

# Технические характеристики

## По вопросам продаж и поддержки обращайтесь:

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Нижний Новгород (831)429-08-12  
Киргизия (996)312-96-26-47

Новокузнецк (3843)20-46-81  
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Смоленск (4812)29-41-54  
Сочи (862)225-72-31  
Ставрополь (8652)20-65-13  
Сургут (3462)77-98-35  
Тверь (4822)63-31-35  
Томск (3822)98-41-53  
Тула (4872)74-02-29  
Тюмень (3452)66-21-18  
Ульяновск (8422)24-23-59  
Уфа (347)229-48-12  
Хабаровск (4212)92-98-04  
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Череповец (8202)49-02-64  
Ярославль (4852)69-52-93

# Subplates

**RE 45100**

Edition: 2019-05

Replaces: 2018-10



H8056

- ▶ Size 4 ... 32
- ▶ Component series 1X

## Features

The subplates are intended for the set-up of single valves and vertical stackings and are equipped with all ports. The delivery range includes sizes 4 ... 32 as a standard.

- ▶ Ready for connection
- ▶ Compact design
- ▶ Large number of variants
- ▶ Broad field of application
- ▶ Various frame sizes

## Contents

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**Ordering code**

01	02	03	04	05	06	07	08	09	10	11
<b>G</b>				- <b>1X</b> /			-			-

**Device type**

01	Subplate	<b>G</b>
----	----------	----------

**Size**

02	NG4	<b>04</b>
	NG5	<b>05</b>
	NG6	<b>06</b>
	NG10	<b>10</b>
	NG16	<b>16</b>
	NG20	<b>20</b>
	NG25	<b>25</b>
	NG30	<b>30</b>
	NG32	<b>32</b>

**Porting pattern**

03	Directional valves <b>with</b> one tank port, flow control valves	<b>A</b>
	Isolator, directional, pressure and flow control valves	<b>C</b>
	Isolator, directional, pressure and flow control valves	<b>D</b>
	Pressure relief valves	<b>E</b>
	Flow control valves	<b>G</b>
	Rexroth-specific hole pattern	<b>R</b>
	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03, with 4 mm locating pin bore	<b>U</b>
	Valves up to 630 bar	<b>V</b>

**Number of main ports**

04	2 main ports A, B / X, Y / P, T / P, A	<b>2</b>
	3 main ports P, A, T	<b>3</b>
	4 main ports P, A, B, T	<b>4</b>
05	Component series 10 ... 19 (10 ... 19: unchanged installation and connection dimensions)	<b>1X</b>

**Order example:****G10A2-1X/G3/8G1/4-SLJ5-SO699****Other versions are only possible after consultation.**

## Ordering code

01	02	03	04	05	06	07	08	09	10	11
<b>G</b>				- <b>1X</b> /			-			-

### Actuator ports P, A, B, T

06	Thread G1/4	<b>G1/4</b>
	Thread G3/8	<b>G3/8</b>
	Thread G3/4	<b>G3/4</b>
	Thread G1/2	<b>G1/2</b>
	Thread G1	<b>G1</b>
	Thread G1 1/4	<b>G1 1/4</b>
	Thread G1 1/2	<b>G1 1/2</b>
	Thread M14	<b>M14</b>
	Thread M18	<b>M18</b>
	Thread M22	<b>M22</b>
	Thread M27	<b>M27</b>
	Thread M33	<b>M33</b>
	Thread M48	<b>M48</b>
	Thread NPT 1/2	<b>NPT 1/2</b>
	Thread NPT 1	<b>NPT 1</b>
	Thread 7/8-12UNF	<b>UNF7/8-12</b>
	Thread 3/4-16UNF	<b>UNF3/4-16</b>
	Thread 9/16-18UNF	<b>UNF9/16-18</b>
	Thread 7/8-20UNF	<b>UNF7/8-20</b>
	Thread 7/16-20UNF	<b>UNF7/16-20</b>
	Thread 1 1/16-12UN	<b>UN1 1/16-12</b>
Thread 1 5/16-12UN	<b>UN1 5/16-12</b>	
Thread 1 5/8-12 UN	<b>UN1 5/8-12</b>	
Thread 1 7/8-12 UN	<b>UN1 7/8-12</b>	
Flange ISO 6164 DN19	<b>FL19</b>	
Flange ISO 6164 DN32	<b>FL32</b>	
Flange ISO 6164 DN51	<b>FL51</b>	

### Control system ports X, Y, L

07	Thread G1/4	<b>G1/4</b>
	Thread G3/8	<b>G3/8</b>
	Thread G1/2	<b>G1/2</b>
	Thread M14	<b>M14</b>
	Thread M18	<b>M18</b>
	Thread 7/16-20UNF	<b>UNF 20</b>
	Thread 9/16-18UNF	<b>UNF 18</b>

### Porting pattern

08	Rear ports	<b>no code</b>
	Lateral ports	<b>S</b>

### Design (outer dimensions)

09	Standard size	<b>no code</b>
	Small design "mini"	<b>M</b>
	Large design "large"	<b>L</b>

### Corrosion resistance

10	Standard	<b>no code</b>
	Improved corrosion protection (240 h in salt spray test according to DIN EN ISO 9227)	<b>J3</b>
	Maximum corrosion protection (720 h in salt spray test according to DIN EN ISO 9227)	<b>J5</b>

## Ordering code

01	02	03	04	05	06	07	08	09	10	11
G				- 1X	/			-		-

### Special versions

11	<b>With</b> additional port L	<b>SO003</b>
	Special hole pattern <b>with</b> leakage oil connection on top for 5-4WE 10 -5X/...	<b>SO331</b>
	High-pressure valves 500 bar	<b>SO699</b>
	Special hole pattern <b>without</b> port X but <b>with</b> leakage oil connection such as standard hole pattern for 5-4 WE 10 ..-5X/...	<b>SO771</b>
	Name plate on the opposite side	<b>SO001</b>

## Technical data

(for applications outside these values, please consult us!)

general	
Installation position	any (observe the valve details)
hydraulic	
Operating pressure	see details of the relevant subplate
Maximum admissible degree of contamination of the hydraulic fluid Cleanliness class according to ISO 4406 (c)	The cleanliness classes specified for the components must be adhered to in hydraulic systems. See data sheet of the valves to be installed.

Hydraulic fluid	Classification	Suitable sealing materials	Standards	Data sheet
Mineral oils	HL, HLP, HLPD, HVLP, HVLPD	NBR, FKM	DIN 51524	90220
Bio-degradable <sup>1)</sup>	▶ Insoluble in water	HETG	ISO 15380	90221
		HEES		
	▶ Soluble in water	HEPG	ISO 15380	
Flame-resistant	▶ Water-free	HFDU (glycol base)	ISO 12922	90222
		HFDU (ester base) <sup>1)</sup>		
	▶ Containing water <sup>1)</sup>	HFC (Fuchs Hydrotherm 46M, Petrofer Ultra Safe 620)	ISO 12922	90223



### Important information on hydraulic fluids:

- ▶ For further information and data on the use of other hydraulic fluids, please refer to the data sheets above or contact us.
- ▶ There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.).
- ▶ The ignition temperature of the hydraulic fluid used must be 50 K higher than the maximum solenoid surface temperature.

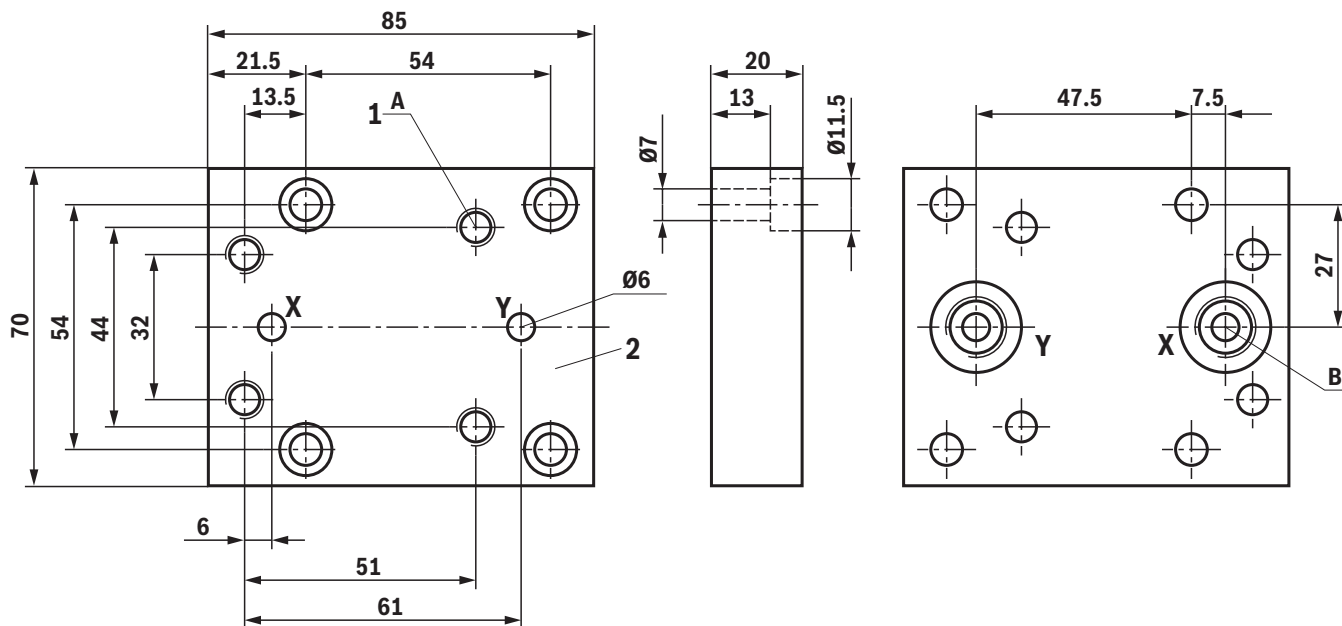
### ▶ Flame-resistant – containing water:

- Life cycle as compared to operation with mineral oil HL, HLP 30 ... 100%
- Maximum hydraulic fluid temperature 60 °C

<sup>1)</sup> Small amounts of dissolved zinc may get into the hydraulic system during use.

Uncoated subplates available on request.

**Dimensions**  
(dimensions in mm)

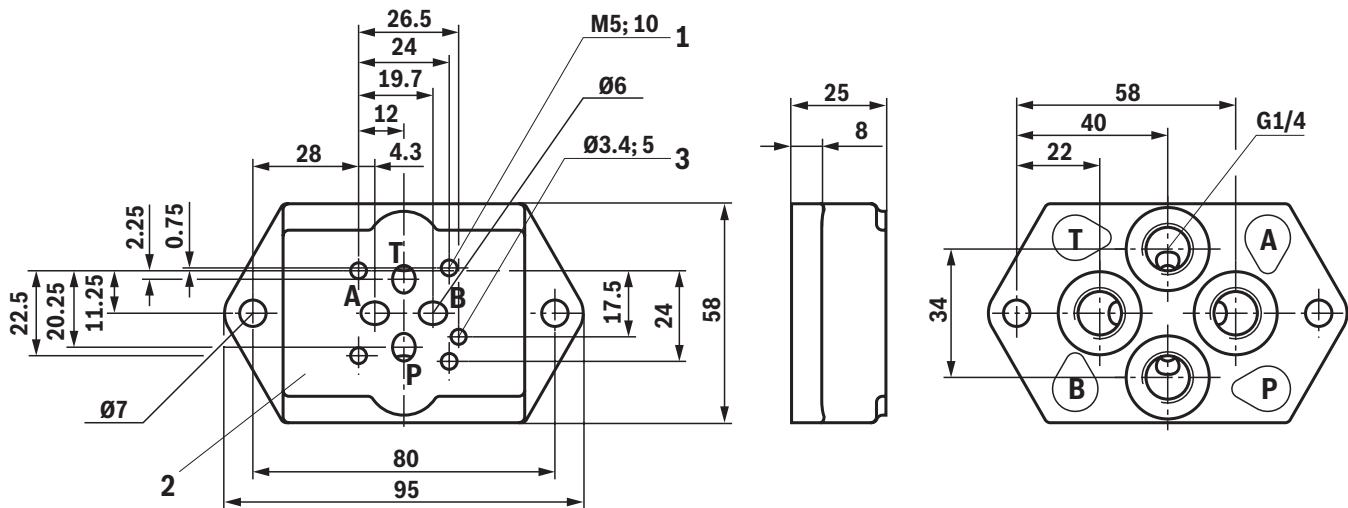


- 1 Valve mounting thread
- 2 Valve contact surface

Denomination	Material number	A		B		Weight in kg	$p_{max}$ in bar
		Thread	Recess $\varnothing$	Thread	Recess $\varnothing$		
G04R2-1X/G1/4	R900447986	M8; 12 deep	20	G1/4	20	0.8	350
G04R2-1X/UNF20	R900371166	5/16UNC; 12 deep	21	7/16-20UNF	21	0.8	350

**Dimensions**

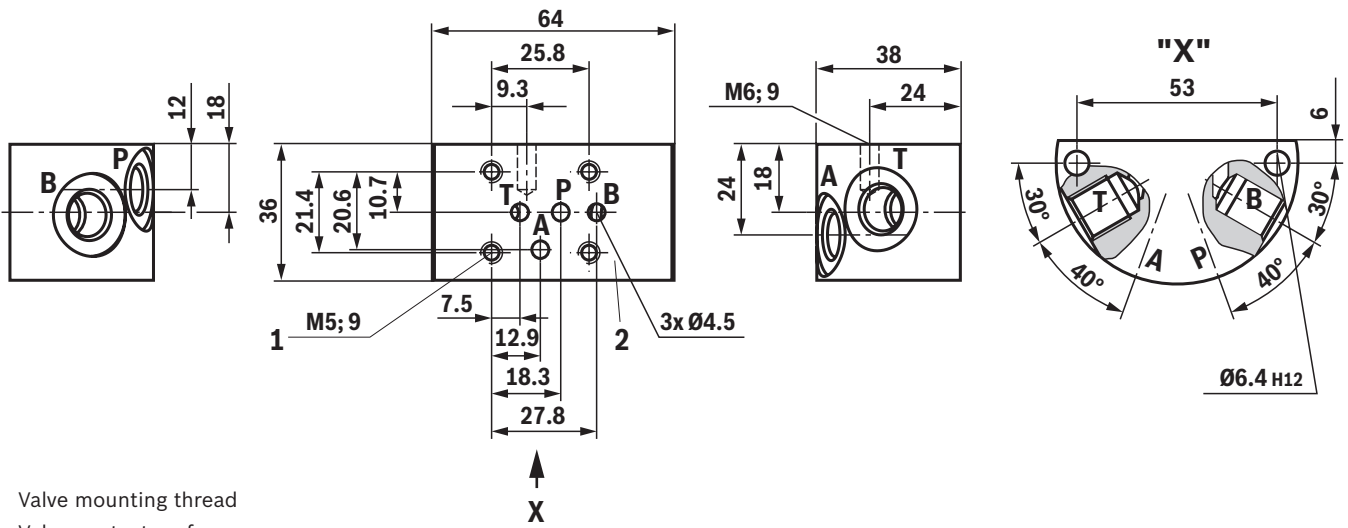
(dimensions in mm)



- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

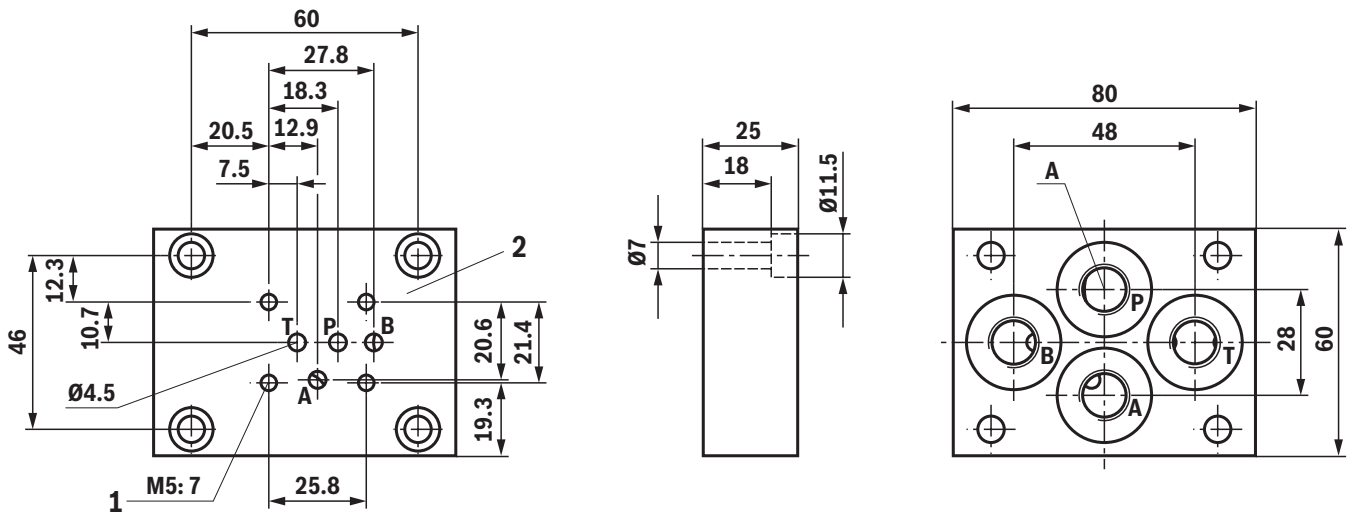
Denomination	Material number	Thread	A Recess Ø	Weight in kg	$P_{max}$ in bar
G04U4-1X/G1/4	R900527276	G1/4	22	0.6	350

**Dimensions**  
(dimensions in mm)



- 1 Valve mounting thread
- 2 Valve contact surface

Denomination	Material number	Thread	A	Recess Ø	Weight in kg	$p_{max}$ in bar
G05C4-1X/G1/4-S	R900424464	G1/4		22	0.5	350

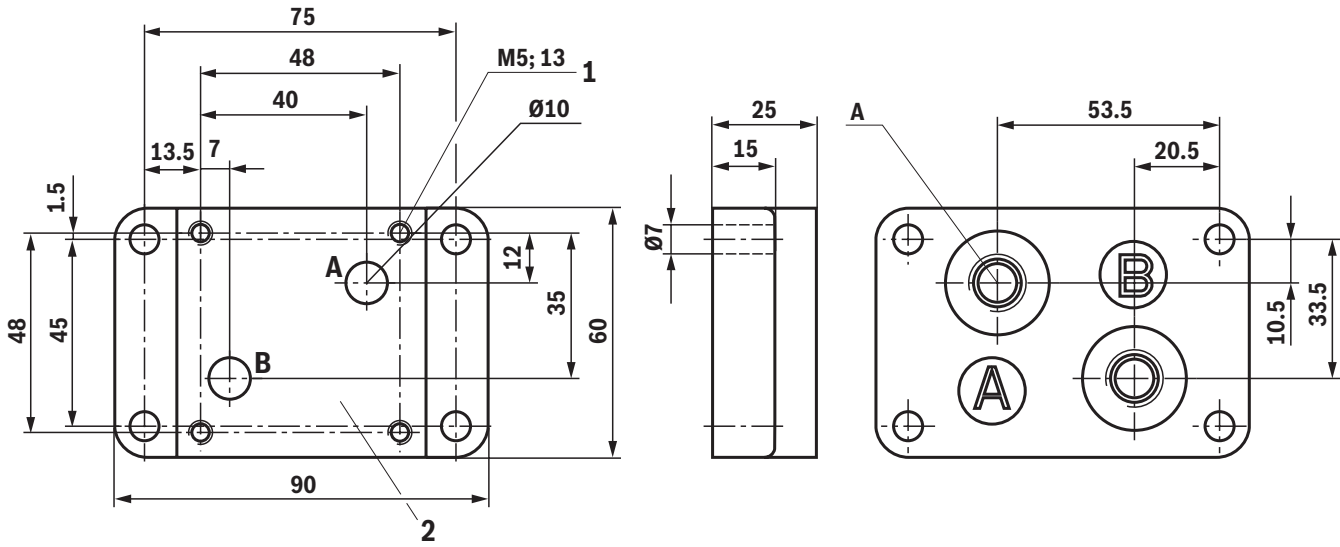


- 1 Valve mounting thread
- 2 Valve contact surface

Denomination	Material number	Thread	A	Recess Ø	Weight in kg	$p_{max}$ in bar
G05C4-1X/G1/4	R900424379	G1/4		25	0.7	350



**Dimensions**  
(dimensions in mm)

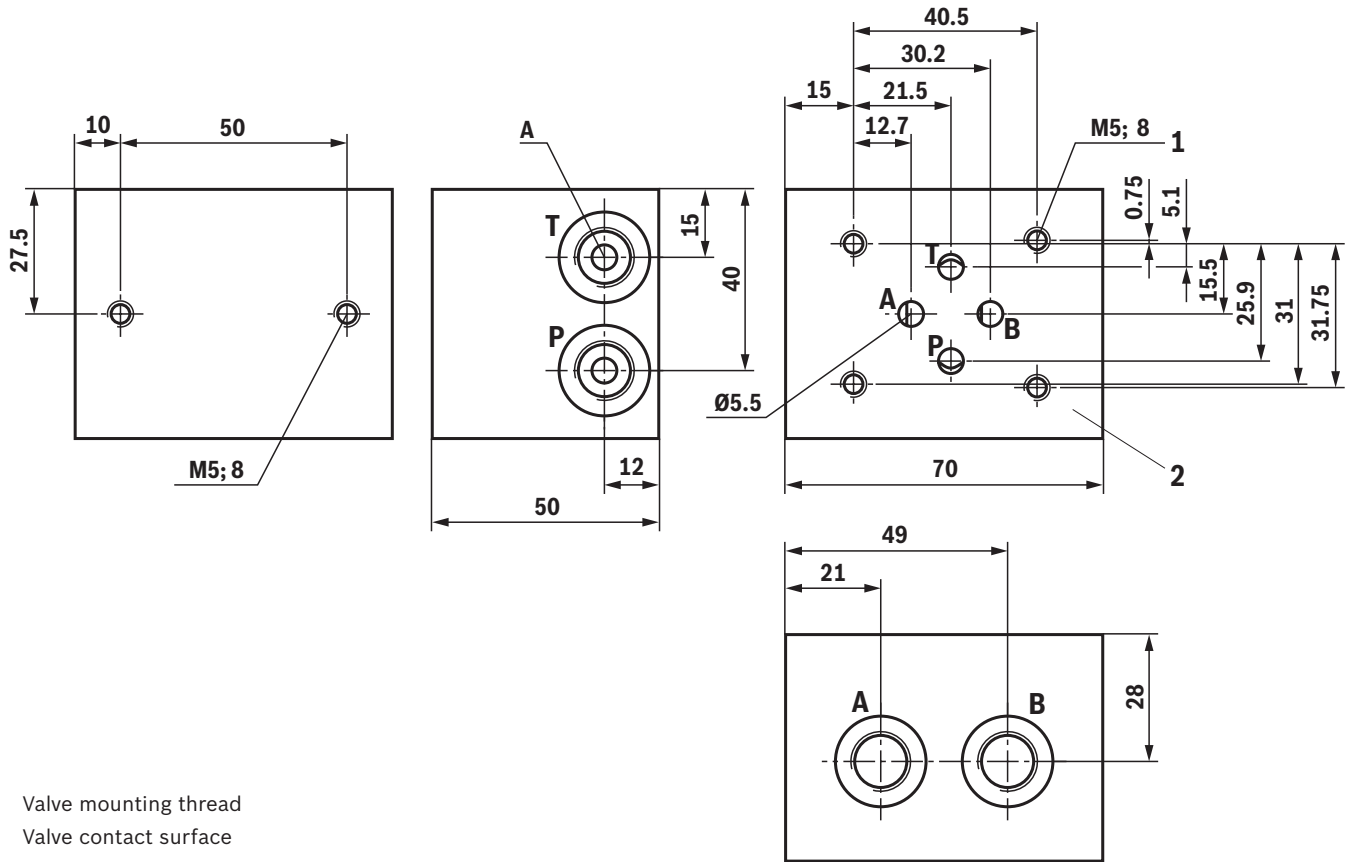


- 1 Valve mounting thread
- 2 Valve contact surface

Denomination	Material number	Thread	A	Weight in kg	$p_{max}$ in bar
			Recess Ø		
G05G2-1X/G1/4	R900424453	G1/4	25	0.8	210
G05G2-1X/G1/2	R900424455	G1/2	34	0.8	210



**Dimensions**  
(dimensions in mm)

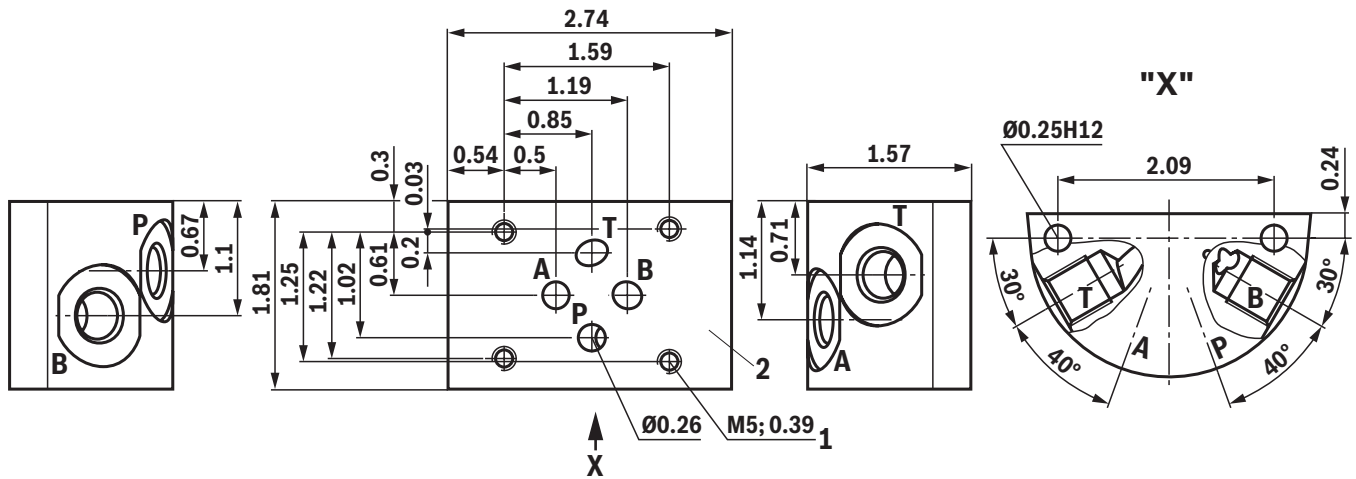


- 1 Valve mounting thread
- 2 Valve contact surface

Denomination	Material number	Thread	A		Weight in kg	$p_{max}$ in bar
				Recess $\emptyset$		
G06A4-1X/G1/4-SL	R900422653	G1/4		20	1.4	420
G06A4-1X/G1/4-SL-J3	R901496781	G1/4		20	1.4	420

## Dimensions

(dimensions in mm)

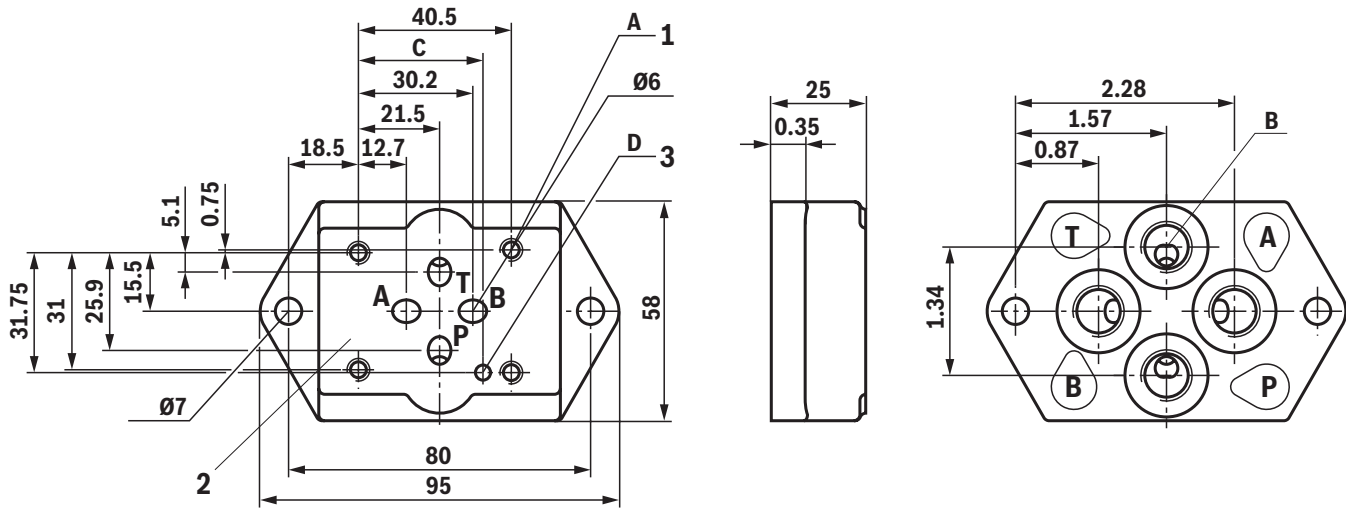


- 1 Valve mounting thread  
2 Valve contact surface

Denomination	Material number	Thread	A Recess Ø	Weight in kg	$p_{max}$ in bar
G06A4-1X/G1/4-S	R900617691	G1/4	25	0.61	350
G06A4-1X/G1/4-S-SO001	R901320140	G1/4	25	0.61	350

**Dimensions**

(dimensions in mm)

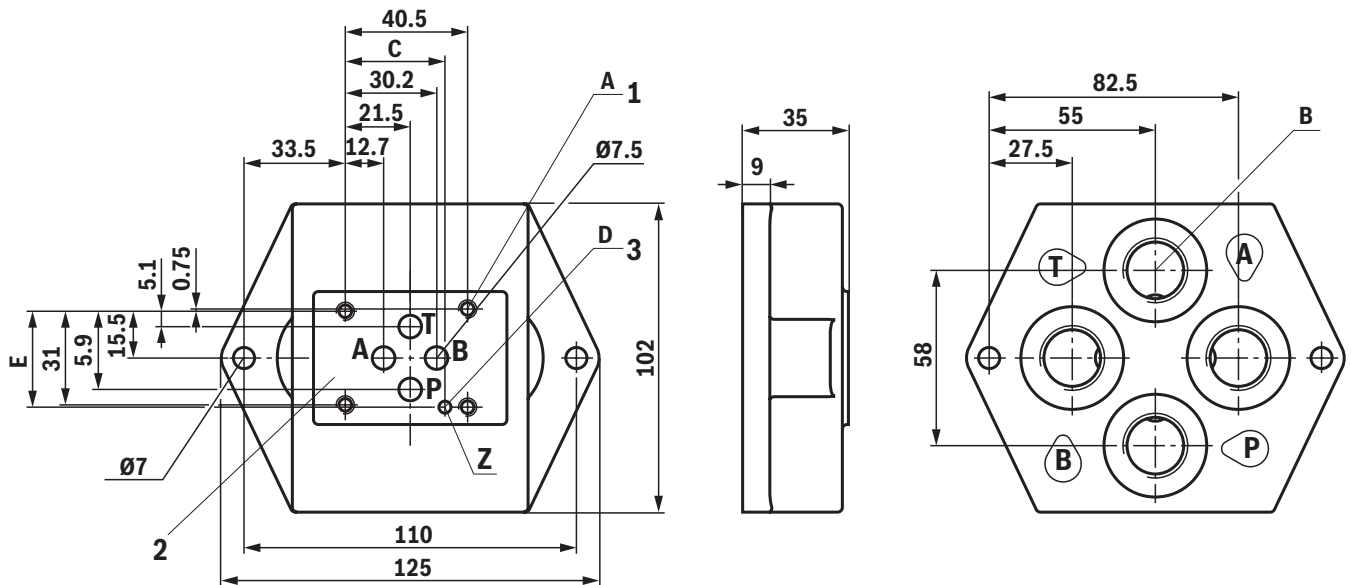


- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A	B		C	D	Weight in kg	p <sub>max</sub> in bar
			Thread	Recess Ø				
G06A4-1X/G1/4-L	R900424447	M5; 10 deep	G1/4	22	-	-	0.6	350
G06A4-1X/G1/4-J3	R900510636	M5; 10 deep	G1/4	22	-	-	0.6	350
G06A4-1X/M14-L	R900444738	M5; 10 deep	M14 x 1,5	22	-	-	0.6	350
G06A4-1X/UNF9/16-18-M	R900341065	10-24UNC; 10 deep	9/16-18UNF	25	-	-	0.6	350
G06A4-1X/UNF9/16-18-MJ3	R901439683	10-24UNC; 10 deep	9/16-18UNF	25	-	-	0.6	350
G06U4-1X/G1/4	R901027119	M5; 10 deep	G1/4	22	33	Ø 4; 4 deep	0.7	350
G06U4-1X/G1/4-J3	R901439682	M5; 10 deep	G1/4	22	33	Ø 4; 4 deep	0.7	350

## Dimensions

(dimensions in mm)

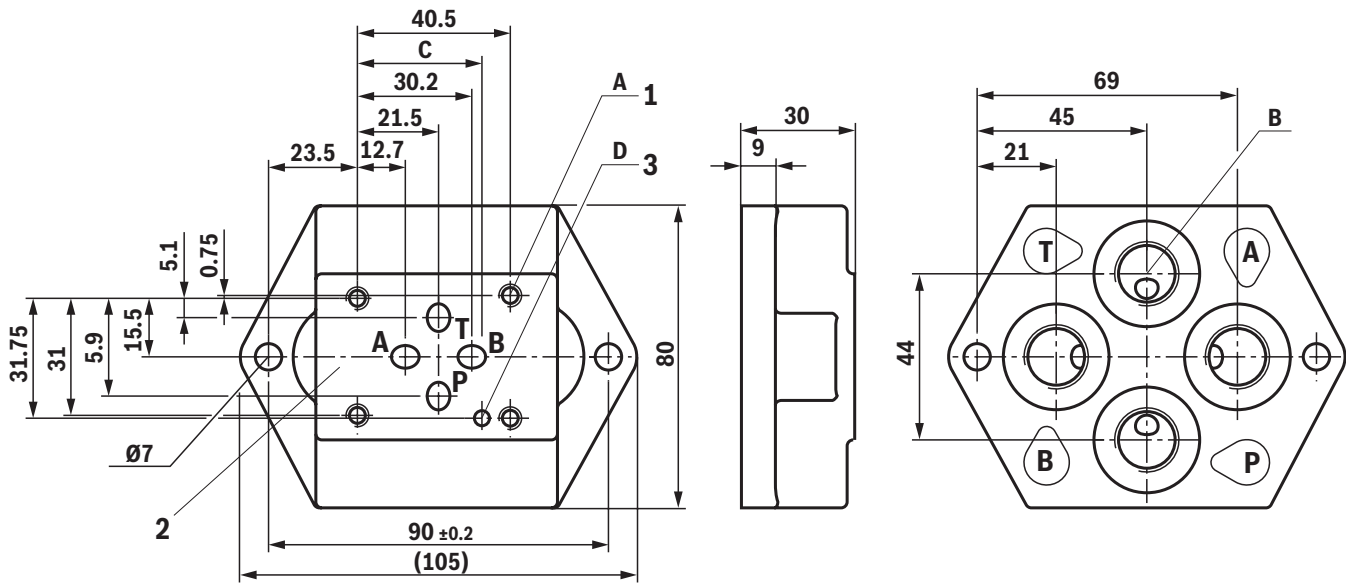


- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A	B		C	D	E	Weight in kg	$p_{max}$ in bar
			Thread	Recess $\varnothing$					
G06A4-1X/M22	R900469970	M5; 10 deep	M22 x 1,5	34	-	-	-	1.9	350
G06A4-1X/NPT1/2	R900494326	M5; 10 deep	NPT 1/2	-	-	-	-	1.9	350
G06A4-1X/G1/2-M	R900455110	M5; 10 deep	G1/2	34	-	-	-	1.9	350
G06A4-1X/G1/2-J3	R900519180	M5; 10 deep	G1/2	34	-	-	-	1.9	350
G06A4-1X/UNF3/4-16-L	R900487397	10-24UNC; 10 deep	3/4-16UNF	32	-	-	-	1.9	350
G06A4-1X/UNF3/4-16-LJ3	R901439687	10-24UNC; 10 deep	3/4-16UNF	32	-	-	-	1.9	350
G06U4-1X/G1/2	R901037457	M5; 10 deep	G1/2	34	33	$\varnothing 4$ ; 4 deep	31.75	1.9	350
G06U4-1X/G1/2-J3	R901439686	M5; 10 deep	G1/2	34	33	$\varnothing 4$ ; 4 deep	31.75	1.9	350

**Dimensions**

(dimensions in mm)

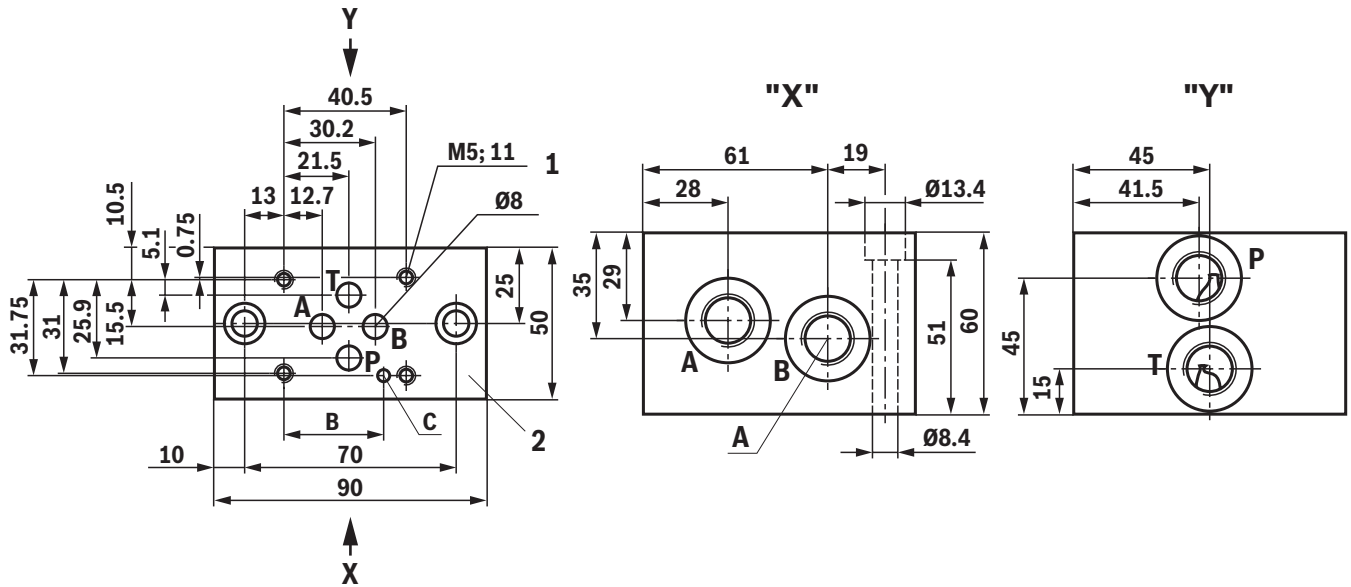


- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A	B		C	D	Weight in kg	$p_{max}$ in bar
			Thread	Recess Ø				
G06A4-1X/G3/8	R900424448	M5; 10 deep	G3/8	28	-	-	1.1	350
G06A4-1X/G3/8-J3	R900511297	M5; 10 deep	G3/8	28	-	-	1.1	350
G06A4-1X/M18	R900445838	M5; 10 deep	M18 x 1,5	25	-	-	1.1	350
G06A4-1X/UNF3/4-16-M	R900455128	10-24UNC; 10 deep	3/4-16UNF	30	-	-	1.1	350
G06A4-1X/UNF3/4-16-MJ3	R901439685	10-24UNC; 10 deep	3/4-16UNF	30	-	-	1.1	350
G06U4-1X/G3/8	R901043861	M5; 10 deep	G3/8	28	33	Ø 4; 4 deep	1.1	350
G06U4-1X/G3/8-J3	R901439684	M5; 10 deep	G3/8	28	33	Ø 4; 4 deep	1.1	350

## Dimensions

(dimensions in mm)

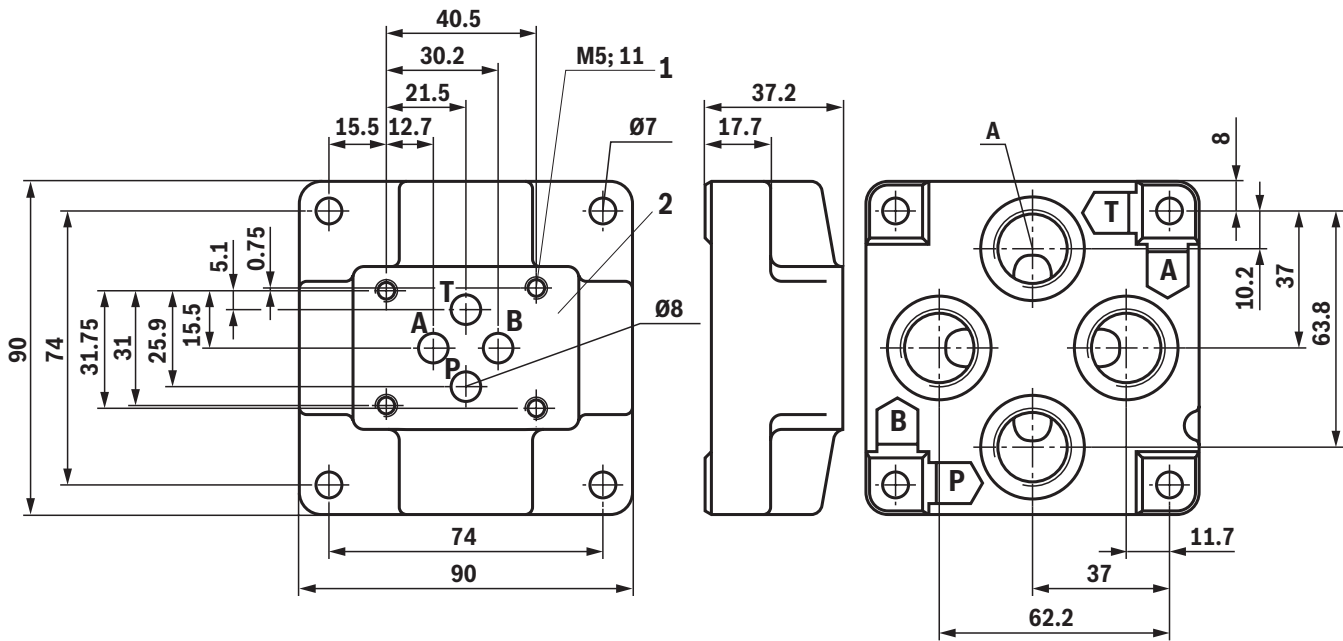


- 1 Valve mounting thread  
2 Valve contact surface

Denomination	Material number	Thread	A Recess Ø	B	C	Weight in kg	$p_{max}$ in bar
G06A4-1X/G3/8-S	R901099691	G3/8	28	-	-	1.7	350
G06U4-1X/G3/8-S	R901107321	G3/8	28	33	4	1.7	350



**Dimensions**  
(dimensions in mm)

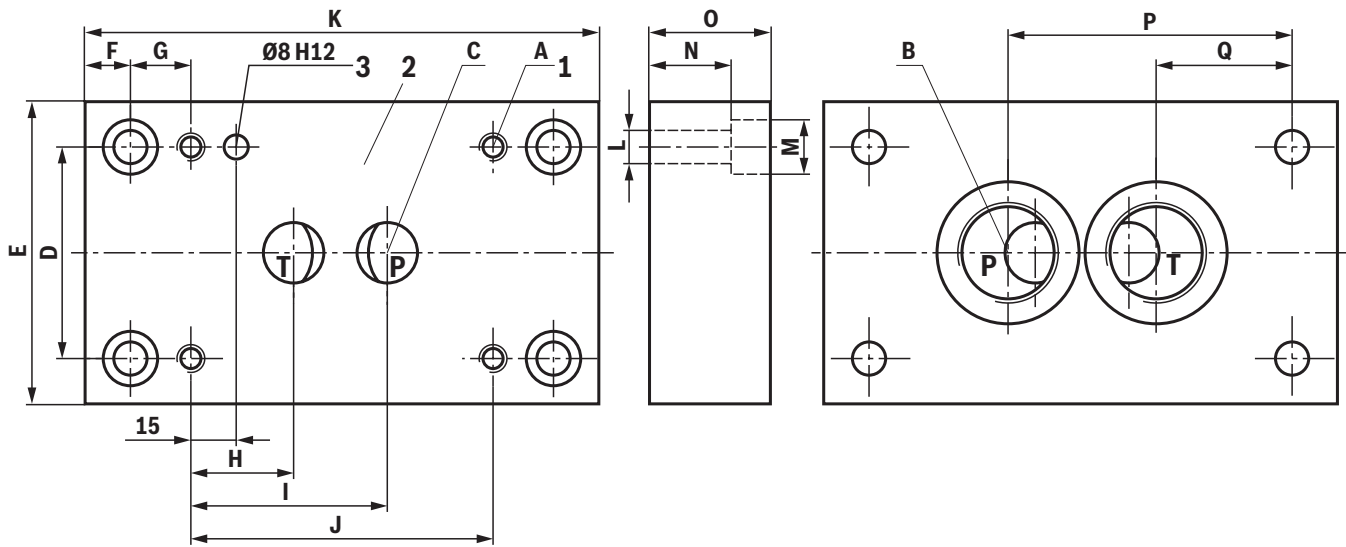


- 1 Valve mounting thread
- 2 Valve contact surface

Denomination	Material number	Thread	A	Recess Ø	Weight in kg
G06A4-1X/G1/2-L	R901099689	G1/2		28	1.4

## Dimensions

(dimensions in mm)



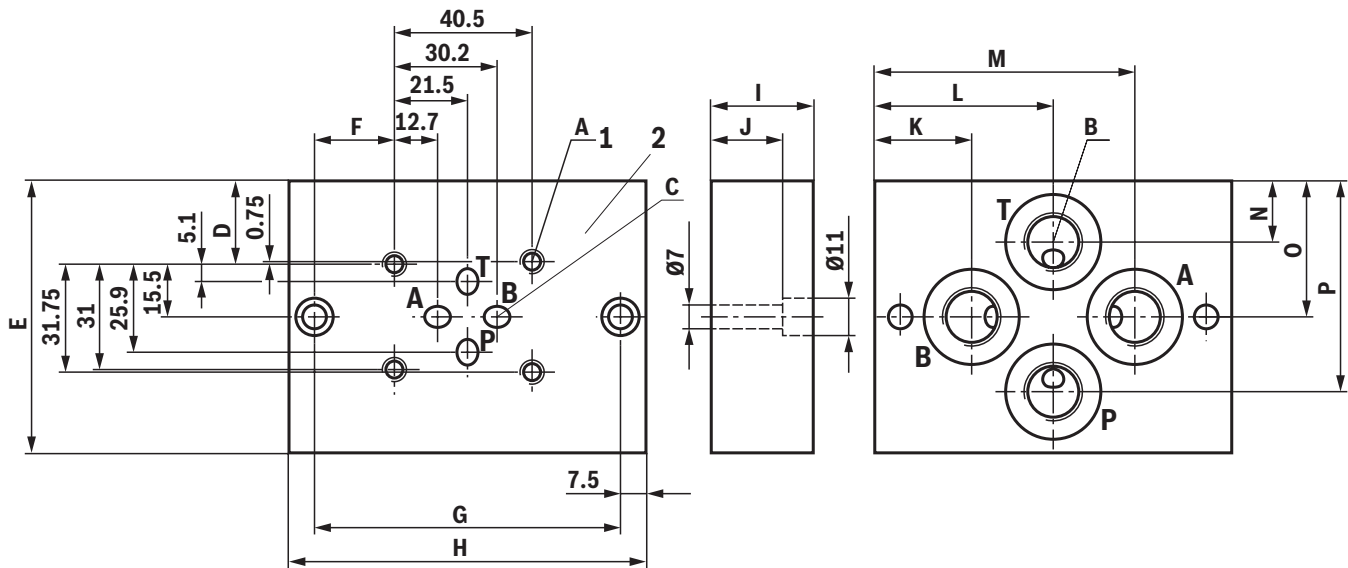
- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A	B		C	D	E	F	G
			Thread	Recess Ø					
G06E2-1X/G1/4	R900425176	M6; 15 deep	G1/4	25	6	45	60	8	22
G06E2-1X/UNF7/16-20	R900497212	M6; 15 deep	7/16-20UNF	21	6	45	60	8	22
G10E2-1X/G3/8	R901092884	M8; 12 deep	G3/8	25	10	60	80	10	27.5
G10E2-1X/G1/2	R901092905	M8; 15 deep	G1/2	34	10	60	80	10	27.5
G20E2-1X/G3/4	R900422645	M8; 22 deep	G3/4	42	15	70	100	15	20
G20E2-1X/G1	R900422646	M8; 22 deep	G1	47	20	70	100	15	20
G30E2-1X/G1 1/4	R900424755	M10; 22 deep	G1 1/4	58	30	100	130	12.5	17.5
G30E2-1X/G1 1/2	R900422647	M10; 22 deep	G1 1/2	65	30	100	130	12.5	17.5

Denomination	H	I	J	K	L	M	N	O	P	Q	Weight in kg	p <sub>max</sub> in bar
G06E2-1X/G1/4	20	40	55	110	6.6	11	16	25	73	47	1.1	400
G06E2-1X/UNF7/16-20	20	40	55	110	6.6	11	16	25	73	47	1.1	400
G10E2-1X/G3/8	21	45	70	135	6.6	11	16	25	90.5	50.5	2.0	630
G10E2-1X/G1/2	21	45	70	135	6.6	11	16	25	90.5	50.5	2.0	630
G20E2-1X/G3/4	34	65	100	170	11	18	27	40	96	60	4.5	400
G20E2-1X/G1	34	65	100	170	11	18	27	40	96	60	4.5	400
G30E2-1X/G1 1/4	35	85	130	190	11	18	28.5	40	125.5	54.5	6.3	315
G30E2-1X/G1 1/2	35	85	130	190	11	18	28.5	40	125.5	54.5	6.1	315

**Dimensions**

(dimensions in mm)



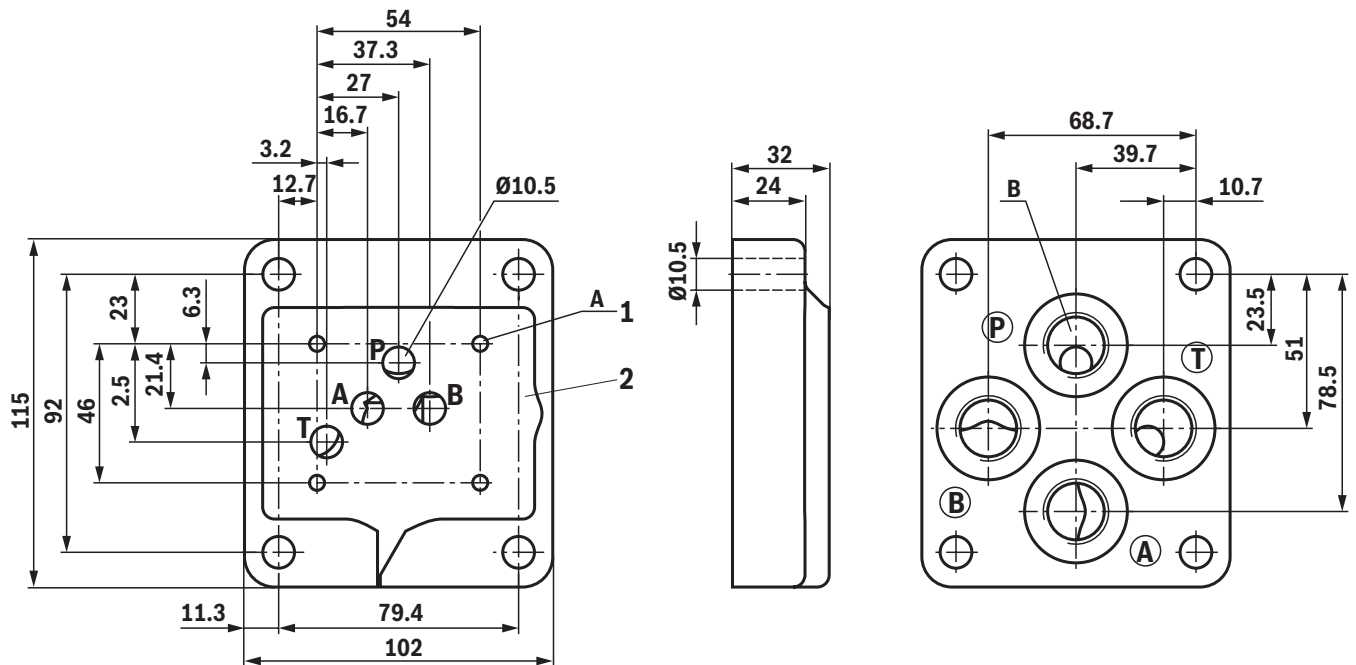
- 1 Valve mounting thread
- 2 Valve contact surface

Denomination	Material number	A	B		C	D	E	F
			Thread	Recess Ø				
G06A4-1X/G1/4-SO699	R901410336	M6; 10 deep	G1/4	22	6	13.5	58	18.5
G06V4-1X/G1/4	R900356736	M6; 10 deep	G1/4	22	6.2	13.5	58	18.5
G06V4-1X/G3/8	R900358639	M6; 10 deep	G3/8	28	6.2	24.5	80	23.5

Denomination	G	H	I	J	K	L	M	N	O	P	Weight in kg	p <sub>max</sub> in bar
G06A4-1X/G1/4-SO699	80	95	25	16	29.5	47.5	65.5	12	29	46	1.0	500
G06V4-1X/G1/4	80	95	25	16	29.5	47.5	65.5	12	29	46	1.0	630
G06V4-1X/G3/8	90	105	30	21	28.5	52.5	76.5	18	40	62	1.8	630

## Dimensions

(dimensions in mm)

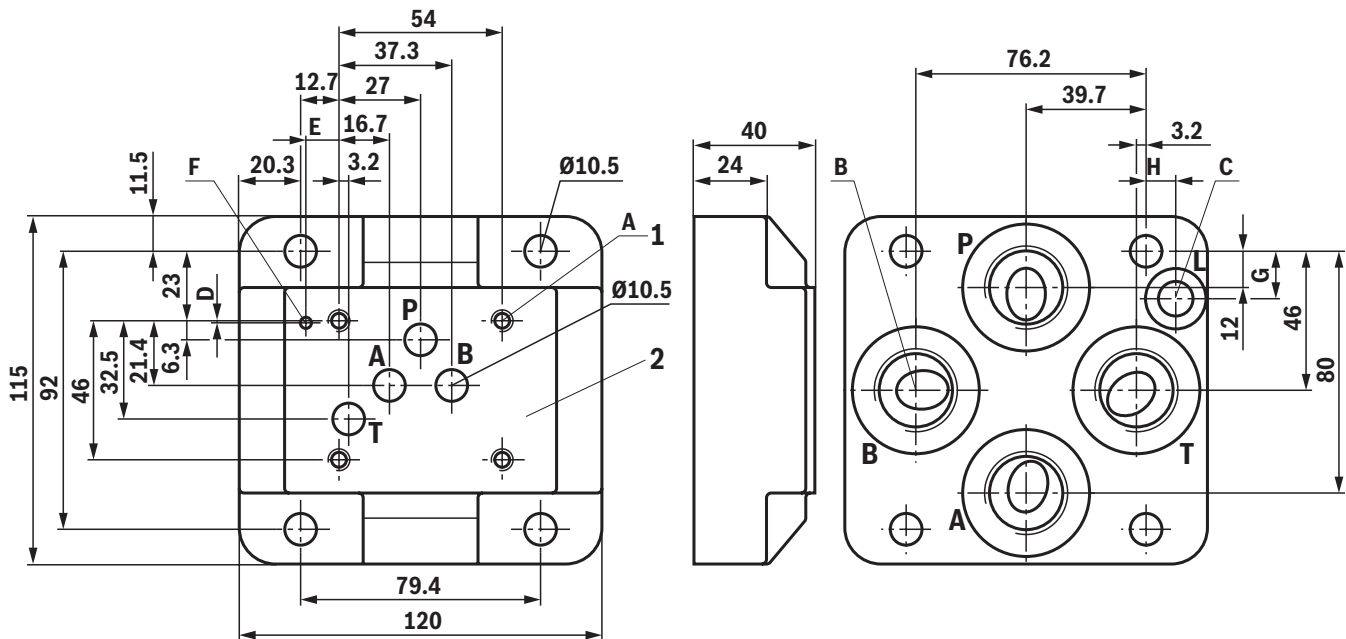


- 1 Valve mounting thread  
2 Valve contact surface

Denomination	Material number	A	B		Weight in kg
			Thread	Recess Ø	
G10A4-1X/G3/8	R900424457	M6; 12 deep	G3/8	28	2.2
G10A4-1X/G3/8-J3	R900339374	M6; 12 deep	G3/8	28	2.2
G10A4-1X/G1/2	R900424460	M6; 12 deep	G1/2	34	2.2
G10A4-1X/G1/2-J3	R900436900	M6; 12 deep	G1/2	34	2.2
G10A4-1X/M18	R900474063	M6; 12 deep	M18 x 1,5	28	2.2
G10A4-1X/UNF9/16-18	R900460655	1/4-20UNC; 12 deep	9/16-18UNF	25	2.2
G10A4-1X/UNF3/4-16	R900460656	1/4-20UNC; 12 deep	3/4-16UNF	30	2.2

**Dimensions**

(dimensions in mm)



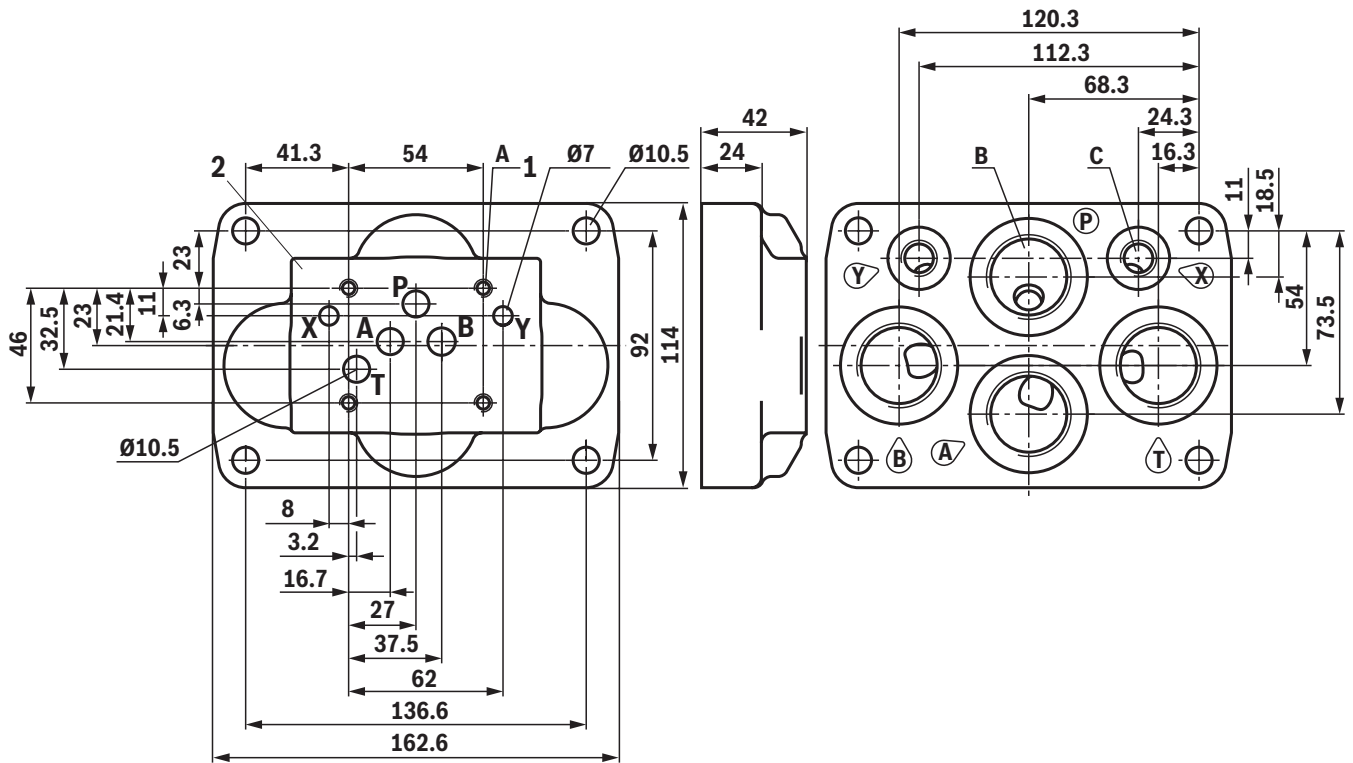
- 1 Valve mounting thread
- 2 Valve contact surface

Denomination	Material number	A		B	
		Thread	Recess Ø	Thread	Recess Ø
G10A4-1X/G1/2-L	R900568135	M6; 12 deep		G1/2	34
G10A4-1X/G1/2G1/4-SO331	R901098950	M6; 12 deep		G1/2	34
G10A4-1X/G3/4	R900467259	M6; 12 deep		G3/4	42
G10A4-1X/G3/4-J3	R900382284	M6; 12 deep		G3/4	42
G10A4-1X/G3/4G1/4-SO331	R901088735	M6; 12 deep		G3/4	42
G10A4-1X/UN1 1/16-12UNF20-S	R900487398	1/4-20UNC; 12 deep		1 1/16-12UN	41

Denomination	Thread	C Recess Ø	D	E	F	G	H	Weight in kg	$p_{max}$ in bar
G10A4-1X/G1/2-L	-	-	-	-	-	-	-	3.0	315
G10A4-1X/G1/2G1/4-SO331	G1/4	20	0.5	11	3.7	16	9.8	3.0	
G10A4-1X/G3/4	-	-	-	-	-	-	-	3.0	
G10A4-1X/G3/4-J3	-	-	-	-	-	-	-	3.0	
G10A4-1X/G3/4G1/4-SO331	G1/4	20	0.5	11	3.7	16	9.8	3.0	
G10A4-1X/UN1 1/16-12	-	-	-	-	-	-	-	3.0	

## Dimensions

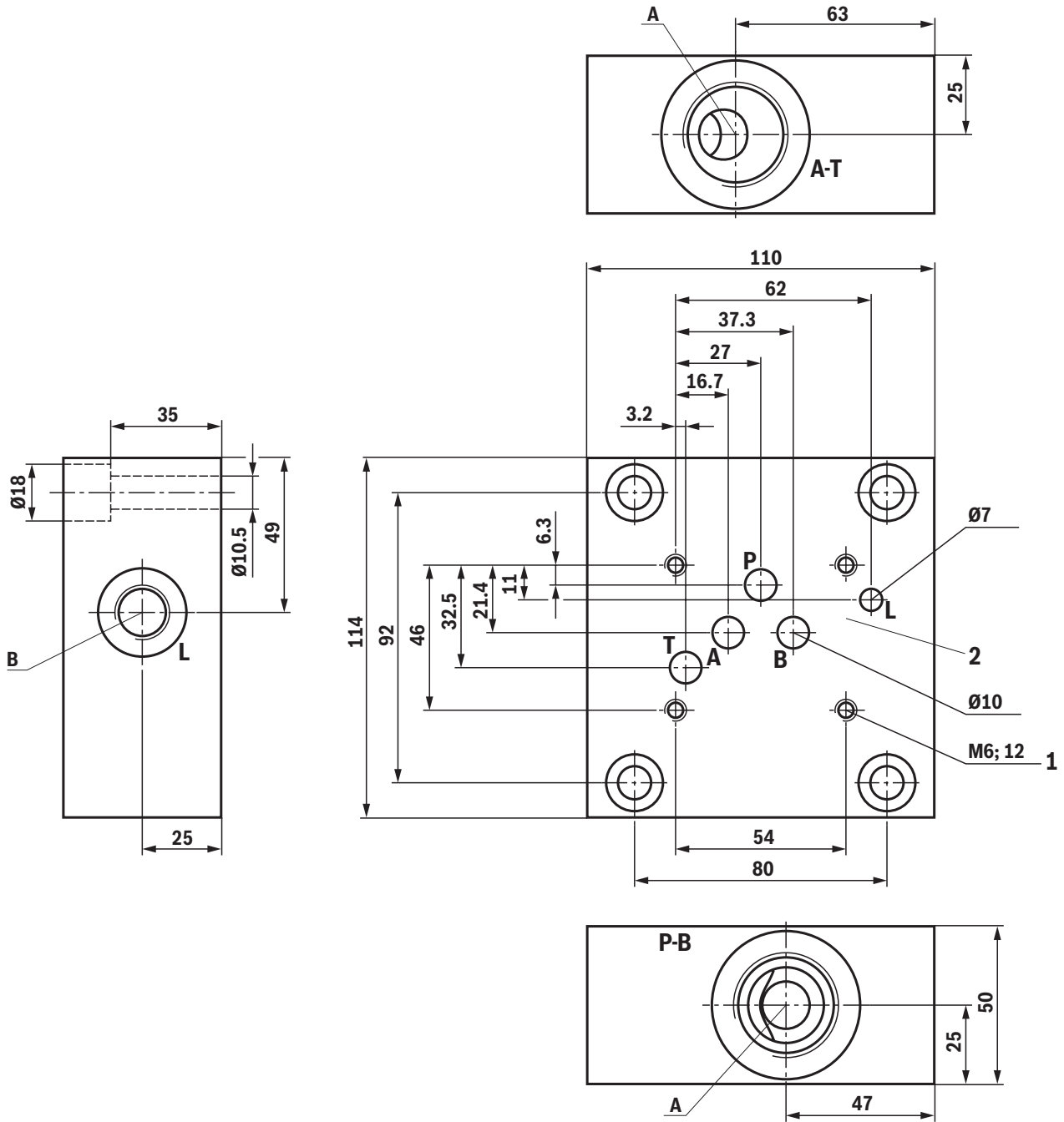
(dimensions in mm)



- 1 Valve mounting thread
- 2 Valve contact surface

Denomination	Material number	A	B		C		Weight in kg
			Thread	Recess Ø	Thread	Recess Ø	
G10A4-1X/G3/4G1/4	R900476061	M6; 12 deep	G3/4	42	G1/4	25	4.1
G10A4-1X/G3/4G1/4-J3	R900336998	M6; 12 deep	G3/4	42	G1/4	25	4.1
G10A4-1X/G1G1/4	R900476059	M6; 12 deep	G1	47	G1/4	25	3.8
G10A4-1X/G1G1/4-J3	R901439664	M6; 12 deep	G1	47	G1/4	25	3.8
G10A4-1X/M27M14	R900339376	M6; 12 deep	M27 x 2	42	M14 x 1,5	25	4.1
G10A4-1X/M33M14	R900489146	M6; 12 deep	M33 x 2	47	M14 x 1,5	25	3.8
G10A4-1X/UN1 1/16-12UNF20	R900340150	1/4-20UNC	1 1/16-12UN	41	7/16-20UNF	21	4.1
G10A4-1X/UN1 5/16-12UNF20	R900339737	1/4-20UNC	1 5/16-12UN	49	7/16-20UNF	21	4.1

**Dimensions**  
(dimensions in mm)

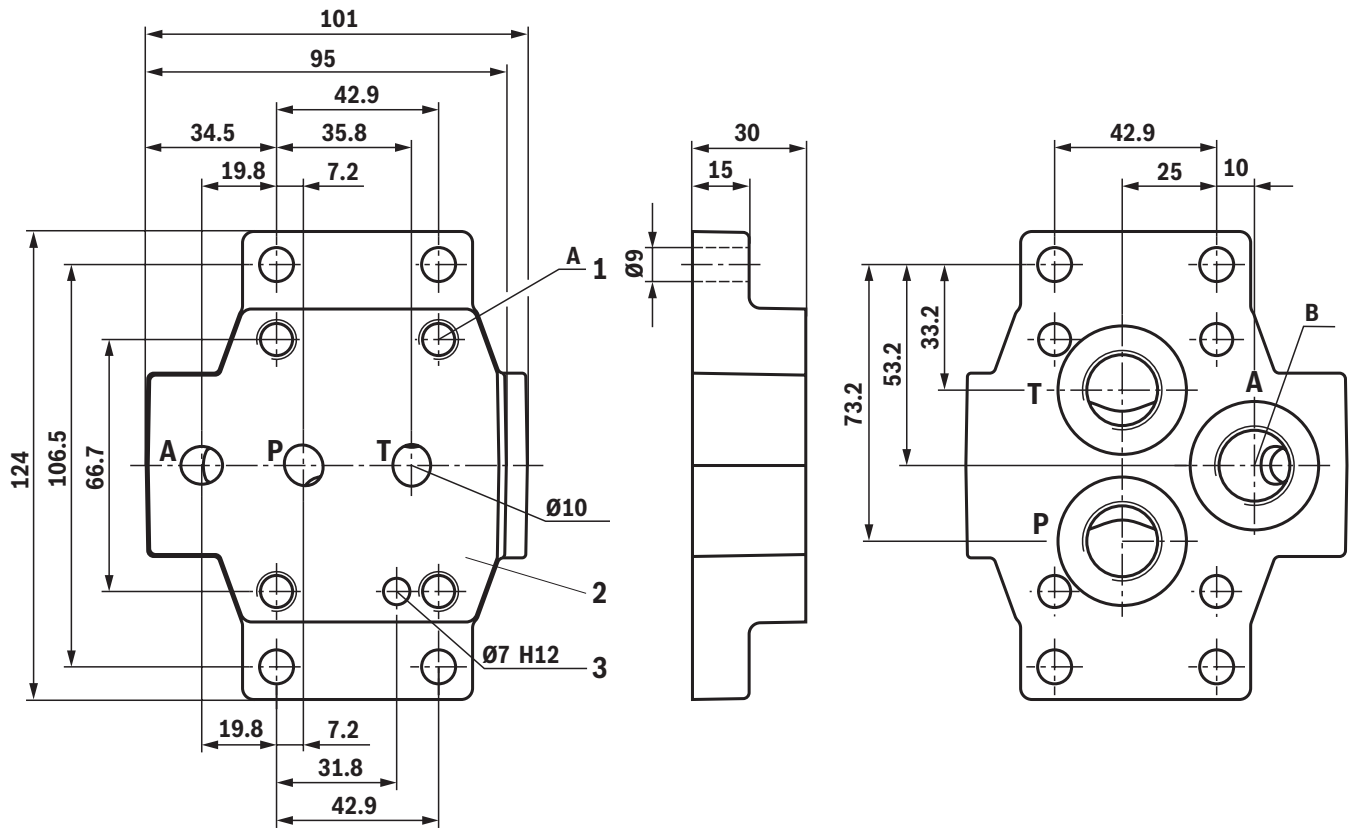


- 1 Valve mounting thread
- 2 Valve contact surface

Denomination	Material number	A		B		Weight in kg
		Thread	Recess Ø	Thread	Recess Ø	
G10A4-1X/G1G3/8-S-SO771	R900332829	G1	47	G3/8	28	3.8

## Dimensions

(dimensions in mm)



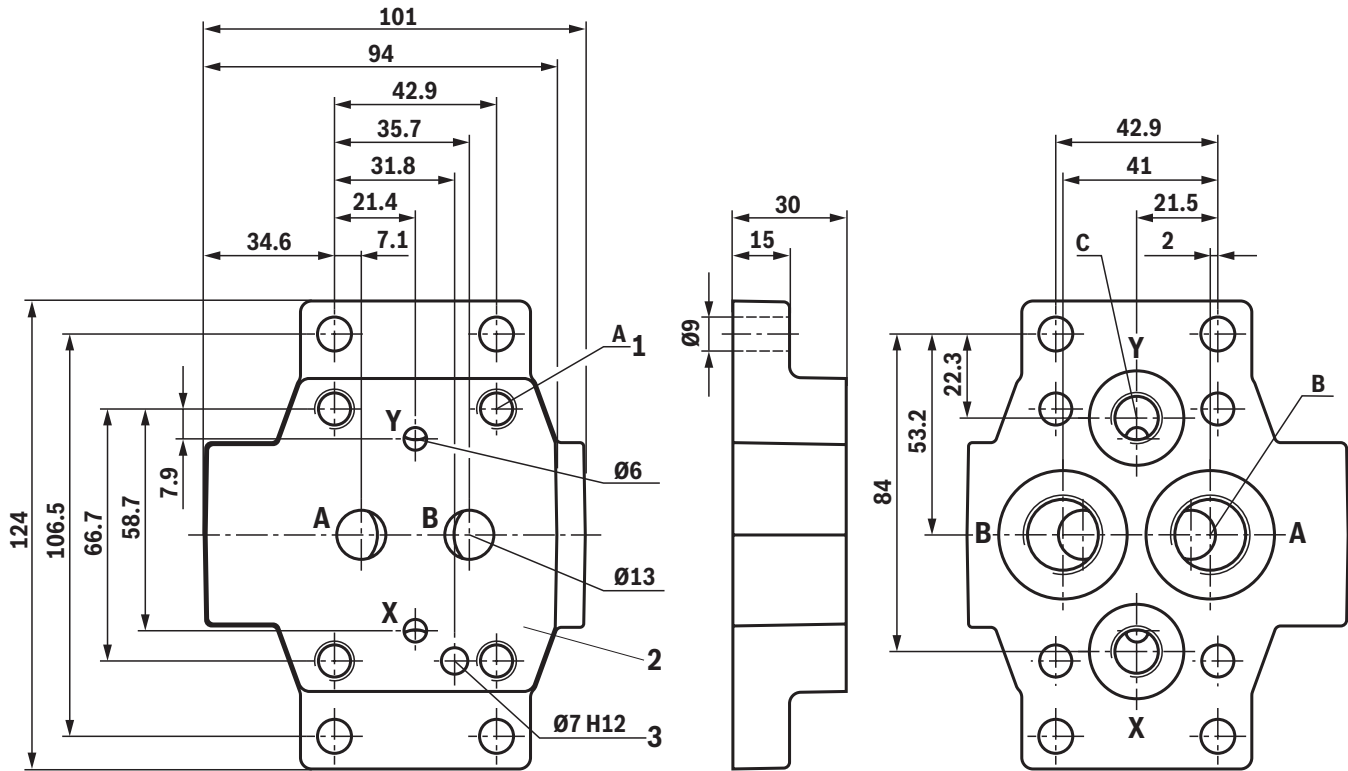
- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A		B		C		Weight in kg	$p_{max}$ in bar
		Thread	Recess $\varnothing$	Thread	Recess $\varnothing$	Thread	Recess $\varnothing$		
<b>G10D3-1X/G3/8</b>	<b>R900442409</b>	M10; 24 deep	28	G3/8	25	G1/4	25	1.6	350
<b>G10D3-1X/G1/2</b>	<b>R900453699</b>	M10; 24 deep	34	G1/2	25	G1/4	25	1.6	350
<b>G10D3-1X/UNF3/4-16</b>	<b>R900351415</b>	3/8UNC; 24 deep	32	3/4-16UNF	21	7/16-20UNF	21	1.6	350



