (mm)	Material number
A	455	3 842 552 658
	650	3 842 552 659
	845	3 842 552 660
	1040	3 842 552 661
B	455	3 842 552 662
	650	3 842 552 663
	845	3 842 552 664
	1040	3 842 552 665

b_Q = track width in direction of transport (transverse conveyor)

Required fastening materials:

		Material number
Flange nut	100	3 842 345 081
T-bolt	100	3 842 528 718

Description of the T-bolt and flange nut, see page 7-10



Legs

Design	7-2
SZ 5 leg set	7-4
SZ 5/U leg set	7-6
SZ 5/OC leg set	7-8
Foundation brackets, dowels	7-10

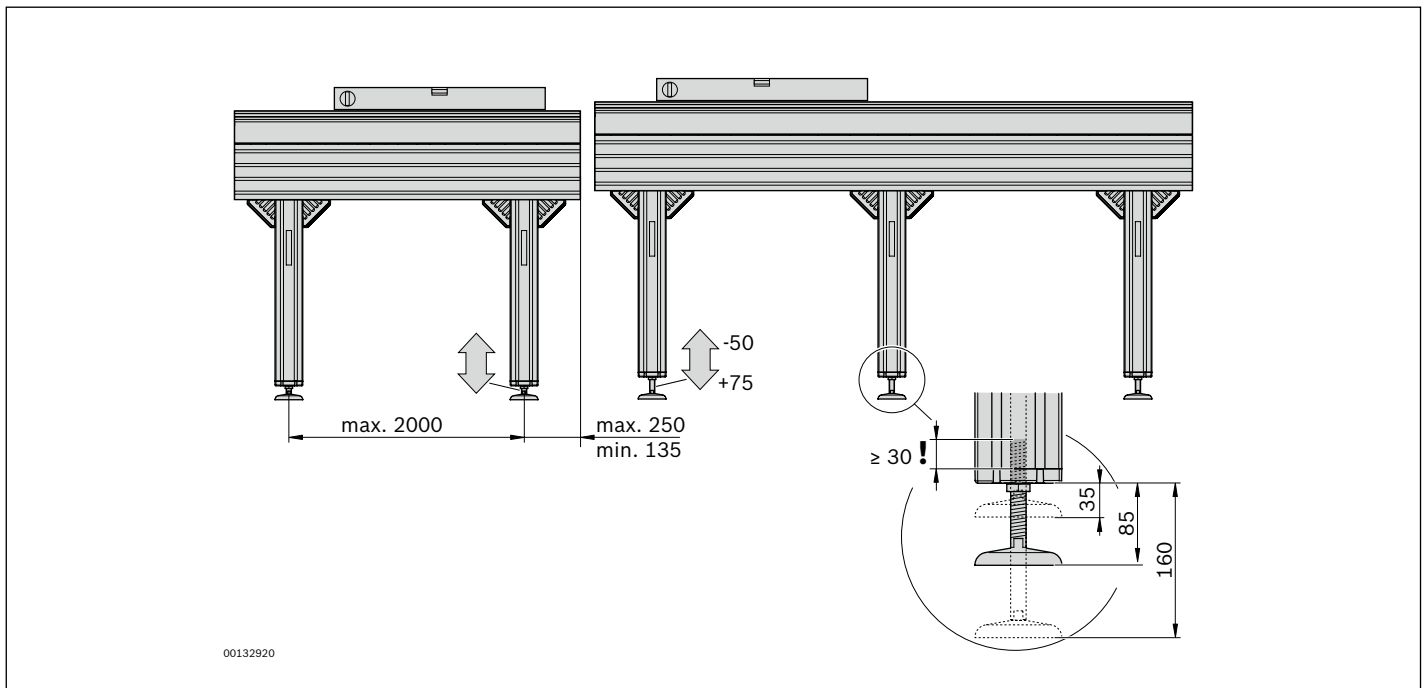
Design

Leg sets

Leg sets support the conveyor section. We recommend providing a separate leg set for every module (conveyor unit, curve, diverter, junction) in order to compensate for height tolerances at the transitions.

A max. leg distance of 2,000 mm must be maintained per workpiece pallet.

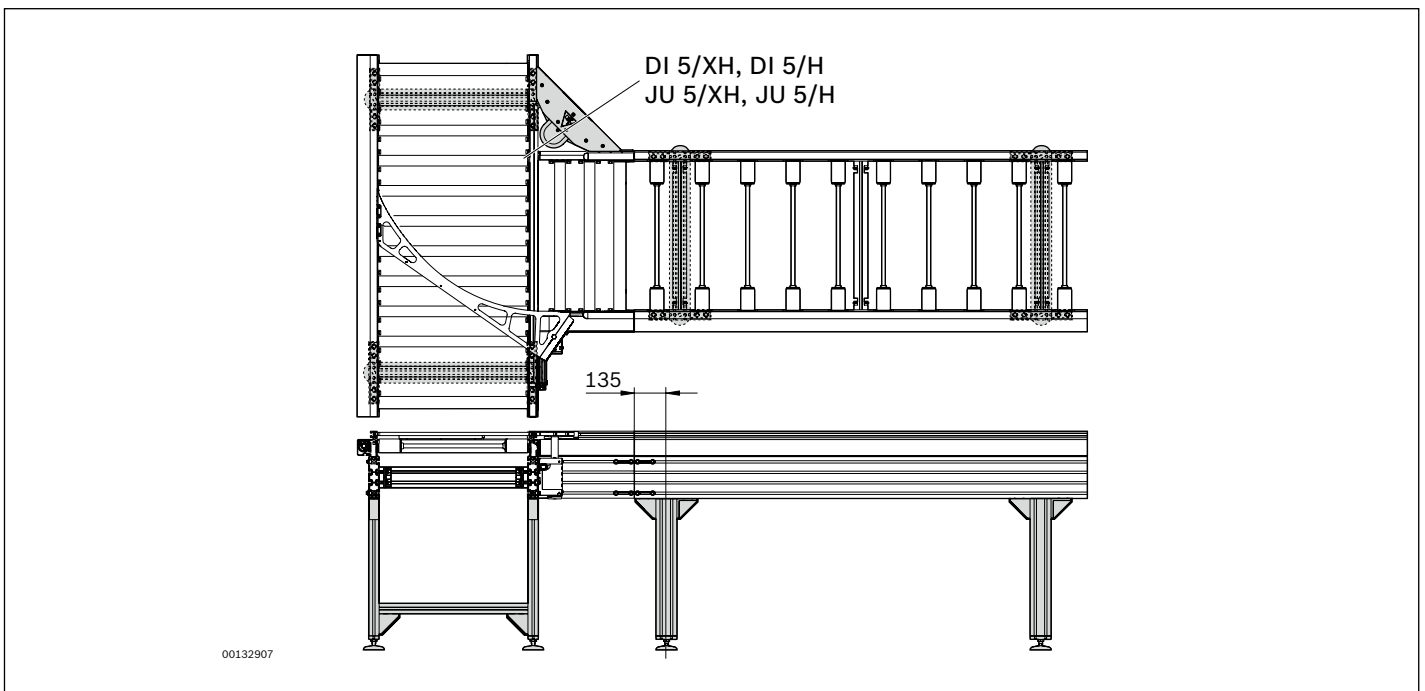
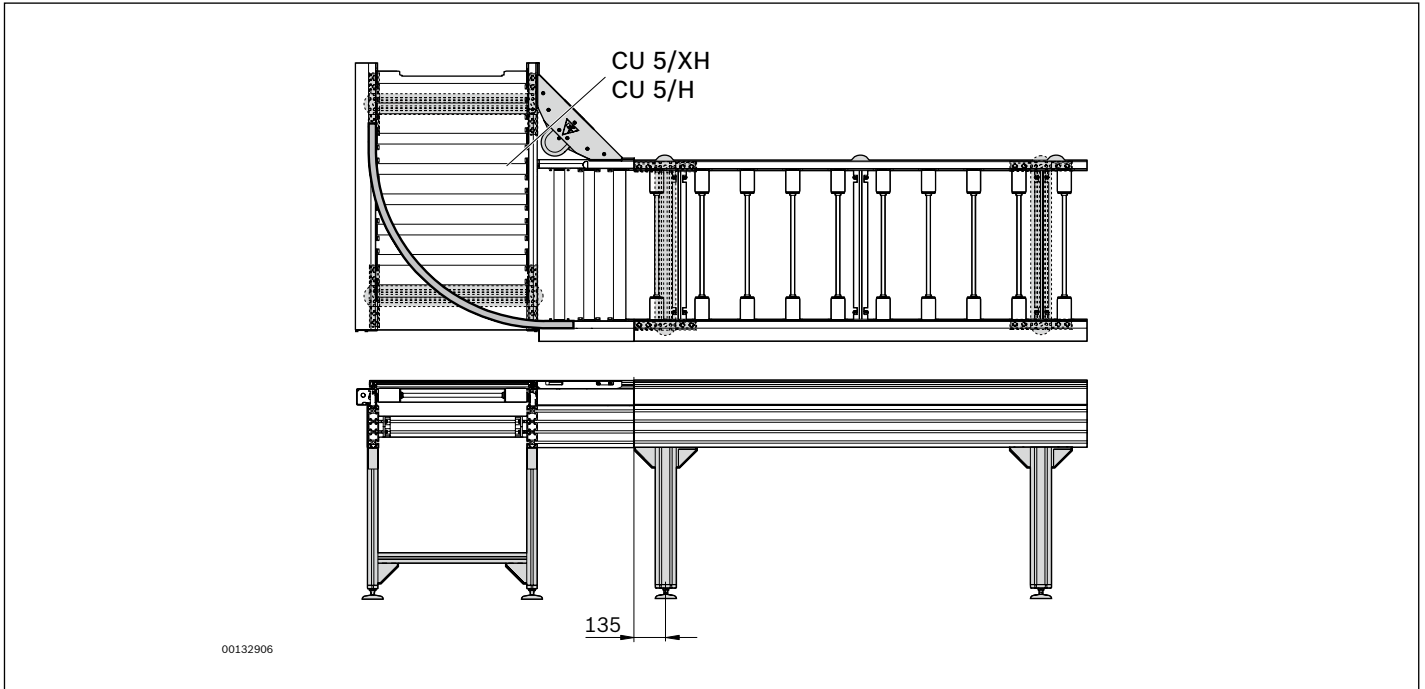
The engagement depth of the leveling feet must be at least 30 mm for all leg sets.



Since curves, diverters, and junctions are only supported by 2 legs, the secondary section must be immediately supported after the transition, see Figures.

Recommended accessories:

Leg sets can be anchored to the floor using foundation brackets 3 842 146 815 and dowels 3 842 526 560, see page 7-10



SZ 5 leg set



Use:

- ▶ Leg set for general applications

Version:

- ▶ Extruded aluminum profiles
- ▶ Height-adjustable bases
- ▶ Suitable for the construction of high-load conveyor sections in conjunction with the ST 5/... conveyor units
- ▶ Lowest possible transport level (with lowest possible foot setting of 35 mm):
 - ST 5/XH = 425.5 mm
 - ST 5/H = 335.5 mm

Note:

For transport heights > 1,000 mm, we recommend that users compensate for horizontal braking forces with diagonal bracing struts, see MGE catalog.

Scope of delivery:


- ▶ Incl. height-adjustable bases, incl. fastening material to mount the leg set onto a conveyor unit, drive unit, curve, diverter, or junction.

Condition on delivery:

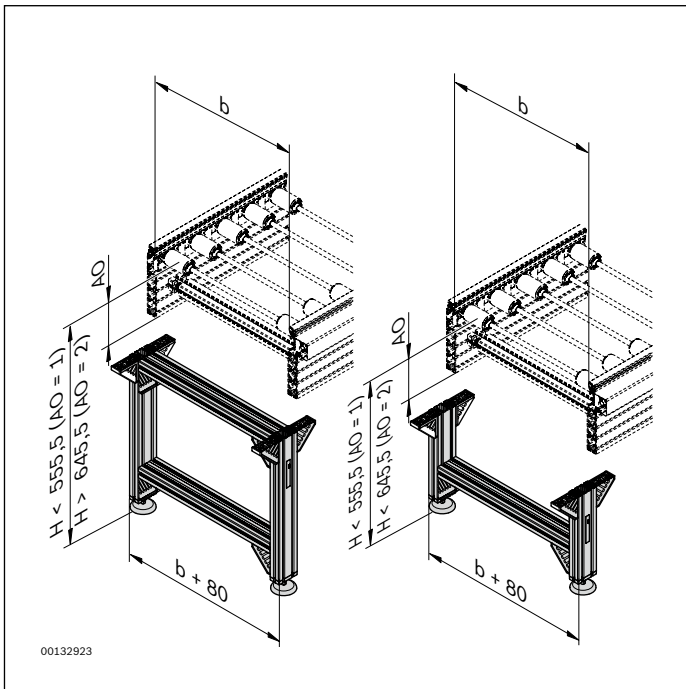
- ▶ Assembled (MT = 1)
- ▶ Not assembled (MT = 0)

Recommended accessories:

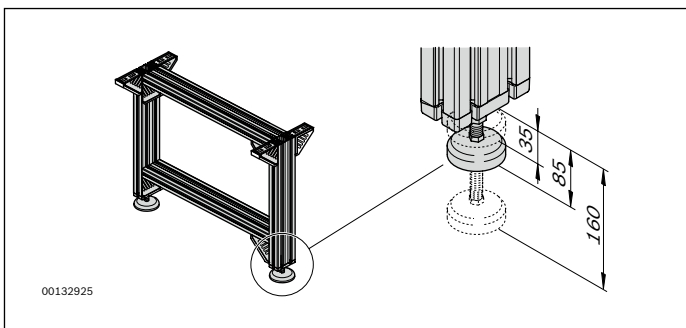
Cover caps for bracket

		Material number
45x90, black ESD	100	3 842 548 865
90x90, black ESD	20	3 842 548 869

Ordering information



00132923



00132925

SZ 5 leg set

AO	b (mm)	H (mm)	MT	Material number
1	455; 650; 845; 1,040	385.5 ... 2,000	0; 1	3 842 996 330
2	455; 650; 845; 1,040	475.5 ... 2,000	0; 1	AO = ... b = ... mm H = ... mm MT = ...

AO = Installation location

1: ... 5/H

2: ... 5/XH

b = Track width in direction of transport

H = Transportation height

MT = Condition on delivery

0: not assembled

1: assembled

SZ 5/U leg set



Use:

- ▶ Leg set for multi-level sections

Version:

- ▶ Extruded aluminum profiles
- ▶ Height-adjustable bases
- ▶ Suitable for the construction of high-load conveyor sections in conjunction with the ST 5/... conveyor units

Note:

For transport heights > 1,000 mm, we recommend that users compensate for horizontal braking forces with diagonal bracing struts, see MGE catalog.

Scope of delivery:


- ▶ Incl. height-adjustable bases, incl. fastening material to mount the leg set onto a conveyor unit, drive unit, curve, diverter, or junction.

Condition on delivery:

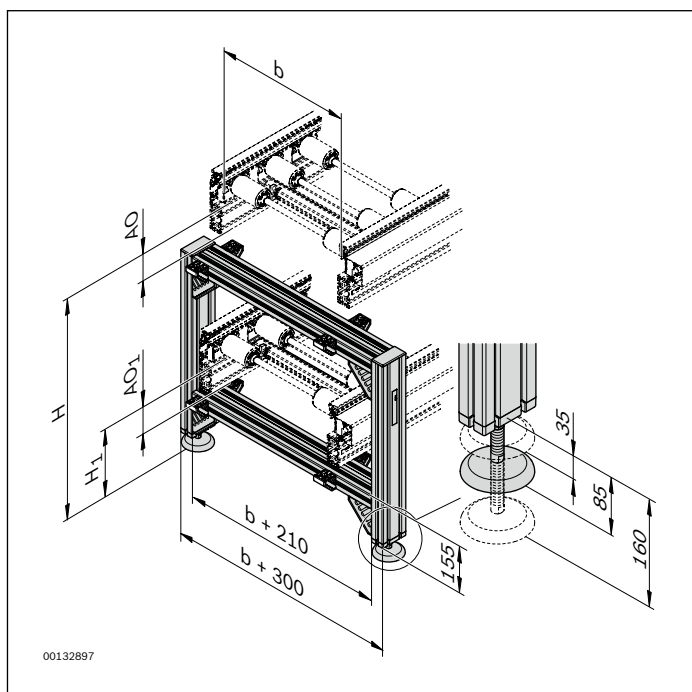
- ▶ Assembled (MT = 1)
- ▶ Not assembled (MT = 0)

Recommended accessories:

Cover caps for bracket

		Material number
45x45, black ESD	100	3 842 548 863
90x90, black ESD	20	3 842 548 869

Ordering information



SZ 5/U leg set

AO	b (mm)	H (mm)	AO ₁	H ₁ (mm)	MT	Material number
1	455; 650; 845; 1,040	719.5 ... 2,000	1	385.5 ... H-334	0; 1	3 842 996 331 AO = ...
			2	475.5 ... H-334		
2	455; 650; 845; 1,040	899.5 ... 2,000	1	385.5 ... H-424	0; 1	b = ... mm H = ... mm AO ₁ = ... H ₁ = ... mm MT = ...
			2	475.5 ... H-424		

AO = Installation location
 1: ... 5/H
 2: ... 5/XH

AO₁ = Installation location lower section
 1: ST 5/H
 2: ST 5/XH

b = Track width in direction of transport
 H = Transportation height
 H₁ = Transport height lower section

MT = Condition on delivery
 0: not assembled
 1: assembled

SZ 5/OC leg set



Use:

- ▶ Leg set for Open Center sections

Version:

- ▶ Extruded aluminum profiles
- ▶ Height-adjustable bases
- ▶ Suitable for the construction of high-load conveyor sections in conjunction with the ST 5/OC... conveyor units
- ▶ Lowest possible transport level (with lowest possible foot setting of 35 mm):
335.5 mm

Note:

For transport heights > 1,000 mm, we recommend that users compensate for horizontal braking forces with diagonal bracing struts, see MGE catalog.

Scope of delivery:


- ▶ Incl. height-adjustable bases, incl. fastening material to mount the leg set onto a conveyor unit, drive unit, curve, diverter, or junction.

Condition on delivery:

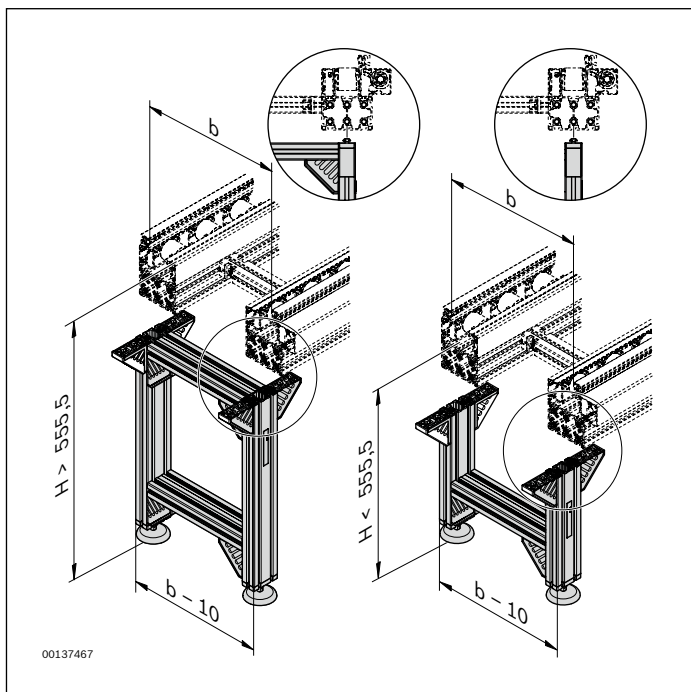
- ▶ Assembled (MT = 1)
- ▶ Not assembled (MT = 0)

Recommended accessories:

Cover caps for bracket

		Material number
45x90, black ESD	100	3 842 548 865
90x90, black ESD	20	3 842 548 869

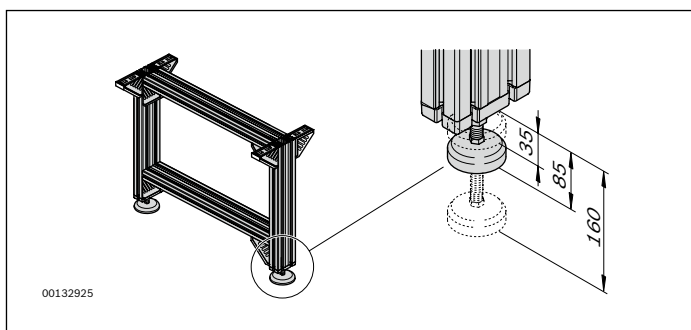
Ordering information



SZ 5/OC leg set

	b (mm)	H (mm)	MT	Material number
455; 650; 845; 1,040	385.5 ... 2,000	0; 1		3 842 996 332
				b = ... mm
				H = ... mm
				MT = ...

b = Track width in direction of transport
 H = Transportation height
 MT = Condition on delivery
 0: not assembled
 1: assembled



Foundation brackets, dowels



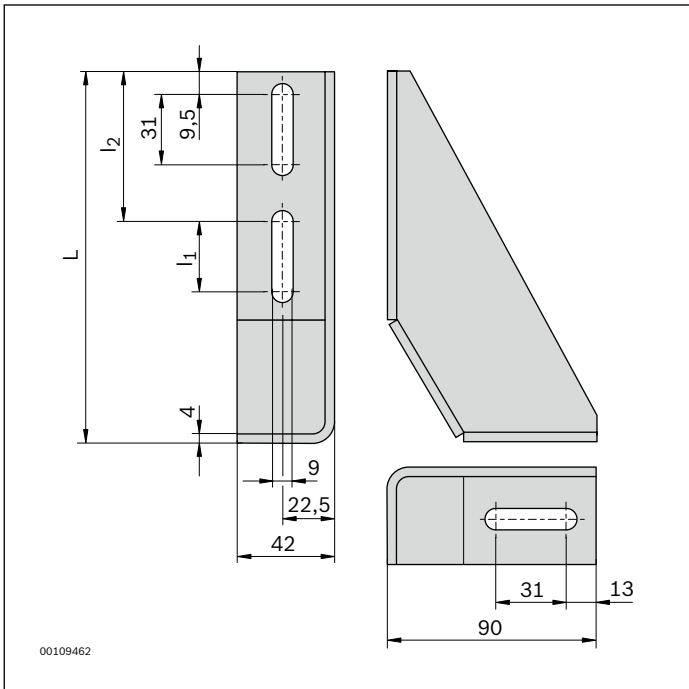
Use:


- Frames are fastened to the floor with the foundation bracket. The hole for the dowel can be bored without removing the foundation bracket.

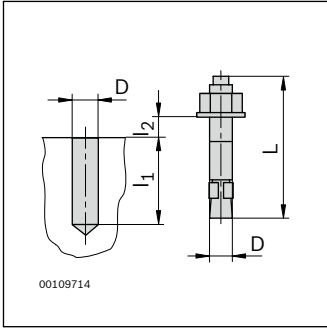
Material:

- **Foundation bracket:** Sheet steel, galvanized and transparent chrome-plated

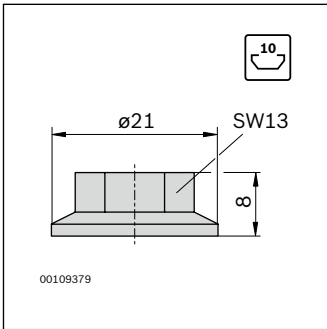
Ordering information



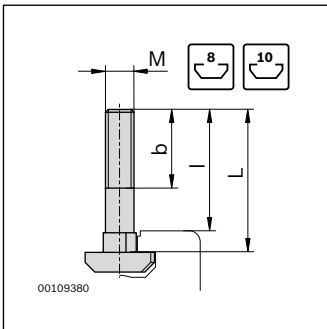
Product designation	L (mm)	l ₁ (mm)	l ₂ (mm)		Material number
Foundation bracket	160	31	91	20	3 842 146 815



Product designation	D (mm)	L (mm)	l ₁ (mm)	l _{2max} (mm)	Material number
Dowel	8	80	65	15	100 3 842 526 560

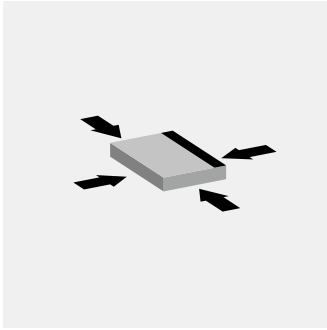


Product designation	Material number
Flange nut	100 3 842 345 081



Product designation	M	b (mm)	l (mm)	Material number
T-bolt	M8x25	19	19	100 3 842 528 718

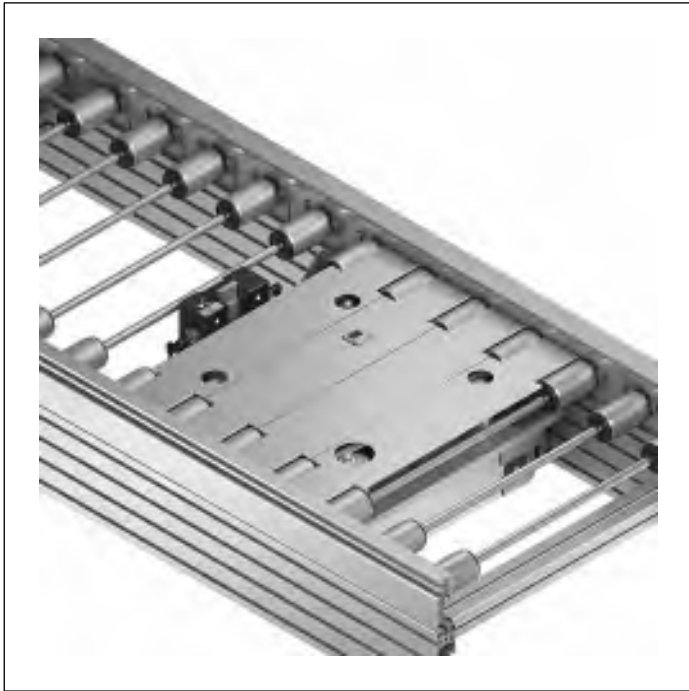
7-12 **TS 5 4.0** | Legs
Foundation brackets, dowels



Positioning and orientation

Design	8-2
PE 5 positioning unit	8-3
PE 5/T positioning unit	8-7
PE 5/L positioning unit	8-11
PE 5/L-T positioning unit	8-15
PE 5/OC positioning unit	8-19
PE 5/OC-T positioning unit	8-23
Assembly kit for PE 5 and PE 5/T	8-27
Protective sleeves for PE 5, PE 5/T, PE 5/L and PE 5/L-T	8-29
Cover of lateral guide for positioning units	8-31
Protective covers for PE 5/OC and PE 5/OC-T	8-32

Design

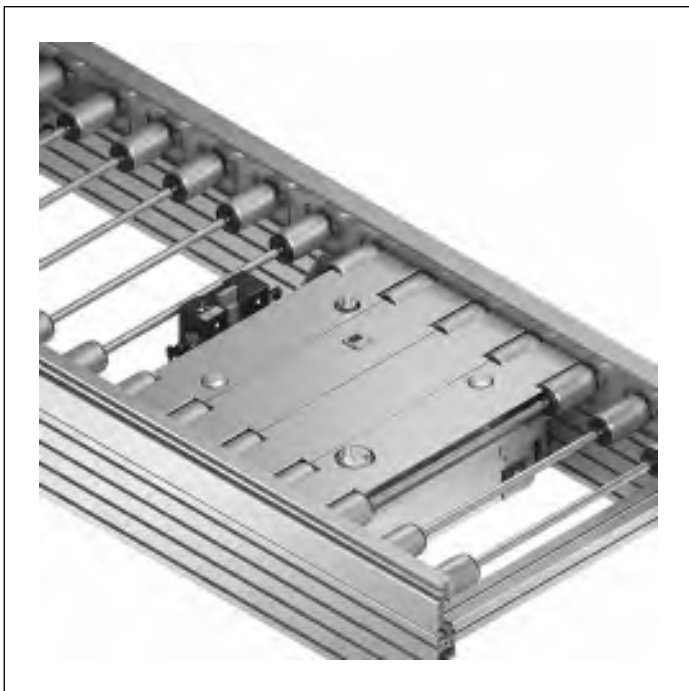


In order to process and maintain manufacturing tolerances, workpiece pallets must be stopped and positioned in the processing station.

In doing so, the workpiece pallets can be exactly positioned by up to ± 0.3 mm and the system can absorb vertical process forces of up to 4,000 N.

Applications:

- ▶ For exact positioning and to lift the workpiece pallet from the conveyor transport surface:
PE 5, see page 8-3
- ▶ A VE 5 stop gate, see page 9-3, is sufficient for use with a manual workplace that has low requirements for positioning accuracy and if no forces act upon the workpiece pallet



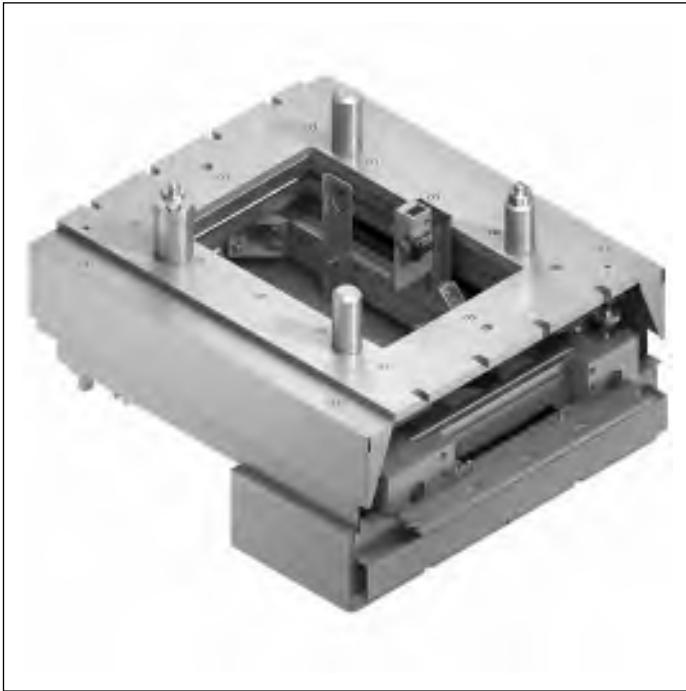
Figures:

PE 5 positioning unit with protective covers and sleeves, installed with an assembly kit in an ST 5/H section.