**Dimensions**

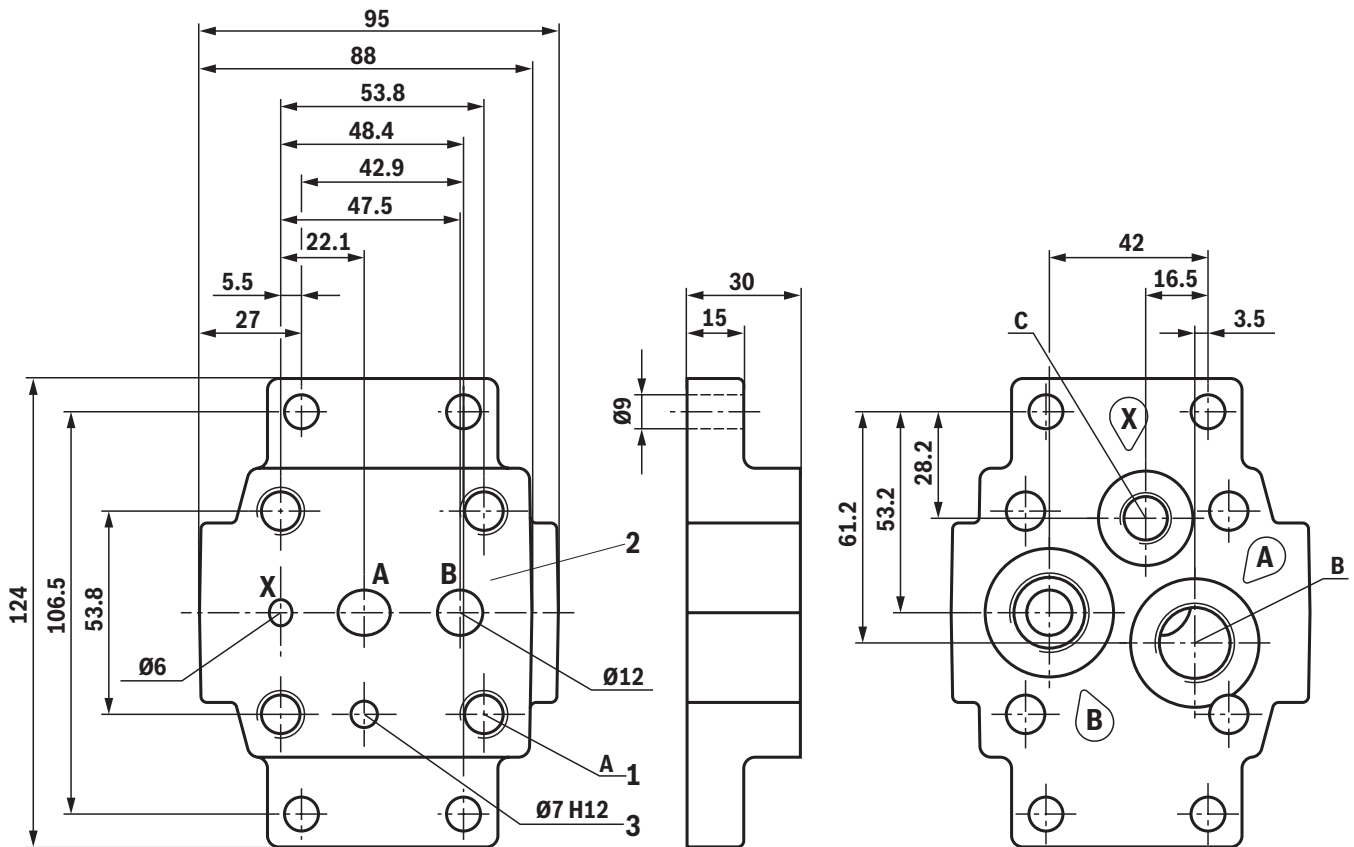
(dimensions in mm)



- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A		B		C		Weight in kg	$p_{max}$ in bar
		Thread	Recess Ø	Thread	Recess Ø	Thread	Recess Ø		
G10D2-1X/G3/8G1/4	R900440640	M10; 23 deep	G3/8	28	G1/4	25	1.6	350	
G10D2-1X/G1/2G1/4	R900439455	M10; 23 deep	G1/2	34	G1/4	25	1.6	350	
G10D2-1X/G1/2G1/4-J3	R900463647	M10; 23 deep	G1/2	34	G1/4	25	1.6	350	
G10D2-1X/UNF3/4-16UNF20	R900488054	3/8UNC; 23 deep	3/4-16UNF	32	7/16-20UNF	21	1.6	350	
G10D2-1X/UNF9/16-18UNF20	R900361481	3/8UNC; 23 deep	9/16-18UNF	25	7/16-20UNF	21	1.6	350	

## Dimensions (dimensions in mm)

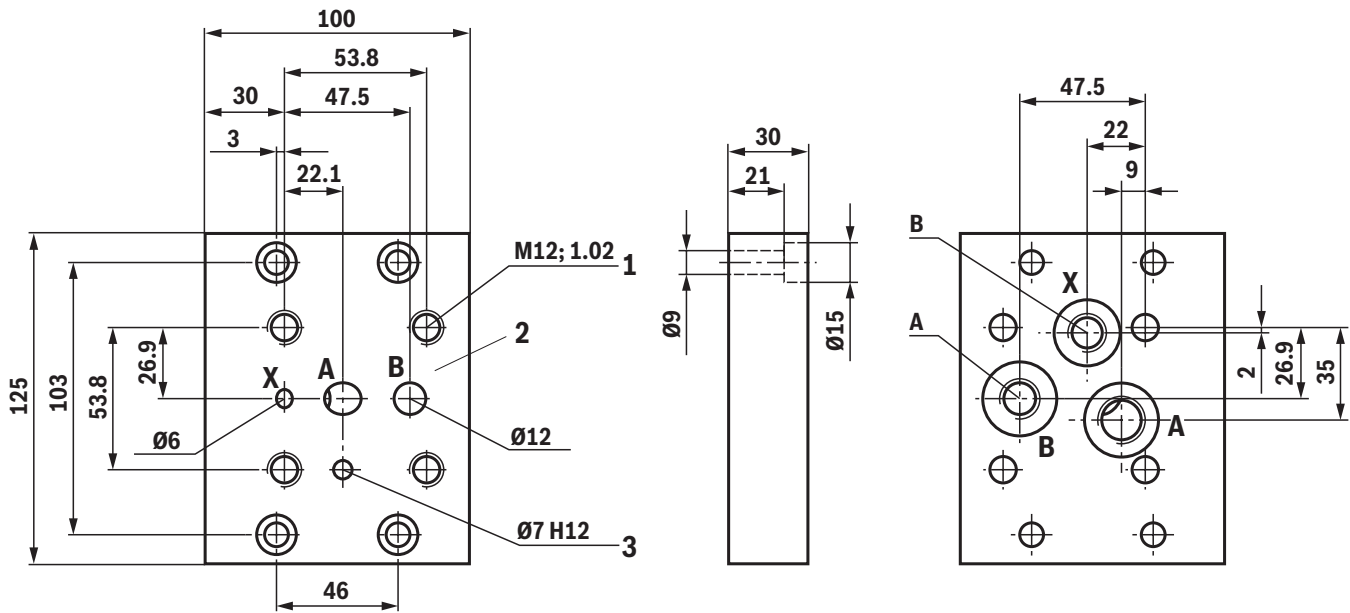


- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A	B		C		Weight in kg	$p_{\max}$ in bar
			Thread	Recess Ø	Thread	Recess Ø		
G10E2-1X/G3/8G1/4	R900411116	M12; 26 deep	G3/8	28	G1/4	25	1.6	350
G10E2-1X/G1/2G1/4	R900411117	M12; 26 deep	G1/2	34	G1/4	25	1.6	350
G10E2-1X/G1/2G1/4-J3	R901156999	M12; 26 deep	G1/2	34	G1/4	25	1.6	350
G10E2-1X/UNF3/4-16UNF20	R900339599	1/2UNC; 26 deep	3/4-16UNF	30	7/16-20UNF	21	1.6	350
G10E2-1X/UNF9/16-18UNF20	R900343968	1/2UNC; 26 deep	9/16-18UNF	25	7/16-20UNF	21	1.6	350

### Dimensions

(dimensions in mm)

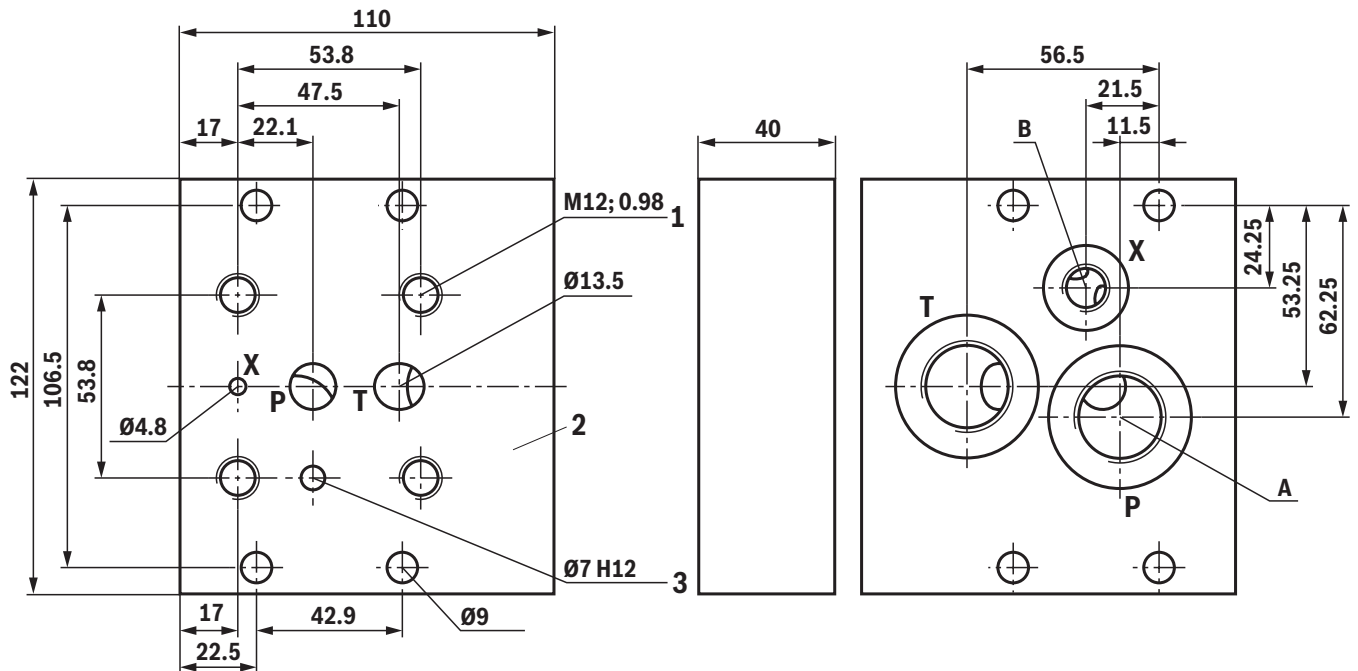


- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A		B		Weight in kg	p <sub>max</sub> in bar
		Thread	Recess Ø	Thread	Recess Ø		
G10E2-1X/G3/8G1/4-SO699	R901408884	G3/8	28	G1/4	25	2.4	500

## Dimensions

(dimensions in mm)

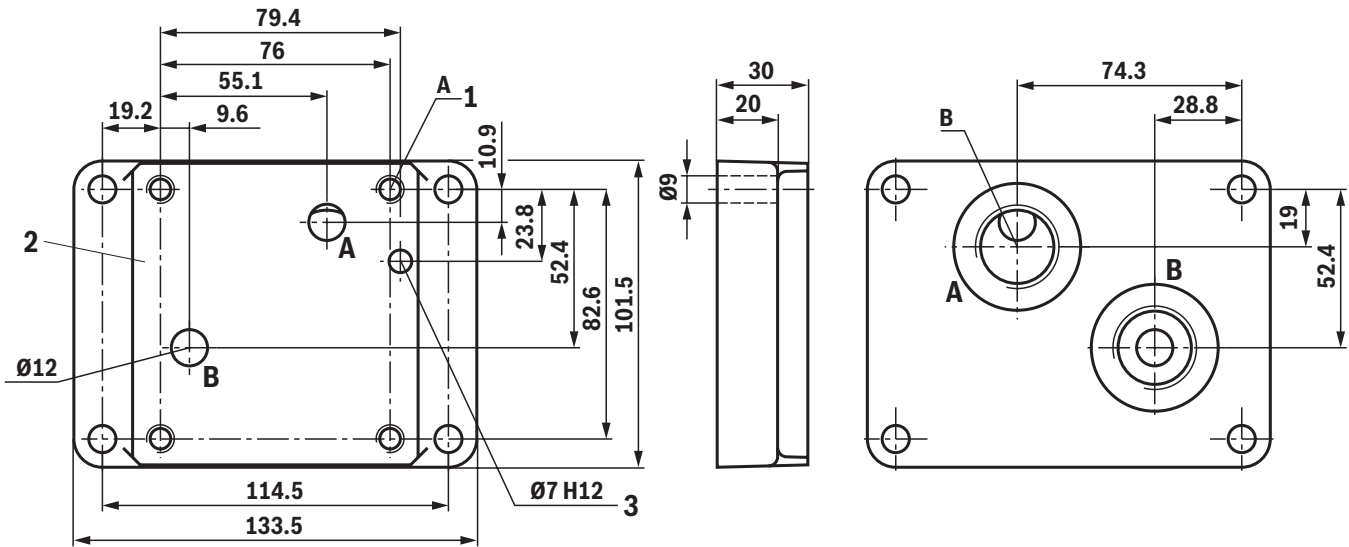


- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A		B		Weight in kg	$p_{max}$ in bar
		Thread	Recess $\varnothing$	Thread	Recess $\varnothing$		
G10E2-1X/G3/4G1/4	R900489898	G3/4	42	G1/4	25	3.4	350

**Dimensions**

(dimensions in mm)



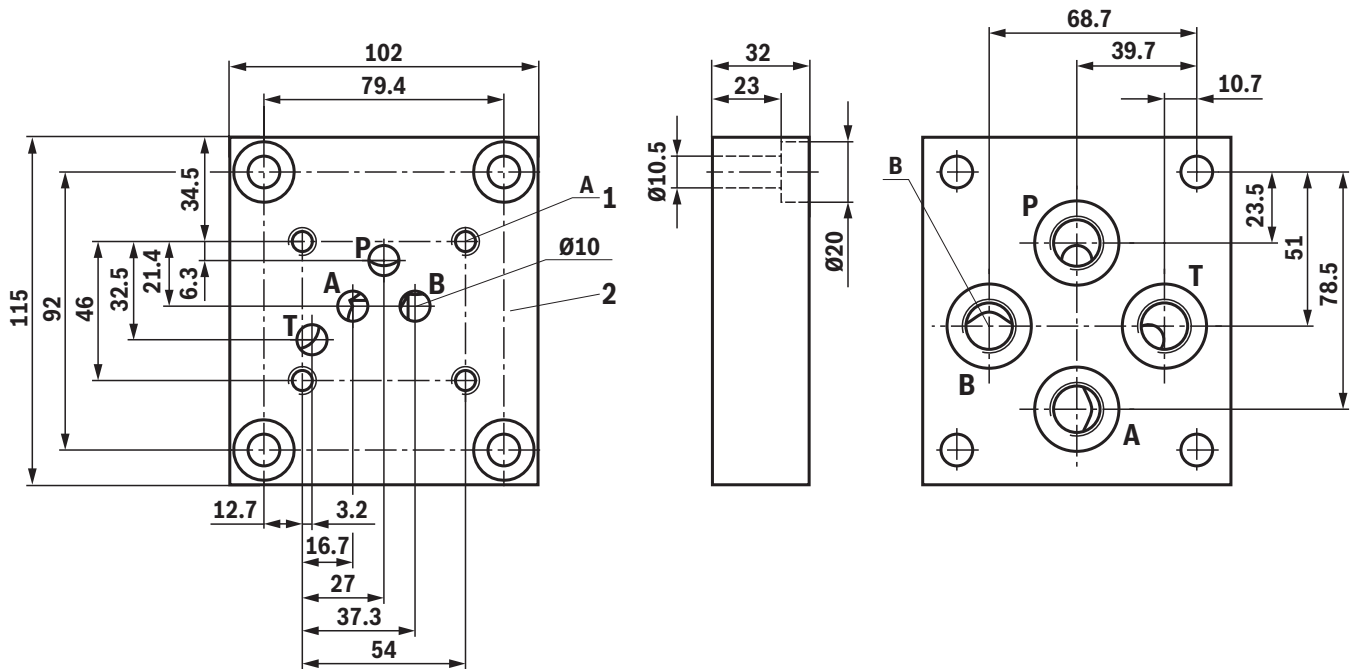
- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A		Weight in kg	$p_{max}$ in bar
		Thread	B Recess $\varnothing$		
<b>G10G2-1X/G1/2</b>	<b>R900424433</b>	M8; 13 deep	G1/2	2.5	350
<b>G10G2-1X/G3/4</b>	<b>R900424437</b>	M8; 13 deep	G3/4	2.5	350
<b>G10G2-1X/UNF1 1/16-12</b>	<b>R900455127</b>	5/16-18UNC; 18 deep	1 1/16-12UNF	2.5	350
<b>G10G2-1X/UNF3/4-16</b>	<b>R900487923</b>	5/16-18UNC; 18 deep	3/4-16UNF	2.5	350



**Dimensions**

(dimensions in mm)

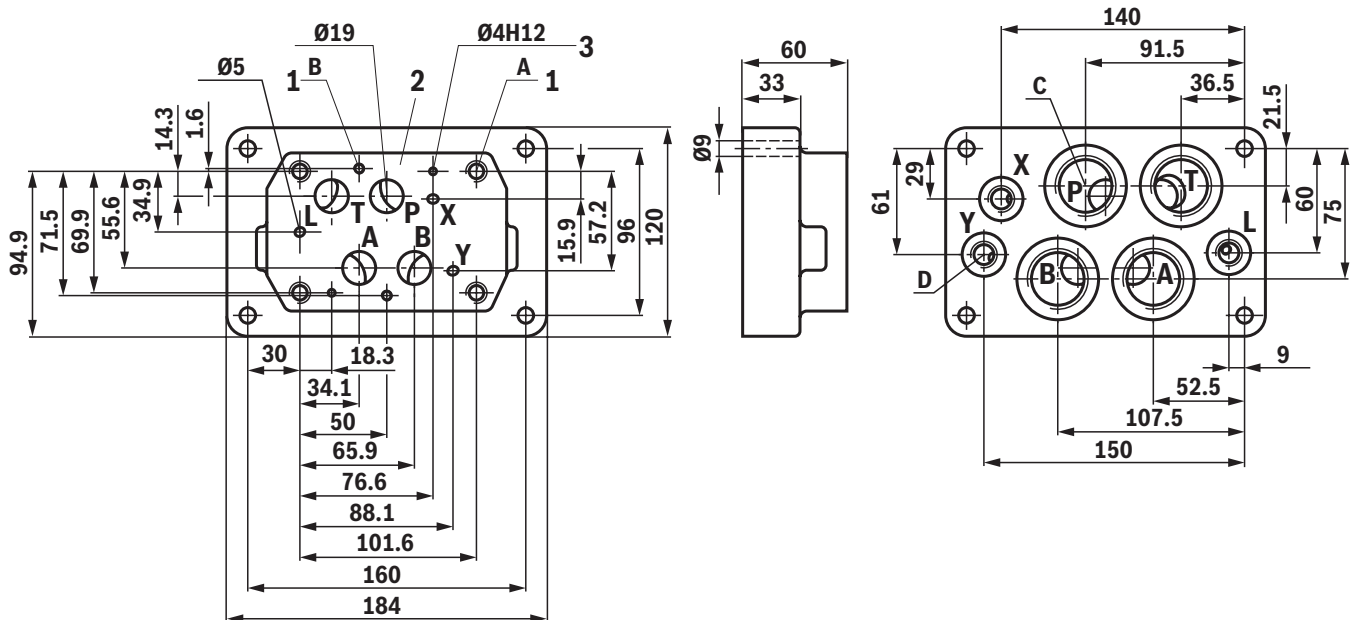


- 1 Valve mounting thread
- 2 Valve contact surface

Denomination	Material number	A		B		Weight in kg	$p_{max}$ in bar
		Thread	Recess $\varnothing$	Thread	Recess $\varnothing$		
G10V4-1X/G3/8	R900464300	M8; 17 deep	G3/8	28	2.5	630	
G10V4-1X/G1/2	R900433026	M8; 17 deep	G1/2	34	2.5	630	

## Dimensions

(dimensions in mm)



- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

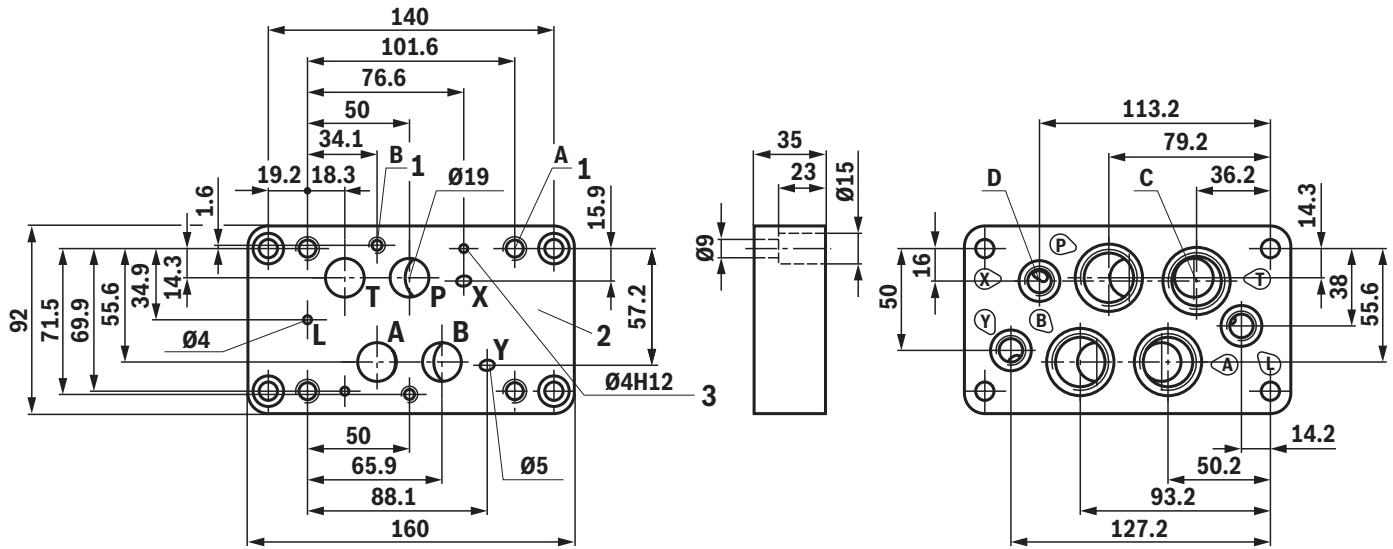
Denomination	Material number	A	B	C	
				Thread	Recess $\varnothing$
G16A4-1X/G1G1/4-SO003	R900424413	M10; 19 deep	M6; 19 deep	G1	47
G16A4-1X/G1G1/4-J3-SO003	R900433461	M10; 19 deep	M6; 19 deep	G1	47
G16A4-1X/M33M14-SO003	R900424414	M10; 19 deep	M6; 19 deep	M33 x 2	47
G16A4-1X/M33M14-J3-SO003	R901439671	M10; 19 deep	M6; 19 deep	M33 x 2	47
G16A4-1X/UN1 5/16-12UNF18-SO003	R900455126	3/8-16UNC; 17 deep	1/4-20UNC; 17 deep	1 5/16-UN	49

Denomination	D		Weight in kg	$p_{max}$ in bar
	Thread	Recess $\varnothing$		
G16A4-1X/G1G1/4-SO003	G1/4	25	6.4	350
G16A4-1X/G1G1/4-J3-SO003	G1/4	25	6.4	350
G16A4-1X/M33M14-SO003	M14 x 1,5	25	6.4	350
G16A4-1X/M33M14-J3-SO003	M14 x 1,5	25	6.4	350
G16A4-1X/UN1 5/16-12UNF18-SO003	9/16-UNF	25	6.4	350



## Dimensions

(dimensions in mm)



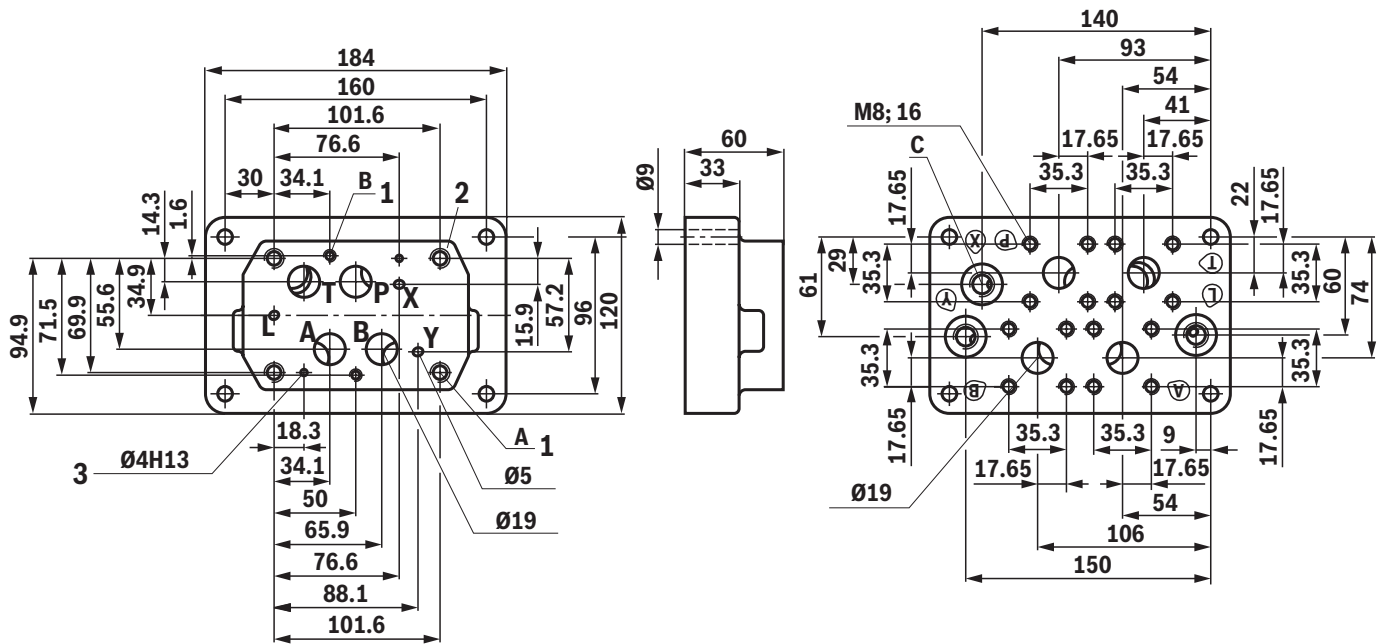
- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A	B	C	
				Thread	Recess $\varnothing$
G16A4-1X/G3/4G1/4-SO003	R900424410	M10; 19 deep	M6; 19 deep	G3/4	33
G16A4-1X/G3/4G1/4-J3-SO003	R901439667	M10; 19 deep	M6; 19 deep	G3/4	33
G16A4-1X/M27M14-SO003	R900424411	M10; 19 deep	M6; 19 deep	M27 x 2	33
G16A4-1X/M27M14-J3-SO003	R901439670	M10; 19 deep	M6; 19 deep	M27 x 2	33
G16A4-1X/UN1 1/16-12UNF20-SO003	R900455125	3/4UNC; 17 deep	1/4UNC; 17 deep	1 1/16-12UN	41

Denomination	Thread	D Recess $\varnothing$	Weight in kg	$p_{\max}$ in bar
G16A4-1X/G3/4G1/4-J3-SO003	G1/4	20	2.9	350
G16A4-1X/M27M14-SO003	M14 x 1,5	20	2.9	350
G16A4-1X/M27M14-J3-SO003	M14 x 1,5	20	2.9	350
G16A4-1X/UN1 1/16-12UNF20-SO003	7/16-20UNF	21	2.9	350

## Dimensions

(dimensions in mm)



- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

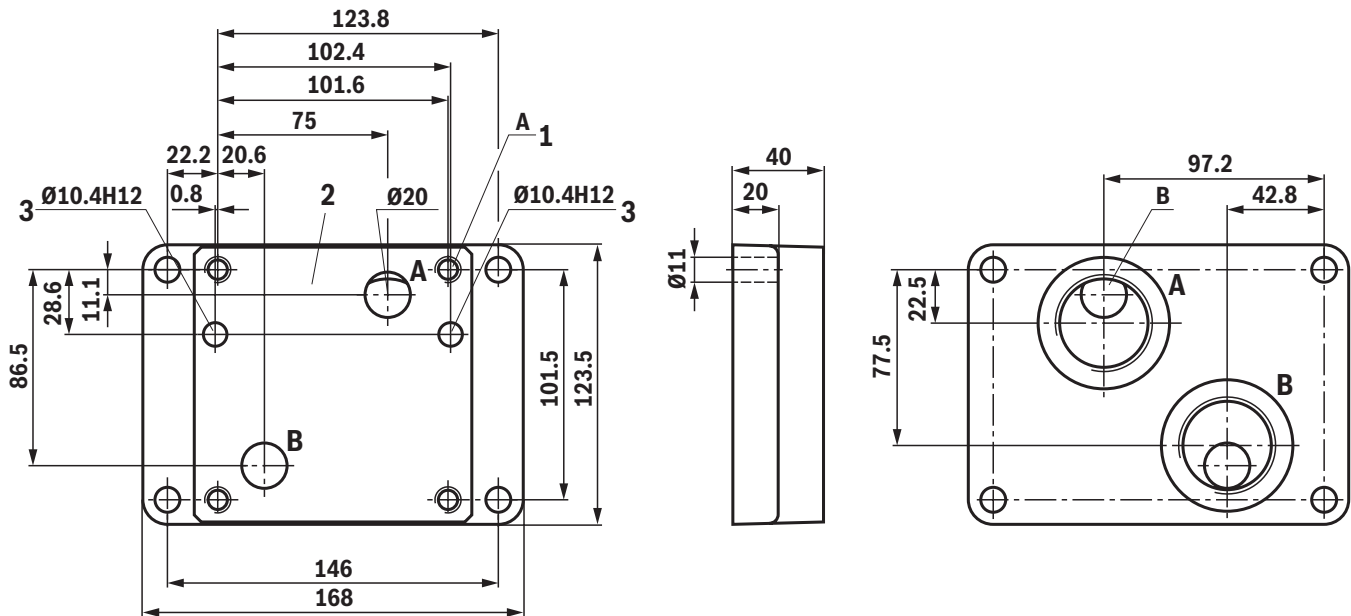
Denomination	Material number	A	B	C		Weight in kg	$p_{\max}$ in bar
				Thread	Recess Ø		
G16A4-1X/FL19G1/4-SO003	R900429264	M10; 19 deep	M6; 19 deep	G1/4	25	6.7	350
G16A4-1X/FL19G1/4-J3-SO003	R901439672	M10; 19 deep	M6; 19 deep	G1/4	25	6.7	350

### Connection flange

Material number	$p_{\max}$ in bar
R900009271	250
R900009272	400

**Dimensions**

(dimensions in mm)

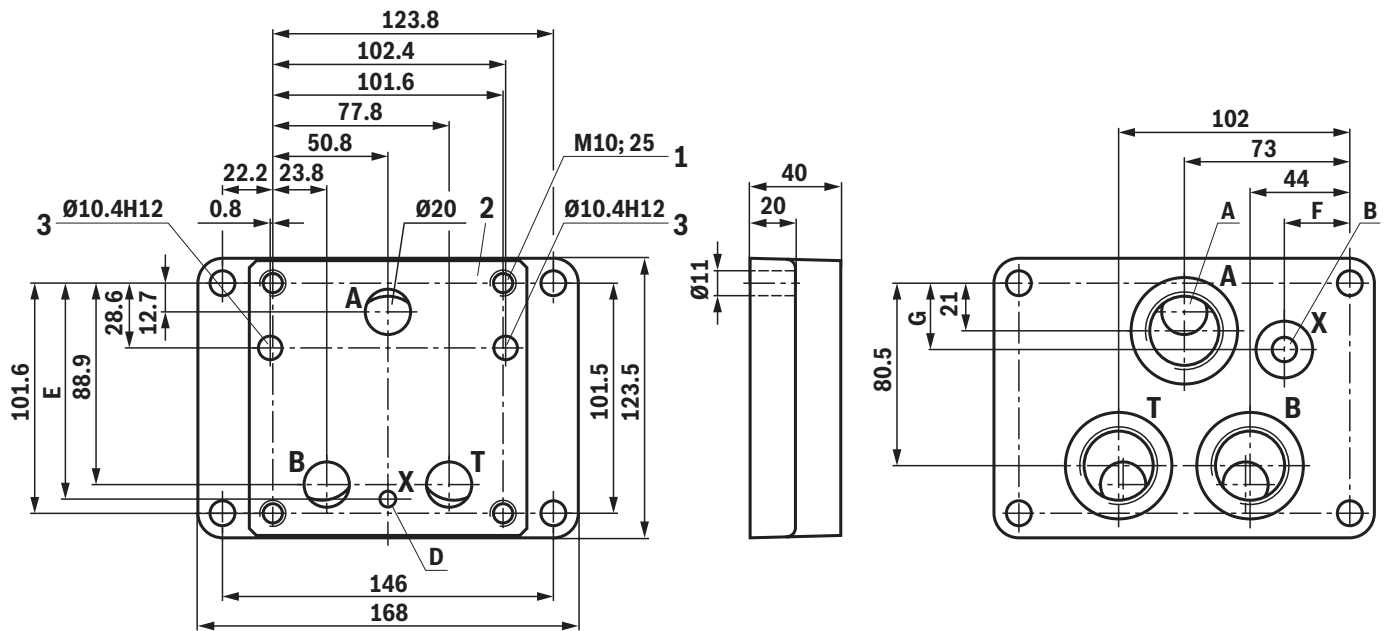


- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A		B		Weight in kg	$p_{max}$ in bar
		Thread	Recess $\varnothing$	Thread	Recess $\varnothing$		
<b>G16G2-1X/G1</b>	<b>R900424440</b>	M10; 25 deep	G1	47	4.6	350	
<b>G16G2-1X/G1 1/4</b>	<b>R900424442</b>	M10; 25 deep	G1 1/4	58	4.4	350	
<b>G16G2-1X/NPT1</b>	<b>R900431444</b>	M10; 25 deep	NPT 1	-	4.7	350	
<b>G16G2-1X/UN1 5/16-12</b>	<b>R900487924</b>	3/8UNC; 25 deep	1 5/16-12UN	50	4.6	350	
<b>G16G2-1X/UN1 5/8-12</b>	<b>R900357120</b>	3/8UNC; 25 deep	1 5/8-12UN	60	4.4	350	

## Dimensions

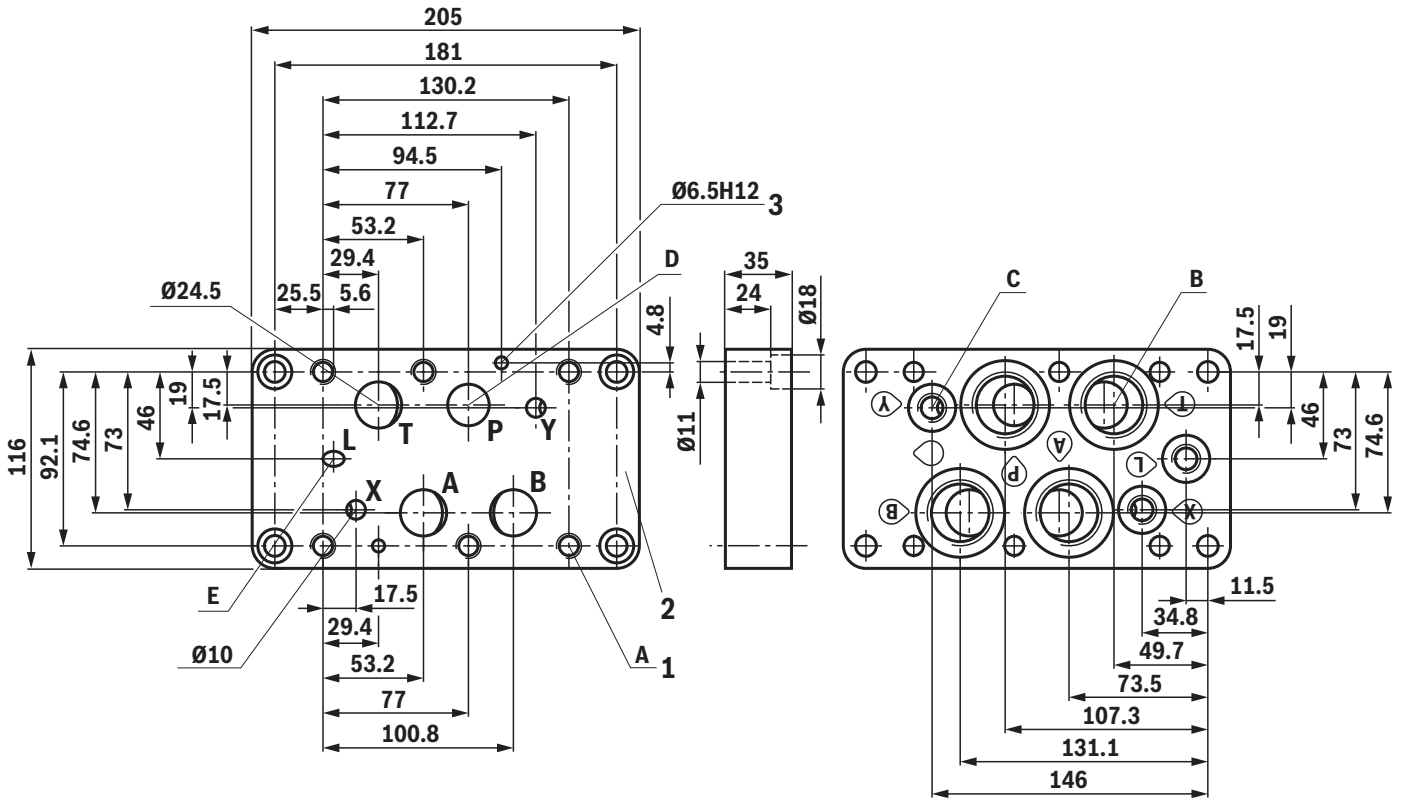
(dimensions in mm)



- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A		B		D	E	F	G	Weight in kg	$p_{\max}$ in bar
		Thread	Recess $\varnothing$	Thread	Recess $\varnothing$						
G16G3-1X/G1	R900422655	G1	47	-	-	-	-	-	-	4.4	315
G16G3-1X/G1G1/4	R900422657	G1	47	G1/4	25	7	93.5	32	35.5	4.7	315

**Dimensions**  
(dimensions in mm)



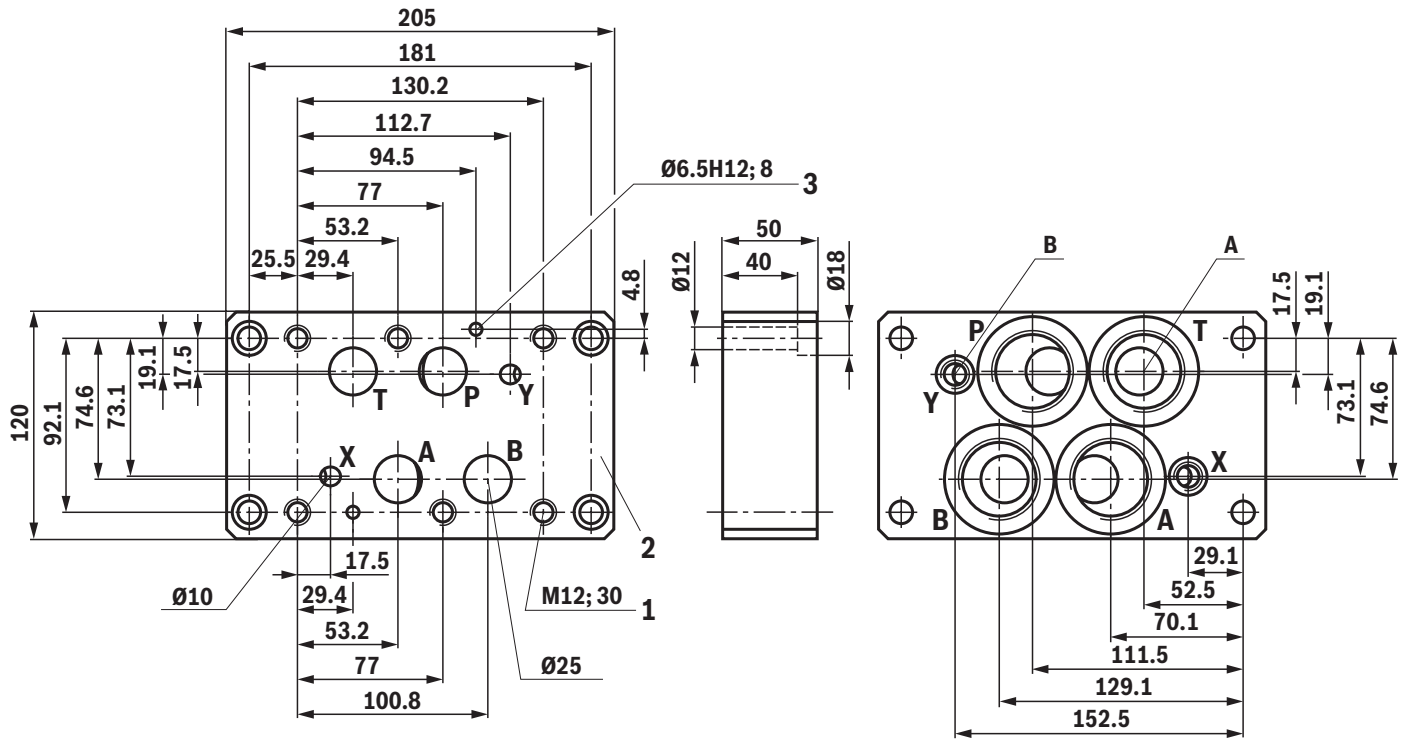
- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A		B	
		Thread	Recess Ø	Thread	Recess Ø
G25A4-1X/G3/4G1/4	R900445877	M12; 25 deep	42	G3/4	42
G25A4-1X/G1G1/4	R900424392	M12; 25 deep	47	G1	47
G25A4-1X/G1G1/4-J3	R901439673	M12; 25 deep	47	G1	47
G25A4-1X/G1G1/4-SO003	R900424395	M12; 25 deep	47	G1	47
G25A4-1X/UN1 1/16-12UNF20-SO003	R900455872	1/2-13UNC; 25 deep	42	1 1/16-12UN	42
G25A4-1X/UN1 5/16-12UNF20-SO003	R900584166	1/2-13UNC; 25 deep	49	1 5/16-12UN	49

Denomination	Thread	C		D	E	Weight in kg
		Recess Ø	Recess Ø			
G25A4-1X/G3/4G1/4	G1/4	25	25	22	-	5.1
G25A4-1X/G1G1/4	G1/4	25	25	24.5	-	4.9
G25A4-1X/G1G1/4-J3	G1/4	25	25	24.5	-	4.9
G25A4-1X/G1G1/4-SO003	G1/4	25	25	24.5	8	4.9
G25A4-1X/UN1 1/16-12UNF20-SO003	7/16-20UNF-2B	21	21	22	8	5.1
G25A4-1X/UN1 5/16-12UNF20-SO003	7/16-20UNF-2B	21	21	22	8	4.9

## Dimensions

(dimensions in mm)



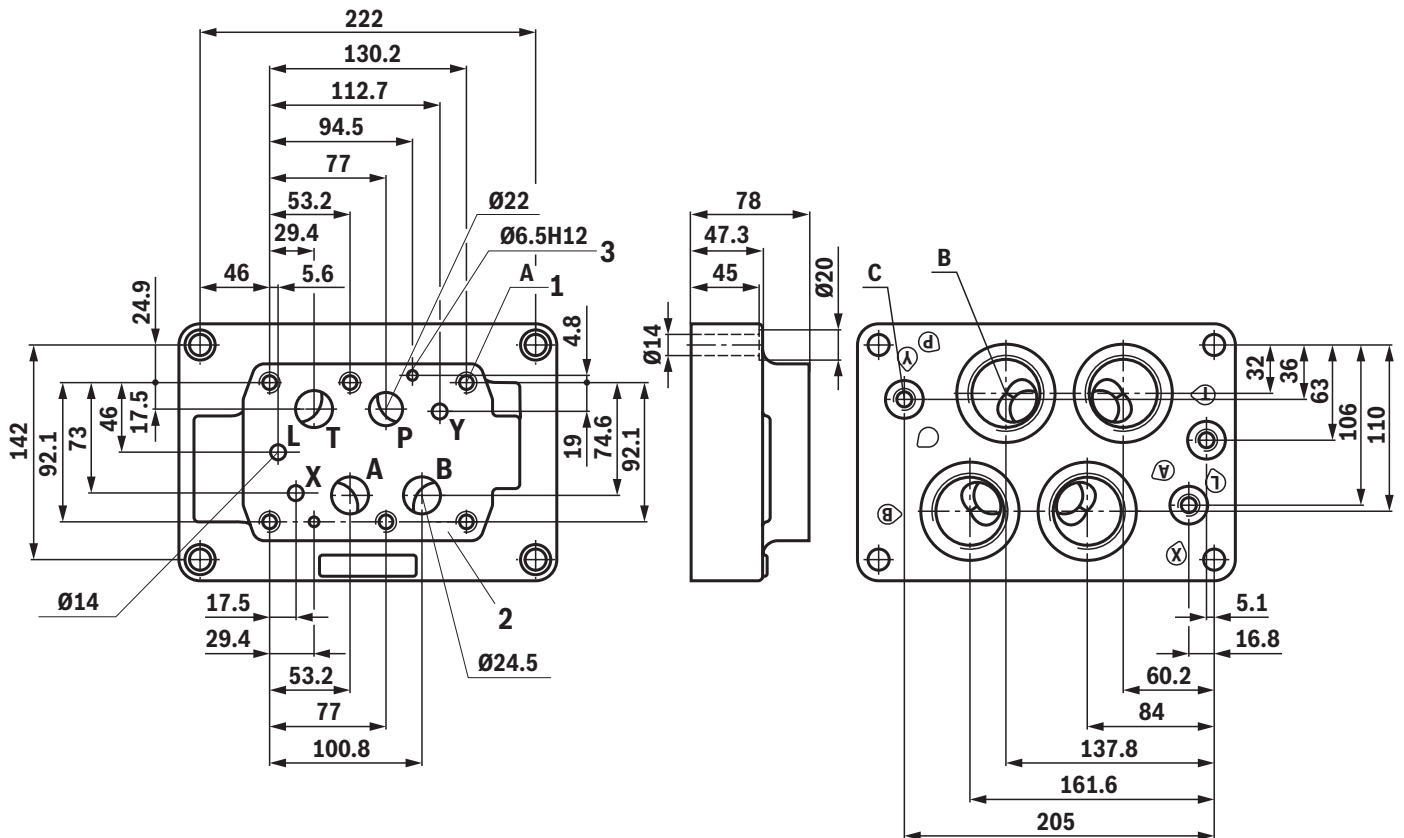
- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A		B		Weight in kg	$p_{max}$ in bar
		Thread	Recess Ø	Thread	Recess Ø		
G25A4-1X/G1 1/14G1/4	R901099696	G1 1/4	58	G1/4	20	7.6	350



## Dimensions

(dimensions in mm)



- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

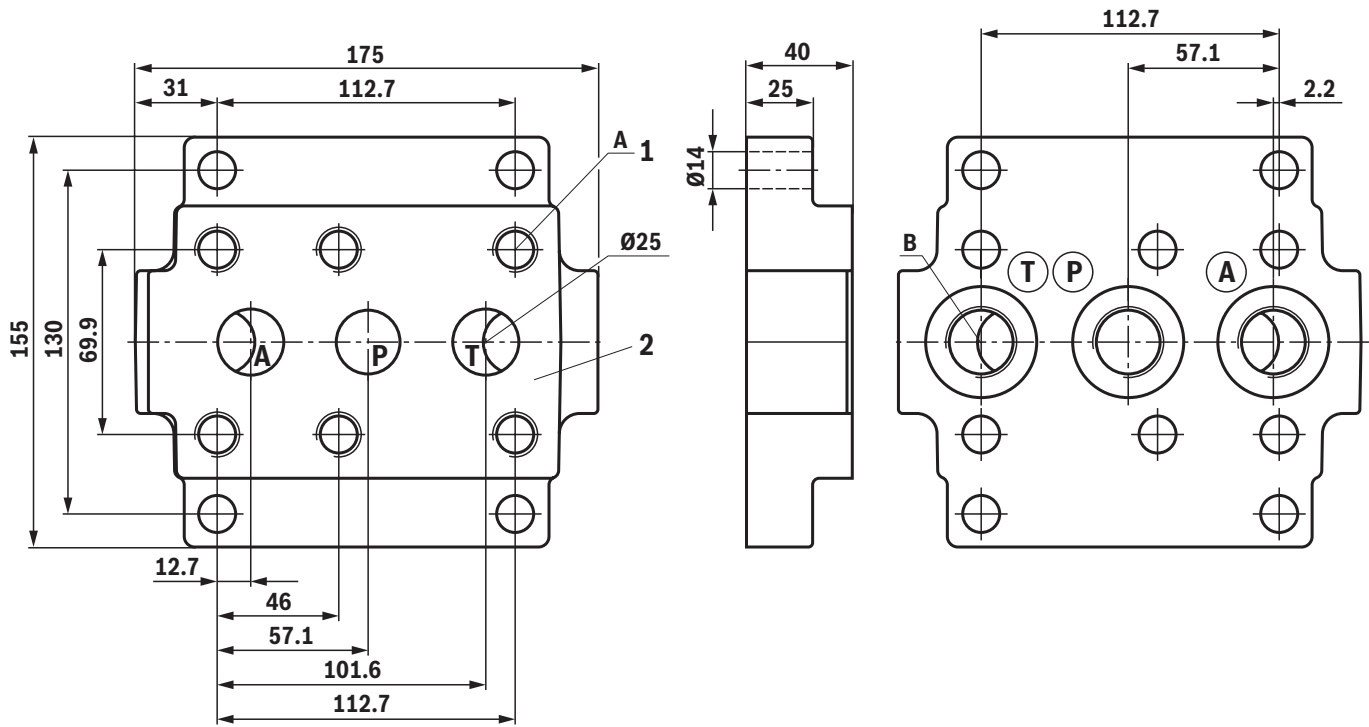
Denomination	Material number	A	B	
			Thread	Recess Ø
G25A4-1X/G1 1/4G1/4-SO003	R900424396	M12; 25 deep	G1 1/4	58
G25A4-1X/G1 1/4G1/4-J3-SO003	R901439675	M12; 25 deep	G1 1/4	58
G25A4-1X/G1 1/2G1/4-SO003	R900424399	M12; 25 deep	G1 1/2	65
G25A4-1X/G1 1/2G1/4-J3-SO003	R901439677	M12; 25 deep	G1 1/2	65
G25A4-1X/UN1 5/8-12UNF20-SO003	R900455873	1/2-13UNC; 25 deep	1 5/8-12UN	58
G25A4-1X/UN1 7/8-12UNF20-SO003	R900490017	1/2-13UNC; 25 deep	1 7/8-12UN	65

Denomination	C		Weight in kg
	Thread	Recess Ø	
G25A4-1X/G1 1/4G1/4-SO003	G1/4	25	16.3
G25A4-1X/G1 1/4G1/4-J3-SO003	G1/4	25	16.3
G25A4-1X/G1 1/2G1/4-SO003	G1/4	25	16.3
G25A4-1X/G1 1/2G1/4-J3-SO003	G1/4	25	16.3
G25A4-1X/UN1 5/8-12UNF20-SO003	7/16-20UNF	21	16.3
G25A4-1X/UN1 7/8-12UNF20-SO003	7/16-20UNF	21	16.3



**Dimensions**

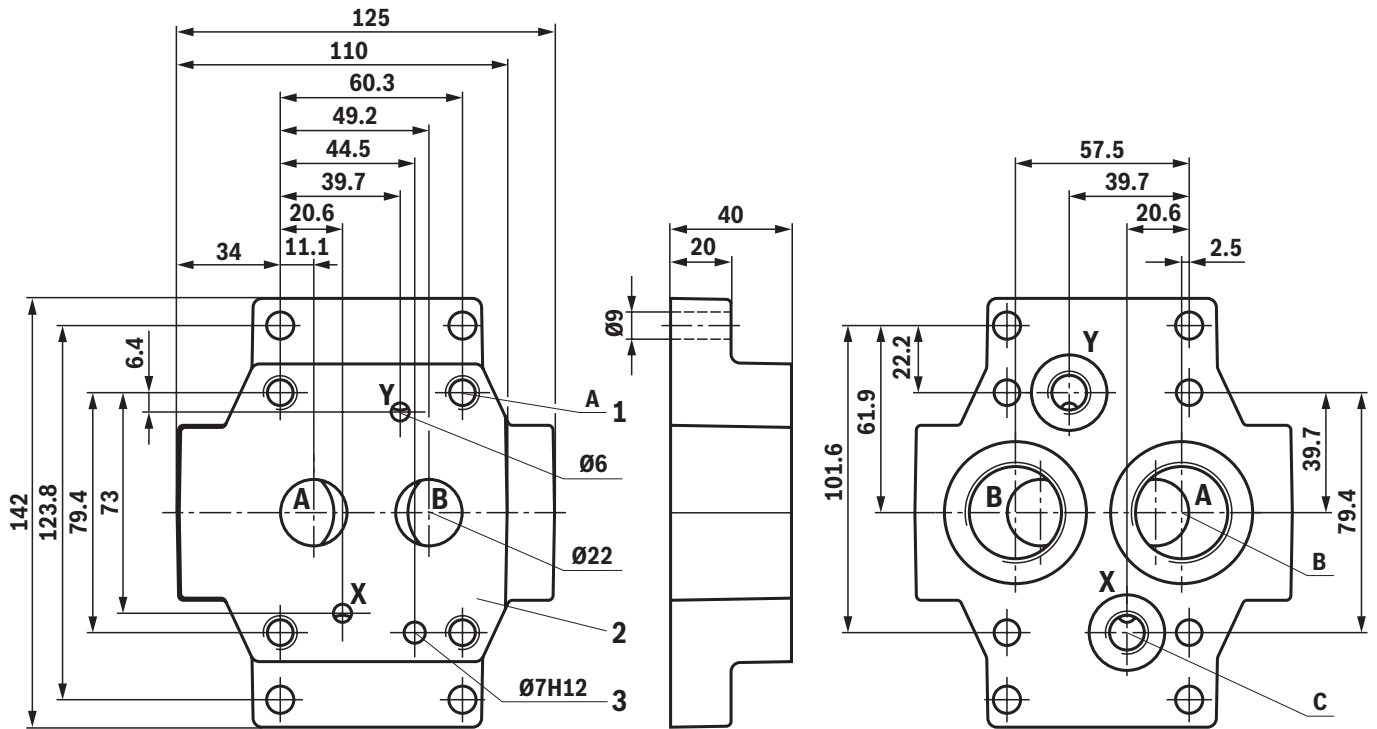
(dimensions in mm)



- 1 Valve mounting thread  
2 Valve contact surface

Denomination	Material number	A	B		Weight in kg	$p_{\max}$ in bar
			Thread	Recess $\varnothing$		
G25D3-1X/G3/4	R900451805	M16; 34 deep	G3/4	42	5.6	350
G25D3-1X/G1	R900448459	M16; 34 deep	G1	47	5.5	350
G25D3-1X/UN1 1/16-12	R900352206	5/8-11UNC	1 1/16-12UN	42	5.6	350

## Dimensions (dimensions in mm)



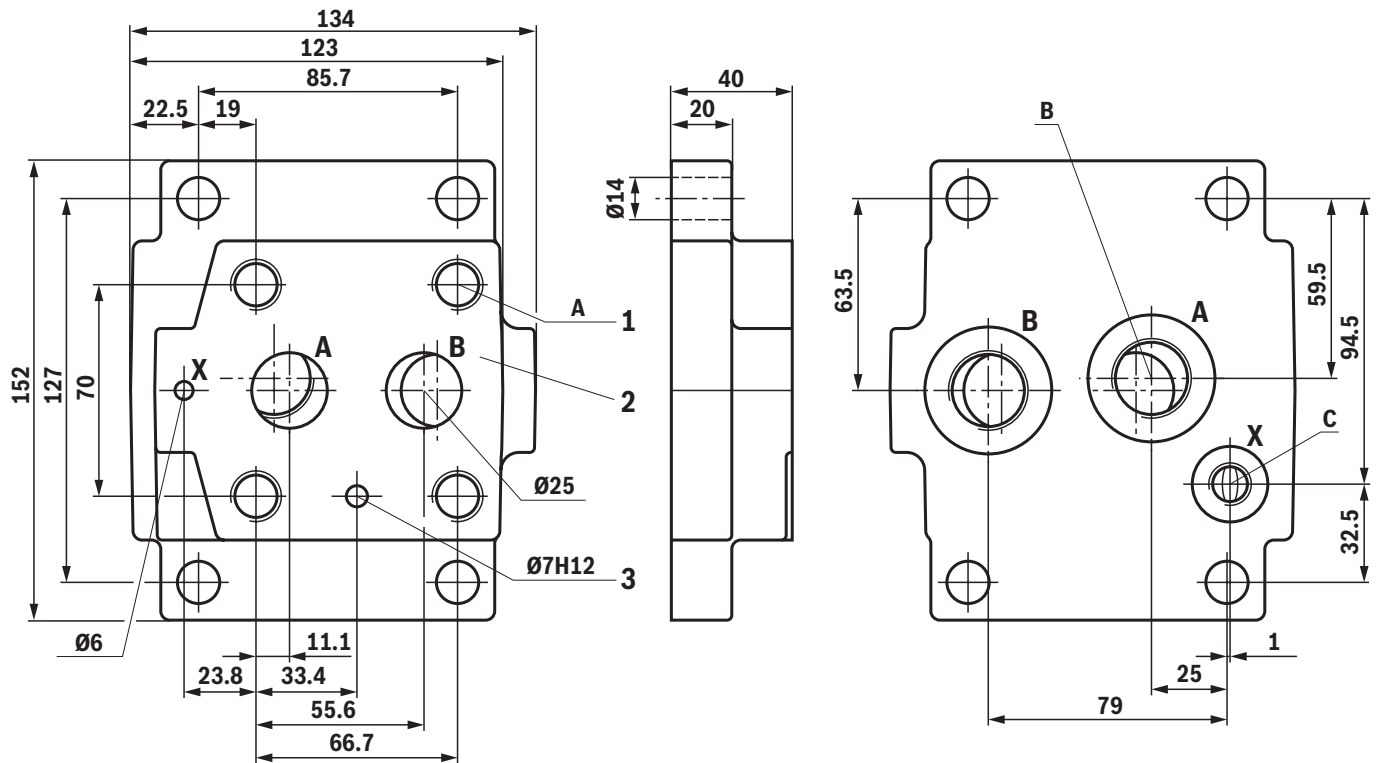
- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A		B	
		Thread	Recess $\varnothing$	Thread	Recess $\varnothing$
G25D2-1X/G3/4G1/4	R900440266	M10; 24 deep	42	G3/4	42
G25D2-1X/G3/4G1/4-J3	R901476406	M10; 24 deep	42	G3/4	42
G25D2-1X/G1G1/4	R900440431	M10; 24 deep	47	G1	47
G25D2-1X/UN1 1/16-12UNF20	R900455130	3/8UNC; 24 deep	42	1 1/16-12UN	42
G25D2-1X/UN1 5/16-12UNF20	R900487396	3/8UNC; 24 deep	49	1 5/16-12UN	49

Denomination	C		Weight in kg	$p_{\max}$ in bar
	Thread	Recess $\varnothing$		
G25D2-1X/G3/4G1/4	G1/4	25	3.3	350
G25D2-1X/G1G1/4	G1/4	25	3.0	350
G25D2-1X/UN1 1/16-12UNF20	7/16-20UNF	21	3.0	350
G25D2-1X/UN1 5/16-12UNF20	7/16-20UNF	21	3.0	350

**Dimensions**

(dimensions in mm)



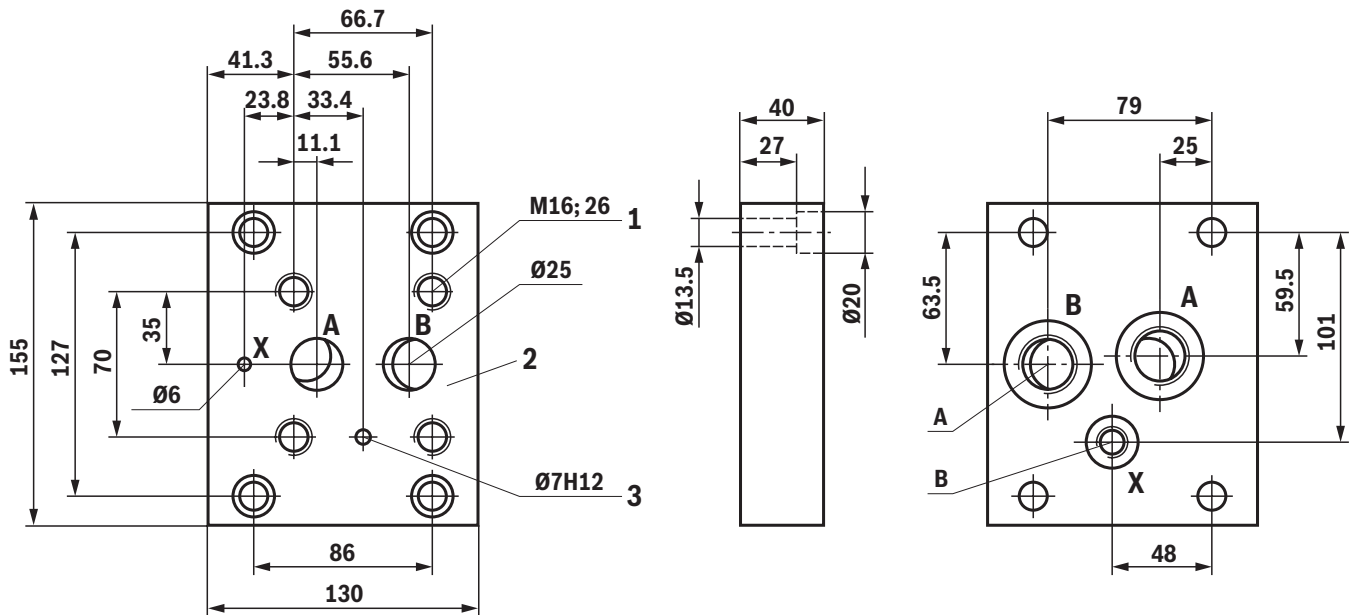
- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A	B	
			Thread	Recess Ø
G25E2-1X/G3/4G1/4	R900439820	M16; 26 deep	G3/4	42
G25E2-1X/G1G1/4	R900435663	M16; 26 deep	G1	47
G25E2-1X/G1G1/4-J3	R901018328	M16; 26 deep	G1	47
G25E2-1X/UN1 1/16-12UNF20	R900455129	5/8-11UNC; 26 deep	1 1/16-12UN	41
G25E2-1X/UN1 5/16-12UNF20	R900485504	5/8-11UNC; 26 deep	1 5/16-12UN	49

Denomination	C		Weight in kg	p <sub>max</sub> in bar
	Thread	Recess Ø		
G25E2-1X/G3/4G1/4	G1/4	25	4.0	350
G25E2-1X/G1G1/4	G1/4	25	4.0	350
G25E2-1X/G1G1/4-J3	G1/4	25	4.0	350
G25E2-1X/UN1 1/16-12UNF20	7/16-20UNF-2B	21	4.0	350
G25E2-1X/UN1 5/16-12UNF20	7/16-20UNF-2B	21	4.0	350

## Dimensions

(dimensions in mm)

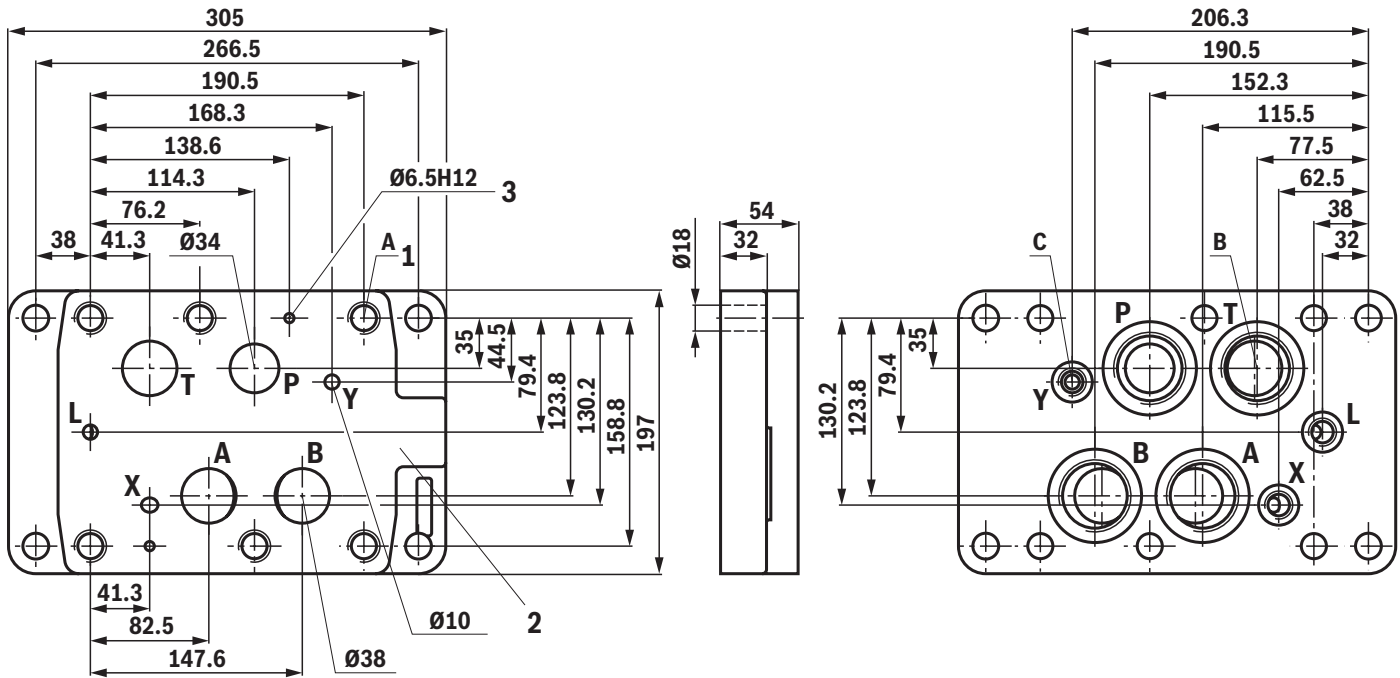


- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A		B		Weight in kg	$p_{max}$ in bar
		Thread	Recess Ø	Thread	Recess Ø		
G25E2-1X/G3/4G1/4-SO699	R901408886	G3/4	42	G1/4	25	5.0	500

**Dimensions**

(dimensions in mm)

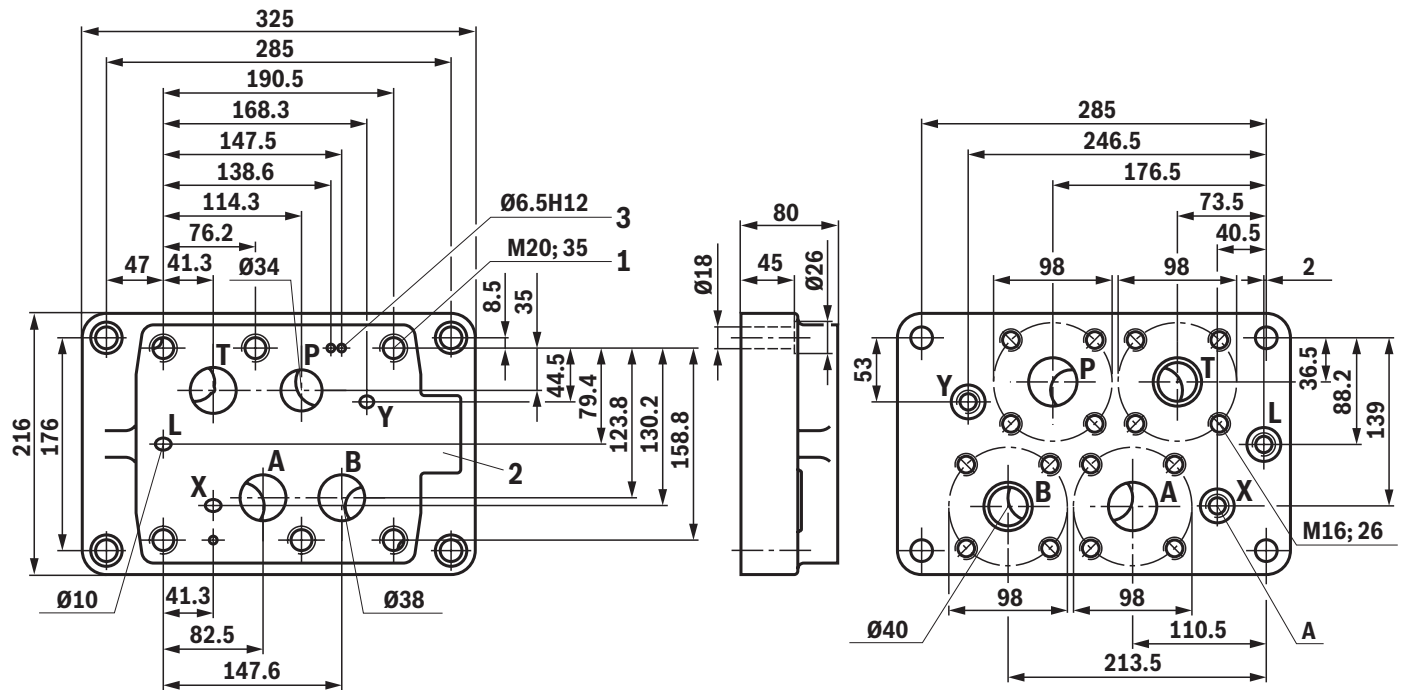


- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A	B		C		Weight in kg	$p_{\max}$ in bar
			Thread	Recess $\text{Ø}$	Thread	Recess $\text{Ø}$		
G32A4-1X/G1 1/2G3/8	R900424402	M20; 35 deep	G1 1/2	65	G3/8	28	18.0	350
G32A4-1X/G1 1/2G3/8-J3	R901439678	M20; 35 deep	G1 1/2	65	G3/8	28	18.0	350
G32A4-1X/M48M18	R900424403	M20; 35 deep	M48 x 2	65	M18 x 1,5	28	18.0	350
G32A4-1X/M48M18-J3	R901439679	M20; 35 deep	M48 x 2	65	M18 x 1,5	28	18.0	350

## Dimensions

(dimensions in mm)



- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

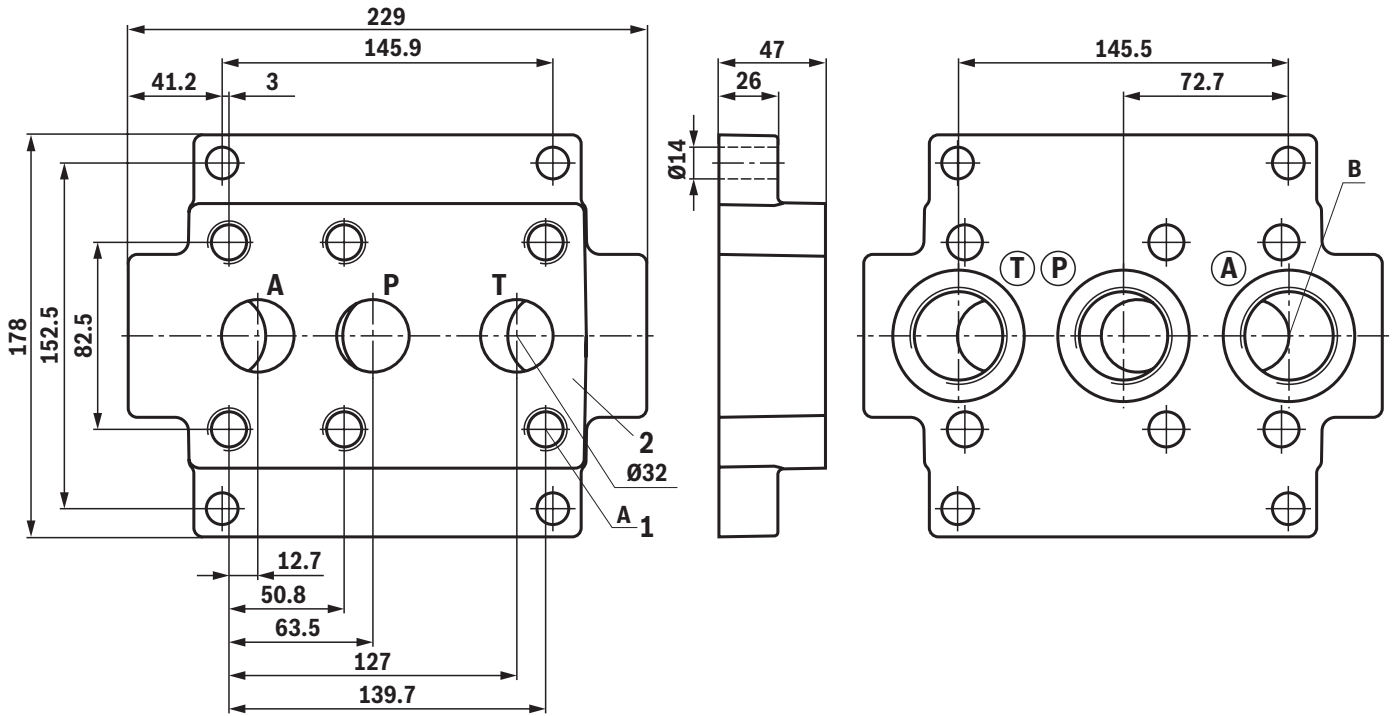
Denomination	Material number	Thread	A Recess $\varnothing$	Weight in kg	$p_{max}$ in bar
G32A4-1X/FL51G3/8	R900424227	G3/8	28	3.3	350
G32A4-1X/FL51G3/8-J3	R901439680	G3/8	28	3.3	350

### Connection flange

Material number	$p_{max}$ in bar	Seal material
R900303901	160	NBR
R900303941		FKM
R900303921	320	NBR
R900303961		FKM
R901115142	400	NBR

### Dimensions

(dimensions in mm)

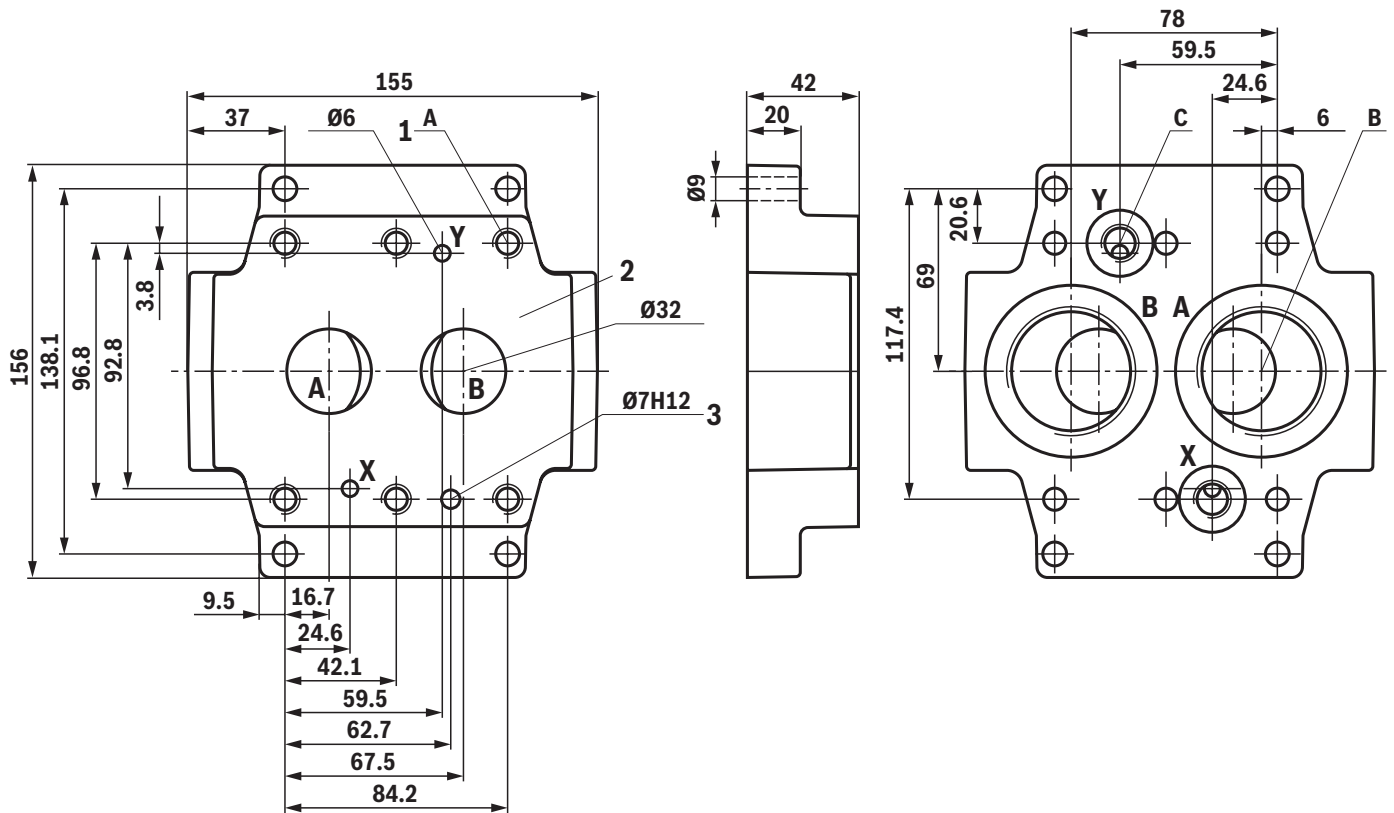


- 1 Valve mounting thread
- 2 Valve contact surface

Denomination	Material number	A		Weight in kg	$p_{max}$ in bar
		Thread	B Recess $\varnothing$		
G32D3-1X/G1 1/4	R900445297	M18; 37 deep	G1 1/4	9.0	350
G32D3-1X/G1 1/2	R900453893	M18; 37 deep	G1 1/2	8.7	350
G32D3-1X/UN1 7/8-12	R900379098	3/4UNC; 37 deep	1 7/8-12UN	8.7	350

## Dimensions

(dimensions in mm)



- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

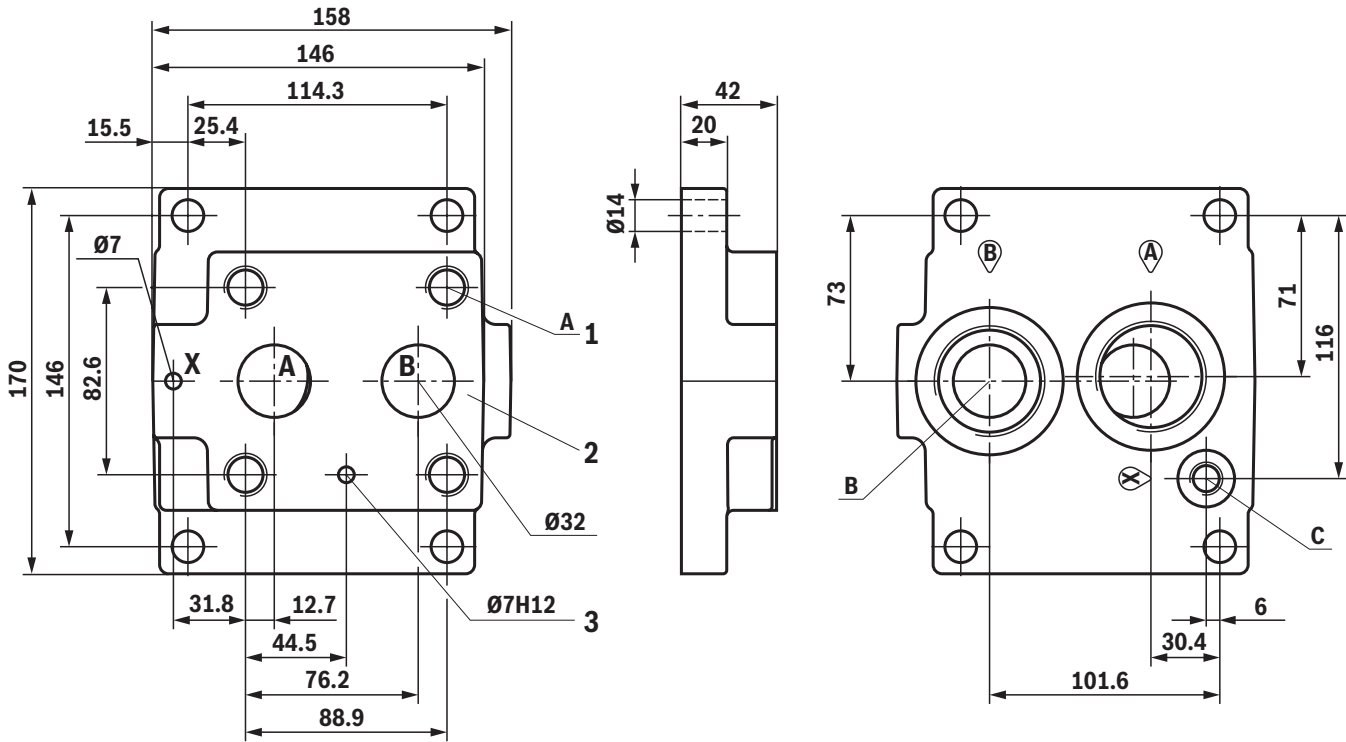
Denomination	Material number	A		B	
		Thread	Recess $\varnothing$	Thread	Recess $\varnothing$
G32D2-1X/G1 1/4G1/4	R900443673	M10; 22 deep	G1 1/4	58	
G32D2-1X/G1 1/4G1/4-J3	R901476412	M10; 22 deep	G1 1/4	58	
G32D2-1X/G1 1/2G1/4	R900441983	M10; 22 deep	G1 1/2	65	
G32D2-1X/UN1 7/8-12UNF20	R900339598	3/8UNC; 22 deep	1 7/8-12UN	70	

Denomination	Thread	C		Weight in kg	$p_{\max}$ in bar
		Recess $\varnothing$			
G32D2-1X/G1 1/4G1/4	G1/4	25		5.0	350
G32D2-1X/G1 1/2G1/4	G1/4	25		5.0	350
G32D2-1X/UN1 7/8-12UNF20	7/16-20UNF	21		5.0	350



**Dimensions**

(dimensions in mm)



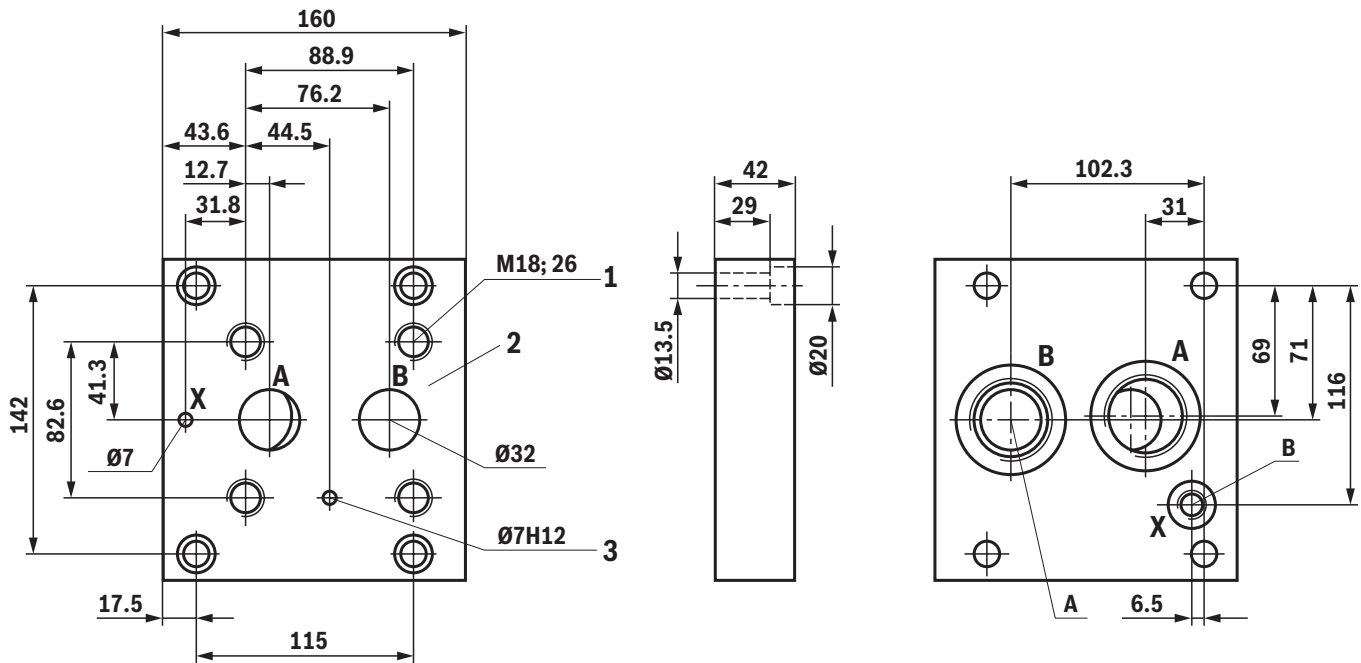
- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A	B	
			Thread	Recess $\varnothing$
G32E2-1X/G1 1/4G1/4	R900440340	M18; 22 deep	G1 1/4	58
G32E2-1X/G1 1/2G1/4	R900439106	M18; 22 deep	G1 1/2	65
G32E2-1X/G1 1/2G1/4-J3	R900580254	M18; 22 deep	G1 1/2	65
G32E2-1X/UN1 7/8-12UNF20	R900340082	3/4UNC; 22 deep	1 7/8-12UN	70
G32E2-1X/UN1 5/8-12UNF20	R900339043	3/4UNC; 22 deep	1 5/8-12UN	58

Denomination	C	Weight in kg	$p_{max}$ in bar
G32E2-1X/G1 1/4G1/4	G1/4	5.6	350
G32E2-1X/G1 1/2G1/4	G1/4	5.6	350
G32E2-1X/UN1 7/8-12UNF20	17/16-20UNF	5.6	350
G32E2-1X/UN1 5/8-12UNF20	17/16-20UNF	5.6	350

## Dimensions

(dimensions in mm)



- 1 Valve mounting thread
- 2 Valve contact surface
- 3 Bore for locating pin

Denomination	Material number	A		B		Weight in kg	$p_{\max}$ in bar
		Thread	Recess $\varnothing$	Thread	Recess $\varnothing$		
G32E2-1X/G1 1/4G1/4-SO699	R901408888	G1 1/4	58	G1/4	25	6.9	500

## Assignment of the valves according to size and porting pattern

Valve type	Data sheet	ISO / DIN / Rexroth-specific hole pattern	Denomination in the type code
<b>2FRE 6 -2X/..</b>	29188	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
<b>2FRE 10 -4X/...</b>	29190	ISO 6263-06-05-0-97	10G
<b>2FRE 16 -4X/...</b>	29190	ISO 6263-09-05-0-97 and DIN 24340 form G	16G
<b>2FRH 10 -3X/...</b>	28389	ISO 6263-06-05-0-97	10G
<b>2FRH 16 -3X/...</b>	28389	ISO 6263-09-05-0-97 and DIN 24340 form G	16G
<b>2FRM 6 ... -3X/...</b>	28163	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
<b>2FRM 10 -3X/...</b>	28389	ISO 6263-06-05-0-97	10G
<b>2FRM 16 -3X/...</b>	28389	ISO 6263-09-05-0-97 and DIN 24340 form G	16G
<b>2FRW 10 -3X/...</b>	28389	ISO 6263-06-05-0-97	10G
<b>2FRW 16 -3X/...</b>	28389	ISO 6263-09-05-0-97 and DIN 24340 form G	16G
<b>3DRE(M)(E) 16 P-7X/...</b>	29286	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
<b>3DREP(E) 6 ..2X/...</b>	29184	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
<b>3FRM 10 -2X/...</b>	28862	similar to ISO 6263-06-05-0-97 Observe the position of the actuator ports!	10G
<b>3FRM 16 -2X/...</b>	28862	similar to ISO 6263-06-05-0-97 Observe the position of the actuator ports!	16G
<b>3WE 6 .6X/...</b>	23178	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
<b>3WE 6 .73.6X/...A12</b>	23183	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
<b>3WE 10 ..5X/...</b>	23340	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
<b>3WE 10 ..3X/...</b>	23327	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
<b>3WE 10 ..4X/...</b>	23327	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
<b>3WEH 10 ..4X/...</b>	24751	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
<b>3WEH 16 ..6X/...</b>	24751	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
<b>3WEH 22 ..7X/...</b>	24751	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
<b>3WEH 32 ..6X/...</b>	24751	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
<b>3WH 10 ..4X/...</b>	24751	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
<b>3WH 16 ..6X/...</b>	24751	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
<b>3WH 22 ..7X/...</b>	24751	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
<b>3WH 32 ..6X/...</b>	24751	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
<b>3WH. 6 ..5X/...</b>	22282	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
<b>3WHH 10 ..4X/...</b>	24851	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
<b>3WHH 16 ..7X/...</b>	24851	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
<b>3WHH 22 ..7X/...</b>	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
<b>3WHH 25 ..6X/...</b>	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
<b>3WHH 32 ..6X/...</b>	24851	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
<b>3WM 6 .5X/...</b>	22280	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
<b>3WM..H 10 ..4X/...</b>	24851	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
<b>3WM..H 16 ..7X/...</b>	24851	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
<b>3WM..H 22 ..7X/...</b>	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
<b>3WM..H 25 ..6X/...</b>	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
<b>3WM..H 32 ..6X/...</b>	24851	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
<b>3WMM 10 ..5X/...</b>	22334	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
<b>3WMR. 6 -5X/...</b>	22284	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
<b>3WN 10 ..5X/...</b>	22334	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
<b>3WP 10 ..5X/...</b>	22334	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
<b>3WP 6 ..6X/...</b>	22282	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
<b>3WPH 10 ..4X/...</b>	24851	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
<b>3WPH 16 ..7X/...</b>	24851	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
<b>3WPH 22 ..7X/...</b>	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
<b>3WPH 25 ..6X/...</b>	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
<b>3WPH 32 ..6X/...</b>	24851	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
<b>4WE 10 ..3X/...</b>	23327	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A

## Assignment of the valves according to size and porting pattern

Valve type	Data sheet	ISO / DIN / Rexroth-specific hole pattern	Denomination in the type code
4WE 10 ..4X/...	23327	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WE 10 ..5X/...	23340	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WE 6 ..6X/...	23178	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WE 6 ..73.6X/...A12	23183	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WEH 10 ..4X/...	24751	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WEH 16 ..6X/...	24751	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WEH 22 ..7X/...	24751	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WEH 32 ..6X/...	24751	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
4WH 10 ..4X/...	24751	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WH 16 ..6X/...	24751	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WH 22 ..7X/...	24751	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WH 32 ..6X/...	24751	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
4WH 6 ..5X/...	22282	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WHH 10 ..4X/...	24851	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WHH 16 ..7X/...	24851	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WHH 22 ..7X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WHH 25 ..6X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WHH 32 ..6X/...	24851	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
4WM 6 ..5X/...	22280	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WM..H 10 ..4X/...	24851	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WM..H 16 ..7X/...	24851	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WM..H 22 ..7X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WM..H 25 ..6X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WM..H 32 ..6X/...	24851	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
4WMM 10 ..5X/...	22334	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WMR. 6 ..5X/...	22284	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WN 10 ..5X/...	22334	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WP 10 ..5X/...	22334	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WP 6 ..6X/...	22282	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WPH 10 ..4X/...	24851	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WPH 16 ..7X/...	24851	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WPH 22 ..7X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WPH 25 ..6X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WPH 32 ..6X/...	24851	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
4WRA 6 ..-2X/...	29055	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WRA. 10 ..-2X/...	29055	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRDE 10 ...-5X/...	29093	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRDE 16 ...-5X/...	29093	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WRDE 25 ...-5X/...	29093	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WRDE 32 ...-5X/...	29093	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
4WRDU 16 ...-5X/...	29093	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WRDU 25 ...-5X/...	29093	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WRDU 32 ...-5X/...	29093	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
4WRE 10 ..-2X/...	29061	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRE 6 ..-2X/...	29061	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WRGE 10 ...-1X/...	29070	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRGE 16 ...-1X/...	29070	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WRGE 25 ...-1X...	29070	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WRH 16 ..-7X/...	29115	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WRH 25 ..-7X/...	29115	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WRH 32 ..-7X/...	29115	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A

## Assignment of the valves according to size and porting pattern

Valve type	Data sheet	ISO / DIN / Rexroth-specific hole pattern	Denomination in the type code
4WRKE 10 ..-3X/...	29075	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRKE 16 ..-3X/...	29075	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WRKE 25 ..-3X/...	29075	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WRKE 32 ..-3X/...	29075	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
4WRDL 10 -3X/...	29288	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRDL 16 -3X/...	29288	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WRDL 25 -3X/...	29288	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WRLE 25 ...E/W-3X/...	29089	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WRLE 25 ...V-3X/...	29088	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WRLE 32 ...E/W-3X/...	29089	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
4WRLE 32 ...V-3X/...	29088	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
4WRLE 10 ...E/W-3X/...	29089	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRLE 10 ...V-3X/...	29088	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRLE 16 ... E/W-3X/...	29089	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WRLE 16 ...V-3X/...	29088	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WRPDH 10 ...-2X/...	29391	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRPDH 6 ...-2X/...	29391	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WRPE 10 ...-2X/...	29025	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRPE 10 ...EA-2X/...	29024	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRPE 6 ...-2X/...	29025	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WRPE 6 ...EA-2X/...	29024	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WRPEH 10 ...-2X/...	29037	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRPEH 6 ...-3X/...	29121	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WRPNH 10 ...-2X/...	29191	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRPNH 6 ...-2X/...	29191	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WRREH 6 ...-1X/...	29041	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WRSE 10 ..-3X/...	29067	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRSE 6 ..-3X/...	29067	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WRSEH 10 ...-3X/...	29069	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRSEH 6 ...-3X/...	29069	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WRTE 10 ..-4X/...	29083	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRTE 16 ...-4X/...	29083	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WRTE 25 ...-4X/...	29083	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WRTE 32 ...-4X/...	29083	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
4WRVE 10 ...-2X/...	29077	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRVE 16 ...-2X/...	29077	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WRVE 25 ...-2X/...	29077	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WRZ(E) 10 ..-7X/...	29115	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRZ(E) 16 ..-7X/...	29115	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WRZ(E) 25 ..-7X/...	29115	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WRZ(E) 32 ..-7X/...	29115	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
4WRZ(E)(M) 10 ..-7X/...	29117	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WRZ(E)(M) 16 ..-7X/...	29117	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WRZ(E)(M) 25 ..-7X/...	29117	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WS(E)2E. 10 -5X/...	29583	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
4WS(E)2E. 16 -2X/...	29591	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
4WS(E)2EM 6 -2X/...	29564	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
4WSE3E 25 -3X/...	29621	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
4WSE3E 32 -5X/...	29622	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
4WSE3E. 16 -2X/...	29620	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
5-3WE 10 ..5X/...	23352	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A

## Assignment of the valves according to size and porting pattern

Valve type	Data sheet	ISO / DIN / Rexroth-specific hole pattern	Denomination in the type code
5-4WE 10 ..5X/...	23352	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
DA 6 V.2.5X/..FS..	26405	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
DA(W) 10 -.5X/...	26411	Rexroth-specific hole pattern	10D
DA(W) 20 -.5X/...	26411	Rexroth-specific hole pattern	25D
DA(W) 30 -.5X/...	26411	Rexroth-specific hole pattern	30D
DB(W) 10 ..4X/...	25818	ISO 6264-06-09-*97	10E
DB(W) 10 ..5X/...	25802	ISO 6264-06-09-*97	10E
DB(W) 20 ..4X/...	25818	ISO 6264-08-13-*97	25E
DB(W) 20 ..5X/...	25802	ISO 6264-08-13-*97	25E
DB(W) 30 ..5X/...	25802	ISO 6264-AT-10-2-A	30E
DB3U 10 ..5X/...	25826	ISO 6264-06-09-*97	10E
DB3U 20 ..5X/...	25826	ISO 6264-08-13-*97	25E
DB3U 30 ..5X/...	25826	ISO 6264-AT-10-2-A	30E
DBD. 10 P1X/...	25402	Rexroth-specific hole pattern	10E
DBD. 20 P1X/...	25402	Rexroth-specific hole pattern	20E
DBD. 30 P1X/...	25402	Rexroth-specific hole pattern	30E
DBD. 6 P1X/...	25402	Rexroth-specific hole pattern	06E
DBE 6 ..1X/...	29158	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
DBE(E) 6 -2X/...	29258	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
DBEBE 10 -1X/...	29163	ISO 5781-06-07-0-00	10D
DBEBE 6 -1X/...	29159	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
DBEM(E). 30 -7X/...	29361	ISO 6264-AT-10-2-A	30E
DBEP 6 .06-1X/...	29164	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
DBET(E).-6X/...	29162	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
DBETA-6X/...	29262	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
DBETB(E)X-1X/...	29151	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
DBG 10 -1X/...	29139	ISO 6264-06-09-*97	10E
DBG 20 -1X/...	29139	ISO 6264-08-13-*97	25E
DBG 30 -1X/...	29139	ISO 6264-AT-10-2-A	30E
DR 10 DP.-4X/...	26580	ISO 5781-06-07-0-00	10D
DR 10 -.4X/...	26893	ISO 5781-06-07-0-00	10D
DR 10 -.5X/...	26892	ISO 5781-06-07-0-00	10D
DR 20 -.4X/...	26893	ISO 5781-08-10-0-00	25D
DR 20 -.5X/...	26892	ISO 5781-08-10-0-00	25D
DR 30 -.5X/...	26892	ISO 5781-10-13-0-00	30D
DR 5 DP.-1X/...	26555	DIN 24340 form C	05C
DR 6 DP.-5X/...	26564	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
DRE(E). 6 ..1X/...	29175	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
DRE(M). 30 -6X/...	29278	ISO 5781-10-13-0-00	30D
DRE(M) 10 -.6X/...	29276	ISO 5781-06-07-0-00	10D
DRE(M) 20 -6X/...	29276	ISO 5781-08-10-0-00	25D
DRE(M)E.. 30 -6X/...	29278	ISO 5781-10-13-0-00	30D
DRE(M)E 10 -.6X/...	29276	ISO 5781-06-07-0-00	10D
DRE(M)E 20 -6X/...	29276	ISO 5781-08-10-0-00	25D
DREB 6 X-1X/...	29182	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
DREB 10 Z-1X/...	29198	ISO 5781-06-07-0-00	10D
DREBE 6 X-1X/...	29195	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
DREBE 10 Z-1X/...	29199	ISO 5781-06-07-0-00	10D
DRG 10 -1X/...	29145	ISO 5781-06-07-0-00	10D
DRG 20 -1X/...	29145	ISO 5781-08-10-0-00	25D
DRG 30 -1X/...	29145	ISO 5781-10-13-0-00	30D

## Assignment of the valves according to size and porting pattern

Valve type	Data sheet	ISO / DIN / Rexroth-specific hole pattern	Denomination in the type code
DRS 6-1X/...	29173	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
DZ 10 DP-4X/...	26099	ISO 5781-06-07-0-00	10D
DZ 10 -.5X/...	26391	ISO 5781-06-07-0-00	10D
DZ 20 -.5X/...	26391	ISO 5781-08-10-0-00	25D
DZ 30 -.5X/...	26391	ISO 5781-10-13-0-00	30D
DZ 5 DP-1X/...	26055	DIN 24340 form C	05C
DZ 6 DP-5X/...	26076	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
F 5 P3-3X/..	27761	Rexroth-specific hole pattern	05G
FD 12 PA2X/...	27551	ISO 5781-06-07-0-00	10D
FD 16 PA2X/...	27551	ISO 5781-06-07-0-00	10D
FD 25 PA2X/...	27551	ISO 5781-08-10-0-00	25D
FD 32 PA2X/...	27551	ISO 5781-10-13-0-00	30D
H-3WE 10 ..4X/...	24851	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
H-3WE 10 ..4X/...	24851	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
H-3WE 16 ..7X/...	24851	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
H-3WE 16 ..7X/...	24851	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
H-3WE 22 ..7X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
H-3WE 22 ..7X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
H-3WE 25 ..6X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
H-3 WE 25 ..6X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
H-3 WE 32 ..6X/...	24851	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
H-3 WE 32 ..6X/...	24851	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
H-3 WPH 10 ..4X/...	24851	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
H-3 WPH 16 ..7X/...	24851	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
H-3 WPH 22 ..7X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
H-3 WPH 25 ..6X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
H-3 WPH 32 ..6X/...	24851	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
H-4 WE 10 ..4X/...	24851	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
H-4 WE 10 ..4X/...	24851	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
H-4 WE 10 ..4X/...	24851	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
H-4 WE 16 ..7X/...	24851	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
H-4 WE 16 ..7X/...	24851	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
H-4 WE 16 ..7X/...	24851	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
H-4 WE 22 ..7X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
H-4 WE 22 ..7X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
H-4 WE 22 ..7X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
H-4 WE 25 ..6X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
H-4 WE 25 ..6X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
H-4 WE 25 ..6X/...	24851	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
H-4 WE 32 ..6X/...	24851	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
H-4 WE 32 ..6X/...	24851	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
H-4 WE 32 ..6X/...	24851	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
H-4WE 25 ..6X/...	24751	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
H-4WEH 10 ..4X/...	24751	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
H-4WEH 16 ..6X/...	24751	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
H-4WEH 22 ..7X/...	24751	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
H-4WEH 25 ..6X/...	24751	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
H-4WEH 32 ..6X/...	24751	ISO 4401-10-09-0-05 and NFPA T3.5.1 R2-D10	32A
H-4WH 10 ..4X/...	24751	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
H-4WH 16 ..6X/...	24751	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
H-4WH 22 ..7X/...	24751	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A

## Assignment of the valves according to size and porting pattern

Valve type	Data sheet	ISO / DIN / Rexroth-specific hole pattern	Denomination in the type code
<b>H-4WMM 16 .7X/...</b>	22371	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A
<b>H-4WMM 22 .7X/...</b>	22371	ISO 4401-08-08-0-05 and NFPA T3.5.1 R2	25A
<b>M-2SED 10 ..1X/350...</b>	22045	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
<b>M-2SED 6 ..1X/350..</b>	22049	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
<b>M-2SEW 6 ..3X/420..</b>	22058	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
<b>M-2SEW 6 ..3X/630...</b>	22058	ISO 4401-03-02-0-05 with M6 mounting screws	06 V
<b>M-3SED 10 ..1X/350...</b>	22045	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
<b>M-3SED 6 ..1X/350..</b>	22049	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
<b>M-3SEW 10 .1X/420...</b>	22075	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
<b>M-3SEW 6 ..3X/420..</b>	22058	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
<b>M-3SEW 6 ..3X/630...</b>	22058	ISO 4401-03-02-0-05 with M6 mounting screws	06 V
<b>M-3SEW 10 .-1X/630...</b>	22075	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05 M8 mounting screws	10 V
<b>M-4SED 10 ..1X/350...</b>	22045	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
<b>M-4SED 6 .1X/350..</b>	22049	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
<b>M-4SEW 10 ..1X/420...</b>	22075	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A
<b>M-4SEW 6 .3X/420..</b>	22058	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
<b>M-4SEW 6 .3X/630...</b>	22058	ISO 4401-03-02-0-05 with M6 mounting screws	06 V
<b>M-4SEW 10 .-1X/630...</b>	22075	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05 M8 mounting screws	10 V
<b>SL 10 P..-4X/...</b>	21468	ISO 5781-06-07-0-00	10D
<b>SL 20 P..-4X/...</b>	21468	ISO 5781-08-10-0-00	25D
<b>SL 30 P..-4X/...</b>	21468	ISO 5781-10-13-0-00	30D
<b>SL 6 PB.-6X/...</b>	21460	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)
<b>SV 10 P..-4X/...</b>	21468	ISO 5781-06-07-0-00	10D
<b>SV 20 P..-4X/...</b>	21468	ISO 5781-08-10-0-00	25D
<b>SV 30 P..-4X/...</b>	21468	ISO 5781-10-13-0-00	30D
<b>SV 6 PB.-6X/...</b>	21460	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A (06U)



## Subplates overview

Denomination	Material number	Page
<b>Size 4</b>		
G04R2-1X/G1/4	R900447986	5
G04R2-1X/UNF20	R900371166	5
G04U4-1X/G1/4	R900527276	6
<b>Size 5</b>		
G05C4-1X/G1/4	R900424379	7
G05C4-1X/G1/4-S	R900424464	7
G05G2-1X/G1/2	R900424455	8
G05G2-1X/G1/4	R900424453	8
<b>Size 6</b>		
G06A4-1X/G1/2-J3	R900519180	13
G06A4-1X/G1/2-L	R901099689	16
G06A4-1X/G1/2-M	R900455110	13
G06A4-1X/G1/4-J3	R900510636	12
G06A4-1X/G1/4-L	R900424447	12
G06A4-1X/G1/4-M	R901099586	9
G06A4-1X/G1/4-S	R900617691	11
G06A4-1X/G1/4-SL	R900422653	10
G06A4-1X/G1/4-SO699	R901410336	18
G06A4-1X/G3/8	R900424448	14
G06A4-1X/G3/8-J3	R900511297	14
G06A4-1X/G3/8-S	R901099691	15
G06A4-1X/M14-L	R900444738	12
G06A4-1X/M14-M	R901099686	9
G06A4-1X/M18	R900445838	14
G06A4-1X/M22	R900469970	13
G06A4-1X/NPT1/2	R900494326	13
G06A4-1X/UNF3/4-16-LJ3	R901439687	13
G06A4-1X/UNF3/4-16-L	R900487397	13
G06A4-1X/UNF3/4-16-M	R900455128	14
G06A4-1X/UNF3/4-16-MJ3	R901439685	14
G06A4-1X/UNF9/16-18-M	R900341065	12
G06A4-1X/UNF9/16-18-MJ3	R901439683	12
G06E2-1X/G1/4	R900425176	17
G06E2-1X/UNF7/16-20	R900497212	17
G06U4-1X/G1/2	R901037457	13
G06U4-1X/G1/2-J3	R901439686	13
G06U4-1X/G1/4	R901027119	12
G06U4-1X/G1/4-J3	R901439682	12
G06U4-1X/G3/8	R901043861	14
G06U4-1X/G3/8-J3	R901439684	14
G06U4-1X/G3/8-S	R901107321	15
G06V4-1X/G1/4	R900356736	18
G06V4-1X/G3/8	R900358639	18
W-G06A4-1X/G1/4	R900354070	18
W-G06V4-1X/G1/4	R900352174	18

Denomination	Material number	Page
<b>Size 10</b>		
G10A4-1X/G1G1/4	R900476059	21
G10A4-1X/G1G1/4-J3	R901439664	21
G10A4-1X/G1G3/8-S-SO771	R900332829	22
G10A4-1X/G1/2	R900424460	19
G10A4-1X/G1/2G1/4-SO331	R901098950	20
G10A4-1X/G1/2-J3	R900436900	19
G10A4-1X/G1/2-L	R900568135	20
G10A4-1X/G3/4	R900467259	20
G10A4-1X/G3/4G1/4	R900476061	21
G10A4-1X/G3/4G1/4-J3	R900336998	21
G10A4-1X/G3/4-J3	R900382284	20
G10A4-1X/G3/4G1/4-SO331	R901088735	20
G10A4-1X/G3/8	R900424457	19
G10A4-1X/G3/8-J3	R900339374	19
G10A4-1X/M18	R900474063	19
G10A4-1X/M27M14	R900339376	21
G10A4-1X/M33M14	R900489146	21
G10A4-1X/UNF3/4-16	R900460656	19
G10A4-1X/UNF9/16-18	R900460655	19
G10A4-1X/UN1 1/16-12	R900487398	20
G10A4-1X/UN1 1/16-12UNF20	R900340150	21
G10A4-1X/UN1 5/16-12UNF20	R900339737	21
G10D2-1X/G1/2G1/4	R900439455	24
G10D2-1X/G1/2G1/4-J3	R900463647	24
G10D2-1X/G3/8G1/4	R900440640	24
G10D2-1X/UNF3/4-16UNF20	R900488054	24
G10D2-1X/UNF9/16-18UNF20	R900361481	24
G10D3-1X/G1/2	R900453699	23
G10D3-1X/G3/8	R900442409	23
G10D3-1X/UNF3/4-16	R900351415	23
G10E2-1X/G1/2	R901092905	17
G10E2-1X/G1/2G1/4	R900411117	25
G10E2-1X/G1/2G1/4-J3	R901156999	25
G10E2-1X/G3/4G1/4	R900489898	27
G10E2-1X/G3/8	R901092884	17
G10E2-1X/G3/8G1/4	R900411116	25
G10E2-1X/G3/8G1/4-SO699	R901408884	26
G10E2-1X/UNF3/4-16UNF20	R900339599	25
G10E2-1X/UNF9/16-18UNF20	R900343968	25
G10G2-1X/G1/2	R900424433	28
G10G2-1X/G3/4	R900424437	28
G10G2-1X/UNF1 1/16-12	R900455127	28
G10G2-1X/UNF3/4-16	R900487923	28
G10G3-1X/G1/2	R900422654	29
G10G3-1X/G1/2G1/4	R900430216	29
G10V4-1X/G1/2	R900433026	30
G10V4-1X/G3/8	R900464300	30
W-G10V4-1X/G1/2	R900407216	30

## Subplates overview

Denomination	Material number	Page
<b>Size 16</b>		
G16A4-1X/FL19G1/4	R900429264	33
G16A4-1X/FL19G1/4-J3	R901439672	33
G16A4-1X/G1G1/4	R900424413	31
G16A4-1X/G1G1/4-J3	R900433461	31
G16A4-1X/G3/4G1/4	R900424410	32
G16A4-1X/G3/4G1/4-J3	R901439667	32
G16A4-1X/M27M14	R900424411	32
G16A4-1X/M27M14-J3	R901439670	32
G16A4-1X/M33M14	R900424414	31
G16A4-1X/M33M14-J3	R901439671	31
G16A4-1X/UN1 1/16-12UNF20	R900455125	32
G16A4-1X/UN1 5/16-12UNF18	R900455126	31
G16G2-1X/G1	R900424440	34
G16G2-1X/G1 1/4	R900424442	34
G16G2-1X/NPT1	R900431444	34
G16G2-1X/UN1 5/16-12	R900487924	34
G16G2-1X/UN1 5/8-12	R900357120	34
G16G3-1X/G1	R900422655	35
G16G3-1X/G1G1/4	R900422657	35
<b>Size 20</b>		
G20E2-1X/G1	R900422646	17
G20E2-1X/G3/4	R900422645	17
<b>Size 25</b>		
G25A4-1X/FL32G1/4-J3-SO003	R901439676	38
G25A4-1X/FL32G1/4-SO003	R900424398	38
G25A4-1X/G1G1/4	R900424392	36
G25A4-1X/G1G1/4-J3	R901439673	36
G25A4-1X/G1G1/4-SO003	R900424395	36
G25A4-1X/G1 1/14G1/4	R901099696	37
G25A4-1X/G1 1/2G1/4-J3-SO003	R901439677	39
G25A4-1X/G1 1/2G1/4-SO003	R900424399	39
G25A4-1X/G1 1/4G1/4-J3-SO003	R901439675	39
G25A4-1X/G1 1/4G1/4-SO003	R900424396	39
G25A4-1X/G3/4G1/4	R900445877	36
G25A4-1X/UN1 1/16-12UNF20-SO003	R900455872	36
G25A4-1X/UN1 5/16-12UNF20-SO003	R900584166	36

Denomination	Material number	Page
G25A4-1X/UN1 5/8-12UNF20-SO003	R900455873	39
G25A4-1X/UN1 7/8-12UNF20-SO003	R900490017	39
G25D2-1X/G1G1/4	R900440431	41
G25D2-1X/G3/4G1/4	R900440266	41
G25D2-1X/UN1 1/16-12UNF20	R900455130	41
G25D2-1X/UN1 5/16-12UNF20	R900487396	41
G25D3-1X/G1	R900448459	40
G25D3-1X/G3/4	R900451805	40
G25D3-1X/UN1 1/16-12	R900352206	40
G25E2-1X/G1G1/4	R900435663	42
G25E2-1X/G1G1/4-J3	R901018328	42
G25E2-1X/G3/4G1/4	R900439820	42
G25E2-1X/G3/4G1/4-SO699	R901408886	43
G25E2-1X/UN1 1/16-12UNF20	R900455129	42
G25E2-1X/UN1 5/16-12UNF20	R900485504	42
<b>Size 30</b>		
G30E2-1X/G1 1/2	R900422647	17
G30E2-1X/G1 1/4	R900424755	17
<b>Size 32</b>		
G32A4-1X/FL51G3/8	R900424227	45
G32A4-1X/FL51G3/8-J3	R901439680	45
G32A4-1X/G1 1/2G3/8	R900424402	44
G32A4-1X/G1 1/2G3/8-J3	R901439678	44
G32A4-1X/M48M18	R900424403	44
G32A4-1X/M48M18-J3	R901439679	44
G32D2-1X/G1 1/2G1/4	R900441983	47
G32D2-1X/G1 1/4G1/4	R900443673	47
G32D2-1X/UN1 7/8-12UNF20	R900339598	47
G32D3-1X/G1 1/2	R900453893	46
G32D3-1X/G1 1/4	R900445297	46
G32D3-1X/UN1 7/8-12	R900379098	46
G32E2-1X/G1 1/2G1/4	R900439106	48
G32E2-1X/G1 1/2G1/4-J3	R900580254	48
G32E2-1X/G1 1/4G1/4	R900440340	48
G32E2-1X/G1 1/4G1/4-SO699	R901408888	49
G32E2-1X/UN1 5/8-12UNF20	R900339043	48
G32E2-1X/UN1 7/8-12UNF20	R900340082	48

# Cover plates

Porting patterns to DIN 24340 form A and J4,  
ISO 4401,  
plugs and plug screws for valve bores

**RE 48042/10.05**  
Replaces: 01 .03

1/20

## Type HSA

Size 4 to 35  
Component series 3X and 4X  
Maximum operating pressure 315 bar

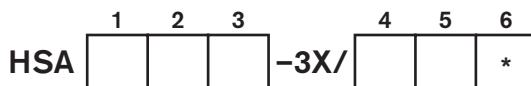
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<b>Porting pattern types:</b>	
– Porting pattern types 04A and 04J	5
– Porting pattern type 05G	5
– Porting pattern type 06A	6 to 8
– Porting pattern type 10B	9 and 10
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## Features

- Cover plates for reserve stations on multi-station manifold plates, vario-plates and control plates
- Interconnecting and flushing functions
- Boost and measuring functions
- End plates with valves
- Max. operating pressure
  - Without valve function: 315 bar
  - With valve function: max. 315 bar  
(depending on valves fitted)
- Weight indications include valves integrated or mounted

### Explanation of type code for cover plates HSA... (for types without valves)



<b>1</b>		Size	= 04, 05, 06, 10, 16, 20, 22, 30, 32, 35	}	Porting pattern type
<b>2</b>		Porting pattern	= Form A, B, D, E, F, G, H, J		
<b>3</b>		Serial number of function version from <b>001 ... 999</b> (determined by the factory)			
<b>4</b>		Type of seal:	NBR seals = M FKM seals = V (other seals on enquiry)		
<p><b>⚠ Caution!</b> Observe compatibility of seals with hydraulic fluid used!</p>					
<b>5</b>		Type of connection:	No external connection = 00 Connection to DIN 3852 part 1 with thread to DIN ISO 228 (Whitworth thread) = 01	<ul style="list-style-type: none"> <li>- For circuits and versions other than those given in the data sheet, please consult us!</li> <li>- Connection threads are always closed pressure-tight.</li> <li>- Fixing screws (socket head cap screws DIN 912-10.9) are included in the scope of supply and listed with the relevant component</li> </ul>	
<b>6</b>		Further details in clear text			
*					

#### Order examples

Cover plate **without** valves (page 6):

Material no.	Type designation
R900316232	HSA 06 A001-3X/M00

The material no. includes the ready-to-install cover plate.

Cover plate **with** valves (page 8):

Material no.	Type designation
R900558067	HSA 06 A054-3X/ <sup>15</sup> <sup>16</sup> <span style="border: 1px solid black; padding: 2px;">S</span> <span style="border: 1px solid black; padding: 2px;">050</span> M00

The material no. includes the ready-to-install cover plate with pressure relief valve type DBDS 6 K1X/50, material no. **R900423727**.

## Components and associated porting pattern types

Component designation	Data sheet no.	Porting pattern type	Component designation	Data sheet no.	Porting pattern type	
.WE 4 .1X/...	23160	<b>04A</b>	4WEH 10 ..4X/...	24751	<b>10B</b>	
HED 8 OH1X/...	50060	<b>04J</b>	H-4WEH 10 ..4X/...			
F 5 P3-3X/...	27761	<b>05G</b>	4WH 10 ..4X/...			
SV 6 PB.-6X/...	21460		H-4WH 10 ..4X/...			
SL 6 PB.-6X/...						
M-.SED 6 .1X/350...	22049	<b>06A</b>	4WRGE 10 ...-1X/...			29070
M-.SEW 6 .3X/420...	22058		4WRTE 10 ...-4X/...			29083
.WM. 6 .5X/...	22280		4WRDE 10 ...-5X/...			29093
.W. 6 .5X/...	22282		4WRZ 10 ..-7X/...			29115
.WMR. 6 .-5X/...	22284		3DRE. 10 P5X/...	29185		
.WE 6 .6X/...	23178		4WS. 2E. 10-5X/...	29583		
.WE 6 .-6X/...	23183		SV 10 P.-4X/...	21468	<b>10D</b>	
DZ 6 DP.-5X/...	26076		SL 10 P.-4X/...			
DA 6 V.-4X/...	26404		DZ 10 DP.-4X/...	26099		
DR 6 DP.-5X/...	26564		DZ 10 -. -5X/...	26391		
2FRM 6 ...-3X/...	28163		DR 10 DP.-4X/...	26580		
4WRA 6 ..-2X/...	29055		DR 10 -. -5X/...	26892		
4WRE 6 ..-2X/...	29061		DR 10 -. -4X/...	26893		
4WRS 6 ..-3X/...	29067		FD 12 PA2X/...	27551		
DBE. 6 ..-1X/...	29158		FD 16 PA2X/...			
DBEP 6 .06-1X/...	29164		DRG 10 -1X/...	29145		
DBET . -5X/...	29165		DRE 10 -5X/...	29176		
DBEMT . -5X/...						
DBETR - 2X/...	29168		DREM 10 -5X/...			
DRE 6 ..-1X/...	29175		DB 10 ..-5X/...	25802	<b>10E</b>	
3DREP 6 .2X/...	29184		DBW 10 ..-5X/...			
2FRE 6 .-2X/...	29188		DB 10 ..-4X/...W65	25818		
4WS2EM 6 -2X/...	29564		DB3U 10 ..5X/...	25826		
M-.SED 10 .1X/350...	22045		DBG 10 -1X/...	29139		
M-.SEW 10 .1X/420...	22075		DBE. 10 -5X/...	29160		
.WM. 10 .3X/...	22331		DBEM. 10 -5X/...			
.WE 10 .-3X/...	23183		4WS2E. 10 -4X/...	29586	<b>10F</b>	
5-.WE 10 .3X/...	23351		4WSE2E. 10 -4X/...			
4WRA. 10 ..-2X/...	29055	3DS2EH 10 -2X/...	29646			
4WRE 10 ..-2X/...	29061	3DSE2EH 10 -2X/...				
.WE 10 .3X...	23327	2FRM 10 -3X/...	28389	<b>10G</b>		
		2FRH 10 -3X/...				
		2FRW 10 -3X/...				
		2FRE 10 -4X/...	29190			
		DBC 10 -. -5X/...	25802	<b>10H</b>		
		DBC 30 -. -5X/...				
		DBC3U 10 ..5X/...	25826			
		DBC3U 30 ..5X/...				
		DZC 30 -. -5X/...	26391			
		DAC 30 -. -5X/...	26411			
		DRC 30 -. -5X/...	26892			
		DBGC 30 -1X/...	29139			
		DRECH 30 -4X/...	29178			

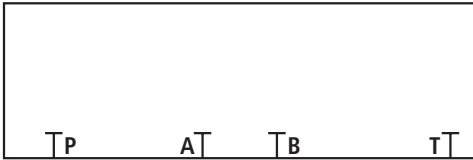
## Components and associated porting pattern types

Component designation	Data sheet no.	Porting pattern type	Component designation	Data sheet no.	Porting pattern type
H-4WMM 16 .7X/...	22371	<b>16B</b>	H-4WMM 22 .7X/...	22371	<b>22B</b>
4WEH 16 ..6X/...	24751		4WEH 22 ..7X/...	24751	
H-4WEH 16 ..6X/...			H-4WEH 22 ..7X/...		
4WH 16 ..6X/...			H-4WH 22 ..7X/...		
H-4WH 16 ..6X/...			H-4WEH 25 ..6X/...		
4WRGE 16 ...-1X/...			29070		
4WRTE 16 ...-4X/...	29083		4WRTE 25 ...-4X/...	29083	
4WRDE 16 ...-5X/...	29093		4WRDE 25 ...-5X/...	29093	
4WRDU 16 ...-5X/...	29115		4WRDU 25 ...-5X/...	29115	
4WRH 16 ..-7X/...			4WRH 25 ..-7X/...		
4WRZ 16 ..-7X/...	29185		4WRZ 25 ..-7X/...	29185	
3DRE 16 P 4X/...	29185		4WSE3EE 25 -2X/...	29595	
3DREM 16 P 4X/...			4WSE2E. 16 -2X/...	29591	
4WS2E. 16 -2X/...	29591		4WSE3EE 16 -1X/...	29595	
4WSE3EE 16 -1X/...	28389	SV 30 P.-4X/...	21468		
2FRM 16 -3X/...		2FRH 16 -3X/...	26391		
2FRH 16 -3X/...		2FRW 16 -3X/...	26892		
2FRE 16 -4X/...		29190	27551		
SV 20 P.-4X/...		21468	29145		
SL 20 P.-4X/...	<b>20D</b>	DRE.. 30 -4X/	29178		
DZ 20 -. -5X/...		26391	DB 30 ..-5X/...	25802	
DR 20 -. -5X/...		26892	DBW 30 ..-5X/...	<b>30E</b>	
DR 20 -. -4X/...		26893	DB3U 30 ..5X/...		25826
FD 25 PA2X/...		27551	DBG 30 -1X/...		29139
DRG 20 -1X/...		29145	DBE. 30 -3X/...		29142
DRE 20 -5X/...		29176	DBEM. 30 -3X/...	29142	
DREM 20 -5X/			4WEH 32 ..6X/...		24751
DB 20 ..-5X/...		25802	H-4WEH 32 ..6X/...	24751	
DBW 20 ..-5X/...		<b>20E</b>	4WH 32 ..6X/...		29083
DB 20 ..-4X/...W65	25818		H-4WH 32 ..6X/...		
DB3U 20 ..5X/...	25826		4WRTE 32 ...-4X/...	29083	
DBG 20 -1X/...	29139		4WRDE 32 ...-5X/...	29093	
DBE. 20 -5X/...	29160		4WRDU 32 ...-5X/...	29093	
DBEM. 20 -5X/...			4WRH 32 ..-7X/...		29115
			4WRZ 32 ..-7X/...	29115	
		4WSE3EE 32 -4X/...	29595		
		4WRDE 35 ...-5X/...	29093		
		4WRDU 35 ...-5X/...		<b>35B</b>	

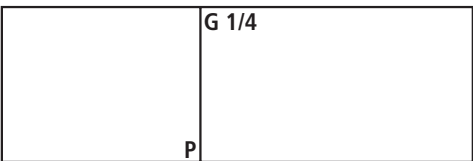
### Note:

All components listed under one porting pattern type feature the same porting pattern.

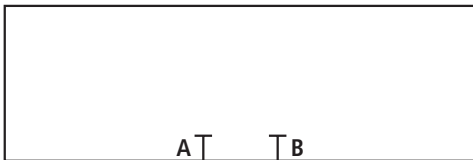
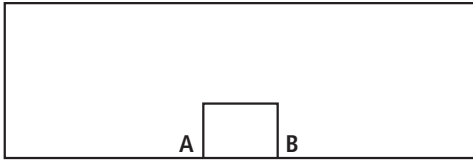
**Cover plates for porting pattern type 04A (e.g.: .WE4 .1X/...)**

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate with R-ring plate	HSA 04 A001-1X/M00		54 x 36 x 31	R900265353
	R900535366		0.5 kg	4 off M5 x 40


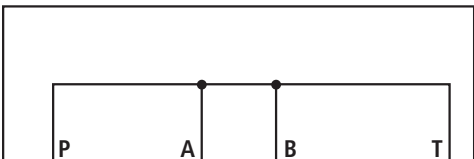

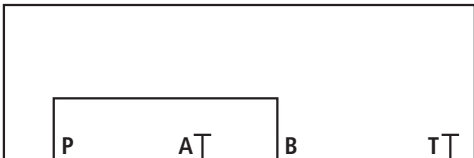
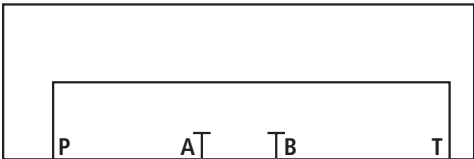
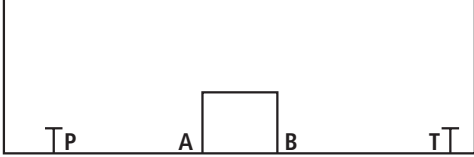
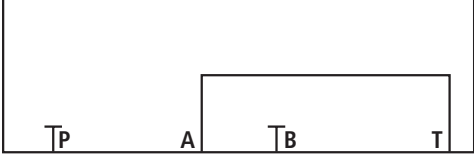
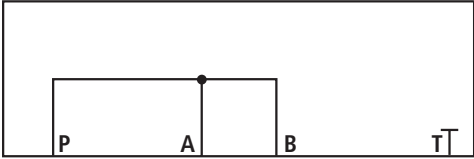
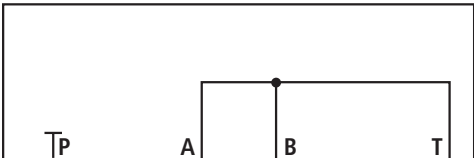
**Cover plates for porting pattern type 04J (e.g.: HED 8 OH1X/...)**

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 04 J021-3X/M01		40 x 40 x 23	R900259654
	R900548703		0.3 kg G 1/4	2 off M5 x 30

**Cover plates for porting pattern type 05G (e.g.: F5 P3-3X/...)**

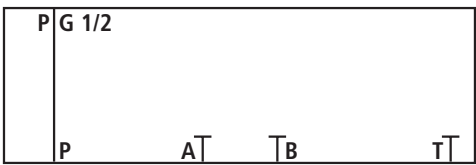
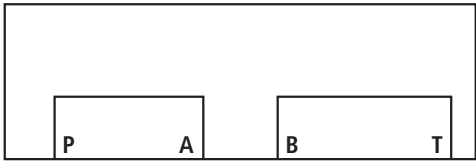
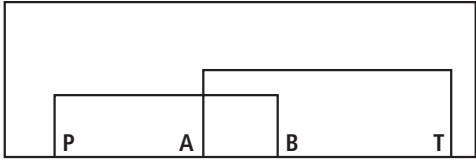
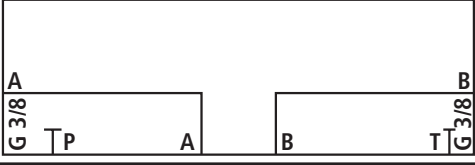
Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 05 G001-3X/M00		60 x 60 x 21	R900267876
	R900907655		0.5 kg	4 off M5 x 30
Cover plate	HSA 05 G006-3X/M00		60 x 60 x 21	R900267877
	R900907654		0.5 kg	4 off M5 x 30

## Cover plates for porting pattern type 06A (e.g.: 4WE 6 .6X/...)

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate with R-ring plate	HSA 06 A001-3X/M00		65 x 45 x 21	R900261207
	R900316232		0.5 kg	4 off M5 x 30
Cover plate	HSA 06 A005-4X/M00		65 x 44 x 31	R901092295
	R901092289		0.6 kg	4 off M5 x 40 Thread M8 x 1 in channels P, A, B, and T
Cover plate	HSA 06 A009-4X/M00		65 x 44 x 31	R901091844
	R901091838		0.6 kg	4 off M5 x 40
Cover plate	HSA 06 A024-4X/M00		65 x 44 x 31	R901092275
	R901092273		0.6 kg	4 off M5 x 40
Cover plate	HSA 06 A012-4X/M00		65 x 44 x 31	R901091849
	R901091847		0.6 kg	4 off M5 x 40
Cover plate	HSA 06 A006-4X/M00		65 x 44 x 31	R901092280
	R901092277		0.6 kg	4 off M5 x 40
Cover plate	HSA 06 A011-4X/M00		65 x 44 x 31	R901092343
	R901092342		0.6 kg	4 off M5 x 40
Cover plate	HSA 06 A004-4X/M00		65 x 44 x 31	R901092295
	R901092293		0.6 kg	4 off M5 x 40
Cover plate	HSA 06 A016-4X/M00		65 x 44 x 31	R901092288
	R901092286		0.6 kg	4 off M5 x 40



## Cover plates for porting pattern type 06A (e.g.: 4WE 6 .6X/...)

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 06 A021-4X/M00 R901092303		65 x 44 x 31 0.6 kg G 1/2	R901092318 4 off M5 x 40
Cover plate	HSA 06 A010-3X/M00 R900407515		65 x 44 x 21 0.4 kg	R900261213 4 off M5 x 30
Cover plate	HSA 06 A007-3X/M00 R900327927		65 x 45 x 17 0.4 kg	R900261210 4 off M5 x 16
Cover plate with R-ring plate	HSA 06 A025-3X/M01 R900579810		65 x 44 x 42 0.8 kg G 3/8	R900264995 4 off M5 x 50

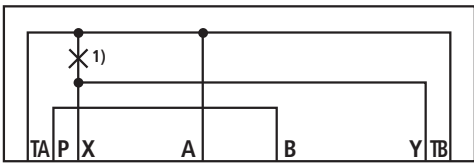
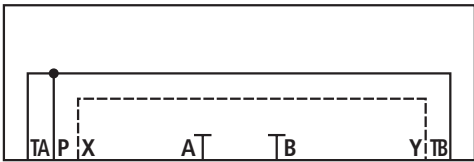
**Cover plates for porting pattern type 06A (e.g.: 4WE 6 .6X/...)**

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
<b>Cover plate</b>	Example of type: <b>HSA 06 A064-3X/</b> <sup>15 16</sup> <b>S 200 M00</b>		120 x 44 x 51	R900266511
	<b>R900915985</b>		2.2 kg	4 off M5 x 60
<b>Valves fitted on cover plate:</b>	• Pressure relief valve, direct operated			RE 25402
	DBD <sup>15</sup> S 6 K1X/ <sup>16</sup> 200			
	• Included in the scope of supply! – Complete valve type designation according to page 17.			
<b>Cover plate</b>	Example of type: <b>HSA 06 A054-3X/</b> <sup>15 16</sup> <b>S 050 M00</b>		120 x 44 x 51	R900263979
	<b>R900558067</b>		2.2 kg	4 off M5 x 60
<b>Valves fitted on cover plate:</b>	• Pressure relief valve, direct operated			RE 25402
	DBD <sup>15</sup> S 6 K1X/ <sup>16</sup> 50			
<b>Cover plate</b>	Example of type: <b>HSA 06 A071-3X/</b> <sup>23 24</sup> <b>G24 N9 K4M00</b>		120 x 44 x 100	R900263638
<b>R900916001</b>	2.2 kg		4 off M5 x 100	
<b>Valves fitted on cover plate:</b>	• 3/2 directional poppet valve			RE 22049
	M-3SED 6 CK1X/350C <sup>23 24</sup> G24 N9 K4			
<b>Cover plate</b>	Example of type: <b>HSA 06 A031-3X/AS1C -BS1C</b> <sup>23 24</sup> <b>G24 N9 K4M00</b>		120 x 44 x 70	R900243856
<b>R900979164</b>	3.4 kg		4 off M5 x 80	
<b>Valves fitted on cover plate:</b>	• 3/2 directional poppet valve			RE 18136-03
	KSDER 1CA/HC <sup>23 24</sup> G24 N9 K4			
	• Included in the scope of supply! – Complete valve type designation according to page 17.			

## Cover plates for porting pattern type 10B (e.g.: 4WEH 10 ..4X/...)

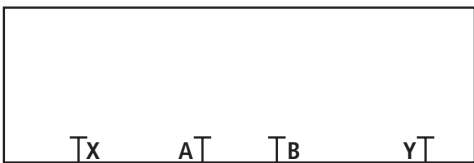
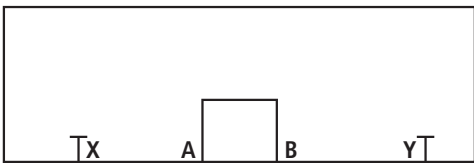
Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate with R-ring plate	HSA 10 B001-3X/M00		90 x 70 x 21	R900261221
	R900302150		1.0 kg	4 off M6 x 30
Cover plate	HSA 10 B005-3X/M00		90 x 70 x 41	R900269227
	R900915851		1.9 kg	4 off M6 x 50 Thread M10 x 1 in channels P, A, B, TA and TB
Cover plate with R-ring plate	HSA 10 B015-3X/M00		90 x 70 x 31	R900261227
	R900367014		1.4 kg	4 off M6 x 40
Cover plate with R-ring plate	HSA 10 B013-3X/M00		90 x 70 x 31	R900261226
	R900502633		1.4 kg	4 off M6 x 40
Cover plate	HSA 10 B012-3X/M00		90 x 70 x 41	R900261225
	R900502632		1.9 kg	4 off M6 x 50
Cover plate	HSA 10 B010-3X/M00		90 x 70 x 51	R900261224
	R900497359		2.3 kg	4 off M6 x 60
Cover plate with R-ring plate	HSA 10 B028-3X/M01		90 x 70 x 30	R900261427
	R900586693		1.4 kg	4 off M6 x 40
Cover plate with R-ring plate	HSA 10 B022-3X/M01		90 x 70 x 32	R900264339
	R900576302		1.4 kg	4 off M6 x 30
			G 1/2	

## Cover plates for porting pattern type 10B (e.g.: 4WEH 10 ..4X/...)

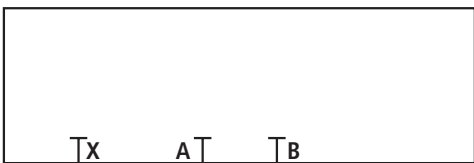
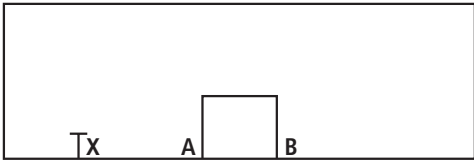
Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 10 B018-3X/M00 R900550520		100 x 70 x 50 2.5 kg	R900259810 4 off M6 x 60
Cover plate	HSA 10 B019-3X/M00 R900903210		90 x 70 x 41 2.0 kg	R900267089 4 off M6 x 50

<sup>1)</sup> If required, a connection can be provided by removing the double plug.

## Cover plates for porting pattern type 10D (e.g.: SL 10 P ..-4X/...)

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 10 D001-3X/M00 R900906197		70 x 90 x 26 1.2 kg	R900267619 4 off M10 x 40
Cover plate	HSA 10 D006-3X/M00 R900906231		70 x 90 x 26 1.2 kg	R900267620 4 off M10 x 40

## Cover plates for porting pattern type 10E (e.g.: DB 10..-5X/...)

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 10 E001-3X/M00 R900551001		92 x 78 x 30 1.5 kg	R900259799 4 off M12 x 50
Cover plate	HSA 10 E006-3X/M00 R900907077		92 x 78 x 30 1.5 kg	R900267800 4 off M12 x 50

## Cover plates for porting pattern type 10F (e.g.: 4WS2E. 10-4X/...)

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate with R-ring plate	HSA 10 F001-3X/M00		90 x 70 x 21	R900265956
	R900564956		1.0 kg	4 off M6 x 30
Cover plate	HSA 10 F003-3X/M00		90 x 70 x 41	R900261235
	R900308492		2.0 kg	4 off M6 x 50

## Cover plates for porting pattern type 10G (e.g.: 2FRM 10 -3X/...)

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 10 G001-3X/M00		100 x 100 x 20	R900267951
	R900302588		1.5 kg	4 off M8 x 30
Cover plate	HSA 10 G006-3X/M00		100 x 100 x 30	R900267952
	R900907967		2.0 kg	4 off M8 x 40

## Cover plates for porting pattern type 10H (e.g.: DBC 10 -.-5X/...)

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 10 H001-3X/M00		80 x 65 x 29	R900265991
	R900545468		1.5 kg	4 off M8 x 40
Cover plate	HSA 10 H006-3X/M00		80 x 65 x 29	R900265992
	R900545469		1.4 kg	4 off M8 x 40

## Cover plates for porting pattern type 16B (e.g.: 4WEH 16 ..6X/...)

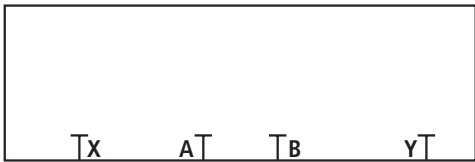
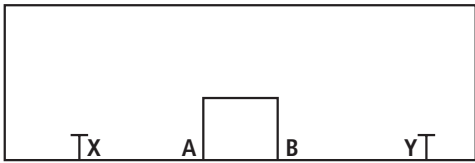
Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 16 B001-3X/M00 R900381272		140 x 91 x 20 1.9 kg	R900261228 2 off M6 x 30 4 off M10 x 35
Cover plate	HSA 16 B010-3X/M00 R900502635		140 x 91 x 84 7.8 kg	R900261231 2 off M6 x 100 4 off M10 x 100
Cover plate	HSA 16 B007-3X/M00 R900502634		140 x 91 x 40 3.7 kg	R900261229 2 off M6 x 50 4 off M10 x 55
Cover plate	HSA 16 B017-4X/M00 R900904217		140 x 91 x 55 5.1 kg	R900267221 2 off M6 x 70 4 off M10 x 70
Cover plate	HSA 16 B018-4X/M00 R900904224		140 x 91 x 55 5.1 kg	R900267220 2 off M6 x 70 4 off M10 x 70

<sup>1)</sup> If required, a connection can be provided by removing the double plug.

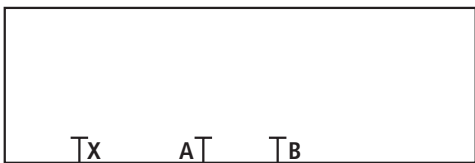
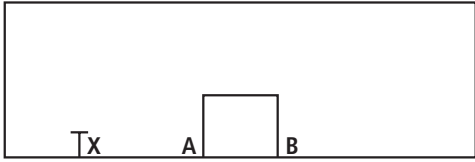
## Cover plates for porting pattern type 16G (e.g.: 2FRM 16 -3X/...)

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 16 G001-3X/M00 R900908048		122 x 124 x 26 2.8 kg	R900267960 4 off M10 x 40
Cover plate	HSA 16 G006-3X/M00 R900908044		122 x 124 x 36 4.0 kg	R900267961 4 off M10 x 50

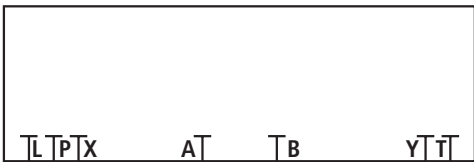
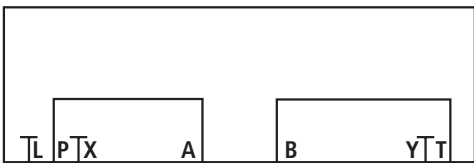
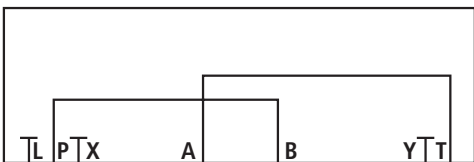
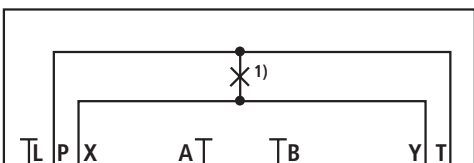
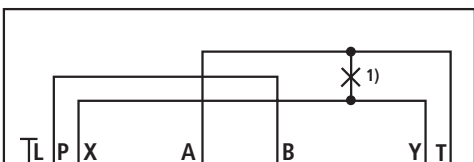
**Cover plates for porting pattern type 20D (e.g.: SL 20 P ..-4X/...)**

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 20 D001-3X/M00 R900906130		100 x 100 x 26 1.9 kg	R900267602 4 off M10 x 40
Cover plate	HSA 20 D006-3X/M00 R900906134		100 x 100 x 36 2.6 kg	R900267603 4 off M10 x 50

**Cover plates for porting pattern type 20E (e.g.: DB 20 ..-5X/...)**

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 20 E001-3X/M00 R900907078		120 x 100 x 26 2.2 kg	R900267801 4 off M16 x 50
Cover plate	HSA 20 E006-3X/M00 R900907072		120 x 100 x 36 3.0 kg	R900267802 4 off M16 x 60

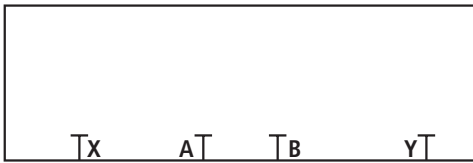
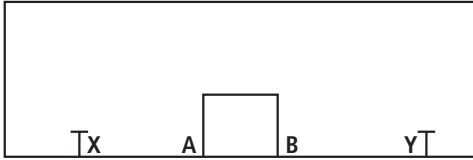
## Cover plates for porting pattern type 22B (e.g.: 4WEH 22 ..-7X/...)

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 22 B001-3X/M00 R900327259		160 x 117 x 20 2.7 kg	R900261232 6 off M12 x 40
Cover plate	HSA 22 B010-3X/M00 R900327260		160 x 117 x 62 8.4 kg	R900261234 6 off M12 x 80
Cover plate	HSA 22 B007-3X/M00 R900502757		160 x 117 x 40 5.4 kg	R900261233 6 off M12 x 60
Cover plate	HSA 22 B017-4X/M00 R900904989		160 x 117 x 62 8.4 kg	R900267398 6 off M12 x 80
Cover plate	HSA 22 B018-4X/M00 R900904988		160 x 117 x 62 8.4 kg	R900267399 6 off M12 x 80

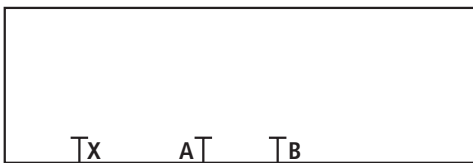
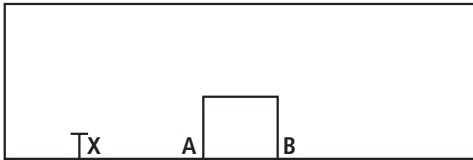
<sup>1)</sup> If required, a connection can be provided by removing the double plug.



**Cover plates for porting pattern type 30D (e.g.: SL 30 P ..-4X/...)**

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 30 D001-3X/M00 R900906234		120 x 120 x 26 2.7 kg	R900267621 6 off M10 x 40
Cover plate	HSA 30 D006-3X/M00 R900906235		120 x 120 x 47 4.8 kg	R900267622 6 off M10 x 60

**Cover plates for porting pattern type 30E (e.g.: DB30 ..-5X7..)**

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 30 E001-3X/M00 R900907071		150 x 115 x 26 3.2 kg	R900267803 4 off M18 x 50
Cover plate	HSA 30 E006-3X/M00 R900907079		150 x 115 x 46 5.7 kg	R900267804 4 off M18 x 70

**Cover plates for porting pattern type 32B (e.g.: 4WEH 32 ..6X/...)**

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 32 B001-3X/M00 R900564380		230 x 197 x 50 16.5 kg	R900261448 6 off M20 x 80
Cover plate	HSA 32 B010-3X/M00 R900566192		230 x 197 x 100 33 kg	R900261447 6 off M20 x 130
Cover plate	HSA 32 B017-3X/M00 R900550595		261 x 197 x 60 22.5 kg	R900259800 6 off M20 x 90
Cover plate	HSA 32 B018-4X/M00 R900901069		261 x 197 x 60 22.5 kg	R900266693 6 off M20 x 90

**Cover plates for porting pattern type 35B (e.g. 4WRDE. 35 ..-5X/...)**

Component designation	Type designation	Symbol	Plate L x W x H	Data sheet
	Material no.		Weight	Fixing screws
			Size of ports	Further information
Cover plate	HSA 35 B017-3X/M00 R900907619		261 x 197 x 60 22.5 kg	R900267939 6 off M20 x 90

<sup>1)</sup> If required, a connection can be provided by removing the double plug.

## Seal kits for cover plates (NBR seals)

Porting pattern type	Seal kit	Material no.
04A	HSA 04 A...-1X/M	R900853054
04J	HSA 04 J...-3X/M	R900853066
05G	HSA 05 G...-3X/M	R900853071
06A	HSZ 06 A...-3X/M	R900313192
10B	HSZ 10 B...-3X/M	R900313194
10D	HSA 10 D...-3X/M	R900853072
10E	HSA 10 E...-3X/M	R900853073
10F	HSA1 0 F...-3X/M	R900843113

Porting pattern type	Seal kit	Material no.
10H	HSA 10 H...-3X/M	R900853070
16B	HSZ 16 B...-3X/M	R900853074
16G	HSA 16 G...-3X/M	R900853075
20D	HSA 20 D...-3X/M	R900853076
20E	HSA 20 E...-3X/M	R900853078
22B	HSZ 22 B...-3X/M	R900853079
30D	HSA 30 D...-3X/M	R900853080
30E	HSA 30 E...-3X/M	R900853081
32B	HSZ 32 B...-3X/M	R900853082

## Supplementary details on type designations

14	<input type="checkbox"/>	Type of seal:	NBR seals FKM seals (other seals on enquiry)	= No code = V
<b>⚠ Caution!</b> Observe compatibility of seals with hydraulic fluid used!				
15	<input type="checkbox"/>	Adjustment element on pressure relief valve type DBD..6..:	Grub screw with hexagon and protective cap Rotary knob Lockable rotary knob	= S = H = A
16	<input type="checkbox"/>	Pressure setting of pressure relief valve type DBD..6..: <b>⚠ Caution!</b> Code ( ) for complete type!	up to 25 bar up to 50 bar up to 100 bar up to 200 bar up to 315 bar	= 25 (025) = 50 (050) = 100 = 200 = 315
23	<input type="checkbox"/>	Solenoid voltage of directional valve:	24 V DC 96 V DC 205 V DC	= G24 = G96 = G205
24	<input type="checkbox"/>	Manual override on directional valve:	Without manual override With concealed manual override	= No code = N9
<b>Types of electrical connection</b> Individual connection; with component plug to DIN EN 175301-803 and ISO 4400; without cable socket = K4				

## Plugs for valve bores

Type M-SR . KE..-1X/ to data sheet RE 20380

Connection A – B closed			
Size	Material no.	Type of seal	
		NBR	FKM
8	R900542329	X	--
10	R900542330	X	--
15	R900542331	X	--
20	R900542332	X	--
25	R900542333	X	--
30	R900542334	X	--

## Plug screws for valve bores

Type DBD. . K1X/... to data sheet RE 25402

Connection P – T closed			
Size	Material no.	Type of seal	
		NBR	FKM
4	R900542686	X	--
6	R900305874	X	--
10	R900305875	X	--
20	R900305876	X	--
30	R900305877	X	--

Connection P – T open			
Size	Material no.	Type of seal	
		NBR	FKM
4	R900542684	X	--
6	R900320590	X	--
10	R900320591	X	--
20	R900320592	X	--
30	R900320593	X	--

Type DB 6 K.-4X/... to data sheet RE 25731

Connection A – B closed			
Size	Material no.	Type of seal	
		NBR	FKM
6	R900315988	X	--
6	R900315995	--	X

Connection A – B open			
Size	Material no.	Type of seal	
		NBR	FKM
6	R900315989	X	--
6	R900315996	--	X

Type DB 10 K.-4X/... to data sheet RE 25731

Type DR 10 K.-3X/... to data sheet RE 26850

Connection A – B closed			
Size	Material no.	Type of seal	
		NBR	FKM
10	R900329716	X	--
10	R900329718	--	X

Connection A – B open			
Size	Material no.	Type of seal	
		NBR	FKM
10	R900329717	X	--
10	R900329719	--	X

## Plug screws for valve bores

Type DB 20 K.-1X/.Y to data sheet RE 25818

Type DR 20 K.-1X/... to data sheet RE 26893

Type MHDB. 22 ..-1X/... to data sheet RE 64642

Connection A – B closed, X – Y closed			
Size	Material no.	Type of seal	
		NBR	FKM
20	R900309110	X	--

For the mounting cavity of valve DB 20 K.-1X/.XY a further plug screw is required with a seal between B and X.

Connection A – B open, X – Y closed			
Size	Material no.	Type of seal	
		NBR	FKM
20	R900324884	X	--
20	R900324885	--	X

Type FG . C.-2X/... to data sheet RE 27226

Type FK . C.-2X/... to data sheet RE 27226

Connection A – B open			
Size	Material no.	Type of seal	
		NBR	FKM
16	R900315493	X	--
25	R900315436	X	--
32	R900318628	X	--

Type 2FRM 6 K2-1X/... to data sheet RE 28155

Connection A – B closed			
Size	Material no.	Type of seal	
		NBR	FKM
6	R900852992	X	--

Connection A – B open			
Size	Material no.	Type of seal	
		NBR	FKM
6	R900024744	X	--

# Adaptor plates

## Porting pattern to DIN 24340 form A and ISO 4401

**RE 48045/06.06**  
Replaces: 09.05

1/12

### Type HSE

Nominal size 4 to 32

### Overview of contents

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Porting pattern types:	
• Porting pattern type 04R	5
• Porting pattern type 05A and 05G	5
• Porting pattern type 06A and 08A	6
• Porting pattern types 10B and 10C	7
• Porting pattern types 10F, 10G and 10X	8
• Porting pattern types 16B and 16G	9
• Porting pattern types 20D and 20E	9 and 10
• Porting pattern type 22B	10
• Porting pattern type 27B	10
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• Porting pattern type 32B	11
Seal kits for the adaptor plates (NBR)	12

### Features

- Sandwich plate design
- Change of function via adaption onto another component is possible
- Makes possible the replacement of phased-out components with replacement units
- Performance matching by changing the nominal size
- Maximum operating pressure: 315 bar  
Exception:
  - Porting pattern types 04R, 06C, 08A and 10C: 630 bar

## Adaptor plate explanations

### Type code explanation for the type HSE... adaptor plates

HSE 

1	2	3	4	5

 - 3X/ 

6	7	8
		*

1		Nominal size – manifold side	= 04, 05, 06, 08, 10, 16, 20, 22, 27, 30, 32	}	Porting pattern type – manifold side
2		Porting pattern – manifold side	= Form A, B, C, D, E, F, G, R, X		
3		Nominal size – component side	= 04, 05, 06, 08, 10, 16, 20, 22, 27, 32	}	Porting pattern type – component side
4		Porting pattern – component side	= Form A, B, C, D, E, F, G, J, R, X		
5		Consecutive number for the function version 001 ... 999 (are determined by the factory)			
6		Seal types:	NBR seals	= M	
		(other seals on request)	FKM seals	= V	
<b>Note: The compatibility of the seals and pressure fluid has to be taken into account!</b>					
7		Connection type:	No external connection	= 00	
			Connection to DIN 3852 part 2 with threads to DIN EN ISO 228 (Whitworth pipe thread)	= 01	
8	*	Further details in clear text			

- Circuits and types other than these shown in the catalogue sheet are only possible after consultation!
- Connection threads are always plugged pressure-tight.
- Fixing screws (S.H.C.S. to ISO 4762) are included within the scope of supply and are described with the relevant component.

#### Ordering example:

Adaptor plate (page 5, centre)

Material No.	Type description
R900468227	HSE 05A 06A 001-3X/M00

The Material No. comprises of the ready-to-install adaptor plate.

## Components and associated porting patterns

Component description	Catalogue sheet no.	Porting pattern type	Component description	Catalogue sheet no.	Porting pattern type
HED 8 OH1X/...	50060	<b>04J</b>	M-.SED 10 .1X/350...	22045	<b>10A</b>
HED 4 KP1X/...	30174	<b>04R</b>	M-.SEW 10 .1X/420...	22075	
.WE 5 .6X/...	23166	<b>05A</b>	.WM. 10 .3X/...	22331	
DR 5 DP.-1X/...	26555		.WE 10 .-3X/...	23183	
DZ 5 DP.-1X/...	26055		.WE 10 .3X/...	23327	
F 5 P3-3X/...	27761	<b>05G</b>	5-.WE 10 .3X/...	23351	
2FRR 5 -3X/...	28136		4WRA. 10 ..-2X/...	29055	
2FRM 5 - 3X/...	28138		4WRE 10 ..-2X/...	29061	
SV 6 PB.-6X/ SL 6 PB.-6X/...	21460	<b>06A</b>	4WEH 10 ..4X/...	24751	<b>10B</b>
M-.SED 6 .1X/350...	22049		H-4WEH 10 ..4X		
M-.SEW 6 .3X/420...	22058		4WH 10 ..4X/...		
.WM. 6 .5X/...	22280		H-4WH 10 ..4X/...		
.W. 6 .5X/...	22282		4WRGE 10 ...-1X/...	29070	
.WMR. 6 .-5X/...	22284		4WRTE 10 ...-4X/...	29083	
.WE 6 .6X/...	23178		4WREE 10 ...-5X/...	29093	
.WE 6 .-6X/...	23183		4WRZ 10 ..-7X/...	29115	
DZ 6 DP.-5X/...	26076		3DRE. 10 P5X/...	29185	
DA 6 V.-4X/...	26404		4WS.2E. 10-5X/...	29583	
DR 6 DP.-5X/...	26564		-.SE 10 .2X/630...	22088	<b>10C</b>
2FRM 6 ...-3X/...	28163		SV 10 P.-4X/...	21468	<b>10D</b>
4WRA 6 ..-2X/...	29055		SL 10 P.-4X/...		
4WRE 6 ..-2X/...	29061		DZ 10 DP.-4X/...	26099	
4WRS 6 ..-3X/...	29067		DZ 10 -. -5X/...	26391	
DBE. 6 ..-1X/...	29158		DR 10 DP.-4X/...	26580	
DBEP 6 .06-1X/...	29164		DR 10 -. -5X/...	26892	
DBET . -5X/...	29165		DR 10 -. -4X/...	26893	
DBEMT . -5X/...			FD 12 PA2X/...	27551	
DBETR - 2X/...	29168		FD 16 PA2X/...		
DRE 6 ..-1X/...	29175		DRG 10 -1X/...	29145	
3DREP 6 .2X/...	29184		DRE 10 -5X/...	29176	
2FRE 6 .-2X/...	29188		DREM 10 -5X/...		
4WS2EM 6 -2X/...	29564		DB 10 ..-5X/...	25802	<b>10E</b>
M-.SEW 6 .3X/630...	22058		DBW 10 ..-5X/...		
-.SE 6 .2X/...	22054		DB 10 ..-4X/...W65	25818	
HED 8 OP1X/...	50060		DB3U 10 ..5X/...	25826	
		DBG 10 -1X/...	29139		
		DBE. 10 -5X/...	29160		
		DBEM. 10 -5X/...			
		4WS2E. 10 -4X/...	29586	<b>10F</b>	
		4WSE2E. 10 -4X/...			
		3DS2EH 10 -2X/...	29646		
		3DSE2EH 10 -2X/...			





## Components and associated porting patterns

Component description	Catalogue sheet no.	Porting pattern type	Component description	Catalogue sheet no.	Porting pattern type	
2FRM 10 -3X/...	28389	10G	H-4WMM 22 .7X/...	22371	22B	
2FRH 10 -3X/...			24751			
2FRW 10 -3X/...						
2FRE 10 -4X/...	29190					
4WS2E. 10 A-4X/...	29588	10X	H-4WEH 22 ..7X/...	29070		
4WSE2E. 10 A-4X/...						
H-4WMM 16 .7X/...	22371	16B	H-4WEH 22 ..7X/...			29075
4WEH 16 ..6X/...	24751					
H-4WEH 16 ..6X/...						
4WH 16 ..6X/...						
H-4WH 16 ..6X/...						
4WRGE 16 ...-1X/...	29070			4WRGE 25 ...-1X/...	29093	
4WRTE 16 ...-4X/...	29083			4WRTE 25 ...-4X/...		
4WREE 16 ...-5X/...	29093			4WREE 25 ...-5X/...	29115	
4WREU 16 ...-5X/...				4WREU 25 ...-5X/...		
4WRH 16 ..-7X/...	29115			4WRH 25 ..-7X/...	29115	
4WRZ 16 ..-7X/...				4WRZ 25 ..-7X/...		
3DRE 16 P 4X/...	29185			4WSE3EE 25 -2X/...	29595	
3DREM 16 P 4X/...						
4WS2E. 16 -2X/...	29591			4WRKE 27 . 500-3XH/...	29075	
4WSE2E. 16 -2X/...						
4WSE3EE 16 -1X/...		29595	4WRTE 27 . 500.-4XH/...	29083		
2FRM 16 -3X/...	28389	16G	4WREE 27 . 500.-5X/...	29093		
2FRH 16 -3X/...				SV 30 P.-4X/...	21468	
2FRW 16 -3X/...				SL 30 P.-4X/...		
2FRE 16 -4X/...	29190		DZ 30 -.-5X/...	26391		
SV 20 P.-4X/...	21468	20D	DR 30 -.-5X/...	26892		
SL 20 P.-4X/...				FD 32 PA2X/...	27551	
DZ 20 -.-5X/...	26391		DRG 30 -1X/...	29145		
DR 20 -.-5X/...	26892		DRE.. 30 -4X/	29178		
DR 20 -.-4X/...	26893		DB 30 ..-5X/...	25802		
FD 25 PA2X/...	27551		DBW 30 ..-5X/...			
DRG 20 -1X/...	29145		DB3U 30 ..5X/...	25826		
DRE 20 -5X/...	29176			DBG 30 -1X/...	29139	
DREM 20 -5X/				DBE. 30 -3X/...	29142	
DB 20 ..-5X/...	25802		20E	DBEM. 30 -3X/...		
DBW 20 ..-5X/...				4WEH 32 ..6X/...	24751	
DB 20 ..-4X/...W65	25818	H-4WEH 32 ..6X/...		29075		
DB3U 20 ..5X/...	25826	4WRK. 32 ..-3X/				
DBG 20 -1X/...	29139	4WRTE 32 ...-4X/...		29083		
DBE. 20 -5X/...	29160			4WREE 32 ...-5X/...	29093	
DBEM. 20 -5X/...				4WREU 32 ...-5X/...		
				4WRH 32 ..-7X/...	29115	
				4WRZ 32 ..-7X/...		
				4WSE3EE 32 -4X/...	29595	

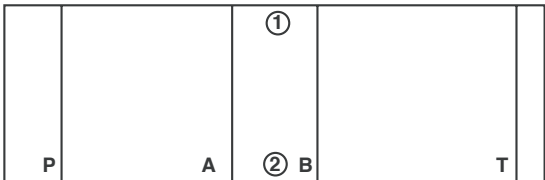
### Note:

All of the components stated within a porting pattern type have the same connection pattern.

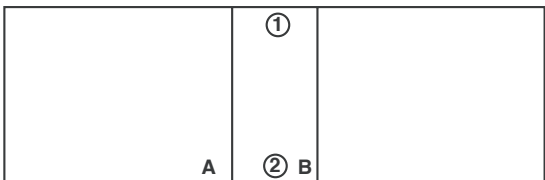
**Adaptor plate for porting pattern type 04R on the manifold side ( ① = component side, ② = manifold side)**

Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 04R 08R 130-3X/M00  R900922961		40 x 40 x 20  0,2 kg	R900259719  Without separate fixing (sandwich plate principle)
Adaptor plate	HSE 04R 04J 131-3X/M01  R900922962		45 x 40 x 41  0,5 kg  P = G1/4	R900262836  2 off M5 x 50

**Adaptor plate for porting pattern type 05A on the manifold side ( ① = component side, ② = manifold side)**

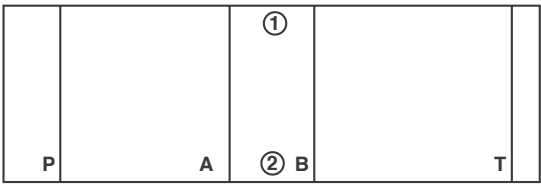
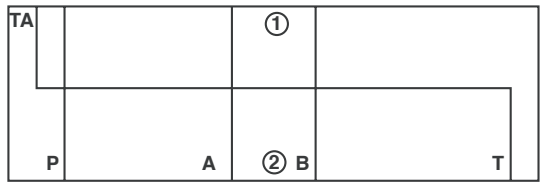
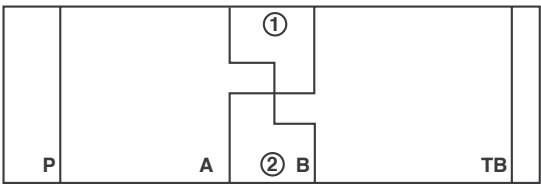
Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 05A 06A 001-3X/M00  R900468227		65 x 45 x 50  1,1 kg	R900265834  4 off M5 x 50

**Adaptor plate for porting pattern type 05G on the manifold side ( ① = component side, ② = manifold side)**

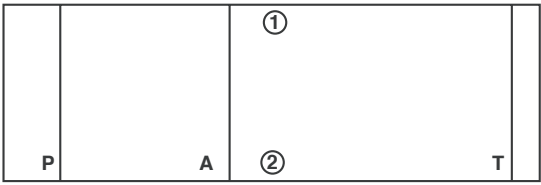
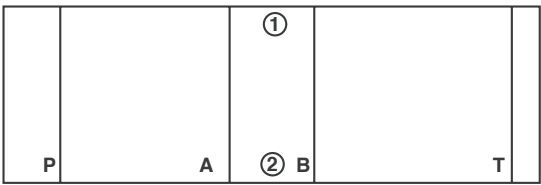
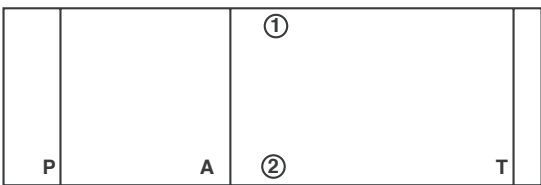
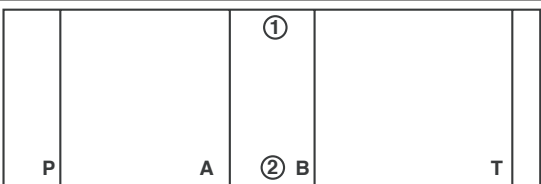
Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 05G 06A 001-3X/V00  R900496121		60 x 60 x 30  0,8 kg	R900274465  4 off M5 x 30

<sup>1)</sup> Nominal dimensions in mm

**Adaptor plate for porting pattern type 06A on the manifold side ( ① = component side, ② = manifold side)**

Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 06A 04A 001-3X/M00  R900539992		65 x 44 x 20  0,4 kg	R900265624  4 off M5 x 20
Adaptor plate	HSE 06A 10A 001-3X/M00  R900922686		131 x 70 x 50  3,3 kg	R900270119  4 off M5 x 50
Adaptor plate	HSE 06A 10A 003-3X/M00  R900511288		76 x 60 x 27  0,9 kg	R900262410  4 off M5 x 12 <sup>2)</sup>

**Adaptor plate for porting pattern type 08A on the manifold side ( ① = component side, ② = manifold side)**

Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 08A 06A 001-3X/M00  R900463038		65 x 54 x 30  0,7 kg	R900262408  4 off M6 x 30
Adaptor plate	HSE 08A 06A 003-3X/M00  R900518867		75 x 54 x 45  1,2 kg	R900262411  4 off M6 x 45
Adaptor plate	HSE 08A 06C 001-3X/M00  R900463049		65 x 54 x 30  0,7 kg	R900262409  4 off M6 x 30
Adaptor plate	HSE 08A 06C 003-3X/M00  R900906803		75 x 54 x 45  1,3 kg	R900267820  4 off M6 x 45

<sup>1)</sup> Nominal dimensions in mm<sup>2)</sup> Screws for vertical stacking assembly from top edge of the adaptor plate + 15 mm.

**Adaptor plate for porting pattern type 10B on the manifold side ( ① = component side, ② = manifold side)**

Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 10B 06A 001-3X/M00  R900303948		90 x 70 x 30  1,4 kg	R900262754  4 off M6 x 25
Adaptor plate	HSE 10B 10X 109-3X/M00  R900905128		95 x 85 x 40  2,2 kg	R900267511  4 off M6 x 40
Adaptor plate	HSE 10B 16B 001-3X/M01  R900308901		140 x 91 x 65  6,0 kg  X = G1/4 Y = G1/4	R900262399  4 off M6 x 30 <sup>2)</sup>

**Adaptor plate for porting pattern type 10C on the manifold side ( ① = component side, ② = manifold side)**

Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 10C 06C 001-3X/M00  R900908683		90 x 63 x 49  2,2 kg	R900268770  4 off M8 x 50

<sup>1)</sup> Nominal dimensions in mm

<sup>2)</sup> Screws for vertical stacking assembly from top edge of the adaptor plate + 30 mm.

**Adaptor plate for porting pattern type 10F on the manifold side ( ① = component side, ② = manifold side)**

Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 10F 06A 001-4X/M00  R901104940		90 x 70 x 30  1,4 kg	R901104943  4 off M6 x 25
Adaptor plate	HSE 10F 10B 001-3X/M00  R900915104		105 x 65 x 20  1,0 kg	R900269108  Without separate fixing (sandwich plate principle)

**Adaptor plate for porting pattern type 10G on the manifold side ( ① = component side, ② = manifold side)**

Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 10G 05G 001-3X/M00  R900916974		95 x 100 x 30  2,0 kg	R900269381  4 off M8 x 40

**Adaptor plate for porting pattern type 10X on the manifold side ( ① = component side, ② = manifold side)**

Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 10X 10B 154-3X/M00  R900905126		95 x 82 x 40  2,2 kg	R900267512  4 off M8 x 40

<sup>1)</sup> Nominal dimensions in mm

**Adaptor plate for porting pattern type 16B on the manifold side ( ① = component side, ② = manifold side)**

Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 16B 06A 001-3X/M00  R900524335		140 x 91 x 40  3,7 kg	R900262763  4 off M10 x 40 2 off M6 x 40
Adaptor plate	HSE 16B 10A 001-3X/M01  R900494609		140 x 92 x 50  4,7 kg A = G1/4 B = G1/4	R900262465  4 off M10 x 50 2 off M6 x 50
Adaptor plate	HSE 16B 10B 001-3X/M01  R900381275		140 x 91 x 75  6,9 kg A = G1/4 B = G1/4 P = G1/4	R900265040  4 off M10 x 40 2 off M6 x 40
Adaptor plate	HSE 16B 22B 001-3X/M00  R900534817		165 x 140 x 100  16,7 kg	R900265278  4 off M10 x 100 2 off M6 x 100

**Adaptor plate for porting pattern type 16G on the manifold side ( ① = component side, ② = manifold side)**

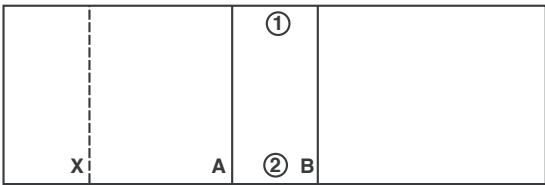
Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 16G 10G 001-3X/M00  R900534949		125 x 125 x 40  4,7 kg	R900265291  4 off M10 x 40

**Adaptor plate for porting pattern type 20D on the manifold side ( ① = component side, ② = manifold side)**

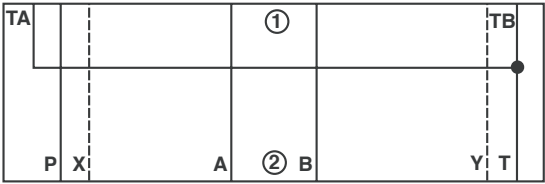
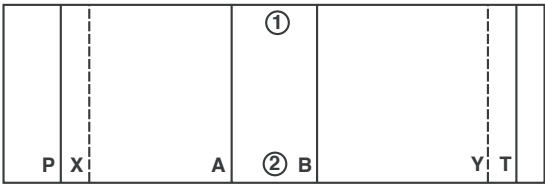
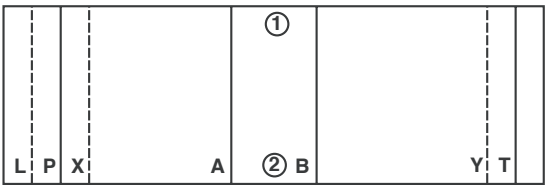
Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 20D 10D 001-3X/M00  R900920911		100 x 100 x 50  3,6 kg	R900269944  4 off M10 x 50

<sup>1)</sup> Nominal dimensions in mm

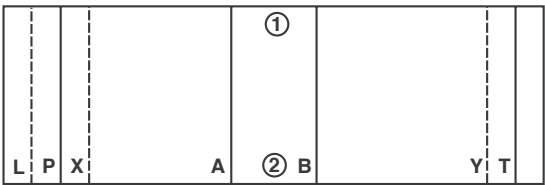
**Adaptor plate for porting pattern type 20E on the manifold side ( ① = component side, ② = manifold side)**

Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 20E 10E 001-3X/M00  R900920450		120 x 100 x 40  3,5 kg	R900269909  4 off M16 x 40

**Adaptor plate for porting pattern type 22B on the manifold side ( ① = component side, ② = manifold side)**

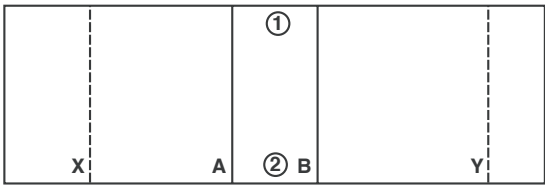
Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 22B 10B 001-3X/M00  R900547240		160 x 117 x 50  6,7 kg	R900268088  6 off M12 x 50
Adaptor plate	HSE 22B 16B 001-3X/M00  R900379983		200 x 117 x 60  10,0 kg	R900262622  6 off M12 x 60
Adaptor plate	HSE 22B 32B 001-3X/M00  R900515227		230 x 197 x 85  28 kg	R900262388  6 off M12 x 40 <sup>2)</sup>

**Adaptor plate for porting pattern type 27B on the manifold side ( ① = component side, ② = manifold side)**

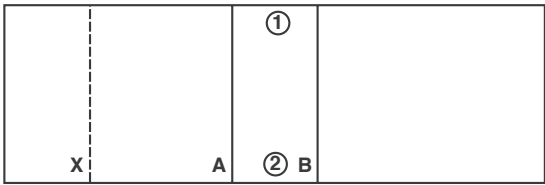
Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 27B 22B 001-3X/M00  R900915151		190 x 117 x 20  3,2 kg	R900262713

<sup>1)</sup> Nominal dimensions in mm<sup>2)</sup> Screws for vertical stacking assembly from top edge of the adaptor plate + 50 mm.

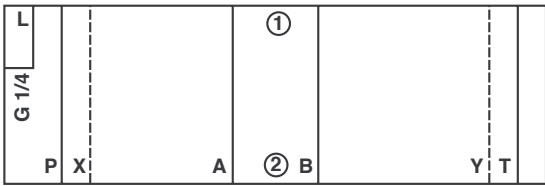
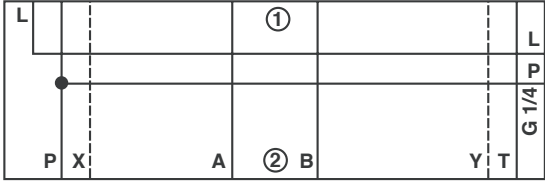
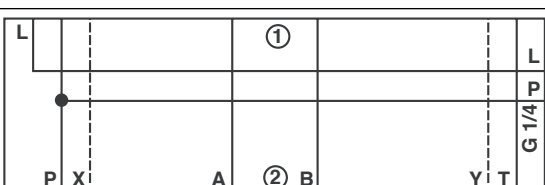
**Adaptor plate for porting pattern type 30D on the manifold side ( ① = component side, ② = manifold side)**

Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 30D 20D 001-3X/M00  R900920912		120 x 120 x 35  3,6 kg	R900269946  6 off M10 x 30

**Adaptor plate for porting pattern type 30E on the manifold side ( ① = component side, ② = manifold side)**

Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 30E 20E 001-3X/M00  R900920913		180 x 117 x 70  10,8 kg	R900269951  4 off M18 x 50

**Adaptor plate for porting pattern type 32B on the manifold side ( ① = component side, ② = manifold side)**

Component description	Type code Material No.	Symbol	Plate L x B x H <sup>1)</sup> Weight Connection sizes	Dimensions Fixing screws Further information
Adaptor plate	HSE 32B 16B 001-3X/M01  R900902695		230 x 197 x 75  24,8 kg  L = G1/4	R900267122  6 off M20 x 100
Adaptor plate	HSE 32B 22B 001-3X/M01  R900420078		230 x 197 x 75  24,8 kg  P = G1/4 L = G1/4	R900266340  6 off M20 x 80
Adaptor plate	HSE 32B 27B 001-3X/M01  R900570640		230 x 197 x 75  24,8 kg  P = G1/4 L = G1/4	R900266329  6 off M20 x 80

<sup>1)</sup> Nominal dimensions in mm



## Seal kits for adaptor plates (NBR seals)

Port. patt. type	Seal kit	Material No.
04R	HSE 04R ... -3X/M	R900857762
05A	HSE 05A 06A 001-3X/M	R900857763
05G	HSA 05G ... -3X/M	R900853071
06A	HSZ 06A ... -3X/M	R900313192
06A	HSE 06A 10A 003-3X/M	R900857766
08A	HSE 08A ... -3X/M	R900857764
10A	HSZ 10B...-3X/M	R900313194
10B		
10C		
10B	HSE 10B 16B 001-3X/M	R900857765
10F	HSA 10F...-3X/M	R900843113
10G	HSA 10G ... -3X/M	R900853069
10X	HSA 10X 10B 154-3X/M	R900857768

Port. patt. type	Seal kit	Material No.
16B	HSZ 16B ... -3X/M	R900853074
16G	HSA 16G ... -3X/M	R900853075
20D	HSA 20D ... -3X/M	R900853076
20E	HSA 20E ... -3X/M	R900853078
22B	HSE 22B 32B 001-3X/M	R900857769
22B	HSZ 22B ... -3X/M	R900853079
27B	HSE 27B ... -3X/M	R901107628
30D	HSA 30D ... -3X/M	R900853080
30E	HSA 30E ... -3X/M	R900853081
32B	HSZ 32B ... -3X/M	R900853082

# Sandwich plates

## Porting patterns according to DIN 24340 form A and ISO 4401

**RE 48050/08.10**  
 Replaces: 01.09

1/96

### Type HSZ 06

Size 6  
 Component series 1X, 3X and 4X  
 Maximum operating pressure 315 bar



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– Check valves M-SR..., D7,8..., VUCN / VURN...	24 to 30	– Complementary details	62
– Complementary details	31	– Flow control cartridge valve:	
– Check valves Z1S6-	32 to 34	• Seat valve normally closed, blocking on one side	63, 64
– Complementary details	35	• Seat valve normally closed, blocking on both sides	65
– Check valves Z2S6-	36, 37	• Seat valve normally open, blocking on one side	66, 67
– Blocking function, electrically switchable	38 to 44	• Seat valve normally open, blocking on both sides	68
– Blocking function, mechanically actuated	45	– Flow control built-on valve:	
<b>Functional group pressure function:</b>		• Seat valve normally closed, blocking on one side	69 to 71
– Complementary details	46	• Seat valve normally open, blocking on one side	72 to 74
– Pressure relief valves, direct operated	47 to 49	– Differential circuit:	
– Pressure reducing valves, pilot operated	50	• Directional valve electrically switchable	75
– Pressure reducing valves, direct operated	50	<b>Functional group miscellaneous:</b>	
(Pressure switch, see data sheet RE 50060, pressure sensor see data sheet RE 29260)		– Complementary details	76 to 79
		– Short-circuit valves	80 to 86
		– Short-circuit valves pilot function	87
		– Shuttle valves, pressure compensator	88
		– Proportional valves	89, 90
		– Clamping hydraulics	91, 92
		– Orifices, seals, R ring plates	93

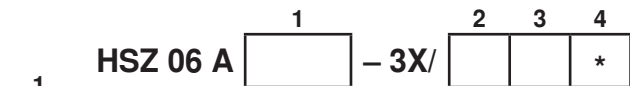
**Features**

- Vertically stackable components in sandwich plate design
- Porting patterns according to DIN 24340 form A, **without** locating hole (standard), ISO 4401, **with** locating hole (ordering code .../60 at the end of the valve type)
- Amendment to the existing sandwich plate program
- Structure as individual component or as horizontal stacking on manifolds according to data sheet RE 48107 or vario plates
- Large variability due to the possibility of different combinations as well as subsequent functional changes and extensions
- Maximum operating pressure
  - without valve function: 315 bar
  - with valve function: Maximally 315 bar (depending on the valve fitting)
- Weight indications contain the installed and/or attached valves
- Coating: galvanic coating DIN 50979 - Fe//Zn8//Cn//T0
- Dimension L x W x H without installed and/or attached valves

**Safety instructions**

- The valve mounted in the sandwich plates can block in an undefined position due to internal contamination – like e.g. polluted hydraulic fluid, abrasion dust or residual dirt from system components. As a result, the driven actuator may no longer be under the operator’s control.
- When using a single-rod cylinder, inadmissibly high pressures may result in the discharge channel due to pressure intensification (e.g. unswitched directional seat valve / uncontrolled solenoid coil / cable brake). We therefore recommend securing the cylinder by means of pressure relief valves.

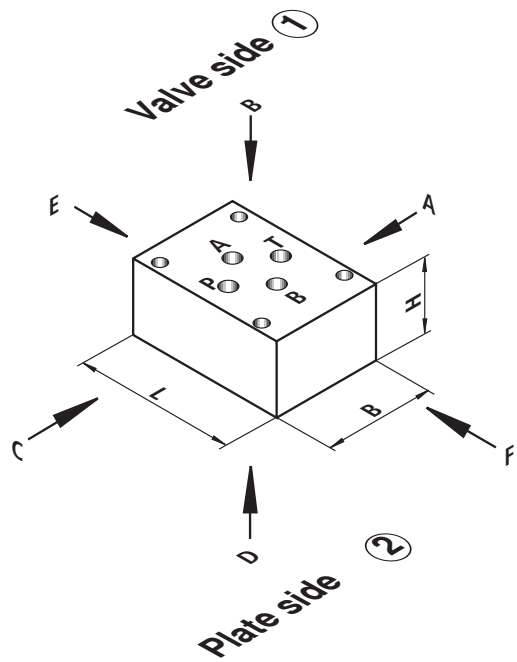
**Explanations of the type key for HSZ 06 sandwich plates**



- 1** [ ] Serial number of the functional design from 001 ... 999 (is determined in the factory)
- 2** [ ] Seal material: NBR seals (standard) / FKM seals (other seals upon request)
  - ⚠ Attention!** Observe compatibility of seals with hydraulic fluid used!
- 3** [ ] Type of connection: No external connection / Connection according to DIN 3852 part 1 with thread according to DIN ISO 228 (Whitworth pipe thread)
- 4** [ \* ] Further details in the plain text

- = M
- = V
- = 00
- = 01

**3D view**



**Order examples**

Material no.	Type designation	
R900516508	HSZ 06 A037-3X/M01	Sandwich plate without valve function
R900578929	HSZ 06 A185-3X/05M00	Sandwich plate with fixed valve design
R900908338	HSZ 06 A100-3X/ <sup>15 16</sup> S 050 M00	Sandwich plate with optional valve design

Type key and order examples for fitted sandwich plates, see relevant functional groups!

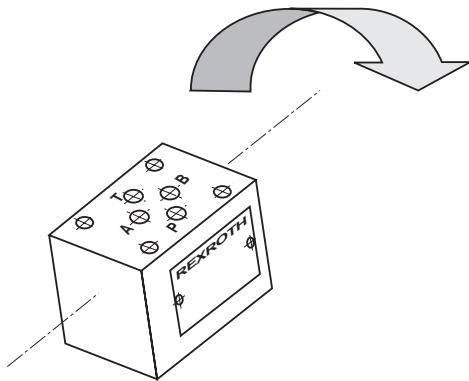
Sandwich plates with possible valve fitting are available as both, complete device (with valves assembled) or as construction kit plate (only with seals, plug screws, name plate).

- Other circuits and designs as specified in the data sheet are only possible after consultation!

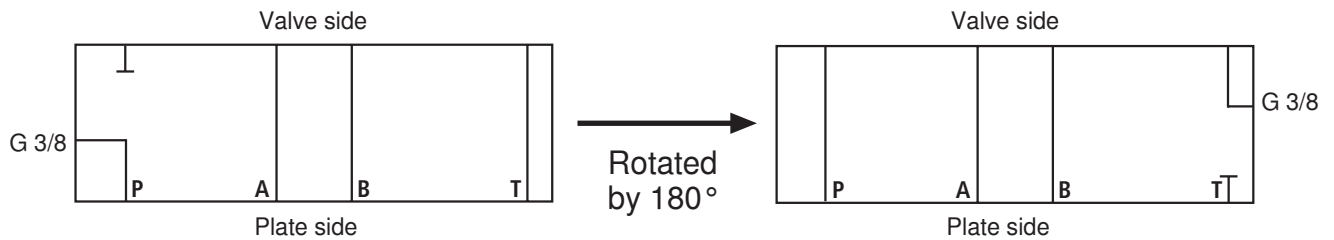
- Connection threads in HSZ plates are always covered in a pressure-tight form.

### Extended applications of HSZ 06 sandwich plates with R ring plate

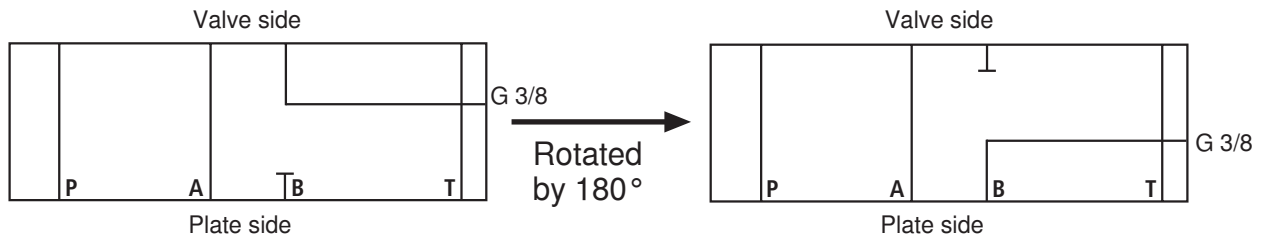
HSZ 06 sandwich plates with R ring plates can be rotated by 180° around the axis  
 Due to the changed installation position, a different function results (circuit diagram).  
 See the following examples.



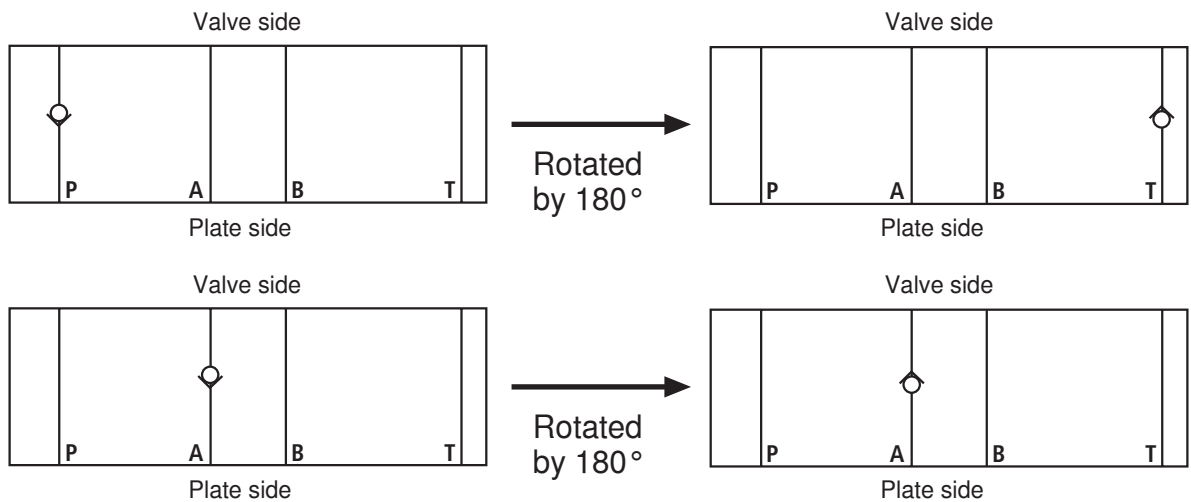
#### Distance plates with port in the P or T channel



#### Distance plates with port in the A or B channel

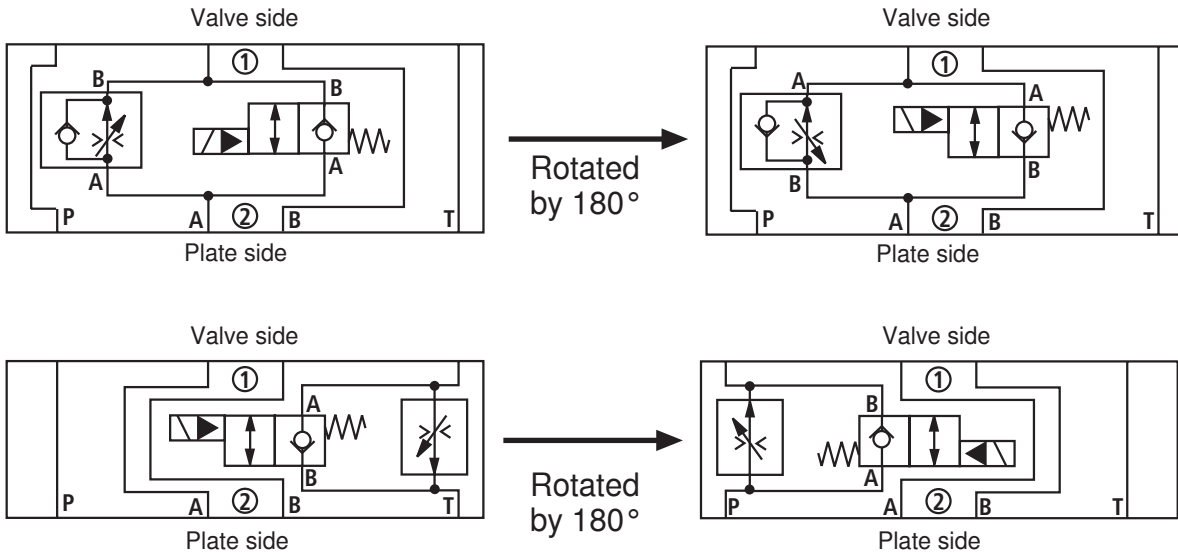


#### Check valves



## Extended applications of HSZ 06 sandwich plates with R ring plate

### Examples



**Distance plates without port (① = component side, ② = plate side)**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight Size of the ports	
Sandwich plate with R ring plate	HSZ 06 A003-3X/M00		65 x 44 x 11	R900262275
	R900516529		0.2 kg	
Sandwich plate	HSZ 06 A007-3X/M00		65 x 44 x 20	R900262276
	R900516530		0.4 kg	
Sandwich plate	HSZ 06 A300-3X/M00		65 x 44 x 40	R900262699
	R900523148		0.8 kg	
Sandwich plate	HSZ 06 A004-3X/M00		65 x 44 x 50	R901040238
	R901040119		1.0 kg	
Sandwich plate	HSZ 06 A012-3X/M00		65 x 44 x 60	R900262277
	R900516531		1.2 kg	
Sandwich plate	HSZ 06 A008-3X/M00		65 x 44 x 80	R900262647
	R900522535		1.6 kg	
Sandwich plate	HSZ 06 A085-3X/M00		65 x 44 x 10	R900262118
	R900514667		0.2 kg	

**Distance plates without port** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate	HSZ 06-26708-ZA/M00		130 x 44 x 40	R900276171
	R900951457		1.6 kg	
Comment: Hole pattern displaced by 76.5 mm in direction A				
Sandwich plate	HSZ 06-27867-ZA/M00		101 x 44 x 50	R900751903
	R900751895		1.4 kg	
Comment: Hole pattern displaced by 40.5 mm in direction B				
Sandwich plate	HSZ 06-38081-ZA/M00		180 x 44 x 40	R901176042
	R901175997		2.3 kg	
Comment: Hole pattern displaced by 115 mm in direction A				
Sandwich plate	HSZ 06-38086-ZA/M00		180 x 44 x 40	R901178034
	R901177875		2.3 kg	
Comment: Hole pattern displaced by 115 mm in direction A				

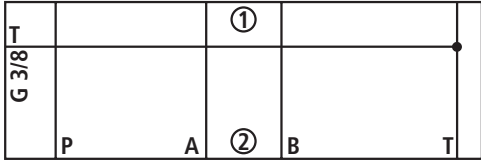
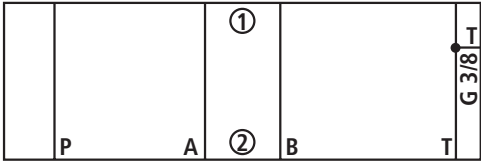
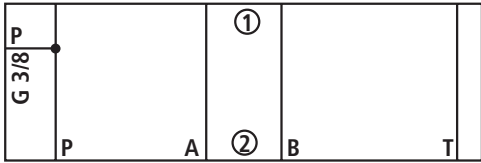
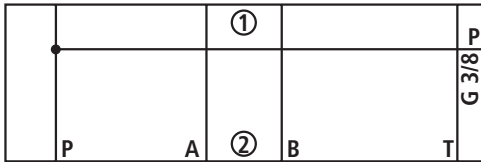
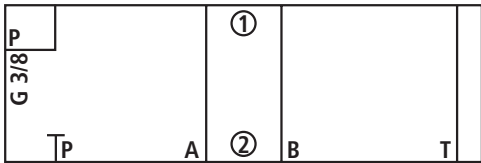
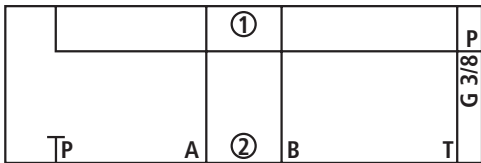
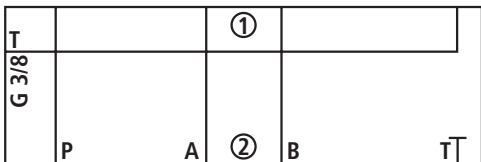
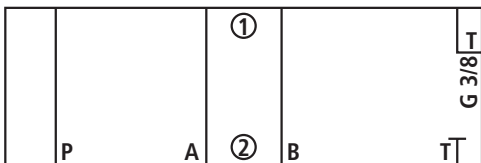
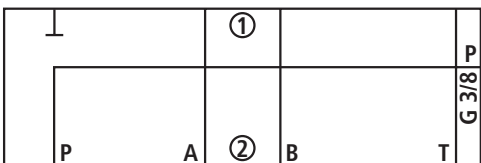
**Distance plates without port with orifice fitting** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate	HSZ 06 A085-3X/M00		65 x 44 x 10	R900262118
	R900514667		0.2 kg	

**Example:** with orifice fitting M8x1 Ø 0.8 mm in all channels:

**HSZ 06 A085-3X/A08B08P08T08M00**

**Distance plates with port in the P or T channel (① = component side, ② = plate side)**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate with R ring plate	HSZ 06 A323-3X/M01		90 x 44 x 40	R900262254
	R900520639		1.2 kg	
Sandwich plate with R ring plate	HSZ 06 A326-3X/M01		90 x 44 x 40	R900262590
	R900521800		1.2 kg	
Sandwich plate with R ring plate	HSZ 06 A324-3X/M01		90 x 44 x 40	R900262588
	R900521798		1.2 kg	
Sandwich plate with R ring plate	HSZ 06 A021-3X/M01		90 x 44 x 40	R900262591
	R900521801		1.2 kg	
Sandwich plate with R ring plate	HSZ 06 A327-3X/M01		90 x 44 x 40	R900262698
	R900523147		1.2 kg	
Sandwich plate with R ring plate	HSZ 06 A027-3X/M01		90 x 44 x 40	R900262190
	R900515513		1.2 kg	
Sandwich plate with R ring plate	HSZ 06 A325-3X/M01		90 x 44 x 40	R900262589
	R900521799		1.2 kg	
Sandwich plate with R ring plate	HSZ 06 A028-3X/M01		90 x 44 x 40	R900262186
	R900515514		1.2 kg	
Sandwich plate with R ring plate	HSZ 06 A341-3X/M01		90 x 44 x 40	R900265938
	R900564870		1.2 kg	



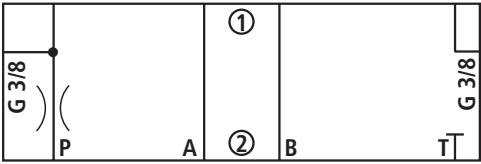
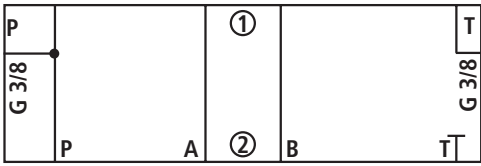
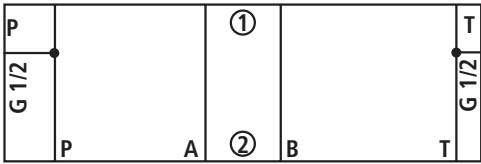
**Distance plates with port** in the P or T channel (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate with R ring plate	HSZ 06 A531-3X/M01		90 x 44 x 40	R900263422
	R900557368		1.2 kg	
			Side F T G 3/8	
Sandwich plate with R ring plate	HSZ 06 A315-3X/M01		85 x 44 x 70	R901123578
	R901122475		1.9 kg	
			Side E P G 3/8	
Sandwich plate with R ring plate	HSZ 06-26170-ZA/M01		65 x 44 x 20	R900279851
	R900971760		0.4 kg	
			Side E Side F P/T P/T G 1/8 G 1/8	

**Distance plates with port in the P and T channel (① = component side, ② = plate side)**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate with R ring plate	HSZ 06 A037-3X/M01		90 x 44 x 40	R900262243
	R900516508		1.2 kg Side E Side F T P G 1/4 G 1/4	
Sandwich plate with R ring plate	HSZ 06 A065-3X/M01		90 x 44 x 40	R900262191
	R900515221		1.2 kg Side E Side F T P G 3/8 G 3/8	
Sandwich plate with R ring plate	HSZ 06 A318-3X/M01		90 x 44 x 40	R900262278
	R900516532		1.2 kg Side E Side F P T G 3/8 G 3/8	
Sandwich plate with R ring plate	HSZ 06 A068-3X/M01		90 x 44 x 40	R900262187
	R900515511		1.2 kg Side E Side F P T G 3/8 G 3/8	
Sandwich plate with R ring plate	HSZ 06 A032-3X/M01		90 x 44 x 40	R900262271
	R900516525		1.2 kg Side E Side F P T G 3/8 G 3/8	
Sandwich plate with R ring plate	HSZ 06 A319-3X/M01		90 x 44 x 40	R900262273
	R900516527		1.2 kg Side E Side F T P G 3/8 G 3/8	
Sandwich plate with R ring plate	HSZ 06 A054-3X/M01		90 x 44 x 40	R900262272
	R900516526		1.2 kg Side E Side F T P G 3/8 G 3/8	

**Distance plates with port in the P and T channel (① = component side, ② = plate side)**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate with R ring plate	HSZ 06 A465-3X/ D08M01		90 x 44 x 40	R901000538 Orifice 0.8 mm
	R901000498		1.2 kg	
			Side E Side F P T G 3/8 G 3/8	
Sandwich plate with R ring plate	HSZ 06 A654-3X/M01		90 x 44 x 40	R901185817
	R901185786		1.2 kg	
			Side E Side F P T G 3/8 G 3/8	
Sandwich plate with R ring plate	HSZ 06 A584-3X/M01		90 x 44 x 40	R900271395
	R900928355		1.2 kg	
			Side E Side F P T G 1/2 G 1/2	

**Distance plates with port in the P and B channel (① = component side, ② = plate side)**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate with R ring plate	HSZ 06 A432-3X/M01		90 x 44 x 40	R900239765
	R900974223		1.2 kg	
			Side E Side F P B G 3/8 G 3/8	
Sandwich plate with R ring plate	HSZ 06 A655-3X/M01		90 x 44 x 40	R901188312
	R901188300		1.2 kg	
			Side E Side F P B G 3/8 G 3/8	

**Distance plates with port** in the T and B channel (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate with R ring plate	HSZ 06 A051-3X/M01		90 x 44 x 40	R901198319
	R901198312		1.2 kg	
			Side E Side F T B G 3/8 G 3/8	
Sandwich plate with R ring plate	HSZ 06 A655-3X/M01		90 x 44 x 40	R901188312
	R901188300		1.2 kg	
			Side E Side F T B G 3/8 G 3/8	

**Distance plates with port in the A and B channel (① = component side, ② = plate side)**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight Size of the ports	
Sandwich plate with R ring plate	HSZ 06 A035-3X/V01		120 x 44 x 30	R900262188
	R900319547		1.2 kg Side E Side F A B G 1/4 G 1/4	
Sandwich plate with R ring plate	HSZ 06 A320-3X/M01		65 x 44 x 40	R901228456
	R901228368		1.2 kg Side E Side F A B G 1/4 G 1/4	
Sandwich plate with R ring plate	HSZ 06 A031-3X/M01		65 x 44 x 40	R900262267
	R900516521		0.8 kg Side E Side F A B G 3/8 G 3/8	
Sandwich plate with R ring plate	HSZ 06 A040-3X/M01		65 x 44 x 40	R900262189
	R900515512		0.8 kg Side E Side F A B G 3/8 G 3/8	
Sandwich plate with R ring plate	HSZ 06 A331-3X/M01		65 x 44 x 40	R900265104
	R900532456		0.8 kg Side E Side F A B G 3/8 G 3/8	
Sandwich plate with R ring plate	HSZ 06 A342-3X/M01		65 x 44 x 40	R900265939
	R900564871		0.8 kg Side E Side F A B G 3/8 G 3/8	

**Distance plates with port in the A or B channel (① = component side, ② = plate side)**

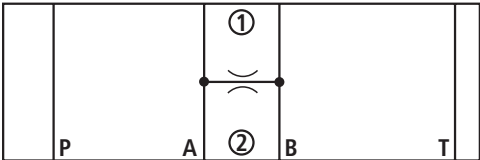
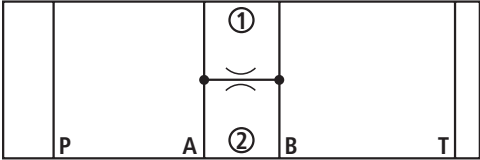
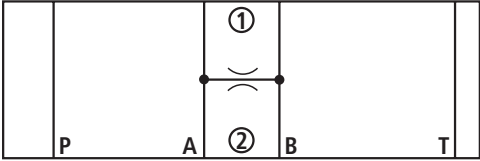
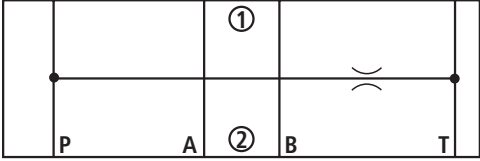
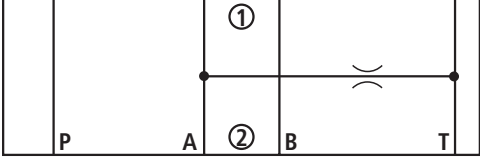
Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight Size of the ports	
Sandwich plate with R ring plate	HSZ 06 A082-3X/M01		75 x 44 x 39	R900765905
	R900765802		1 kg Side F A G 3/8	
Sandwich plate	HSZ 06 A045-3X/M01		90 x 44 x 60	R900266381
	R900571570		1.6 kg Side E Side F A T G 3/8 G 3/8	
Sandwich plate	HSZ 06 A299-3X/M01		74 x 44 x 40	R901235654
	R901235604		0.9 kg Side F B G 3/8	
Sandwich plate	HSZ 06 A666-3X/M01		65 x 44 x 30	R901244815
	R901244815		0.6 kg Side A B G 1/4	
Sandwich plate	HSZ 06 A297-3X/M01		65 x 44 x 40	R901251598
	R901248627		0.7 kg Side F A/B G 1/4	

**Distance plates with connections** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate with R ring plate	HSZ 06 A019-3X/M00		65 x 44 x 20	R900262274
	R900516528		0.4 kg	
Sandwich plate with R ring plate	HSZ 06 A308-3X/M00		65 x 44 x 20	R900262872
	R900526439		0.4 kg	
Sandwich plate	HSZ 06 A437-3X/M00		75 x 44 x 40	R900619269
	R900618537 Comment: Hole pattern displaced by 10 mm in direction A		1.0 kg	
Sandwich plate with R ring plate	HSZ 06 A077-3X/M00		65 x 44 x 30	R900262269
	R900516523		0.6 kg	
Sandwich plate with R ring plate	HSZ 06 A079-3X/M00		65 x 44 x 30	R900262478
	R900520150		0.6 kg	
Sandwich plate with R ring plate	HSZ 06 A529-3X/M00		65 x 44 x 20	R900266369
	R900571362		0.4 kg	
Sandwich plate with R ring plate	HSZ 06 A333-3X/M00		65 x 44 x 20	R900265197
	R900533927		0.4 kg	



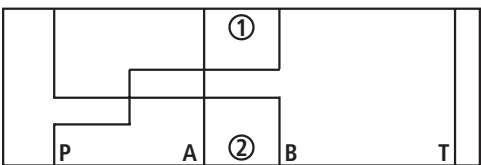
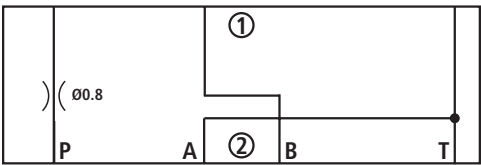
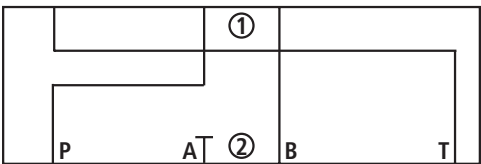
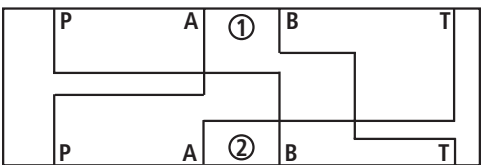
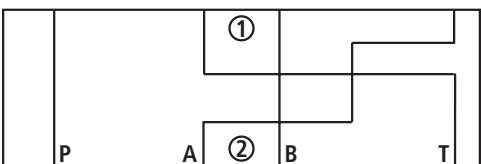
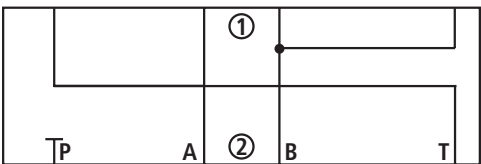
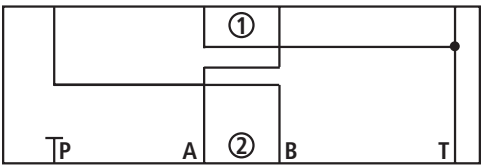
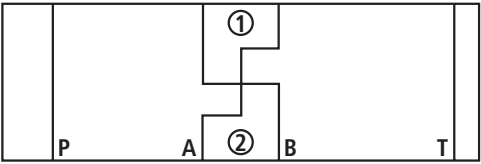
**Distance plates with connections and orifice (① = component side, ② = plate side)**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate	HSZ 06 A447-3X/M00		65 x 44 x 20	R900732606 Internal thread M6x1
	R901141263		0.4 kg	
Sandwich plate	HSZ 06 A071-3X/M00		65 x 44 x 20	R900262268 Internal thread M8x1
	R900516522		0.4 kg	
Sandwich plate with R ring plate	HSZ 06 A597-3X/D00M00		98 x 44 x 40	R900275692 Internal thread M6x1
	R901246265		1.1 kg	
Sandwich plate	HSZ 06 A312-3X/M00		90 x 44 x 20	R900262385 Internal thread M6x1
	R900518231		0.6 kg	
Sandwich plate with R ring plate	HSZ 06 A591-3X/D00M00		98 x 44 x 40	R900274391 Internal thread M6x1
	R901243424		1.1 kg	

**Distance plates with connections** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate with R ring plate	HSZ 06 A047-3X/M00		65 x 44 x 20	R900771219
	R900550151		0.4 kg	
Sandwich plate with R ring plate	HSZ 06 A055-3X/M00		65 x 44 x 30	R900255883
	R900548267		0.6 kg	
Sandwich plate	HSZ 06 A471-3X/M00		65 x 44 x 20	R901026429
	R901026350		0.4 kg	
Sandwich plate	HSZ 06 A328-3X/M00		65 x 44 x 40	R900262783
	R900524659		0.8 kg	
Comment: without R ring recess in B!				
Sandwich plate	HSZ 06 A427-3X/M00		65 x 44 x 40	R900278533
	R900965233		0.8 kg	
Internal thread M8x1				
Sandwich plate	HSZ 06 A434-3X/M00		65 x 44 x 40	R900247739
	R900246286		0.8 kg	
Sandwich plate	HSZ 06 A449-3X/M00		90 x 44 x 40	R900736707
	R900735049		1.0 kg	
Sandwich plate with R ring plate	HSZ 06 A438-3X/M00J28		65 x 44 x 20	R900619211
	R900619060		0.4 kg	

**Distance plates with connections** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
Sandwich plate with R ring plate	HSZ 06 A653-3X/M00J		65 x 44 x 40	R901184516	
	R901184000		0.8 kg		
Sandwich plate	HSZ 06-26791-AA/HM00		130 x 44 x 40	R900241153	
	R900976963		1.6 kg		Internal thread M8x1
Comment: Hole pattern displaced by 65 mm in direction A					
Sandwich plate	HSZ 06 A477-3X/M00		65 x 44 x 40	R901043053	
	R901042648		0.8 kg		
Sandwich plate	HSZ 06-38046-ZA/M00		80 x 70 x 60	R901134794	
	R901134788		2.4 kg		
Sandwich plate with R ring plate	HSZ 06-27408-ZA/M00		65 x 44 x 50	R900240082	
	R900975377		1.0 kg		
Sandwich plate	HSZ 06 A647-3X/M00		65 x 44 x 40	R901163165	
	R901161174		0.8 kg		
Sandwich plate	HSZ 06 A649-3X/M00		65 x 44 x 60	R901168877	
	R901167912		1.2 kg		
Sandwich plate	HSZ 06 A061-3X/M00		65 x 44 x 40	R900265635	
	R900560232		0.8 kg		

## Distance plates with connections and 2 connection diagrams 06A

(① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight Size of the ports	
Sandwich plate	HSZ 06-05536-ZA/M00		110 x 60 x 50	R900279833
	R900328955		2.6 kg	
Sandwich plate	HSZ 06-38079-AA/HM00		100 x 85 x 40	R901172510
	R901172503		2.5 kg	RE 20380
Sandwich plate with R ring plates	HSZ 06-26026-ZA/M00		95 x 65 x 20	R901025196
	R901025202		0.86 kg	
Sandwich plate	HSZ 06-26887-ZA/M00		100 x 80 x 40	R900782908
	R900782872		2.3 kg	
Sandwich plate	HSZ 06-26736-ZA/M00		150 x 110 x 40	R900277610
	R900959202		4.8 kg	

**Distance plates with connections and 2 connection diagrams 06A with external port**

(① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
			Size of the ports		
Sandwich plate	HSZ 06-38096-ZA/M01		100 x 85 x 40	R901194844	
	R901194753		2.5 kg		
Sandwich plate	HSZ 06-26882-ZA/M01		100 x 85 x 40	R900781407	
	R900780753		2.5 kg		
Sandwich plate	HSZ 06-26560-ZA/M01		111 x 101 x 40	R900263217	
	R900555049		3.2 kg		
			Side F		
			A+B		
			G 1/4		
			Side F		
			A+B		
			G 1/4		
			Side F		
			T		
			G 1/2		

**Extension plates (① = component side, ② = plate side)**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
			Size of the ports		
Version for stud screw + cap nut:					
Sandwich plate	HSZ 06-A480-3X/M00		65 x 44 x 40	R901050799	
	R901049947		0.8 kg		
Version for hexagon socket head cap screw:					
Sandwich plate	HSZ 06-A029-3X/M00		60 x 44 x 24	R900265210	
	R900534160		0.6 kg		

**Hole pattern size 06A and fastening screws rotated by 180°**

(① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
			Size of the ports		
Sandwich plate	HSZ 06-26161-ZA/M00		90 x 65 x 70	R900778083	
	R900967973		3.0 kg		

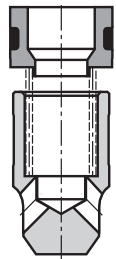
## Functional group blocking function

Example: **HSZ 06 A**  – 3X/

Complementary details on sandwich plates with integrated blocking function (complete devices):

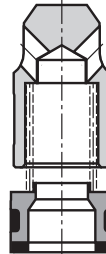
**11**  
 **Cracking pressure** at the check valve Type M-SR8...: (installation kit) 1 bar = **05**

**12**  
 **Cracking pressure** at the check valve Type D7,8 0.5 bar = **05 BAR**



Installation kit (version "P" and "T"):

Version "P" (cracking pressure 0.5 bar)	
Seal material	Material no.
NBR	R900543821
FKM	R900543824



Version "T" (cracking pressure 0.5 bar)	
Seal material	Material no.
NBR	R900543833
FKM	R900543836

**12.1**  
 **Cracking pressure** at the check valve Type Z1S6...: (installation kit / sandwich plate)  
 Cracking pressure 0.5 bar = **1**  
 Cracking pressure 3.0 bar = **2**  
 Cracking pressure 5.0 bar = **3**

**13**  
 **Cracking pressure** at the check valve Type Z2S6...: (pilot operated)  
 Cracking pressure 1.5 bar = **1**  
 Cracking pressure 3.0 bar = **2**  
 Cracking pressure 7.0 bar = **3**

**14**  
 **Seal material**  
 NBR seals = **no code**  
 FKM seals = **V**  
 (other seals upon request)

### ⚠ Attention!

Observe compatibility of seals with hydraulic fluid used!

**26**  
 **Solenoid voltage** at the directional valve:  
 Direct voltage 24 V = **G24**  
 Direct voltage 96 V = **G96**  
 Direct voltage 205 V = **G205**

**26.1**  
 **Nominal voltage at the coil**  
 24 DC = **G24**  
 110 RAC = **G110**  
 220 RAC = **G220**

**35.1**  
 **Manual override** at directional seat valve series K...  
 Without manual override = **N0**  
 Concealed manual override = **N9**  
 Screwable manual override = **N11**

## Functional group blocking function

---

35.1

**Manual override**

at directional seat valve series OD.15...

Without manual override

= 1A

= 3A

= 3I

Screwable manual override

= 3M

= 3L

= 3D

With manual override "pushing"

= 1B

= 1L

with manual override "pushing",  
Lockable in switched position

= 1C

= 1M

AC voltage mains (permissible voltage tolerance $\pm 10\%$ )	Nominal voltage of the DC solenoid in case of operation with alternating voltage	Ordering code
110 V - 50/60 Hz 120 V - 60 Hz	96 V	<b>G96</b>
230 V - 50/60 Hz	205 V	<b>G205</b>

For the connection to AC voltage mains, a DC solenoid must be used, which is controlled via a rectifier (see table on the left).

In the case of individual connection, a mating connector with integrated rectifier can be used (separate order).