Top figure: top position

Bottom figure: bottom position

PE 5 positioning unit



Use:

- ▶ Positioning a workpiece pallet in a manual or automated processing station in the longitudinal conveyor with high positioning accuracy requirements (± 0.3 mm)

Version:

- ▶ Can be used with all WT 5 workpiece pallets
- ▶ Installation from above also possible
- ▶ Lift over transport level: 5 mm
- ▶ Positioning accuracy: ± 0.3 mm
- ▶ Permissible vertical process force with center load: up to 4,000 N^{2), 3)}
- ▶ Suitable for ST 5/H and ST 5/XH (not ST 5/H-FR or ST 5/XH-FR)
- ▶ Compressed air connection 5 ... 6 bar
- ▶ Pneumatic push-in fitting: 6 mm

²⁾ If assembling in a ST 5/H section place legs directly in front of and behind the PE 5.

³⁾ Permissible vertical process force if assembled in the section. Higher process forces of up to 15,000 N possible with direct support (on request).

Scope of delivery:

- ▶ Incl. fastening material for mounting the PE 5 in ST 5/XH conveyor sections

Required accessories:

- ▶ Assembly kit 3 842 996 185 is required for assembly in ST 5/H conveyor sections, see page 8-27
- ▶ Stop gate VE 5/D-1000, page 9-12, stop gate VE 5/D-300, page 9-6, VE 5/D-301, page 9-9 or stop gate VE 5/200, page 9-3
- ▶ SH 2/U-H 3 842 537 289 switch bracket, see page 9-18¹⁾
- ▶ SH 2/U-H 3 842 545 132 assembly kit, see page 9-20

¹⁾ Not for size b = 455 mm.

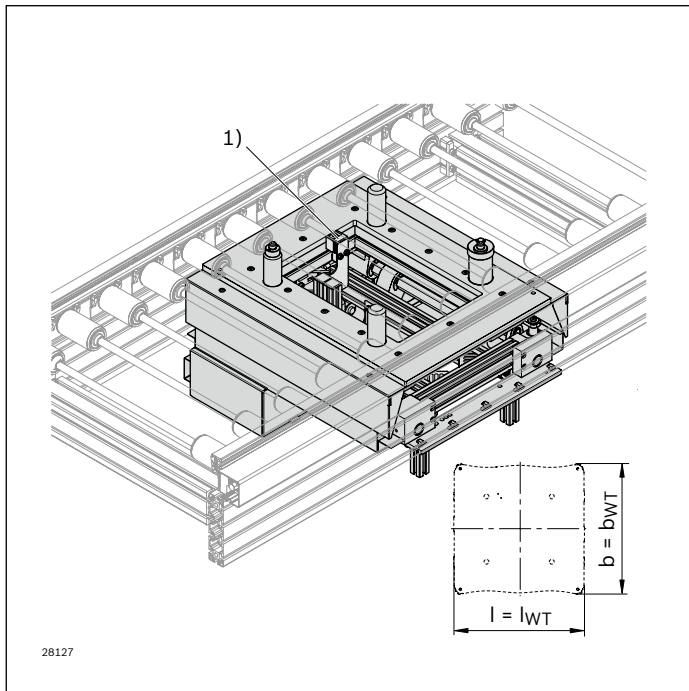
Condition on delivery:

- ▶ Fully assembled

Recommended accessories:

- ▶ Cover for the lateral guide, see page 8-31
- ▶ Protective sleeves, see page 8-29

Ordering information



PE 5 positioning unit

b (mm)	l_{WT} (mm)	SC	Material number
455	455	1; 2	3 842 998 786
455	650	1; 2	b = ... mm
650	650	1; 2	l _{WT} = ... mm
650	845	1; 2	SC = ...
845	845	1; 2	
845	1,040	1; 2	

SC = Housing element

1: without protective casing

2: with protective casing

b = Track width of the positioning unit in the direction of transport

l_{WT} = workpiece pallet length

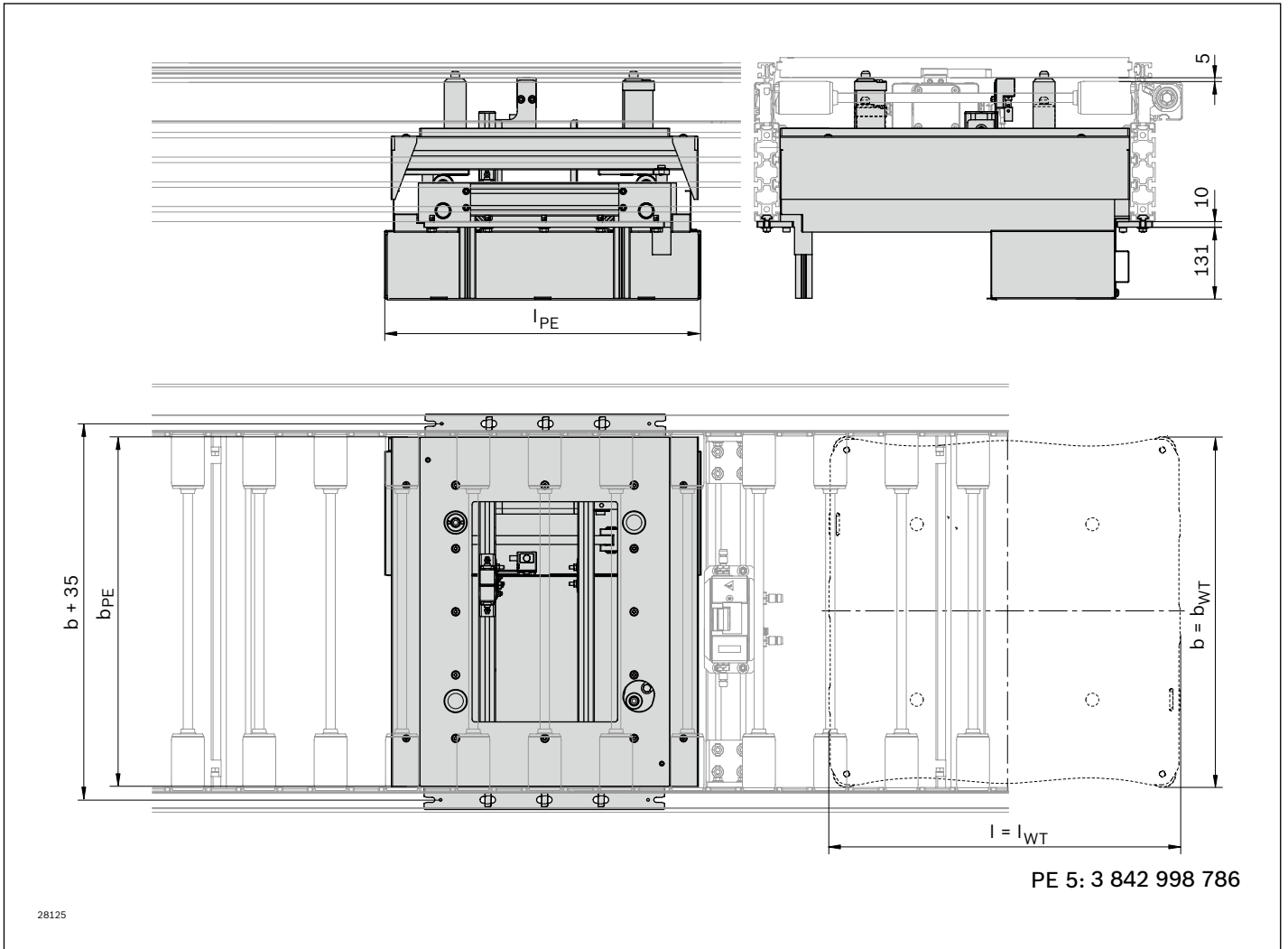
PE 5 (top/bottom) positioning unit position inquiry option on request

Description of further parameters, see page 0-3

¹⁾ Not for size b = 455 mm

Dimensions

PE 5 positioning unit



28125

8

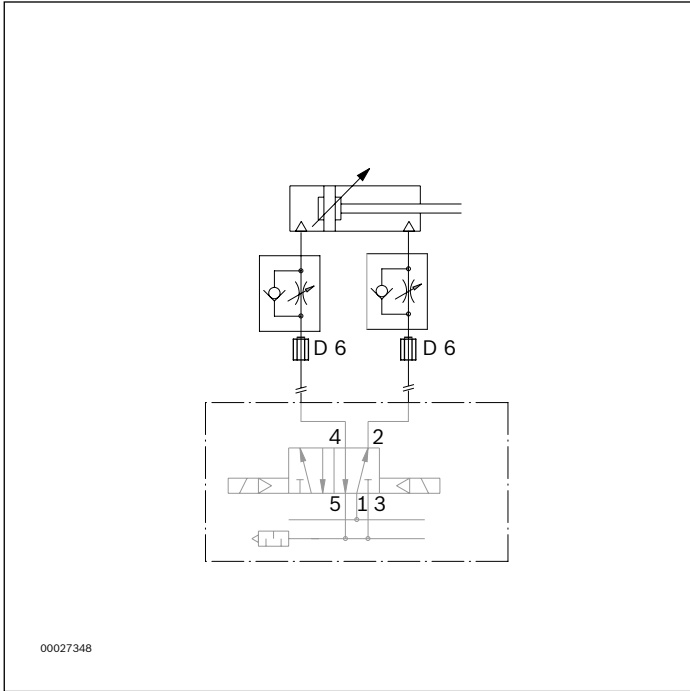
b_{WT} (mm)	l_{WT} (mm)	b_{PE} (mm)	l_{PE} (mm)
455	455	441	471
455	650	441	576
650	650	636	576
650	845	636	764
845	845	831	764
845	1,040	831	966

Assembly kit for installing the PE 5 in the ST 5/H: Material number 3 842 996 185, see page 8-27

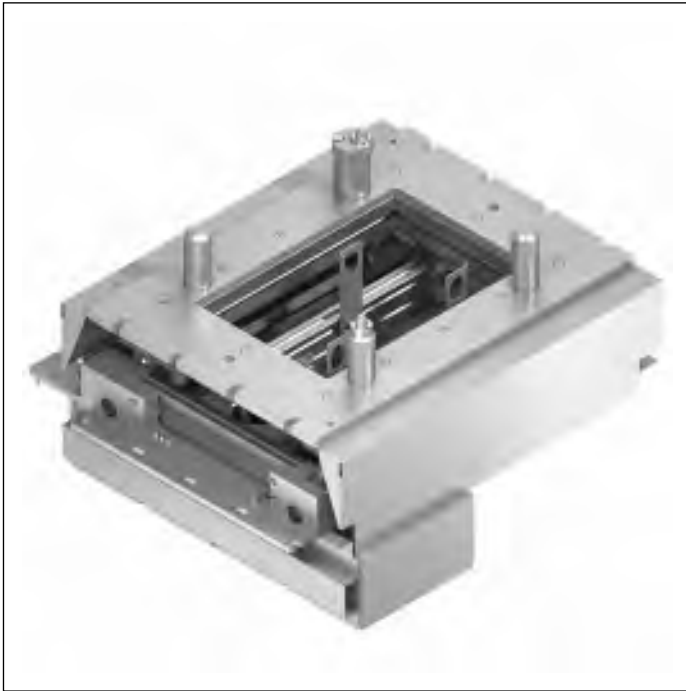
b_{WT} = width of workpiece pallet
 l_{WT} = length of workpiece pallet
 b_{PE} = positioning unit width
 l_{PE} = positioning unit length

Circuit diagram

PE 5 positioning unit



PE 5/T positioning unit



Use:

- ▶ Positioning a workpiece pallet in a manual or automated processing station in the transverse conveyor with high positioning accuracy requirements (± 0.3 mm)

Version:

- ▶ Can be used with all WT 5 workpiece pallets
- ▶ Installation from above also possible
- ▶ Lift over transport level: 5 mm
- ▶ Positioning accuracy: ± 0.3 mm
- ▶ Permissible vertical process force with center load: up to 4,000 N^{2), 3)}
- ▶ Suitable for ST5/H and ST 5/XH (not ST 5/H-FR or ST 5/XH-FR)
- ▶ Compressed air connection 5 ... 6 bar
- ▶ Pneumatic push-in fitting: 6 mm

²⁾ If assembling in a ST 5/H section place legs directly in front of and behind the PE 5/T.

³⁾ Permissible vertical process force if assembled in the section. Higher process forces of up to 15,000 N possible with direct support (on request).

Scope of delivery:

- ▶ Incl. fastening material for mounting the PE 5/T in ST 5/XH conveyor sections, and stop kit for VE 5/D-300 and VE 5/D-1000.

Required accessories:

- ▶ Assembly kit 3 842 996 185 is required if assembling in ST 5/H conveyor sections, see page 8-27
- ▶ VE 5/D-300 stop gate, page 9-6, VE 5/D-301 stop gate, page 9-9, VE 5/D-1000 stop gate, page 9-12 or VE 5/200 stop gate, page 9-3¹⁾

¹⁾ A position inquiry for the workpiece pallet on the PE is only possible through use of a VE 5/D-300 or VE 5/D-1000 stop gate.

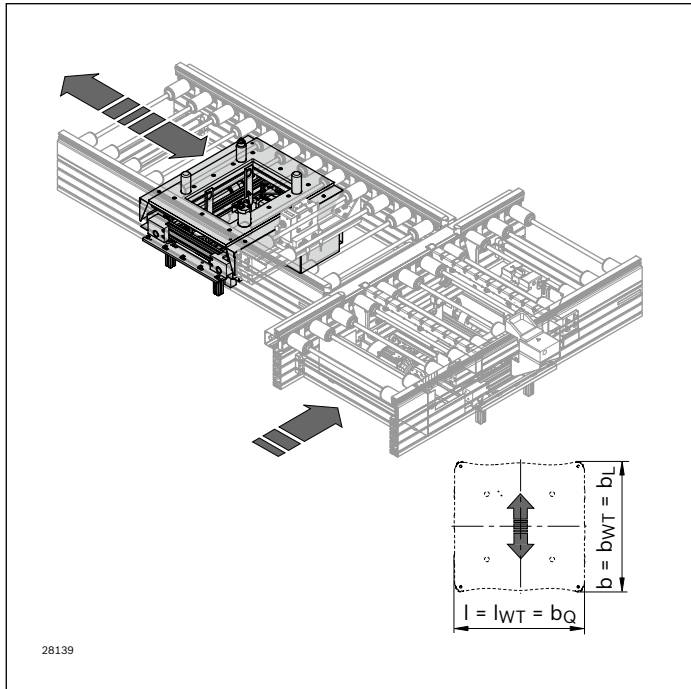
Condition on delivery:

- ▶ Fully assembled

Recommended accessories:

- ▶ Cover for the lateral guide, see page 8-31
- ▶ Protective sleeves, see page 8-29

Ordering information



PE 5/T positioning unit

b_L (mm)	b_Q (mm)	SC	Material number
455	455	1; 2	3 842 998 177
455	650	1; 2	$b_L = \dots$ mm
650	650	1; 2	$b_Q = \dots$ mm
650	845	1; 2	SC = ...
845	845	1; 2	
845	1,040	1; 2	

SC = Housing element

1: without protective casing

2: with protective casing

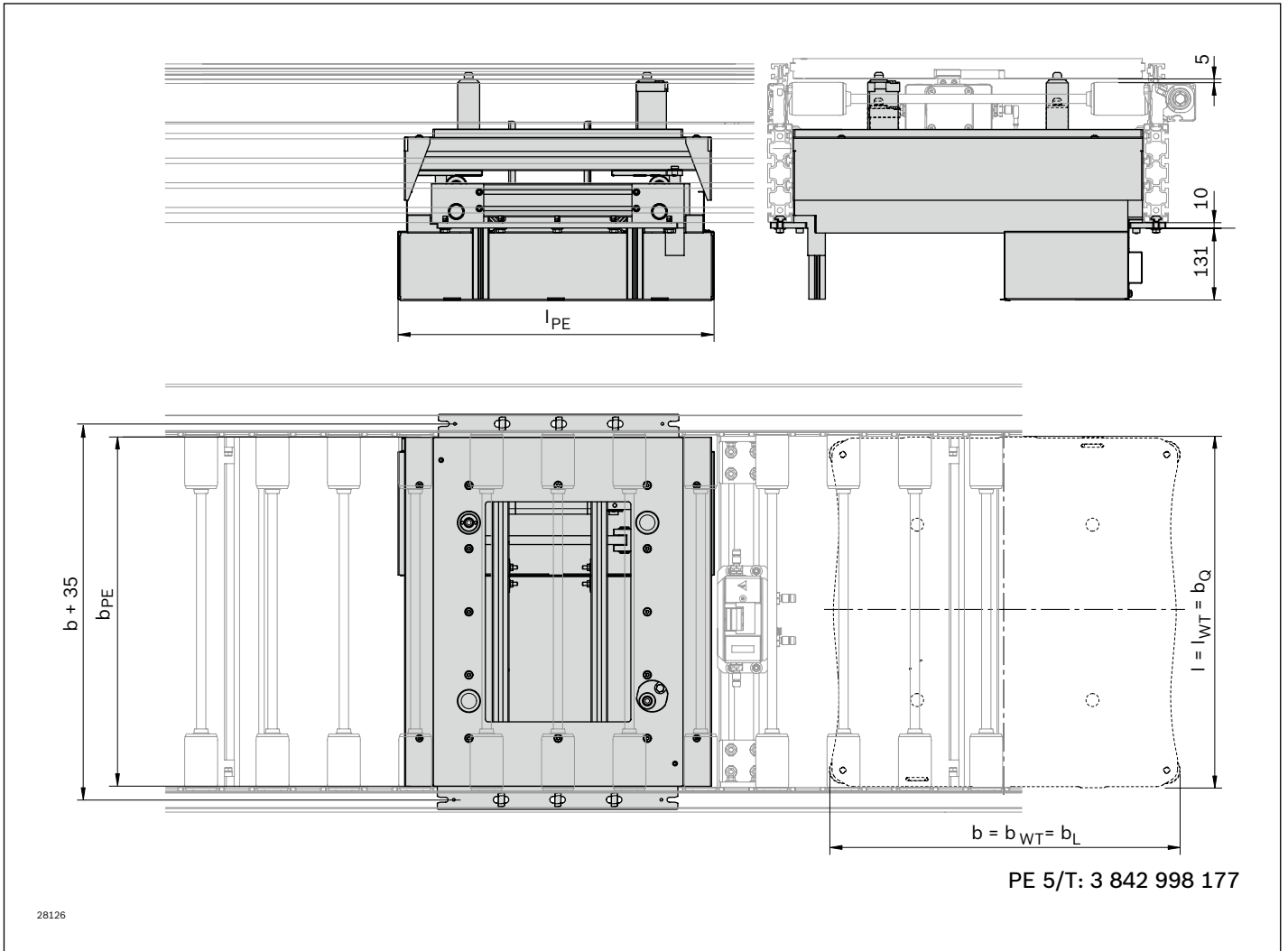
b_L = track width in direction of transport (longitudinal conveyor)

b_Q = track width in direction of transport (transverse conveyor)

PE 5/T (top/bottom) positioning unit position inquiry option on request

Description of further parameters, see page 0-3

Dimensions
PE 5/T positioning unit



8

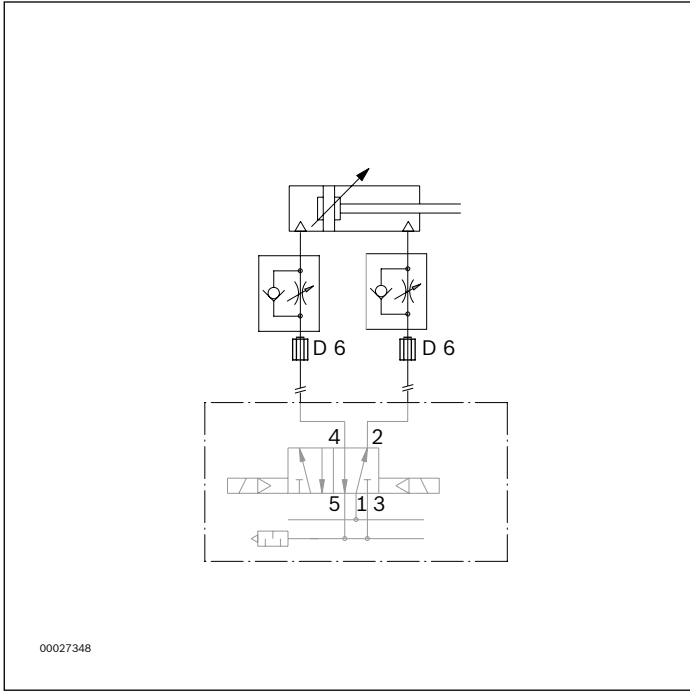
b_L (mm)	b_Q (mm)	b_{PE} (mm)	l_{PE} (mm)
455	455; 650	441	471
650	650	636	576
650	845	636	576
845	845	831	764
845	1,040	831	764

Assembly kit for installing the PE 5/T in the ST 5/H: Material number 3 842 996 185, see page 8-27

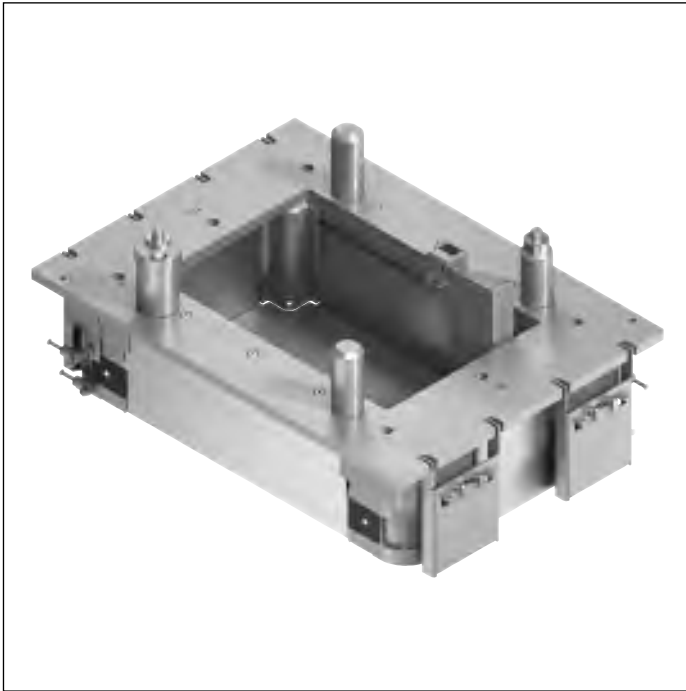
- b_L = track width in direction of transport (longitudinal conveyor)
- b_Q = track width in direction of transport (transverse conveyor)
- b_{PE} = positioning unit width
- l_{PE} = positioning unit length

Circuit diagram

PE 5/T positioning unit



PE 5/L positioning unit



Use:

- ▶ Positioning a workpiece pallet in a manual or automated processing station in the longitudinal conveyor with high positioning accuracy requirements (± 0.3 mm)

Version:

- ▶ Can be used with all WT 5 workpiece pallets
- ▶ Installation only possible from above
- ▶ Lift over transport level: 5 mm
- ▶ Positioning accuracy: ± 0.3 mm
- ▶ Permissible vertical process force with center load: up to 3,500 N²⁾, ³⁾ incl. WT
- ▶ Suitable for ST 5/H and ST 5/XH (not ST 5/H-FR or ST 5/XH-FR)
- ▶ Compressed air connection 5 ... 6 bar
- ▶ Pneumatic push-in fitting: 6 mm

²⁾ If assembling in a ST 5/H section place legs directly in front of and behind the PE 5/L.

³⁾ Permissible vertical process force if assembled in the section. Higher process forces of up to 15,000 N possible with direct support (on request).

Scope of delivery:

- ▶ Incl. fastening material for mounting the PE 5/L in ST 5/XH conveyor sections

Required accessories:

- ▶ Stop gate VE 5/D-1000, page 9-12, stop gate VE 5/D-300, page 9-6, VE 5/D-301, page 9-9 or stop gate VE 5/200, page 9-3
- ▶ SH 2/U-H 3 842 537 289 switch bracket, see page. 9-18

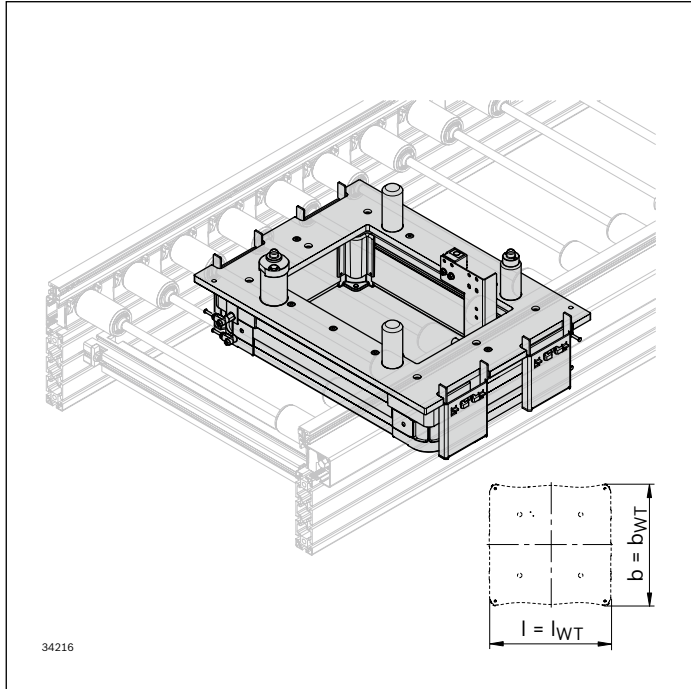
Condition on delivery:

- ▶ Fully assembled

Recommended accessories:

- ▶ Cover for the lateral guide, see page 8-31
- ▶ Protective sleeves, see page 8-29

Ordering information



PE 5/L positioning unit

b (mm)	l_{WT} (mm)	SC	Material number
455	455	1; 2	3 842 998 048
455	650	1; 2	b = ... mm
650	650	1; 2	l _{WT} = ... mm
650	845	1; 2	SC = ...
845	845	1; 2	
845	1,040	1; 2	

SC = Housing element

1: without protective casing

2: with protective casing

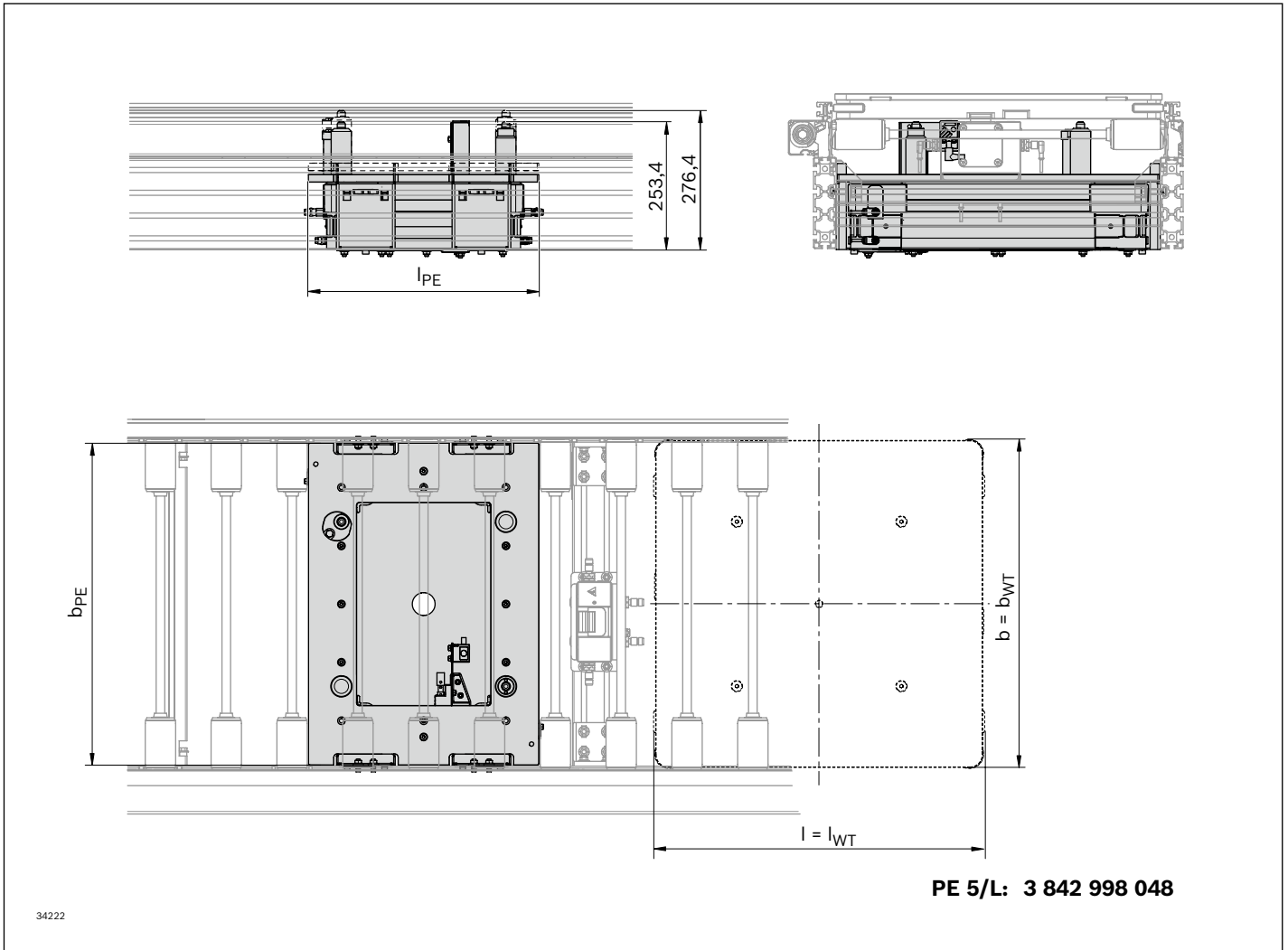
b = Track width of the positioning unit in the direction of transport

l_{WT} = workpiece pallet length

Description of further parameters, see page 0-3

Dimensions

PE 5/L positioning unit



34222

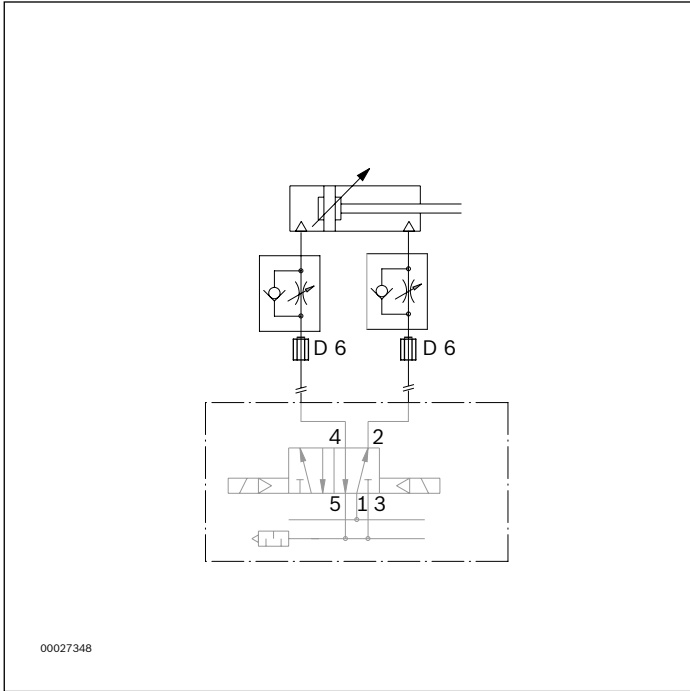
PE 5/L: 3 842 998 048

b_{WT} (mm)	l_{WT} (mm)	b_{PE} (mm)	l_{PE} (mm)
455	455	441	471
455	650	441	576
650	650	636	576
650	845	636	764
845	845	831	764
845	1,040	831	966

b_{WT} = width of workpiece pallet
 l_{WT} = length of workpiece pallet
 b_{PE} = positioning unit width
 l_{PE} = positioning unit length

Circuit diagram

PE 5/L positioning unit



PE 5/L-T positioning unit



Use:

- ▶ Positioning a workpiece pallet in a manual or automated processing station in the transverse conveyor with high positioning accuracy requirements (± 0.3 mm)

Version:

- ▶ Can be used with all WT 5 workpiece pallets
- ▶ Installation only possible from above
- ▶ Lift over transport level: 5 mm
- ▶ Positioning accuracy: ± 0.3 mm
- ▶ Permissible vertical process force with center load: up to 3,500 N^{2), 3)} incl. WT
- ▶ Suitable for ST5/H and ST 5/XH (not ST 5/H-FR or ST 5/XH-FR)
- ▶ Compressed air connection 5 ... 6 bar
- ▶ Pneumatic push-in fitting: 6 mm

²⁾ If assembling in a ST 5/H section place legs directly in front of and behind the PE 5/L-T.