## Functional group blocking function

### Complementary details on check valves:

M-SR 8 KE <sup>31</sup> -1X/ (see page 24 and 25)

KE = Angle valve

<sup>31</sup>

00	= without spring
02	= 0.2 bar
05	= 0.5 bar
15	= 1.5 bar
30	= 3.0 bar
50	= 5.0 bar

RUECKSCHLAGVENTIL D 7,8- <sup>31</sup> / Z1S6T (see page 26)

<sup>31</sup>

0.5 BAR
3.0 BAR
5.0 BAR

For numbers: 400, 401, 402, 498, 517, 519, 525, 589 (see page 27 - 30)

VUCN-08A- 0431 20 0056 <sup>31</sup> 000

<sup>31</sup>

00	= 1 bar
03	= 2.7 bar
05	= 5 bar
14	= 14 bar

Flow from 1 to 2

VURN-08A- 0431 21 0056 <sup>31</sup> 000

<sup>31</sup>

02	= 2 bar
----	---------

Flow from 2 to 1

For number: 490 (see page 29)

VUCN-08A- 0431 23 0085 <sup>32</sup> 000

<sup>32</sup>

00	= 0.5 bar
05	= 5 bar
15	= 15 bar

Flow from 1 to 2

VURN-08A- 0431 27 0085 <sup>33</sup> 000

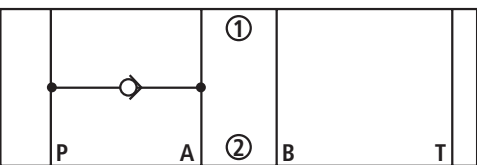
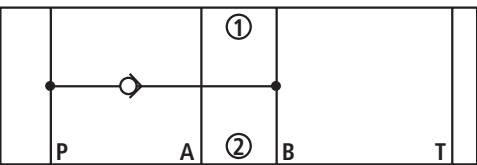
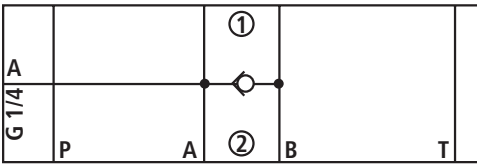
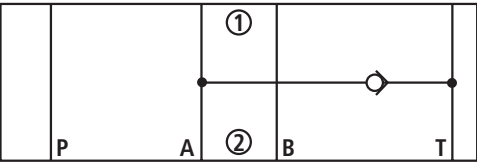
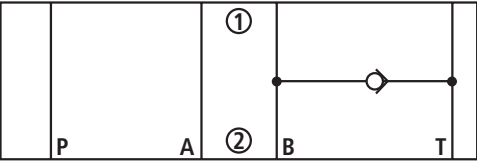
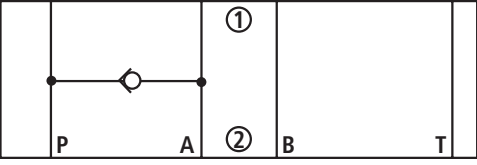
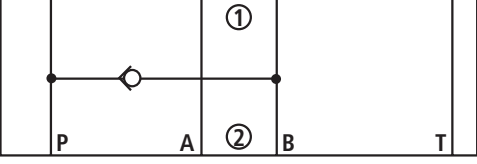
<sup>33</sup>

00	= 1 bar
02	= 2 bar

Flow from 2 to 1



**M-SR... check valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight Size of the ports	
<b>Sandwich plate</b>	HSZ 06 A185-3X/05M00 R900578929		100 x 44 x 40 1.3 kg	R900262198
<b>Fitting of the sandwich plate:</b> Check valve (installation kit)	M-SR8KE <input type="checkbox"/> <sup>31</sup> -1X/ <input type="checkbox"/> <sup>14</sup>			RE 20380
<b>Sandwich plate</b>	HSZ 06 A200-3X/05M00 R900940993		100 x 44 x 40 1.3 kg	R900262199
<b>Fitting of the sandwich plate:</b> Check valve (installation kit)	M-SR8KE <input type="checkbox"/> <sup>31</sup> -1X/ <input type="checkbox"/> <sup>14</sup>			RE 20380
<b>Sandwich plate</b>	HSZ 06 A186-3X/05M00 R900574366		90 x 44 x 40 1.2 kg	R900262220
<b>Fitting of the sandwich plate:</b> Check valve (installation kit)	M-SR8KE <input type="checkbox"/> <sup>31</sup> -1X/ <input type="checkbox"/> <sup>14</sup>			RE 20380
<b>Sandwich plate with R ring plate</b>	HSZ 06A338-3X/05M00 R900702486		115 x 44 x 40 1.6 kg	R900265450
<b>Fitting of the sandwich plate:</b> Check valve (installation kit)	M-SR8KE <input type="checkbox"/> <sup>31</sup> -1X/ <input type="checkbox"/> <sup>14</sup>			RE 20380
<b>Sandwich plate with R ring plate</b>	HSZ 06 A539-3X/05M00 R900737643		120 x 44 x 40 1.6 kg	R900266705
<b>Fitting of the sandwich plate:</b> Check valve (installation kit)	M-SR8KE <input type="checkbox"/> <sup>31</sup> -1X/ <input type="checkbox"/> <sup>14</sup>			RE 20380
<b>Sandwich plate with R ring plate</b>	HSZ 06 A552-3X/05M00 R900536892		115 x 44 x 40 1.4 kg	R900265451
<b>Fitting of the sandwich plate:</b> Check valve (installation kit)	M-SR8KE <input type="checkbox"/> <sup>31</sup> -1X/ <input type="checkbox"/> <sup>14</sup>			RE 20380
<b>Sandwich plate with R ring plate</b>	HSZ 06 A555-3X/05M00 R901268623		120 x 44 x 40 1.6 kg	R900266699
<b>Fitting of the sandwich plate:</b> Check valve (installation kit)	M-SR8KE <input type="checkbox"/> <sup>31</sup> -1X/ <input type="checkbox"/> <sup>14</sup>			RE 20380

**M-SR... check valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet
	Material no.		Weight	and more information
Sandwich plate	HSZ 06A436-3X/05M01		120 x 44 x 80	R901064481
	R901064347		2.8 kg	
<b>Fitting of the sandwich plate:</b>				
Check valve (installation kit)	M-SR8KE <input type="checkbox"/> <sup>31</sup> -1X/ <input type="checkbox"/> <sup>14</sup>		Side F X G 3/8	RE 20380
Sandwich plate	HSZ 06A450-3X/05-D08M01		94 x 44 x 40	R900738378
	R900736685		1.2 kg	Orifice 0.8 mm
<b>Fitting of the sandwich plate:</b>				
Check valve (installation kit)	M-SR8KE <input type="checkbox"/> <sup>31</sup> -1X/ <input type="checkbox"/> <sup>14</sup>		Side E A G 1/4	RE 20380
Sandwich plate	HSZ 06-24441-AA/HM00		100 x 45 x 50	R901021478
	R900519658		0.8 kg	Orifice 1.2 mm + 0.8 mm
<b>Fitting of the sandwich plate:</b>				
Check valve (installation kit)	M-SR8KE <input type="checkbox"/> <sup>31</sup> -1X/ <input type="checkbox"/> <sup>14</sup>			RE 20380

**Order example**

For complete device: HSZ 06A 185-3X/ <sup>11</sup> <sup>2</sup> <sup>3</sup>  
05 M 00

**Check valves D7,8... (① = component side, ② = plate side)**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
Sandwich plate	HSZ 06 A184-3X/ 05BARM00		100 x 44 x 40	R900262270	
	R900555873		1.3 kg		
Fitting of the sandwich plate:					
Check valve D7,8- <sup>31</sup> □-1X/ Z1S6T					
Sandwich plate	HSZ 06 A187-3X/ 05BARM00		95 x 44 x 40	R900266450	
	R900935632		1.3 kg		
Fitting of the sandwich plate:					
Check valve D7,8- <sup>31</sup> □-1X/ Z1S6T					
Sandwich plate	HSZ 06 A181-3X/ 05BARM01		75 x 44 x 40	R900262263	
	R900559668		1.0 kg		
Fitting of the sandwich plate:					
Check valve D7,8- <sup>31</sup> □-1X/ Z1S6P					
Side F P G 1/2					

**Order example**

 For complete device: HSZ 06A 181-3X/ <sup>12</sup>05BAR <sup>2</sup>M <sup>3</sup>01

**VUCN / VURN... check valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight Size of the ports	
Sandwich plate with R ring plate	HSZ 06 A402-3X/ D00-A10RV20M00		220 x 44 x 70	R901028338
	R901239257		2.9 kg	
Fitting of the sandwich plate: Check valve				RE 90005-03
VUCN-08A- 0431200056 <sup>31</sup> 000				
Sandwich plate with R ring plate	HSZ 06 A402-3X/ D00-B20RV21M00		220 x 44 x 70	R901028338
	R901239264		2.9 kg	
Fitting of the sandwich plate: Check valve				RE 90005-03
VURN-08A- 0431210056 <sup>31</sup> 000				
Sandwich plate	HSZ 06 A517-4X/ 20RV21M00		90 x 44 x 50	R901120319
	R901244318		1.3 kg	
Fitting of the sandwich plate: Check valve				RE 90005-03
VURN-08A- 0431210056 <sup>31</sup> 000				
Sandwich plate	HSZ 06 A517-4X/ 50RV20M00		90 x 44 x 50	R901120319
	R901244317		1.3 kg	
Fitting of the sandwich plate: Check valve				RE 90005-03
VUCN-08A- 0431200056 <sup>31</sup> 000				
Sandwich plate	HSZ 06 A519-4X/ 10RV2000M00		85 x 44 x 70	R901123599
	R901171566		1.8 kg	
Fitting of the sandwich plate: Check valve				Internal thread M8
VUCN-08A- 0431200056 <sup>31</sup> 000				
Sandwich plate	HSZ 06 A519-4X/ 20RV2100M00		85 x 44 x 70	R901123599
	R901249904		1.8 kg	
Fitting of the sandwich plate: Check valve				Internal thread M8
VUCN-08A- 0431210056 <sup>31</sup> 000				
				RE 90005-03

**VUCN / VURN... check valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
Fitting of the sandwich plate:			Size of the ports	
Sandwich plate with R ring plate	HSZ 06 A400-3X/ D05-A10RV20M00		150 x 44 x 70	R901172127
	R901172118		3.5 kg	
Fitting of the sandwich plate: Check valve				RE 90005-03
VUCN-08A- 0431200056 <sup>31</sup> <input type="text"/> 000				
Sandwich plate with R ring plate	HSZ 06 A401-3X/ D15-A10RV20M00		150 x 44 x 70	R900767874
	R900767867		3.5 kg	
Fitting of the sandwich plate: Check valve				RE 90005-03
VUCN-08A- 0431200056 <sup>31</sup> <input type="text"/> 000				
Sandwich plate with R ring plate	HSZ 06 A498-3X/ 10RV20M00		80 x 44 x 50	R901121122
	R901247477		1.5 kg	
Fitting of the sandwich plate: Check valve				RE 90005-03
VUCN-08A- 0431200056 <sup>31</sup> <input type="text"/> 000				
Check valve D7,8- <sup>31</sup> <input type="text"/> -1X/ Z1S6T				
Sandwich plate with R ring plate	HSZ 06 A498-3X/ 20RV21M00		80 x 44 x 50	R901121122
	R901247400		1.5 kg	
Fitting of the sandwich plate: Check valve				RE 90005-03
VURN-08A- 0431210056 <sup>31</sup> <input type="text"/> 000				
Check valve D7,8- <sup>31</sup> <input type="text"/> -1X/ Z1S6T				

**VUCN / VURN... check valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight Size of the ports	
Sandwich plate	HSZ 06 A490-3X/ AB-10RV27M00		105 x 44 x 70 2.3 kg	R901094055  RE 90005-03
	R901247695			
Fitting of the sandwich plate: Check valve				
VURN-10A- 0431270085 <sup>33</sup> <input type="text"/> 000				
Sandwich plate	HSZ 06 A490-3X/ A-10RV27M00		105 x 44 x 70 2.2 kg	R901094055  RE 90005-03
	R901265661			
Fitting of the sandwich plate: Check valve				
VURN-10A- 0431270085 <sup>33</sup> <input type="text"/> 000				
Sandwich plate	HSZ 06 A490-3X/ B-10RV27M00		105 x 44 x 70 2.2 kg	R901094055  RE 90005-03
	R901265662			
Fitting of the sandwich plate: Check valve				
VURN-10A- 0431270085 <sup>33</sup> <input type="text"/> 000				
Sandwich plate	HSZ 06 A490-3X/ AB-05RV23M00		105 x 44 x 70 2.3 kg	R901094055  RE 90005-03
	R901247694			
Fitting of the sandwich plate: Check valve				
VUCN-10A- 0431230085 <sup>32</sup> <input type="text"/> 000				
Sandwich plate	HSZ 06 A490-3X/ A-05RV23M00		105 x 44 x 70 2.2 kg	R901094055  RE 90005-03
	R901265660			
Fitting of the sandwich plate: Check valve				
VUCN-10A- 0431230085 <sup>32</sup> <input type="text"/> 000				
Sandwich plate	HSZ 06 A490-3X/ B-05RV23M00		105 x 44 x 70 2.2 kg	R901094055  RE 90005-03
	R901265652			
Fitting of the sandwich plate: Check valve				
VUCN-10A- 0431230085 <sup>32</sup> <input type="text"/> 000				

**VUCN / VURN... check valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
Fitting of the sandwich plate:			Size of the ports	
Sandwich plate with R ring plate	HSZ 06 A525-4X/ 10RV20M00		90 x 44 x 60	R901130409 Internal thread M8
	R901247481		1.7 kg	
Fitting of the sandwich plate: Check valve				RE 90005-03
VUCN-08A- 0431200056 <sup>31</sup> <input type="text"/> <input type="text"/> 000				
Sandwich plate with R ring plate	HSZ 06 A525-4X/ 20RV21M00		90 x 44 x 60	R901130409 Internal thread M8
	R901247479		1.7 kg	
Fitting of the sandwich plate: Check valve				RE 90005-03
VURN-08A- 0431210056 <sup>31</sup> <input type="text"/> <input type="text"/> 000				
Sandwich plate with R ring plate	HSZ 06 A589-4X/ 10RV20M00		90 x 44 x 60	R901129876 Internal thread M8
	R901247486		1.7 kg	
Fitting of the sandwich plate: Check valve				RE 90005-03
VUCN-08A- 0431200056 <sup>31</sup> <input type="text"/> <input type="text"/> 000				
Sandwich plate with R ring plate	HSZ 06 A589-4X/ 20RV21M00		90 x 44 x 60	R901129876 Internal thread M8
	R901247485		1.7 kg	
Fitting of the sandwich plate: Check valve				RE 90005-03
VURN-08A- 0431210056 <sup>31</sup> <input type="text"/> <input type="text"/> 000				

## Functional group blocking function

### Complementary details on check valves Z1S6 -:

Z1S6  <sup>31</sup>  <sup>32</sup> -4X/V (see page 32 - 34)

#### 31 Straight-through valve



Flow direction in the channel:

A (A2 → A1) = A

B (B2 → B1) = B

A (A1 → A2) = C

B (B1 → B2) = D

A and B (A1 → A2) and (B1 → B2) = E

P and T (P2 → P1) and (T1 → T2) = F

P (P2 → P1) = P

T (T1 → T2) = T

#### Angle valve

Flow direction:

B → A = B-A

T → P = T-P

AB → P = AB-P

#### 32 Cracking pressure



0.5 bar [7.25 psi] = 05

1.5 bar [21.76 psi] = 15

3.0 bar [43.51 psi] = 30

5.0 bar [72.52] = 50

#### Special version

Without = no code

Measuring port P (G1/4) = SO68

Measuring port A and B (G1/4) = SO90

Measuring port T (G1/4) = SO2

Orifice Ø 1 in the poppet = SO110

Flow against P normal valve = SO104

With spring 023683 for p<sub>ö</sub> = 0.8 bar = SO115

SO 68 but P port G1/4 on side A = SO118

Orifice Ø 0.6 in the poppet = SO119

0.5 bar spring in P, 5.0 bar spring in T = SO107

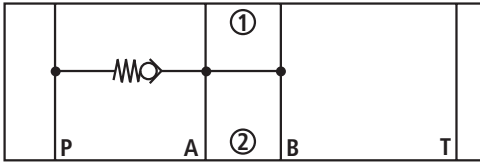
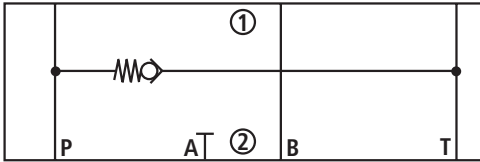
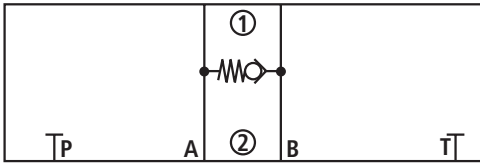
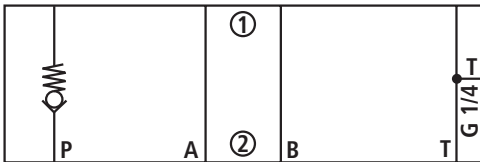
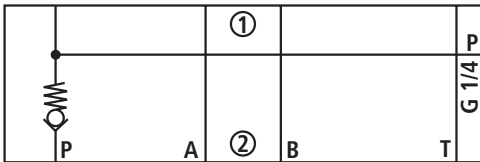
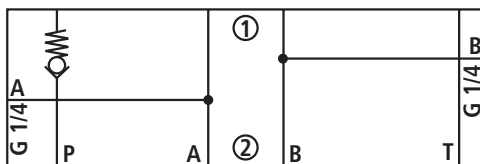
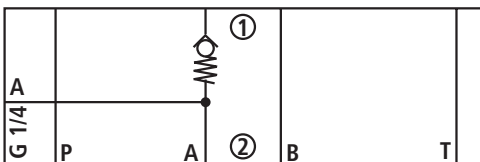
0.5 bar spring in P, 5.0 bar spring in T = SO111



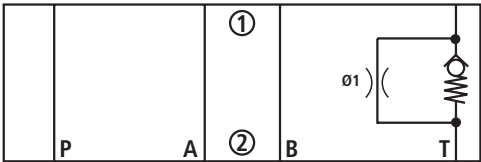
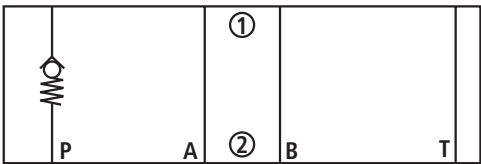
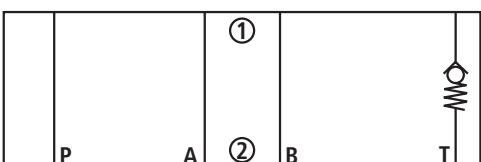
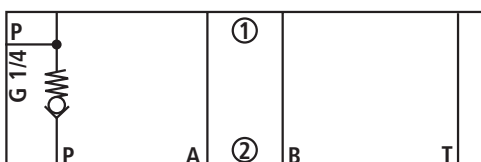
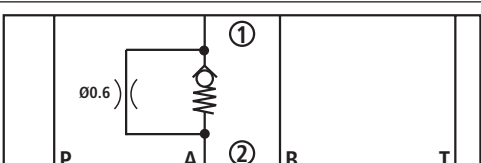
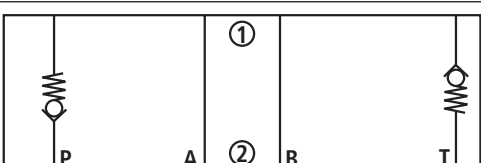
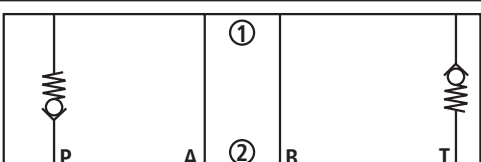
**Z1S6- check valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate	Z1S6 <sup>31</sup> A <sup>32</sup> 05 -4X/V		64 x 44 x 40	R901036983
	R901086070		0.78 kg	
Sandwich plate	Z1S6 <sup>31</sup> P <sup>32</sup> 05 -4X/V		64 x 44 x 40	R901036983
	R901086051		0.78 kg	
Sandwich plate	Z1S6 <sup>31</sup> E <sup>32</sup> 05 -4X/V		64 x 44 x 40	R901036983
	R901085992		0.78 kg	
Sandwich plate	Z1S6 <sup>31</sup> C <sup>32</sup> 05 -4X/V		64 x 44 x 40	R901036983
	R901086081		0.78 kg	
Sandwich plate	Z1S6 <sup>31</sup> D <sup>32</sup> 05 -4X/V		64 x 44 x 40	R901036983
	R901086090		0.78 kg	
Sandwich plate	Z1S6 <sup>31</sup> B <sup>32</sup> 05 -4X/V		64 x 44 x 40	R901036983
	R901086077		0.78 kg	
Sandwich plate	Z1S6 <sup>31</sup> T <sup>32</sup> 05 -4X/V		64 x 44 x 80	R901036983
	R901086058		0.78 kg	
Sandwich plate	Z1S6 <sup>31</sup> F <sup>32</sup> 05 -4X/V		64 x 44 x 40	R901036983
	R901086037		0.78 kg	
				RE 21534

**Z1S6- check valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information				
	Material no.		Weight					
		Size of the ports						
Sandwich plate	Z1S6 <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">31</td><td style="text-align: center;">32</td></tr><tr><td style="text-align: center;">AB-P</td><td style="text-align: center;">05</td></tr></table> -4X/V	31	32	AB-P	05		64 x 44 x 40	R901036983
	31	32						
AB-P	05							
R901140893		0.77 kg	RE 21534					
Sandwich plate	Z1S6 <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">31</td><td style="text-align: center;">32</td></tr><tr><td style="text-align: center;">T-P</td><td style="text-align: center;">05</td></tr></table> -4X/V	31	32	T-P	05		64 x 44 x 40	R901036983
	31	32						
T-P	05							
R901140890		0.78 kg	RE 21534					
Sandwich plate	Z1S6 <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">31</td><td style="text-align: center;">32</td></tr><tr><td style="text-align: center;">B-A</td><td style="text-align: center;">05</td></tr></table> -4X/V	31	32	B-A	05		64 x 44 x 40	R901036983
	31	32						
B-A	05							
R901140895		0.78 kg	RE 21534					
Sandwich plate	Z1S6 <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">31</td><td style="text-align: center;">32</td></tr><tr><td style="text-align: center;">P</td><td style="text-align: center;">05</td></tr></table> -4X/V SO2	31	32	P	05		64 x 44 x 40	R901036983
	31	32						
P	05							
R901086597		0.76 kg	Side F T G 1/4 RE 21534					
Sandwich plate	Z1S6 <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">31</td><td style="text-align: center;">32</td></tr><tr><td style="text-align: center;">P</td><td style="text-align: center;">05</td></tr></table> -4X/V SO68	31	32	P	05		64 x 44 x 40	R901036983
	31	32						
P	05							
R901086600		0.76 kg	Side F P G 1/4 RE 21534					
Sandwich plate	Z1S6 <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">31</td><td style="text-align: center;">32</td></tr><tr><td style="text-align: center;">P</td><td style="text-align: center;">05</td></tr></table> -4X/V SO90	31	32	P	05		64 x 44 x 40	R901036983
	31	32						
P	05							
R901086601		0.74 kg	Side E Side F A B G 1/4 G 1/4 RE 21534					
Sandwich plate	Z1S6 <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">31</td><td style="text-align: center;">32</td></tr><tr><td style="text-align: center;">C</td><td style="text-align: center;">05</td></tr></table> -4X/V SO68	31	32	C	05		64 x 44 x 40	R901036983
	31	32						
C	05							
R901188060		0.76 kg	Side E A G 1/4 RE 21534					

## Z1S6- check valves (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight Size of the ports	
Sandwich plate	Z1S6 <sup>31</sup> T <sup>32</sup> 30 -4X/V SO110		64 x 44 x 40	R901036983  RE 21534
	R901086618		0.76 kg	
Sandwich plate	Z1S6 <sup>31</sup> P <sup>32</sup> 05 -4X/V SO104		64 x 44 x 40	R901036983  RE 21534
	R901086591		0.78 kg	
Sandwich plate	Z1S6 <sup>31</sup> T <sup>32</sup> 05 -4X/V SO115		64 x 44 x 40	R901036983  RE 21534
	R901086616		0.76 kg	
Sandwich plate	Z1S6 <sup>31</sup> P <sup>32</sup> 05 -4X/V SO118		64 x 44 x 40	R901036983  RE 21534
	R901086592		0.76 kg Side E P G 1/4	
Sandwich plate	Z1S6 <sup>31</sup> C <sup>32</sup> 05 -4X/V SO119		64 x 44 x 40	R901036983  RE 21534
	R901086581		0.76 kg	
Sandwich plate	Z1S6 <sup>31</sup> F <sup>32</sup> 05 -4X/V SO107		64 x 44 x 40	R901036983  RE 21534
	R901086586		0.80 kg	
Sandwich plate	Z1S6 <sup>31</sup> F <sup>32</sup> 05 -4X/V SO111		64 x 44 x 40	R901036983  RE 21534
	R901086587		0.80 kg	

## Functional group blocking function

### Complementary details on check valves Z2S6 -:

Z2S 6  <sup>31</sup>  <sup>32</sup> -6X  <sup>33</sup>  <sup>34</sup>  <sup>35</sup> (see page 36 - 37)

<b>31</b>	Leak-free blocking in channel A and B	= -
<input type="checkbox"/>	Leak-free blocking in channel A	= A
	Leak-free blocking in channel B	= B
<b>32</b>	<b>Cracking pressure</b>	
<input type="checkbox"/>	1.5 bar [21.7 psi]	= 1
	3.0 bar [43.5 psi]	= 2
	6.0 bar [86.0]	= 3
<b>33</b>	<b>Seal material</b>	
<input type="checkbox"/>	NBR seals	= no code
	FKM seals	= V
<b>34</b>	<b>Without</b> locating hole	= no code
<input type="checkbox"/>	<b>With</b> locating hole	= /60
	<b>With</b> locating hole and locating pin ISO 8752-3x8-St	= /62
<b>35</b>	<b>Special version</b>	
<input type="checkbox"/>	Without	= no code
	Control open by external port G1/4 (only version "A" and "B")	= SO40
	with pre-opening	= SO55
	Control spool to "T" port unloaded	= SO60
	With pre-opening and control open from channel "P"	= SO150
	Valve poppet lapped	= SO46
	Insert side A = 3-	
	Insert side B = 1-	= SO49
	Valve seat hardened + ground	= SO43
	Mech. control open! Size 6 DIN 4 VP	= SO18
	SO 18, however with hand wheel	= SO71
	Function like SV valve; control open from A and/or B, depending on the installation of the isolator valve unit	= SO53

**Z2S6- check valves** (1) = component side, (2) = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate	Z2S6 <input type="text" value="31"/> <input type="text" value="32"/> -6X/ <input type="text" value="33"/> <input type="text" value="34"/> <input type="text" value="35"/>		80 x 44.5 x 40 0.96 kg	RE 21548
Sandwich plate	Z2S6 <input type="text" value="A"/> <input type="text" value="32"/> -6X/ <input type="text" value="33"/> <input type="text" value="34"/> <input type="text" value="35"/>		80 x 44.5 x 40 0.94 kg	RE 21548
Sandwich plate	Z2S6 <input type="text" value="B"/> <input type="text" value="32"/> -6X/ <input type="text" value="33"/> <input type="text" value="34"/> <input type="text" value="35"/>		80 x 44.5 x 40 0.94 kg	RE 21548
Sandwich plate	Z2S6 <input type="text" value="31"/> <input type="text" value="32"/> -6X/ <input type="text" value="33"/> <input type="text" value="34"/> <input type="text" value="SO150"/>		80 x 44.5 x 40 1.02 kg	RE 21548
Sandwich plate	Z2S6 <input type="text" value="A"/> <input type="text" value="32"/> -6X/ <input type="text" value="33"/> <input type="text" value="34"/> <input type="text" value="SO40"/>		80 x 44.5 x 40 0.94 kg	RE 21548
Sandwich plate	Z2S6 <input type="text" value="B"/> <input type="text" value="32"/> -6X/ <input type="text" value="33"/> <input type="text" value="34"/> <input type="text" value="SO40"/>		80 x 44.5 x 40 0.94 kg	RE 21548
Sandwich plate	Z2S6 <input type="text" value="31"/> <input type="text" value="32"/> -6X/ <input type="text" value="33"/> <input type="text" value="34"/> <input type="text" value="SO60"/>		80 x 44.5 x 40 0.94 kg	RE 21548
Sandwich plate	Z2S6 <input type="text" value="A"/> <input type="text" value="32"/> -6X/ <input type="text" value="33"/> <input type="text" value="34"/> <input type="text" value="SO60"/>		80 x 44.5 x 40 0.94 kg	RE 21548

**Z2S6- check valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information										
	Material no.		Weight											
			Size of the ports											
Sandwich plate	Z2S6 <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px; text-align: center;">31</td><td style="width: 20px; height: 20px; text-align: center;">32</td></tr><tr><td style="width: 20px; height: 20px; text-align: center;">B</td><td style="width: 20px; height: 20px; text-align: center;"> </td></tr></table> -6X/ <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px; text-align: center;">33</td><td style="width: 20px; height: 20px; text-align: center;">34</td></tr><tr><td style="width: 20px; height: 20px; text-align: center;"> </td><td style="width: 20px; height: 20px; text-align: center;"> </td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px; text-align: center;">35</td></tr><tr><td style="width: 20px; height: 20px; text-align: center;">SO60</td></tr></table>	31	32	B		33	34			35	SO60		80 x 44.5 x 40 0.94 kg	RE 21548
	31	32												
B														
33	34													
35														
SO60														
Sandwich plate	Z2S6 <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px; text-align: center;">31</td><td style="width: 20px; height: 20px; text-align: center;">32</td></tr><tr><td style="width: 20px; height: 20px; text-align: center;"> </td><td style="width: 20px; height: 20px; text-align: center;"> </td></tr></table> -6X/ <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px; text-align: center;">33</td><td style="width: 20px; height: 20px; text-align: center;">34</td></tr><tr><td style="width: 20px; height: 20px; text-align: center;"> </td><td style="width: 20px; height: 20px; text-align: center;"> </td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px; text-align: center;">35</td></tr><tr><td style="width: 20px; height: 20px; text-align: center;">SO18</td></tr></table>	31	32			33	34			35	SO18		80 x 44.5 x 40 1.02 kg	RE 21548
	31	32												
33	34													
35														
SO18														
Sandwich plate	Z2S6 <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px; text-align: center;">31</td><td style="width: 20px; height: 20px; text-align: center;">32</td></tr><tr><td style="width: 20px; height: 20px; text-align: center;">A</td><td style="width: 20px; height: 20px; text-align: center;"> </td></tr></table> -6X/ <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px; text-align: center;">33</td><td style="width: 20px; height: 20px; text-align: center;">34</td></tr><tr><td style="width: 20px; height: 20px; text-align: center;"> </td><td style="width: 20px; height: 20px; text-align: center;"> </td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px; text-align: center;">35</td></tr><tr><td style="width: 20px; height: 20px; text-align: center;">SO18</td></tr></table>	31	32	A		33	34			35	SO18		80 x 44.5 x 40 0.94 kg	RE 21548
	31	32												
A														
33	34													
35														
SO18														
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	31	32												
B														
33	34													
35														
SO18														

**Blocking function, electrically switchable** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate	HSZ 06 A637-3X/ KKDENG24N0K4V00		100 x 44 x 60	R901244695
	R901245973		3.015 kg	Valve on side E RE 18136-06
Sandwich plate	HSZ 06 A637-3X/ KKDEPG24N0K4V00		100 x 44 x 60	R901244695
	R901245975		3.015 kg	Valve on side E RE 18136-06
Sandwich plate	HSZ 06 A637-3X/ KSDENG24N0K4V00		100 x 44 x 60	R901244695
	R901245974		3.015 kg	Valve on side E RE 18136-20
Sandwich plate	HSZ 06 A637-3X/ KSDEPG24N0K4V00		100 x 44 x 60	R901244695
	R901245976		3.015 kg	Valve on side E RE 18136-20

**Blocking function, electrically switchable (① = component side, ② = plate side)**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate <b>Fitting of the sandwich plate:</b> 2/2 directional seat valve <b>KSDER1NA/HCG24</b> <sup>35.1</sup> K4V	HSZ 06A 484-3X/AS1N-BS1NG24 <sup>35.1</sup> K4M00		101 x 44 x 50	R901034814 Valve on side E and F RE 18136-20
Sandwich plate <b>Fitting of the sandwich plate:</b> 2/2 directional seat valve <b>KSDER1NA/HCG24</b> <sup>35.1</sup> K4V	HSZ 06A 484-3X/AS1NG24 <sup>35.1</sup> K4M00		101 x 44 x 50	R901034814 Valve on side E RE 18136-20
Sandwich plate <b>Fitting of the sandwich plate:</b> 2/2 directional seat valve <b>KSDER1NA/HCG24</b> <sup>35.1</sup> K4V	HSZ 06A 484-3X/BS1NG24 <sup>35.1</sup> K4M00		101 x 44 x 50	R901034814 Valve on side F RE 18136-20
Sandwich plate <b>Fitting of the sandwich plate:</b> 2/2 directional seat valve <b>KSDER1PA/HCG24</b> <sup>35.1</sup> K4V	HSZ 06A 484-3X/AS1P-BS1PG24 <sup>35.1</sup> K4M00		101 x 44 x 50	R901034814 Valve on side E and F RE 18136-20
Sandwich plate <b>Fitting of the sandwich plate:</b> 2/2 directional seat valve <b>KSDER1PA/HCG24</b> <sup>35.1</sup> K4V	HSZ 06A 484-3X/AS1PG24 <sup>35.1</sup> K4M00		101 x 44 x 50	R901034814 Valve on side E RE 18136-20
Sandwich plate <b>Fitting of the sandwich plate:</b> 2/2 directional seat valve <b>KSDERPA/HCG24</b> <sup>35.1</sup> K4V	HSZ 06A 484-3X/BS1PG24 <sup>35.1</sup> K4M00		101 x 44 x 50	R901034814 Valve on side F RE 18136-20

**Attention:**  $q_{V \max} = 20 \text{ l/min}$

**Order example**

For complete device with **two** seat valves:

HSZ 06A 484-3X/ AS1N- BS1NG24 <sup>35.1</sup> K4M00

Effective in channel A and B



**Blocking function, electrically switchable** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
Sandwich plate Fitting of the sandwich plate: SITZVENTIL OD.15.05.36.3A.S0.000 SPULE OD.02.17.01.30. <input type="checkbox"/> .000	HSZ 06A 490-3X/AB-A05 <input type="checkbox"/> K4M00		105 x 44 x 70	R901094055 Valve on side E and F RE 90005-03	
					3.1 kg
Sandwich plate Fitting of the sandwich plate: SITZVENTIL OD.15.05.36.3A.S0.000 SPULE OD.02.17.01.30. <input type="checkbox"/> .000	HSZ 06A 490-3X/A-A05 <input type="checkbox"/> K4M00		105 x 44 x 70	R901094055 Valve on side E RE 90005-03	
					2.7 kg
Sandwich plate Fitting of the sandwich plate: SITZVENTIL OD.15.05.36.3A.S0.000 SPULE OD.02.17.01.30. <input type="checkbox"/> .000	HSZ 06A 490-3X/B-A05 <input type="checkbox"/> K4M00		105 x 44 x 70	R901094055 Valve on side F RE 90005-03	
					2.7 kg
Sandwich plate Fitting of the sandwich plate: SITZVENTIL OD.15.06.36.1A.S0.000 SPULE OD.02.17.01.30. <input type="checkbox"/> .000	HSZ 06A 490-3X/AB-A06 <input type="checkbox"/> K4M00		105 x 44 x 70	R901094055 Valve on side E and F RE 90005-03	
					3.1 kg
Sandwich plate Fitting of the sandwich plate: SITZVENTIL OD.15.06.36.1A.S0.000 SPULE OD.02.17.01.30. <input type="checkbox"/> .000	HSZ 06A 490-3X/A-A06 <input type="checkbox"/> K4M00		105 x 44 x 70	R901094055 Valve on side E RE 90005-03	
					2.7 kg
Sandwich plate Fitting of the sandwich plate: SITZVENTIL OD.15.06.36.1A.S0.000 SPULE OD.02.17.01.30. <input type="checkbox"/> .000	HSZ 06A 490-3X/B-A06 <input type="checkbox"/> K4M00		105 x 44 x 70	R901094055 Valve on side F RE 90005-03	
					2.7 kg

 $q_{V \max \text{ seat valve}} = 70 \text{ l/min}$ 
**Order example** for complete device with **two** seat valves normally closed, blocking on one side:

 HSZ 06A 490-3X/ AB-A05  K4M00

Effective in channel A and B

**Blocking function, electrically switchable** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
Sandwich plate Fitting of the sandwich plate: SITZVENTIL OD.15.31.36.3A.S0.000 SPULE OD.02.17.01.30. <input type="checkbox"/> .000	HSZ 06A 490-3X/AB-B05 <input type="checkbox"/> K4M00		105 x 44 x 70	R901094055 Valve on side E and F RE 90005-03	
			3.1 kg		
Sandwich plate Fitting of the sandwich plate: SITZVENTIL OD.15.31.36.3A.S0.000 SPULE OD.02.17.01.30. <input type="checkbox"/> 000	HSZ 06A 490-3X/A-B05 <input type="checkbox"/> K4M00		105 x 44 x 70	R901094055 Valve on side E RE 90005-03	
			2.7 kg		
Sandwich plate Fitting of the sandwich plate: SITZVENTIL OD.15.31.36.3A.S0.000 SPULE OD.02.17.01.30. <input type="checkbox"/> 000	HSZ 06A 490-3X/B-B05 <input type="checkbox"/> K4M00		105 x 44 x 70	R901094055 Valve on side F RE 90005-03	
			2.7 kg		
Sandwich plate Fitting of the sandwich plate: SITZVENTIL OD.15.32.36.1A.S0.000 SPULE OD.02.17.01.30. <input type="checkbox"/> 000	HSZ 06A 490-3X/AB-B06 <input type="checkbox"/> K4M00		105 x 44 x 70	R901094055 Valve on side E and F RE 90005-03	
			3.1 kg		
Sandwich plate Fitting of the sandwich plate: SITZVENTIL OD.15.32.36.1A.S0.000 SPULE OD.02.17.01.30. <input type="checkbox"/> 000	HSZ 06A 490-3X/A-B06 <input type="checkbox"/> K4M00		105 x 44 x 70	R901094055 Valve on side E RE 90005-03	
			2.7 kg		
Sandwich plate Fitting of the sandwich plate: SITZVENTIL OD.15.32.36.1A.S0.000 SPULE OD.02.17.01.30. <input type="checkbox"/> 000	HSZ 06A 490-3X/B-B06 <input type="checkbox"/> K4M00		105 x 44 x 70	R901094055 Valve on side F RE 90005-03	
			2.7 kg		

**Order example**

For complete device with **one** seat valve normally closed, blocking on both sides:

HSZ 06A 490-3X/ **A**-B05  K4M00

Effective in channel A

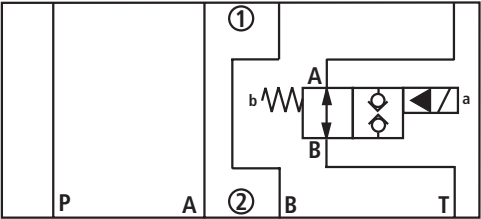
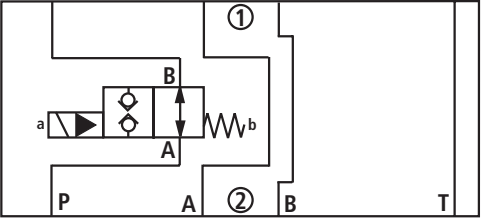
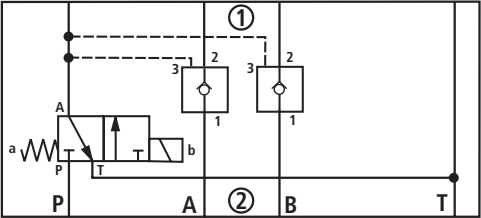
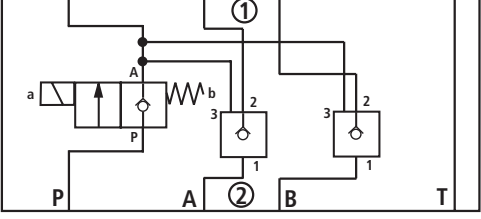
**Blocking function, electrically switchable** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate  Amend type designation according to page 19!	M-Z4SE 6 A1X/C <sup>26</sup> K4		100 x 45 x 40 1.5 kg	R900270194
Sandwich plate  Amend type designation according to page 19!	M-Z4SE 6 B1X/C <sup>26</sup> K4		100 x 45 x 40 1.5 kg	R900270194
Sandwich plate  Amend type designation according to page 21!	M-Z4SE 6 E1X/C <sup>26</sup> K4		100 x 45 x 40 1.5 kg	R900270194

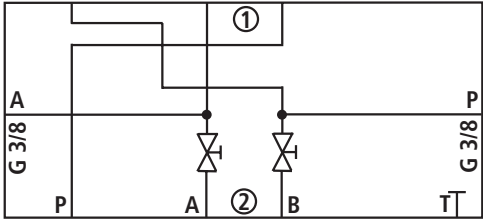
**Blocking function, electrically switchable (① = component side, ② = plate side)**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate	<b>HSZ 06 A402-31/ D00-A05G24K4M00</b>  <b>R901177164</b>  Blocking function discharge →		150 x 44 x 70	R901028338 RE 90005-03  3.3 kg
	Blocking function supply →			
Sandwich plate	<b>HSZ 06 A402-31/ D00-A06G24K4M00</b>  <b>R901028324</b>  Blocking function discharge →		150 x 44 x 70	R901028338 RE 90005-03  3.3 kg
	Blocking function supply →			
Sandwich plate	<b>HSZ 06 A402-31/ D00-B05G24K4M00</b>  <b>R901238212</b>  Blocking function discharge →		150 x 44 x 70	R901028338 RE 90005-03  3.3 kg
	Blocking function supply →			

**Blocking function, electrically switchable** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate	HSZ 06 A402-31/ D00-B06G24K4M00		150 x 44 x 70	R901028338
	R901238214		3.3 kg	RE 90005-03
	Blocking function discharge →			
	Blocking function supply →			
Sandwich plate	HSZ 06-26787-AA/ G24N9K4M00-403		160 x 50 x 100	R900243054
	R900976030		6.0 kg	Valve on side F RE 18136-04
Sandwich plate	HSZ 06-38019-AA/ G243AK4M00		170 x 70 x 130	R901112789
	R901109224		11.5 kg	Valve on side F RE 90005-03

**Blocking function, mechanically actuated** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate	HSZ 06-26623-AA/ HM01		120 x 44 x 80	R900269045
	R900914093		3.2 kg	

## Functional group pressure function

Example: **HSZ 06 A** 1 – 3X/ 15 16 2 3

Complementary details on sandwich plates with integrated pressure function (complete devices):

<p>14</p> <div style="border: 1px solid black; width: 30px; height: 30px; margin: 5px 0;"></div>	<p><b>Seal material</b>  <b>⚠ Attention!</b>            Observe compatibility of seals with hydraulic fluid used!</p>	<p>NBR seals            FKM seals            (other seals upon request)</p>	<p>= no code            = V</p>
<p>15</p> <div style="border: 1px solid black; width: 30px; height: 30px; margin: 5px 0;"></div>	<p><b>Adjustment element</b> at the pressure relief valve            Type DBD..6...:</p>	<p>Setscrew with hexagon and protective cap            Rotary knob            Lockable rotary knob</p>	<p>= S  <sup>1)</sup> = H <sup>1)</sup> Please observe the installation dimensions!  <sup>1)</sup> = A</p>
<p>16</p> <div style="border: 1px solid black; width: 30px; height: 30px; margin: 5px 0;"></div>	<p><b>Setting pressure</b> at the pressure relief valve            Type DBD..6...:  <b>⚠ Attention!</b>            Spelling () with complete type!</p>	<p>up to 25 bar            up to 50 bar            up to 100 bar            up to 200 bar            up to 315 bar</p>	<p>= 25 (025)            = 50 (050)            = 100            = 200            = 315</p>
<p>37</p> <div style="border: 1px solid black; width: 30px; height: 30px; margin: 5px 0;"></div>	<p><b>Adjustment element</b> at the pressure reducing valve            Type DR10K... :</p>	<p>Rotary knob            Bushing with hexagon and protective cap            Lockable rotary knob with scale            Rotary knob with scale</p>	<p>= 4            = 5            = 6            = 7</p>
<p>38</p> <div style="border: 1px solid black; width: 30px; height: 30px; margin: 5px 0;"></div>	<p><b>Setting pressure</b> at the pressure reducing valve Type DR10K... :  <b>⚠ Attention!</b>            Spelling () with complete type!</p>	<p>Secondary pressure            up to 50 bar            up to 100 bar            up to 200 bar            up to 315 bar</p>	<p>= 50 (050)            = 100            = 200            = 315</p>

**Pressure relief valves, direct operated** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate <b>HSZ 06A 100-3X/</b> <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <b>M00</b>			120 x 44 x 50	R900262303
	<b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated		<b>DBD</b> <input type="checkbox"/> <sup>15</sup> <b>6K1X/</b> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>	
Sandwich plate <b>HSZ 06A 101-3X/</b> <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <b>M00</b>			120 x 44 x 50	R900262304
	<b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated		<b>DBD</b> <input type="checkbox"/> <sup>15</sup> <b>6K1X/</b> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>	
Sandwich plate <b>HSZ 06A 106-3X/</b> <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <b>M00</b>			120 x 44 x 50	R900262265
	<b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated		<b>DBD</b> <input type="checkbox"/> <sup>15</sup> <b>6K1X/</b> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>	
Sandwich plate <b>HSZ 06A 107-3X/</b> <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <b>M00</b>			120 x 44 x 50	R900262266
	<b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated		<b>DBD</b> <input type="checkbox"/> <sup>15</sup> <b>6K1X/</b> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>	
Sandwich plate <b>HSZ 06A 102-3X/</b> <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <b>M00</b>			105 x 44 x 70	R900262259
	<b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated		<b>DBD</b> <input type="checkbox"/> <sup>15</sup> <b>6K1X/</b> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>	



**Pressure relief valves, direct operated** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
<b>Sandwich plate</b>	HSZ 06A 118-3X/ <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> M00		105 x 44 x 70	R900265626
<b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated	DBD <input type="checkbox"/> <sup>15</sup> 6K1X/ <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>		2.3 kg	RE 25402 DBD on side E
<b>Sandwich plate with R ring plate</b>	HSZ 06A 117-3X/ <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> M01		120 x 44 x 50	R900262260
<b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated	DBD <input type="checkbox"/> <sup>15</sup> 6K1X/ <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>		1.9 kg Side F T G 1/4	RE 25402 DBD on side E
<b>Sandwich plate</b>	HSZ 06A 114-3X/ <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> M01		120 x 44 x 50	R900262261
<b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated	DBD <input type="checkbox"/> <sup>15</sup> 6K1X/ <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>		1.9 kg Side F P G 1/4	RE 25402 DBD on side E

**Order example**

For complete device with **one** pressure relief valve: HSZ 06A 100-3X/  <sup>15</sup>  <sup>16</sup>  <sup>2</sup>  <sup>3</sup> M 00

<b>Sandwich plate</b>	HSZ 06A 105-3X/A <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> -B <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> M00		150 x 44 x 50	R900262262
<b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated	DBD <input type="checkbox"/> <sup>15</sup> 6K1X/ <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>		2.5 kg	RE 25402 DBD on side E and F
<b>Sandwich plate</b>	HSZ 06A 108-3X/A <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> -B <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> M00		150 x 44 x 70	R900262255
<b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated	DBD <input type="checkbox"/> <sup>15</sup> 6K1X/ <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>		3.5 kg	RE 25402 DBD on side E and F

**Order example**

For complete device with **two** pressure relief valves: HSZ 06A 105-3X/ A  <sup>15</sup>  <sup>16</sup>  <sup>2</sup>  <sup>3</sup> -B  <sup>15</sup>  <sup>16</sup>  <sup>2</sup>  <sup>3</sup> M 00

Secured channel

**Pressure relief valves, direct operated** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
Sandwich plate	HSZ 06A 137-3X/ <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> M01		120 x 44 x 50	R900266371	
			1.9 kg		RE 25402 DBD on side E
Sandwich plate	HSZ 06A 142-3X/ <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> M01		105 x 44 x 70	R901115256	
					RE 25402 DBD on side F
Sandwich plate	HSZ 06-13712-AA/ HM01		125 x 60 x 50	R900741553	
	R900501862 with pressure valves * DBDS6K1X/315		3.0 kg		2x orifice 0.8 mm RE 25402 DBD on side F
Sandwich plate	HSZ 06-13712-BA/ HM01		125 x 60 x 50	R901013240	
	R901013240 with pressure valves * DBDS6K1X/50		3.0 kg		Internal thread M6 RE 25402 DBD on side F
Sandwich plate	HSZ 06-38007-AA/ HM00		120 x 44 x 60	R901195281	
	R901098086 with pressure valves * DBDS6K1X/50		2.2 kg		RE 25402 DBD on side F

\* Other pressure stages upon request

**Pressure reducing valves, pilot operated** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate	HSZ 06A 550-3X/ <sup>37</sup> □ - <sup>38</sup> □ M01		120 x 44 x 90	R900262760
<b>Fitting of the sandwich plate:</b> Pressure re- ducing valve, pilot operated  DR10K <sup>37</sup> □ - 3X/ <sup>38</sup> □ YM			3.6 kg Side E Side F Y P G 1/4 G 1/4	RE 26850 DR on side E

**Order example**

 For complete device: HSZ 06A 550-3X/ <sup>37</sup>5 - <sup>38</sup>050 <sup>2</sup>M <sup>3</sup>01

**Pressure reducing valves, direct operated** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate	HSZ 06 A492-3X/ KRD2F2AB/LVM01  R901110168  with pressure valve * KRD2F2AB/LV		130 x 44 x 60	R901110332
			2.5 kg	RE 18111-03 KRD on side E
Sandwich plate	HSZ 06 A492-3X/ KRD2L2AB/LVM01  R901138734  with pressure valve * KRD2L2AB/LV		130 x 44 x 60	R901110332
			2.5 kg	RE 18111-03 KRD on side E

\* Other pressure stages upon request

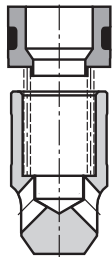
## Functional group combination pressure and blocking function

Example lowering brake function: **HSZ 06 A** 1 – **3X/L** 39 45 2 3

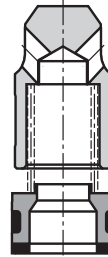
### Complementary details on sandwich plates with integrated pressure and blocking function (complete devices):

<b>15</b> 	<b>Adjustment element</b> at the pressure relief valve Type DBD..6...:	Setscrew with hexagon and protective cap Rotary knob Lockable rotary knob	= S  1) = H 1) = A	1) Please observe the installation dimensions!
<b>16</b> 	<b>Setting pressure</b> at the pressure relief valve Type DBD..6...: <b>⚠ Attention!</b> Spelling () with complete type!	up to 25 bar up to 50 bar up to 100 bar up to 200 bar up to 315 bar	= 25 (025) = 50 (050) = 100 = 200 = 315	
<b>12</b> 	<b>Cracking pressure</b> at the check valve Type D7, 8...:	0.5 bar	= 05BAR	

Installation kit (version "P" and "T"):



Version "P" (cracking pressure 0.5 bar)	
Seal material	Material no.
NBR	R900543821
FKM	R900543824



Version "T" (cracking pressure 0.5 bar)	
Seal material	Material no.
NBR	R900543833
FKM	R900543836

<b>14</b> 	<b>Seal material</b> <b>⚠ Attention!</b> Observe compatibility of seals with hydraulic fluid used!	NBR seals FKM seals (other seals upon request)	= no code = V	
<b>11</b> 	<b>Cracking pressure</b> at the check valve Type M-SR8...: (installation kit)	without spring 0.2 bar 1.0 bar 1.5 bar 3.0 bar 5.0 bar	= 00 = 02 = 05 = 15 = 30 = 50	
<b>44</b> 	<b>Control open ratio</b> at the lowering brake valve *:	Control open ratio 4.5 :1  Control open ratio 10 :1 (other control open ratios upon request)	= G  = H	(Standard) – for systems with variable load conditions and structure-related fluctuations  – For systems with relatively constant load
<b>39</b> 	<b>Setting range</b> *	70 to 175 bar (setting 140) 140 to 350 bar (setting 210)	= K = J	
<b>45</b> 	<b>Control open ratio</b> *	4.5 :1 10 :1	= 4 = 10	

\* Other versions upon request

**Counterholding function** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
			Size of the ports		
<b>Sandwich plate with R ring plate</b> <b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated RUECKSCHLAGVENTIL D7,8-05BAR/ . Z1S6P	HSZ 06A 216-3X/ <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> M00 DBD <input type="checkbox"/> <sup>15</sup> 6K1X/ <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>		120 x 44 x 60 2.6 kg	R900262305 RE 25402 DBD on side E	
<b>Sandwich plate with R ring plate</b> <b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated RUECKSCHLAGVENTIL D7,8-05BAR/ . Z1S6P	HSZ 06A 218-3X/ <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> M00 DBD <input type="checkbox"/> <sup>15</sup> 6K1X/ <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>		120 x 44 x 60 2.6 kg	R900262307 RE 25402 DBD on side F	
<b>Order example</b> For complete device:	HSZ 06A 216-3X/ <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>2</sup> <input type="checkbox"/> <sup>3</sup> S   <input type="checkbox"/> <sup>15</sup> 050   <input type="checkbox"/> <sup>16</sup> M   <input type="checkbox"/> <sup>2</sup> 00   <input type="checkbox"/> <sup>3</sup> 00				
For complete device:	HSZ 06A 218-3X/ <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>2</sup> <input type="checkbox"/> <sup>3</sup> S   <input type="checkbox"/> <sup>15</sup> 050   <input type="checkbox"/> <sup>16</sup> M   <input type="checkbox"/> <sup>2</sup> 00   <input type="checkbox"/> <sup>3</sup> 00				
<b>Sandwich plate with R ring plate</b> <b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated RUECKSCHLAGVENTIL D7,8-05BAR/ . Z1S6P	HSZ 06A 217-3X/A <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> -B <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> M00 DBD <input type="checkbox"/> <sup>15</sup> 6K1X/ <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>		175 x 44 x 60 3.8 kg	R900262306 RE 25402 DBD on side E and F	

**Order example**  
 For complete device: HSZ 06A 217-3X/ A  <sup>15</sup>  <sup>16</sup> S |  <sup>15</sup> 200 |  <sup>16</sup> -B |  <sup>15</sup> S |  <sup>16</sup> 200 |  <sup>2</sup> M |  <sup>3</sup> 00

Secured channel

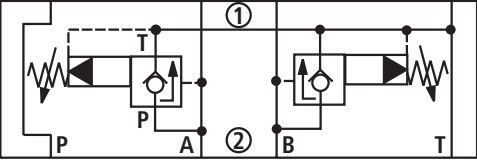
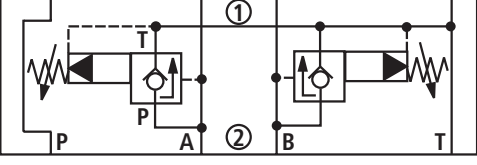
**Pressure feed function** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
			Size of the ports		
<b>Sandwich plate</b>	HSZ 06A 222-3X/ <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> M01		130 x 44 x 80	R900262764	
	<b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated DBD <input type="checkbox"/> <sup>15</sup> 6K1X/ <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>  Check valve (installation kit) M-SR8KE05-1X/ <input type="checkbox"/> <sup>14</sup>		3.4 kg Side E Side F A B G 1/4 G 1/4		
<b>Order example</b>					
For complete device: HSZ 06A 222-3X/ <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>2</sup> <input type="checkbox"/> <sup>3</sup> S 200 M 01					
<b>Sandwich plate</b>	HSZ 06A 214-3X/A <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> -B <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> M01		210 x 44 x 80	R900262256	
	<b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated DBD <input type="checkbox"/> <sup>15</sup> 6K1X/ <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>  Check valve (installation kit) M-SR8KE05-1X/ <input type="checkbox"/> <sup>14</sup>		5.6 kg Side E Side F A B G 1/4 G 1/4		
<b>Sandwich plate</b>	HSZ 06A 207-3X/A <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> -B <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> M00		160 x 44 x 80	R900262257	
	<b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated DBD <input type="checkbox"/> <sup>15</sup> 6K1X/ <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>  Check valve (installation kit) M-SR8KE05-1X/ <input type="checkbox"/> <sup>14</sup>		4.3 kg RE 25402 DBD on side E and F RE 20380		
<b>Sandwich plate</b>	HSZ 06A 421-3X/A <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> -B <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> M01		210 x 44 x 80	R900277186	
	<b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated DBD <input type="checkbox"/> <sup>15</sup> 6K1X/ <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>  Check valve (installation kit) M-SR8KE05-1X/ <input type="checkbox"/> <sup>14</sup>		5.3 kg Side E Side F A B G 3/8 G 3/8		

**Order example**  
 For complete device: HSZ 06A 214-3X/ A  <sup>15</sup>  <sup>16</sup> S 315 -B  <sup>15</sup>  <sup>16</sup> S 315  <sup>2</sup>  <sup>3</sup> M 01

Secured channel

**Pressure feed function** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
Sandwich plate	HSZ 06 A116-4X/ 420M00 SO133 *		90 x 44 x 40	R900265894	
	R901221737		1.1 kg		RE 64602 Valve on side E and F
Fitting of the sandwich plate: MHDBN 16 K2-2X/					
Sandwich plate	HSZ 06 A116-4X/M00		90 x 44 x 40	R900265894	
	R901226642		1.1 kg		RE 64602
without fitting of the sandwich plate					

\* With vibratory ground main seat

## Lowering brake function (complete device, ① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
Sandwich plate	HSZ 06A 430-1X/L <input type="checkbox"/> <sup>39</sup> <input type="checkbox"/> <sup>45</sup> M00		140 x 44 x 50	R900239770
Fitting of the sandwich plate:  SENKBREMSVENTIL CBC <input type="checkbox"/> <sup>44</sup> -L <input type="checkbox"/> <sup>39</sup> N			2.2 kg	Valve on side E
Sandwich plate	HSZ 06A 431-1X/L <input type="checkbox"/> <sup>39</sup> <input type="checkbox"/> <sup>45</sup> M00		140 x 44 x 50	R900279856
Fitting of the sandwich plate:  SENKBREMSVENTIL CBC <input type="checkbox"/> <sup>44</sup> -L <input type="checkbox"/> <sup>39</sup> N			2.2 kg	Valve on side F
<b>Order example</b>				
For complete device with <b>one</b> lowering brake valve: <b>HSZ 06A 430-1X/L</b> <input type="checkbox"/> <sup>39</sup> <input type="checkbox"/> <sup>45</sup> <input type="checkbox"/> <sup>2</sup> <input type="checkbox"/> <sup>3</sup> <b>M00</b>				
Sandwich plate	HSZ 06A 426-1X/AL <input type="checkbox"/> <sup>39</sup> <input type="checkbox"/> <sup>45</sup> -BL <input type="checkbox"/> <sup>39</sup> <input type="checkbox"/> <sup>45</sup> M00		140 x 44 x 50	R900278330
Fitting of the sandwich plate:  SENKBREMSVENTIL CBC <input type="checkbox"/> <sup>44</sup> -L <input type="checkbox"/> <sup>39</sup> N			2.3 kg	Valve on side E and F
<b>Order example</b>				
For complete device with <b>two</b> lowering brake valves: <b>HSZ 06A 426-1X/</b> <input type="checkbox"/> <sup>39</sup> <input type="checkbox"/> <sup>45</sup> <b>AL</b> <input type="checkbox"/> <sup>39</sup> <input type="checkbox"/> <sup>45</sup> <b>J 10</b> -BL <input type="checkbox"/> <sup>39</sup> <input type="checkbox"/> <sup>45</sup> <b>J 10</b> <input type="checkbox"/> <sup>2</sup> <input type="checkbox"/> <sup>3</sup> <b>M00</b>				
Secured channel				

Preload of the check valve = 2 bar

**Not** suitable when using a proportional directional valve and differential circuits (please contact us!)

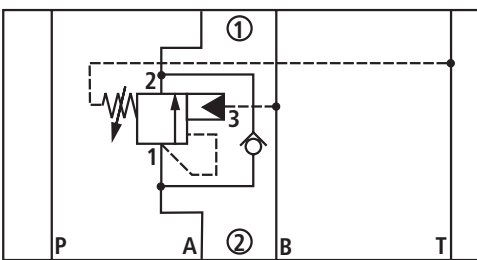
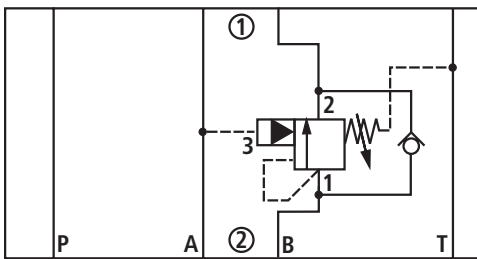
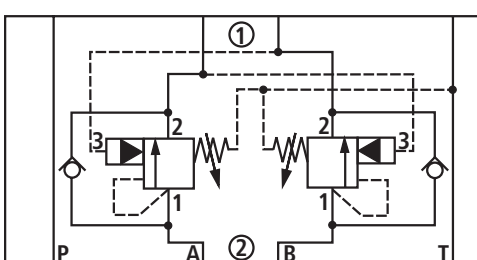
Hydraulic backpressures add 1:1 to the response pressure set at the adjustment as the spring chamber of the lowering brake valve is connected to the port (discharge side) of the valve side.

For more technical information refer to:  
Mounting cavity R/T-11A; R901029900

Amend type designation according to page 21



**Lowering brake function** (complete device, ① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate without fitting of the sandwich plate	HSZ 06A 662-4X/M00		105 x 44 x 40	R901227589  Lowering brake valve upon request
	R901227668		1.5 kg	
Sandwich plate without fitting of the sandwich plate	HSZ 06A 663-4X/M00		105 x 44 x 40	R901227588  Lowering brake valve upon request
	R901227680		1.5 kg	
Sandwich plate without fitting of the sandwich plate	HSZ 06A 661-4X/M00		160 x 44 x 40	R901226805  Lowering brake valve upon request
	R901227657		2.3 kg	

Preload of the check valve = 2 bar

Suitable when using a proportional directional valve; however, the hydraulic backpressures add in port T 1:1 to the response pressure set at the adjustment.

For more technical information refer to:  
Mounting cavity R/T-21A; R901161092

## Functional group flow control function

Example: **HSZ 06 A**  – **3X/M**

### Complementary details on sandwich plates with flow control function (complete devices):

<b>17</b> <input type="text"/>	<b>Adjustment element</b> at the 2-way flow control valve Type 2FRM6...:	Lockable rotary knob with scale Rotary knob with scale	= 3 = 7
<b>20</b> <input type="text"/>	<b>2-way flow control valve</b> Type 2FRM6...:	<b>With</b> closing of the pressure compensator (suppression of the start-up jump) <b>Without</b> closing of the pressure compensator	= A = B
<b>21</b> <input type="text"/>	<b>Flow</b> (progressive) at the 2-way flow control valve Type 2FRM6...:  <b>⚠ Attention!</b> Spelling () with complete type!	up to 0.2 l/min up to 0.5 l/min up to 1.5 l/min up to 3.0 l/min up to 6.0 l/min up to 10.0 l/min up to 16.0 l/min up to 25.0 l/min up to 32.0 l/min	= 0.2Q (Q00.2) = 0.6Q (Q00.6) = 1.5Q (Q01.5) = 3Q (Q03.0) = 6Q (Q06.0) = 10Q (Q10.0) = 16Q (Q16.0) = 25Q (Q25.0) = 32Q (Q32.0)
<b>22</b> <input type="text"/>	<b>Flow control valve</b>	<b>With</b> check valve <b>Without</b> check valve	= R = M
<b>27</b> <input type="text"/>	<b>Adjustment element</b> at the throttle valve  <b>⚠ Attention!</b> With Type Z2FG6...-4X/... identical adjustment element on sides A and B	Hexagon socket head cap screw with lock nut protective cap Lockable rotary knob with scale Spindle with internal hexagon and scale Rotary knob with scale	= 2 = 3 = 5 = 7
<b>28</b> <input type="text"/>	<b>Flow limitation</b> at the throttle valve Type Z2FG6...:	Main flow limitation (standard) Pilot flow limitation (fine control setting)	= 2Q = 1Q

**Note:** Flow control also possible with proportional flow control valve according to data sheet RE 29188!

**Throttle valves** (1) = component side, (2) = plate side

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
Sandwich plate with R ring plate	Z2FG6A <sup>27</sup> <input type="checkbox"/> -4X/ <input type="checkbox"/> V <sup>28</sup>		81 x 45 x 40 1.1 kg	R900256824 Valve on side E	
Amend type designation according to page 57!					
Sandwich plate with R ring plate	Z2FG6B <sup>27</sup> <input type="checkbox"/> -4X/ <input type="checkbox"/> V <sup>28</sup>		81 x 45 x 40 1.1 kg	R900256824 Valve on side F	
Amend type designation according to page 57!					
Sandwich plate with R ring plate	Z2FG6- <sup>27</sup> <input type="checkbox"/> -4X/ <input type="checkbox"/> V <sup>28</sup>		81 x 45 x 40 1.1 kg	R900256824 Valve on side E and F	
Amend type designation according to page 57!					
Sandwich plate with R ring plate	Z2FGM6T2-2X/ <input type="checkbox"/> V <sup>28</sup>		98 x 44 x 40 1.3 kg	R900268113 Valve on side F	
Amend type designation according to page 57!					
Sandwich plate	HSZ 06A 085-3X/A <sup>51</sup> <input type="checkbox"/> B <sup>51</sup> <input type="checkbox"/> P <sup>51</sup> <input type="checkbox"/> T <sup>51</sup> <input type="checkbox"/> M00		65 x 44 x 10 0.2 kg	R900262118	
Fitting of the sandwich plate:			Thread M8 x 1 available in all channels	RN 115.06	
DUESE <sup>51</sup> <input type="checkbox"/> M8x1-DIN906					
Material no. see page 92					

**Order example**

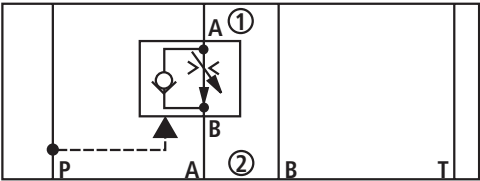
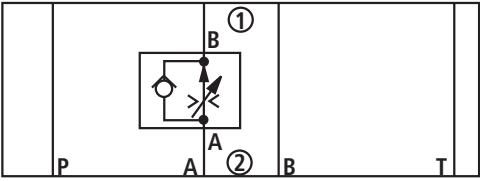
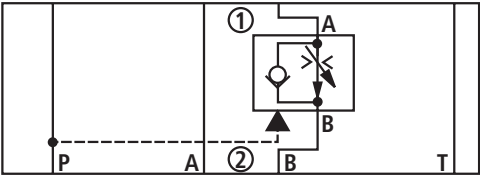
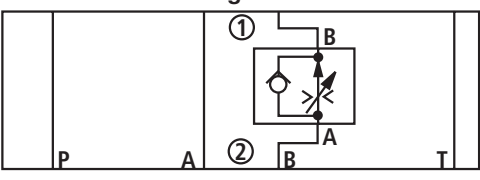
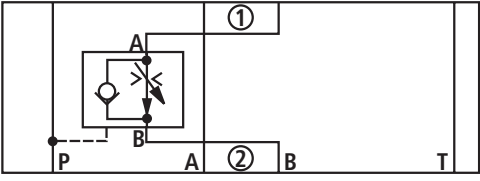
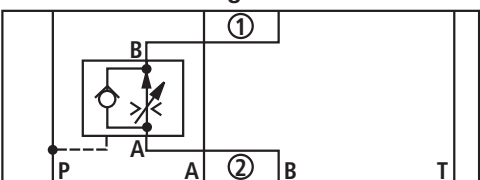
For complete device with orifice 0.8 mm in channel A and B:

HSZ 06A 085-3X/ A<sup>51</sup> 08 B<sup>51</sup> 08 M<sup>2</sup> 00<sup>3</sup>  
 Fitted channel

## Throttle valves (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
Sandwich plate	HSZ 06-A517-4X/ DV03M00		90 x 44 x 50	R901120319	
	R901244683		1.8 kg		RE 90005-03
Sandwich plate	HSZ 06-A519-4X/ DV04M00		85 x 44 x 70	R901123599	
	R901149085		1.7 kg		Internal thread M8 RE 90005-03
Sandwich plate	HSZ 06-A525-4X/ DV04M00		90 x 44 x 60	R901130409	
	R901158986		1.8 kg		Internal thread M8 RE 90005-03
Sandwich plate	HSZ 06-A589-4X/ DV03M00		90 x 44 x 60	R901129876	
	R901234559		1.7 kg		Internal thread M8 RE 90005-03
Sandwich plate	HSZ 06-A498-3X/ DV03M00		80 x 44 x 50	R901121122	
	R901244682		1.6 kg		RE 90005-03
Sandwich plate with R ring plate	HSZ 06-A402-3X/ D00-DV03M00		150 x 44 x 70	R901028338	
	R901239252		2.9 kg		RE 90005-03
Sandwich plate	HSZ 06-A490-3X/ A-DV03M00		105 x 44 x 70	R901094055	
	R901265680		2.7 kg		RE 90005-03
Sandwich plate	HSZ 06-A490-3X/ B-DV03M00		105 x 44 x 70	R901094055	
	R901265676		2.7 kg		RE 90005-03
Sandwich plate	HSZ 06-A490-3X/ AB-DV03M00		105 x 44 x 70	R901094055	
	R901265675		2.7 kg		RE 90005-03

**Flow control valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate with R ring plate	HSZ 06A 151-3X/M <input type="checkbox"/> <sup>20</sup> <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> M00	<b>Supply control</b>  <b>Discharge control</b> 	70 x 44 x 70 2.8 kg	R900262247  RE 28163 2 FRM on side E
	<b>Fitting of the sandwich plate:</b> 2-way flow control valve <b>2FRM6</b> <input type="checkbox"/> <sup>20</sup> <input type="checkbox"/> <sup>17</sup> <b>6-3X/</b> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> <b>V</b>		70 x 44 x 70 2.8 kg	
Sandwich plate with R ring plate	HSZ 06A 152-3X/M <input type="checkbox"/> <sup>20</sup> <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> M00	<b>Supply control</b>  <b>Discharge control</b> 	70 x 44 x 70 2.8 kg	R900262248  RE 28163 2 FRM on side F
	<b>Fitting of the sandwich plate:</b> 2-way flow control valve <b>2FRM6</b> <input type="checkbox"/> <sup>20</sup> <input type="checkbox"/> <sup>17</sup> <b>6-3X/</b> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> <b>V</b>		70 x 44 x 70 2.8 kg	
Sandwich plate with R ring plate	HSZ 06A 163-3X/M <input type="checkbox"/> <sup>20</sup> <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> M00	<b>Supply control</b>  <b>Discharge control</b> 	70 x 44 x 70 2.8 kg	R900264671  RE 28163 2 FRM on side E
	<b>Fitting of the sandwich plate:</b> 2-way flow control valve <b>2FRM6</b> <input type="checkbox"/> <sup>20</sup> <input type="checkbox"/> <sup>17</sup> <b>6-3X/</b> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> <b>V</b>		70 x 44 x 70 2.8 kg	

(Valve mounting screws are part of the sandwich plates)

**Order example**

• For complete device with 2-way flow control valve:

HSZ 06A 151-3X/M  <sup>20</sup>  <sup>17</sup>  <sup>21</sup>  <sup>22</sup>  <sup>2</sup>  <sup>3</sup> **A 3 Q03.0 M M 00**



## Functional group rapid motion - creep speed function, normally open and closed


Example: HSZ 06 A  – 3X/   –   G24K4

### Complementary details on sandwich plates with rapid motion - creep speed function

<b>21.2</b> <input type="text"/>	<b>Maximum flow</b> (A → B) at the 2-way flow control valve Type 2FRM6 (cartridge valve):	up to 6.0 l/min up to 32.0 l/min	= 6Q = 32Q	(06) (32)
	<b>⚠ Attention!</b> Spelling () with complete type!			
<b>42</b> <input type="text"/>	<b>Blocking function</b> at the 2/2-directional seat valve:	Blocking on one side Blocking on both sides		= A = B
<b>43</b> <input type="text"/>	<b>Spool position</b> at the 2/2-directional seat valve:	De-energized closed De-energized open		= 05 = 06
<b>22</b> <input type="text"/>	<b>Flow control valve</b>	<b>With</b> check valve <b>Without</b> check valve		= R = M
<b>41</b> <input type="text"/>	<b>Flow control</b> Creep speed:	<b>With</b> orifice <b>With</b> throttle <b>With</b> flow controller cartridge		= D = FGM = FRM
<b>17</b> <input type="text"/>	<b>Adjustment element</b> at the 2-way flow control valve Type 2FRM6...:	Lockable rotary knob with scale Rotary knob with scale		= 3 = 7
<b>20</b> <input type="text"/>	<b>2-way flow control valve</b> Type 2FRM6...:	<b>With</b> closing of the pressure compensator (suppression of the start-up jump) <b>Without</b> closing of the pressure compensator		= A = B
<b>21</b> <input type="text"/>	<b>Flow</b> (progressive) at the 2-way flow control valve Type 2FRM6...:	up to 0.2 l/min up to 0.5 l/min up to 1.5 l/min up to 3.0 l/min up to 6.0 l/min up to 10.0 l/min up to 16.0 l/min up to 25.0 l/min up to 32.0 l/min	= 0.2Q = 0.6Q = 1.5Q = 3Q = 6Q = 10Q = 16Q = 25Q = 32Q	(Q00.2) (Q00.6) (Q01.5) (Q03.0) (Q06.0) (Q10.0) (Q16.0) (Q25.0) (Q32.0)
	<b>⚠ Attention!</b> Spelling () with complete type!			

#### Note:

Presentation of the switching symbols generally in discharge control.

 Exception: Supply control **with** closing of the pressure compensator (HSZ 06A 403.. and HSZ 06A 404..)

Conversion from discharge into supply control is effected by rotating the sandwich plate around the vertical axis by 180°.

Closing of the pressure compensator (with attached flow control valve) is only effective with supply control.