³⁾ Permissible vertical process force if assembled in the section. Higher process forces of up to 15,000 N possible with direct support (on request).

Scope of delivery:

- ▶ Incl. fastening material for mounting the PE 5/L-T in ST 5/XH conveyor sections, and stop kit for VE 5/D-300 and VE 5/D-1000.

Required accessories:

- ▶ VE 5/D-300 stop gate, page 9-6, VE 5/D-301, page 9-9, VE 5/1000 stop gate, page 9-12 or VE 5/200, stop gate, page 9-3¹⁾
- ▶ SH 2/U-H 3 842 537 289 switch bracket, see page. 9-18

¹⁾ A position inquiry for the workpiece pallet on the PE is only possible through use of a VE 5/D-300 or VE 5/D-1000 stop gate.

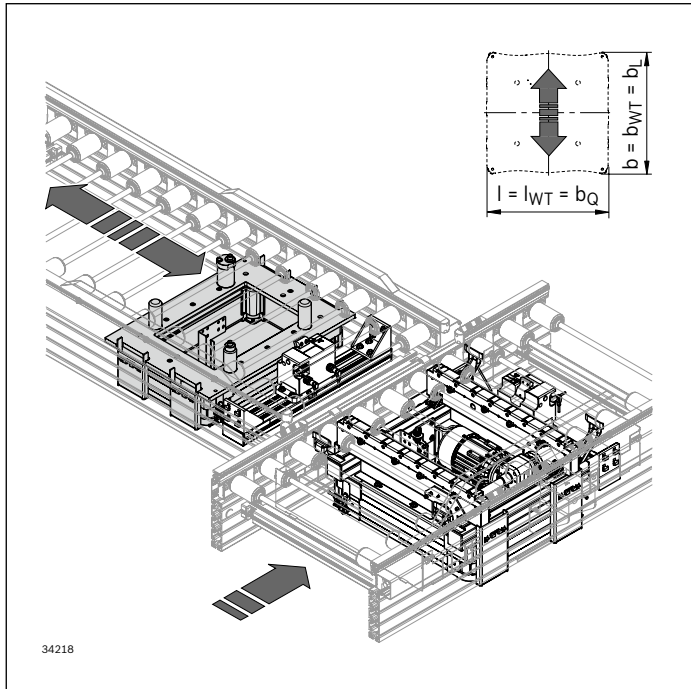
Condition on delivery:

- ▶ Fully assembled

Recommended accessories:

- ▶ Cover for the lateral guide, see page 8-31
- ▶ Protective sleeves, see page 8-29

Ordering information



PE 5/LT positioning unit

b_L (mm)	b_Q (mm)	SC	Material number
455	455	1; 2	3 842 998 049
455	650	1; 2	$b_L = \dots$ mm
650	650	1; 2	$b_Q = \dots$ mm
650	845	1; 2	SC = ...
845	845	1; 2	
845	1,040	1; 2	

SC = Housing element

1: without protective casing

2: with protective casing

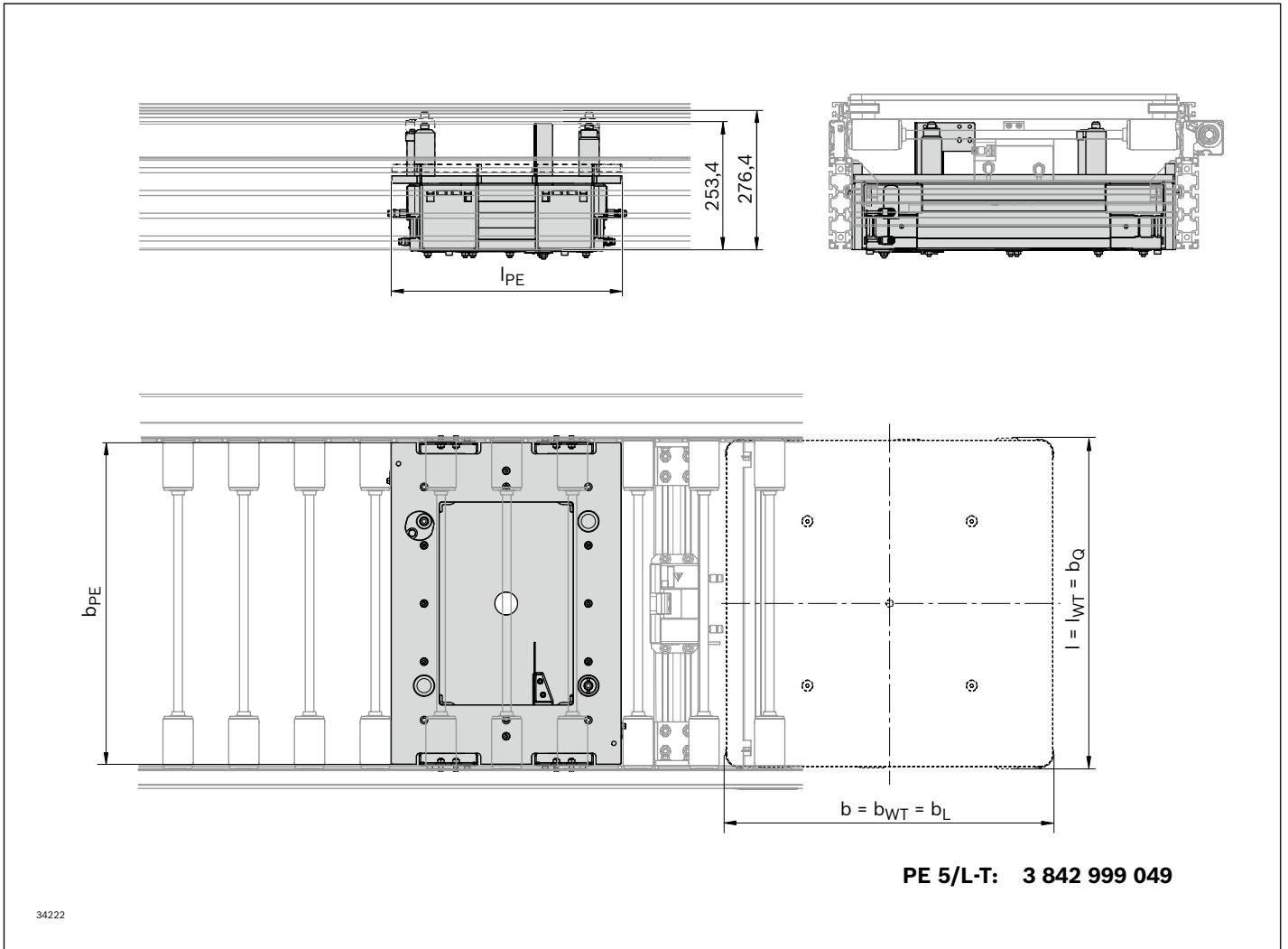
b_L = track width in direction of transport (longitudinal conveyor)

b_Q = track width in direction of transport (transverse conveyor)

Description of further parameters, see page 0-3

Dimensions

PE 5/L-T positioning unit



34222

8

b_L (mm)	b_Q (mm)	b_{PE} (mm)	l_{PE} (mm)
455	455; 650	441	471
650	650	636	576
650	845	636	576
845	845	831	764
845	1,040	831	764

b_L = track width in direction of transport (longitudinal conveyor)

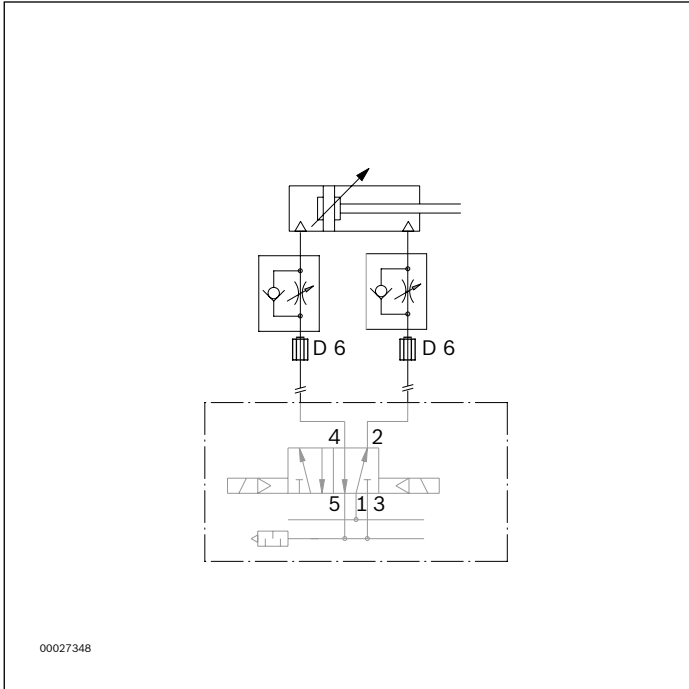
b_Q = track width in direction of transport (transverse conveyor)

b_{PE} = positioning unit width

l_{PE} = positioning unit length

Circuit diagram

PE 5/LT positioning unit



PE 5/OC positioning unit



Use:

- ▶ Positioning a workpiece pallet in a manual or automated processing station in the longitudinal conveyor with high positioning accuracy requirements (± 0.3 mm)

Version:

- ▶ Can be used with all WT 5 workpiece pallets
- ▶ Installation from below
- ▶ Lift over transport level: 5 mm
- ▶ Positioning accuracy: ± 0.3 mm
- ▶ Permissible vertical process force with center load: up to 4,000 N¹⁾
- ▶ Suitable for ST 5/OC
- ▶ Compressed air connection 5 ... 6 bar
- ▶ Pneumatic push-in fitting: 6 mm

¹⁾ Permissible vertical process force if assembled in the section. Higher process forces of up to 15,000 N possible with direct support (on request).

Scope of delivery:

- ▶ Incl. fastening material for mounting the PE 5/OC in ST 5/OC conveyor sections

Required accessories:

- ▶ VE 5/OCD-1000 stop gate, P. 9-12, VE 5/OCD-300 stop gate, P. 9-6, VE 5/OCD-301 stop gate, P. 9-9, or VE 5/OC-200 stop gate, P. 9-3
- ▶ SH 2/U-H 3 842 537 289 switch bracket, see page. 9-18
- ▶ SH 2/U-H 3 842 545 132 assembly kit, see page 9-20
- ▶ Protective sleeves and protective cover, see pages 8-32

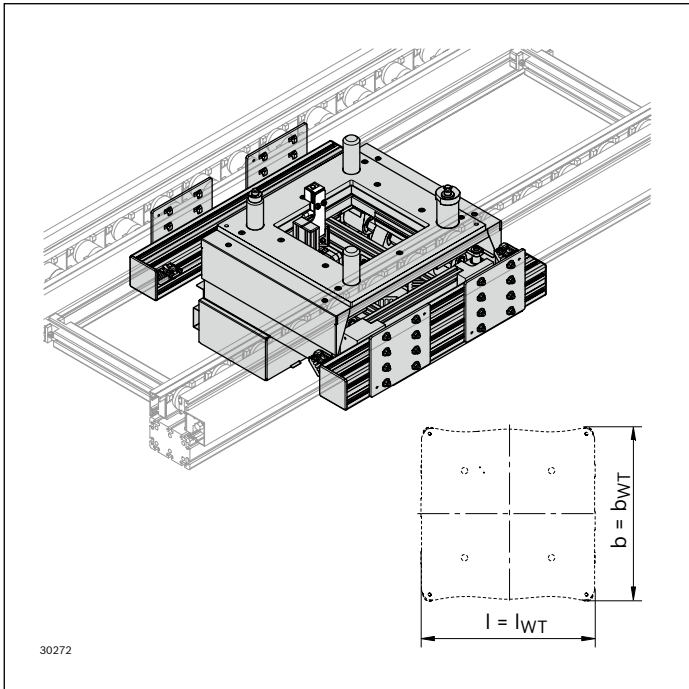
Condition on delivery:

- ▶ Fully assembled

Recommended accessories:

- ▶ Cover for the lateral guide, see page 8-31
- ▶ Protective cover, see page 8-32

Ordering information



PE 5/OC positioning unit

b (mm)	l_{WT} (mm)	SC	Material number
455	455	1; 2	3 842 998 178
455	650	1; 2	b = ... mm
650	650	1; 2	l _{WT} = ... mm
650	845	1; 2	SC = ...
845	845	1; 2	
845	1,040	1; 2	

SC = Housing element

1: without protective casing

2: with protective casing

b = Track width of the positioning unit in the direction of transport

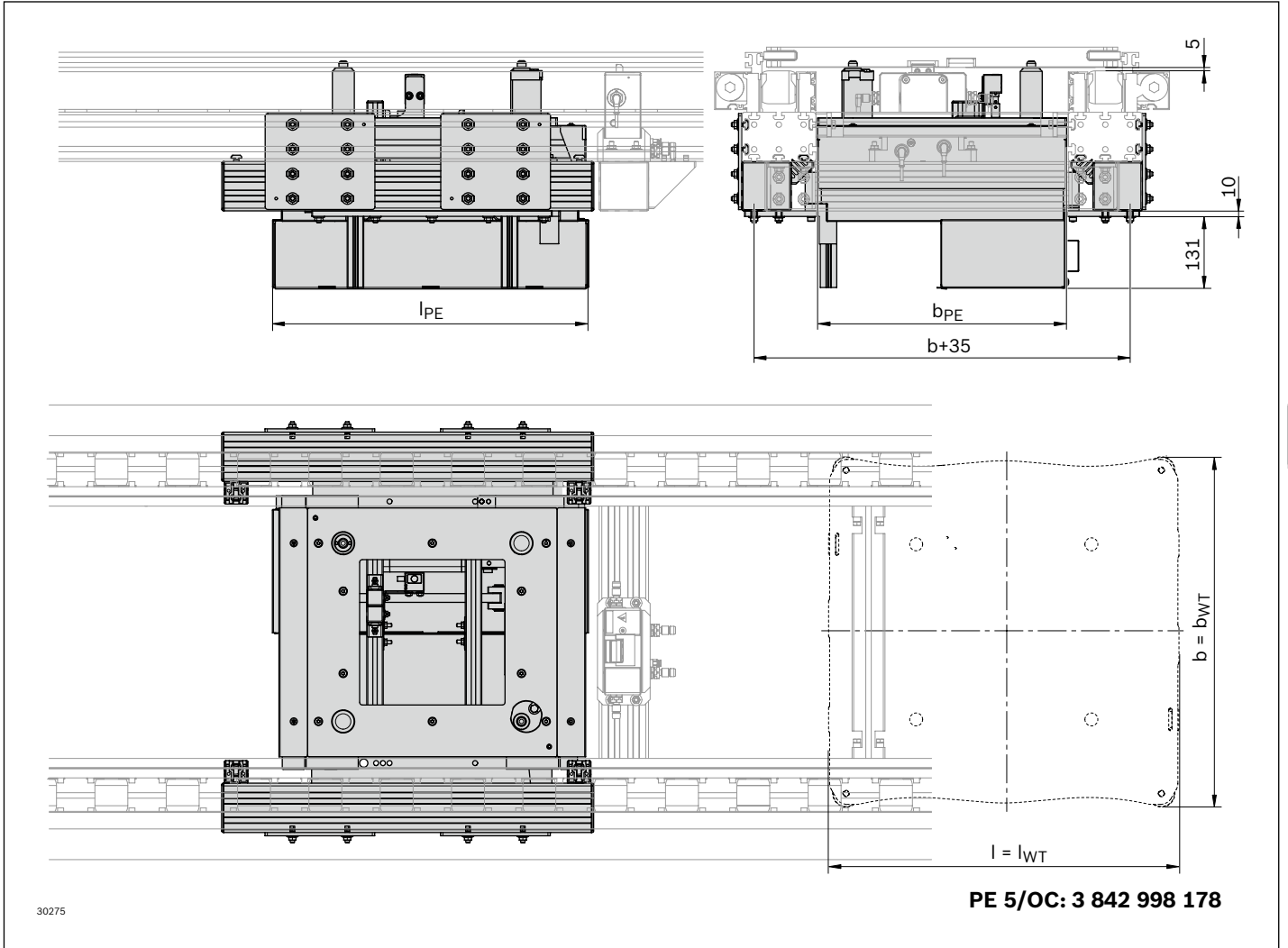
l_{WT} = workpiece pallet length

PE 5/OC (top/bottom) positioning unit position inquiry option on request

Description of further parameters, see page 0-3

Dimensions

PE 5/OC positioning unit



30275

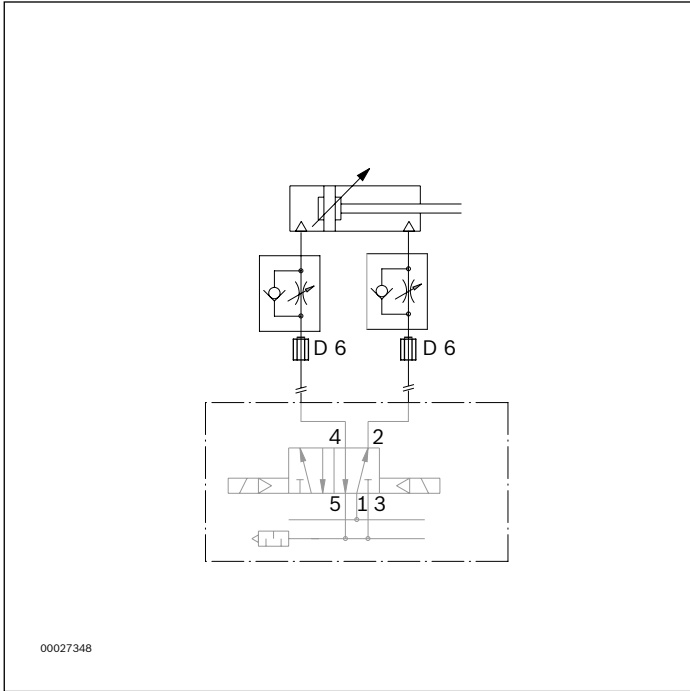
PE 5/OC: 3 842 998 178

b (mm)	l_{WT} (mm)	b_{PE} (mm)	l_{PE} (mm)
455	455; 650	259	471; 576
650	650	454	576
650	845	454	764
845	845	649	764
845	1,040	649	996

b_{WT} = width of workpiece pallet
 l_{WT} = length of workpiece pallet
 b_{PE} = positioning unit width
 l_{PE} = positioning unit length

Circuit diagram

PE 5/OC positioning unit



PE 5/OC-T positioning unit



Use:

- ▶ Positioning a workpiece pallet in a manual or automated processing station in the transverse conveyor with high positioning accuracy requirements (± 0.3 mm)

Version:

- ▶ Can be used with all WT 5 workpiece pallets
- ▶ Installation from below
- ▶ Lift over transport level: 5 mm
- ▶ Positioning accuracy: ± 0.3 mm
- ▶ Permissible vertical process force with center load: up to 4,000 N²⁾
- ▶ Suitable for ST 5/OC
- ▶ Compressed air connection 5 ... 6 bar
- ▶ Pneumatic push-in fitting: 6 mm

²⁾ Permissible vertical process force if assembled in the section. Higher process forces of up to 15,000 N possible with direct support (on request).

Scope of delivery:

- ▶ Incl. fastening material for mounting the PE 5/OC-T in ST 5/OC conveyor sections, and stop kit for VE 5/OCD-300 and VE 5/OCD-1000

Required accessories:

- ▶ VE 5/OCD-1000 stop gate, P. 9-12, VE 5/OCD-300 stop gate, P. 9-6, VE 5/OCD-301 stop gate, P. 9-9, or VE 5/OC-200 stop gate, P. 9-3¹⁾
- ▶ Protective sleeves and protective cover, see page 8-32

¹⁾ A position inquiry for the workpiece pallet on the PE is only possible through use of a VE 5/OCD-300 or VE 5/OCD-1000 stop gate.

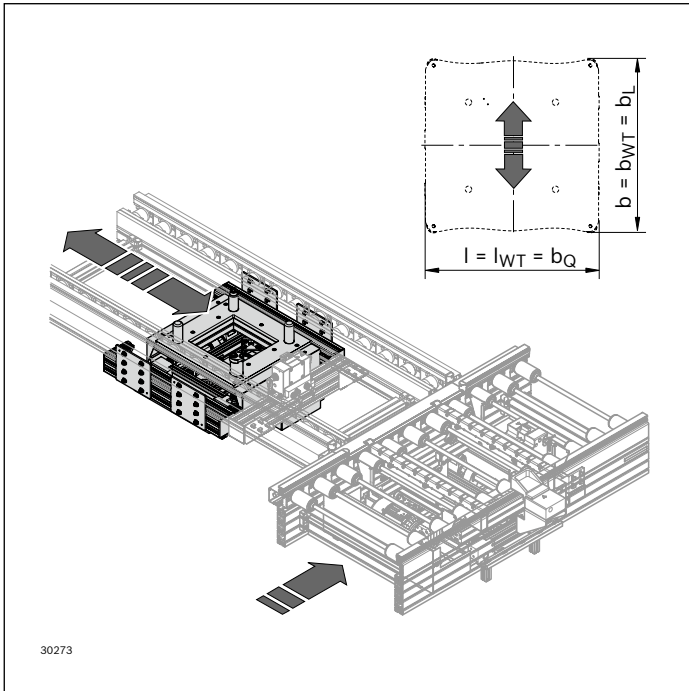
Condition on delivery:

- ▶ Fully assembled

Recommended accessories:

- ▶ Cover for the lateral guide, see page 8-31
- ▶ Protective cover, see page 8-32

Ordering information



PE 5/OC-T positioning unit

b_L (mm)	b_Q (mm)	SC	Material number
455	455	1; 2	3 842 998 804
455	650	1; 2	$b_L = \dots$ mm
650	650	1; 2	$b_Q = \dots$ mm
650	845	1; 2	SC = ... mm
845	845	1; 2	
845	1,040	1; 2	

SC = Housing element

1: without protective casing

2: with protective casing

b_L = track width in direction of transport (longitudinal conveyor)

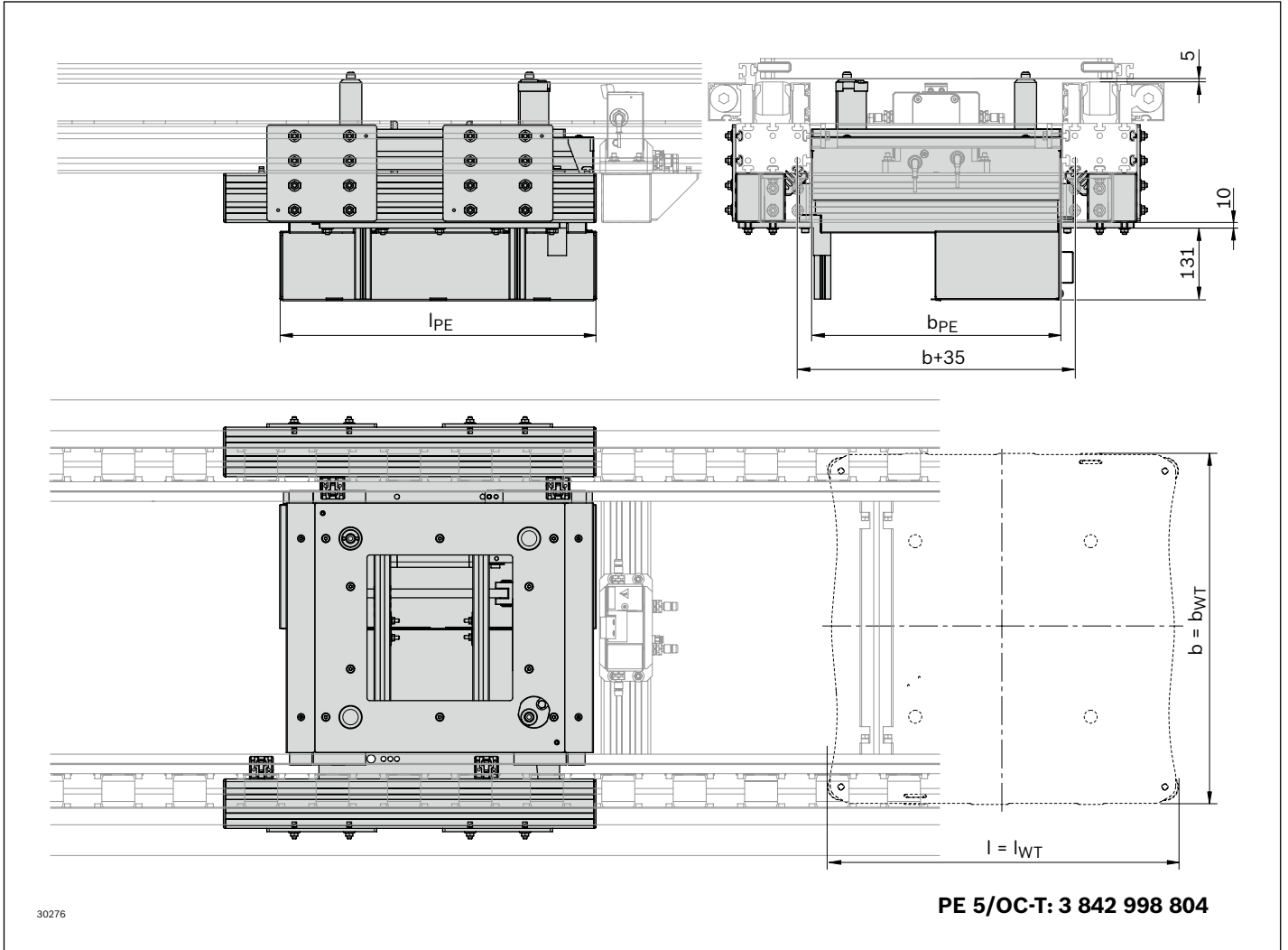
b_Q = track width in direction of transport (transverse conveyor)

PE 5/OC-T (top/bottom) positioning unit position inquiry option on request

Description of further parameters, see page 0-3

Dimensions

PE 5/OC-T positioning unit



30276

PE 5/OC-T: 3 842 998 804

b_L (mm)	b_O (mm)	b_{PE} (mm)	l_{PE} (mm)
455	455; 650	259; 454	471
650	650	454	576
650	845	649	576
845	845	649	764
845	1,040	844	764

b_L = track width in direction of transport (longitudinal conveyor)

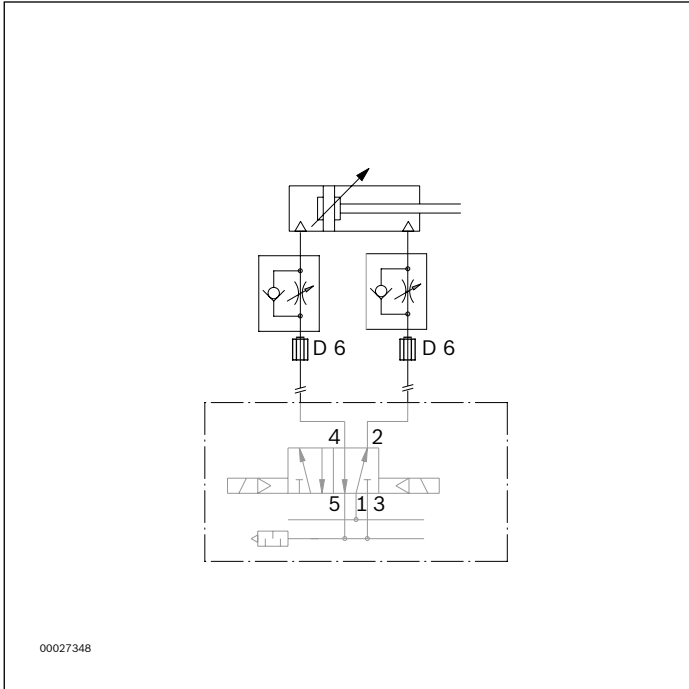
b_O = track width in direction of transport (transverse conveyor)

b_{PE} = positioning unit width

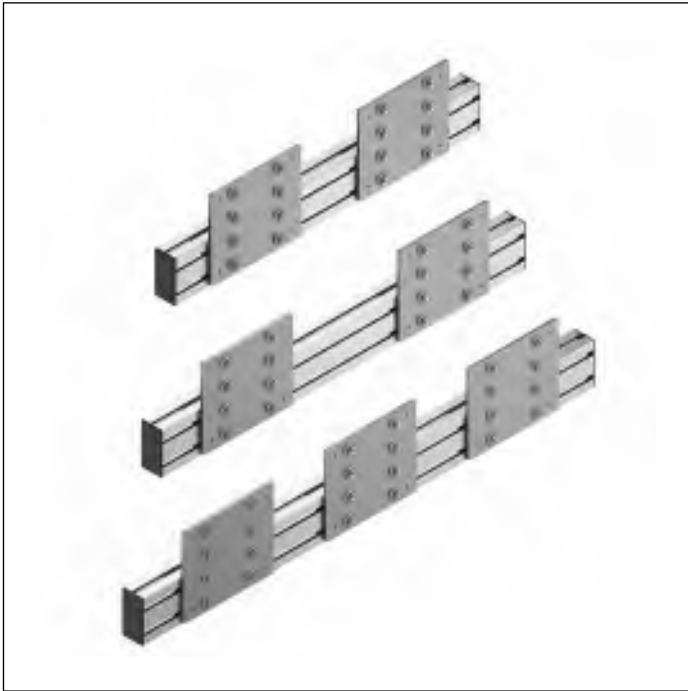
l_{PE} = positioning unit length

Circuit diagram

PE 5/OC-T positioning unit



Assembly kit for PE 5 and PE 5/T



Scope of delivery:

- ▶ 2 profiles for height compensation
- ▶ Incl. cover caps and fastening material for assembly.

Use:

- ▶ Mounting the PE 5 and PE 5/T positioning unit in the ST 5/H conveyor unit, see page 8-3

Version:

- ▶ Centering lugs for pre-positioning and fast assembly

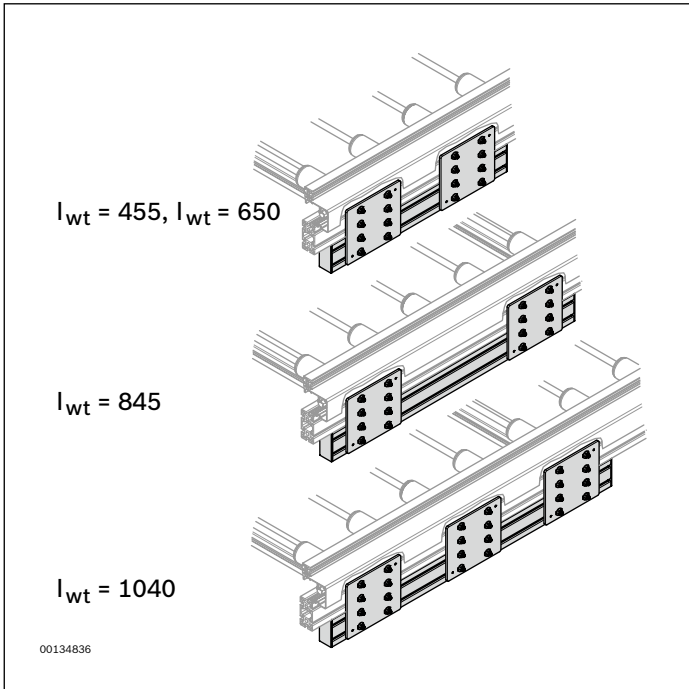
Mounting location:

- ▶ on the section profile

Condition on delivery:

- ▶ Not assembled

Ordering information

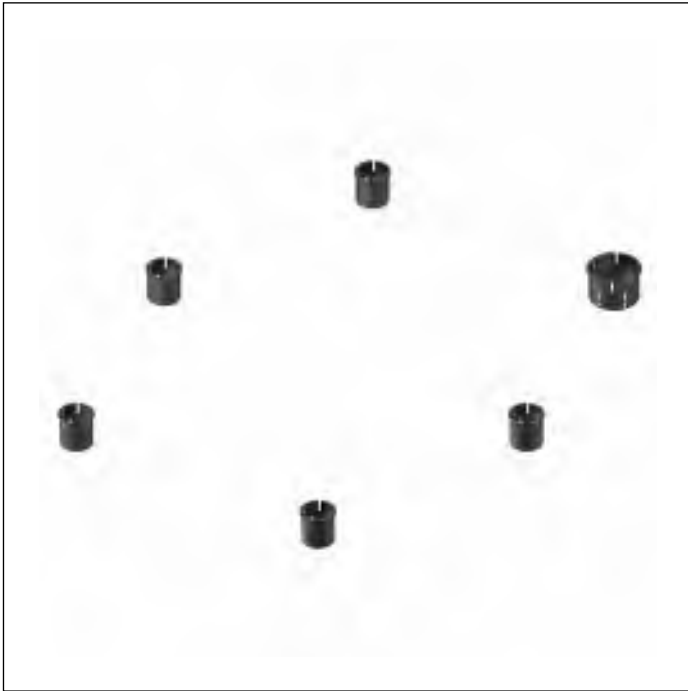


Assembly kit for PE 5 and PE 5/T

l_{WT}	Material number
455; 650; 845; 1,040	3 842 996 185
	$l_{WT} = \dots$ mm

l_{WT} = workpiece pallet length

Protective sleeves for PE 5, PE 5/T, PE 5/L and PE 5/L-T



Use:

- ▶ Trap guard to clip in the openings in the protective covers over the lifting plungers of the PE 5, PE 5/T, PE 5/L and PE 5/L-T. Refer to the assembly instructions for the installation dimensions.

Note:

Do not walk on the protective covers. Slots for add-on parts must be made by the customer; for details, see assembly instructions.

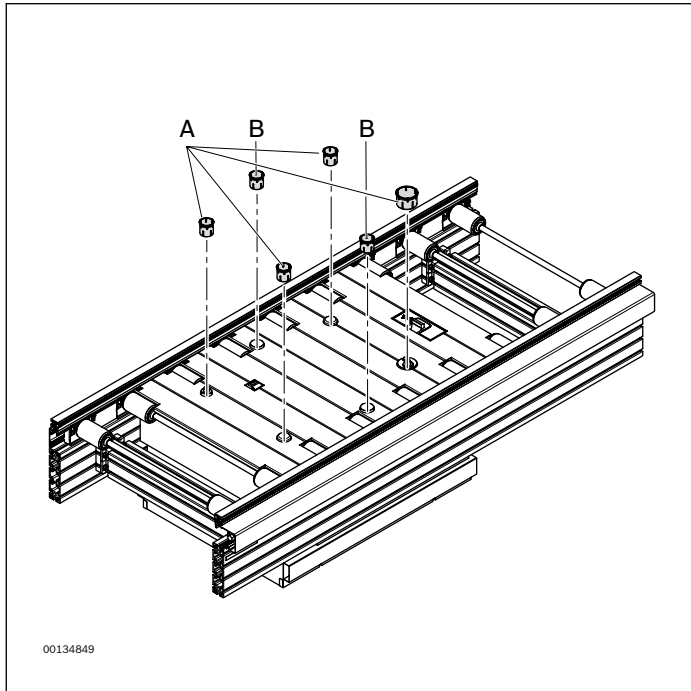
Required accessories:

- ▶ Protective covers for conveyor unit, see page 4-8

Material:

- ▶ PA

Ordering information



Required protective sleeve sets for PE 5, PE 5/T, PE 5/L and PE 5/L-T

b (mm)	l_{WT} (mm)	Material number A	Material number B for PE 5 and PE 5/L	Material number B for PE 5/T and PE 5/L-T
455	455	1x 3 842 545 965		
455	650	1x 3 842 545 965		
650	650	1x 3 842 545 965		
650	845	1x 3 842 545 965	+1x 3 842 545 966	+2x 3 842 545 966
845	845	1x 3 842 545 965	+3x 3 842 545 966	+3x 3 842 545 966
845	1,040	1x 3 842 545 965	+3x 3 842 545 966	+3x 3 842 545 966

b = track width of the positioning unit in the direction of transport

l_{WT} = length of workpiece pallet

Cover of lateral guide for positioning units



Use:

- ▶ The lateral guide covers are provided on both sides in the vicinity of the PE 5 (see page 8-3), PE 5/T (see page 8-7), PE 5/OC (see page 8-19) and PE 5/OC-T (see page 8-23) positioning unit to increase safety

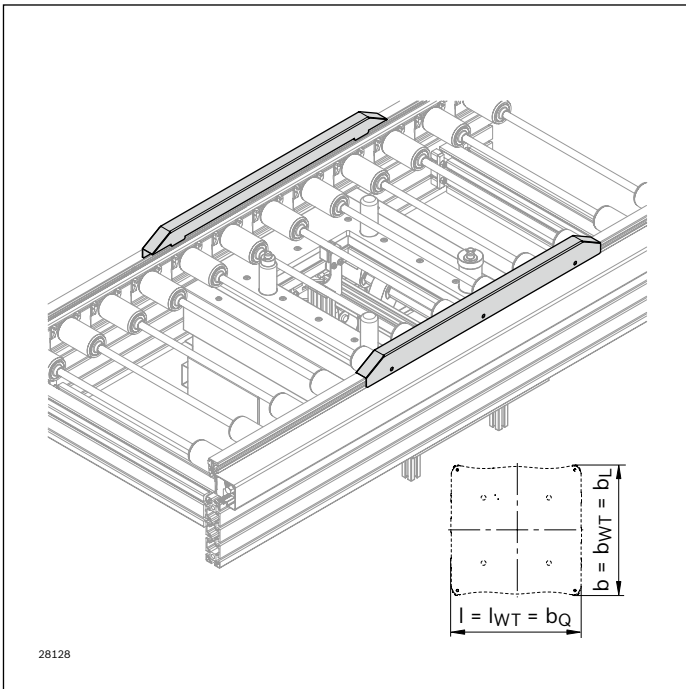
Note:

Do not walk on the protective covers.

Material:

- ▶ galvanized steel

Ordering information



28128

Covers of lateral guide for positioning units

PE 5, PE 5/OC	PE 5/T, PE 5/OC-T		Material number
b_0 (mm)	b_L (mm)		
455	455	1	3 842 552 662
650	650	1	3 842 552 663
845	845	1	3 842 552 664
1,040	1,040	1	3 842 552 665

b_0 = track width in direction of transport (transverse conveyor)
 b_L = track width in direction of transport (longitudinal conveyor)

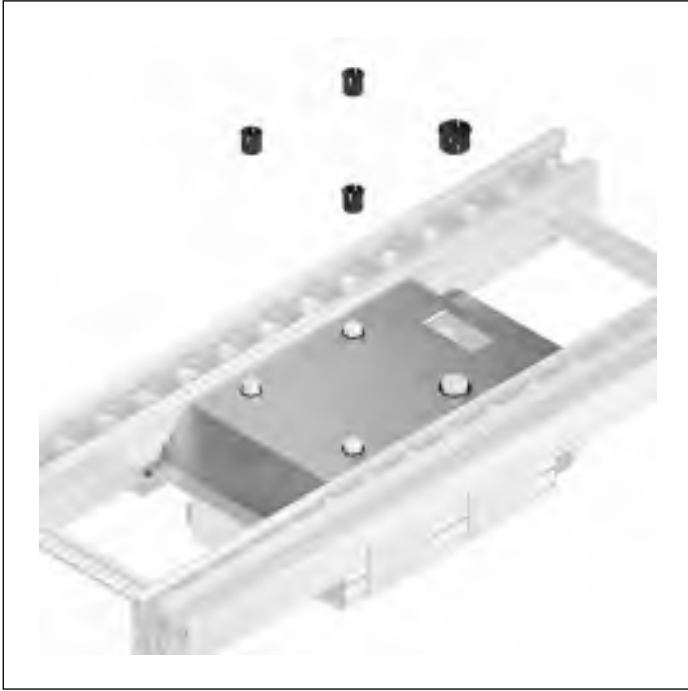
Required fastening materials:

T-bolt and flange nut

		Material number
C	100	3 842 345 081
D	100	3 842 528 718

Description of the T-bolt and flange nut, see page 7-10

Protective covers for PE 5/OC and PE 5/OC-T



Use:

- ▶ Safety guard above the lifting plungers for the PE 5/OC and PE 5/OC-T. Refer to the assembly instructions for the installation dimensions.

Note:

- Do not walk on the protective covers.

Scope of delivery:

- ▶ Incl. protective sleeves (**A** and **B**) and fastening material

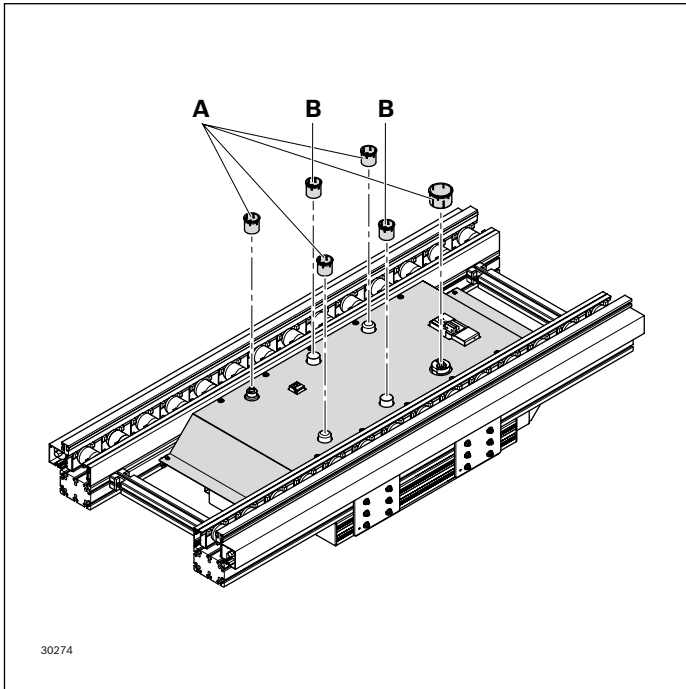
Condition on delivery:

- ▶ Not assembled

Material:

- ▶ Cover: aluminum
- ▶ Protective sleeves: PA

Ordering information



Necessary protective covers including protective sleeves (A and B) for PE 5/OC and PE 5/OC-T

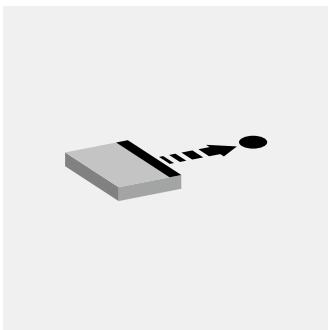
b (mm)	l_{WT} (mm)	b_L (mm)	b_Q (mm)	PE 5/OC with VE 5/OC-200, VE 5/OCD-300, VE 5/OCD 301 or VE 5/OCD-1000	PE 5/OC-T with VE 5/OC-200, VE 5/OCD-300, VE 5/OCD 301 or VE 5/OCD-1000
455	455			3 842 554 557	
455	650			3 842 554 558	
650	650			3 842 554 559	
650	845			3 842 554 560	
845	845			3 842 554 561	
845	1,040			3 842 554 562	
		455	455		3 842 554 569
		455	650		3 842 554 570
		650	650		3 842 554 571
		650	845		3 842 554 572
		845	845		3 842 554 573
		845	1,040		3 842 554 574

b = track width of the positioning unit in the direction of transport

l_{WT} = workpiece pallet length

b_L = track width in direction of transport (longitudinal conveyor)

b_Q = track width in direction of transport (transverse conveyor)



Transportation control

Transportation control	9-2
VE 5/200, VE 5/OC-200 stop gates	9-3
VE 5/D-300, VE 5/OCD-300 stop gates	9-6
VE 5/D-301, VE 5/OCD-301 stop gates	9-9
VE 5/D-1000, VE 5/OCD-1000 stop gates	9-12
Clamping holder for sensors	9-15
M12 sensors with M12x1 or M8x1 push-in fitting	9-16
Accessories, sensor	9-18
Accessories, sensor in Open Center Assembly kit for SH 2/U-H switch bracket	9-21

Transportation control

The modular units for transportation control are used to control the flow of the workpiece pallets on the transfer system. The direction of travel of the workpiece pallet is decisive for proper function of the transportation control. Transportation control includes:

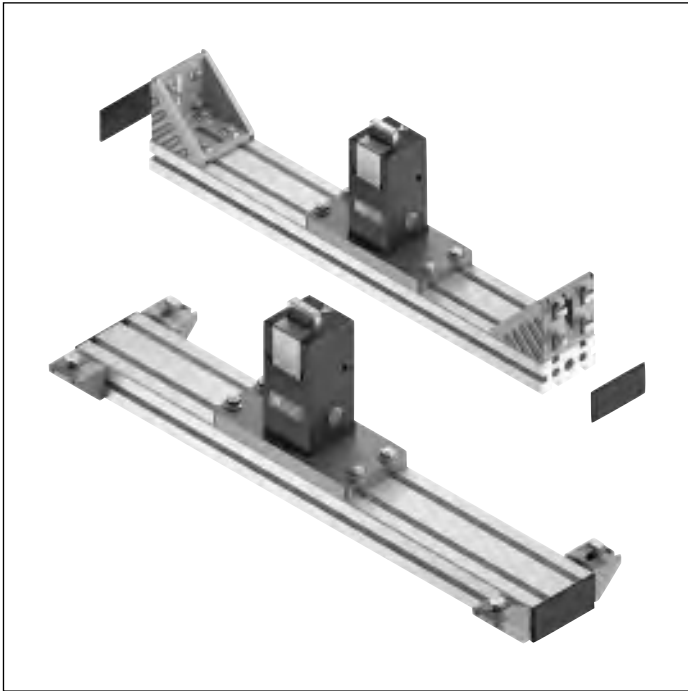
- ▶ Stopping and separating workpiece pallets in the longitudinal conveyor, see page 9-3, 9-6, 9-9, 9-12
- ▶ Stopping workpiece pallets in the transverse conveyor. It is not possible to separate workpiece pallets in the transverse conveyor, see page 9-3, 9-6, 9-9, 9-12
- ▶ Querying the position of a workpiece pallet. A suitable clamping holder for sensors is required for this, see page 9-16
- ▶ Controlling operation sequences
- ▶ Function plans, see page 13-16 ff.

Stop gate

VE 5/... stop gates are used to separate (only possible in longitudinal conveyors) and stop workpiece pallets, e.g. in an automated station.

Actuation is performed pneumatically. In a pressurefree state, the stop gate is held in the blocking position by a spring and thus contributes significantly to production safety. Stop gates are available with and without shock absorbers.

VE 5/200, VE 5/OC-200 stop gates



Use:

- ▶ Stopping one or more accumulating workpiece pallets at the defined workpiece pallet stop surface

Version:

- ▶ Pneumatic stop gate. When the pressure is released the stop gate is closed by a spring and the workpiece pallet is stopped.
- ▶ Compressed air connection 5 ... 6 bar
- ▶ Pneumatic push-in fitting: 6 mm

Scope of delivery:

- ▶ Incl. fastening material for assembly on the conveyor section, pneumatic push-in connector \varnothing 6 mm

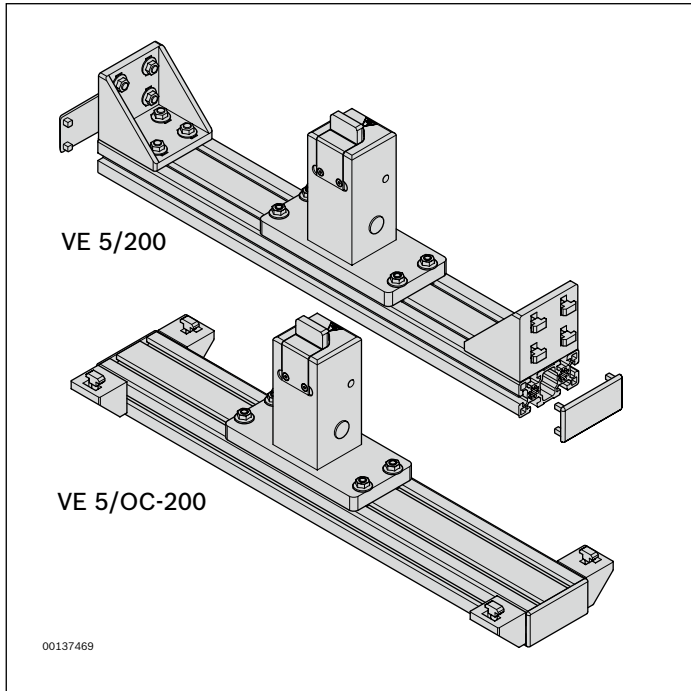
Recommended accessories:

- ▶ 1 sensor, 3 842 549 811 or 3 842 549 814, for position inquiry (engaged, top position/not engaged, bottom position), see page 9-16
- ▶ Clamping holder for sensor, see page 9-15

Condition on delivery:

- ▶ Not assembled

Ordering information



VE 5/200 stop gates

b (mm)	Material number
455; 650; 845; 1,040	3 842 998 518
	b = ... mm

b = track width in direction of transport

VE 5/OC-200 stop gates

Material number
3 842 998 577
b = ... mm

b = track width in direction of transport

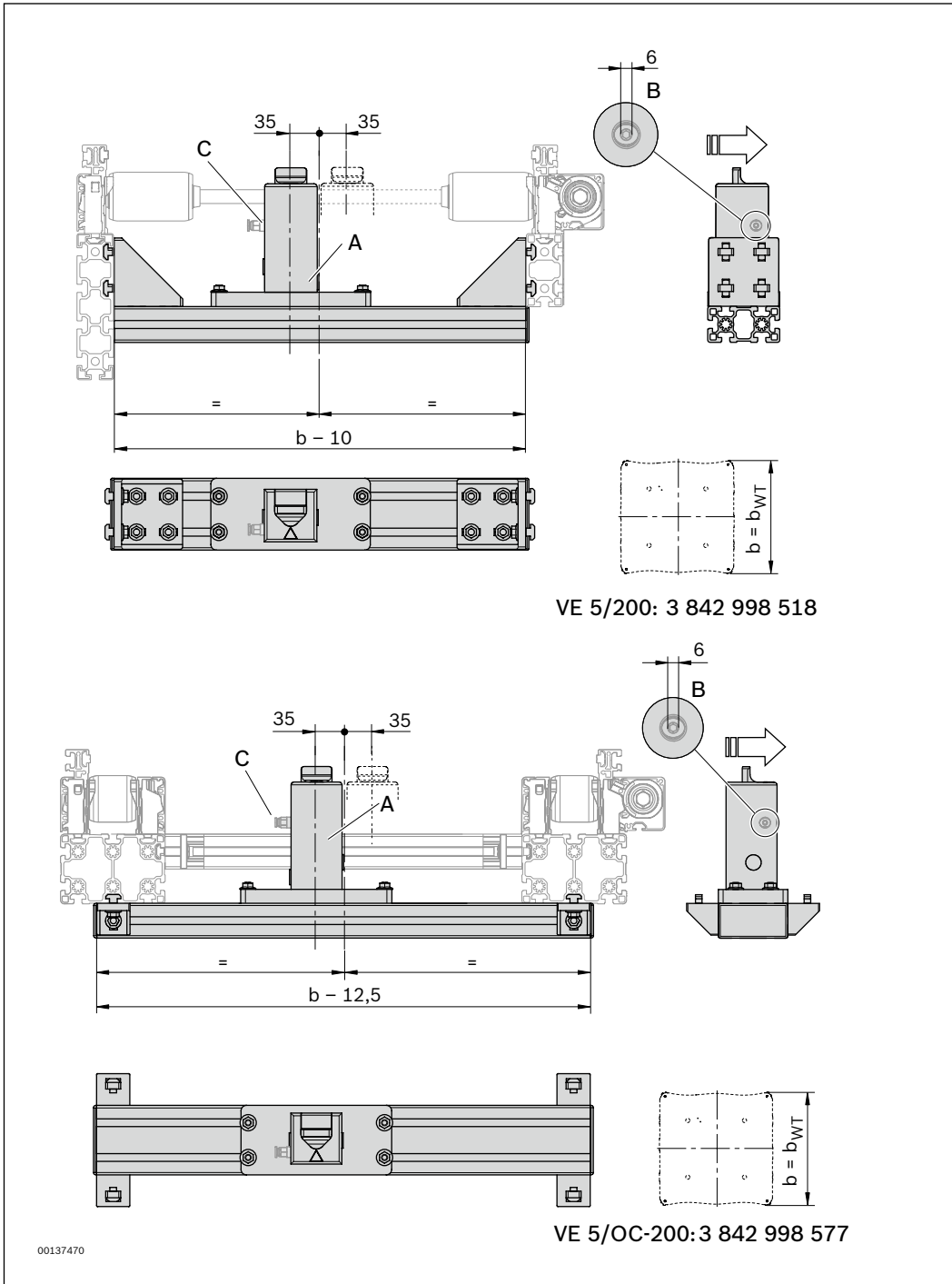
Permissible impact force per WT

m_{WT} (kg)	v_N¹⁾ (m/min)
200	2 ... 9

¹⁾ Conveyor speed

Dimensions

VE 5/200, VE 5/OC-200 stop gates



- A = Stop gate
- B = 6 mm pneumatic push-in connector
- C = position inquiry VE stop blade up: yes/no

VE 5/D-300, VE 5/OCD-300 stop gates



Use:

- ▶ Damped stopping of one or more accumulating workpiece pallets at the defined workpiece pallet stop surface

Version:

- ▶ Pneumatic stop gate with steplessly adjustable damping. When the pressure is released the stop gate is closed by a spring and the workpiece pallet is stopped.
- ▶ Compressed air connection 5 ... 6 bar
- ▶ Pneumatic push-in fitting: 6 mm

Scope of delivery:

- ▶ Incl. fastening material for assembly on the conveyor section, pneumatic push-in connector \varnothing 6 mm

Recommended accessories:

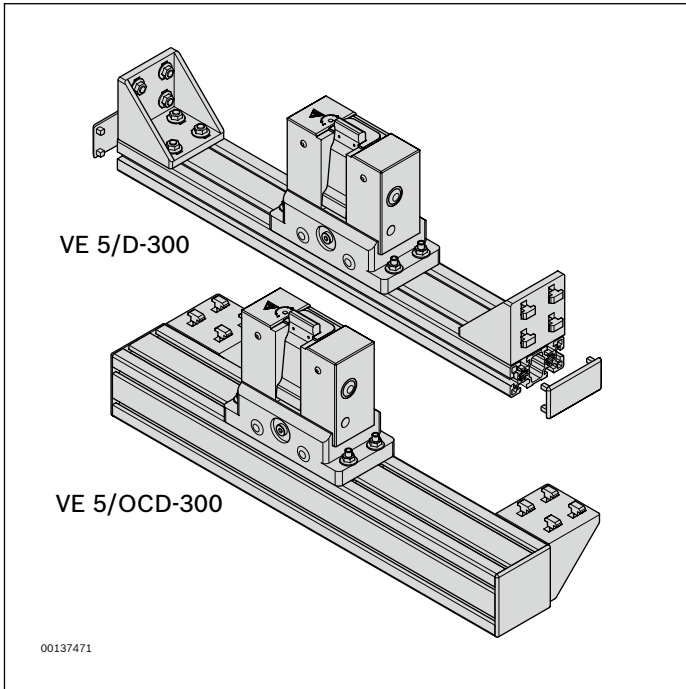
3 sensors, 3 842 549 811 or 3 842 549 814, for position inquiry in respect of

- ▶ stop gate position inquiry (engaged, top position), see page 9-16
- ▶ Stop gate position inquiry (not engaged, bottom position), see page 9-16
- ▶ Damper position inquiry (stop blade retracted: yes/no), see page 9-16
- ▶ Clamping holder for sensor, see page 9-15
- ▶ Trap guard, see page 9-7

Condition on delivery:

- ▶ Not assembled

Ordering information



VE 5/D-300 stop gate

b (mm)	Material number
455; 650; 845; 1,040	3 842 998 517
	b = ... mm

b = track width in direction of transport

VE 5/OCD-300 stop gates

Material number
3 842 998 578
b = ... mm

b = track width in direction of transport

Permissible impact force per WT

m_{WT} (kg)	v_N¹⁾ (m/min)
max. 300	2 ... 9
max. 260	2 ... 12
max. 160	2 ... 18

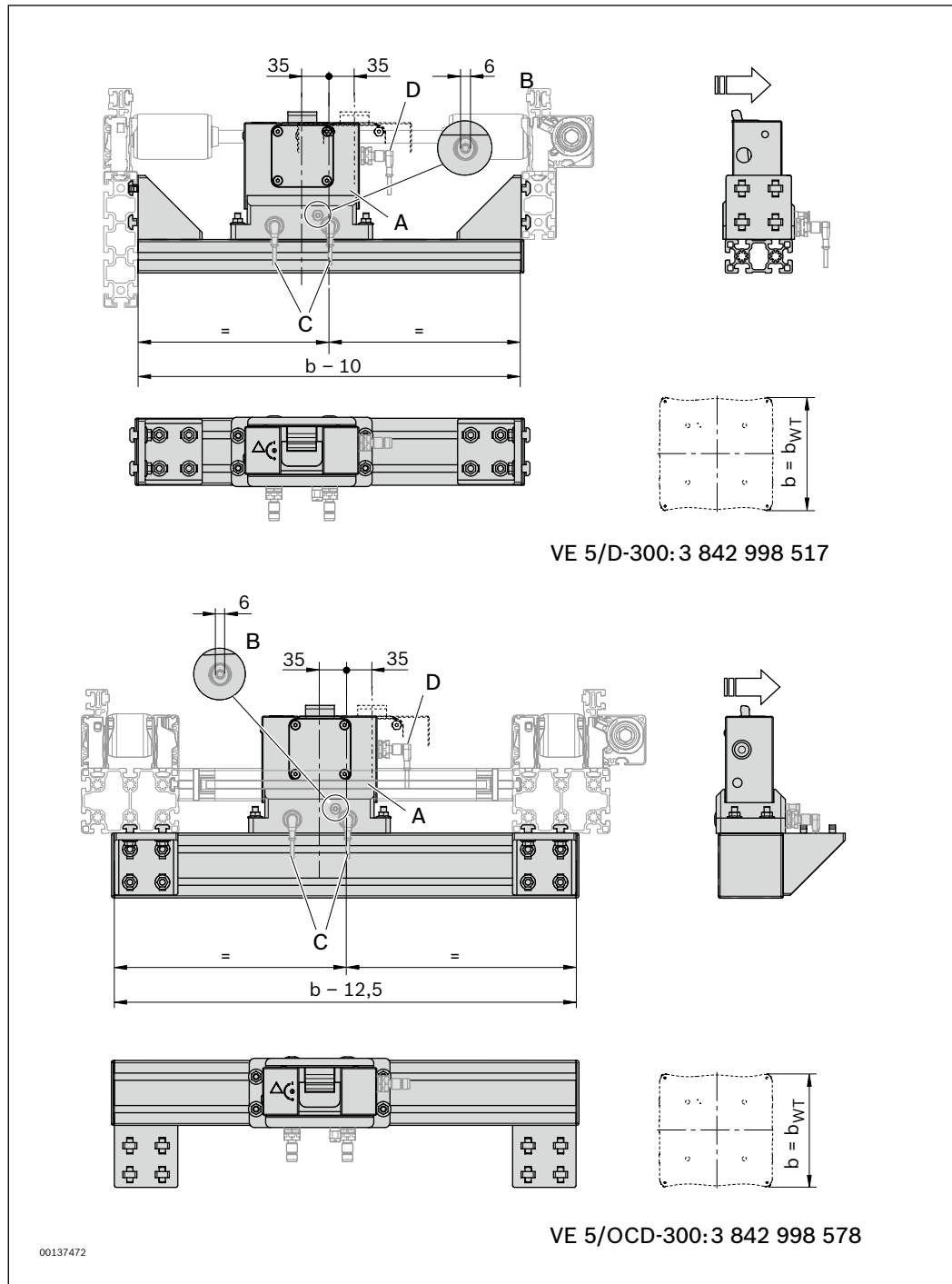
¹⁾ Conveyor speed

Trap guard

Material number
3 842 552 672

Dimensions

VE 5/D-300, VE 5/OCD-300 stop gates



- A = Stop gate
- B = 6 mm pneumatic push-in connector
- C = position inquiry VE stop blade: up/down
- D = position inquiry VE stop blade, damper retracted: yes/no