**Rapid motion - creep speed function, normally closed** (blocking on one side, ① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
Sandwich plate with R ring plate	HSZ 06A 400-3X/FRM <sup>21.2</sup> <input type="checkbox"/> -A05G24K4M00		150 x 44 x 70	R901063482	
	Fitting of the sandwich plate: SITZVENTIL OD.15.05.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000		3.7 kg		
	2-way flow control valve		2FRM6K2-1X/ <sup>21.2</sup> <input type="checkbox"/> RV		
Throttle valve	HSZ 06A 400-3X/FGM1-A05G24K4M00		3.7 kg	R900267396	
	Fitting of the sandwich plate: SITZVENTIL OD.15.05.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000				
			FGM6K2-1X/1QV		
Throttle valve	HSZ 06A 400-3X/D <sup>51</sup> <input type="checkbox"/> -A05G24K4M00		3.6 kg	RN 115.06	
	Fitting of the sandwich plate: SITZVENTIL OD.15.05.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000				
			DUESE <sup>51</sup> <input type="checkbox"/> M8x1-DIN906		
Material no. see page 92					
Sandwich plate with R ring plate	HSZ 06A 401-3X/FRM <sup>21.2</sup> <input type="checkbox"/> -A05G24K4M00		150 x 44 x 70	R901033758	
	Fitting of the sandwich plate: SITZVENTIL OD.15.05.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000		3.7 kg		
	2-way flow control valve		2FRM6K2-1X/ <sup>21.2</sup> <input type="checkbox"/> RV		
Throttle valve	HSZ 06A 401-3X/FGM1-A05G24K4M00		3.7 kg	R900267396	
	Fitting of the sandwich plate: SITZVENTIL OD.15.05.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000				
			FGM6K2-1X/1QV		
Throttle valve	HSZ 06A 401-3X/D <sup>51</sup> <input type="checkbox"/> -A05G24K4M00		3.6 kg	RN 115.06	
	Fitting of the sandwich plate: SITZVENTIL OD.15.05.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000				
			DUESE <sup>51</sup> <input type="checkbox"/> M8x1-DIN906		
Material no. see page 92					

Order examples, see page 68

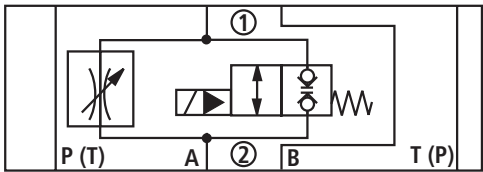
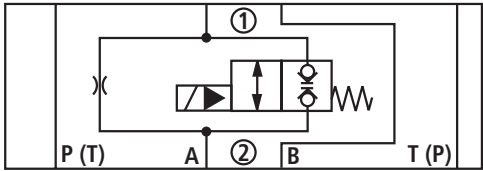
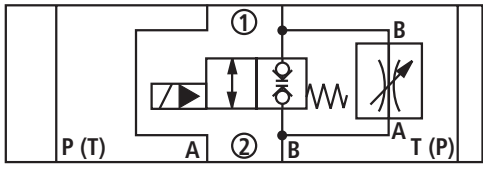
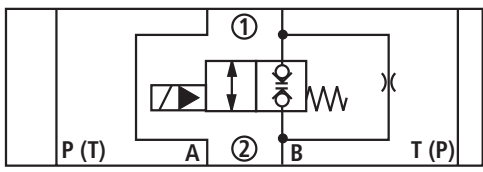


**Rapid motion - creep speed function, normally closed** (blocking on one side, ① = component side, ② = plate side)

Flow control cartridge valve		Symbol	Plate L x W x H	Dimensional sheet and more information
Device designation	Type designation Material no.		Weight Size of the ports	
Sandwich plate with R ring plate	HSZ 06A 402-3X/FRM <sup>21.2</sup> <input type="checkbox"/> -A05G24K4M00		150 x 44 x 70	R901033750
Fitting of the sandwich plate: SITZVENTIL OD.15.05.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000 2-way flow control valve	2FRM6K2-1X/ <sup>21.2</sup> <input type="checkbox"/> RV		3.7 kg	Valve on side F  RE 28155 Valve on side E
Throttle valve	HSZ 06A 402-3X/FGM1-A05G24K4M00		3.7 kg	R900267396
Fitting of the sandwich plate: SITZVENTIL OD.15.05.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000	FGM6K2-1X/1QV			
	HSZ 06A 402-3X/D <sup>51</sup> <input type="checkbox"/> -A05G24K4M00		3.6 kg	RN 115.06
Fitting of the sandwich plate: SITZVENTIL OD.15.05.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000  DUESE <sup>51</sup> <input type="checkbox"/> M8x1-DIN906  Material no. see page 92				

Order examples, see page 68

**Rapid motion - creep speed function, normally closed** (blocking on both sides, ① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
		Size of the ports		
Sandwich plate with R ring plate	HSZ 06A 400-3X/FGM1-B05G24K4M00		150 x 44 x 70	R901028268
	<b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.31.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000 Throttle valve FGM6K2-1X/1QV		3.7 kg	Valve on side F R900267396 Valve on side E
Sandwich plate with R ring plate	HSZ 06A 400-3X/D <sup>51</sup> -B05G24K4M00		150 x 44 x 70	RN 115.06
	<b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.31.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000 DUESE <sup>51</sup> M8x1-DIN906 Material no. see page 92		3.6 kg	
Sandwich plate with R ring plate	HSZ 06A 401-3X/FGM1-B05G24K4M00		150 x 44 x 70	R901047673
	<b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.31.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000 Throttle valve FGM6K2-1X/1QV		3.7 kg	Valve on side E R900267396 Valve on side F
Sandwich plate with R ring plate	HSZ 06A 401-3X/D <sup>51</sup> -B05G24K4M00		150 x 44 x 70	RN 115.06
	<b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.31.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000 DUESE <sup>51</sup> M8x1-DIN906 Material no. see page 92		3.6 kg	

Order examples, see page 68

**Rapid motion - creep speed function, normally open** (blocking on one side, ① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
Sandwich plate with R ring plate	HSZ 06A 400-3X/FRM <sup>21.2</sup> <input type="checkbox"/> -A06G24K4M00		150 x 44 x 70	R901063482	
	Fitting of the sandwich plate: SITZVENTIL OD.15.06.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000		3.7 kg		
	2-way flow control valve		2FRM6K2-1X/ <sup>21.2</sup> <input type="checkbox"/> RV		
Throttle valve	HSZ 06A 400-3X/FGM1-A06G24K4M00		3.7 kg	R900267396	
	Fitting of the sandwich plate: SITZVENTIL OD.15.06.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000				
			FGM6K2-1X/1QV		
	HSZ 06A 400-3X/D <sup>51</sup> <input type="checkbox"/> -A06G24K4M00		3.6 kg	RN 115.06	
	Fitting of the sandwich plate: SITZVENTIL OD.15.06.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000				
			DUESE <sup>51</sup> <input type="checkbox"/> M8x1-DIN906		
Material no. see page 92					
Sandwich plate with R ring plate	HSZ 06A 401-3X/FRM <sup>21.2</sup> <input type="checkbox"/> -A06G24K4M00		150 x 44 x 70	R901033758	
	Fitting of the sandwich plate: SITZVENTIL OD.15.06.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000		3.7 kg		
	2-way flow control valve		2FRM6K2-1X/ <sup>21.2</sup> <input type="checkbox"/> RV		
Throttle valve	HSZ 06A 401-3X/FGM1-A06G24K4M00		3.7 kg	R900267396	
	Fitting of the sandwich plate: SITZVENTIL OD.15.06.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000				
			FGM6K2-1X/1QV		
	HSZ 06A 401-3X/D <sup>51</sup> <input type="checkbox"/> -A06G24K4M00		3.6 kg	RN 115.06	
	Fitting of the sandwich plate: SITZVENTIL OD.15.06.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000				
			DUESE <sup>51</sup> <input type="checkbox"/> M8x1-DIN906		
Material no. see page 92					

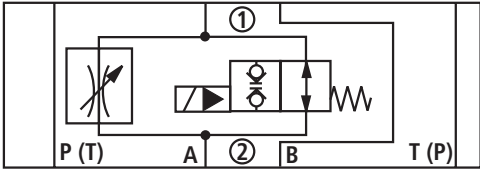
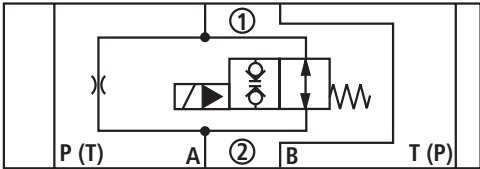
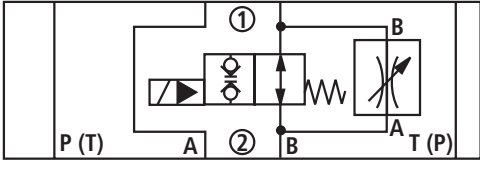
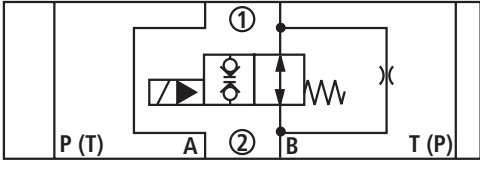
Order examples, see page 68

**Rapid motion - creep speed function, normally open** (blocking on one side, ① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
Sandwich plate with R ring plate	HSZ 06A 402-3X/FRM <sup>21.2</sup> <input type="checkbox"/> -A06G24K4M00		150 x 44 x 70	R901033750	
<b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.06.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000 2-way flow control valve <sup>21.2</sup> 2FRM6K2-1X/ <input type="checkbox"/> RV			3.7 kg	Valve on side F  RE 28155 Valve on side E	
	HSZ 06A 402-3X/FGM1-A06G24K4M00		3.7 kg	R900267396	
Throttle valve	FGM6K2-1X/1QV		<b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.06.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000		
	HSZ 06A 402-3X/D <sup>51</sup> <input type="checkbox"/> -A06G24K4M00		3.6 kg	RN 115.06	
	<b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.06.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000  DUESE <sup>51</sup> <input type="checkbox"/> M8x1-DIN906 Material no. see page 92				

**Order examples**, see page 68

**Rapid motion - creep speed function, normally open** (blocking on both sides, ① = component side, ② = plate side)

Device designation	Type designation Material no.	Symbol	Plate L x W x H	Dimensional sheet and more information
			Weight Size of the ports	
Sandwich plate with R ring plate	HSZ 06A 400-3X/FGM1-B06G24K4M00		150 x 44 x 70	R901028268
Fitting of the sandwich plate: SITZVENTIL OD.15.32.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000 Throttle valve FGM6K2-1X/1QV			3.7 kg	R900267396 Valve on side F Valve on side E
	HSZ 06A 400-3X/D <sup>51</sup> -B06G24K4M00		3.6 kg	RN 115.06
Fitting of the sandwich plate: SITZVENTIL OD.15.32.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000 <sup>51</sup> DUESE <sup>51</sup> M8x1-DIN906 Material no. see page 92				
Sandwich plate with R ring plate	HSZ 06A 401-3X/FGM1-B06G24K4M00		150 x 44 x 70	R901047673
Fitting of the sandwich plate: SITZVENTIL OD.15.32.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000 Throttle valve FGM6K2-1X/1QV			3.7 kg	R900267396 Valve on side E Valve on side F
	HSZ 06A 401-3X/D <sup>51</sup> -B06G24K4M00		3.6 kg	RN 115.06
Fitting of the sandwich plate: SITZVENTIL OD.15.32.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000 <sup>51</sup> DUESE <sup>51</sup> M8x1-DIN906 Material no. see page 92				

**Order examples**

• For complete device with 2/2 directional seat valve and 2-way flow control valve:

HSZ 06A 400-3X/ <sup>41</sup>FRM <sup>21.2</sup>06 - <sup>42</sup>A <sup>43</sup>05 G24K4 <sup>2</sup>M <sup>3</sup>00

• For complete device with 2/2 directional seat valve and throttle valve:

HSZ 06A 400-3X/ <sup>41</sup>FGM1 - <sup>42</sup>A <sup>43</sup>05 G24K4 <sup>2</sup>M <sup>3</sup>00

• For complete device with 2/2 directional seat valve and orifice:

HSZ 06A 400-3X/ <sup>41</sup>D <sup>51</sup>18 - <sup>42</sup>B <sup>43</sup>05 G24K4 <sup>2</sup>M <sup>3</sup>00

Orifice Ø 1.8 mm

**Rapid motion - creep speed function, normally closed** (blocking on one side, ① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
		Size of the ports		
<b>Sandwich plate with R ring plate</b> <b>HSZ 06A 403-3X/A</b> <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> <b>-A05G24K4M00</b>  <b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.05.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000  2-way flow control valve <b>2FRM6 A</b> <input type="checkbox"/> <sup>17</sup> <b>6-3X/</b> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> <b>V</b>  (with closing of the pressure compensator)			100 x 44 x 70	R901064040   Valve on side F  RE 28163 Valve on side E
<b>Sandwich plate with R ring plate</b> <b>HSZ 06A 403-3X/B</b> <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> <b>-A05G24K4M00</b>  <b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.05.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000  2-way flow control valve <b>2FRM6 B</b> <input type="checkbox"/> <sup>17</sup> <b>6-3X/</b> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> <b>V</b>  (without closing of the pressure compensator)			100 x 44 x 70	R901028370   Valve on side F  RE 28163 Valve on side E
<b>Sandwich plate with R ring plate</b> <b>HSZ 06A 403-3X/B</b> <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> <b>-A05G24K4M00</b>  <b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.05.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000  2-way flow control valve <b>2FRM6 B</b> <input type="checkbox"/> <sup>17</sup> <b>6-3X/</b> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> <b>V</b>  (without closing of the pressure compensator)			100 x 44 x 70	R901028370   Valve on side F  RE 28163 Valve on side E

Order example, see page 74

**Rapid motion - creep speed function, normally closed** (blocking on one side, ① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet
	Material no.		Weight	and more information
		Size of the ports		
<b>Sandwich plate with R ring plate</b>  <b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.05.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000  2-way flow control valve 2FRM6 A <input type="checkbox"/> 17 <input type="checkbox"/> 21 <input type="checkbox"/> 22 6-3X/ <input type="checkbox"/> <input type="checkbox"/> V  (with closing of the pressure compensator)	HSZ 06A 404-3X/A <input type="checkbox"/> 17 <input type="checkbox"/> 21 <input type="checkbox"/> 22 -A05G24K4M00	100 x 44 x 70  3.7 kg	R901064115   Valve on side E  RE 28163 Valve on side F	
<b>Sandwich plate with R ring plate</b>  <b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.05.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000  2-way flow control valve 2FRM6 B <input type="checkbox"/> 17 <input type="checkbox"/> 21 <input type="checkbox"/> 22 6-3X/ <input type="checkbox"/> <input type="checkbox"/> V  (without closing of the pressure compensator)	HSZ 06A 404-3X/B <input type="checkbox"/> 17 <input type="checkbox"/> 21 <input type="checkbox"/> 22 -A05G24K4M00	100 x 44 x 70  3.7 kg	R901064119   Valve on side E  RE 28163 Valve on side F	
<b>Sandwich plate with R ring plate</b>  <b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.05.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000  2-way flow control valve 2FRM6 B <input type="checkbox"/> 17 <input type="checkbox"/> 21 <input type="checkbox"/> 22 6-3X/ <input type="checkbox"/> <input type="checkbox"/> V  (without closing of the pressure compensator)	HSZ 06A 404-3X/B <input type="checkbox"/> 17 <input type="checkbox"/> 21 <input type="checkbox"/> 22 -A05G24K4M00	100 x 44 x 70  3.7 kg	R901064119   Valve on side E  RE 28163 Valve on side F	

Order example, see page 74

**Rapid motion - creep speed function, normally closed** (blocking on one side, ① = component side, ② = plate side)

Device designation	Type designation		Symbol	Plate L x W x H		Dimensional sheet and more information
	Material no.			Weight	Size of the ports	
Sandwich plate with R ring plate	HSZ 06A 405-3X/B	<input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup>	M-A05G24K4M00	100 x 44 x 70	3.7 kg	R901033979
<b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.05.18.3A.S0.000 SPULE OD.02.17.01.30.OC.000  2-way flow control valve <b>2FRM6 B</b> <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <b>6-3X/</b> <input type="checkbox"/> MV				Valve on side F  RE 28163 Valve on side E		

Order example, see page 74



**Rapid motion - creep speed function, normally open** (blocking on one side, ① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
Sandwich plate with R ring plate	HSZ 06A 403-3X/A <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> -A06G24K4M00		100 x 44 x 70	R901064040	
	<p><b>Fitting of the sandwich plate:</b></p> <p>SITZVENTIL OD.15.06.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000</p> <p>2-way flow control valve <b>2FRM6 A</b> <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> <b>6-3X/</b> <input type="checkbox"/> <input type="checkbox"/> <b>V</b></p> <p>(with closing of the pressure compensator)</p>		3.7 kg		Valve on side F RE 28163 Valve on side E
Sandwich plate with R ring plate	HSZ 06A 403-3X/B <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> -A06G24K4M00		100 x 44 x 70	R901028370	
	<p><b>Fitting of the sandwich plate:</b></p> <p>SITZVENTIL OD.15.06.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000</p> <p>2-way flow control valve <b>2FRM6 B</b> <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> <b>6-3X/</b> <input type="checkbox"/> <input type="checkbox"/> <b>V</b></p> <p>(without closing of the pressure compensator)</p>		3.7 kg		Valve on side F RE 28163 Valve on side E
Sandwich plate with R ring plate	HSZ 06A 403-3X/B <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> -A06G24K4M00		100 x 44 x 70	R901028370	
	<p><b>Fitting of the sandwich plate:</b></p> <p>SITZVENTIL OD.15.06.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000</p> <p>2-way flow control valve <b>2FRM6 B</b> <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> <b>6-3X/</b> <input type="checkbox"/> <input type="checkbox"/> <b>V</b></p> <p>(without closing of the pressure compensator)</p>		3.7 kg		Valve on side F RE 28163 Valve on side E

Order example, see page 74

**Rapid motion - creep speed function, normally open** (blocking on one side, ① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
		Size of the ports		
Sandwich plate with R ring plate	HSZ 06A 404-3X/A <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> -A06G24K4M00		100 x 44 x 70	R901064115
			3.7 kg	
<b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.06.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000  2-way flow control valve <b>2FRM6 A</b> <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> <b>6-3X/</b> <input type="checkbox"/> <input type="checkbox"/> <b>V</b>				
(with closing of the pressure compensator)				
Sandwich plate with R ring plate	HSZ 06A 404-3X/B <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> -A06G24K4M00		100 x 44 x 70	R901064119
			3.7 kg	
<b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.06.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000  2-way flow control valve <b>2FRM6 B</b> <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> <b>6-3X/</b> <input type="checkbox"/> <input type="checkbox"/> <b>V</b>				
(without closing of the pressure compensator)				
Sandwich plate with R ring plate	HSZ 06A 404-3X/B <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> -A06G24K4M00		100 x 44 x 70	R901064119
			3.7 kg	
<b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.06.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000  2-way flow control valve <b>2FRM6 B</b> <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> <b>6-3X/</b> <input type="checkbox"/> <input type="checkbox"/> <b>V</b>				
(without closing of the pressure compensator)				

Order example, see page 74

**Rapid motion - creep speed function, normally open** (blocking on one side, ① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet
	Material no.		Weight	and more information
Sandwich plate with R ring plate	HSZ 06A 405-3X/B <input type="checkbox"/> <sup>17</sup> <input type="checkbox"/> <sup>21</sup> <input type="checkbox"/> <sup>22</sup> M-A06G24K4M00		100 x 44 x 70	R901033979
<b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.06.18.1A.S0.000 SPULE OD.02.17.01.30.OC.000  2-way flow control valve <sup>17</sup> 2FRM6 B <input type="checkbox"/> <sup>21</sup> 6-3X/ <input type="checkbox"/> MV			3.7 kg	Valve on side F  RE 28163 Valve on side E

**Order example**

For complete device with 2/2 directional seat valve and 2-way flow control valve with closing of the pressure compensator:

HSZ 06A 403-3X/  <sup>20</sup> A  <sup>17</sup> 3  <sup>21</sup> Q10.0  <sup>22</sup> M -  <sup>42</sup> A  <sup>43</sup> 05  G24K4  <sup>2</sup> M  <sup>3</sup> 00

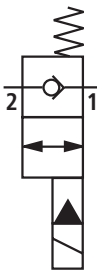
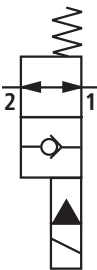
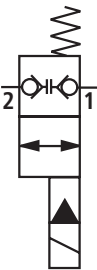
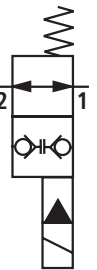
**Rapid motion - creep speed function, electrically switchable** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate	HSZ 06 A636-3X/ KKDEUG24N0K4M00		105 x 44 x 70	R901235538
	R901236203		2.4 kg	RE18136-04
Sandwich plate	HSZ 06 A636-3X/ KKDECG24N0K4M00		105 x 44 x 70	R901235538
	R901235586		3.2 kg	RE18136-04

## Functional group miscellaneous

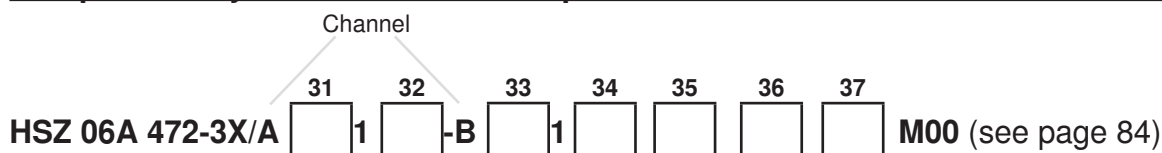
### Complementary details on sandwich plates with short-circuit valves for numbers 435, 498, 517, 519, 525, 589.

HSZ 06A ...-4X/      (see page 80 to 86)

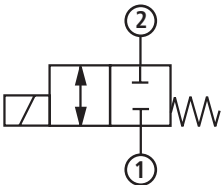
<p>31</p> <input type="checkbox"/>	<p><b>Symbols of the 2/2 directional seat valve:</b></p>	<p>= A05</p> 	<p>= A06</p> 	<p>= B05</p> 	<p>= B06</p> 
<p>32</p> <input type="checkbox"/>	<p><b>Manual override at the 2/2 directional seat valve:</b></p>	<p>Without manual override</p> <p>With concealed manual override</p> <p>Without manual override lockable in pushed spool position</p> <p>without manual override</p> <p>Manual override screwable</p>	<p>= 1A</p> <p>= 1B</p> <p>= 1C</p> <p>= 3A</p> <p>= 3D</p>		
<p>33</p> <input type="checkbox"/>	<p><b>Solenoid voltage at the 2/2 directional seat valve:</b></p>	<p>DC voltage 12 V</p> <p>Direct voltage 24 V</p> <p>Direct voltage 26 V</p> <p>Direct voltage 110 V</p> <p>Direct voltage 220 V</p>	<p>= G12</p> <p>= G24</p> <p>= G26</p> <p>= G110</p> <p>= G220</p>		
<p>34</p> <input type="checkbox"/>	<p><b>Manual override:</b></p>	<p>Manual override</p> <p>without manual override</p>	<p>= N</p> <p>= No information</p>		
<p>35</p> <input type="checkbox"/>	<p><b>Electrical types of connection:</b></p>	<p>03pol (2+PE) DIN EN 175301-803, without mating connector</p> <p>02pol K40 DT 04-2PA Deutsch, without mating connector</p> <p>02pol C4/Z30 AMP Junior-Timer, without mating connector</p>	<p>= K4</p> <p>= K40</p> <p>= C4</p>		
<p>50</p> <input type="checkbox"/>	<p><b>Orifice fitting with A519, A525, A589 (internal thread M8X1):</b></p>	<p>Example: <b>10</b>: Orifice M8X1 with Ø1.0 mm fitting of Ø0.4 mm to Ø4.0 mm possible</p>	<p>= 10</p>		

### Functional group miscellaneous

#### Complementary details on sandwich plates with short-circuit valves for number 472.



<p><b>31</b> <span style="border: 1px solid black; padding: 2px;">  </span></p> <p>and</p> <p><b>33</b> <span style="border: 1px solid black; padding: 2px;">  </span></p>	<p><b>Directional spool valve:</b> Direct operated, electrically operated KKDE</p> <p><b>Directional seat valve:</b> Direct operated, electrically operated KSDE</p>	<p>= K</p> <p>= S</p>
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<p><b>32</b> <span style="border: 1px solid black; padding: 2px;">  </span></p> <p>and</p> <p><b>34</b> <span style="border: 1px solid black; padding: 2px;">  </span></p>	<p><b>Symbols of the directional spool valve KKDE:</b></p>		<p>= N</p>
--	--	---	------------

	<p>= P</p>
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<p><b>Symbols of the directional seat valve KSDE:</b></p>		<p>= N</p>
---	---	------------

	<p>= P</p>
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<p><b>35</b> <span style="border: 1px solid black; padding: 2px;">  </span></p>	<p><b>Solenoid voltage</b> at the directional spool (seat) valve:</p>	<p>Direct voltage 12 V</p> <p>Direct voltage 24 V</p> <p>Direct voltage 48 V</p> <p>Direct voltage 96 V</p> <p>Direct voltage 205 V</p>	<p>= G12</p> <p>= G24</p> <p>= G48</p> <p>= G96</p> <p>= G205</p>
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<p><b>36</b> <span style="border: 1px solid black; padding: 2px;">  </span></p>	<p><b>Manual override:</b></p>	<p>Without manual override</p> <p>With concealed manual override</p> <p>With screwable manual override (operation by means of knurled screw)</p>	<p>= N0</p> <p>= N9</p> <p>= N11 (only KSDE)</p>
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<p><b>37</b> <span style="border: 1px solid black; padding: 2px;">  </span></p>	<p><b>Electrical types of connection:</b></p>	<p>03pol (2+PE) DIN EN 175301-803, without mating connector</p> <p>02pol K40 DT 04-2PA Deutsch, without mating connector</p> <p>02pol C4/Z30 AMP Junior-Timer, without mating connector</p>	<p>= K4</p> <p>= K40</p> <p>= C4</p>
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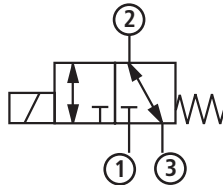
## Functional group miscellaneous

### Complementary details on sandwich plates with short-circuit valves for numbers 473, 636

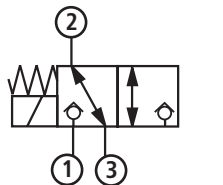
HSZ 06A ...-3X/  <sup>31</sup>  <sup>32</sup>  <sup>33</sup>  <sup>34</sup>  <sup>35</sup> M00 (see page 85 and 75)

**31**  
 **Directional spool valve:** Direct operated, electrically operated = KKDE  
**Directional seat valve:** Direct operated, electrically operated = KSDE

**32**  
 **Symbol of the directional spool valve KKDE:** = C



**Symbol of the directional seat valve KSDE:** = C  
 Observe the max. admissible pressure of 50 bar at port 3!



**33**  
 **Solenoid voltage at the directional spool valve:** Direct voltage 24 V = G24

**34**  
 **Manual override:** Without manual override = N0  
 With concealed manual override = N9

**35**  
 **Electrical types of connection:** 03pol (2+PE) DIN EN 175301-803, without mating connector = K4  
 02pol K40 DT 04-2PA Deutsch, without mating connector = K40  
 02pol C4/Z30 AMP Junior-Timer, without mating connector = C4

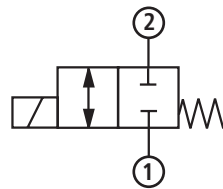
## Functional group miscellaneous

### Complementary details on sandwich plates with short-circuit valves for number 638.

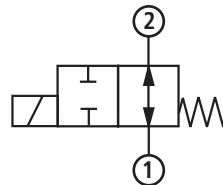
HSZ 06A 638-4X/K <sup>31</sup> DE <sup>32</sup> <sup>35</sup> <sup>36</sup> <sup>37</sup> M00 (see page 87)

**Directional spool valve:** Direct operated, electrically operated KKDE = K  
**Directional seat valve:** Direct operated, electrically operated KSDE = S

**Symbols of the directional spool valve KKDE:**

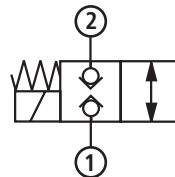


= N

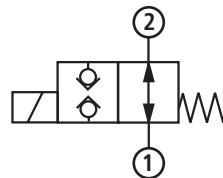


= P

**Symbols of the directional seat valve KSDE:**



= N



= P

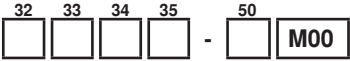
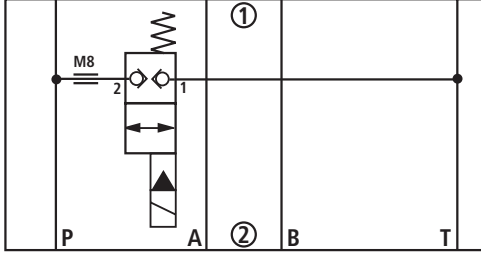
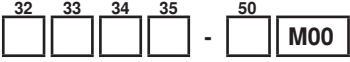
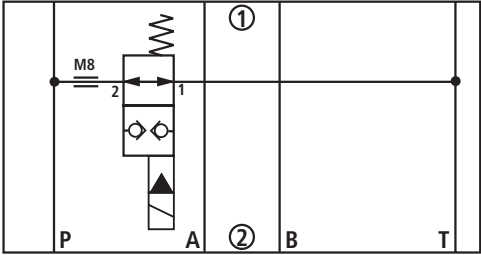
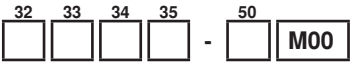
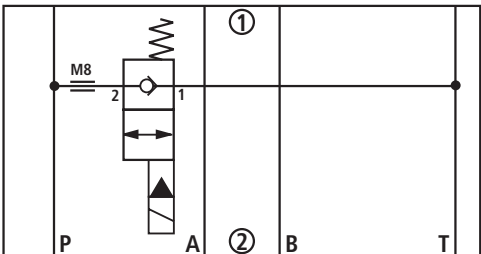
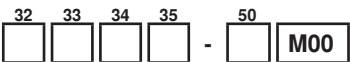
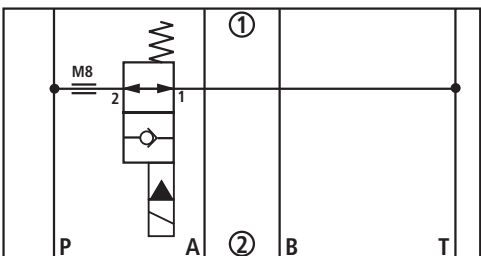
<b>35</b> <input type="checkbox"/>	<b>Solenoid voltage</b> at the directional spool (seat) valve:	Direct voltage 12 V Direct voltage 24 V Direct voltage 48 V Direct voltage 96 V Direct voltage 205 V	= G12 = G24 = G48 = G96 = G205
<b>36</b> <input type="checkbox"/>	<b>Manual override:</b>	without manual override with concealed manual override with screwable manual override (operation by means of knurled screw)	= N0 = N9 = N11 (only KSDE)
<b>37</b> <input type="checkbox"/>	<b>Electrical types of connection:</b>	03pol (2+PE) DIN EN 175301-803, without mating connector 02pol K40 DT 04-2PA Deutsch, without mating connector 02pol C4/Z30 AMP Junior-Timer, without mating connector	= K4 = K40 = C4



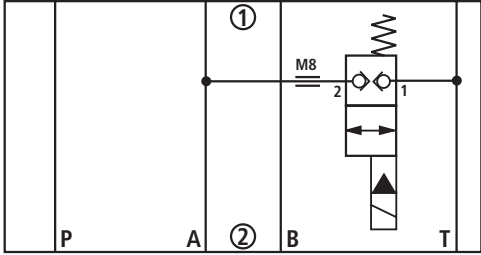
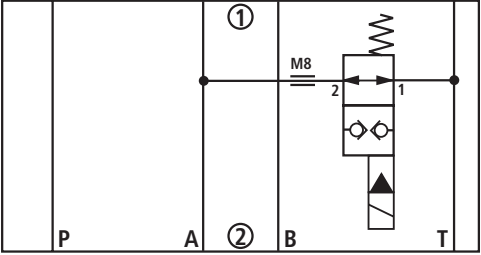
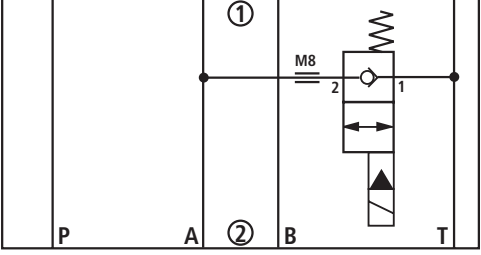
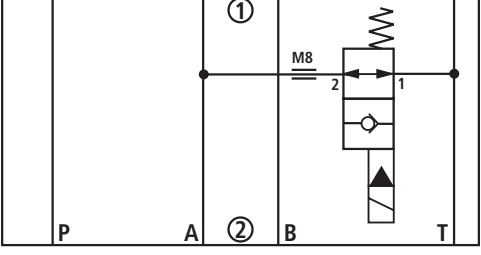
**Short-circuit valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate	HSZ 06A 498 -3X/B05 <input type="checkbox"/> <sup>32</sup> <input type="checkbox"/> <sup>33</sup> <input type="checkbox"/> <sup>34</sup> <input type="checkbox"/> <sup>35</sup> - <input type="checkbox"/> <sup>50</sup> <b>M00</b>		85 x 44 x 50	R901121122  RE 90005-03 R901123004
			1.6 kg	
Sandwich plate	HSZ 06A 498 -3X/B06 <input type="checkbox"/> <sup>32</sup> <input type="checkbox"/> <sup>33</sup> <input type="checkbox"/> <sup>34</sup> <input type="checkbox"/> <sup>35</sup> - <input type="checkbox"/> <sup>50</sup> <b>M00</b>		85 x 44 x 50	R901121122  RE 90005-03 R901123004
			1.6 kg	
Sandwich plate	HSZ 06A 498 -3X/A05 <input type="checkbox"/> <sup>32</sup> <input type="checkbox"/> <sup>33</sup> <input type="checkbox"/> <sup>34</sup> <input type="checkbox"/> <sup>35</sup> - <input type="checkbox"/> <sup>50</sup> <b>M00</b>		85 x 44 x 50	R901121122  RE 90005-03 R901123004
			1.6 kg	
Sandwich plate	HSZ 06A 498 -3X/A06 <input type="checkbox"/> <sup>32</sup> <input type="checkbox"/> <sup>33</sup> <input type="checkbox"/> <sup>34</sup> <input type="checkbox"/> <sup>35</sup> - <input type="checkbox"/> <sup>50</sup> <b>M00</b>		85 x 44 x 50	R901121122  RE 90005-03 R901123004
			1.6 kg	

## Short-circuit valves (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
Sandwich plate	HSZ 06A 519 -4X/B05		85 x 44 x 70	R901123599 Internal thread M8 RE 90005-03
			1.9 kg	
Sandwich plate	HSZ 06A 519 -4X/B06		85 x 44 x 70	R901123599 Internal thread M8 RE 90005-03
			1.9 kg	
Sandwich plate	HSZ 06A 519 -4X/A05		85 x 44 x 70	R901123599 Internal thread M8 RE 90005-03
			1.9 kg	
Sandwich plate	HSZ 06A 519 -4X/A06		85 x 44 x 70	R901123599 Internal thread M8 RE 90005-03
			1.9 kg	

## Short-circuit valves (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
Sandwich plate	HSZ 06A 589 -4X/B05	<div style="display: flex; align-items: center; gap: 5px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">32</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">33</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">34</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">35</div> <span style="margin: 0 5px;">-</span> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">50</div> <div style="border: 1px solid black; padding: 2px 5px; margin-left: 5px;">M00</div> </div> 	90 x 44 x 60 1.6 kg	R901129876 Internal thread M8  RE 90005-03
Sandwich plate	HSZ 06A 589 -4X/B06	<div style="display: flex; align-items: center; gap: 5px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">32</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">33</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">34</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">35</div> <span style="margin: 0 5px;">-</span> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">50</div> <div style="border: 1px solid black; padding: 2px 5px; margin-left: 5px;">M00</div> </div> 	90 x 44 x 60 1.6 kg	R901129876 Internal thread M8  RE 90005-03
Sandwich plate	HSZ 06A 589 -4X/A05	<div style="display: flex; align-items: center; gap: 5px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">32</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">33</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">34</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">35</div> <span style="margin: 0 5px;">-</span> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">50</div> <div style="border: 1px solid black; padding: 2px 5px; margin-left: 5px;">M00</div> </div> 	90 x 44 x 60 1.6 kg	R901129876 Internal thread M8  RE 90005-03
Sandwich plate	HSZ 06A 589 -4X/A06	<div style="display: flex; align-items: center; gap: 5px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">32</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">33</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">34</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">35</div> <span style="margin: 0 5px;">-</span> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">50</div> <div style="border: 1px solid black; padding: 2px 5px; margin-left: 5px;">M00</div> </div> 	90 x 44 x 60 1.6 kg	R901129876 Internal thread M8  RE 90005-03

**Short-circuit valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
Sandwich plate	HSZ 06A 525 -4X/B05 <input type="checkbox"/> <sup>32</sup> <input type="checkbox"/> <sup>33</sup> <input type="checkbox"/> <sup>34</sup> <input type="checkbox"/> <sup>35</sup> - <input type="checkbox"/> <sup>50</sup> <b>M00</b>		90 x 44 x 60 1.7 kg	R901130409 Internal thread M8 RE 90005-03
Sandwich plate	HSZ 06A 525 -4X/B06 <input type="checkbox"/> <sup>32</sup> <input type="checkbox"/> <sup>33</sup> <input type="checkbox"/> <sup>34</sup> <input type="checkbox"/> <sup>35</sup> - <input type="checkbox"/> <sup>50</sup> <b>M00</b>		90 x 44 x 60 1.7 kg	R901130409 Internal thread M8 RE 90005-03
Sandwich plate	HSZ 06A 525 -4X/A05 <input type="checkbox"/> <sup>32</sup> <input type="checkbox"/> <sup>33</sup> <input type="checkbox"/> <sup>34</sup> <input type="checkbox"/> <sup>35</sup> - <input type="checkbox"/> <sup>50</sup> <b>M00</b>		90 x 44 x 60 1.7 kg	R901130409 Internal thread M8 RE 90005-03
Sandwich plate	HSZ 06A 525 -4X/A06 <input type="checkbox"/> <sup>32</sup> <input type="checkbox"/> <sup>33</sup> <input type="checkbox"/> <sup>34</sup> <input type="checkbox"/> <sup>35</sup> - <input type="checkbox"/> <sup>50</sup> <b>M00</b>		90 x 44 x 60 1.7 kg	R901130409 Internal thread M8 RE 90005-03

**Short-circuit valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet
	Material no.		Weight	and more information
			Size of the ports	
Sandwich plate	HSZ 06A 472 -3X/AS1N-BS1N	<div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">35</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">36</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">37</div> <div style="border: 1px solid black; padding: 2px 5px;">M00</div> </div>	140 x 44 x 50 3.0 kg	R901026944  RE 90005-03
	Sandwich plate	HSZ 06A 472 -3X/AS1P-BS1P	<div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">35</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">36</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">37</div> <div style="border: 1px solid black; padding: 2px 5px;">M00</div> </div>	140 x 44 x 50 3.0 kg
Sandwich plate		HSZ 06A 517 -4X/B05	<div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">32</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">33</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">34</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">35</div> <div style="border: 1px solid black; padding: 2px 5px;">M00</div> </div>	90 x 44 x 50 1.2 kg
	Sandwich plate	HSZ 06A 517 -4X/B06	<div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">32</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">33</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">34</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">35</div> <div style="border: 1px solid black; padding: 2px 5px;">M00</div> </div>	90 x 44 x 50 1.2 kg

**Short-circuit valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
Sandwich plate	HSZ 06A 473 -3X/KSDEC	<div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; font-size: 8px;">33</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; font-size: 8px;">34</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; font-size: 8px;">35</div> <div style="border: 1px solid black; padding: 2px 5px; font-weight: bold; font-size: 10px;">M00</div> </div>	105 x 44 x 70	R901034196  RE 18136-21
		2.7 kg		
Sandwich plate	HSZ 06A 473 -3X/KSDEU	<div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; font-size: 8px;">33</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; font-size: 8px;">34</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; font-size: 8px;">35</div> <div style="border: 1px solid black; padding: 2px 5px; font-weight: bold; font-size: 10px;">M00</div> </div>	105 x 44 x 70	R901034196  RE 18136-21
		2.7 kg		
Sandwich plate	HSZ 06A 473 -3X/KKDEU	<div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; font-size: 8px;">33</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; font-size: 8px;">34</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; font-size: 8px;">35</div> <div style="border: 1px solid black; padding: 2px 5px; font-weight: bold; font-size: 10px;">M00</div> </div>	105 x 44 x 70	R901034196  RE 18136-04
		2.7 kg		
Sandwich plate	HSZ 06A 473 -3X/KKDEG	<div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; font-size: 8px;">33</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; font-size: 8px;">34</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; font-size: 8px;">35</div> <div style="border: 1px solid black; padding: 2px 5px; font-weight: bold; font-size: 10px;">M00</div> </div>	105 x 44 x 70	R901034196  RE 18136-04
		2.7 kg		

**Short-circuit valves** (1) = component side, (2) = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet
	Material no.		Weight	and more information
Sandwich plate	HSZ 06A 473 -3X/KKDEC		105 x 44 x 70	R901034196
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">33</div> <div style="border: 1px solid black; padding: 2px;">34</div> <div style="border: 1px solid black; padding: 2px;">35</div> <div style="border: 1px solid black; padding: 2px;">M00</div> </div>		2.7 kg	RE 18136-04
Sandwich plate	HSZ 06 A435-3X/ D05-A06G24K4M00		100 x 44 x 90	R900248817
	R900248253		2.9 kg	Orifice 0.5 mm  RE 90005-03

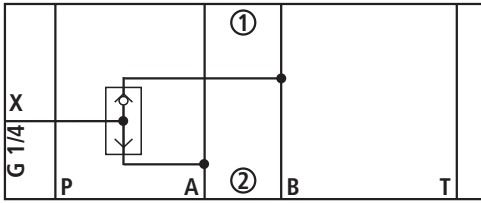
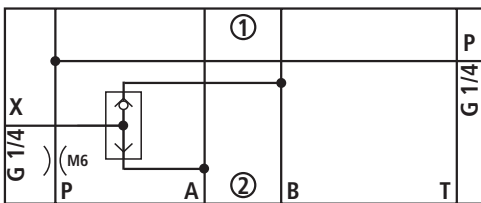
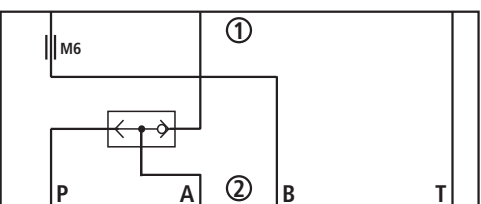
More versions see page 75, functional group Rapid motion - creep speed differential circuit HSZ 06A 636

**Short-circuit valves pilot function** (① = component side, ② = plate side)

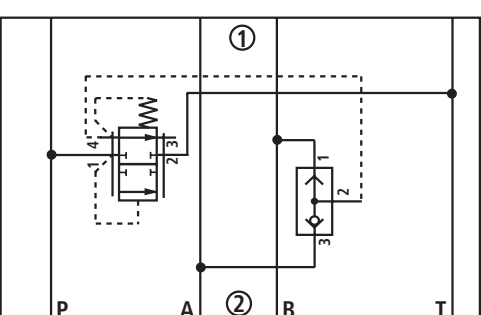
Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight Size of the ports	
Sandwich plate	HSZ 06 A638-4X/ KSDEPG24K4V00		178 x 44 x 90	R901251588 RE 00162-12
	R901248166			
Sandwich plate	HSZ 06 A638-4X/ KSDENG24K4V00		178 x 44 x 90	R901251588 RE 00162-12
	R901248168			
Sandwich plate	HSZ 06 A638-4X/ KKDEPG24K4V00		178 x 44 x 90	R901251588 RE 00162-12
	R901248175			
Sandwich plate	HSZ 06 A638-4X/ KKDENG24K4V00		178 x 44 x 90	R901251588 RE 00162-12
	R901248177			



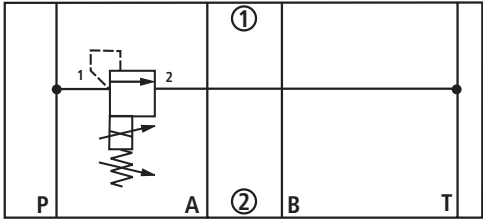
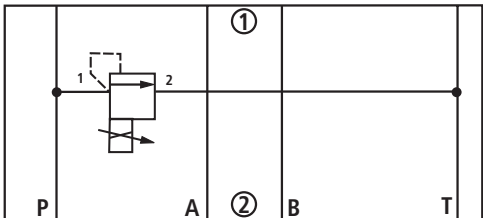
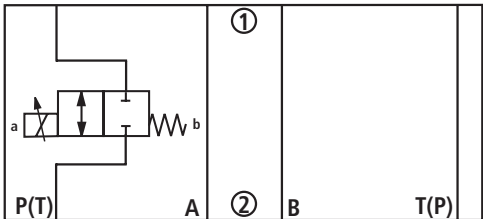
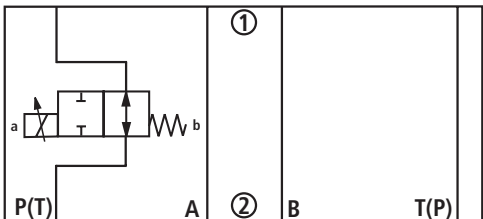
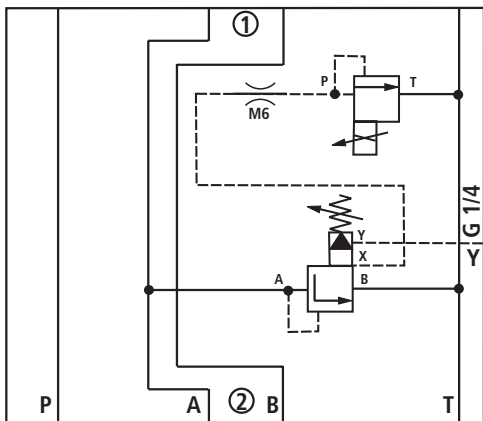
**Shuttle valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
Sandwich plate	HSZ 06A 232-4X/ MHSU2KM01		90 x 44 x 40	R901105952	
	R901105946		1.1 kg		Side E X G1/4
Sandwich plate	HSZ 06A 660-4X/ MHSU2K-D25M01		115 x 44 x 40	R901222663 Orifice 2.5 mm RE 18205	
	R901220129		1.02 kg		Side E Side F X P G1/4 G1/4
Sandwich plate	HSZ 06A 461-3X/ 420-LG6-D..M00		81 x 44 x 40	R900775581 Internal thread M6	
			0.94 kg		

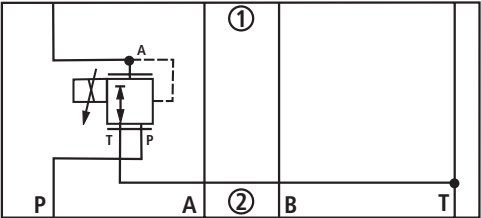
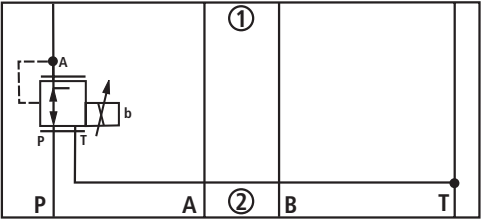
**Pressure compensators** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
Sandwich plate	HSZ 06A 639-4X/ VCSQ11MHSUM00		165 x 44 x 70	R901251829	
	R901250976		3.455 kg		RE 18205 RE 90005-03

## Proportional valves (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight Size of the ports	
Sandwich plate	HSZ 06 A638-4X/ KBPSPBG24K4V00		80 x 44 x 40	R901251588  RE 18139-05
	R901248164			
Sandwich plate	HSZ 06 A638-4X/ KBPSPAG24K4V00		80 x 44 x 40	R901251588  RE 18139-04
	R901248165			
Sandwich plate with R ring plate	HSZ 06 A637-3X/ KKDSNG24N0K4V00		100 x 44 x 60	R901244695  RE 18139-06
	R901243964		3.015 kg	
Sandwich plate with R ring plate	HSZ 06 A637-3X/ KKDSPG24N0K4V00		100 x 44 x 60	R901244695  RE 18139-06
	R901244401		3.015 kg	
Sandwich plate	HSZ 06 A470-3X/ XY-P8G24K4-08M01		140 x 44 x 100	R901050155  Orifice 0.8 mm  RE 25731 RE 18139-04 RE 18139-05
			4.5 kg	

**Proportional valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate	HSZ 06 A541-3X/M00		120 x 44 x 40	R900268894  RE 29181
	R900913208			
Sandwich plate	HSZ 06 A466-3X/M00		120 x 44 x 70	R901007360  RE 64655
	R901007270			

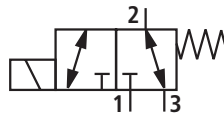
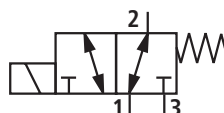
## Functional group clamping hydraulics

Example: **HSZ 06 A 433 – 3X/PRDB –**

46	47	47.2

 – K1 

48	49	50	51	2	3

<div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px; text-align: center; font-weight: bold;">46</div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div>	<p><b>Adjustment element</b> at the 3-way pressure control valve</p>	<p>Setscrew with internal hexagon Hand wheel Hand wheel for panel mounting Adjustment protection, set in the factory</p>	<p>= L = K = O = C</p>
<div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px; text-align: center; font-weight: bold;">47</div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div>	<p><b>Set pressure</b> at the 3-way pressure control valve:</p>	<p>35 to 210 bar – setting 49 bar 3.5 to 105 bar – setting 14 bar 2 to 55 bar – setting 14 bar 2 to 28 bar – setting 14 bar 2 to 14 bar – setting 14 bar 52 to 315 bar – setting 70 bar</p>	<p>= A = B = D = E = S = W</p>
<div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px; text-align: center; font-weight: bold;">47.2</div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div>	<p><b>Seal material</b> <b>⚠ Attention!</b> Observe compatibility of seals with hydraulic fluid used!</p>	<p>NBR seals FKM seals (other seals upon request)</p>	<p>= N = V</p>
<div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px; text-align: center; font-weight: bold;">48</div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div>	<p><b>Symbol</b> of the 3/2 directional spool valve:</p>	<div style="text-align: center;">  </div>	<p>= C</p>
<div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px; text-align: center; font-weight: bold;">49</div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div>	<p><b>Solenoid voltage</b> at the directional spool valve:</p>	<div style="text-align: center;">  </div>	<p>= U</p>
<div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px; text-align: center; font-weight: bold;">49</div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div>	<p><b>Solenoid voltage</b> at the directional spool valve:</p>	<p>Direct voltage 12 V Direct voltage 24 V Direct voltage 48 V Direct voltage 96 V Direct voltage 205 V</p>	<p>= G12 = G24 = G48 = G96 = G205</p>
<div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px; text-align: center; font-weight: bold;">50</div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div>	<p><b>Manual override</b> at the 3/2 directional spool valve:</p>	<p>Without manual override Concealed manual override</p>	<p>= N0 = N9</p>
<div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px; text-align: center; font-weight: bold;">51</div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div>	<p><b>Electrical types of connection</b></p>	<p>03pol (2+PE) DIN EN 175301-803, without mating connector 02pol K40 DT 04-2PA Deutsch, without mating connector 02pol C4/Z30 AMP Junior-Timer, without mating connector</p>	<p>= K4 = K40 = C4</p>

**Clamping hydraulics** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
Sandwich plate Fitting of the sandwich plate: Pressure control valve 3/2 directional spool valve  SPULE GZ37-4 24VDC 22W	HSZ 06A 433-3X/PRDB - <input type="checkbox"/> <sup>46</sup> <input type="checkbox"/> <sup>47</sup> <input type="checkbox"/> <sup>47.2</sup> - K1 <input type="checkbox"/> <sup>48</sup> <input type="checkbox"/> <sup>49</sup> <input type="checkbox"/> <sup>50</sup> <input type="checkbox"/> <sup>51</sup> M01		170 x 44 x 70	R900247860  RE 18136-04 Valve on side E  RE 18136-04 valve on side F
			4.5 kg Side F M G 1/4	
Sandwich plate Fitting of the sandwich plate: Pressure control valve 3/2 directional spool valve  SPULE GZ37-4 24VDC 22W	HSZ 06A 433-3X/PRDB - <input type="checkbox"/> <sup>46</sup> <input type="checkbox"/> <sup>47</sup> <input type="checkbox"/> <sup>47.2</sup> - K1 <input checked="" type="checkbox"/> <sup>48</sup> <input type="checkbox"/> <sup>49</sup> <input type="checkbox"/> <sup>50</sup> <input type="checkbox"/> <sup>51</sup> M01		170 x 44 x 70	R900247860  RE 18136-04 Valve on side E  RE 18136-04 valve on side F
			4.5 kg Side F M G 1/4	

**Order example**

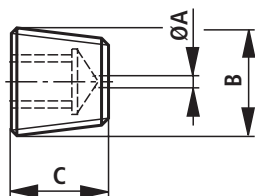
For complete device with 3/2 directional seat valve and pressure control valve:

HSZ 06A 433-3X/PRDB -  <sup>46</sup>  <sup>47</sup>  <sup>47.2</sup> - K1  <sup>48</sup>  <sup>49</sup>  <sup>50</sup>  <sup>51</sup>  <sup>2</sup>  <sup>3</sup>

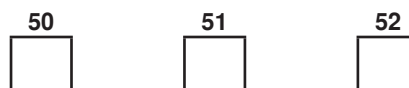
Sandwich plate	HSZ 06-26724-AA/ G24K4M01		180 x 44 x 160	R900277006  RE 90005-03 RE 26850
	R900955350		10.0 kg	

## Orifices, R ring plate, seals

Form 7 (RN 115.06)  
 Plug screw DIN 906

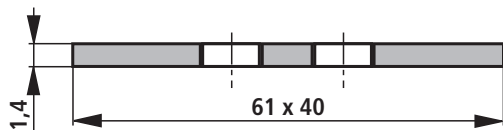


**⚠ Attention!**  
 Spelling ()  
 with complete type!



B	M6	M8 x 1	R1/8
C	6	8	8
ØA	Material no.		
0.6 (06)	R900157934	R900149430	R900159145
0.7 (07)	R900157931	R900143957	-
0.8 (08)	R900152276	R900136843	R900144212
0.9 (09)	R900695625	R900643104	-
1.0 (10)	R900149335	R900136842	R900135607
1.1 (11)	R900645667	R900144763	-
1.2 (12)	R900152286	R900139101	R900146270
1.3 (13)	R900152291	R900144762	R900891295
1.4 (14)	R900171199	R900158791	R900135606
1.5 (15)	R900148823	R900133712	R900144910
1.8 (18)	R900157932	R900150953	R900142840
2.0 (20)	R900156650	R900137299	R900155897
2.5 (25)	R900157929	R900137445	R900148351
3.0 (30)	R900181894	R900144761	R900111282

R ring plate	Material no.
HSZ 06 A001-3X/M00	R900329774
HSZ 06 A001-3X/V00	R900329775



Seal kit - plate:

Seal material	Material no.
NBR	R900313192
FKM	R900313193

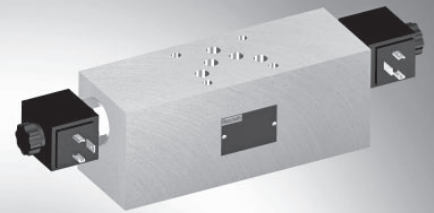
# Sandwich plates

## Porting patterns according to DIN 24340 form A and ISO 4401

**RE 48052/01.11**  
Replaces: 01.09

1/92

### Type HSZ 10

Size 10  
Component series 1X, 2X, 3X and 4X  
Maximum operating pressure 315 bar

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## Features

- Vertically stackable components in sandwich plate design
- Porting pattern according to ISO 4401-05-04-0-94
- Amendment to the existing sandwich plate program
- Structure as individual component or as horizontal stacking on manifolds according to data sheet RE 48110 or vario plates
- Large variability due to the possibility of different combinations as well as subsequent functional changes and extensions
- Maximum operating pressure
  - without valve function: 315 bar
  - with valve function: Maximally 315 bar (depending on the valve fitting)
- Weight indications contain the installed and/or attached valves
- Dimension L x W x H without installed and/or attached valves
- Coating: Galvanic coating DIN 50979 - Fe/Zn8/Cn/T0

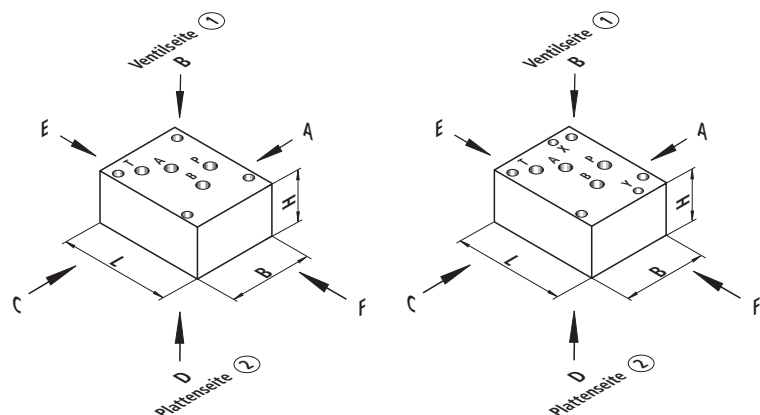
## Safety instructions

- The valve mounted in the sandwich plates can block in an undefined position due to internal pollution – like e.g. polluted hydraulic fluid, wear debris or residual dirt from system components. As a result, the driven actuator may no longer be under the operator's control.
- When using a single-rod cylinder, inadmissibly high pressures may result in the discharge channel due to pressure intensification (e.g. unswitched directional seat valve / uncontrolled solenoid coil / cable break). We therefore recommend securing the cylinder by means of pressure relief valves.

## Explanations of the type key for HSZ 10 sandwich plates

	1	2	3	4	5	6
1		<b>Porting pattern:</b>	Form A10, direct operated			= A
			Form A10, pilot operated (with X and Y port)			= B
2		<b>Serial number</b> of the functional design from 001 ... 999 (is determined in the factory)				
3		<b>Series-production status:</b>	- 1X, - 2X, - 3X, - 4X			
4		<b>Seal material:</b>	NBR seals			= M (standard)
		<b>Note:</b> Observe compatibility of seals with the hydraulic fluids used!	FKM seals (other seals upon request)			= V
5		<b>Line connection:</b>	No external connection			= 00
			Connection according to DIN 3852 part 2			= 01
			Thread according to DIN EN ISO 228 (pipe thread)			
6		Further details in the plain text				

## 3D view



1) HSZ 10 A..., direct operated

2) HSZ 10 B..., pilot operated (with X and Y port)



**Order examples:**

Material no.	Type designation					
R900515226	HSZ 10 B037-3X/M01	Sandwich plate without valve function				
R900555875	HSZ 10 A188-3X/05M00	Sandwich plate with fixed valve design				
R900703933	HSZ 10 A100-3X/ <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">15</td><td style="text-align: center;">16</td></tr><tr><td style="text-align: center;">S</td><td style="text-align: center;">S20</td></tr></table> M00	15	16	S	S20	Sandwich plate with optional valve design
15	16					
S	S20					

Type key and order examples for fitted sandwich plates, see relevant functional groups!

Sandwich plates with possible valve fitting are available as both, complete device (with valves assembled) or as construction kit plate (only with seals, plug screws, name plate).

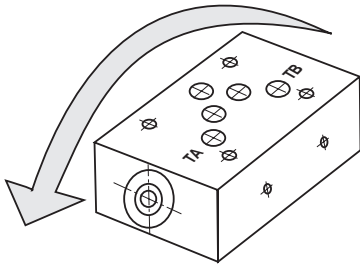
- **Other circuits and designs as specified in the data sheet are only possible after consultation!**
- **Connection threads in HSZ plates are always covered in a pressure-tight form.**
- **Installation bores / screw-in threads with unfitted sandwich plates are usually not covered in a pressure-tight form.**

**The following serial sandwich plates with porting pattern according to ISO 4401 pilot operated (drilled for X and Y port) are part of the delivery range:**

Type Z1S10..-3X/V SO30	RE 21536
Type Z2S10..-3X/V SO30	RE 21553
Type M-Z4SE10.1X/C..SO30	
Type Z-DB10..-4X/.V SO30	RE 25761
Type ZDR10D..-5X/.Y.SO30	RE 26585
Type ZDR10V..-3X/.Y.SO30	RE 26861
Type Z2FS10..-3X/.V SO30	RE 27518

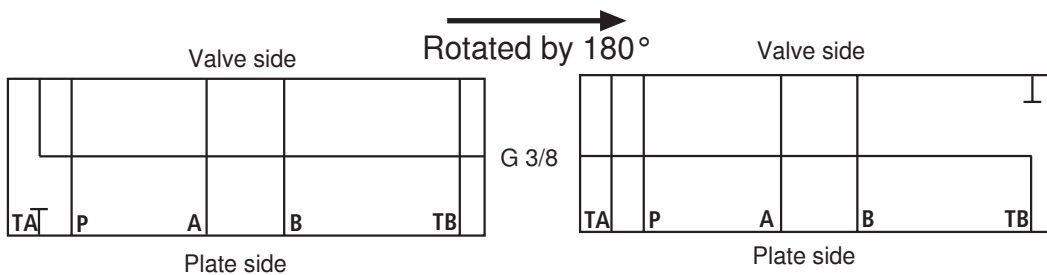
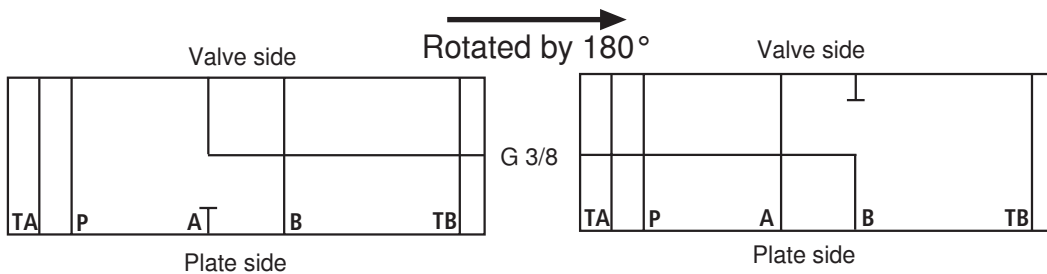
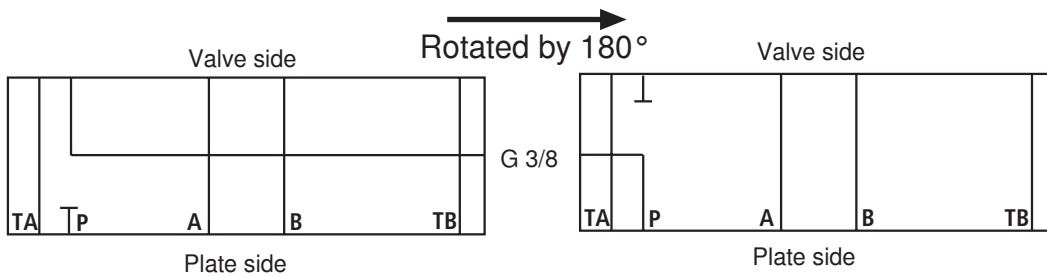
## Extended applications of HSZ 10 sandwich plates with R ring plate

HSZ 10 sandwich plates with R ring plates can be rotated by 180° around the TA - TB axis. Due to the changed installation position, a different function results (circuit diagram). See the following examples.



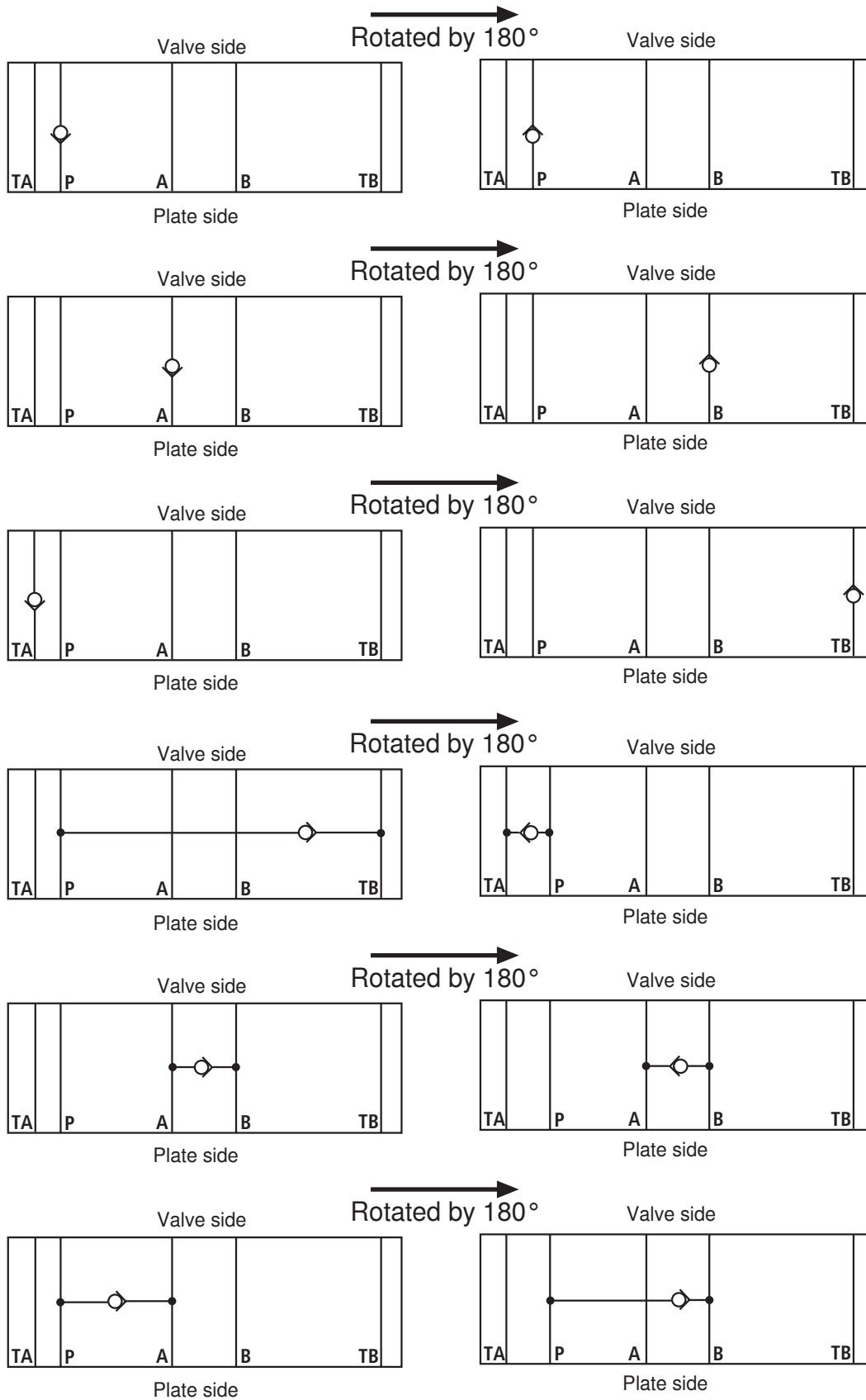
In case of sandwich plates with only one T bore (TA or TB), it has to be ensured that the connection to T is not interrupted and still ensured.

### Distance plates with port in the P, A, B, TA or TB channel

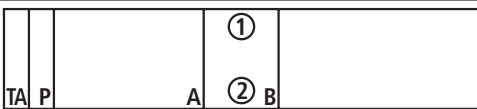
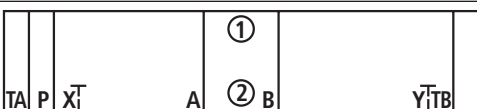
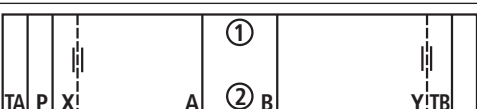
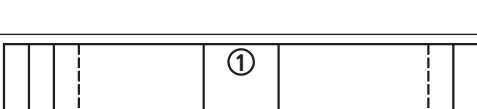
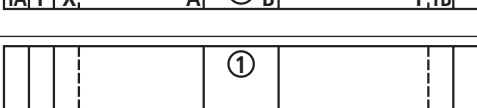
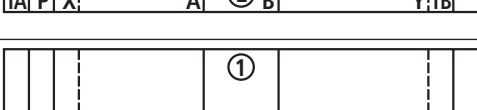
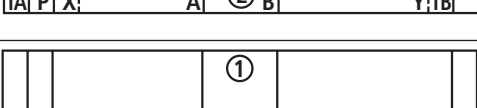
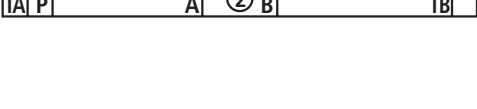
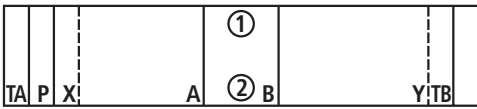


### Extended applications of HSZ 10 sandwich plates with R ring plate

Check valve in the P, A, B, TA or TB channel



## Distance plates without port (① = component side, ② = plate side)

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate with R ring plate	HSZ 10 A010-3X/M00  R900320784		91 x 70 x 5.5 0.3 kg	R900265368
Sandwich plate with R ring plate	HSZ 10 A345-3X/M00  R900564772		91 x 70 x 5.5 0.3 kg	R900265930
Sandwich plate with R ring plate	HSZ 10 B003-3X/M00  R900514665		90 x 70 x 11 0.5 kg	R900262119  Thread M8 x 1 in channel X and Y
Sandwich plate	HSZ 10 B007-3X/M00  R900535658		90 x 70 x 20 0.9 kg	R900265369
Sandwich plate	HSZ 10 B004-3X/M00  R900534251		90 x 70 x 50 2.4 kg	R900265212
Sandwich plate	HSZ 10 B339-3X/M00  R900536392		90 x 70 x 100 4.5 kg	R900265409
Sandwich plate	HSZ 10 A476-3X/M00 R901041896 Comment: Hole pattern dis- placed by 70 mm in direction A		170 x 70 x 70 6.0 kg	R901042543
Sandwich plate	HSZ 10 B029-3X/M00 R900906208 Comment: Hole pattern dis- placed by 14.5 mm in direction B		110 x 70 x 50 2.8 kg	R900267618
Sandwich plate	HSZ 10 B073-3X/M00  R900370156		91 x 70 x 20 0.9 kg	R900265519

**Distance plates with connections** (1) = component side, (2) = plate side

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate	HSZ 10 B037-3X/M01  R900515226		100 x 70 x 40 2.0 kg Side E   Side F T   P G 1/4   G 1/4	R900265392
Sandwich plate	HSZ 10 A065-3X/M01  R900528297		130 x 70 x 40 2.7 kg Side E   Side F T   P G 1/2   G 1/2	R900262973
Sandwich plate	HSZ 10 A054-3X/M01  R900536190		130 x 70 x 40 2.7 kg Side E   Side F T   P G 1/2   G 1/2	R900265395
Sandwich plate	HSZ 10 A075-3X/M01  R900536191		110 x 70 x 40 2.0 kg Side E   Side F T   T G 1/2   G 1/2	R900265393
Sandwich plate	HSZ 10 A027-3X/M01  R900536244		130 x 70 x 40 2.7 kg Side F P G 1/2	R900265394
Sandwich plate	HSZ 10 A429-3X/M01  R900967602		120 x 70 x 100 6.1 kg Side E   Side F P1, P2   P1, P2 G 3/4   G 3/4	R900279293
Sandwich plate	HSZ 10 A446-3X/M01  R900731748		110 x 70 x 100 5.6 kg Side E   Side F T   T G 1   G 1/4	R900732204

## Distance plates with connections (① = component side, ② = plate side)

Device designation	Type designation Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet More information
Sandwich plate	HSZ 10-34854-ZA/M01 R901173176		105 x 70 x 50 2.7 kg Side E P G 1/4	R900240252 Internal thread M6
Sandwich plate	HSZ 10-34860-ZA/M01 R900975888		94 x 70 x 30 1.5 kg Side E A, T G 1/4 Side F P G 1/4	R900240251
Sandwich plate	HSZ 10 A040-3X/M01 R901176800		130 x 70 x 40 2.7 kg Side E A G 1/2 Side F B G 1/2	R901176802
Sandwich plate	HSZ 10 A058-1X/M01 R900413029		100 x 70 x 30 1.5 kg Side F B G 3/8	R900255859
Sandwich plate	HSZ 10 A066-1X/M01 R900551041		120 x 70 x 50 3.0 kg Side E P G 3/4 Side F P G 3/4	R900259802
Sandwich plate	HSZ 10 B031-3X/M01 R900563477		130 x 70 x 40 2.6 kg Side E A G 1/2 Side F B G 1/2	R900265843

**Distance plates with connections** (1) = component side, (2) = plate side

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate	HSZ 10 A024-1X/M01  R900584633		102 x 70 x 30 1.5 kg Side E P G 3/8	R900727135
Sandwich plate	HSZ 10 B035-3X/M01  R900536135		120 x 70 x 40 2.5 kg Side E A G 1/4 Side F B G 1/4	R900265391
Sandwich plate	HSZ 10 A031-3X/M01  R900532776		130 x 70 x 40 2.7 kg Side E A G 1/2 Side F B G 1/2	R900265126
Sandwich plate	HSZ 10 A331-3X/M01  R900532777		130 x 70 x 40 2.7 kg Side E A G 1/2 Side F B G 1/2	R900265127
Sandwich plate	HSZ 10 B065-3X/M01  R900563478		130 x 70 x 40 2.6 kg Side E T G 1/2 Side F P G 1/2	R900265844
Sandwich plate	HSZ 10 B075-3X/M01  R900525564		110 x 70 x 40 2.2 kg Side E T G 1/2 Side F T G 1/2	R900266335
Sandwich plate	HSZ 10 B096-3X/M01  R900550473		130 x 70 x 60 4.0 kg Side E A, X, T G 1/4 Side F B, P, Y G 1/4	R900264833
Sandwich plate	HSZ 10 B097-3X/M01  R900320785		100 x 70 x 30 1.5 kg Side E X G 1/4 Side F Y G 1/4	R900262648

**Distance plates with connections** (1) = component side, (2) = plate side

Device designation	Type designation Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet More information
Sandwich plate	HSZ 10 B305-3X/M01  R901279292		110 x 70 x 40 2.2 kg Side E P G 1/4	R900265573  R900265572
Sandwich plate	HSZ 10 B307-3X/M01  R901279293		110 x 70 x 40 2.2 kg Side F Y G 1/4	R900265574  R900265572
Sandwich plate	HSZ 10 B579-3X/M01  R900912473		110 x 70 x 40 2.2 kg Side E X1 G 1/4 Side F Y G 1/4	R900268822  R900265572
Sandwich plate	HSZ 10 B583-3X/V01  R900927893		110 x 70 x 40 2.2 kg Side E X1 G 1/4 Side F T G 1/4	R900270972  R900265572
Sandwich plate	HSZ 10 B643-3X/M01  R901145480		110 x 70 x 40 2.2 kg Side E P G 1/4 Side F T G 1/4	R901145488  R900265572
Sandwich plate	HSZ 10 B443-3X/M01  R900716990		110 x 70 x 40 2.2 kg Side E X G 1/4 Side F Y G 1/4	R900717782  R900265572
Sandwich plate	HSZ 10 B487-3X/M01  R901088182		118 x 70 x 40 2.2 kg Side E X G 1/4 Side F Y G 1/4	R901088216  R900265572
Sandwich plate	HSZ 10 B489-3X/M01  R901092645		114 x 70 x 40 2.2 kg Side E X G 1/4 Side F Y G 1/4	R901092648  R900265572
Sandwich plate	HSZ 10 B578-3X/M01  R900903619		110 x 70 x 40 2.2 kg Side E X G 1/4 Side F Y G 1/4	R900267141  R900265572



**Distance plates with connections** (① = component side, ② = plate side)

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate with R ring plate	HSZ 10 A019-3X/M00  R900537267		90 x 70 x 20 0.9 kg	R900265465
Sandwich plate	HSZ 10 A071-3X/M00  R900537262		90 x 70 x 30 1.4 kg	R900265467  Internal thread M8 x 1 between A and B channel
Sandwich plate	HSZ 10 A078-3X/M00  R900537264		90 x 70 x 20 0.9 kg	R900265463
Sandwich plate with R ring plate	HSZ 10 A077-3X/M00  R900537263		90 x 70 x 20 0.9 kg	R900265468
Sandwich plate with R ring plate	HSZ 10 A079-3X/M00  R900537265		90 x 70 x 20 0.9 kg	R900265464
Sandwich plate	HSZ 10 A061-3X/M00  R900565057		90 x 70 x 60 2.8 kg	R900265959
Sandwich plate	HSZ 10 B061-3X/M00  R900922486		90 x 70 x 60 2.7 kg	R900270096
Sandwich plate	HSZ 10 B098-3X/M00  R900439123		110 x 70 x 40 2.2 kg	R900265518  R900265572
Sandwich plate	HSZ 10 A076-3X/M00  R900515273	Important: The following valve set-up is rotated by 180°! 	90 x 70 x 50 2.5 kg	R900262149

## Distance plates with connections (① = component side, ② = plate side)

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate with R ring plate	HSZ 10 A308-3X/V00  R900616863		90 x 70 x 20 0.9 kg	R900617187
Sandwich plate with R ring plate	HSZ 10 B529-3X/M00  R900738152		90 x 70 x 20 0.9 kg	R900738155
Sandwich plate with R ring plate	HSZ 10 B333-3X/M00  R900975306		90 x 70 x 20 0.9 kg	R900271263
Sandwich plate	HSZ 10 A055-3X/M00  R900964317		105 x 70 x 50 2.7 kg	R900756897
Sandwich plate	HSZ 10 A298-3X/M00  R901239582		90 x 71.3 x 20 0.85 kg	R901239953
Sandwich plate	HSZ 10 B079-3X/M00  R900786689		90 x 70 x 20 0.9 kg	R901001451
Sandwich plate	HSZ 10 B482-3X/ A08B08M00  R901066985		90 x 70 x 20 0.9 kg	R901023531  Nozzles 0.8 mm in A + B
Sandwich plate	HSZ 10 A074-3X/M00  R901238703		90 x 71.3 x 20 0.87 kg	R901239244
Sandwich plate	HSZ 10 A495-3X/M00  R901118212		90 x 70 x 30 1.4 kg	R901118257  Plug screw G1/8 in channel A on the valve side

## Distance plates with connections and two connection diagrams and external port

(1) = component side, (2) = plate side)

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate	HSZ 10-38003-ZA/M01  R901284807		120 x 90 x 50 3.9 kg Side E/ A G1/2 Side F/ B G1/2 Side A/ AB G1/4	R901094008  1x connection diagram 10A 1x connection diagram 06A
Sandwich plate	HSZ 10-38053-ZA/M01  R901145127		150 x 120 x 90 11.7 kg Side E/ A G1 Side F/ B G1, internal thread G1/4, MB G1/4 Side A/ MA, MB G1/4	R901146105  2x connection diagram 10B
Sandwich plate	HSZ 10-26534-Z/M01  R900548651		145 x 140 x 80 11.7 kg Side E/ MA, MT G1/4 Side F/ MB, MP G1/4	R900255919  1x connection diagram 10A
Sandwich plate	HSZ 10-26832-ZA/M01  R900725896		150 x 130 x 90 12.7 kg Side E/ MA3, MB3 G1/4 Side C/ A3, B3 G1/2	R900725942  2x connection diagram 10A

## Functional group Blocking function

Example: HSZ 10 1 2 A – 3X / 12 3 4

### Complementary details on sandwich plates with integrated blocking function (complete devices):

<b>11</b> <span style="border: 1px solid black; display: inline-block; width: 20px; height: 20px; vertical-align: middle;"></span>	<b>Cracking pressure</b> at the check valve type M-SR10 (installation kit)	0 bar (without spring) 0.5 bar 1 bar 1.8 bar 3.5 bar 5.5 bar	= 00 = 02 = 05 = 15 = 30 = 50
<b>12</b> <span style="border: 1px solid black; display: inline-block; width: 20px; height: 20px; vertical-align: middle;"></span>	<b>Cracking pressure</b> at the check valve type D9.8...: check valve type D8...: check valve type D10...:	0.5 bar 3.0 bar 5.0 bar	= 05 BAR = 30 BAR = 50 BAR
<b>12.1</b> <span style="border: 1px solid black; display: inline-block; width: 20px; height: 20px; vertical-align: middle;"></span>	<b>Cracking pressure</b> at the check valve type Z1S6...: (installation kit / sandwich plate)	Cracking pressure 0.5 bar Cracking pressure 3.0 bar Cracking pressure 5.0 bar	= 05 = 30 = 50
<b>13</b> <span style="border: 1px solid black; display: inline-block; width: 20px; height: 20px; vertical-align: middle;"></span>	<b>Cracking pressure</b> at the check valve type Z2S6...: (pilot operated)	Cracking pressure 1.5 bar Cracking pressure 3.0 bar Cracking pressure 6.0 bar Cracking pressure 10.0 bar	= 1 = 2 = 3 = 4
<b>14</b> <span style="border: 1px solid black; display: inline-block; width: 20px; height: 20px; vertical-align: middle;"></span>	<b>Seal material</b>	NBR seals FKM seals (other seals upon request)	= no code = V
<b>⚠ Attention!</b> Observe compatibility of seals with hydraulic fluid used!			
<b>26.1</b> <span style="border: 1px solid black; display: inline-block; width: 20px; height: 20px; vertical-align: middle;"></span>	<b>Nominal voltage at the coil</b>	Direct voltage 12 V Direct voltage 24 V Direct voltage 26 V Direct voltage 110 V Direct voltage 220 V	= G12 = G24 = G26 = G110 = G220
<b>35.1</b> <span style="border: 1px solid black; display: inline-block; width: 20px; height: 20px; vertical-align: middle;"></span>	<b>Manual override</b> at directional seat valve series K...	without manual override Concealed manual override Screwable manual override	= N0 = N9 = N11

## Functional group Blocking function

35.1 <input type="checkbox"/>	<b>Manual override</b> at directional seat valve series OD.15...	without manual override	= 1A	
			= 3A	
			= 3I	
		Screwable manual override	= 3M	
			= 3L	
			= 3D	
		with manual override "pushing"	= 1B	
			= 1L	
		with manual override "pushing", lockable in switched position	= 1C	
			= 1M	
35.2 <input type="checkbox"/>	<b>Electrical types of connection:</b>	03pol (2+PE) DIN EN 175301-803, without mating connector	= 01 <sup>1)</sup>	= K4 <sup>2)</sup>
		02pol K40 DT 04-2PA Deutsch, without mating connector	= 20 <sup>1)</sup>	= K40 <sup>2)</sup>
		02pol C4/Z30 AMP Junior-Timer, without mating connector	= 07 <sup>1)</sup>	= C4 <sup>2)</sup>
		1) Designation of the individual component solenoid coil		
		2) Designation of the complete device HSZ range		

For the connection to AC voltage mains, a DC solenoid must be used, which is controlled via a rectifier.  
In case of individual connection, a mating connector with integrated rectifier can be used (separate order).