VE 5/D-301, VE 5/OCD-301 stop gates



Use:

- ▶ Damped stopping of one or more accumulating workpiece pallets at the defined workpiece pallet stop surface

Version:

- ▶ Pneumatic stop gate with steplessly adjustable damping. When the pressure is released the stop gate is closed by a spring and the workpiece pallet is stopped.
- ▶ Compressed air connection 5 ... 6 bar
- ▶ Pneumatic push-in fitting: 6 mm

Scope of delivery:

- ▶ Incl. fastening material for assembly on the conveyor section, pneumatic push-in connector \varnothing 6 mm

Recommended accessories:

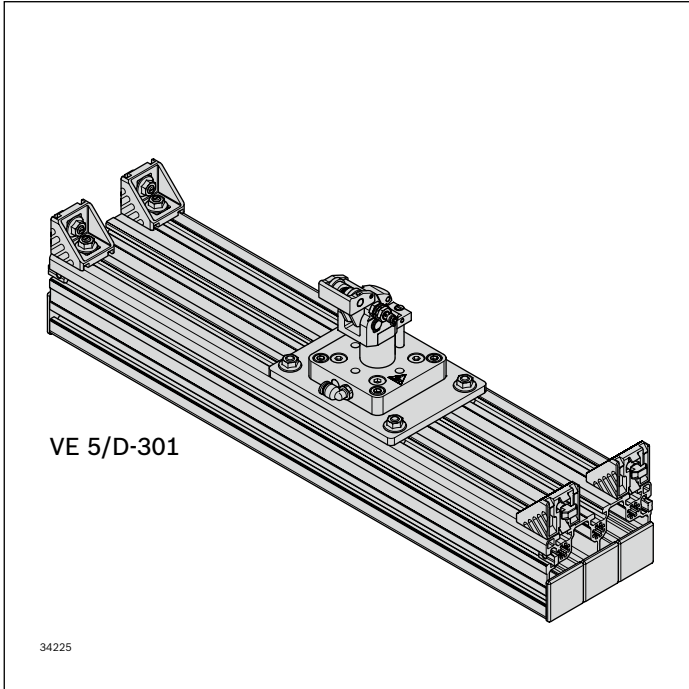
Sensor 3 842 551 761 for

- ▶ position inquiry top/bottom on request see page 9-16
- ▶ Damper position inquiry (stop blade retracted), sensor M8, see page 9-16

Condition on delivery:

- ▶ Not assembled

Ordering information



VE 5/D-301 stop gate

b (mm)	AO	Material number
455; 650; 845; 1,040	1; 2	3 842 998 079 b = ... mm

b = track width in direction of transport

AO = 1: Main section (stop gate is 35 mm eccentric)

AO = 2: Transverse section (stop gate is in the center, only applies for transverse section HQ 5)

VE 5/OCD-301 stop gates

Material number
3 842 998 080 b = ... mm

b = track width in direction of transport

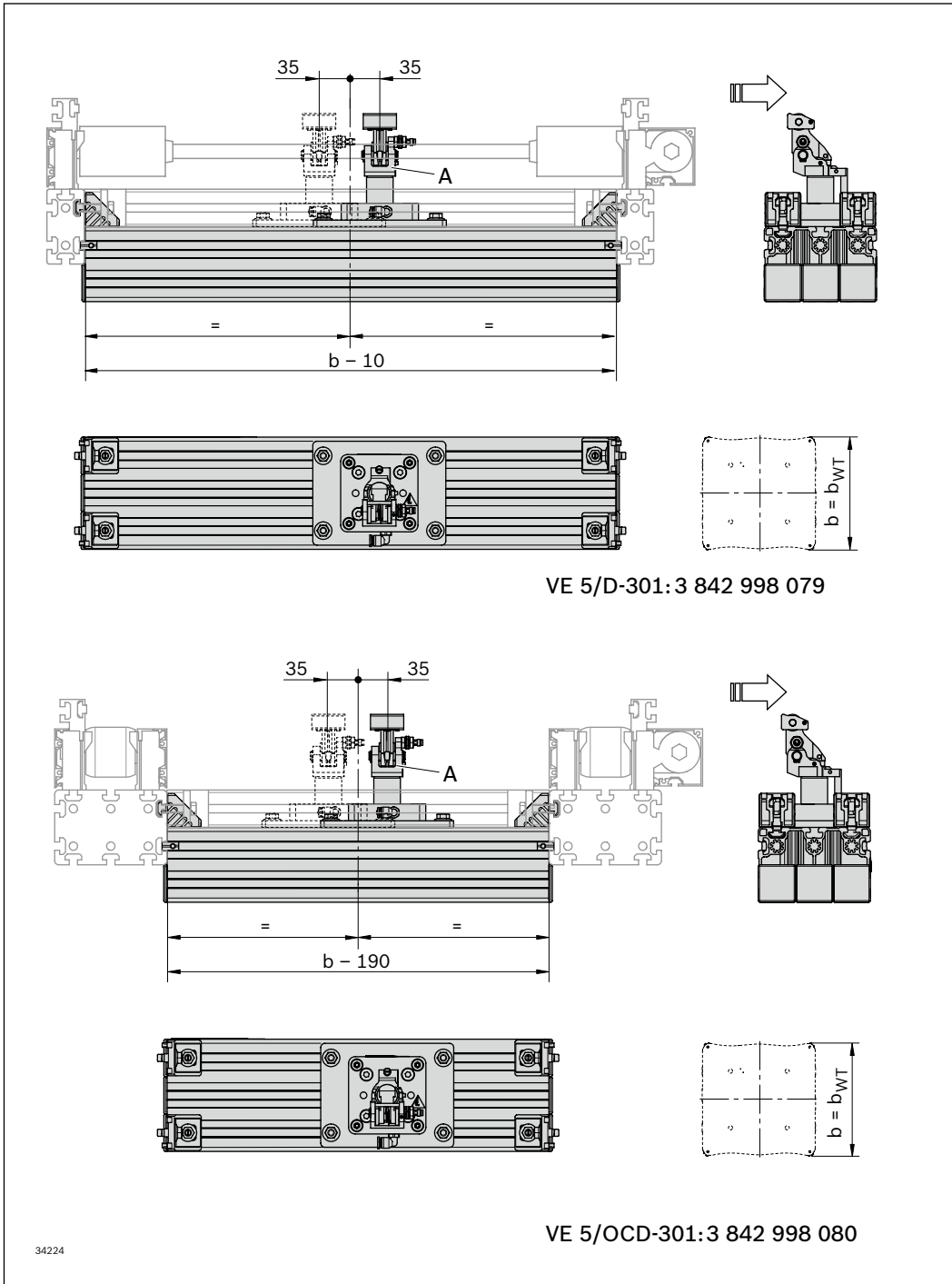
Permissible impact force per WT

m_{WT} (kg)	v_N¹⁾ (m/min)
max. 300	2 ... 9
max. 260	2 ... 12
max. 160	2 ... 18

¹⁾ Conveyor speed

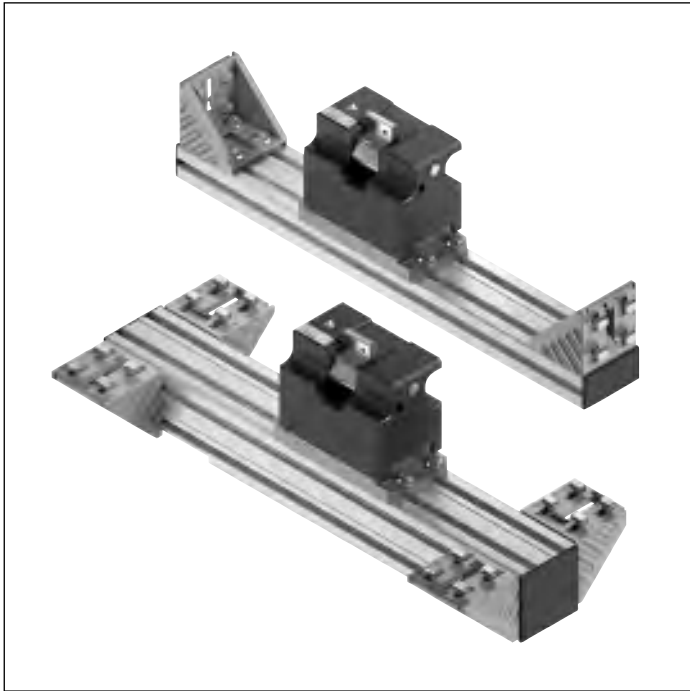
Dimensions

VE 5/D-301, VE 5/OCD-301 stop gates



- A = Stop gate
- B = 6 mm pneumatic push-in connector
- C = position inquiry VE stop blade: up/down
- D = position inquiry VE stop blade, damper retracted: yes/no

VE 5/D-1000, VE 5/OCD-1000 stop gates



Use:

- ▶ Oil-damped stopping of one or more accumulating workpiece pallets at the defined workpiece pallet stop surface

Version:

- ▶ Pneumatic stop gate. When the pressure is released the stop gate is closed by a spring and the workpiece pallet is stopped.
- ▶ Compressed air connection 5 ... 6 bar
- ▶ Pneumatic push-in fitting: 6 mm

Note:

Cannot be combined with ST 5/H-FR and ST 5/XH-FR if spacing $p = 130$.

Scope of delivery:

- ▶ Incl. fastening material for assembly on the conveyor section, pneumatic push-in connector $\varnothing 6$ mm

Recommended accessories:

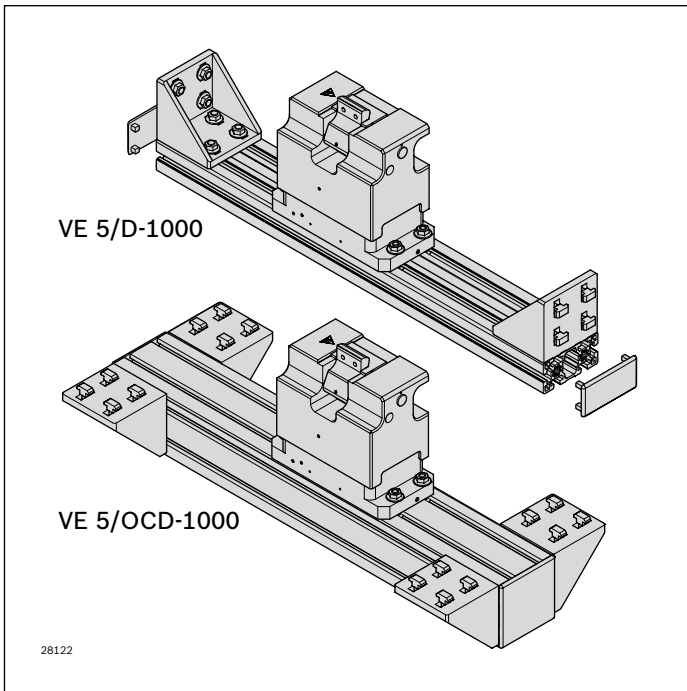
2 or 3 sensors 3 842 549 811 or 3 842 549 814 for

- ▶ stop gate position inquiry (engaged, top position), see page 9-16
- ▶ Stop gate position inquiry (not engaged, bottom position), see page 9-16
- ▶ Damper position inquiry (stop blade retracted: yes/no), see page 9-16
- ▶ Clamping holder for sensor, see page 9-15
- ▶ Trap guard, see page 9-13

Condition on delivery:

- ▶ Not assembled

Ordering information



VE 5/D-1000 stop gate

b (mm)	Material number
455; 650; 845; 1,040	3 842 998 805
	b = ... mm

b = track width in direction of transport

VE 5/OCD-1000 stop gates

b (mm)	Material number
455; 650; 845; 1,040	3 842 998 806
	b = ... mm

b = track width in direction of transport

Permissible impact force per WT

m_{WT} (kg)	v_N¹⁾ (m/min)
min. 50 max. 1,000	2 ... 9
min. 50 max. 900	2 ... 12
min. 50 max. 700	2 ... 18

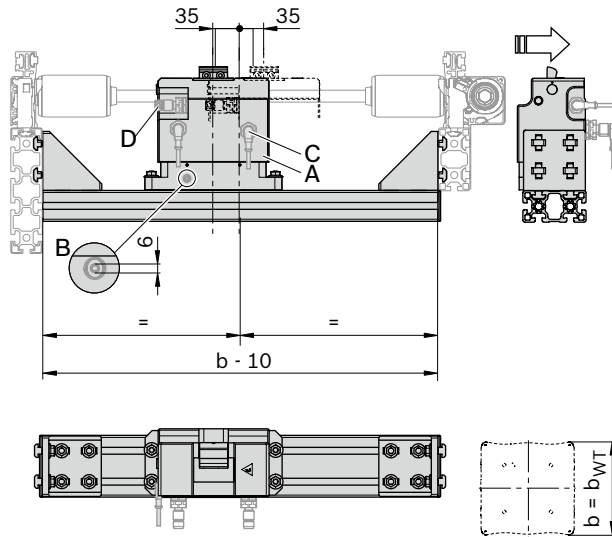
¹⁾ Conveyor speed

Trap guard

Material number
3 842 552 672

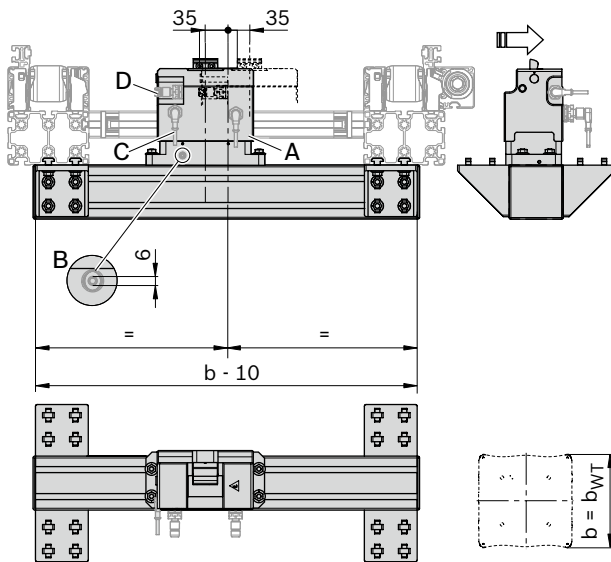
Dimensions

VE 5/D-1000, VE 5/OCD-1000 stop gates



VE 5/D-1000: 3 842 998 805

28123



VE 5/OCD-1000: 3 842 998 806

28124

- A = Stop gate
- B = 6 mm pneumatic push-in connector
- C = position inquiry VE stop blade: top/bottom
- D = position inquiry VE stop blade, damper retracted: yes/no

Clamping holder for sensors



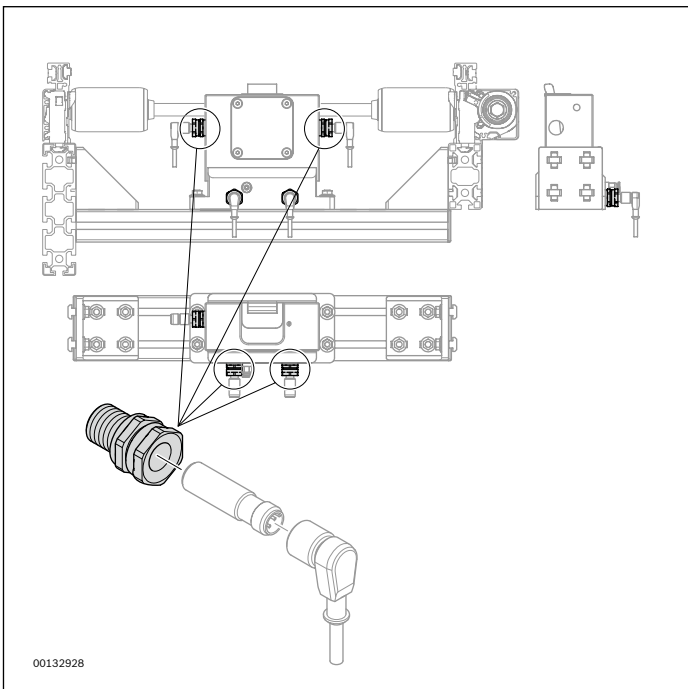
Clamping holder for sensors

Use:


- ▶ Clamping holder for sensor \varnothing 12 mm, for screwing onto the stop gate

Material:

- ▶ brass, nickel-plated



Clamping holder

		Material number
	1	3 842 545 974

M12 sensors with M12x1 or M8x1 push-in fitting



Use:

- Detection of the position of a workpiece pallet, position inquiry in respect of lift transverse units and positioning units.

Version:

	3 842 549 811 ¹⁾	3 842 549 813 ²⁾	3 842 551 761 ¹⁾	3 842 549 814 ¹⁾	3 842 537 995 ²⁾	3 842 555 421 ²⁾
Size	M12 x 44 mm	M12 x 44 mm	M12 x 30 mm	M12 x 45 mm	M12 x 45 mm	M12 x 60 mm
Nominal switching distance S_N	4 mm	8 mm	2 mm	4 mm	7 mm	10 mm
Switching frequency	2,500 Hz	800 Hz	1,500 Hz	300 Hz	500 Hz	600 Hz
Operating current	200 mA	200 mA	200 mA	200 mA	200 mA	200 mA
Housing material	CuZn coated, LCP	CuZn coated, LCP	CuZn coated, LCP	CuZn coated, LCP	CuZn coated, LCP	CuZn coated, LCP
Ambient temperature	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C	-25 ... +85 °C
Protection class	IP 67	IP 67	IP 68	IP 67	IP 67	IP 68
Mech. installation	Flush	Not flush	Flush	Flush	Not flush	Not flush
Plug connection	M8x1	M8x1	M8x1	M12x1	M12x1	M12x1
Function display	LED	LED	LED	LED	LED	LED
Switching output	PNP	PNP	PNP	PNP	PNP	PNP
Switching function	Normally open (NO)	Normally open (NO)	Normally open (NO)	Normally open (NO)	Normally open (NO)	Normally open (NO)
Operating voltage	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
Approvals	CE, UL, CSA	CE, UL, CSA	CE, cULus	CE, UL, CSA	CE, UL, CSA	CE, cULus, EAC
Conformity with standards	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2	IEC 60947-5-2

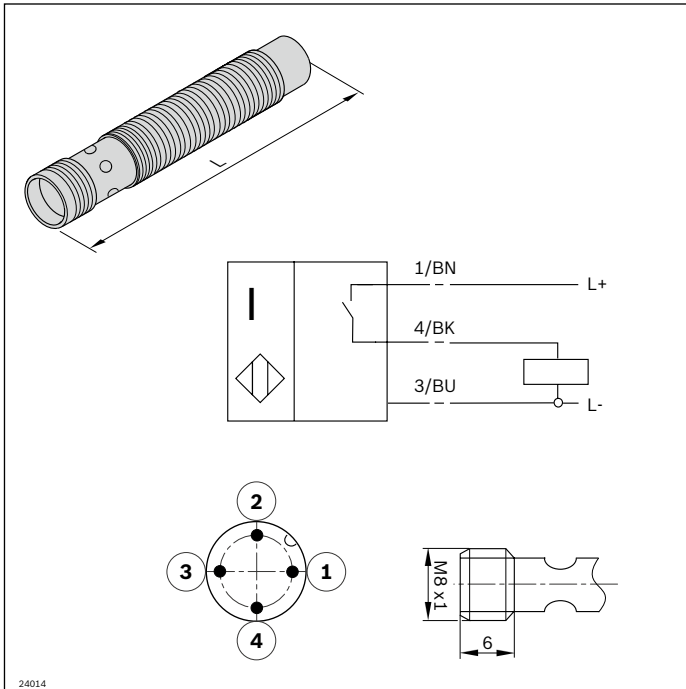
¹⁾ Not suitable for position inquiry in respect of lift transverse units.

²⁾ Not suitable for position inquiry in respect of stop gates.

Required accessories:

- SH 2/U-H switch bracket, see page 9-18
- Assembly kit for switch bracket, see page 9-20
- Clamping holder for sensor, see page 9-15

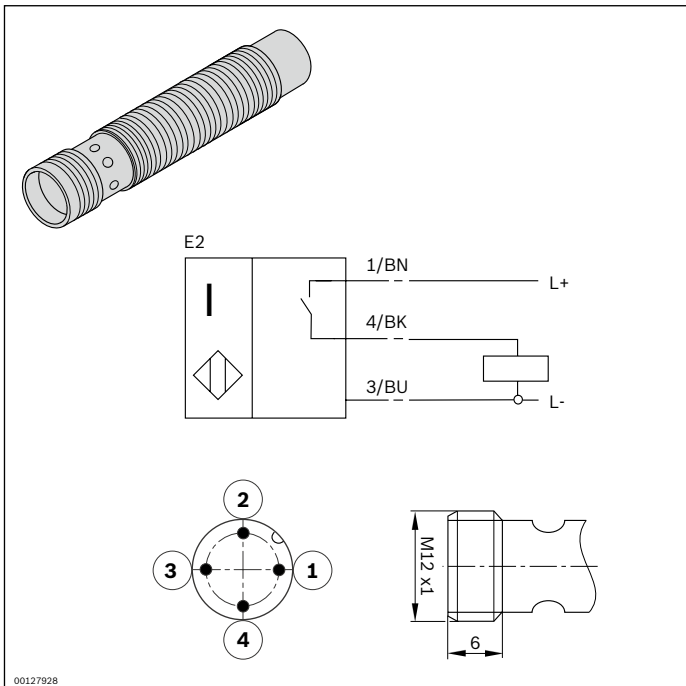
Ordering information
Circuit diagram M8x1



Sensor M12

Plug connection	Length (mm)	Material number
M8x1	44	3 842 549 811
	44	3 842 549 813
	30	3 842 551 761
M12x1	45	3 842 549 814
	45	3 842 537 995
	60	3 842 555 421

Circuit diagram M12x1



Accessories, sensor



SH 2/U-H switch bracket

Use:

- ▶ Fastening for a M12x1 sensor for workpiece pallet position sensing from below.
- ▶ Especially sturdy metal design

Version:

- ▶ Die-cast aluminum
- ▶ Integrated stop for 12 mm sensor

Mounting location:

- ▶ On the assembly kit for the switch bracket

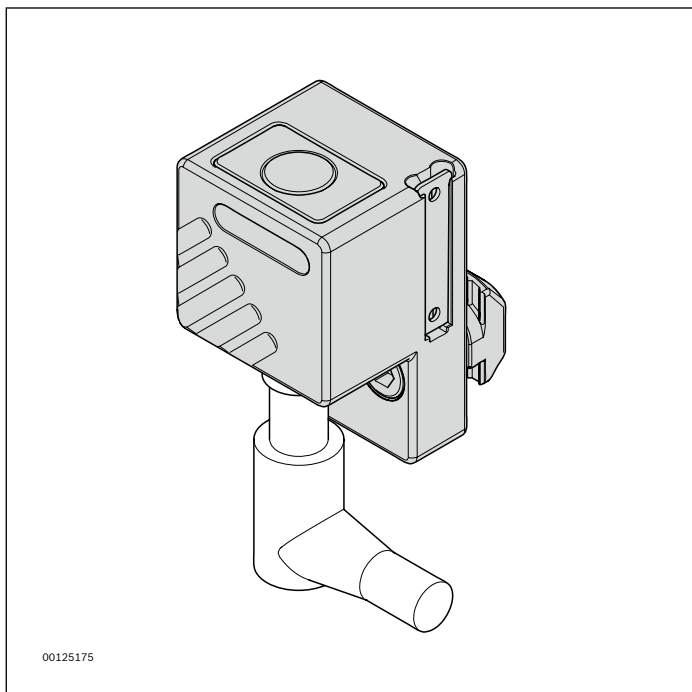
Scope of delivery:

- ▶ Incl. fastening material for assembly

Required accessories:

- ▶ Assembly kit for SH 2/U-H switch bracket
- ▶ M12x1 sensor with $S_N \geq 4$ mm rated sensing range, see p. 9-16

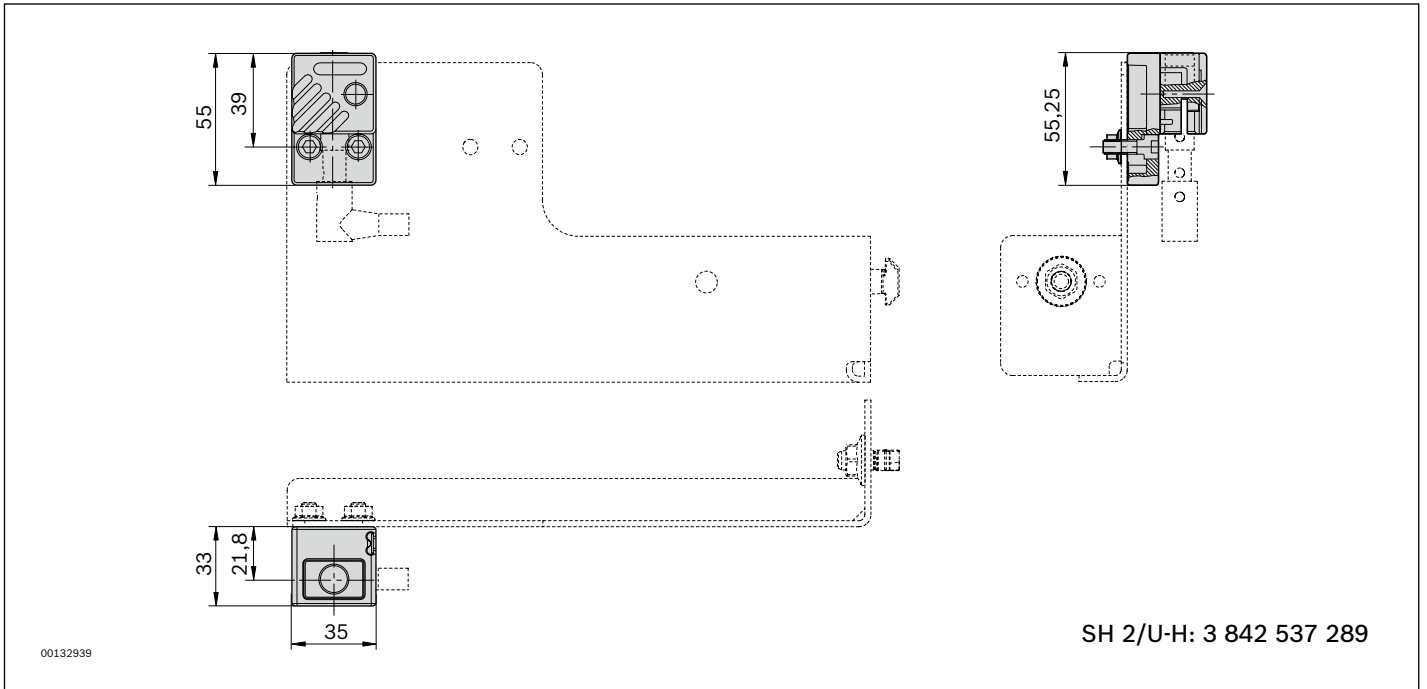
Ordering information



SH 2/U-H switch bracket

Material number
3 842 537 289

Dimensions
SH 2/U-H switch bracket





Assembly kit for SH 2/U-H switch bracket

Use:

- ▶ Holding plate to bring the switch bracket into the correct inquiry position

Version:

- ▶ Centering lugs for pre-positioning and fast assembly

Condition on delivery:

- ▶ Not assembled

Required accessories:

- ▶ SH 2/U-H switch bracket
- ▶ M12x1 sensor with $S_N \geq 4$ mm rated sensing range, see p. 9-16

SH 2/U-H assembly kit on ST 5/H, ST 5/XH conveyor unit

b (mm)	Material number
455; 650; 845; 1,040	3 842 545 134

b = track width in direction of transport

Mounting location:

- ▶ 3 842 545 134: on ST 5/H, ST 5/XH conveyor unit

Scope of delivery:

- ▶ Incl. fastening material for assembly and a 45x90 bracket for reinforcement as needed.

SH 2/U-H assembly kit on PE 5 positioning unit or HQ 5 lift transverse unit

Material number
3 842 545 132

Mounting location:

- ▶ on the PE 5 positioning unit and HQ 5 lift transverse unit; not required for b = 455 mm (fitted to stop gate without assembly kit)

Scope of delivery:

- ▶ Incl. fastening material for assembly

Accessories, sensor in Open Center Assembly kit for SH 2/U-H switch bracket

**Use:**

- ▶ Holding plate to bring the switch bracket into the correct inquiry position

Version:

- ▶ Centering lugs for pre-positioning and fast assembly

Mounting location:

- ▶ on the section profile

Scope of delivery:

- ▶ Incl. fastening material for assembly

Condition on delivery:

- ▶ Not assembled

Required accessories:

- ▶ SH 2/U-H switch bracket
- ▶ M12x1 sensor with $S_N \geq 4$ mm rated sensing range, see p. 9-16

SH 2/U-H assembly kit on ST 5/OC conveyor unit

b (mm)	Material number
455; 650; 845	3 842 545 533

b = track width in direction of transport



Identification systems

Identification systems	10-2
Assembly kits for ID 40/ID 200 identification systems in longitudinal conveyors	10-3
Assembly kits for ID 40/ID 200 identification systems in Open Center sections	10-5
Kits for installation in WT 5 workpiece pallets	10-7

Identification systems



Identification and data tag systems are used to control numerous production and transport systems in assembly technology applications.

Data related to objects is the basis for

- ▶ targeted control of processes and processing steps
- ▶ infeeding or outfeeding workpiece pallets according to type or variant when manufacturing product variants on flexible assembly systems.

You can find our current range of identification and data tag systems in the RFID systems catalog.

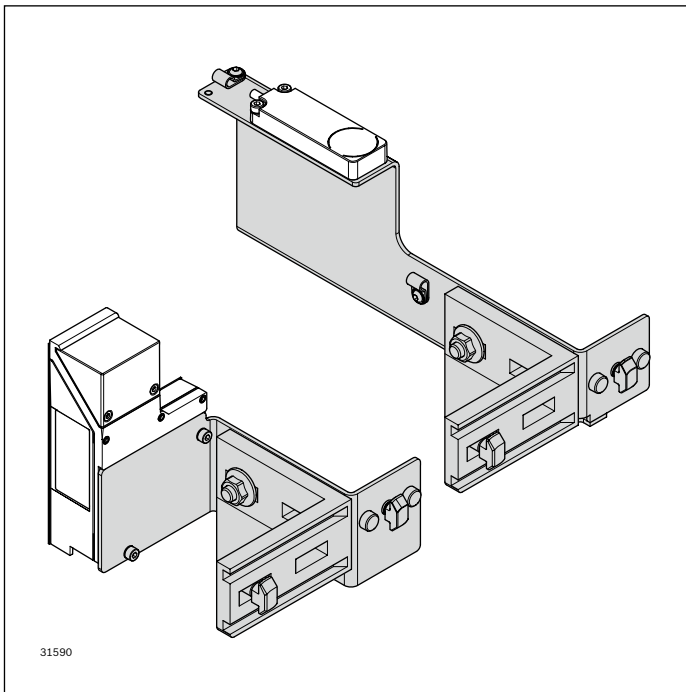
Required accessories:

- ▶ Communication module ID 200/C..., see catalog for RFID systems
- ▶ Antenna ID 200/A..., see catalog for RFID systems
- ▶ Mobile data tag MDT...H, see catalog for RFID systems
For ID 200, only MDT 3/2K-H (3 842 410 102) possible
- ▶ Cable, see catalog for RFID systems
- ▶ Assembly kit for identification system read/write heads, see page 10-3

RFID Systems catalog

	Material number
DE	3 842 541 003
EN	3 842 541 004
FR	3 842 541 005
IT	3 842 541 006

Assembly kits for ID 40/ID 200 identification systems in longitudinal conveyors

**Use:**

- ▶ For fastening the various read/write heads from the identification systems in the longitudinal conveyor

Note: ID 40/ID 200 identification systems in transverse conveyor on request.

Version:

- ▶ Centering lugs for pre-positioning and fast assembly

Mounting location:

- ▶ on the section profile

Note:

The sensors and ID 40 and ID 200...-LF identification systems use the same frequency range. Maintain a minimum distance of 200 mm to prevent interference.

10

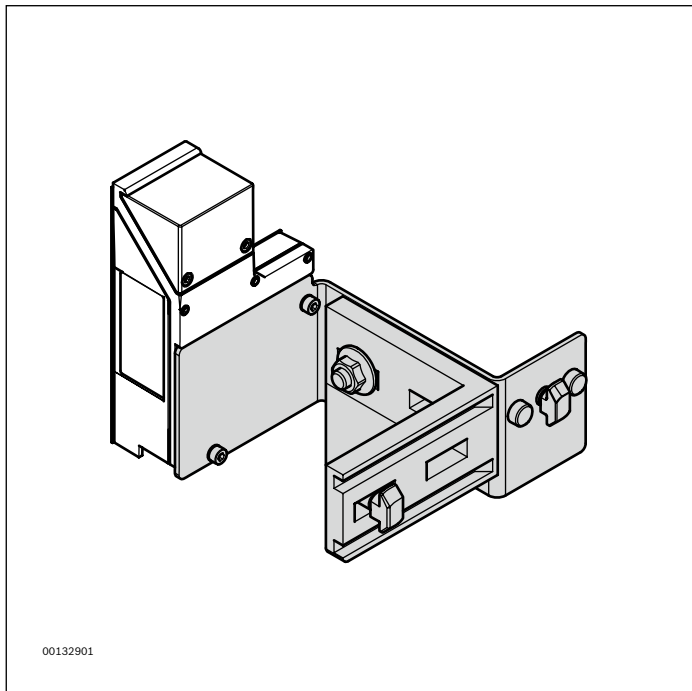
Condition on delivery:

- ▶ Not assembled

Required accessories:

- ▶ Communication module ID 200/C..., see catalog for RFID systems
- ▶ Antenna ID 200/A..., see catalog for RFID systems
- ▶ Mobile data tag MDT...H, see catalog for RFID systems
For ID 200, only MDT 3/2K-H (3 842 410 102) possible
- ▶ Cable, see catalog for RFID systems

Ordering information



Assembly kit for ID 40 identification system

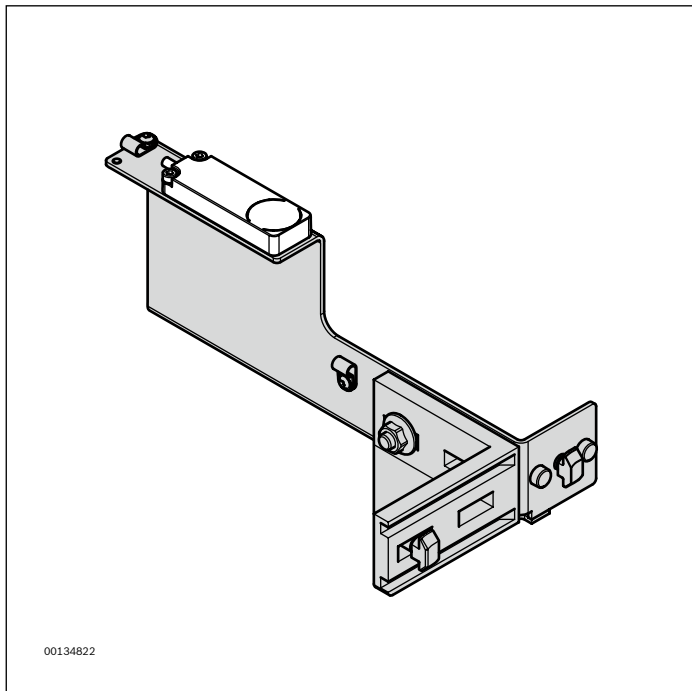
b (mm)	Material number
455	3 842 545 140
650; 845	3 842 545 142

b = track width in direction of transport

Scope of delivery:

- ▶ 3 842 545 140: Incl. fastening material for assembly
- ▶ 3 842 545 142: Incl. fastening material for assembly and a 45x90 bracket for reinforcement as needed.

Ordering information



Assembly kit for ID 200 identification system, longitudinal conveyor

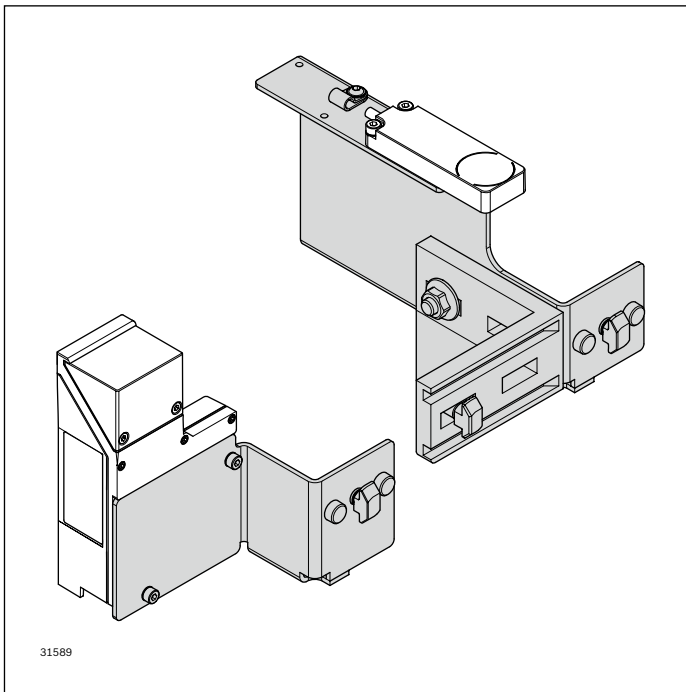
b (mm)	Material number
455; 650; 845	3 842 545 144

b = track width in direction of transport

Scope of delivery:

- ▶ Incl. fastening material for assembly and a 45x90 bracket for reinforcement as needed.

Assembly kits for ID 40/ID 200 identification systems in Open Center sections

**Use:**

- ▶ For fastening the various read/write heads from the identification systems in the longitudinal conveyor

Note: ID 40/ID 200 identification systems in transverse conveyor on request.

Version:

- ▶ Centering lugs for pre-positioning and fast assembly

Mounting location:

- ▶ on the section profile

Note:

The sensors and ID 40 and ID 200...-LF identification systems use the same frequency range. Maintain a minimum distance of 200 mm to prevent interference.

10

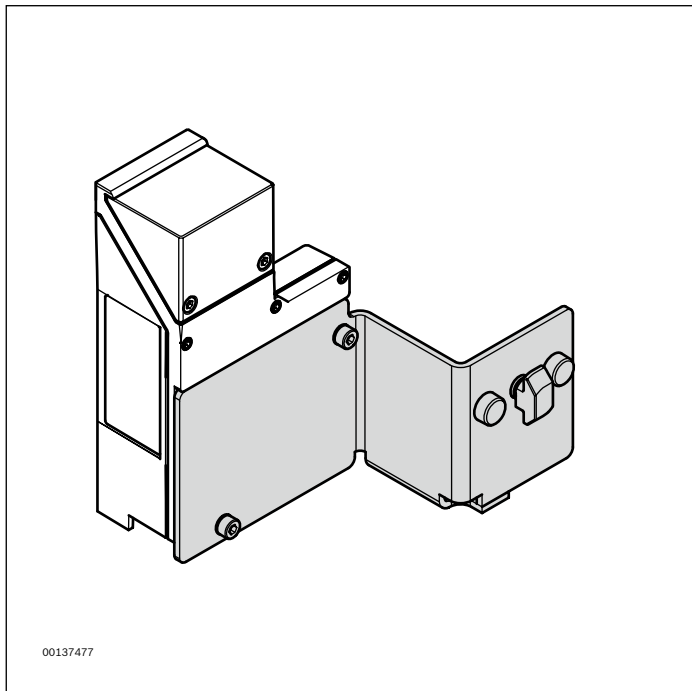
Condition on delivery:

- ▶ Not assembled

Required accessories:

- ▶ For relevant read/write head, see RFID systems catalog, page 10-2

Ordering information



Assembly kit for ID 40 identification system

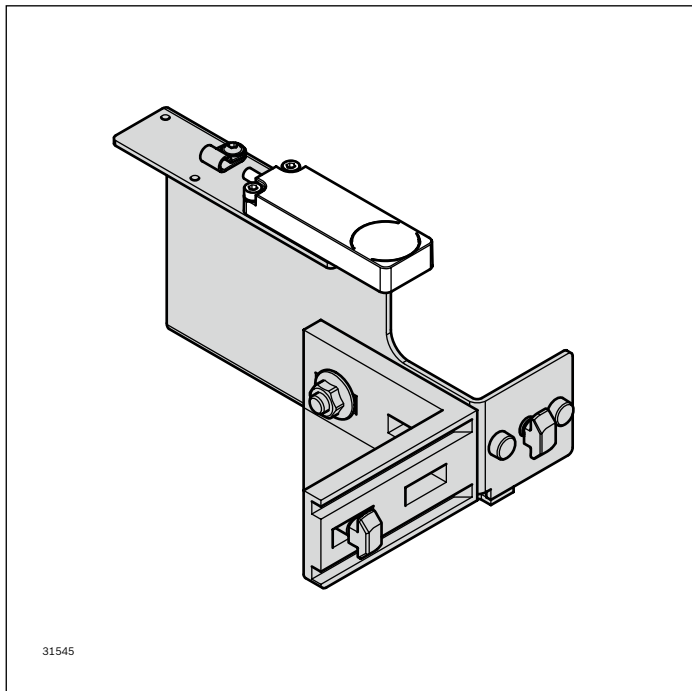
b (mm)	Material number
455	3 842 545 535
650; 845	3 842 545 537

b = track width in direction of transport

Scope of delivery:

- ▶ 3 842 545 535: Incl. fastening material for assembly
- ▶ 3 842 545 537: Incl. fastening material for assembly and a 45x90 bracket for reinforcement as needed.

Ordering information



**Assembly kit for ID 200 identification system,
 longitudinal conveyor**

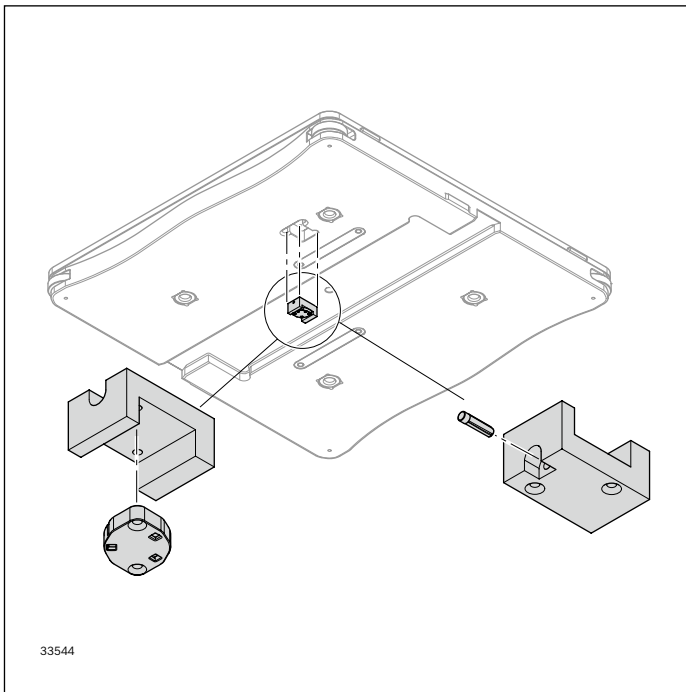
b (mm)	Material number
455; 650; 845	3 842 545 539

b = track width in direction of transport

Scope of delivery:

- ▶ 3 842 545 539: Incl. fastening material for assembly and a 45x90 bracket for reinforcement as needed.

Kits for installation in WT 5 workpiece pallets

**Use:**

- ▶ Kits for installing the different data tags (ID 40/ID 200 identification systems) in the WT 5 workpiece pallet

Mounting location:

- ▶ On WT 5 workpiece pallet

Scope of delivery:

- ▶ Incl. fastening material for mounting the kit.

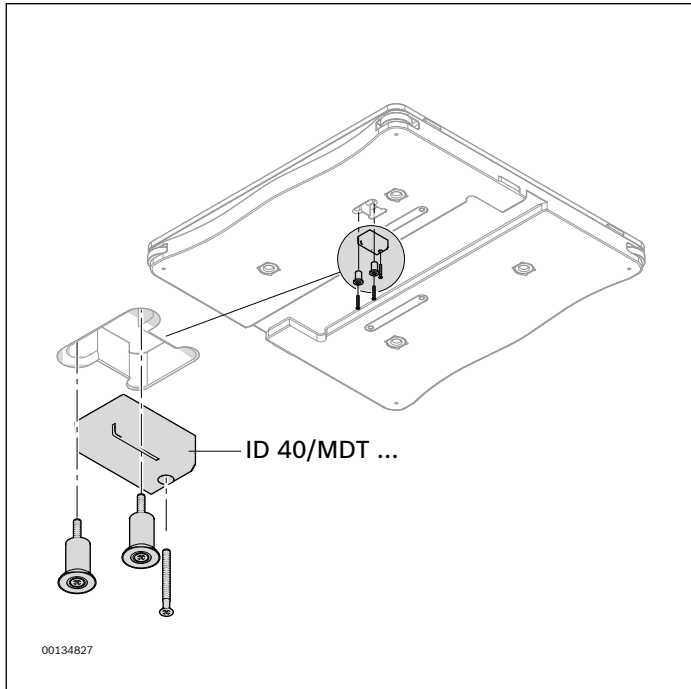
Required accessories:

- ▶ For relevant data tag, see RFID systems catalog, page 10-2

Condition on delivery:

- ▶ Not assembled

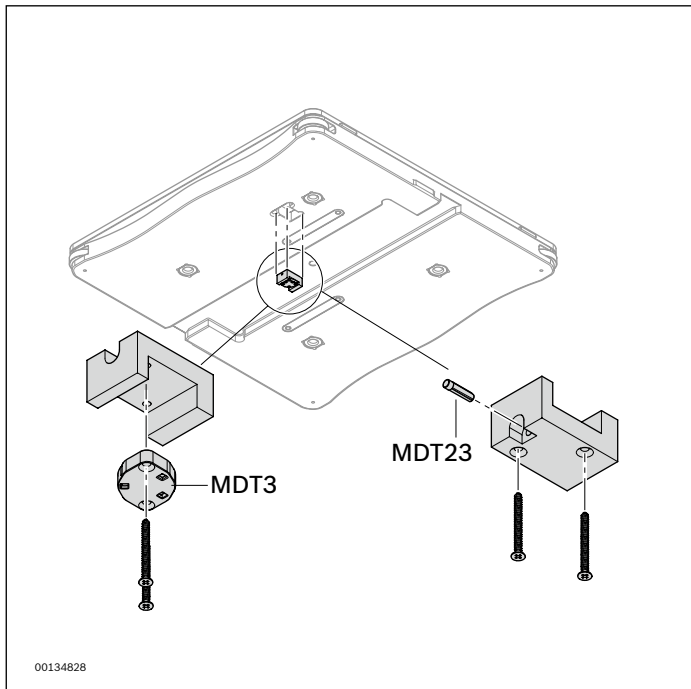
Ordering information



Kit for ID 40 identification systems

Material number
3 842 545 448

Ordering information



Kit for ID 200 identification systems

Material number
3 842 545 450



Tools

Chain breaker

11-2

Spring tensioner

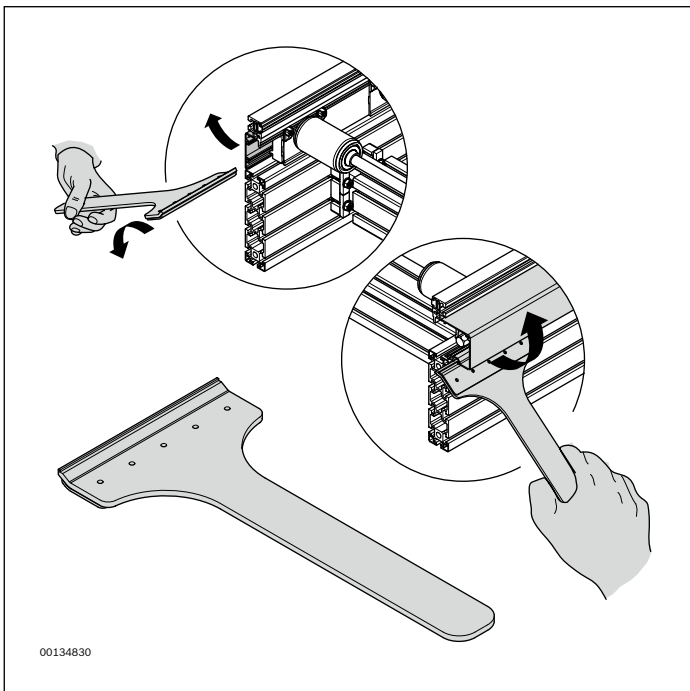
11-3

Chain breaker



Use:

- ▶ To gently remove the covers (on the king shaft and passive side).



Product designation	Material number
Chain breaker	3 842 545 836

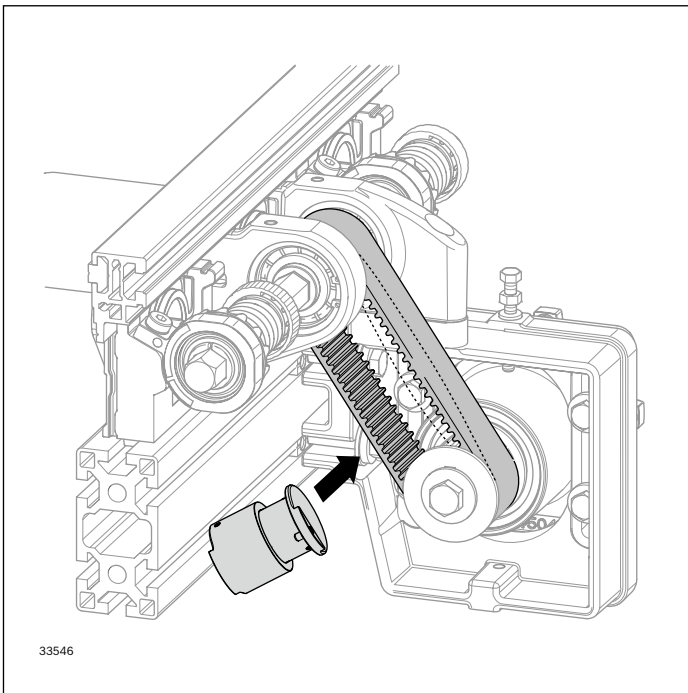
Spring tensioner



Use:

- ▶ Only required when exchanging the toothed belt in the AS 5 drive unit.

In the delivery condition, the toothed belt in the AS 5 drive unit has been tensioned at the factory.



Product designation	Material number
Spring tensioner	3 842 545 871



MTpro – planning software

MTpro – planning software

12-3



MTpro – planning software

MTpro is a software program used for planning assembly systems. It assists you from selection to configuration and ordering of the Rexroth products. The program offers the following functions and full content in seven languages (en/de/fr/es/it/ja/zh):

Layout Designer for planning and designing complete frames and conveyor systems

- ▶ Simple design using the drag & drop and snap functions without a CAD system
- ▶ Design logic for automatic configuration and assembly adaptation
- ▶ Automatic order list generation of all small parts and accessories
- ▶ Export of 3D volume models
- ▶ Library for saving and reusing your own modules and layouts

Product information

- ▶ Technical data
- ▶ Catalog data sheets
- ▶ Assembly instructions
- ▶ Spare parts lists and drawings

Configuration and calculation

- ▶ Product configuration and generation of ordering information
- ▶ Issuing of order lists in user-specific presentations
- ▶ Direct connection to Rexroth eShop
- ▶ Quick & Easy profile configuration and drafting
- ▶ Other design and calculation programs

CAD library

- ▶ Configurable CAD models
- ▶ Memories in standard formats
- ▶ Direct integration into all common CAD systems

System requirements

- ▶ Windows from version 7 onwards
- ▶ DVD-ROM drive
- ▶ At least 6 GB of free disk space hard disk space
- ▶ Adobe Reader from version 10 onwards
- ▶ Internet access for layout designer licensing and automatic updates



Technical data

System specifications	13-2
Drive data	13-6
Motor data	13-7
Ordering parameters for SEW motors	13-13
Conversion table for metric/imperial dimensions	13-15
Function plans	13-16

System specifications

Application

The Rexroth transfer systems all form a program of fine-tuned mechanical components that are used to convey, separate, and position workpiece pallets. With these components, you can create almost any system layout you need. The systems are primarily used to convey workpieces (on Rexroth workpiece pallets) to and from manual or automatic work stations on an assembly line.

Planning

Transfer system planning, setup, initial start-up and maintenance should only be done by trained personnel. Rexroth offers training courses for this.

Scope of delivery – small parts

The sensors, pneumatic valves, and electrical and pneumatic installation material that are necessary for operation are usually not included in the scope of delivery. These parts are only preassembled if they guarantee special functional safety or if installing them at a later point would require too much effort.

Please note the references for the required flow control valves and check valves in the pneumatic switching plan (listed in the assembly and operation instructions) must be followed.

Note

Examples

Installation references, pneumatic switching plans and typical function processes are described in the catalogs and assembly instructions. These must be followed when setting up and starting the initial operation of the system.

CE identification, responsibility

Components that fall under the EC Machinery Directive are delivered with the corresponding manufacturer's declaration. Overall responsibility for system safety (declaration of conformity, CE identification) lies with the system builder. The references in the assembly instructions and in the

Instructions for Employees on Safety – 3 842 527 147 must be followed.

Materials used

The materials used in the components are primarily:

- ▶ Non-rusting steel or steel protected against corrosion by a special surface,
- ▶ Brass,
- ▶ Cast or malleable aluminum alloys,
- ▶ Polyurethane, polyamide, in some cases with additives to improve electrical and mechanical characteristics, and UHMW polyethylene.
- ▶ NBR or Viton for elastic seals.

Media resistance

Resistant to many common media used in production such as water, mineral oil, grease, and detergents. Contact your Rexroth representative if you have any doubts about resistance to specific chemicals, e.g. test oil, doped oils, aggressive detergents, solvents, or brake fluid.

Avoid prolonged contact with highly reactive acidic or alkaline materials.

Contamination

Wear may increase dramatically if the system is contaminated, particularly with abrasive media from the surrounding area such as sand and silicates from construction, but also due to processes running on the transfer system (e.g. welding beads, pumice dust, glass shards, shavings, or lost parts, etc.). In such cases, maintenance intervals must be substantially shortened.

Such cases require special attention when planning the system and adjusting the maintenance intervals.

Functional safety

Resistance to media and contamination does not mean that functional safety is guaranteed in every case.

- ▶ Liquids that thicken on evaporation and are highly viscous or adhesive (sticky) could lead to a disruption in function.

- ▶ Media with lubricating properties may reduce the driving power transferred by friction if they are carried over onto systems with rollers.

Environmental sustainability, recycling

The materials used are environmentally friendly. They can be recycled or reused (components may have to be processed and replaced). Recyclability is ensured by the selection of materials and the ability to take the components apart.

Pneumatic connection data

Oiled or non-oiled, filtered, dry compressed air.
Operating pressure 6 bar Performance data is for an operating pressure of 6 bar.

Maintenance

The TS components require very little maintenance. Maintenance instructions are included in the operating manual.

Wear

Wear is caused by the basic principle of this system and cannot be avoided. Design measures and appropriate materials help ensure functional safety over the life of the product. However, wear depends on the operating, maintenance, and ambient conditions of the system and the location (resistance, contamination).

Measures to reduce wear

The following measures reduce wear and the friction caused by it:

- ▶ Switch off conveyor sections when the system is not running, e.g. during breaks, overnight, on the weekend.
- ▶ Only select speeds that correspond with the particular function.
- ▶ Minimize the weight of the workpiece pallet – do not overload workpiece supports with material.
- ▶ Avoid unnecessary accumulation sections, e.g. by
 - reducing the number of workpiece pallets
- ▶ Switch off accumulation sections carrying heavy workpiece pallets as long as transport is not necessary.
- ▶ Very important: Avoid contamination by abrasive media or reduce contamination through regular cleaning.

Load specifications

Permitted loads apply for conveyor sections only under the condition that workpiece pallets with the maximum permitted weight have accumulated.

Accumulation operation is not permitted at curves, diverters, junctions, or the positioning unit.

Wear and conveyor speed

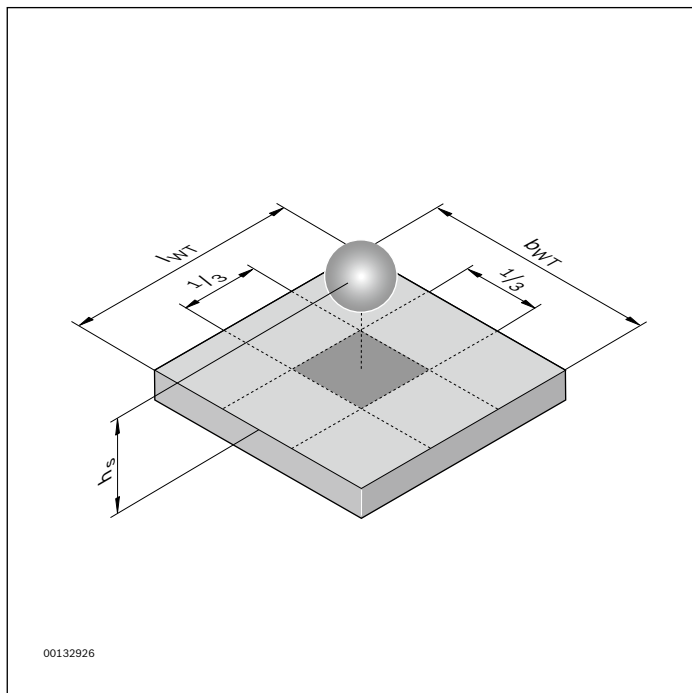
Nominal data for the permitted workpiece pallet weight describe operation with standard speeds and normal operating conditions.

Wear on the workpiece pallet wear pads and the conveyor medium will not influence system function throughout the service life.

Loading the workpiece pallet, gravity center position

Concentric load with a low center of gravity is generally preferable. Incorrect load distribution with a high and/or eccentric gravity center on the workpiece pallet may have a negative influence on running and safety.

Pay attention when arranging workpiece supports and workpieces on the pallet that the center of gravity of the loaded workpiece pallet is within the area $1/3$ of the length or width from the center of the workpiece pallet. The maximum height of the center of gravity over the conveying level should not exceed $1/2$ of the workpiece pallet length or width.



Loading the workpiece pallet, combination of empty and loaded workpiece pallet

When setting up and testing the modular units, the workpieces pallets should not all have the same weight on the conveyor sections, i.e. full and empty pallets should all come through the circuit.

Extreme differences in weight may require special measures to avoid functional disruptions. This applies, e.g. to the permitted accumulation length before stop gates, for the function of dampers and dampened stop gates.

Function is usually not limited if the weight ratio is 2:1 between heavy workpiece pallets (loaded with a workpiece) and light workpiece pallets (empty).

Loading the workpiece pallet, minimum weights

The minimum weight of the workpiece pallet is generally not relevant. In special cases, depending on the marginal conditions, an application-specific minimum weight may be required for safe and continuous transport. This can occur, for example, if switching elements have to be manually operated (e.g. on a rocker), or if a light workpiece pallet does not run smoothly when changing directions. In such unusual cases, additional weight should be added when designing the workpiece pallet.