## Functional group Blocking function

### Complementary details on check valves:

M-SR . KE <sup>31</sup>  -1X/ (see page 19 - 21)

KE = Angle valve

<sup>31</sup>

00	= without spring
02	= 0.2 bar
05	= 0.5 bar
15	= 1.5 bar
30	= 3.0 bar
50	= 5.0 bar

RUECKSCHLAGVENTIL D 9.8- <sup>31</sup>  / Z1S10T (see page 19 and 20)

<sup>31</sup>

0.5 BAR
3.0 BAR
5.0 BAR

For numbers: 400, 401, 402, 408, 517, 519, 589 (see page 22 - 25)

VUCN- 08A- 04.31.20.00.56 <sup>31</sup>  000

Flow from 1 to 2

<sup>31</sup>

00	= 1 bar	06	= 6 bar
03	= 2.7 bar	09	= 9 bar
05	= 5 bar	14	= 14 bar

VURN- 08A- 04.31.21.00.56 <sup>31</sup>  000

Flow from 2 to 1

<sup>31</sup>

02	= 2 bar
----	---------

For number: 490 (see page 22 and 23)

VUCN-12A- 04.31.28.00.57 <sup>32</sup>  000

Flow from 1 to 2

<sup>32</sup>

00	= 1 bar
05	= 5 bar
08	= 8 bar
15	= 15 bar

VURN-12A- 04.31.36.00.57 <sup>32</sup>  000

Flow from 2 to 1

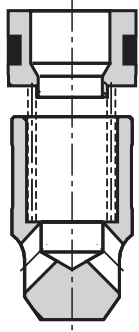
<sup>32</sup>

02	= 2 bar
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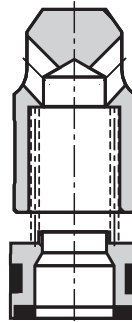
## Functional group Blocking function

### Complementary details on check valves:

Check valve type D9.8... installation kit (version "P" and "T"):



Version "P" (cracking pressure 0.5 bar)	
Seal material	Material no.
NBR	R900543827
FKM	R900543830



Version "T" (cracking pressure 0.5 bar)	
Seal material	Material no.
NBR	R900543839
FKM	R900543842

Check valve type D8.0...:

Version D8.0-.../HSZ 200 (cracking pressure 0.5 bar)	
Seal material	Material no.
NBR	R900544619
FKM	R900890139

Check valve type D10...:

Version D10-.../HSZ 187	
Seal material	Material no.
NBR	R900544566
FKM	R900869810

**Check valves Z1S10** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
	Material no.			
Sandwich plate	Z1S 10 P <sup>12.1</sup> -3X/V S01		91 x 70 x 50 2.5 kg	RE 21536
Amend type designation according to page 14.				
Sandwich plate	Z1S 10 T <sup>12.1</sup> -3X/V S0105		91 x 70 x 50 2.5 kg	RE 21536
Amend type designation according to page 14.				
Sandwich plate	Z1S 10 P <sup>12.1</sup> -3X/V S068		91 x 70 x 50 2.5 kg Side F P G 1/2	RE 21536
Amend type designation according to page 14.				
Sandwich plate	Z1S 10 F <sup>12.1</sup> -3X/V S068		91 x 70 x 50 2.5 kg Side F P G 1/2	RE 21536
Amend type designation according to page 14.				
Sandwich plate	Z1S 10 P <sup>12.1</sup> -3X/V S0113		91 x 70 x 50 2.5 kg Side E A G 1/4 Side F B G 1/4	RE 21536
Amend type designation according to page 14.				
Sandwich plate	Z1S 10 T <sup>12.1</sup> -3X/V S0114		91 x 70 x 50 2.5 kg	RE 21536
Amend type designation according to page 14.				



**Check valves M-SR, D8, D9 and D10** (1) = component side, (2) = plate side)

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm  Weight  Size of the ports	Dimensional sheet  More information
Sandwich plate with R ring plate  Fitting of the sandwich plate: RUECKSCHLAGVENTIL D8-05BAR/ <sup>14</sup> HSZ200	HSZ 10 A200-3X/05BARM00 R900558636		90 x 70 x 40 2.0 kg	R900265094
Sandwich plate with R ring plate  Fitting of the sandwich plate: RUECKSCHLAGVENTIL D8-05BAR/ <sup>14</sup> HSZ200	HSZ 10 B200-3X/05BARM00 R900920897		90 x 70 x 40 2.0 kg	R900266114
Sandwich plate  Fitting of the sandwich plate: Check valve (installation kit) M-SR 15 KE05-1X/ <sup>14</sup>	HSZ 10 B650-3X/05M01 R901178011		130 x 70 x 60 4.0 kg Side E X G 1/4 Side F Y G 1/4	R901178322  2x plug screw M6  RE 20380
Sandwich plate  Fitting of the sandwich plate: Check valve (installation kit) M-SR 15 KE05-1X/ <sup>14</sup>	HSZ 10 A244-3X/05M00 R900941516		150 x 70 x 60 5.0 kg	R900262329  RE 20380
Sandwich plate with R ring plate  Fitting of the sandwich plate: RUECKSCHLAGVENTIL D8-05BAR/ <sup>14</sup> HSZ200	HSZ 10 B192-3X/05BARM00 R900976702		90 x 70 x 40 1.8 kg	R900240603
Sandwich plate with R ring plate  Fitting of the sandwich plate: RUECKSCHLAGVENTIL D8-05BAR/ <sup>14</sup> HSZ200	HSZ 10 A192-3X/05BARM00 R900908257		90 x 70 x 40 2.0 kg	R900265093
Sandwich plate  Fitting of the sandwich plate: RUECKSCHLAGVENTIL D10-05BAR/ <sup>14</sup> HSZ187 RUECKSCHLAGVENTIL D9.8-05BAR/ <sup>14</sup> Z1S10T	HSZ 10 A184-3X/05BARM00 R900558725		90 x 70 x 50 2.4 kg	R900266032

**Check valves M-SR, D8, D9 and D10 (① = component side, ② = plate side)**

Device designation	Type designation Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet More information
Sandwich plate  Fitting of the sandwich plate: Check valve (installation kit) M-SR 10 KE05-1X/□ <sup>14</sup>	HSZ 10 A592-3X/05M00 R900944621		140 x 71 x 90 6.5 kg	R900274704  RE 20380
Sandwich plate  Fitting of the sandwich plate: RUECKSCHLAGVENTIL D10-05BAR/□ <sup>14</sup> HSZ187 RUECKSCHLAGVENTIL D9.8-05BAR/□ <sup>14</sup> Z1S10T	HSZ 10 B187-3X/05BARM00 R901211312		90 x 70 x 50 2.4 kg	R900265039
Sandwich plate  Fitting of the sandwich plate: RUECKSCHLAGVENTIL D10-05BAR/□ <sup>14</sup> HSZ187 RUECKSCHLAGVENTIL D9.8-05BAR/□ <sup>14</sup> Z1S10T	HSZ 10 A187-3X/05BARM00 R900555874		90 x 70 x 50 2.4 kg	R900265058
Sandwich plate  Fitting of the sandwich plate: RUECKSCHLAGVENTIL D10-05BAR/□ <sup>14</sup> HSZ187 RUECKSCHLAGVENTIL D9.8-05BAR/□ <sup>14</sup> Z1S10T DUESE <sup>50</sup> □M6-DIN 906 (material no. see p. 90)	HSZ 10 B330-3X/05BAR- D <sup>50</sup> □M00		90 x 70 x 50 2.4 kg	R900265848  Internal thread M6
Sandwich plate  Fitting of the sandwich plate: Check valve (installation kit) M-SR 10 KE05-1X/□ <sup>14</sup>	HSZ 10 A468-3X/05M01 R901010126		120 x 70 x 100 6.0 kg  Side F G1/2	R901010327  RE 20380
Sandwich plate  Fitting of the sandwich plate: Check valve (installation kit) M-SR 10 KE05-1X/□ <sup>14</sup>	HSZ 10 B188-3X/02M00 R901046500		190 x 70 x 50 4.8 kg	R901046526  RE 20380
Sandwich plate  Fitting of the sandwich plate: Check valve (installation kit) M-SR 10 KE05-1X/□ <sup>14</sup>	HSZ 10 A188-3X/05M00 R900555875		190 x 70 x 50 4.9 kg	R900265095  RE 20380

**Check valves M-SR, D8, D9 and D10** (① = component side, ② = plate side)

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b> Check valve (installation kit) M-SR 10 KE05-1X/□ <sup>14</sup>	<b>HSZ 10 A338-3X/05M00</b> <b>R900916704</b>		140 x 70 x 50 3.5 kg	R900265416  RE 20380
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b> Check valve (installation kit) M-SR 10 KE05-1X/□ <sup>14</sup>	<b>HSZ 10 B338-3X/M00</b> <b>R900536800</b>		140 x 70 x 40 3.5 kg	R900265449  RE 20380
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b> Check valve (installation kit) M-SR 10 KE05-1X/□ <sup>14</sup>	<b>HSZ 10 A552-3X/05M00</b> <b>R900701086</b>		140 x 70 x 40 3.5 kg	R900265417  RE 20380
<b>Sandwich plate</b>   <b>Fitting of the sandwich plate:</b> Check valve (installation kit) M-SR 10 KE05-1X/□ <sup>14</sup>	<b>HSZ 10 A186-3X/05V00</b> <b>R901036587</b>		100 x 70 x 50 2.5 kg	R901037041  RE 20380
<b>Sandwich plate</b>   <b>Fitting of the sandwich plate:</b> Check valve (installation kit) M-SR 8 KE05-1X/□ <sup>14</sup>	<b>HSZ 10 B436-3X/05M01</b> <b>R900564126</b>		120 x 70 x 80 4.9 kg Side F MA, MB G1/4 X G3/8	R901024630  RE 20380
<b>Sandwich plate</b>   <b>Fitting of the sandwich plate:</b> Check valve (installation kit) M-SR 10 KE05-1X/□ <sup>14</sup>	<b>HSZ 10 A577-3X/M01J12</b> <b>R900903267</b>		140 x 70 x 80 11.0 kg Side E A, XA G 1/4 Side F B, XB G 1/4	R900267100  RE 20380

**Order example**For complete device: HSZ 10 <sup>1</sup>A 188-3X/ <sup>11</sup>05 <sup>3</sup>M <sup>4</sup>00**Order example**For complete device: HSZ 10 B330-3X/ <sup>12</sup>05BAR -D <sup>50</sup>08 <sup>3</sup>M <sup>4</sup>00

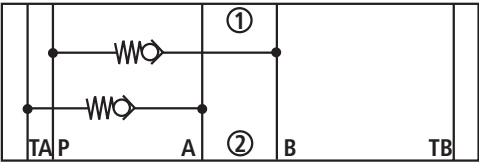
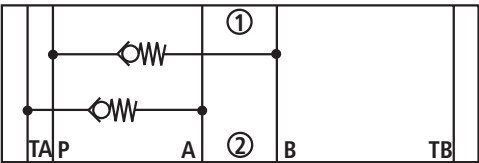
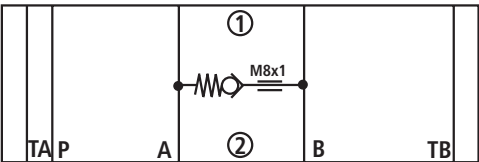
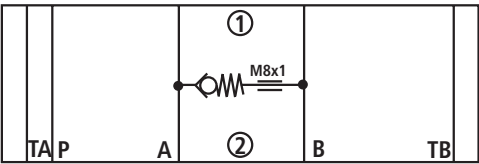
**VUCN / VURN... check valves** (1) = component side, (2) = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
Sandwich plate	HSZ 10 A408-4X/ D00-20RV36M00		105 x 70 x 50 2.6 kg	R901232101  Plug screw M8x1  RE 90005-03	
	R901289554				
Fitting of the sandwich plate:					
Check valve VURN-12A- 020431360057 <sup>32</sup> 02 000					
Sandwich plate	HSZ 10 A408-4X/ D00-10RV28M00		105 x 70 x 50 2.6 kg	R901232101  Plug screw M8x1  RE 90005-03	
	R901289489				
Fitting of the sandwich plate:					
Check valve VUCN-12A- 000431280057 <sup>32</sup> 00 000					
Sandwich plate	HSZ 10 A490-4X/ A-20RV36M00		200 x 70 x 80 7.5 kg	R901234326  RE 90005-03	
	R901283120				
Fitting of the sandwich plate:					
Check valve VURN-12A- 020431360057 <sup>32</sup> 02 000					
Sandwich plate	HSZ 10 A490-4X/ A-10RV28M00		200 x 70 x 80 7.5 kg	R901234326  RE 90005-03	
	R901283110				
Fitting of the sandwich plate:					
Check valve VUCN-12A- 000431280057 <sup>32</sup> 00 000					
Sandwich plate	HSZ 10 A490-4X/ B-20RV36M00		200 x 70 x 80 8.8 kg	R901234326  RE 90005-03	
	R901283168				
Fitting of the sandwich plate:					
Check valve VURN-12A- 020431360057 <sup>32</sup> 02 000					
Sandwich plate	HSZ 10 A490-4X/ B-10RV28M00		200 x 70 x 80 8.8 kg	R901234326  RE 90005-03	
	R901283155				
Fitting of the sandwich plate:					
Check valve VUCN-12A- 000431280057 <sup>32</sup> 00 000					

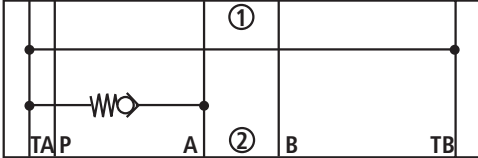
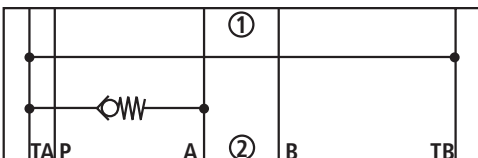
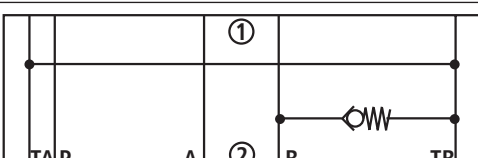
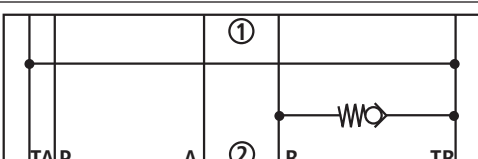
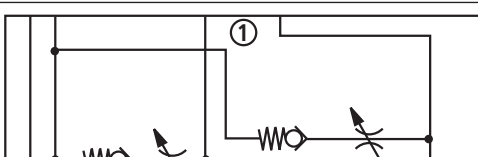
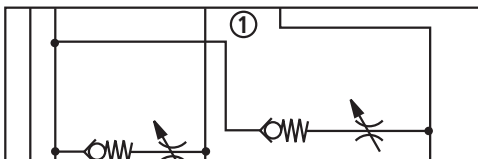
**VUCN / VURN... check valves** (1) = component side, (2) = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet	
	Material no.		Weight	and more information	
		Size of the ports			
Sandwich plate	HSZ 10 A490-4X/ AB-20RV36M00		200 x 70 x 80	R901234326	
	R901283166		7.5 kg	RE 90005-03	
Fitting of the sandwich plate:					
Check valve					
VURN-12A- 020431360057 <sup>32</sup> 02 000					
Sandwich plate	HSZ 10 A490-4X/ AB-10RV28M00		200 x 70 x 80	R901234326	
	R901283131		7.5 kg	RE 90005-03	
Fitting of the sandwich plate:					
Check valve					
VUCN-12A- 000431280057 <sup>32</sup> 00 000					
Sandwich plate	HSZ 10 A519-4X/ 20RV21-25M00		105 x 70 x 50	R901154552	
	R901283103		2.6 kg	Nozzle 2.5 mm RE 90005-03	
Fitting of the sandwich plate:					
Check valve					
VURN-08A- 020431210056 <sup>32</sup> 02 000					
Sandwich plate	HSZ 10 A519-4X/ 10RV20-25M00		105 x 70 x 50	R901154552	
	R901283097		2.6 kg	Nozzle 2.5 mm RE 90005-03	
Fitting of the sandwich plate:					
Check valve					
VUCN-08A- 000431200056 <sup>32</sup> 00 000					
Sandwich plate with R ring plate	HSZ 10 A589-4X/ 20RV21-12M00		105 x 70 x 50	R901155030	
	R901283162		2.6 kg	Nozzle 1.2 mm RE 90005-03	
Fitting of the sandwich plate:					
Check valve					
VURN-08A- 020431210056 <sup>32</sup> 02 000					
Sandwich plate rotated by 180°					
Sandwich plate with R ring plate	HSZ 10 A589-4X/ 10RV20-12M00		105 x 70 x 50	R901155030	
	R901283158		2.6 kg	Nozzle 1.2 mm RE 90005-03	
Fitting of the sandwich plate:					
Check valve					
VUCN-08A- 000431200056 <sup>32</sup> 00 000					
Sandwich plate rotated by 180°					

**VUCN / VURN... check valves** (1) = component side, (2) = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
Fitting of the sandwich plate:			Size of the ports	
Sandwich plate	HSZ 10 A587-4X/ 20RV21M00 R901283157		100 x 70 x 80 4.0 kg	R901028290  RE 90005-03
Sandwich plate	HSZ 10 A587-4X/ 10RV20M00 R901283156		100 x 70 x 80 4.0 kg	R901028290  RE 90005-03
Sandwich plate	HSZ 10 A517-4X/ 20RV21M00 R901283093		105 x 70 x 50 2.8 kg	R901154552  Internal thread M8x1  RE 90005-03
Sandwich plate	HSZ 10 A517-4X/ 10RV20M00 R901283092		120 x 70 x 50 3.0 kg	R901153919  Internal thread M8x1  RE 90005-03

**VUCN / VURN... check valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
Fitting of the sandwich plate:				
Sandwich plate with R ring plate	HSZ 10 A667-4X/ 20RV36M00		140 x 70 x 60	R901282203
	R901283170		2.6 kg	
Fitting of the sandwich plate:				
Check valve VURN-12A- 020431360057 <sup>31</sup> 02 000				
Sandwich plate with R ring plate	HSZ 10 A667-4X/ 10RV28M00		140 x 70 x 60	R901282203
	R901283169		2.6 kg	
Fitting of the sandwich plate:				
Check valve VUCN-12A- 000431280057 <sup>31</sup> 00 000				
Sandwich plate with R ring plate	HSZ 10 A668-4X/ 20RV36M00		140 x 70 x 60	R901282212
	R901283174		2.6 kg	
Fitting of the sandwich plate:				
Check valve VURN-12A- 020431360057 <sup>31</sup> 02 000				
Sandwich plate with R ring plate	HSZ 10 A668-4X/ 10RV28M00		140 x 70 x 60	R901282212
	R901283172		2.6 kg	
Fitting of the sandwich plate:				
Check valve VUCN-12A- 000431280057 <sup>31</sup> 00 000				
Sandwich plate	HSZ 10 A648-3X/ DV-10RV20M00		120 x 70 x 80	R901164210
	R901283230		5.2 kg	
Fitting of the sandwich plate:				
Check valve VUCN-08A- 000431200056 <sup>31</sup> 00 000				
Sandwich plate	HSZ 10 A648-3X/ DV-20RV21M00		120 x 70 x 80	R901164210
	R901283237		5.2 kg	
Fitting of the sandwich plate:				
Check valve VURN-08A- 020431210056 <sup>31</sup> 02 000				

**Check valves, pilot operated** (① = component side, ② = plate side)

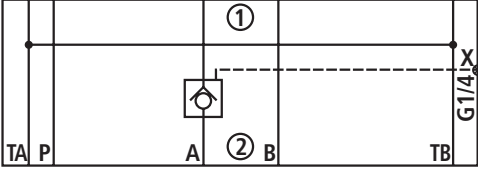
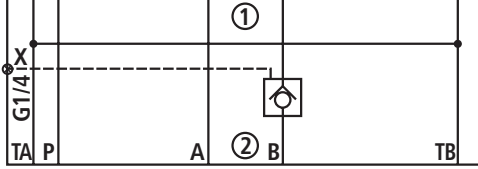
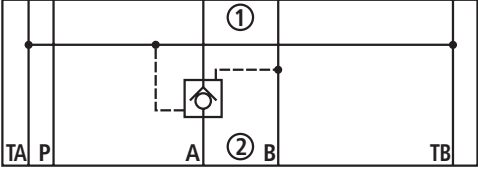
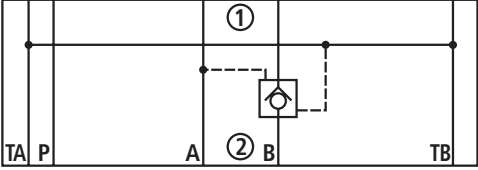
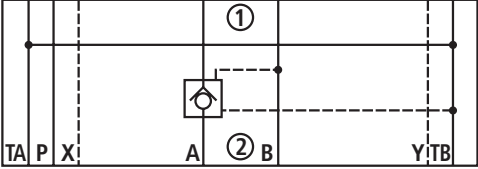
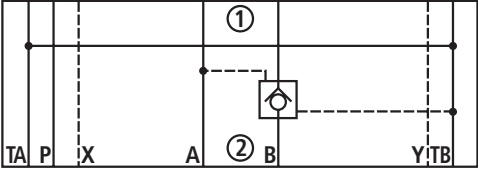
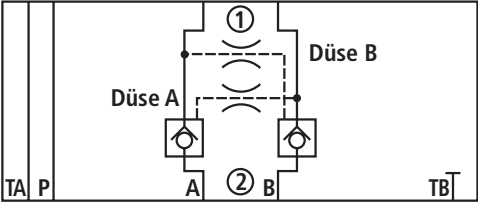
Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate	<b>HSZ 10-38083-AA/HM01</b>  <b>R901177093</b>		245 x 87 x 150 16.6 kg  Attention! Special width	R901179168  Internal thread M8x1  RE 21468
Sandwich plate	<b>HSZ 10-38083-BA/HM01</b>  <b>R901241879</b>		245 x 87 x 150 16.6 kg  Attention! Special width	R901242942  Internal thread M8x1  RE 21468
Sandwich plate	<b>HSZ 10 A645-3X/VSON-10M01</b>  <b>R901160546</b>		168 x 70 x 130 9.9 kg	R901161570  RE 90005-03
Sandwich plate	<b>HSZ 10 A463-3X/ERVE-S315-280M01</b>  <b>R901004076</b>		250 x 70 x 90 11.4 kg	R901005500  RE 25402
Sandwich plate	<b>HSZ 10 A467-3X/ERVE-M01</b>  <b>R901007427</b>		180 x 70 x 80 7.3 kg	R901008435
Sandwich plate	<b>HSZ 10 A488-3X/ERVE-S315-280M01</b>  <b>R901091588</b>		280 x 71 x 160 7.3 kg	R901091623  RE 25402



**Check valves, pilot operated** (1) = component side, (2) = plate side

Device designation	Type designation	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate	Z2S 10 - <sup>13</sup> □ -3X/ <sup>14</sup> □		163 x 69.5 x 50 3.4 kg	RE 21553
Amend type designation according to page 14.				
Sandwich plate	Z2S 10 A <sup>13</sup> □ -3X/ <sup>14</sup> □		163 x 69.5 x 50 3.4 kg	RE 21553
Amend type designation according to page 14.				
Sandwich plate	Z2S 10 B <sup>13</sup> □ -3X/ <sup>14</sup> □		163 x 69.5 x 50 3.4 kg	RE 21553
Amend type designation according to page 14.				

**Check valves, pilot operated** (1 = component side, 2 = plate side)

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate	Z2S 10 A <sup>13</sup> □ -3X/ <sup>14</sup> □ S040		163 x 69.5 x 50 3.4 kg Side F X G 1/4	RE 21553
Amend type designation according to page 14.				
Sandwich plate	Z2S 10 B <sup>13</sup> □ -3X/ <sup>14</sup> □ S040		163 x 69.5 x 50 3.4 kg Side E X G 1/4	RE 21553
Amend type designation according to page 14.				
Sandwich plate	Z2S 10 A <sup>13</sup> □ -3X/ <sup>14</sup> □ S060		163 x 69.5 x 50 3.4 kg	RE 21553
Amend type designation according to page 14.				
Sandwich plate	Z2S 10 B <sup>13</sup> □ -3X/ <sup>14</sup> □ S060		163 x 69.5 x 50 3.4 kg	RE 21553
Amend type designation according to page 14.				
Sandwich plate	Z2S 10 A <sup>13</sup> □ -3X/ <sup>14</sup> □ S064		163 x 69.5 x 50 3.4 kg	RE 21553
Amend type designation according to page 14.				
Sandwich plate	Z2S 10 B <sup>13</sup> □ -3X/ <sup>14</sup> □ S064		163 x 69.5 x 50 3.4 kg	RE 21553
Amend type designation according to page 14.				
Sandwich plate	HSZ 10 A527-3X/ERVE-D <sup>50</sup> □ M00		260 x 70 x 80 10.7 kg	R900709357
Fitting of the sandwich plate:				
Check valve, pilot operated	FL-ERVE-R1-13X  DUESE <sup>50</sup> □ M6-DIN 906 Material no. see p. 90			RN115.06

**Blocking function, electrically switchable, normally open (① = component side, ② = plate side)**

Device designation	Type designation	Symbol	Platte L x W x H in mm	Dimensional sheet
	Material no.		Weight Size of the ports	More information
Sandwich plate	M-Z4SEH 10 E1- 2X/3C <sup>26</sup> □ K4		152 x 70 x 80 6.8 kg	R901071319  RE 18136-21
Sandwich plate	M-Z4SEH 10 A-2X/3C <sup>26</sup> □ K4		152 x 70 x 80 6.8 kg	R901071319  RE 18136-21
Sandwich plate	M-Z4SEH 10 B-2X/3C <sup>26</sup> □ K4		152 x 70 x 80 6.8 kg	R901071319  RE 18136-21
Sandwich plate	M-Z4SEH 10 E-2X/3C <sup>26</sup> □ ETK4		152 x 70 x 80 6.8 kg	R901071319  RE 18136-21
Sandwich plate	M-Z4SEH 10 E-2X/3C <sup>26</sup> □ TK4		152 x 70 x 80 6.8 kg	R901071319  RE 18136-21
Sandwich plate	M-Z4SEH 10 E-2X/3C <sup>26</sup> □ EK4		152 x 70 x 80 6.8 kg	R901071319  RE 18136-21
Sandwich plate	M-Z4SEH 10 E-2X/3C <sup>26</sup> □ K4		152 x 70 x 80 6.8 kg	R901071319  RE 18136-21

**Blocking function, electrically switchable** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
Sandwich plate HSZ 10A 490-4X/AB-A05 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00			200 x 70 x 80 7.64 kg	R901234326 Valve on side E and F RE 90005-03	
	Fitting of the sandwich plate:				
	SITZVENTIL OD.15.05.89. <input type="checkbox"/> S0.000 SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> 0.000				
Sandwich plate HSZ 10A 490-4X/A-A05 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00			200 x 70 x 80 7.64 kg	R901234326 Valve on side E RE 90005-03	
	Fitting of the sandwich plate:				
	SITZVENTIL OD.15.05.89. <input type="checkbox"/> S0.000 SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> 0.000				
Sandwich plate HSZ 10A 490-4X/B-B05 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00			200 x 70 x 80 7.64 kg	R901234326 Valve on side F RE 90005-03	
	Fitting of the sandwich plate:				
	SITZVENTIL OD.15.05.89. <input type="checkbox"/> S0.000 SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> 0.000				
Sandwich plate HSZ 10A 490-4X/AB-A06 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00			200 x 70 x 80 7.64 kg	R901234326 Valve on side E and F RE 90005-03	
	Fitting of the sandwich plate:				
	SITZVENTIL OD.15.05.89. <input type="checkbox"/> S0.000 SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> 0.000				
Sandwich plate HSZ 10A 490-4X/A-A06 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00			200 x 70 x 80 7.64 kg	R901234326 Valve on side E RE 90005-03	
	Fitting of the sandwich plate:				
	SITZVENTIL OD.15.05.89. <input type="checkbox"/> S0.000 SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> 0.000				

$q_{V \max}$  seat valve = 150 l/min

**Order example** for complete device with **two** seat valves normally closed, blocking on one side:

HSZ 10A 490-4X/ AB-A05  <sup>26</sup> K4M00

Effective in channel A and B

**Blocking function, electrically switchable (① = component side, ② = plate side)**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
Sandwich plate HSZ 10A 490-4X/B-A06 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00			200 x 70 x 80	R901234326 Valve on side F RE 90005-03
	Fitting of the sandwich plate:		7.64 kg	
	SITZVENTIL OD.15.05.89. <input type="checkbox"/> S0.000 SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> .000			
Sandwich plate HSZ 10A 490-4X/AB-B05 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00			200 x 70 x 80	R901234326 Valve on side E and F RE 90005-03
	Fitting of the sandwich plate:		7.64 kg	
	SITZVENTIL OD.15.05.89. <input type="checkbox"/> S0.000 SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> .000			
Sandwich plate HSZ 10A 490-4X/A-A05 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00			200 x 70 x 80	R901234326 Valve on side E RE 90005-03
	Fitting of the sandwich plate:		7.64 kg	
	SITZVENTIL OD.15.05.89. <input type="checkbox"/> S0.000 SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> .000			
Sandwich plate HSZ 10A 490-4X/B-B05 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00			200 x 70 x 80	R901234326 Valve on side F RE 90005-03
	Fitting of the sandwich plate:		7.64 kg	
	SITZVENTIL OD.15.05.89. <input type="checkbox"/> S0.000 SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> .000			
Sandwich plate HSZ 10A 490-4X/AB-B06 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00			200 x 70 x 80	R901234326 Valve on side E and F RE 90005-03
	Fitting of the sandwich plate:		7.64 kg	
	SITZVENTIL OD.15.05.89. <input type="checkbox"/> S0.000 SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> .000			

**Order example**

For complete device with one seat valve normally closed, blocking on both sides:

HSZ 10A 490-4X/ <sup>26</sup>A-B05  K4M00  
Effective in channel A

**Blocking function, electrically switchable** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
<b>Sandwich plate HSZ 10A 490-4X/A-B06</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> <b>M00</b> <b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup> <b>S0.000</b> SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> <input type="checkbox"/> <sup>26.1</sup> <b>30. <input type="checkbox"/> .000</b>			200 x 70 x 80 7.64 kg	R901234326 Valve on side E RE 90005-03
<b>Sandwich plate HSZ 10A 490-4X/B-B06</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> <b>M00</b> <b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup> <b>S0.000</b> SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> <input type="checkbox"/> <sup>26.1</sup> <b>30. <input type="checkbox"/> .000</b>			200 x 70 x 80 7.64 kg	R901234326 Valve on side F RE 90005-03

$q_{V \max}$  seat valve = 150 l/min

**Blocking function, electrically switchable (① = component side, ② = plate side)**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
Sandwich plate HSZ 10A 408-4X/D00-A05	26.1 <input type="checkbox"/> 35.1 <input type="checkbox"/> 35.2 <input type="checkbox"/> M00		170 x 70 x 80	R901039207 Valve on side F Plug screw M8x1 RE 90005-03
	Fitting of the sandwich plate: SITZVENTIL OD.15.05.89. <input type="checkbox"/> 35.1 S0.000 SPULE OD.02.17. <input type="checkbox"/> 35.2 30. <input type="checkbox"/> 26.1 .000		7.3 kg	
Sandwich plate HSZ 10A 408-4X/D00-A06	26.1 <input type="checkbox"/> 35.1 <input type="checkbox"/> 35.2 <input type="checkbox"/> M00		170 x 70 x 80	R901039207 Valve on side F Plug screw M8x1 RE 90005-03
	Fitting of the sandwich plate: SITZVENTIL OD.15.05.89. <input type="checkbox"/> 35.1 S0.000 SPULE OD.02.17. <input type="checkbox"/> 35.2 30. <input type="checkbox"/> 26.1 .000		7.3 kg	
Sandwich plate HSZ 10B 408-4X/D00-A05	26.1 <input type="checkbox"/> 35.1 <input type="checkbox"/> 35.2 <input type="checkbox"/> M00		170 x 70 x 80	R901217086 Valve on side F Plug screw M8x1 RE 90005-03
	Fitting of the sandwich plate: SITZVENTIL OD.15.05.89. <input type="checkbox"/> 35.1 S0.000 SPULE OD.02.17. <input type="checkbox"/> 35.2 30. <input type="checkbox"/> 26.1 .000		7.3 kg	
Sandwich plate HSZ 10B 408-4X/D00-A06	26.1 <input type="checkbox"/> 35.1 <input type="checkbox"/> 35.2 <input type="checkbox"/> M00		170 x 70 x 80	R901217086 Valve on side F Plug screw M8x1 RE 90005-03
	Fitting of the sandwich plate: SITZVENTIL OD.15.05.89. <input type="checkbox"/> 35.1 S0.000 SPULE OD.02.17. <input type="checkbox"/> 35.2 30. <input type="checkbox"/> 26.1 .000		7.3 kg	
Sandwich plate HSZ 10B 670-4X/LKHC-ZD-KSC	26.1 <input type="checkbox"/> 35.1 <input type="checkbox"/> 35.2 <input type="checkbox"/> M00		454 x 70 x 80	R901287658 Internal thread M6 Double plug in XP and YT RE 18136-21
	Fitting of the sandwich plate: SITZVENTIL OD.15.05.89. <input type="checkbox"/> 35.1 S0.000 SPULE OD.02.17. <input type="checkbox"/> 35.2 30. <input type="checkbox"/> 26.1 .000		16.7 kg	

 $q_{V \max}$  seat valve = 150 l/min

## Functional group Pressure function

Example: **HSZ 10**   – 3X /

### Complementary details on sandwich plates with integrated pressure function (complete devices):

14 <input type="checkbox"/>	<b>Seal material</b> <b>Important:</b> Observe compatibility of seals with hydraulic fluid used!	NBR seals FKM seals (other seals upon request)	= no code = V				
15 <input type="checkbox"/>	<b>Adjustment element</b> at the pressure relief valve type DBD..10...:	Setscrew with hexagon and protective cap Rotary knob Lockable rotary knob	= S = H <sup>1)</sup> = A <sup>1)</sup>	1) Please observe the installation dimensions!			
16 <input type="checkbox"/>	<b>Setting pressure</b> at the pressure relief valve type DBD..10...:  <b>Note:</b> Spelling () with complete type!	up to 25 bar up to 50 bar up to 100 bar up to 200 bar up to 315 bar	= 25 (025) = 50 (050) = 100 = 200 = 315				
37 <input type="checkbox"/>	<b>Adjustment element</b> at the pressure sequence valve  Pressure reducing valve	Type ZDZ 10 D.. Rotary knob  Type ZDR 10 D.. Bushing with hexagon and protective cap Type ZDR 10 V.. Lockable rotary knob with scale Type DR 10 K.. Spindle with internal hexagon and scale Rotary knob with scale		<table border="1" style="border-collapse: collapse; margin: auto;"> <tr> <td style="padding: 2px;">ZDR 10 D... ZDZ 10 D... DR 10 K... ZDR 10 V...</td> <td style="padding: 2px;">= 1 = 2 = 3 – = 7</td> <td style="padding: 2px;">= 4 = 5 = 6 – = 7</td> </tr> </table>	ZDR 10 D... ZDZ 10 D... DR 10 K... ZDR 10 V...	= 1 = 2 = 3 – = 7	= 4 = 5 = 6 – = 7
ZDR 10 D... ZDZ 10 D... DR 10 K... ZDR 10 V...	= 1 = 2 = 3 – = 7	= 4 = 5 = 6 – = 7					
38 <input type="checkbox"/>	<b>Setting pressure</b> at the pressure relief valve type DR 10 K...:  <b>Note:</b> Spelling () with complete type!	Secondary pressure up to 50 bar up to 100 bar up to 200 bar up to 315 bar	= 50 (050) = 100 = 200 = 315				
18 <input type="checkbox"/>	<b>Setting pressure</b> at the valve type ZDR 10 V...:	up to 50 bar up to 100 bar up to 200 bar up to 315 bar	= 50 = 100 = 200 = 315				
19 <input type="checkbox"/>	<b>Setting pressure</b> at the valve type ZDR 10 D... , ZDZ 10 D...:	up to 25 bar <sup>2)</sup> up to 75 bar <sup>2)</sup> up to 150 bar up to 210 bar	= 25 = 75 = 150 = 210	2) Not with version SO129!			



**Pressure relief valves, direct operated** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
	Material no.			
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b>  Pressure relief valve, direct operated	<b>HSZ 10 A100-3X/</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> <input type="checkbox"/> M00  <b>DBD</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> 10 K1X/ <input type="checkbox"/> <input type="checkbox"/>		170 x 70 x 50 4.5 kg	R900262854  RE 25402 DBD on side E
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b>  Pressure relief valve, direct operated	<b>HSZ 10 B100-3X/</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> <input type="checkbox"/> M00  <b>DBD</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> 10 K1X/ <input type="checkbox"/> <input type="checkbox"/>		170 x 70 x 50 4.5 kg	R900262855  RE 25402 DBD on side E
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b>  Pressure relief valve, direct operated	<b>HSZ 10 A106-3X/</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> <input type="checkbox"/> M00  <b>DBD</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> 10 K1X/ <input type="checkbox"/> <input type="checkbox"/>		170 x 70 x 50 4.3 kg	R900262857  RE 25402 DBD on side E
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b>  Pressure relief valve, direct operated	<b>HSZ 10 B106-3X/</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> <input type="checkbox"/> M00  <b>DBD</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> 10 K1X/ <input type="checkbox"/> <input type="checkbox"/>		170 x 70 x 50 4.3 kg	R900241588  RE 25402 DBD on side E
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b>  Pressure relief valve, direct operated	<b>HSZ 10 A107-3X/</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> <input type="checkbox"/> M00  <b>DBD</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> 10 K1X/ <input type="checkbox"/> <input type="checkbox"/>		170 x 70 x 50 4.3 kg	R900262856  RE 25402 DBD on side F
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b>  Pressure relief valve, direct operated	<b>HSZ 10 B107-3X/</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> <input type="checkbox"/> M00  <b>DBD</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> 10 K1X/ <input type="checkbox"/> <input type="checkbox"/>		170 x 70 x 50 4.3 kg	R900262869  RE 25402 DBD on side F

**Order example:** For complete device with **one** pressure relief valve: **HSZ 10 A100-3X/** <sup>15</sup> <sup>16</sup>   <sup>3</sup> <sup>4</sup>

**Pressure relief valves, direct operated** (① = component side, ② = plate side)

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm  Weight  Size of the ports	Dimensional sheet  More information
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated	<b>HSZ 10 A102-3X/</b> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <b>M00</b>  <b>DBD</b> <sup>15</sup> <input type="checkbox"/> <b>10 K1X/</b> <sup>16</sup> <input type="checkbox"/> <sup>14</sup> <input type="checkbox"/>		170 x 70 x 70 6.1 kg	R900262852  RE 25402 DBD on side F
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated	<b>HSZ 10 B102-3X/</b> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <b>M00</b>  <b>DBD</b> <sup>15</sup> <input type="checkbox"/> <b>10 K1X/</b> <sup>16</sup> <input type="checkbox"/> <sup>14</sup> <input type="checkbox"/>		170 x 70 x 70 6.5 kg	R900262853  RE 25402 DBD on side F
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated	<b>HSZ 10 A118-3X/</b> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <b>M00</b>  <b>DBD</b> <sup>15</sup> <input type="checkbox"/> <b>10 K1X/</b> <sup>16</sup> <input type="checkbox"/> <sup>14</sup> <input type="checkbox"/>		170 x 70 x 70 5.7 kg	R900265627  RE 25402 DBD on side E
<b>Sandwich plate</b>  <b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated	<b>HSZ 10 A117-3X/</b> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <b>M01</b>  <b>DBD</b> <sup>15</sup> <input type="checkbox"/> <b>10 K1X/</b> <sup>16</sup> <input type="checkbox"/> <sup>14</sup> <input type="checkbox"/>		170 x 70 x 70 6.0 kg Side F T G 1/4	R900262884  RE 25402 DBD on side E
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated	<b>HSZ 10 24833-AA/HM01</b> <b>R900560418</b>  <b>DBDS 10 K1X/25</b>		220 x 70 x 70 8.2 kg	R900245033  RE 25402 DBD on side E and F

**Order example**

 For complete device with **one** pressure relief valve: **HSZ 10 A102-3X/** <sup>15</sup>  <sup>16</sup>  **S** <sup>3</sup>  <sup>4</sup>  **100** **M** **00**

**Pressure relief valves, direct operated** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
<b>Sandwich plate</b>  <b>Fitting of the sandwich plate:</b>  Pressure relief valve, direct operated	<b>HSZ 10 A105-3X/A</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> <input type="checkbox"/> <b>-B</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> <input type="checkbox"/> <b>M00</b>  <b>DBD</b> <sup>15</sup> <input type="checkbox"/> <b>10 K1X/</b> <sup>16</sup> <sup>14</sup> <input type="checkbox"/> <input type="checkbox"/>		250 x 70 x 70 8.8 kg	R900262812          RE 25402 DBD on side E and F
<b>Sandwich plate</b>  <b>Fitting of the sandwich plate:</b>  Pressure relief valve, direct operated	<b>HSZ 10 B105-3X/A</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> <input type="checkbox"/> <b>-B</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> <input type="checkbox"/> <b>M00</b>  <b>DBD</b> <sup>15</sup> <input type="checkbox"/> <b>10 K1X/</b> <sup>16</sup> <sup>14</sup> <input type="checkbox"/> <input type="checkbox"/>		250 x 70 x 70 8.8 kg	R900271893          RE 25402 DBD on side E and F
<b>Sandwich plate</b>  <b>Fitting of the sandwich plate:</b>  Pressure relief valve, direct operated	<b>HSZ 10 A108-3X/A</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> <input type="checkbox"/> <b>-B</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> <input type="checkbox"/> <b>M00</b>  <b>DBD</b> <sup>15</sup> <input type="checkbox"/> <b>10 K1X/</b> <sup>16</sup> <sup>14</sup> <input type="checkbox"/> <input type="checkbox"/>		220 x 70 x 80 8.9 kg	R900262880          RE 25402 DBD on side E and F
<b>Sandwich plate</b>  <b>Fitting of the sandwich plate:</b>  Pressure relief valve, direct operated	<b>HSZ 10 B108-3X/A</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> <input type="checkbox"/> <b>-B</b> <sup>15</sup> <sup>16</sup> <input type="checkbox"/> <input type="checkbox"/> <b>M00</b>  <b>DBD</b> <sup>15</sup> <input type="checkbox"/> <b>10 K1X/</b> <sup>16</sup> <sup>14</sup> <input type="checkbox"/> <input type="checkbox"/>		220 x 70 x 80 8.9 kg	R900268669          RE 25402 DBD on side E and F

**Order example**

 For complete device with **two** pressure relief valves: **HSZ 10 A105-3X/A** <sup>15</sup> <sup>16</sup>   **S** **315** - **B** <sup>15</sup> <sup>16</sup>   **S** **315** **M** <sup>3</sup> <sup>4</sup>

**Pressure relief valves, direct operated** (1 = component side, 2 = plate side)

Device designation	Type designation Material no.	Symbol	Plate L x W x H in mm Weight Size of the ports	Dimensional sheet More information
Sandwich plate  Fitting of the sandwich plate:  Pressure relief valve, direct operated	HSZ 10-38008-AA/HM01 R901098088  DBDS 10 K1X/50		170 x 70 x 80 6.8 kg	R901195298  RE 25402 DBD on side F
Sandwich plate  Fitting of the sandwich plate:  Pressure relief valve, direct operated	HSZ 10 A124-3X/ <sup>15</sup> <sup>16</sup> M00  DBDS 6 K1X/2...		197 x 70 x 90 6.0 kg	R900271893  RE 25402

**Pressure relief valves, direct operated, electrically switchable** (1 = component side, 2 = plate side)

Device designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of the ports	Dimensional sheet and more information
Sandwich plate  Fitting of the sandwich plate:  SITZVENTIL OD.15.05.18...  Pressure relief valve 04.11.49...	HSZ 10A 493-3X/03-05-A06 <sup>26.1</sup> <sup>35.1</sup> <sup>35.2</sup> M01		120 x 70 x 90 5.2 kg	R901116019  RE 90005-03
Sandwich plate  Fitting of the sandwich plate:  SITZVENTIL OD.15.05.18...  Pressure relief valve 04.11.49...	HSZ 10A 493-3X/03-05-A05 <sup>26.1</sup> <sup>35.1</sup> <sup>35.2</sup> M01		120 x 70 x 90 5.2 kg	R901116019  RE 90005-03

**Pressure reducing valves, direct operated** (① = component side, ② = plate side)

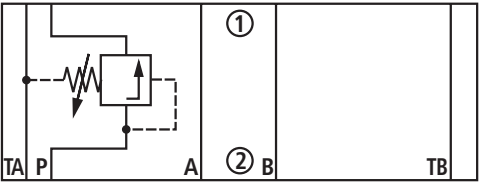
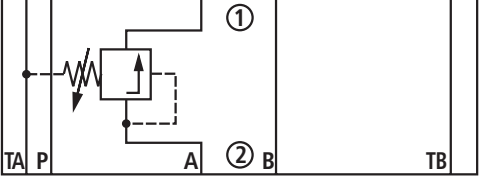
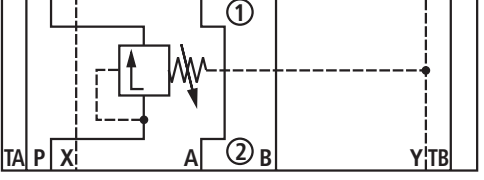
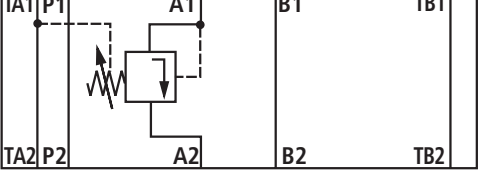
Device designation	Type designation	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
	Material no.			
Sandwich plate	ZDR 10 DA <sup>37</sup> □-5X/ <sup>19</sup> □ YMS0129		104 x 69 x 50 2.8 kg	Installation di- mensions see RE 26585
Amend type designation according to page 30.				
Sandwich plate	ZDR 10 DB <sup>37</sup> □-5X/ <sup>19</sup> □ YMS033		91 x 69 x 50 3.2 kg	Installation di- mensions see RE 26585
Amend type designation according to page 30.				
Sandwich plate	ZDR 10 DP <sup>37</sup> □-5X/ <sup>19</sup> □ YMS033		91 x 69 x 50 3.2 kg	Installation di- mensions see RE 26585
Amend type designation according to page 30.				
Sandwich plate	ZDR 10 DB <sup>37</sup> □-5X/ <sup>19</sup> □ YMS0138		91 x 69 x 50 3.2 kg	Installation di- mensions see RE 26585
Amend type designation according to page 30.				
Sandwich plate	ZDR 10 DP <sup>37</sup> □-5X/ <sup>19</sup> □ YMS0138		91 x 69 x 50 3.2 kg	Installation di- mensions see RE 26585
Amend type designation according to page 30.				

For more versions see RE 26585

**Pressure reducing valves, pilot operated** (1) = component side, (2) = plate side

Device designation	Type designation	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
	Material no.			
Sandwich plate	ZDR 10 VP <sup>37</sup> □-3X/ <sup>18</sup> □ YMSO107		104 x 69 x 50 2.3 kg	Installation di- mensions see RE 26861
Amend type designation according to page 34.				
Sandwich plate	HSZ 10 A550-3X/ <sup>37</sup> □- <sup>38</sup> □ M01		140 x 70 x 80 5.7 kg	R900265979
Fitting of the sandwich plate:				
Pressure re- ducing valve, pilot operated	DR 10 K <sup>37</sup> □-3X/ <sup>38</sup> □ YM <sup>14</sup> □		Side E P, Y G 1/4	RE 26850
Amend type designation according to page 34.				
Sandwich plate	HSZ 10 A441-3X/ 05M01  R900705578		140 x 70 x 220 15.6 kg	R900706722  Comment: lateral hole pattern for 3DRE...10P- 7X/...
Fitting of the sandwich plate:				
Check valve (installation kit)	M-SR 10 KE...1X/...		Side E Y G 1/4	RE 29286 RE 20380

**Pressure sequence valves** (① = component side, ② = plate side)

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm  Weight  Size of the ports	Dimensional sheet  More information
Sandwich plate  Amend type designation according to page 34.	ZDZ 10 DP <sup>37</sup> □ -5X/ <sup>19</sup> □ YM		91 x 69 x 50 3.2 kg	R900258415  Installation dimensions see RE 26585
Sandwich plate  Amend type designation according to page 34.	ZDZ 10 DC <sup>37</sup> □ -5X/ <sup>19</sup> □ YM		91 x 69 x 50 3.2 kg	R900257429  Installation dimensions see RE 26585
Sandwich plate  Amend type designation according to page 34.	ZDZ 10 DP <sup>37</sup> □ -5X/ <sup>19</sup> □ YMSO131		91 x 69 x 50 3.2 kg	R900262838  Installation dimensions see RE 26585
Sandwich plate  Amend type designation according to page 34.	ZDZ 10 DA <sup>37</sup> □ -5X/ <sup>19</sup> □ YM		91 x 69 x 50 3.2 kg	R900267758  Installation dimensions see RE 26585

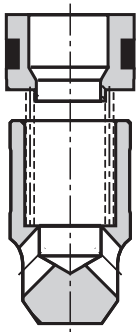
## Functional group Combination pressure and blocking function

Example lowering brake function: **HSZ 10**   - 3X / L

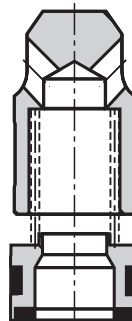
### Complementary details on sandwich plates with integrated pressure and blocking function (complete devices):

<p>15</p> <input type="checkbox"/>	<p><b>Adjustment element</b> at the pressure relief valve type DBD..10...:</p>	<p>Setscrew with hexagon and protective cap                  Rotary knob                  Lockable rotary knob</p>	<p>= S                  = H <sup>1)</sup>                  = A <sup>1)</sup></p>	<p><sup>1)</sup> Please observe the installation dimensions!</p>
<p>16</p> <input type="checkbox"/>	<p><b>Setting pressure</b> at the pressure relief valve type DBD..10...:</p>	<p>up to 25 bar                  up to 50 bar                  up to 100 bar                  up to 200 bar                  up to 315 bar</p>	<p>= 25 (025)                  = 50 (050)                  = 100                  = 200                  = 315</p>	
	<p><b>Note:</b>                  Spelling () with complete type!</p>			
<p>12</p> <input type="checkbox"/>	<p><b>Cracking pressure</b> at the check valve type D9.8...:</p>	<p>without spring                  0.2 bar                  0.5 bar                  1.5 bar                  3.0 bar                  5.0 bar</p>	<p>= 00                  = 02                  = 05                  = 15                  = 30                  = 50</p>	

### Installation kit (version "P" and "T"):



Version "P" (cracking pressure 0.5 bar)	
Seal material	Material no.
NBR	R900543827
FKM	R900543830



Version "T" (cracking pressure 0.5 bar)	
Seal material	Material no.
NBR	R900543839
FKM	R900543842

<p>14</p> <input type="checkbox"/>	<p><b>Seal material</b>  <b>Important:</b>                  Observe compatibility of seals with hydraulic fluid used!</p>	<p>NBR seals                  FKM seals                  (other seals upon request)</p>	<p>= no code                  = V</p>
<p>11</p> <input type="checkbox"/>	<p><b>Cracking pressure</b> at the check valve type M-SR10...:                  (installation kit)</p>	<p>Cracking pressure 1.0 bar</p>	<p>= 05</p>



## Functional group Combination pressure and blocking function

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44	<input type="checkbox"/> <b>Control open ratio</b> at the lowering brake valve  More control open ratios on request!	Control open ratio 4.5 : 1	= G
		(standard) for systems with variable load conditions and structure-related fluctuations	
		Control open ratio 10 : 1	= H
		for systems with relatively constant load	
39	<input type="checkbox"/> <b>Setting range</b>	70 to 175 bar (setting 140)	= K
		140 to 350 bar (setting 210)	= J
45	<input type="checkbox"/> <b>Control open ratio</b>	1 : 1	= 1
		3 : 1	= 3
		4.5 : 1	= 4
		5 : 1	= 5
		10 : 1	= 10

**Pressure feed function** (1) = component side, (2) = plate side

Device designation	Type designation	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
	Material no.			
<b>Sandwich plate</b>	<b>HSZ 10 A421-3X/02-AS315-BS315M01</b>  R900966328		359 x 70 x 100 11.4 kg	R900279039  RE 25402 RE 20380

<b>Sandwich plate</b>	<b>HSZ 10 A214-3X/A</b> <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> -B <input type="checkbox"/> <input type="checkbox"/> M01		250 x 70 x 100 13.2 kg	R900262954  RE 25402 DBD on side E and F  RE 20380
<b>Fitting of the sandwich plate:</b>	Pressure relief valve, direct operated DBD <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> 10 K1X/ <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>		Side E A G 1/4	Side F B G 1/4
Check valve (installation kit)	M-SR 10 KE05-1X/ <input type="checkbox"/> <sup>14</sup>			

<b>Sandwich plate</b>	<b>HSZ 10 B214-3X/A</b> <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> -B <input type="checkbox"/> <input type="checkbox"/> M01		250 x 70 x 100 13.2 kg	R900262955  RE 25402 DBD on side E and F  RE 20380
<b>Fitting of the sandwich plate:</b>	Pressure relief valve, direct operated DBD <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> 10 K1X/ <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>		Side E A G 1/4	Side F B G 1/4
Check valve (installation kit)	M-SR 10 KE05-1X/ <input type="checkbox"/> <sup>14</sup>			

<b>Sandwich plate</b>	<b>HSZ 10 B207-3X/A</b> <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> -B <input type="checkbox"/> <input type="checkbox"/> M01		250 x 70 x 100 13.2 kg	R900262956  RE 25402 DBD on side E and F  RE 20380
<b>Fitting of the sandwich plate:</b>	Pressure relief valve, direct operated DBD <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> 10 K1X/ <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>		Side E T G 1/2	
Check valve (installation kit)	M-SR 10 KE05-1X/ <input type="checkbox"/> <sup>14</sup>			

**Order example**

For complete device: **HSZ 10 A214-3X/A**  <sup>15</sup>  <sup>16</sup> **S**  <sup>15</sup>  <sup>16</sup> **- B**  <sup>15</sup>  <sup>16</sup> **S**  <sup>3</sup>  <sup>4</sup> **M**  **01**

Secured channel

**Pressure feed function** (① = component side, ② = plate side)

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
<b>Sandwich plate</b>  <b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated Check valve (installation kit)	<b>HSZ 10 A222-3X/</b> <input type="checkbox"/> <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <b>M01</b>  <b>DBD</b> <input type="checkbox"/> <sup>15</sup> <b>10K1X/</b> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>  <b>M-SR 10 KE05-1X/</b> <input type="checkbox"/> <sup>14</sup>		180 x 70 x 100 9.4 kg  Side E A G 1/4  Side F B G 1/4	R900262745  RE 25402 DBD on side E  RE 20380

**Order example**

 For complete device: HSZ 10 A222-3X/  <sup>15</sup>  <sup>16</sup>  <sup>3</sup>  <sup>4</sup> **S** **200** **M** **01**
**Pressure feed function with accumulator connection M42x1.5** (① = component side, ② = plate side)

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
<b>Sandwich plate</b>  <b>Fitting of the sandwich plate:</b> Pressure relief valve, direct operated Check valve (installation kit)	<b>HSZ 10-26640-AA/02</b> <b>R900924793</b>  <b>DBD</b> <input type="checkbox"/> <sup>15</sup> <b>10K1X/</b> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> <sup>14</sup>  <b>M-SR 15 KE02-1X/</b> <input type="checkbox"/> <sup>14</sup>		230 x 70 x 230 27.0 kg  Side E TA G 1/4  Side F TA M42x 1.5	R900270748  RE 25402 DBD on side E  RE 20380

**Counterholding function** (1) = component side, (2) = plate side

Device designation	Type designation	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b>  Pressure relief valve, direct operated	HSZ 10 A217-3X/A <input type="checkbox"/> <input type="checkbox"/> 15 16 -B <input type="checkbox"/> <input type="checkbox"/> M01  DBD <input type="checkbox"/> 10 K1X/ <input type="checkbox"/> <input type="checkbox"/> 15 16 14		250 x 70 x 80 11.4 kg Side E A G 1/4 Side F B G 1/4	R900262923  RE 25402 DBD on side E and F
<b>RUECKSCHLAGVENTIL D9.8-</b> <input type="checkbox"/> <input type="checkbox"/> Z1S10P 12 14				
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b>  Pressure relief valve, direct operated	HSZ 10 B217-3X/A <input type="checkbox"/> <input type="checkbox"/> 15 16 -B <input type="checkbox"/> <input type="checkbox"/> M01  DBD <input type="checkbox"/> 10 K1X/ <input type="checkbox"/> <input type="checkbox"/> 15 16 14		250 x 70 x 80 11.4 kg Side E A G 1/4 Side F B G 1/4	R900259743  RE 25402 DBD on side E and F
<b>RUECKSCHLAGVENTIL D9.8-</b> <input type="checkbox"/> <input type="checkbox"/> Z1S10P 12 14				
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b>  Pressure relief valve, direct operated	HSZ 10 A216-3X/ <input type="checkbox"/> <input type="checkbox"/> M01 15 16 DBD <input type="checkbox"/> 10 K1X/ <input type="checkbox"/> <input type="checkbox"/> 15 16 14		170 x 70 x 80 7.7 kg Side E A G 1/4	R900262921  RE 25402 DBD on side E
<b>RUECKSCHLAGVENTIL D9.8-</b> <input type="checkbox"/> <input type="checkbox"/> Z1S10P 12 14				
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b>  Pressure relief valve, direct operated	HSZ 10 B216-3X/ <input type="checkbox"/> <input type="checkbox"/> M01 15 16 DBD <input type="checkbox"/> 10 K1X/ <input type="checkbox"/> <input type="checkbox"/> 15 16 14		170 x 70 x 80 7.7 kg Side E A G 1/4	R900262922  RE 25402 DBD on side F
<b>RUECKSCHLAGVENTIL D9.8-</b> <input type="checkbox"/> <input type="checkbox"/> Z1S10P 12 14				

**Order example**

For complete device: HSZ 10   A216-3X/   S050   M01

**Order example**

For complete device: HSZ 10 A217-3X/A   S200 - B   S200   M01

Secured channel

**Counterholding function** (① = component side, ② = plate side)

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
<b>Sandwich plate</b>  Fitting of the sandwich plate:  Pressure relief valve, direct operated	<b>HSZ 10-34857-AA/HM01</b>  DBD <sup>15</sup> □ 20 K1X/ <sup>16</sup> □ □		280 x 70 x 130 18.8 kg  Side F MA, MP G 1/4	R900240254  RE 25402 RE 20380
<b>RUECKSCHLAGVENTIL M-SR 20 KE05-1X/</b>				
<b>Sandwich plate</b>  Fitting of the sandwich plate:  Pressure relief valve, direct operated	<b>HSZ 10 A218-3X/ <sup>15</sup> □ □ M01</b>  DBD <sup>15</sup> □ 10 K1X/ <sup>16</sup> □ □		170 x 70 x 80 7.7 kg  Side F B G 1/4	R900262925  RE 25402 DBD on side F
<b>RUECKSCHLAGVENTIL D9.8- <sup>12</sup> □ / <sup>14</sup> □ Z1S10P</b>				
<b>Sandwich plate</b>  Fitting of the sandwich plate:  Pressure relief valve, direct operated	<b>HSZ 10 B218-3X/ <sup>15</sup> □ □ M01</b>  DBD <sup>15</sup> □ 10 K1X/ <sup>16</sup> □ □		170 x 70 x 80 7.7 kg  Side F B G 1/4	R900262926  RE 25402 DBD on side F
<b>RUECKSCHLAGVENTIL D9.8- <sup>12</sup> □ / <sup>14</sup> □ Z1S10P</b>				

**Counterholding function with feed-in from channel B to P** (① = component side, ② = plate side)

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
<b>Sandwich plate</b>  Fitting of the sandwich plate:  Pressure relief valve, direct operated	<b>HSZ 10 B219-2X/ <sup>15</sup> □ □ M00</b>  DBD <sup>15</sup> □ 10 K1X/ <sup>16</sup> □ □		155 x 70 x 80 6.8 kg	R900268146
<b>RUECKSCHLAGVENTIL D9.8- <sup>12</sup> □ / <sup>14</sup> □ Z1S10P</b>				

**Lowering brake function** (1) = component side, (2) = plate side

Device designation	Type designation	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate	HSZ 10 A430-1X/L <input type="checkbox"/> <sup>39</sup> <input type="checkbox"/> <sup>45</sup> M00		170 x 70 x 70 6.2 kg	R900702921  Valve on side E
Fitting of the sandwich plate: SENKBREMSVENTIL CBE <input type="checkbox"/> <sup>44</sup> -L <input type="checkbox"/> <sup>39</sup> N				
Sandwich plate	HSZ 10 A431-1X/L <input type="checkbox"/> <sup>39</sup> <input type="checkbox"/> <sup>45</sup> M00		170 x 70 x 70 6.2 kg	R900239724  Valve on side F
Fitting of the sandwich plate: SENKBREMSVENTIL CBE <input type="checkbox"/> <sup>44</sup> -L <input type="checkbox"/> <sup>39</sup> N				

**Order example**

For complete device with **one** lowering brake valve: HSZ 10 <sup>1</sup> **A** 430-1X/L <sup>39</sup> <sup>45</sup> <sup>3</sup> <sup>4</sup> **K** **4** **M** **00**

Sandwich plate	HSZ 10 A426-1X/AL <input type="checkbox"/> <sup>39</sup> <input type="checkbox"/> <sup>45</sup> <input type="checkbox"/> <sup>39</sup> <input type="checkbox"/> <sup>45</sup> -BL <input type="checkbox"/> <input type="checkbox"/> M00		170 x 70 x 70 6.3 kg	R900278364  Valve on side E and F
Fitting of the sandwich plate: SENKBREMSVENTIL CBE <input type="checkbox"/> <sup>44</sup> -L <input type="checkbox"/> <sup>39</sup> N				

**Order example**

For complete device with **two** lowering brake valves: HSZ 10 <sup>1</sup> **A** 426-1X/AL <sup>39</sup> <sup>45</sup> <sup>39</sup> <sup>45</sup> <sup>3</sup> <sup>4</sup> **J** **4** -BL **J** **4** **M** **00**

Secured channel

Preload of the check valve = 2 bar

**Not** suitable when using a proportional directional valve and differential circuits (please contact us!)

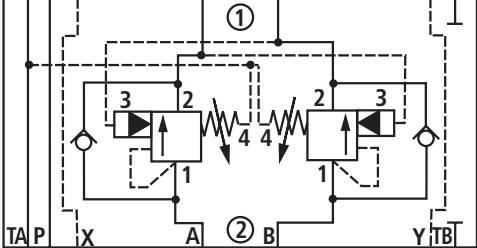
Hydraulic backpressures add 1:1 to the response pressure set at the adjustment as the spring chamber of the lowering brake valve is connected to the port (discharge side) of the valve side.