Overloading

Overloading the conveyor line can cause the conveyor medium to fail and motors and gears to fail prematurely. When overloading of pneumatic components occurs function cannot be guaranteed.

Transportation speed, dynamic influences

When the conveying speed increases, bumps when changing directions and the rebound force on the stop gates also increase. This may require longer damping periods or shock absorbers before the next movement.

Drive data

Definition of the basic principles of motor specifications

The specified performances, torques and revolutions per minute are rounded values and apply to:

- ▶ operating time/day = 8 h (100% switched-on time)
- ▶ uniform operation (continual), no, or very light, impacts in a direction of rotation at 10 switching cycles/hour
- ▶ installation positions and designs described in the catalog
- ▶ maintenance-free gears with life-long lubrication,
- ▶ ambient operating temperature 0 ... 60 °C. Gear unit with life-long lubrication for ambient operating temperature ≤ 0 °C available on request
- ▶ Protection class IP 55
- ▶ $f_{\text{mains}} = 50$ Hz constant
- ▶ $T_{\text{U}} = 20$ °C for gears
 $T_{\text{U}} = 40$ °C for motors
- ▶ Installation altitude $\leq 1,000$ m above mean sea level
- ▶ Overloading the drive reduces its service life.
10% overloading: = 75% service life
20% overloading: = 50% service life

In the case of other operating conditions, the achievable values may differ from those stated.

In the case of extreme operating conditions, please consult your distribution partner.

Motor data

Electrical connection requirements:

Connection to a 3-phase, 5-wire system (L1, L2, L3, N, PE), a connection plan is included in the terminal box.

All motors are equipped with a thermal contact*), which has to be connected to an overload switch-off.

*) Bi-metal thermal contact, triggered at $150\text{ °C} \pm 5\text{ °C}$
Resistance thermal contact provided on request.

Drive motors with frequency converters (FU) can only be operated with 380 V ... 500 V voltage.

All of the motors comply with protection type IP 55.

Motor types without Index b



Motor connection with plug (AT = S) and 3A metal industrial plug-in connector for motor types without Index b, e.g. 714

Motor types with Index b



Motor connection with plug (AT = S) and 3A metal industrial plug-in connector for motor types with Index b, e.g. B. 714b

Motor data (GM = 1)

Transport and nominal speed v_N

The transport speed v_N is specified for the rated output and frequencies of 50 Hz or 60 Hz.

The actual values v vary depending on:

- ▶ Tolerance of the standard motors
- ▶ Performance range of the motors
- ▶ Load on the conveyor section

	v_N (m/min)	$v^{1)}$ (m/min)	i	n1 ²⁾ (rpm)	n2 ³⁾ (rpm)	400 V/50 Hz		$v^{1)}$ (m/min)	i	n1 ²⁾ (rpm)	n2 ³⁾ (rpm)	400 V/60 Hz	
						P ⁴⁾ (W)	Type					P ⁴⁾ (W)	Type
AS 5/XH	2	2.10	60.00	670	11	120	60/738b	2.53	60.00	804	13.4	120	60/738b
AS 5/H	4	4.21	60.00	1,340	22	250	60/714b	3.20	60.00	1,020	17.0	250	60/716b
AS 5/ OC	6	5.39	47.88	1,370	29	370	37/734b	6.47	47.88	1,644	34.3	370	37/734b
	9	8.80	29.33	1,370	47	370	29/734b	10.56	29.33	1,644	56.1	370	29/734b
	12	11.06	23.33	1,370	59	370	23/734b	13.28	23.33	1,644	70.4	370	23/734b
	15	13.55	19.05	1,370	72	370	19/734b	16.26	19.05	1,644	86.3	370	19/734b
	18	16.59	15.56	1,370	88	370	15/734b	19.15	15.56	1,644	105.6	370	15/734b
HQ 5	6 (b = 455 mm)	6.01	30	1,400	46.67	90	30/524	5.69	38	1,680	44.21	100	38/524
	6 (b = 650/845 mm)	6.01	30	1,400	46.67	180	30/624	5.41	40	1,680	42	220	40/624
	9 (b = 455 mm)	9.02	20	1,400	70	90	20/524	9.02	24	1,680	70	100	24/524
	9 (b = 650/845 mm)	9.02	20	1,400	70	180	20/624	8.66	25	1,680	67.2	220	25/624
	12 (b = 455 mm)	12.02	15	1,400	93.33	90	15/524	10.82	20	1,680	84	100	20/524
	12 (b = 650/845 mm)	12.02	15	1,400	93.33	180	15/634	10.82	20	1,680	84	220	20/624

¹⁾ Transport speeds at other voltages/frequencies provided on request.

²⁾ n1 = motor speed

³⁾ n2 = gear output speed

⁴⁾ Motor output

AS 5/XH, AS 5/H technical data:

Max. torque limit: 45 Nm (toothed belt) limit

Toothed belt drive gear ratio: 1:1

Flange ø: 75 mm

Drive shaft: SW27

Conveyor roller ø: 60 mm

Country applicability

	Europe	Switzerland	USA	Canada	Brazil	Australia	New Zealand	South Korea	China	India
Line voltage (3x....)	400 V	400 V	480 V ¹⁾	480 V ¹⁾ 575 V	220 V 380 V ³⁾ 440 V ¹⁾	400 V 415 V ²⁾	400 V 415 V ²⁾	220 V 380 V ³⁾ 440 V ¹⁾	380 V ²⁾	415 V ²⁾
Line voltage tolerance	±10%	±10%	±10%	±10%	±10%	±5%	±5%			±5%
Line frequency	50 Hz	50 Hz	60 Hz	60 Hz	60 Hz	50 Hz	50 Hz	60 Hz	50 Hz	50 Hz

¹⁾ ~ 460 V / 60 Hz

²⁾ ~ 400 V / 50 Hz

³⁾ ~ 400 V / 60 Hz

Motor data

Performance data

Note: The data is typical values. We reserve the right to make changes. See motor type plate for official data. Please note the country assignment.

Voltage class	A		B		D
Circuit	Δ		Y		Y
Voltage U at f = 50 Hz	200 V ±10%		400 V ±10%		
	200 V ±10%		400 V +10...-12%		
Voltage U at f = 60 Hz	220 V ±10%	400 V ±10%	460 V ±10%	575 V ±10%	
	220 V ±10%	400 V ±10%	460 V +10...-12%	575 V ±10%	

Motor type	IE3	Current consumption at rated power				Power factor cos φ	Power output for	
		I _N (A)	I _N (A)	I _N (A)	I _N (A)		(50 Hz) P (kW)	(60 Hz) P (kW)
524	x	0.65	0.35	0.32	0.24	0.6	0.09	0.1
614b	-	-	-	0.49	-	0.56	0.12	0.14
624	x	1.15	0.65	0.55	0.45	0.66	0.18	0.22
634	x	1.65	0.9	0.85	0.65	0.6	0.25	0.29
644b	-	-	-	-	0.75	0.6	0.25	0.29
714b	-	1.75	1	0.8	-	0.64	0.25	0.3
716b	-	1.45	0.85	0.6	0.55	0.66 ... 0.68	0.18	0.22
716	x	1.3	0.75	0.6	0.62	0.68	0.18	0.22
734b	-	2.3	1.35	0.95	0.95	0.72 ... 0.77	0.37	0.45
734	x	1.9	1.05	0.95	0.72	0.74	0.37	0.42
734a	x	2.5	1.4	1.3	1	0.66	0.45	0.52
738b	-	1.4	0.8	0.55	0.5	0.60 ... 0.63	0.12	0.14
744b	-	-	-	1.4	-	0.77	0.55	0.68
814b	-	3	1.75	-	1.27	0.68 ... 0.69	0.55	0.64
814	x	3.1	1.7	1.45	1.1	0.69	0.55	0.63
824	x	4.1	2.25	2	1.6	0.66	0.75	0.86

Suitable for continuous operation, start-stop operation with an operating time of up to 70% and frequency converter operation.

Certification for the motor, cable and plug components:

- IE3 motors: CE, cURURS, CCC
- Motors with Index b: CE/CCC (50 Hz), CE/cURUS (60 Hz)

3-phase motors

T _U (°C)	P _V / P _N
< 40	1 ¹⁾
45	0.95
50	0.90
55	0.85
60	0.8

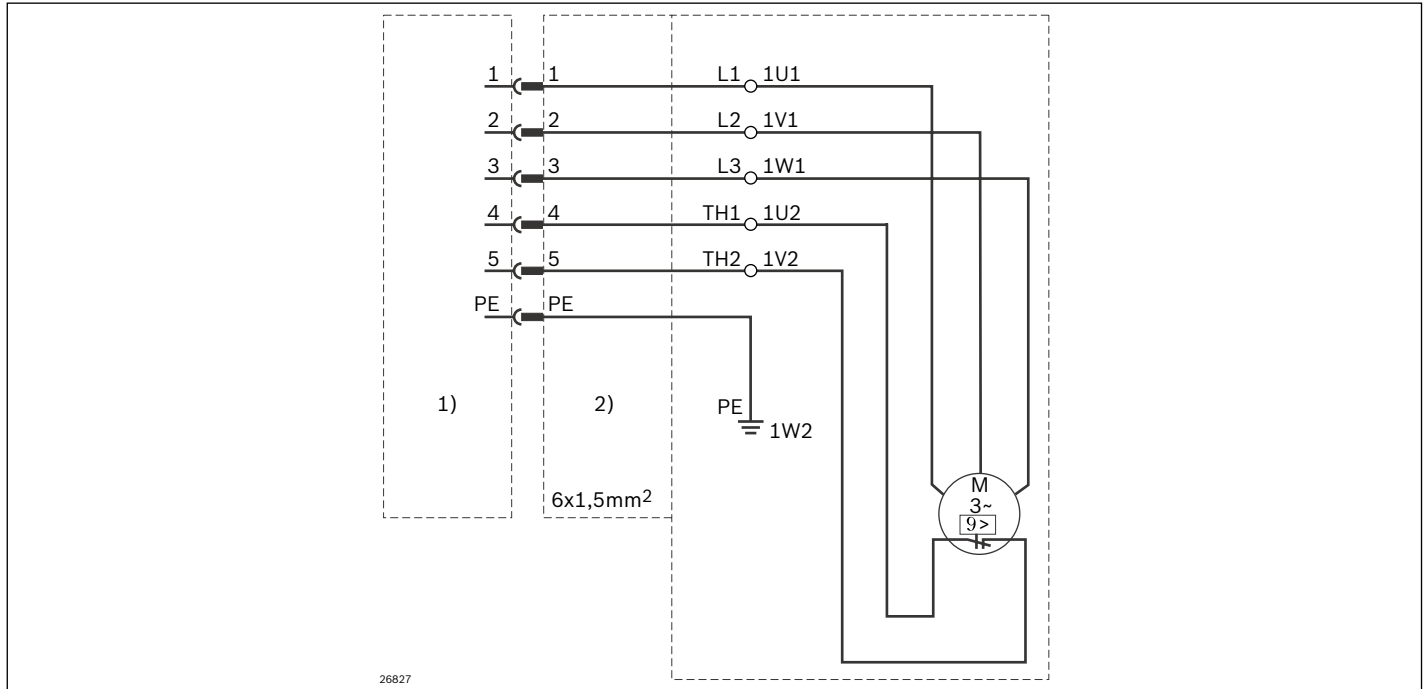
¹⁾ Rated motor power (0.37; 0.25; 0.12 kW)

Rated motor power

The ambient operating temperature T_U influences the rated power P_N of the gear motors.

Motor connection

Motor connection with cable/plug (AT = 1), circuit diagram



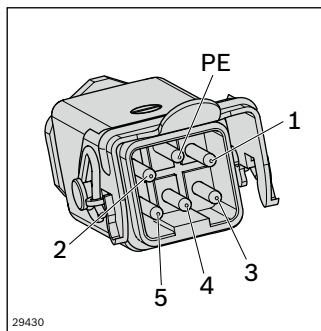
1) Connection cable side

2) Motor side

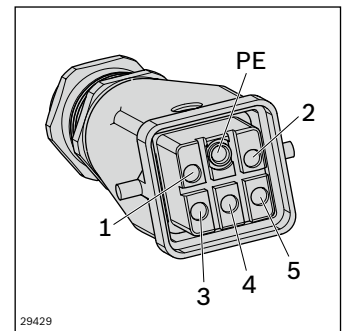
The plug connection consists of UL components.

Connection list

Connection terminals, motor 3~	Pin no.	Code
U1	1	L1
V1	2	L2
W1	3	L3
TW1	4	Th1
TW2	5	Th2
	PE	PE



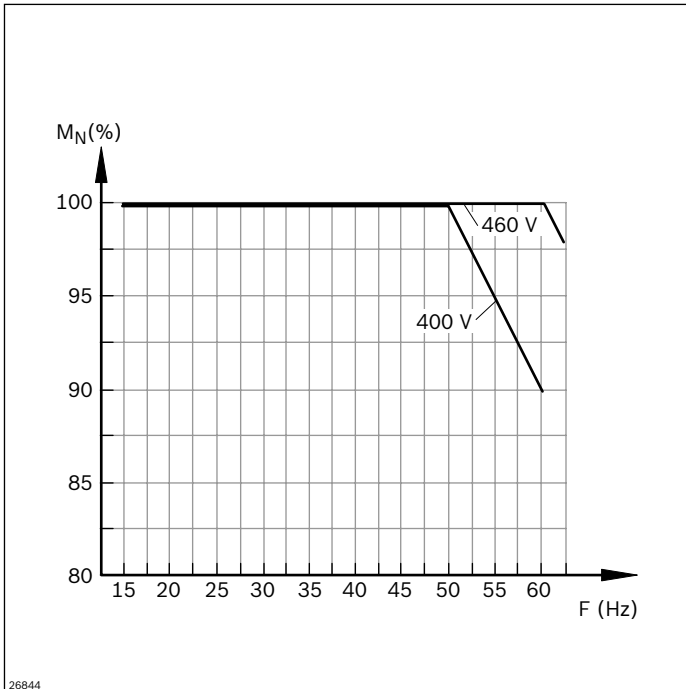
Motor side



Connection cable side

Frequency converter (FU)

Drive range of the motors with frequency converters (FU)



Technical information:

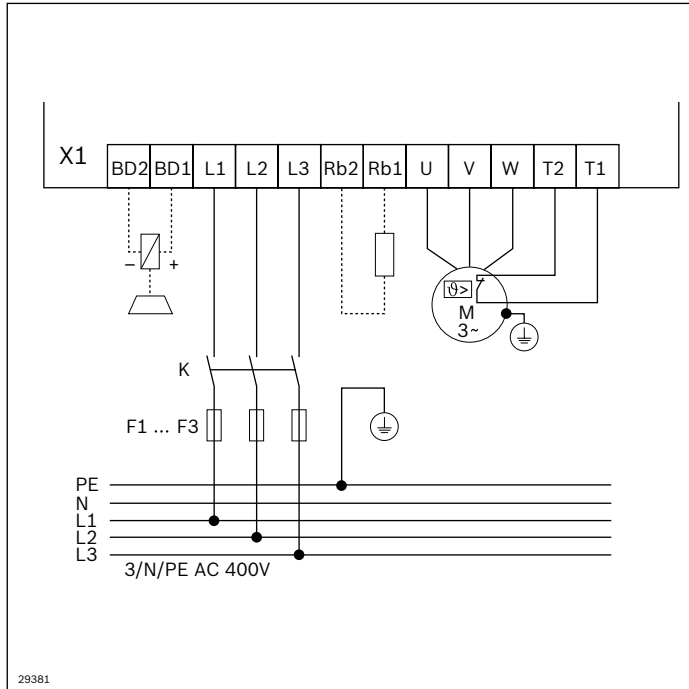
At rotating field frequencies of ≥ 15 Hz, the motor can be operated under normal operating conditions without an external fan. The motor's thermal conditions should be considered at rotating field frequencies of ≤ 20 Hz. With rotating field frequencies of > 50 Hz, higher speeds can also be achieved with corresponding performance losses. In the 20 ... 50 Hz range, the full torque is available.

Base speed of motor (m/min) at 50 Hz	Min ¹⁾ (m/min)	Max ²⁾ (m/min)	Max (m/min) at max. 80% torque
5 ³⁾	2	6	8
10 ³⁾	4	12	16
13	5	15	21
16	6	19	26
21	7	25	34
27	9	32	43
33	11	39	52
40	13	48	-
50	16	60	-

¹⁾ Min corresponds to approx. 16 Hz supply frequency

²⁾ Max corresponds to approx. 60 Hz supply frequency

³⁾ At 460 V/60 Hz max (m/min) 20% higher



Frequency converter (FU) accessories

In order to operate a drive with a frequency converter (FU), the user needs to work out the minimum wiring for the internal and external voltage supply (see terminal assignment plan left).

—— Minimum wiring required for operation
 ----*)---- Additional wiring to change direction of rotation

Ordering parameters for SEW motors

The following ordering information is required if using gear motors from SEW-Eurodrive GmbH & Co, Bruchsal:

- Motor type
- Ratio
- Installation position
- Position of drive output
- Position of terminal box
- Cable entry (Fig. 4)

- Motor voltage/frequency¹⁾
- Thermal class²⁾
- Motor protection class³⁾

SEW motors motor data

v_N (m/min)	400 V/50 Hz							400 V/60 Hz						
	$v^{1)}$ (m/min)	i	$n1^{3)}$ (rpm)	$n2^{4)}$ (rpm)	M_N (Nm)	$P^{5)}$ (W)	Type SAF37...	$v^{1)}$ (m/min)	i	$n1^{3)}$ (rpm)	$n2^{4)}$ (rpm)	M_N (Nm)	$P^{5)}$ (W)	Type SAF37...
2	2.07	122.94	1,320	11	91	180	DR63M4	2.07	144.4	1,620	11	92	180	DR63M4
4	4.14	55.93	1,300	22	81	250	DR63L4	4.14	71.44	1,600	22	84	250	DR63L4
6	6.03	43.68	1,380	32	81	370	DRS71S4	6.03	53.83	1,700	32	80	370	DRS71S4
9	9.04	28.76	1,380	48	75	370	DRS71S4	9.04	35.1	1,700	48	75	370	DRS71S4
12	11.49	22.5	1,380	61	73	550	DRS71M4	11.12	28.76	1,690	59	75	550	DRS71M4
15	14.32	18.34	1,380	76	52	550	DRS71M4	14.13	22.5	1,690	75	73	550	DRS71M4
18	19.41	13.39	1,380	103	49	550	DRS71M4	17.53	18.24	1,690	93	52	550	DRS71M4
2 to 7²⁾	1.5-7.53	35.1	280-1,400	8.0-40	78	370	DRS71S4MM03	1.5-7.53	35.1	280-1,400	8.0-40	78	370	DRS71S4MM03
7 to 18²⁾	3.95-19.79	13.39	280-1,400	21-105	49	550	DRS71M4MM05	3.95-19.79	13.39	280-1,400	21-105	49	550	DRS71M4MM05

13

Motor data SEW motors for HQ 5: b = 455

v_N (m/min)	400 V/50 Hz							400 V/60 Hz						
	$v^{1)}$ (m/min)	i	$n1^{3)}$ (rpm)	$n2^{4)}$ (rpm)	M_N (Nm)	$P^{5)}$ (W)	Type WAF10...	$v^{1)}$ (m/min)	i	$n1^{3)}$ (rpm)	$n2^{4)}$ (rpm)	M_N (Nm)	$P^{5)}$ (W)	Type WAF10...
6	6.09	27.50	1,300	47	12.0	90	DT56M4	6.34	32.50	1,600	49	12.0	90	DT56M4
9	8.59	19.50	1,300	67	9.4	90	DT56M4	8.41	24.50	1,600	65	9.4	90	DT56M4
12	11.69	14.33	1,300	91	7.6	90	DT56M4	12.49	16.50	1,600	97	7.6	90	DT56M4

Motor data SEW motors for HQ 5: b = 650/845

v_N (m/min)	400 V/50 Hz							400 V/60 Hz						
	$v^{1)}$ (m/min)	i	$n1^{3)}$ (rpm)	$n2^{4)}$ (rpm)	M_N (Nm)	$P^{5)}$ (W)	Type WAF20...	$v^{1)}$ (m/min)	i	$n1^{3)}$ (rpm)	$n2^{4)}$ (rpm)	M_N (Nm)	$P^{5)}$ (W)	Type WAF20...
6	6.18	27.50	1,320	48	24.0	180	DR63M4	6.42	32.50	1,620	50	24.0	180	DR63M4
9	8.72	19.50	1,320	68	19.0	180	DR63M4	8.52	24.50	1,620	66	19.0	180	DR63M4
12	11.86	14.33	1,320	92	15.0	180	DR63M4	12.49	16.50	1,600	97	15.0	250	DR63L4

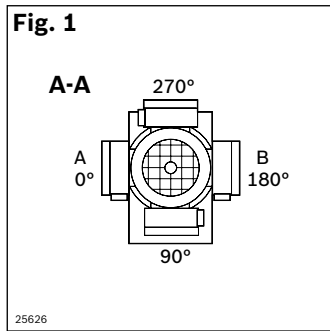
- ¹⁾ Transport speeds at other voltages/frequencies provided on request.
²⁾ Electronically controlled by a frequency converter (FU).
³⁾ $n1$ = motor speed
⁴⁾ $n2$ = gear output speed
⁵⁾ Motor output

- AS 5/XH, AS 5/H technical data:
 Max. torque limit: 45 Nm (toothed belt) limit
 Toothed belt drive gear ratio: 1:1
 Flange \varnothing : 120 mm
 Drive shaft: SW27 on shaft \varnothing 20
 Conveyor roller \varnothing : 60 mm

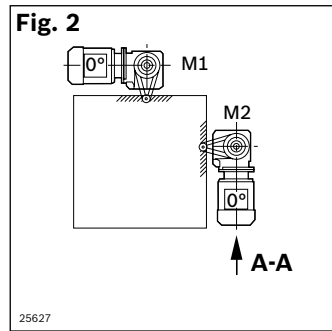
Motor mounting orientation, terminal box, cable entry

Motor mounting	Installation position	Drive output	Terminal box
R	M2 (M1)	B	0°
L	M2 (M1)	A	180°

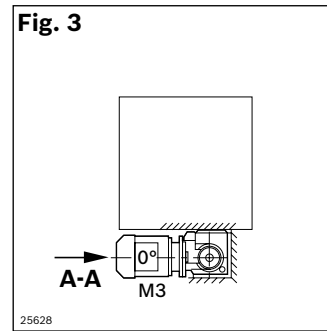
Position of terminal box



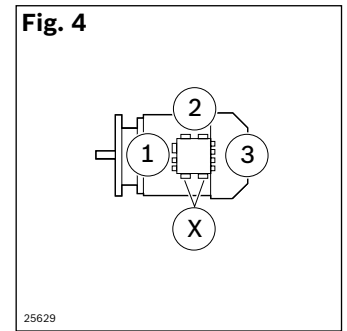
Installation position horizontal top/vertical



Installation position horizontal



Cable entry point



Conversion table for metric/imperial dimensions

Measurement	Multiply	by	to get:
Linear	millimeters (mm)	0.03937	inches
	inches	25.4	millimeters (mm)
	kilometers (km)	0.6214	miles
	miles	1.6093	kilometers (km)
Area	millimeters ² (mm ²)	0.00155	inches ²
	inches ²	645.16	millimeters ² (mm ²)
Volume	centimeters ³ (cm ³)	0.06102	inches ³
	inches ³	16.387	centimeters ³ (cm ³)
	1 cm ³ = 1 milliliter (ml)		
	1000 ml = 1 Liter		
Acceleration	meter/second ² (m/s ²)	39.37	inch/second ²
	inch/second ²	0.0254	meter/second ² (m/s ²)
Velocity	meter/second	3.281	feet/second
	feet/second	0.3048	meter/second
Mass	kilogram (kg)	2.2046	pounds
	pounds	0.4536	kilogram (kg)
Force	kilograms-f (kgf)	9.807	Newtons (N)
	Newtons (N)	0.10194	kilograms-f (kgf)
	pounds-f	4.448	Newtons (N)
Pressure	Newtons	0.2248	pounds-f
	bar	14.5	PSI
	PSI	0.069	bar
Torque	Newton meters (Nm)	8.851	pound inches
	pound inches	0.11298	Newton meters (Nm)
Moment of Inertia	centimeters ⁴ (cm ⁴)	0.02403	inches ⁴
	inches ⁴	41.623	centimeters ⁴ (cm ⁴)
Power	kilowatts (Kw)	1.34	horsepower (HP)
	horsepower (HP)	0.746	kilowatts (Kw)
Energy	Joules (J)	0.7376	foot/pounds (ft/lbs)
	foot/pounds (ft/lbs)	1.3558	Joules (J)

Metric Tap/Drill Specifications

Tap	Drill Size
M4 × 0.7	3.3 mm
M5 × 0.8	4.2 mm
M6 × 1	5.0 mm
M8 × 1.25	6.8 mm
M12 × 1.75	10.2 mm
M16 × 2	14.0 mm

Temperature

Degrees Celsius

$$5 \times (\text{degrees Fahrenheit} - 32) / 9$$


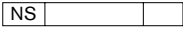
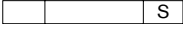
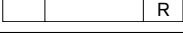
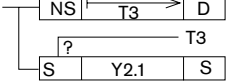
Degrees Fahrenheit

$$9 \times (\text{degrees Celsius}) + 32 / 5$$

Function plans

On the following pages, you can find proven fundamental function plans for control tasks in transfer systems.

Contrary to DIN IEC 61131-3, qualifiers are used in the action blocks, which are explained in the table below.

Action block	Explanation
	Storing
	Non-storing
	Set
	Reset
	Non-storing triggering of a time function (with cycle time T). After it has been concluded, a switch function is triggered.

Simple VE 5 stop gates are used to stop workpiece pallets. The position of the workpiece pallets is queried with separate sensors.

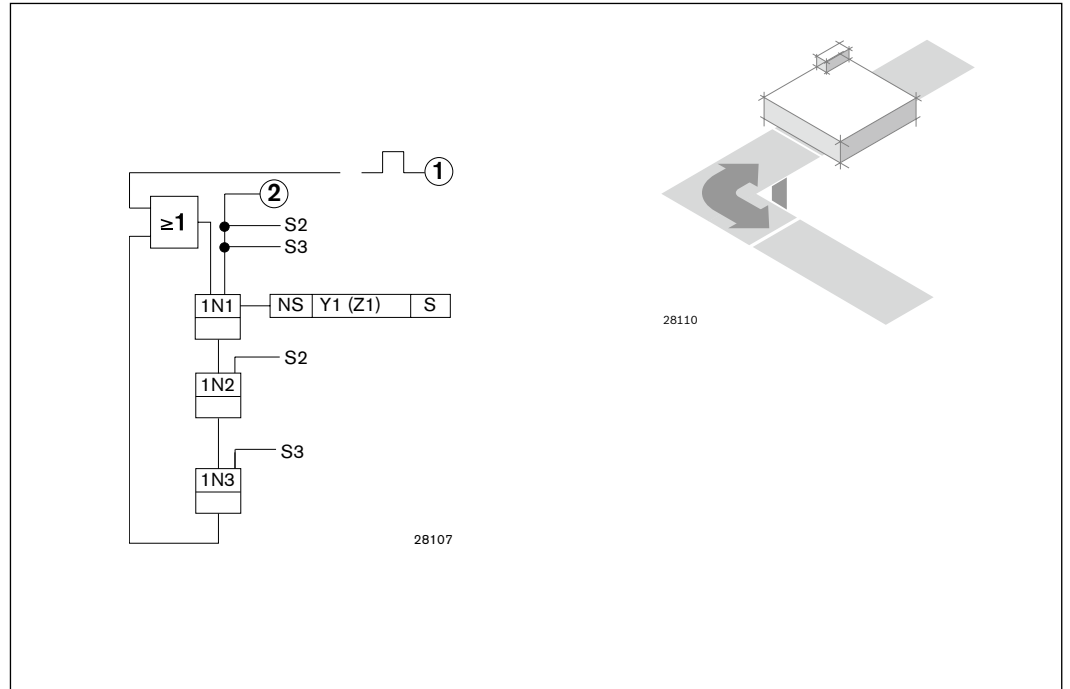
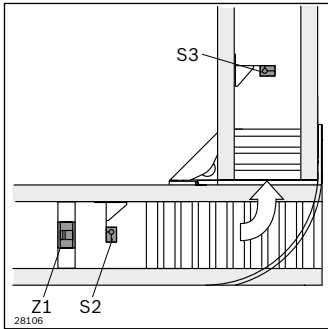
The function plans are simplified accordingly if using stop gates with integrated sensors and internal switching logic.

General abbreviations

WT	=	Workpiece pallet
VE	=	Stop gate
S...	=	Signaling device
Y...	=	Valve
Z...	=	Cylinder
LT	=	Longitudinal conveyor (main section)
QT	=	Transverse conveyor (adjacent section)
HQ	=	Lift transverse unit
DA	=	Damper
①	=	Start pulse after end of start-up
②	=	Release cyclic travel

Function plans

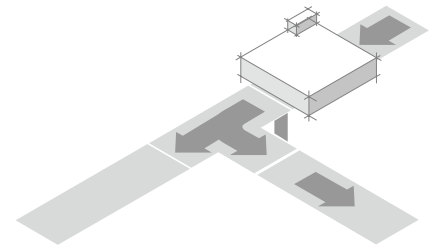
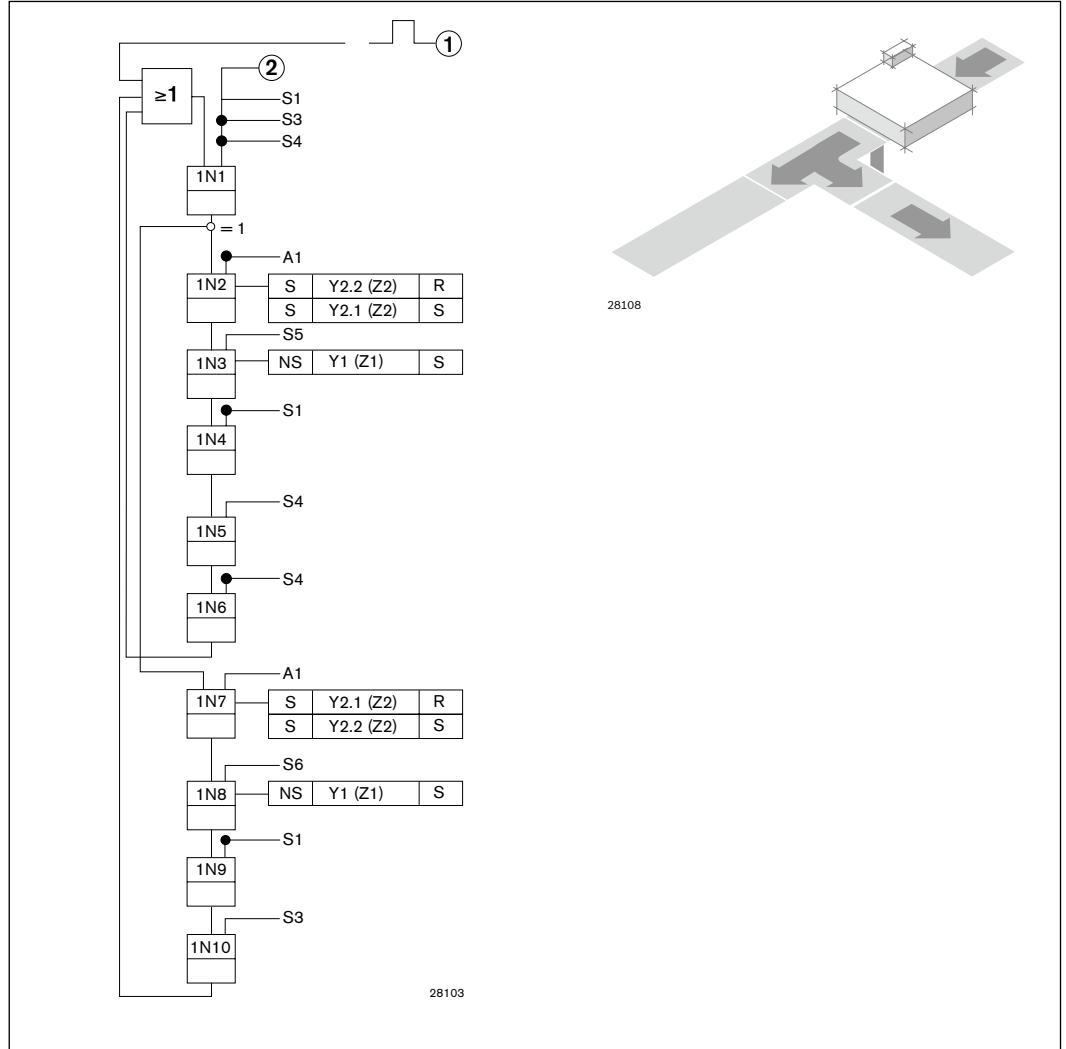
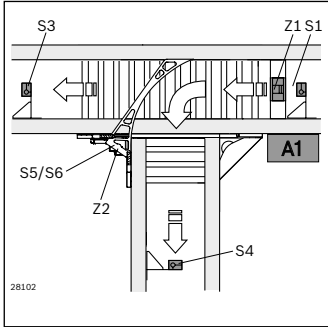
Curve CU



- S2 = WT after VE
- S3 = WT after CU
- Y1 = Open VE (Z1)

Function plans

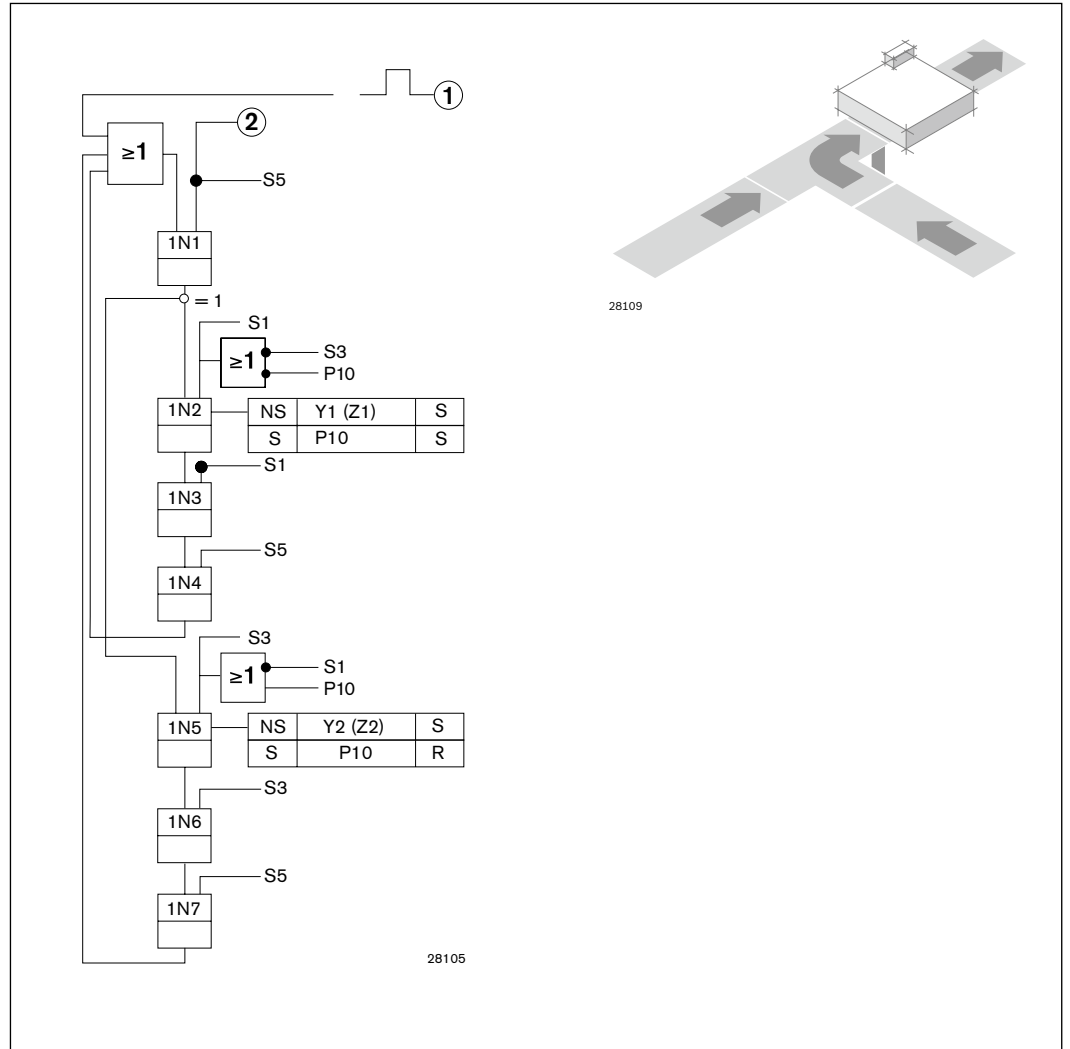
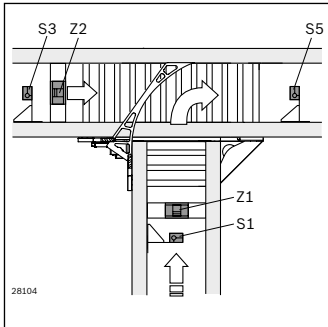
DI diverter



- S1 = WT at VE (Z1)
- S3 = WT behind main section diverter
- S4 = WT behind secondary section diverter
- S5 = Diverter open
- S6 = Diverter closed
- Y2 = Diverter (Z2)
- Y1 = Stop gate (Z1)
- A1 = Identification system with straight-ahead signal

Function plans

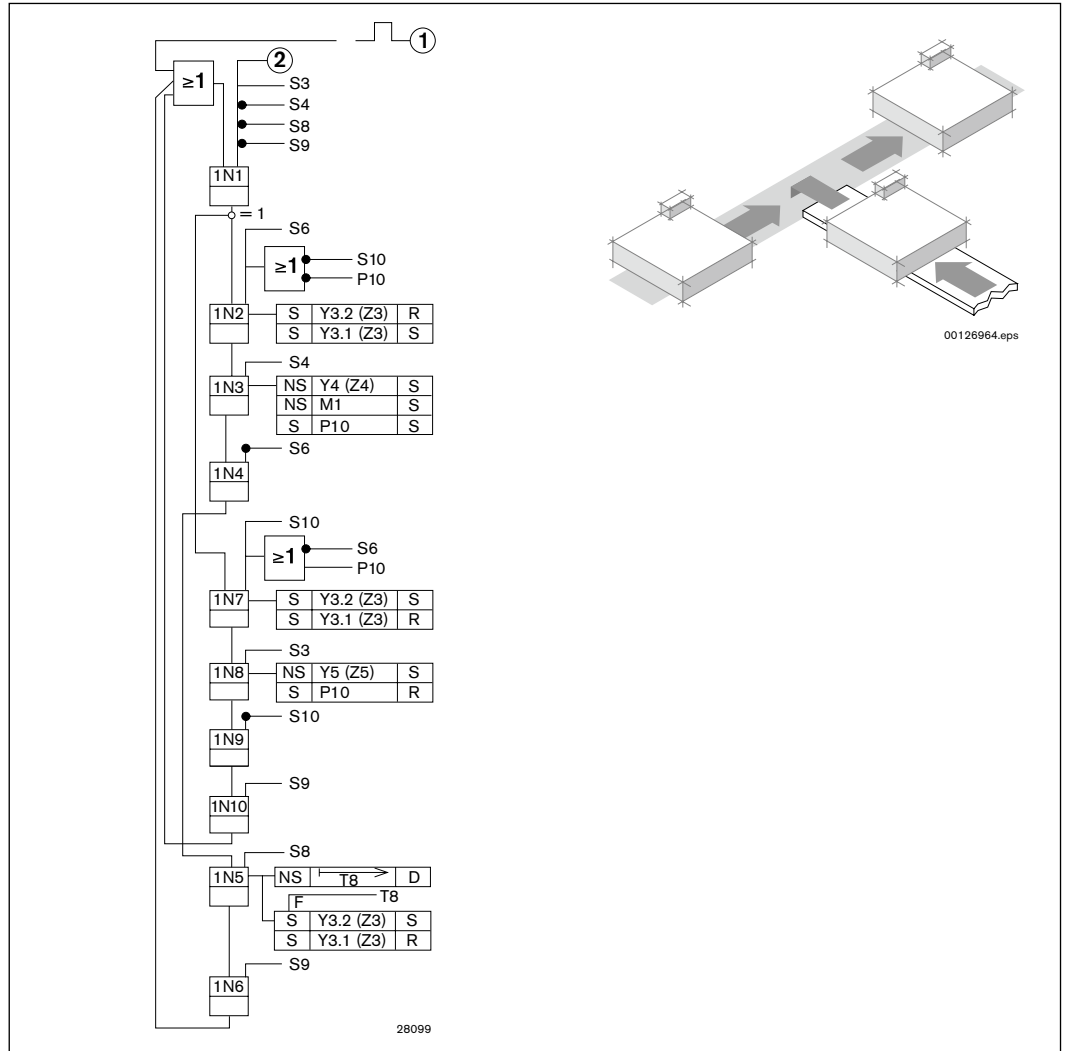
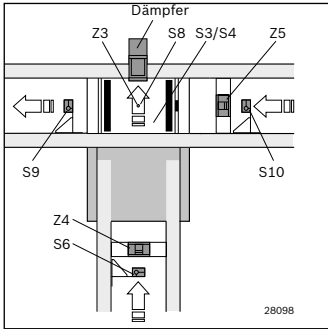
JU junction



- S1 = WT at VE (Z1)
- S3 = WT at VE (Z2)
- Y1 = Adjacent section VE (Z1)
- Y2 = VE main section (Z2)
- P10 = Priority main section

Function plans

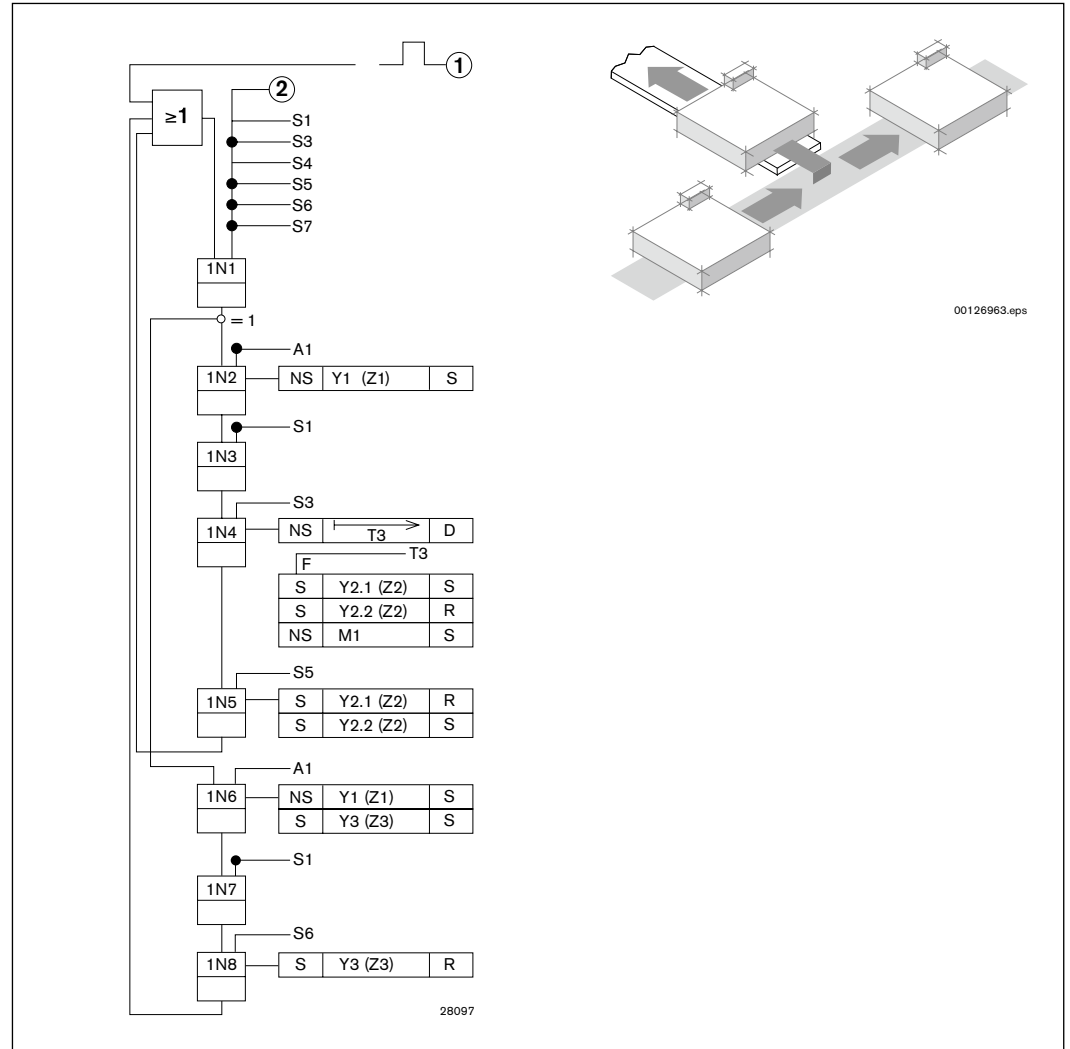
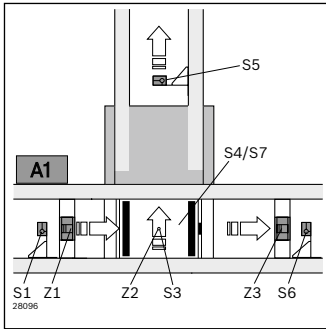
HQ lift transverse unit (stop gate, infeeding)



- | | | | | | |
|-----|---|-------------------------------|-----|---|--------------------------------------------------|
| T8 | = | Delaying time 100...200 ms | Y4 | = | VE secondary section (Z4) + DA main section (Z6) |
| S3 | = | Lift end position at bottom | Y5 | = | VE main section (Z5) |
| S4 | = | Lift end position at top | M1 | = | HQ motor |
| S6 | = | WT before VE (Z4) | P10 | = | Priority main section |
| S8 | = | WT on HQ | | | |
| S9 | = | Enable main section 2 | | | |
| S10 | = | WT in front of stop gate (Z5) | | | |
| Y3 | = | HQ lift cylinder (Z3) | | | |

Function plans

HQ lift transverse unit (separating, outfeeding)

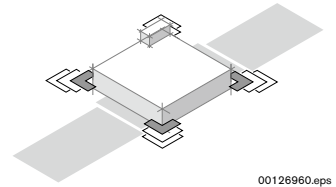
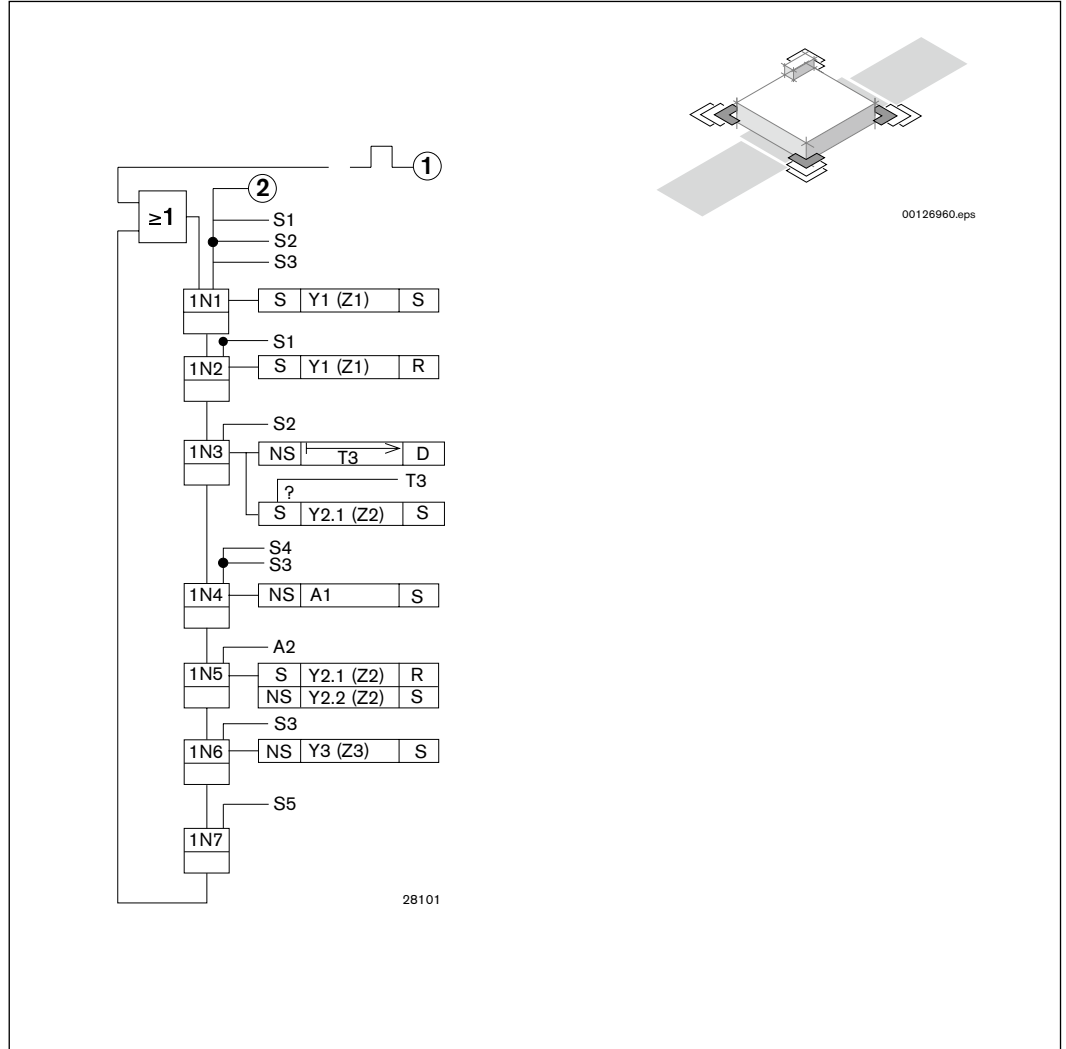
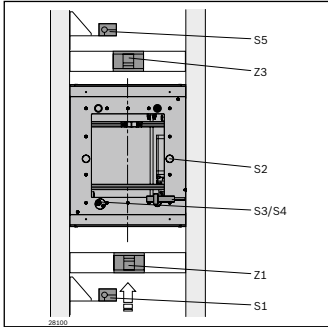


- T8 = Delaying time 100...200 ms
- S4 = Lift end position at bottom
- S7 = Lift end position at top
- S1 = WT before VE (Z1)
- S3 = WT on HQ
- S5 = Enable main section
- S6 = WT after stop gate (Z3)

- Y2 = HQ lift cylinder (Z2)
- Y1 = Main section VE (Z1)
- Y3 = VE main section (Z3)
- M1 = HQ motor
- A1 = Identification system with straight ahead signal

Function plans

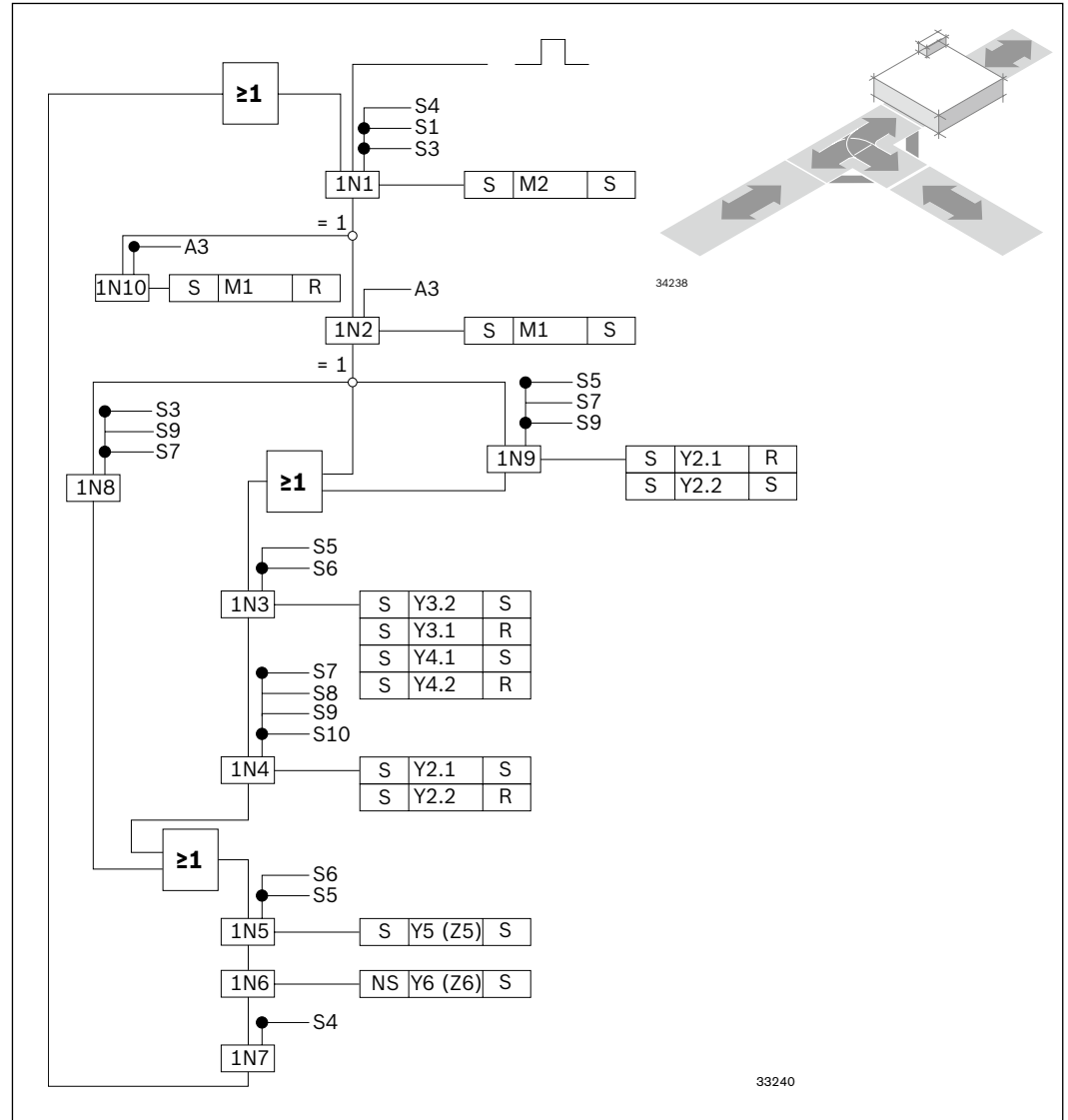
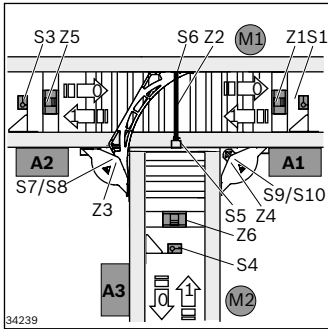
PE positioning unit



- S1 = WT before VE
- S2 = WT arrival
- S3 = End position of lift bottom
- S4 = End position of lift top
- S5 = WT after VE
- Y1 = Open VE (Z1)
- Y2 = WT lift (Z2)
- Y3 = Open VE (Z3)
- A1 = Start of processing
- A2 = End of processing

Function plans

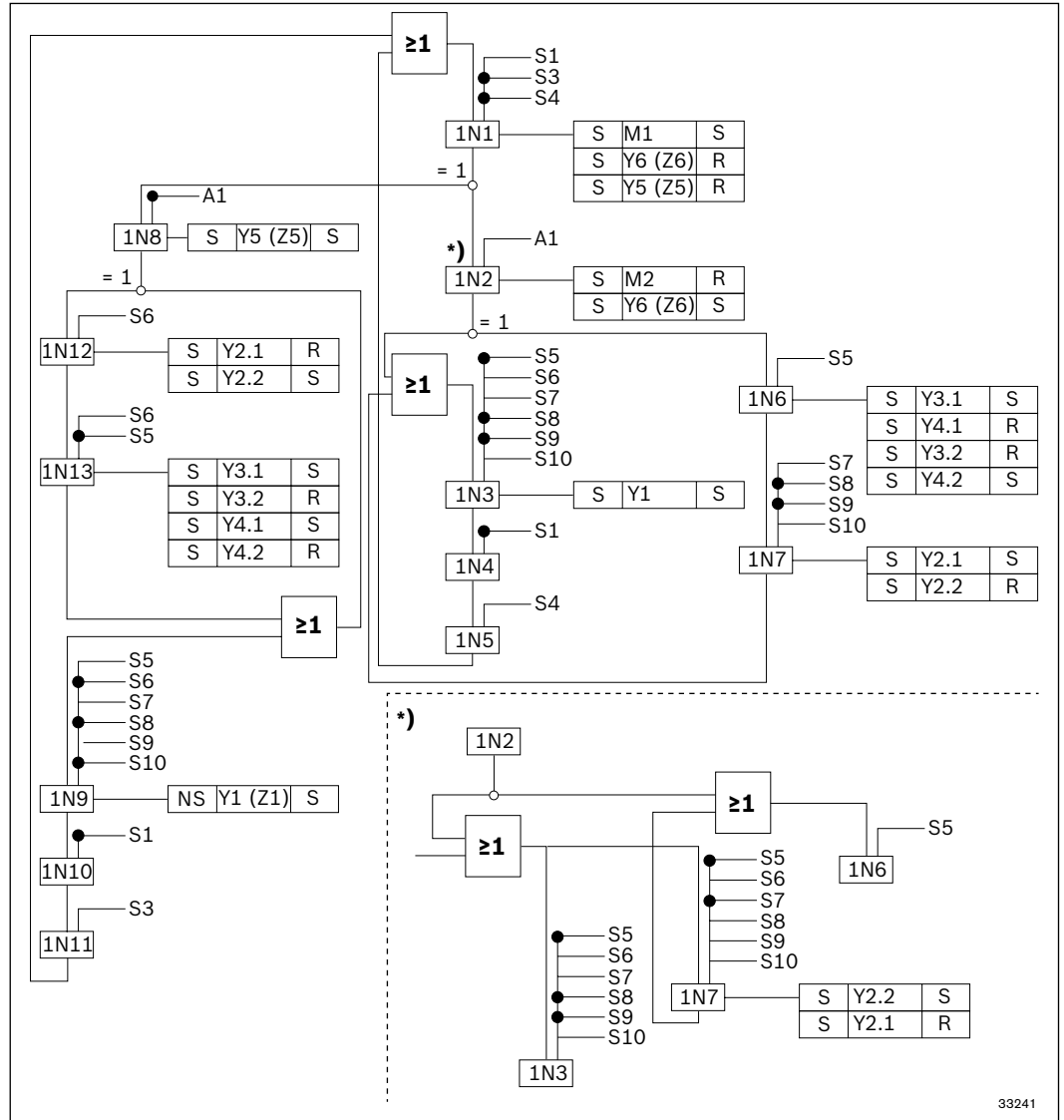
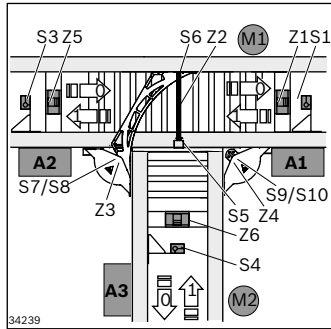
Three-way diverter



S5 = Diverter closed
 S6 = Diverter open
 S7 = Top
 S8 = Bottom
 S9 = Top
 S10 = Bottom
 A1/A2 = 0 = branch
 1 = straight on

A3 = 0 = right
 1 = left
 Y1, Y5, Y6 = Stop gate (Z1, Z5, Z6)
 Y2.1 = Open
 Y2.2 = Closed
 Y3.1 = Top
 Y3.2 = Bottom
 Y4.1 = Top

Y4.2 = Bottom
 M1 = 0 = right
 1 = left
 M2 = 0 = bottom
 1 = top



* Optional kit

S5 = Diverter closed
 S6 = Diverter open
 S7 = Top
 S8 = Bottom
 S9 = Top
 S10 = Bottom
 A1/A2 = 0 = branch
 1 = straight on

A3 = 0 = right
 1 = left
 Y1, Y5, Y6 = Stop gate (Z1, Z5, Z6)
 Y2.1 = Open
 Y2.2 = Closed
 Y3.1 = Top
 Y3.2 = Bottom
 Y4.1 = Top

Y4.2 = Bottom
 M1 = 0 = right
 1 = left
 M2 = 0 = bottom
 1 = top

Material Number Overview

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