For more technical information refer to:

Mounting cavity R/T-2A; R901029931

Amend type designation according to page 12

**Lowering brake function** (1) = component side, (2) = plate side

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm  Weight  Size of the ports	Dimensional sheet  More information
Sandwich plate          Fitting of the sandwich plate: SENKBREMSVENTIL CWE <input type="checkbox"/> <sup>44</sup> -L <input type="checkbox"/> <sup>39</sup> N	HSZ 10 B661-1X/AL <input type="checkbox"/> <sup>39</sup> <input type="checkbox"/> <sup>45</sup> <input type="checkbox"/> <sup>39</sup> <input type="checkbox"/> <sup>45</sup> -BL <input type="checkbox"/> <input type="checkbox"/> M00		200 x 70 x 90 6.3 kg	R901256982     Valve on side E and F

Preload of the check valve = 2 bar  
 Suitable when using a proportional directional valve; however, the hydraulic backpressures add in port T 1:1 to the response pressure set at the adjustment.  
 For more technical information refer to:  
 Mounting cavity R/T-22A; R901054082

## Functional group Flow control function

Example: HSZ 10   – 3X/ M

### Complementary details on sandwich plates with flow control function (complete devices):

17	<input type="checkbox"/>	<b>Adjustment element</b> at the 2-way flow control valve type 2FRM 6...:	Lockable rotary knob with scale Rotary knob with scale	= 3 = 7
20	<input type="checkbox"/>	<b>2-way flow control valve</b> type 2FRM 6...:	<b>with</b> closing of the pressure compensator (suppression of the start-up jump) <b>without</b> closing of the pressure compensator	= A = B
21	<input type="checkbox"/>	<b>Flow</b> (progressive) at the 2-way flow control valve type 2FRM 6...: <b>Note:</b> Spelling () with complete type!	up to 0.2 l/min up to 0.6 l/min up to 1.5 l/min up to 3.0 l/min up to 6.0 l/min up to 10.0 l/min up to 16.0 l/min up to 25.0 l/min up to 32.0 l/min	= 0.2Q (Q00.2) = 0.6Q (Q00.6) = 1.5Q (Q01.5) = 3Q (Q03.0) = 6Q (Q06.0) = 10Q (Q10.0) = 16Q (Q16.0) = 25Q (Q25.0) = 32Q (Q32.0)
22	<input type="checkbox"/>	<b>Flow control valve</b>	<b>with</b> check valve <b>without</b> check valve	= R = M

**Important:** Flow control also possible with proportional flow control valve according to data sheet RE 29188!



**Throttle valves** (1) = component side, (2) = plate side

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
Sandwich plate	HSZ 10-A658-3X/ A45TA45TB45M00		140 x 70 x 50	R901195410
	R901195404		3.1 kg Thread G1/8	
Sandwich plate	HSZ 10A 085-3X/A <input type="checkbox"/> B <input type="checkbox"/> P <input type="checkbox"/> T <input type="checkbox"/> M00		90 x 70 x 10	R900262120
Fitting of the sandwich plate:  DUESE <input type="checkbox"/> R1/8-DIN906			0.5 kg Thread G1/8 available in all channels	RN 115.06

**Order example**

For complete device with nozzle in channel B and P:

HSZ 10A 085-3X/ B <sup>52</sup>15 P <sup>52 2 3</sup>20|M|00

Fitted channel

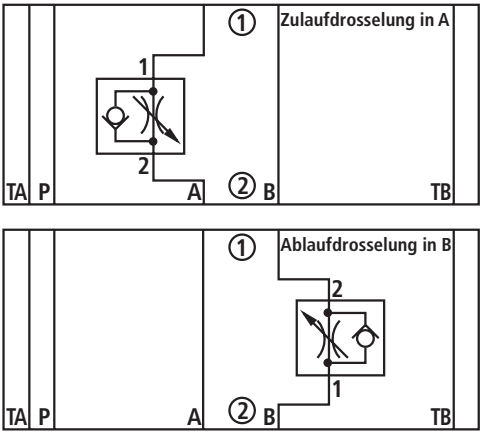
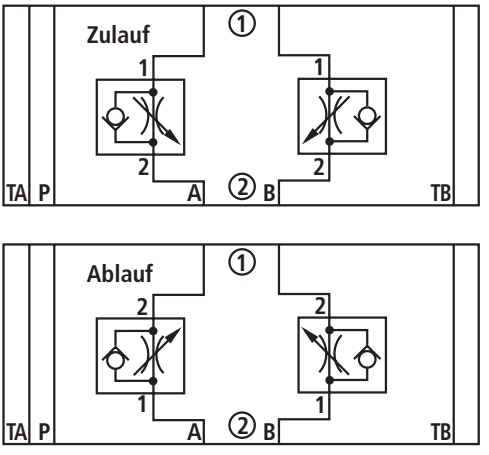
Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
Sandwich plate with R ring plate	Z1FG 10 A5-3X/V		153 x 70 x 50	R900265547  RE 27488
	R900566445		2.5 kg	
Sandwich plate with R ring plate	Z1FG 10 B5-3X/V		153 x 70 x 50	R900265547  RE 27488
	R900538832		2.5 kg	
Sandwich plate with R ring plate	Z1FG 10-5-3X/V		153 x 70 x 50	R900265547  RE 27488
	R900987000		2.5 kg	
Sandwich plate with R ring plate	Z1FG 10 P5-3X/V		153 x 70 x 50	R900265547  RE 27488
	R901162976		2.5 kg	

**Throttle valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet
	Material no.		Weight	and more information
			Size of the ports	
Sandwich plate	HSZ 10-A408-4X/ D00-DV04M00		105 x 70 x 50	R901232101
	R901282503		2.6 kg	Plug screw M8x1 RE 90005-03
Sandwich plate	HSZ 10-A408-4X/ D00-DV03M00		105 x 70 x 50	R901232101
	R901282491		2.6 kg	Plug screw M8x1 RE 90005-03
Sandwich plate	HSZ 10-A490-4X/ A-DV04M00		200 x 70 x 80	R901234326
	R901282519		7.5 kg	RE 90005-03
Sandwich plate	HSZ 10-A490-4X/ A-DV03M00		200 x 70 x 80	R901234326
	R901282513		7.5 kg	RE 90005-03
Sandwich plate	HSZ 10-A490-4X/ B-DV04M00		200 x 70 x 80	R901234326
	R901282549		8.8 kg	RE 90005-03
Sandwich plate	HSZ 10-A490-4X/ B-DV03M00		200 x 70 x 80	R901234326
	R901282546		8.8 kg	RE 90005-03
Sandwich plate	HSZ 10-A490-4X/ AB-DV04M00		200 x 70 x 80	R901234326
	R901282540		7.9 kg	RE 90005-03
Sandwich plate	HSZ 10-A490-4X/ AB-DV03M00		200 x 70 x 80	R901234326
	R901282523		7.9 kg	RE 90005-03



**Throttle check valves** (1) = component side, (2) = plate side)

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate with R ring plate	<b>HSZ 10 A425-3X/M00</b>  <b>R901252668</b>		155 x 70 x 80 6.4 kg	R900278390  Qmax 95 l/min
Sandwich plate with R ring plate	<b>HSZ 10 A453-3X/ANCFB-LC-BNCFB-LCM00</b>  <b>R901266602</b>		220 x 70 x 80 6.4 kg	R901268320  Qmax 95 l/min

**Flow control valves** (1) = component side, (2) = plate side

Device designation	Type designation	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b>  2-way flow control valve	<b>HSZ 10 A174-3X/</b> M <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00 20 17 21 22 <b>2FRM 6</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>6-3X/</b> <input type="checkbox"/> <input type="checkbox"/> <b>V</b> 21 22		120 x 70 x 70 5.2 kg	R900265412  RE 28163
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b>  2-way flow control valve	<b>HSZ 10 A176-3X/</b> M <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00 20 17 21 22 <b>2FRM 6</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>6-3X/</b> <input type="checkbox"/> <input type="checkbox"/> <b>V</b> 21 22		120 x 70 x 70 5.2 kg	R900265410  RE 28163
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b>  2-way flow control valve	<b>HSZ 10 A154-3X/AM</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> -BM <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00 17 21 22 17 21 22 <b>2FRM 6 B</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>6-3X/</b> <input type="checkbox"/> <input type="checkbox"/> <b>V</b> 21 22	<b>Supply control</b>  <b>Discharge control</b> 	120 x 70 x 70 6.1 kg	R900265414  RE 28163
<b>Sandwich plate</b> with R ring plate  <b>Fitting of the sandwich plate:</b>  2-way flow control valve	<b>HSZ 10 A175-3X/M</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00 17 21 22 <b>2FRM 6 B</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>6-3X/</b> <input type="checkbox"/> <input type="checkbox"/> <b>V</b> 21 22		120 x 70 x 70 4.1 kg	R900265413  RE 28163

**Flow control valves** (1 = component side, 2 = plate side)

Device designation	Type designation Material no.	Symbol	Plate L x W x H in mm Weight Size of the ports	Dimensional sheet More information
<b>Sandwich plate</b> with R ring plate	<b>HSZ 10 A177-3X/M</b> 17 21 22 □ □ □ M00		120 x 70 x 70 5.2 kg	R900265411  RE 28163
<b>Fitting of the sandwich plate:</b> 2-way flow control valve	<b>2FRM 6 B</b> 17 □ <b>6-3X/</b> 21 22 □ □ <b>V</b>	(Valve mounting screws are part of the sandwich plate)		
<b>Sandwich plate</b>	<b>HSZ 10 A150-3X/M</b> 17 21 □ □ M00		120 x 70 x 70 4.3 kg	R900266266  RE 28163
<b>Fitting of the sandwich plate:</b> 2-way flow control valve	<b>2FRM 6 B</b> 17 □ <b>6-3X/</b> 21 □ <b>MV</b>	(Valve mounting screws are part of the sandwich plate)		
<b>Sandwich plate</b>	<b>HSZ 10 B150-3X/M</b> 17 21 □ □ M00		120 x 70 x 70 4.3 kg	R900266267  RE 28163
<b>Fitting of the sandwich plate:</b> 2-way flow control valve	<b>2FRM 6 B</b> 17 □ <b>6-3X/</b> 21 □ <b>MV</b>	(Valve mounting screws are part of the sandwich plate)		
<b>Sandwich plate</b>	<b>HSZ 10 A348-3X/M</b> 17 21 □ □ M01		120 x 70 x 90 5.3 kg	R900266123  RE 28163
<b>Fitting of the sandwich plate:</b> 2-way flow control valve	<b>2FRM 6 B</b> 17 □ <b>6-3X/</b> 21 □ <b>MV</b>	(Valve mounting screws are part of the sandwich plate)		

**Order example 1**

For complete device with 2-way flow control valve: **HSZ 10 A150-3X/M** 17 21 3 4  
 □ 3 □ Q03.0 □ M □ 00

**Order example 2**

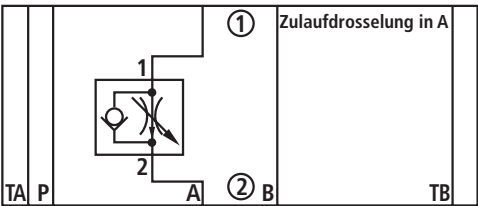
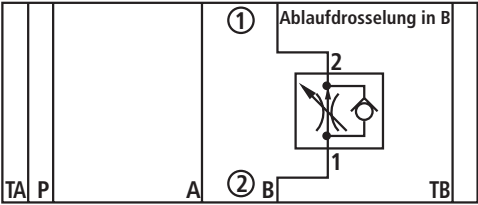
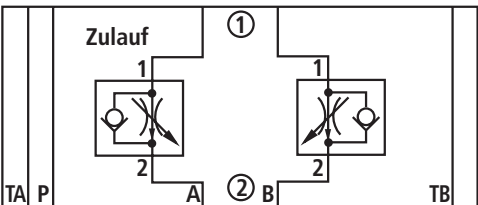
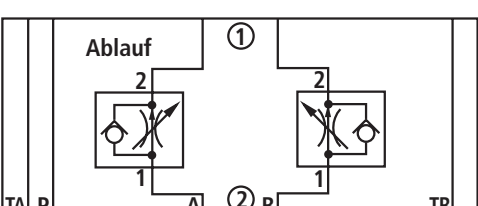
For complete device with 2-way flow control valve: **HSZ 10 A174-3X/M** 20 17 21 22 3 4  
 □ A □ 3 □ Q03.0 □ M □ M □ 00

**Order example 3**

For complete device with 2-way flow control valve: **HSZ 10 A154-3X/A M** 17 21 22 17 21 22 3 4  
 □ 3 □ Q06.0 □ R □ -B □ M □ 3 □ Q03.0 □ R □ M □ 00

Controlled channel

**Flow control valves** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate with R ring plate	HSZ 10 A425-3X/FDEA-LAN-M00	 <p>Zulaufdrosselung in A</p>	155 x 70 x 80 6.4 kg	R900278390
	R900963779	 <p>Ablaufdrosselung in B</p>		
Sandwich plate with R ring plate	HSZ 10 A453-3X/AFDEA-LA-BFDEA-LAM00	 <p>Zulauf</p>	220 x 70 x 80 6.4 kg	R901268320
	R901277089	 <p>Ablauf</p>		





35.2 <input type="checkbox"/>	<b>Electrical types of connection:</b>	03pol (2+PE) DIN EN 175301-803, without mating connector	= 01 <sup>1)</sup> = K4 <sup>2)</sup>
		02pol K40 DT 04-2PA Deutsch, without mating connector	= 20 <sup>1)</sup> = K40 <sup>2)</sup>
		02pol C4/Z30 AMP Junior-Timer, without mating connector	= 07 <sup>1)</sup> = C4 <sup>2)</sup>
		1) Designation of the individual component solenoid coil	
		2) Designation of the complete device HSZ range	

* 51 <input type="checkbox"/>	<b>Flow control with nozzle "D"</b>	Example nozzle M8x1 with $\varnothing$ 0.6 mm (see page 69) Fitting possible from $\varnothing$ 0.4 mm to 4.5 mm <b>Important:</b> We recommend selecting a nozzle diameter $\geq$ 0.6 mm	= 06
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For the connection to AC voltage mains, a DC solenoid must be used, which is controlled via a rectifier.  
In case of individual connection, a mating connector with integrated rectifier can be used (separate order).

**Rapid motion - creep speed function, normally closed (blocking on one side) – discharge control** (① = component side, ② = plate side)  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
<b>Sandwich plate HSZ 10 A400-4X/FRM</b> <input type="checkbox"/> <sup>21.2</sup> -A05 <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00 Fitting of the sandwich plate: SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup> S0.000 SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000 2-way flow control valve: <b>2FRM 6 K2-1X/</b> <input type="checkbox"/> <sup>21.2</sup> RV		170 x 70 x 80 7.3 kg	R901248406  Valve on side F RE 90005-03 RE 28155 Valve on side E	
<b>Sandwich plate HSZ 10 A400-4X/FGM1</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> -A05 <input type="checkbox"/> M00 Fitting of the sandwich plate: SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup> S0.000 SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000 Throttle valve: <b>FGM 6 K2-1X/1QV</b>		170 x 70 x 80 6.6 kg	R901248406  RE 90005-03	
<b>Sandwich plate HSZ 10 A400-4X/D</b> <input type="checkbox"/> <sup>51</sup> -A05 <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00 Fitting of the sandwich plate: SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup> S0.000 SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000 Nozzle <input type="checkbox"/> <sup>51</sup> M8x1-DIN906 Material no. see page 90		170 x 70 x 80 6.5 kg	R901248406  RE 90005-03  RN115.06	

Order examples, see page 77

**Rapid motion - creep speed function, normally closed (blocking on one side) – discharge control** (1 = component side, 2 = plate side)  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
<p><b>Sandwich plate HSZ 10 A401-4X/FRM -A05</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> <b>M00</b></p> <p>Fitting of the sandwich plate:</p> <p><b>SITZVENTIL OD.15.05.89.</b> <input type="checkbox"/> <sup>35.1</sup> <b>S0.000</b></p> <p><b>SPULE OD.02.17.</b> <input type="checkbox"/> <sup>35.2</sup> <b>30.</b> <input type="checkbox"/> <sup>26.1</sup> <b>.000</b></p> <p>2-way flow control valve: <b>2FRM 6 K2-1X/</b> <input type="checkbox"/> <sup>21.2</sup> <b>RV</b></p>		<p>170 x 70 x 80</p> <p>7.3 kg</p>	<p>R901267133</p> <p>Valve on side E RE 90005-03 RE 28155 Valve on side F</p>	
<p><b>Sandwich plate HSZ 10 A401-4X/FGM1 -A05</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> <b>M00</b></p> <p>Fitting of the sandwich plate:</p> <p><b>SITZVENTIL OD.15.05.89.</b> <input type="checkbox"/> <sup>35.1</sup> <b>S0.000</b></p> <p><b>SPULE OD.02.17.</b> <input type="checkbox"/> <sup>35.2</sup> <b>30.</b> <input type="checkbox"/> <sup>26.1</sup> <b>.000</b></p> <p>Throttle valve: <b>FGM 6 K2-1X/1QV</b></p>		<p>170 x 70 x 80</p> <p>6.6 kg</p>	<p>R901267133</p> <p>RE 90005-03</p>	
<p><b>Sandwich plate HSZ 10 A401-4X/D</b> <input type="checkbox"/> <sup>51</sup> <b>-A05</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> <b>M00</b></p> <p>Fitting of the sandwich plate:</p> <p><b>SITZVENTIL OD.15.05.89.</b> <input type="checkbox"/> <sup>35.1</sup> <b>S0.000</b></p> <p><b>SPULE OD.02.17.</b> <input type="checkbox"/> <sup>35.2</sup> <b>30.</b> <input type="checkbox"/> <sup>26.1</sup> <b>.000</b></p> <p><b>Nozzle</b> <input type="checkbox"/> <sup>51</sup> <b>M8x1-DIN906</b></p> <p>Material no. see page 90</p>		<p>170 x 70 x 80</p> <p>6.5 kg</p>	<p>R901267133</p> <p>RE 90005-03</p> <p>RN115.06</p>	

Order examples, see page 77

**Rapid motion - creep speed function, normally closed (blocking on one side) – discharge control** (① = component side, ② = plate side)  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information						
	Material no.		Weight							
<b>Sandwich plate HSZ 10 A402-4X/FRM</b> <input type="checkbox"/> <sup>21.2</sup> -A05 <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00 Fitting of the sandwich plate: SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup> S0.000 SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000 2-way flow control valve: <b>2FRM 6 K2-1X/</b> <input type="checkbox"/> <sup>21.2</sup> RV			180 x 70 x 80 7.6 kg	R901248405  Valve on side F RE 90005-03 RE 28155 Valve on side E						
	<b>Sandwich plate HSZ 10 A402-4X/FGM1</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00 Fitting of the sandwich plate: SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup> S0.000 SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000 Throttle valve: <b>FGM 6 K2-1X/1QV</b>					180 x 70 x 80 6.6 kg	R901248405  RE 90005-03			
			<b>Sandwich plate HSZ 10 A402-4X/D</b> <input type="checkbox"/> <sup>51</sup> -A05 <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00 Fitting of the sandwich plate: SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup> S0.000 SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000 Nozzle <input type="checkbox"/> <sup>51</sup> M8x1-DIN906 Material no. see page 90						180 x 70 x 80 6.5 kg	R901248405  RE 90005-03  RN115.06

Order examples, see page 77

**Rapid motion - creep speed function, normally closed (blocking on both sides) – discharge control** (1 = component side, 2 = plate side)  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
<p><b>Sandwich plate HSZ 10 A400-4X/FGM1 -B05</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> <b>M00</b></p> <p>Fitting of the sandwich plate:</p> <p><b>SITZVENTIL OD.15.31.89.</b> <input type="checkbox"/> <sup>35.1</sup> <b>S0.000</b></p> <p><b>SPULE OD.02.17.</b> <input type="checkbox"/> <sup>35.2</sup> <b>30.</b> <input type="checkbox"/> <sup>26.1</sup> <b>.000</b></p> <p>Throttle valve: <b>FGM 6 K2-1X/1QV</b></p>		<p>170 x 70 x 80</p> <p>7.3 kg</p>	<p>R901248406</p> <p>Valve on side F RE 90005-03 RE 28155 Valve on side E</p>	
<p><b>Sandwich plate HSZ 10 A400-4X/D</b> <input type="checkbox"/> <sup>51</sup> <b>-B05</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> <b>M00</b></p> <p>Fitting of the sandwich plate:</p> <p><b>SITZVENTIL OD.15.31.89.</b> <input type="checkbox"/> <sup>35.1</sup> <b>S0.000</b></p> <p><b>SPULE OD.02.17.</b> <input type="checkbox"/> <sup>35.2</sup> <b>30.</b> <input type="checkbox"/> <sup>26.1</sup> <b>.000</b></p> <p><b>Nozzle</b> <input type="checkbox"/> <sup>51</sup> <b>M8x1-DIN906</b></p> <p>Material no. see page 90</p>		<p>170 x 70 x 80</p> <p>6.5 kg</p>	<p>R901248406</p> <p>RE 90005-03</p> <p>RN115.06</p>	
<p><b>Sandwich plate HSZ 10 A401-4X/FGM1 -B05</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> <b>M00</b></p> <p>Fitting of the sandwich plate:</p> <p><b>SITZVENTIL OD.15.31.89.</b> <input type="checkbox"/> <sup>35.1</sup> <b>S0.000</b></p> <p><b>SPULE OD.02.17.</b> <input type="checkbox"/> <sup>35.2</sup> <b>30.</b> <input type="checkbox"/> <sup>26.1</sup> <b>.000</b></p> <p>Throttle valve: <b>FGM 6 K2-1X/1QV</b></p>		<p>170 x 70 x 80</p> <p>7.3 kg</p>	<p>R901248406</p> <p>Valve on side E RE 90005-03</p> <p>Valve on side F</p>	
<p><b>Sandwich plate HSZ 10 A401-4X/D</b> <input type="checkbox"/> <sup>51</sup> <b>-B05</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> <b>M00</b></p> <p>Fitting of the sandwich plate:</p> <p><b>SITZVENTIL OD.15.31.89.</b> <input type="checkbox"/> <sup>35.1</sup> <b>S0.000</b></p> <p><b>SPULE OD.02.17.</b> <input type="checkbox"/> <sup>35.2</sup> <b>30.</b> <input type="checkbox"/> <sup>26.1</sup> <b>.000</b></p> <p><b>Nozzle</b> <input type="checkbox"/> <sup>51</sup> <b>M8x1-DIN906</b></p> <p>Material no. see page 90</p>		<p>170 x 70 x 80</p> <p>6.5 kg</p>	<p>R901248406</p> <p>RE 90005-03</p> <p>RN115.06</p>	

Order examples, see page 77

**Rapid motion - creep speed function, normally open (blocking on one side) – discharge control** (① = component side, ② = plate side)  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
<p>Sandwich plate HSZ 10 A400-4X/FRM <input type="checkbox"/><sup>21.2</sup>-A06 <input type="checkbox"/><sup>26.1</sup> <input type="checkbox"/><sup>35.1</sup> <input type="checkbox"/><sup>35.2</sup>M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.06.89. <input type="checkbox"/><sup>35.1</sup>S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/><sup>35.2</sup>30. <input type="checkbox"/><sup>26.1</sup>.000</p> <p>2-way flow control valve: 2FRM 6 K2-1X/ <input type="checkbox"/><sup>21.2</sup>RV</p>		<p>170 x 70 x 80</p> <p>7.3 kg</p>	<p>R901248406</p> <p>Valve on side F RE 90005-03 RE 28155 Valve on side E</p>	
<p>Sandwich plate HSZ 10 A400-4X/FGM1 <input type="checkbox"/><sup>26.1</sup> <input type="checkbox"/><sup>35.1</sup> <input type="checkbox"/><sup>35.2</sup>-A06 <input type="checkbox"/><sup>26.1</sup> <input type="checkbox"/><sup>35.1</sup> <input type="checkbox"/><sup>35.2</sup>M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.06.89. <input type="checkbox"/><sup>35.1</sup>S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/><sup>35.2</sup>30. <input type="checkbox"/><sup>26.1</sup>.000</p> <p>Throttle valve: FGM 6 K2-1X/1QV</p>		<p>170 x 70 x 80</p> <p>6.6 kg</p>	<p>R901248406</p> <p>RE 90005-03</p>	
<p>Sandwich plate HSZ 10 A400-4X/D <input type="checkbox"/><sup>51</sup>-A06 <input type="checkbox"/><sup>26.1</sup> <input type="checkbox"/><sup>35.1</sup> <input type="checkbox"/><sup>35.2</sup>M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.06.89. <input type="checkbox"/><sup>35.1</sup>S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/><sup>35.2</sup>30. <input type="checkbox"/><sup>26.1</sup>.000</p> <p>Nozzle <input type="checkbox"/><sup>51</sup>M8x1-DIN906</p> <p>Material no. see page 90</p>		<p>170 x 70 x 80</p> <p>6.5 kg</p>	<p>R901248406</p> <p>RE 90005-03</p> <p>RN115.06</p>	

Order examples, see page 77

**Rapid motion - creep speed function, normally open (blocking on one side) – discharge control** (1) = component side, (2) = plate side)  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
<p><b>Sandwich plate HSZ 10 A401-4X/FRM -A06</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> <b>M00</b></p> <p>Fitting of the sandwich plate:</p> <p><b>SITZVENTIL OD.15.06.89.</b> <input type="checkbox"/> <sup>35.1</sup> <b>S0.000</b></p> <p><b>SPULE OD.02.17.</b> <input type="checkbox"/> <sup>35.2</sup> <b>30.</b> <input type="checkbox"/> <sup>26.1</sup> <b>.000</b></p> <p>2-way flow control valve: <b>2FRM 6 K2-1X/</b> <input type="checkbox"/> <sup>21.2</sup> <b>RV</b></p>		<p>170 x 70 x 80</p> <p>7.3 kg</p>	<p>R901267133</p> <p>Valve on side E RE 90005-03 RE 28155 Valve on side F</p>	
<p><b>Sandwich plate HSZ 10 A401-4X/FGM1 -A06</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> <b>M00</b></p> <p>Fitting of the sandwich plate:</p> <p><b>SITZVENTIL OD.15.06.89.</b> <input type="checkbox"/> <sup>35.1</sup> <b>S0.000</b></p> <p><b>SPULE OD.02.17.</b> <input type="checkbox"/> <sup>35.2</sup> <b>30.</b> <input type="checkbox"/> <sup>26.1</sup> <b>.000</b></p> <p>Throttle valve: <b>FGM 6 K2-1X/1QV</b></p>		<p>170 x 70 x 80</p> <p>6.6 kg</p>	<p>R901267133</p> <p>RE 90005-03</p>	
<p><b>Sandwich plate HSZ 10 A401-4X/D</b> <input type="checkbox"/> <sup>51</sup> <b>-A06</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> <b>M00</b></p> <p>Fitting of the sandwich plate:</p> <p><b>SITZVENTIL OD.15.06.89.</b> <input type="checkbox"/> <sup>35.1</sup> <b>S0.000</b></p> <p><b>SPULE OD.02.17.</b> <input type="checkbox"/> <sup>35.2</sup> <b>30.</b> <input type="checkbox"/> <sup>26.1</sup> <b>.000</b></p> <p><b>Nozzle</b> <input type="checkbox"/> <sup>51</sup> <b>M8x1-DIN906</b></p> <p>Material no. see page 90</p>		<p>170 x 70 x 80</p> <p>6.5 kg</p>	<p>R901267133</p> <p>RE 90005-03</p> <p>RN115.06</p>	

Order examples, see page 77

**Rapid motion - creep speed function, normally open (blocking on one side) – discharge control** (1 = component side, 2 = plate side)  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information			
	Material no.		Weight				
<b>Sandwich plate HSZ 10 A402-4X/FRM</b> <input type="checkbox"/> -A06 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00 Fitting of the sandwich plate:  SITZVENTIL OD.15.06.89. <input type="checkbox"/> S0.000  SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> .000  2-way flow control valve: <b>2FRM 6 K2-1X/</b> <input type="checkbox"/> RV	21.2 26.1 35.1 35.2		180 x 70 x 80 7.6 kg	R901248405  Valve on side F RE 90005-03 RE 28155 Valve on side E			
	<b>Sandwich plate HSZ 10 A402-4X/FGM1</b> <input type="checkbox"/> -A06 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00 Fitting of the sandwich plate:  SITZVENTIL OD.15.06.89. <input type="checkbox"/> S0.000  SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> .000  Throttle valve: <b>FGM 6 K2-1X/1QV</b>		26.1 35.1 35.2			180 x 70 x 80 6.6 kg	R901248405  RE 90005-03
	<b>Sandwich plate HSZ 10 A402-4X/D</b> <input type="checkbox"/> -A06 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00 Fitting of the sandwich plate:  SITZVENTIL OD.15.06.89. <input type="checkbox"/> S0.000  SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> .000  Nozzle <sup>51</sup> <input type="checkbox"/> M8x1-DIN906 Material no. see page 90		51 26.1 35.1 35.2			180 x 70 x 80 6.5 kg	

Order examples, see page 77



**Rapid motion - creep speed function, normally open (blocking on both sides) – discharge control** (① = component side, ② = plate side)  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
<p>Sandwich plate HSZ 10 A400-4X/FGM1 -B06 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.32.89. <input type="checkbox"/> S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> .000</p> <p>Throttle valve: FGM 6 K2-1X/1QV</p>	<p>26.1 35.1 35.2</p>	<p>170 x 70 x 80</p> <p>7.3 kg</p>	<p>R901248406</p> <p>Valve on side F RE 90005-03 RE 28155 Valve on side E</p>	
<p>Sandwich plate HSZ 10 A400-4X/D <input type="checkbox"/> -B06 <input type="checkbox"/> <input type="checkbox"/> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.32.89. <input type="checkbox"/> S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> .000</p> <p>Nozzle <input type="checkbox"/> M8x1-DIN906</p> <p>Material no. see page 90</p>	<p>51 26.1 35.1 35.2</p>	<p>170 x 70 x 80</p> <p>6.5 kg</p>	<p>R901248406</p> <p>RE 90005-03</p> <p>RN115.06</p>	
<p>Sandwich plate HSZ 10 A401-4X/FGM1 -B06 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.32.89. <input type="checkbox"/> S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> .000</p> <p>Throttle valve: FGM 6 K2-1X/1QV</p>	<p>26.1 35.1 35.2</p>	<p>170 x 70 x 80</p> <p>7.3 kg</p>	<p>R901267133</p> <p>Valve on side E RE 90005-03</p> <p>Valve on side F</p>	
<p>Sandwich plate HSZ 10 A401-4X/D <input type="checkbox"/> -B06 <input type="checkbox"/> <input type="checkbox"/> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.32.89. <input type="checkbox"/> S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> .000</p> <p>Nozzle <input type="checkbox"/> M8x1-DIN906</p> <p>Material no. see page 90</p>	<p>51 26.1 35.1 35.2</p>	<p>170 x 70 x 80</p> <p>6.5 kg</p>	<p>R901267133</p> <p>RE 90005-03</p> <p>RN115.06</p>	

Order examples, see page 77

**Rapid motion - creep speed function, normally closed (blocking on one side) – supply control** (① = component side, ② = plate side)  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
<b>Sandwich plate HSZ 10 A406-4X/FRM</b> <input type="checkbox"/> <sup>21.2</sup> -A05 <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00 <b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup> S0.000 SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000 2-way flow control valve: <b>2FRM 6 K2-1X/</b> <input type="checkbox"/> <sup>21.2</sup> RV		170 x 70 x 80 7.3 kg	R901248403  Valve on side F RE 90005-03 RE 28155 Valve on side E	
<b>Sandwich plate HSZ 10 A406-4X/FGM1</b> <input type="checkbox"/> <sup>26.1</sup> -A05 <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00 <b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup> S0.000 SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000 Throttle valve: <b>FGM 6 K2-1X/1QV</b>		170 x 70 x 80 7.3 kg	R901248403  RE 90005-03	
<b>Sandwich plate HSZ 10 A406-4X/D</b> <input type="checkbox"/> <sup>51</sup> -A05 <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00 <b>Fitting of the sandwich plate:</b> SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup> S0.000 SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000 Nozzle <input type="checkbox"/> <sup>51</sup> M8x1-DIN906 Material no. see page 90		170 x 70 x 80 7.3 kg	R901248403  RE 90005-03  RN115.06	

Order examples, see page 77

**Rapid motion - creep speed function, normally closed (blocking on one side) – supply control** (1 = component side, 2 = plate side)  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet
	Material no.		Weight	and more information
			Size of the ports	
<p>Sandwich plate HSZ 10 A407-4X/FRM -A05 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup>S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup>30. <input type="checkbox"/> <sup>26.1</sup>.000</p> <p>2-way flow control valve: <b>2FRM 6 K2-1X/</b> <input type="checkbox"/> <sup>21.2</sup>RV</p>	<p><input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00</p>	<p>170 x 70 x 80</p> <p>7.3 kg</p>	<p>R901276486</p> <p>Valve on side E RE 90005-03 RE 28155 Valve on side F</p>	
<p>Sandwich plate HSZ 10 A407-4X/FGM1 -A05 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup>S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup>30. <input type="checkbox"/> <sup>26.1</sup>.000</p> <p>Throttle valve: <b>FGM 6 K2-1X/1QV</b></p>	<p><input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00</p>	<p>170 x 70 x 80</p> <p>6.6 kg</p>	<p>R901276486</p> <p>RE 90005-03</p>	
<p>Sandwich plate HSZ 10 A407-4X/D <input type="checkbox"/> <sup>51</sup>-A05 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup>S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup>30. <input type="checkbox"/> <sup>26.1</sup>.000</p> <p>Nozzle <input type="checkbox"/> <sup>51</sup>M8x1-DIN906</p> <p>Material no. see page 90</p>	<p><input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00</p>	<p>170 x 70 x 80</p> <p>6.5 kg</p>	<p>R901276486</p> <p>RE 90005-03</p> <p>RN115.06</p>	

Order examples, see page 77

**Rapid motion - creep speed function, normally closed (blocking on one side) – supply control** (① = component side, ② = plate side)  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information	
	Material no.		Weight		
		Size of the ports			
<b>Sandwich plate HSZ 10 A408-4X/FRM</b> <input type="checkbox"/> <sup>21.2</sup> -A05 <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00 <b>Fitting of the sandwich plate:</b>  SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup> S0.000  SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000  2-way flow control valve: <b>2FRM 6 K2-1X/</b> <input type="checkbox"/> <sup>21.2</sup> RV			180 x 70 x 80 7.3 kg	R901232101  Valve on side F RE 90005-03 RE 28155 Valve on side E	
	<b>Sandwich plate HSZ 10 A408-4X/FGM1</b> <input type="checkbox"/> <sup>26.1</sup> -A05 <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00 <b>Fitting of the sandwich plate:</b>  SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup> S0.000  SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000  Throttle valve: <b>FGM 6 K2-1X/1QV</b>			180 x 70 x 80 6.6 kg	R901232101  RE 90005-03
	<b>Sandwich plate HSZ 10 A408-4X/D</b> <input type="checkbox"/> <sup>51</sup> -A05 <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00 <b>Fitting of the sandwich plate:</b>  SITZVENTIL OD.15.05.89. <input type="checkbox"/> <sup>35.1</sup> S0.000  SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000  Nozzle <input type="checkbox"/> <sup>51</sup> M8x1-DIN906  Material no. see page 90			180 x 70 x 80 6.5 kg	R901232101  RE 90005-03  RN115.06

Order examples, see page 77

**Rapid motion - creep speed function, normally closed (blocking on one side) – supply control** (1 = component side, 2 = plate side)  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
<p>Sandwich plate HSZ 10 B408-4X/FRM <input type="checkbox"/>-A05 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.05.89. <input type="checkbox"/> S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> 30. <input type="checkbox"/> 0.000</p> <p>2-way flow control valve: <b>2FRM 6 K2-1X/</b> <input type="checkbox"/> RV</p>	<p>21.2 26.1 35.1 35.2</p>	<p>170 x 70 x 80</p> <p>6.7 kg</p>	<p>R901217086</p> <p>Valve on side F RE 90005-03 RE 28155 Valve on side E</p>	
<p>Sandwich plate HSZ 10 B408-4X/FGM1 -A05 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.05.89. <input type="checkbox"/> S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> 30. <input type="checkbox"/> 0.000</p> <p>Throttle valve: <b>FGM 6 K2-1X/1QV</b></p>	<p>26.1 35.1 35.2</p>	<p>170 x 70 x 80</p> <p>6.7 kg</p>	<p>R901217086</p> <p>RE 90005-03</p>	
<p>Sandwich plate HSZ 10 B408-4X/D <input type="checkbox"/>-A05 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.05.89. <input type="checkbox"/> S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> 30. <input type="checkbox"/> 0.000</p> <p>Nozzle <input type="checkbox"/> M8x1-DIN906</p> <p>Material no. see page 90</p>	<p>51 26.1 35.1 35.2</p>	<p>170 x 70 x 80</p> <p>6.5 kg</p>	<p>R901217086</p> <p>RE 90005-03</p> <p>RN115.06</p>	

Order examples, see page 77

**Rapid motion - creep speed function, normally closed (blocking on both sides) – supply control** (① = component side, ② = plate side)  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
		Size of the ports		
Sandwich plate HSZ 10 A406-4X/FGM1 -B05 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00			170 x 70 x 80	R901243712  Valve on side F RE 90005-03 RE 28155 Valve on side E
	Fitting of the sandwich plate:		6.6 kg	
	SITZVENTIL OD.15.31.89. <input type="checkbox"/> S0.000			
	SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> .000			
Throttle valve: FGM 6 K2-1X/1QV				
Sandwich plate HSZ 10 A406-4X/D <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00			170 x 70 x 80	R901243712  Valve on side F RE 90005-03  RN115.06
	Fitting of the sandwich plate:		6.5 kg	
	SITZVENTIL OD.15.31.89. <input type="checkbox"/> S0.000			
	SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> .000			
Nozzle <input type="checkbox"/> M8x1-DIN906				
Material no. see page 90				
Sandwich plate HSZ 10 A407-4X/FGM1 -B05 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00			170 x 70 x 80	R901276486  Valve on side E RE 90005-03  Valve on side F
	Fitting of the sandwich plate:		7.3 kg	
	SITZVENTIL OD.15.31.89. <input type="checkbox"/> S0.000			
	SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> .000			
Throttle valve: FGM 6 K2-1X/1QV				
Sandwich plate HSZ 10 A407-4X/D <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00			170 x 70 x 80	R901276486  Valve on side E RE 90005-03  RN115.06
	Fitting of the sandwich plate:		6.5 kg	
	SITZVENTIL OD.15.31.89. <input type="checkbox"/> S0.000			
	SPULE OD.02.17. <input type="checkbox"/> 30. <input type="checkbox"/> .000			
Nozzle <input type="checkbox"/> M8x1-DIN906				
Material no. see page 90				

Order examples, see page 77

**Rapid motion - creep speed function, normally open (blocking on one side) – supply control** (1) = component side, (2) = plate side  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
<p><b>Sandwich plate HSZ 10 A406-4X/FRM</b> <input type="checkbox"/><sup>21.2</sup>-A06 <input type="checkbox"/><sup>26.1</sup> <input type="checkbox"/><sup>35.1</sup> <input type="checkbox"/><sup>35.2</sup> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.06.89. <input type="checkbox"/><sup>35.1</sup>S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/><sup>35.2</sup>30. <input type="checkbox"/><sup>26.1</sup>.000</p> <p>2-way flow control valve: <b>2FRM 6 K2-1X/</b> <input type="checkbox"/><sup>21.2</sup>RV</p>		<p>170 x 70 x 80</p> <p>7.3 kg</p>	<p>R901248403</p> <p>Valve on side F RE 90005-03 RE 28155 Valve on side E</p>	
<p><b>Sandwich plate HSZ 10 A406-4X/FGM1</b> <input type="checkbox"/><sup>26.1</sup>-A06 <input type="checkbox"/><sup>35.1</sup> <input type="checkbox"/><sup>35.2</sup> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.06.89. <input type="checkbox"/><sup>35.1</sup>S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/><sup>35.2</sup>30. <input type="checkbox"/><sup>26.1</sup>.000</p> <p>Throttle valve: <b>FGM 6 K2-1X/1QV</b></p>		<p>170 x 70 x 80</p> <p>7.3 kg</p>	<p>R901248403</p> <p>RE 90005-03</p>	
<p><b>Sandwich plate HSZ 10 A406-4X/D</b> <input type="checkbox"/><sup>51</sup>-A06 <input type="checkbox"/><sup>26.1</sup> <input type="checkbox"/><sup>35.1</sup> <input type="checkbox"/><sup>35.2</sup> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.06.89. <input type="checkbox"/><sup>35.1</sup>S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/><sup>35.2</sup>30. <input type="checkbox"/><sup>26.1</sup>.000</p> <p>Nozzle <input type="checkbox"/><sup>51</sup>M8x1-DIN906</p> <p>Material no. see page 90</p>		<p>170 x 70 x 80</p> <p>7.3 kg</p>	<p>R901248403</p> <p>RE 90005-03</p> <p>RN115.06</p>	

Order examples, see page 77

**Rapid motion - creep speed function, normally open (blocking on one side) – supply control** (① = component side, ② = plate side)  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
<b>Sandwich plate HSZ 10 A407-4X/FRM -A06</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> <b>M00</b> Fitting of the sandwich plate: SITZVENTIL OD.15.06.89. <input type="checkbox"/> <sup>35.1</sup> <b>S0.000</b> SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> <input type="checkbox"/> <sup>26.1</sup> <b>30.000</b> 2-way flow control valve: <b>2FRM 6 K2-1X/</b> <input type="checkbox"/> <sup>21.2</sup> <b>RV</b>		170 x 70 x 80 7.3 kg	R901276486  Valve on side E RE 90005-03 RE 28155 Valve on side F	
<b>Sandwich plate HSZ 10 A407-4X/FGM1 -A06</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> <b>M00</b> Fitting of the sandwich plate: SITZVENTIL OD.15.06.89. <input type="checkbox"/> <sup>35.1</sup> <b>S0.000</b> SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> <input type="checkbox"/> <sup>26.1</sup> <b>30.000</b> Throttle valve: <b>FGM 6 K2-1X/1QV</b>		170 x 70 x 80 7.3 kg	R901276486  RE 90005-03	
<b>Sandwich plate HSZ 10 A407-4X/D</b> <input type="checkbox"/> <sup>51</sup> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> <b>-A06 M00</b> Fitting of the sandwich plate: SITZVENTIL OD.15.06.89. <input type="checkbox"/> <sup>35.1</sup> <b>S0.000</b> SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> <input type="checkbox"/> <sup>26.1</sup> <b>30.000</b> Nozzle <input type="checkbox"/> <sup>51</sup> <b>M8x1-DIN906</b> Material no. see page 90		170 x 70 x 80 6.5 kg	R901276486  RE 90005-03  RN115.06	

Order examples, see page 77





**Rapid motion - creep speed function, normally open (blocking on one side) – supply control** (① = component side, ② = plate side)  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
<b>Sandwich plate HSZ 10 B408-4X/FRM</b> <input type="checkbox"/> <sup>21.2</sup> -A06 <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00 Fitting of the sandwich plate: SITZVENTIL OD.15.06.89. <input type="checkbox"/> <sup>35.1</sup> S0.000 SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000 2-way flow control valve: <b>2FRM 6 K2-1X/</b> <input type="checkbox"/> <sup>21.2</sup> RV		170 x 70 x 80 6.7 kg	R901217086  Valve on side F RE 90005-03 RE 28155 Valve on side E	
<b>Sandwich plate HSZ 10 B408-4X/FGM1</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00 Fitting of the sandwich plate: SITZVENTIL OD.15.06.89. <input type="checkbox"/> <sup>35.1</sup> S0.000 SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000 Throttle valve: <b>FGM 6 K2-1X/1QV</b>		170 x 70 x 80 6.7 kg	R901217086  RE 90005-03	
<b>Sandwich plate HSZ 10 B408-4X/D</b> <input type="checkbox"/> <sup>51</sup> -A06 <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00 Fitting of the sandwich plate: SITZVENTIL OD.15.06.89. <input type="checkbox"/> <sup>35.1</sup> S0.000 SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000 Nozzle <input type="checkbox"/> <sup>51</sup> M8x1-DIN906 Material no. see page 90		170 x 70 x 80 6.5 kg	R901217086  RE 90005-03  RN115.06	

Order examples, see page 77

**Rapid motion - creep speed function, normally open (blocking on both sides) – supply control** (1) = component side, (2) = plate side  
**Flow control cartridge valve**

Device designation	Type designation	Symbol	Plate L x W x H	Dimensional sheet and more information
	Material no.		Weight	
			Size of the ports	
<p><b>Sandwich plate HSZ 10 A406-4X/FGM1 -B06</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.32.89. <input type="checkbox"/> <sup>35.1</sup> S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000</p> <p>Throttle valve: FGM 6 K2-1X/1QV</p>		<p>170 x 70 x 80</p> <p>7.3 kg</p>	<p>R901248404</p> <p>Valve on side F</p> <p>RE 90005-03</p> <p>RE 28155</p> <p>Valve on side E</p>	
<p><b>Sandwich plate HSZ 10 A406-4X/D</b> <input type="checkbox"/> <sup>51</sup> -B06 <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.32.89. <input type="checkbox"/> <sup>35.1</sup> S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000</p> <p>Nozzle <input type="checkbox"/> <sup>51</sup> M8x1-DIN906</p> <p>Material no. see page 90</p>		<p>170 x 70 x 80</p> <p>7.3 kg</p>	<p>R901248404</p> <p>RE 90005-03</p> <p>RN115.06</p>	
<p><b>Sandwich plate HSZ 10 A407-4X/FGM1 -B06</b> <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.32.89. <input type="checkbox"/> <sup>35.1</sup> S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000</p> <p>Throttle valve: FGM 6 K2-1X/1QV</p>		<p>170 x 70 x 80</p> <p>7.3 kg</p>	<p>R901276486</p> <p>Valve on side E</p> <p>RE 90005-03</p> <p>Valve on side F</p>	
<p><b>Sandwich plate HSZ 10 A407-4X/D</b> <input type="checkbox"/> <sup>51</sup> -B06 <input type="checkbox"/> <sup>26.1</sup> <input type="checkbox"/> <sup>35.1</sup> <input type="checkbox"/> <sup>35.2</sup> M00</p> <p>Fitting of the sandwich plate:</p> <p>SITZVENTIL OD.15.32.89. <input type="checkbox"/> <sup>35.1</sup> S0.000</p> <p>SPULE OD.02.17. <input type="checkbox"/> <sup>35.2</sup> 30. <input type="checkbox"/> <sup>26.1</sup> .000</p> <p>Nozzle <input type="checkbox"/> <sup>51</sup> M8x1-DIN906</p> <p>Material no. see page 90</p>		<p>170 x 70 x 80</p> <p>6.5 kg</p>	<p>R901276486</p> <p>RE 90005-03</p> <p>RN115.06</p>	

**Order examples**

For complete device with 2/2 directional seat valve and 2-way flow control valve: HSZ 10 A400-1X/ <sup>41</sup>FRM <sup>21.2</sup>06 - <sup>42</sup>A <sup>43</sup>05 <sup>3</sup>G24K4 <sup>4</sup>M <sup>00</sup>

For complete device with 2/2 directional seat valve and throttle valve: HSZ 10 A401-1X/ <sup>41</sup>FGM 1- <sup>42</sup>A <sup>43</sup>05 <sup>3</sup>G24K4 <sup>4</sup>M <sup>00</sup>

For complete device with 2/2 directional seat valve and nozzle: HSZ 10 A401-1X/ <sup>41</sup>D <sup>51</sup>10 - <sup>42</sup>A <sup>43</sup>05 <sup>3</sup>G24K4 <sup>4</sup>M <sup>00</sup>

**Rapid motion, electrically switchable** (1) = component side, (2) = plate side)

Device designation	Type designation	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate	<b>HSZ 10</b> <b>A420-4X/FGM1-A05</b> <sup>26.1</sup> <sup>35.1</sup> <sup>35.2</sup> -D08M01 <b>R901247995</b> Fitting of the sandwich plate: <sup>35.1</sup> <b>OD.15.05.36.</b> <sup>35.1</sup> <sup>35.2</sup> .S8.00		240 x 70 x 80 8.0 kg Side E + F G1/4	R901248409 Nozzle M6 ø0.8 mm RE 90005-03
Sandwich plate	<b>HSZ 10</b> <b>A486-4X/DRV-P-B05</b> <sup>26.1</sup> <sup>35.1</sup> <sup>35.2</sup> M00 Fitting of the sandwich plate: <sup>35.1</sup> <b>OD.15.31.89.</b> <sup>35.1</sup> <sup>35.2</sup> .S8.00		140 x 70 x 70 8.7 kg	R901248408 RE 90005-03
Sandwich plate	<b>HSZ 10</b> <b>A486-4X/DRV-P-B06</b> <sup>26.1</sup> <sup>35.1</sup> <sup>35.2</sup> M00 Fitting of the sandwich plate: <sup>35.1</sup> <b>OD.15.31.89.</b> <sup>35.1</sup> <sup>35.2</sup> .S8.00		140 x 70 x 70 8.7 kg	R901248408 RE 90005-03

**Differential circuit directional valve, electrically switchable** (1) = component side, (2) = plate side)

Sandwich plate	<b>HSZ 10</b> <b>B410-4X/D10-03BAR-A06</b> <sup>26.1</sup> <sup>35.1</sup> <sup>35.2</sup> M00 <b>R901277608</b> Fitting of the sandwich plate: <sup>35.1</sup> <b>OD.15.04.04.</b> <sup>35.1</sup> <sup>35.2</sup> .S0.00 <sup>35.2</sup> <b>OD.02.17.</b> <sup>35.2</sup> <sup>35.1</sup> <sup>35.2</sup> .30.OC.00		220 x 90 x 70 10.7 kg	R901279169 Nozzle M8x1 ø1.0 mm RE 90005-03
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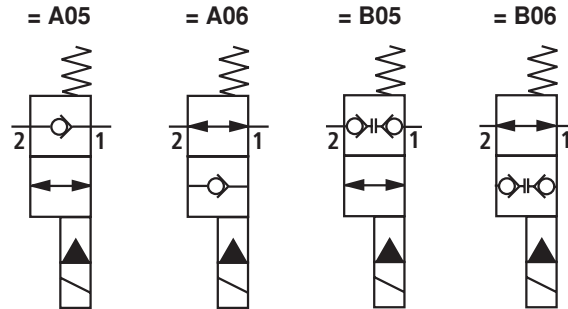
**Functional group Miscellaneous**

**Complementary details on sandwich plates with short-circuit valves**

HSZ 10A ...-4X/      (see p. 77 to 86)  
**B**

**31**

**Symbols of the 2/2 directional seat valve:**



**26.1**

**Nominal voltage at the coil**

- Direct voltage 12 V = **G12**
- Direct voltage 24 V = **G24**
- Direct voltage 26 V = **G26**
- Direct voltage 110 V = **G110**
- Direct voltage 220 V = **G220**

**35.1**

**Manual override**  
 at directional seat valve series OD.15...

- without manual override = **A**
- with** throttle = **3A**
- with** flow controller cartridge = **3I**
- Screwable manual override = **3M**
- = **3L**
- = **3D**
- with manual override "pushing" = **1B**
- = **1L**
- with manual override "pushing", lockable in switched position = **1C**
- = **1M**

**35.2**

**Electrical types of connection:**

- 03pol (2+PE) DIN EN 175301-803, without mating connector = **K4**
- 02pol K40 DT 04-2PA Deutsch, without mating connector = **K40**
- 02pol C4/Z30 AMP Junior-Timer, without mating connector = **C4**

## Functional group Miscellaneous

51



**Nozzle fitting** with 517, 519, 589  
(internal thread M8X1):

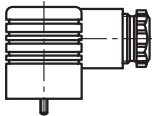
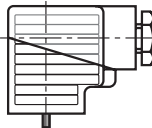
Example: **10**: Nozzle M8X1 with  $\varnothing 1.0$  mm fitting from  
 $\varnothing 0.4$  mm to  $\varnothing 4.5$  mm possible

= 10

**Important:**

We recommend selecting a nozzle diameter  $\geq 0.6$  mm

### Ordering code: Mating connectors according to DIN EN 175301-803 and ISO 4400 for connector "K4"

More mating connectors see RE 08006				
	<b>Material no.</b>			
<b>Color</b>	without circuitry	with indicator light 12 ... 240 V	with rectifier 12 ... 240 V	with indicator light and Zener diode suppression circuit 24 V
Gray	<b>R901017010</b>	–	–	–
Black	<b>R901017011</b>	–	–	–
Black	–	<b>R901017022</b>	<b>R901017025</b>	<b>R901017026</b>

**Short-circuit valves** (1 = component side, 2 = plate side)

Device designation	Type designation	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate	<b>HSZ 10 B517-4X/B05</b> 26.1 35.1 35.2 51 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00		120 x 70 x 50 3.4 kg	R901154348  RE 90005-03  Internal thread M8x1
Sandwich plate	<b>HSZ 10 B517-4X/B06</b> 26.1 35.1 35.2 51 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00		120 x 70 x 50 3.4 kg	R901154348  RE 90005-03  Internal thread M8x1
Sandwich plate	<b>HSZ 10 A517-4X/B05</b> 26.1 35.1 35.2 51 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00		120 x 70 x 50 3.4 kg	R901154348  RE 90005-03  Internal thread M8x1
Sandwich plate	<b>HSZ 10 A517-4X/B06</b> 26.1 35.1 35.2 51 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00		120 x 70 x 50 3.4 kg	R901154348  RE 90005-03  Internal thread M8x1
Sandwich plate	<b>HSZ 10 A519-4X/B05</b> 26.1 35.1 35.2 51 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00		105 x 70 x 50 2.6 kg	R901154552  RE 90005-03  Internal thread M8x1
Sandwich plate	<b>HSZ 10 A519-4X/B06</b> 26.1 35.1 35.2 51 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00		105 x 70 x 50 2.6 kg	R901154552  RE 90005-03  Internal thread M8x1

**Short-circuit valves** (1) = component side, (2) = plate side)

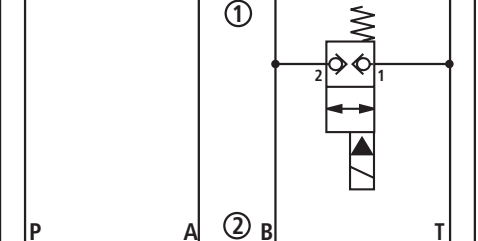
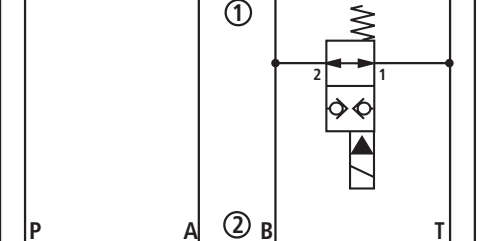
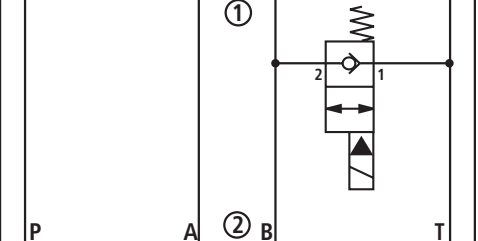
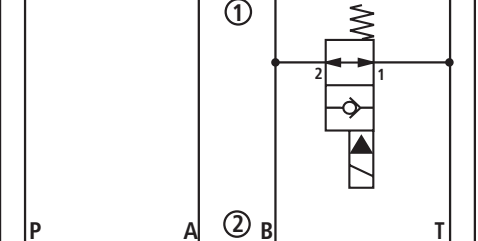
Device designation	Type designation	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate	<b>HSZ 10</b> <b>A519-4X/A05</b> 26.1 35.1 35.2 51 M00		105 x 70 x 50 2.6 kg	R901154552 RE 90005-03  Internal thread M8x1
Sandwich plate	<b>HSZ 10</b> <b>A519-4X/A06</b> 26.1 35.1 35.2 51 M00		105 x 70 x 50 2.6 kg	R901154552 RE 90005-03  Internal thread M8x1
Sandwich plate	<b>HSZ 10</b> <b>A589-4X/B05</b> 26.1 35.1 35.2 51 M00		105 x 70 x 50 2.6 kg	R901155030 RE 90005-03  Internal thread M8x1
Sandwich plate	<b>HSZ 10</b> <b>A589-4X/B06</b> 26.1 35.1 35.2 51 M00		105 x 70 x 50 2.6 kg	R901155030 RE 90005-03  Internal thread M8x1
Sandwich plate	<b>HSZ 10</b> <b>A589-4X/A05</b> 26.1 35.1 35.2 51 M00		105 x 70 x 50 2.6 kg	R901155030 RE 90005-03  Internal thread M8x1
Sandwich plate	<b>HSZ 10</b> <b>A589-4X/A06</b> 26.1 35.1 35.2 51 M00		105 x 70 x 50 2.6 kg	R901155030 RE 90005-03  Internal thread M8x1



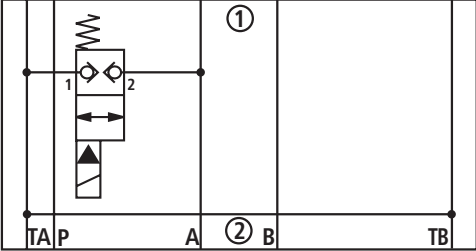
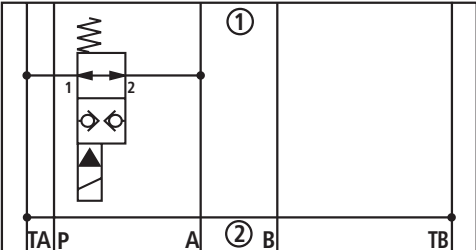
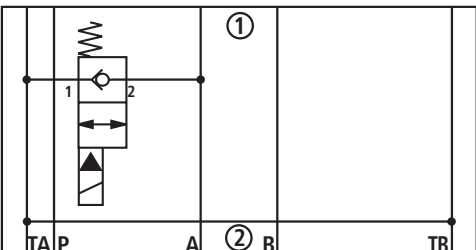
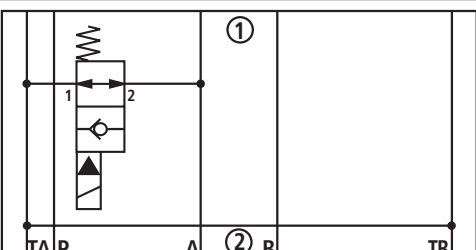
**Short-circuit valves** (1) = component side, (2) = plate side

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate	<b>HSZ 10 A587-4X/B05</b> 26.1 35.1 35.2 □ □ □ M00		100 x 70 x 80 4.0 kg	R901028290  RE 90005-03
Sandwich plate	<b>HSZ 10 A587-4X/B06</b> 26.1 35.1 35.2 □ □ □ M00		100 x 70 x 80 4.0 kg	R901028290  RE 90005-03
Sandwich plate	<b>HSZ 10 A648-4X/B05</b> 26.1 35.1 35.2 □ □ □ M00		120 x 70 x 80 5.4 kg	R901164210  RE 90005-03
Sandwich plate	<b>HSZ 10 A648-4X/B06</b> 26.1 35.1 35.2 □ □ □ M00		120 x 70 x 80 5.4 kg	R901164210  RE 90005-03

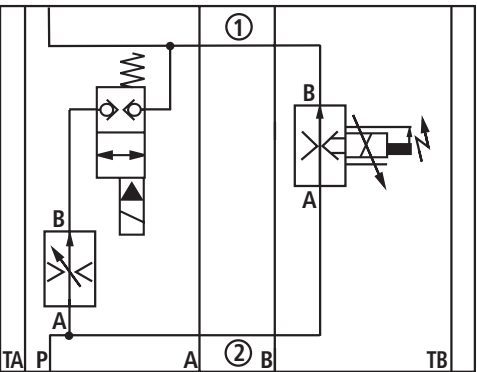
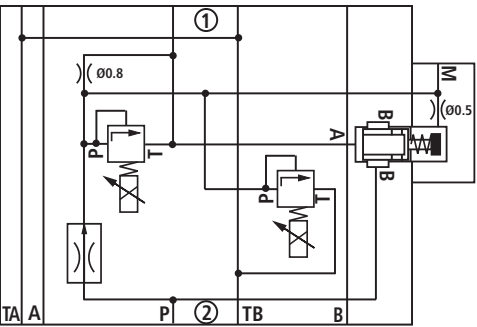
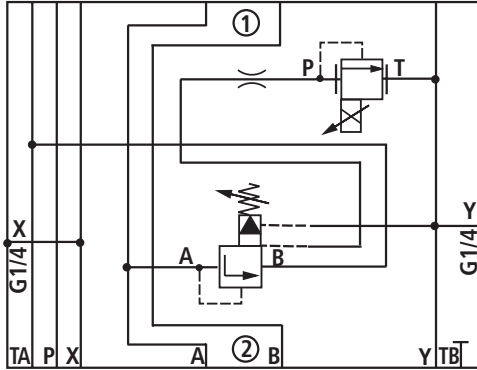
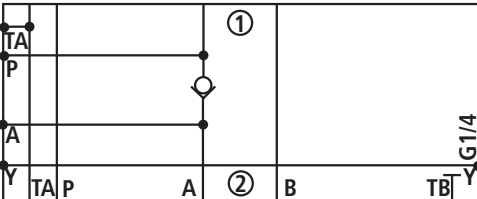
**Short-circuit valves for high flow** (① = component side, ② = plate side)

Device designation	Type designation	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate with R ring plate	<b>HSZ 10 A668-4X/B05</b> 26.1 35.1 35.2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00		120 x 70 x 80	R901282212  RE 90005-03
Sandwich plate with R ring plate	<b>HSZ 10 A668-4X/B06</b> 26.1 35.1 35.2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00		120 x 70 x 80	R901282212  RE 90005-03
Sandwich plate with R ring plate	<b>HSZ 10 A668-4X/A05</b> 26.1 35.1 35.2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00		120 x 70 x 80	R901282212  RE 90005-03
Sandwich plate with R ring plate	<b>HSZ 10 A668-4X/A06</b> 26.1 35.1 35.2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00		120 x 70 x 80	R901282212  RE 90005-03

**Short-circuit valves for high flow** (1) = component side, (2) = plate side

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate with R ring plate	<b>HSZ 10 A667-4X/B05</b> 26.1 35.1 35.2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00		120 x 70 x 80	R901282203  RE 90005-03
Sandwich plate with R ring plate	<b>HSZ 10 A667-4X/B06</b> 26.1 35.1 35.2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00		120 x 70 x 80	R901282203  RE 90005-03
Sandwich plate with R ring plate	<b>HSZ 10 A667-4X/A05</b> 26.1 35.1 35.2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00		120 x 70 x 80	R901282203  RE 90005-03
Sandwich plate with R ring plate	<b>HSZ 10 A667-4X/A06</b> 26.1 35.1 35.2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M00		120 x 70 x 80	R901282203  RE 90005-03

**Proportional valves** (① = component side, ② = plate side)

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate	<b>HSZ 10-26908-AA/G24K4M00</b>  <b>R901014628</b>		472 x 70 x 120 10.5 kg	R901019734  RE 28163 RE 29188 RE 90005-03
Sandwich plate	<b>HSZ 10-26896-ZA/HM00</b>  <b>R901004474</b>  Unfitted, fitting on request		225 x 95 x 90 13.9 kg	R901002270
Sandwich plate	<b>HSZ 10 B470-3X/2-315XYU-PG24K4-08M01</b>  <b>R901011922</b>		160 x 70 x 100 8.2 kg  Side E + F G1/4	R901013511  RE 25818 RD 18139-04
Sandwich plate	<b>HSZ 10 A441-3X/05M01</b>  <b>R900705578</b> Fitting: <b>M-SR10KE05-1X</b> additional fitting upon request Comment: <b>Lateral connection diagram 3DREE 10</b>		140 x 70 x 220 15.6 kg  Side E G1/4	R900706722  RE 20380 RE 29286

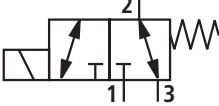
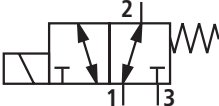
## Functional group Clamping hydraulics

Example: **HSZ 10 A 433 – 3X/PRFB –**

46	47	47.2

 – K1 

48	49	50	51	2	3

<div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px; text-align: center; font-weight: bold;">46</div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div>	<p><b>Adjustment element</b> at the 3-way pressure control valve</p>	<p>Setscrew with internal hexagon Hand wheel Adjustment protection, set in the factory</p>	<p>= L = K = C</p>
<div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px; text-align: center; font-weight: bold;">47</div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div>	<p><b>Set pressure</b> at the 3-way pressure control valve:</p>	<p>50 to 210 bar – Setting 49 bar 20 to 105 bar – Setting 14 bar 14 to 55 bar – Setting 14 bar 7 to 28 bar – Setting 14 bar 3.5 to 14 bar – Setting 14 bar</p>	<p>= A = B = D = E = S</p>
<div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px; text-align: center; font-weight: bold;">47.2</div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div>	<p><b>Seal material</b> <b>⚠ Attention!</b> Observe compatibility of seals with hydraulic fluid used!</p>	<p>NBR seals FKM seals (other seals upon request)</p>	<p>= N = V</p>
<div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px; text-align: center; font-weight: bold;">48</div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div>	<p><b>Symbol</b> of the 3/2 directional spool valve:</p>	<div style="text-align: center;">  </div>	<p>= C</p>
<div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px; text-align: center; font-weight: bold;">49</div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div>	<p><b>Solenoid voltage</b> at the directional spool valve:</p>	<div style="text-align: center;">  </div>	<p>= U</p>
<div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px; text-align: center; font-weight: bold;">49</div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div>	<p><b>Solenoid voltage</b> at the directional spool valve:</p>	<p>Direct voltage 12 V Direct voltage 24 V Direct voltage 48 V Direct voltage 96 V Direct voltage 205 V</p>	<p>= G12 = G24 = G48 = G96 = G205</p>
<div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px; text-align: center; font-weight: bold;">50</div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div>	<p><b>Manual override</b> at the 3/2 directional spool valve:</p>	<p>without manual override Concealed manual override</p>	<p>= N0 = N9</p>
<div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px; text-align: center; font-weight: bold;">51</div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div>	<p><b>Electrical types of connection</b></p>	<p>03pol (2+PE) DIN EN 175301-803, without mating connector 02pol K40 DT 04-2PA Deutsch, without mating connector 02pol C4/Z30 AMP Junior-Timer, without mating connector</p>	<p>= K4 = K40 = C4</p>

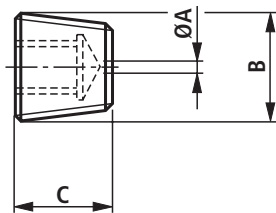


**Shuttle valves** (① = component side, ② = plate side)

Device designation	Type designation  Material no.	Symbol	Platte L x W x H in mm Weight Size of the ports	Dimensional sheet  More information
Sandwich plate	HSZ 10 A235-3X/LG6M01 R900555882		130 x 70 x 50 3.3 kg	R900265137
Fitting of the sandwich plate:			Side F X G 1/4	
Shuttle valve	LG 6 S-2X/			
Sandwich plate	HSZ 10 B235-3X/LG6M01 R900571975		130 x 70 x 50 3.3 kg	R900266410
Fitting of the sandwich plate:			Side F X G 1/4	
Shuttle valve	LG 6 S-2X/			

## Nozzles

Form 7 (RN 115.06)  
Plug screw DIN 906



**Important:**

Spelling (j) with  
complete type!

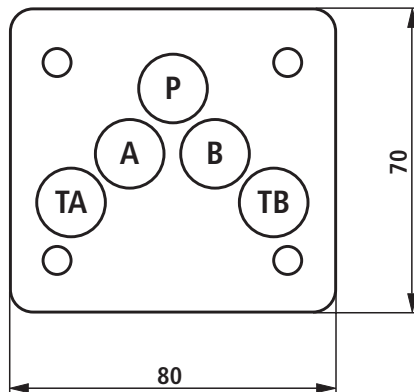
	50	51	52	53
B	M6	M8 x 1	R1/8	R3/8
C	6	8	8	10
ØA	Material no.			
0.6 (06)	R900157934	R900149430	R900188667	-
0.7 (07)	R900157931	R900143957	R901082918	-
0.8 (08)	R900152276	R900136843	R900144212	R901187136
0.9 (09)	R901192875	R901195589	-	-
1.0 (10)	R900149335	R900136842	R900135607	R900159032
1.1 (11)	R900645667	R900144763	-	-
1.2 (12)	R900152286	R900139101	R900146270	R900159032
1.3 (13)	R900152291	R900144762	R900891295	R900163839
1.4 (14)	R901193341	R900158791	R900135606	-
1.5 (15)	R900148823	R900133712	R900144910	R900159031
1.6 (16)	R901106248	R900816128	R900137422	-
1.7 (17)	R900164852	R901062795	-	-
1.8 (18)	R900157932	R900150953	R900142840	R900159030
1.9 (19)	-	R900165257	-	-
2.0 (20)	R900156650	R900137299	R900155897	R900159029
2.1 (21)	-	R901247812	-	-
2.2 (22)	R900152292	R900161379	-	R900152475
2.3 (23)	-	R900871140	-	-
2.4 (24)	-	R900185333	-	-
2.5 (25)	R900157929	R900137445	R900148351	R900146259
2.6 (26)	R901213522	-	R913010492	-
2.7 (27)	-	R901131052	R901020741	-
2.8 (28)	-	R900826709	R901171511	R900149053
2.9 (29)	-	R901121836	-	-
3.0 (30)	R900181894	R900144761	R900111282	R900149044
3.1 (31)	-	-	R913010491	-
3.2 (32)	-	R900855716	R900892343	-
3.5 (35)	-	R900136079	R900688752	R900146258
4.0 (40)	-	R900802480	R900178466	R900149052
4.5 (45)	-	R900151944	R900644143	-
5.0 (50)	-	-	R900167529	R900152287
5.5 (55)	-	-	-	R900149428
6.0 (60)	-	-	-	R900135774
7.0 (70)	-	-	-	R900152289
7.1 (71)	-	-	-	R900152294
7.5 (75)	-	-	-	R900137643
8.0 (80)	-	-	-	R900626397
8.8 (88)	-	-	-	R900743487



## R ring plates, seal kits

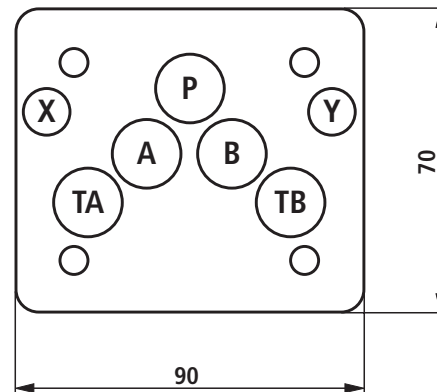
### R ring plate hole type 10A (1.5 high)

R ring plate	Material no.
HSZ 10 A001-3X/M00	R900329776
HSZ 10 A001-3X/V00	R900329777



### R ring plate hole type 10B (with X and X; 1.5 high)

R ring plate	Material no.
HSZ 10 B001-3X/M00	R900315950
HSZ 10 B001-3X/V00	R900315951



### Seal kit - plate: For porting pattern 10A and 10B

Seal material	Material no.
NBR	R900313194
FKM	R900313195

# Sandwich plates

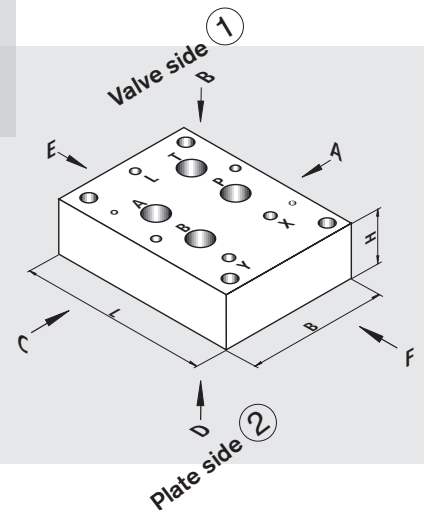
## Porting patterns to DIN 24340 Form A and ISO 4401

RE 48054/01.09  
Replaces: 06.06

1/26

### Type HSZ 16

Size 16  
Component series 3X  
Maximum operating pressure 315 bar



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– Spacer plates without port, with blocked system drill	4	– Pressure reducing valves, pilot operated	15, 16
– Spacer plates with port	5	– Pressure reducing valves, pilot operated with 2nd pressure stage	16
– Spacer plates with connections	5	<b>Function group: Combination of pressure and closing function</b>	
<b>Function group: Closing function</b>		– Supplementary details	17
– Supplementary details	6	– Counterbalance function	18
– Check valves	7, 8	– Pressure relief/anti-cavitation function	19
– Check valves, pilot operated	9	– Load lowering function	20
– Check function, electrical operation	10	<b>Function group: Flow control function</b>	
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		– Flow control valves	22, 23
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		– Logic functions	24
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## Features

- Vertical stacking components of sandwich plate design
- Supplement to the existing sandwich plate product range
- For mounting as individual module or as vertical stacking element on multi-station manifolds, IH20 modular plate system or vario-plates
- Great flexibility due to various combination options as well as possibility of subsequent functional changes and extensions
- Maximum operating pressure
  - Without valve function: 315 bar
  - With valve function: max. 315 bar (depending on the valves fitted)
- Weight data includes the valves fitted or integrated

## Safety instructions

- the valves installed into the sandwich plates may lock in an undefined position due to internal contaminations - such as contaminated hydraulic fluid, abrasion, or residual dirt from system components. This results in the driven consumer load no longer following the specifications of the operator
- when using a differential cylinder, inadmissibly high pressures can form in the discharge channel due to pressure transmission (example: non-switched directional seat valve/ non-actuated solenoid coil / cable rupture). Therefore, we recommend protecting the cylinder by pressure limitation valves

## Explanation of type code for HSZ 16 sandwich plates

HSZ 16 B 1 - 3X/ 2 3 4 \*

- 1**  
  Serial number of function version from 001 ... 999 (determined by the factory)
- 2**  
  **Type of seals:** NBR seals = M (standard)  
 (other seals on enquiry) FKM seals = V
- Note:** Observe compatibility of seals with hydraulic fluid used!
- 3**  
  **Type of connection:** No external connection = 00  
 Connection to DIN 3852 part 2 = 01  
 Thread to DIN EN ISO 228 (pipe thread)
- 4**  
\* Further details in clear text

## Order example:

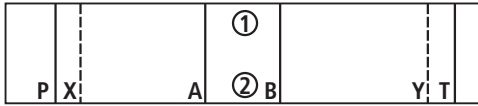
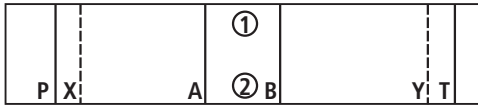
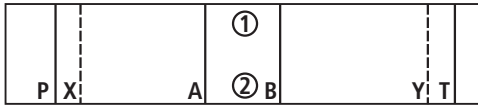
Material no.	Type designation	Component designation
R900561046	HSZ 16 B036-3X/M01	Sandwich plate without valve function
R900907797	HSZ 16 B200-3X/05M00	Sandwich plate with fixed valve configuration
R900741198	HSZ 16 B100-3X/ <span style="border: 1px solid black; padding: 2px 5px;">15</span> <span style="border: 1px solid black; padding: 2px 5px;">16</span> <span style="border: 1px solid black; padding: 2px 5px;">5</span> <span style="border: 1px solid black; padding: 2px 5px;">100</span> M00	Sandwich plate with optional valve configuration

For type code and order examples of sandwich plates fitted with valves, see the relevant function groups!

Sandwich plates with optional valves can be supplied either as complete unit (with valves fitted) or as an assembly kit (only with seals, plug screws, nameplate).

- For circuits and versions other than those given in the data sheet, please consult us!
- Connection threads in HSZ plates are always closed with pressure-tight plugs.

**Spacer plates without port** (① = component side, ② = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
Sandwich plate	HSZ 16 B007-3X/M00 R900393873		140 x 91 x 20 1.8 kg	R900262858 Thread M8 x 1 provided in channels X and Y
Sandwich plate	HSZ 16 B300-3X/M00 R900568517		140 x 91 x 40 3.7 kg	R900266207
Sandwich plate	HSZ 16 B339-3X/M00 R900571221		140 x 91 x 100 9.3 kg	R900266357

### Spacer plates without port, with closed system drilling

(1) = component side, (2) = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
Sandwich plate	HSZ 16 B452-3X/ A00M00 R900579461		140 x 91 x 20 1.8 kg	R900752950
Sandwich plate	HSZ 16 B452-3X/ B00M00 R900752806		140 x 91 x 20 1.8 kg	R900752950
Sandwich plate	HSZ 16 B452-3X/ P00M00 R900771715		140 x 91 x 20 1.8 kg	R900752950
Sandwich plate	HSZ 16 B452-3X/ T00M00 R900771218		140 x 91 x 20 1.8 kg	R900752950
Sandwich plate	HSZ 16 B452-3X/ X00M00 R900901794		140 x 91 x 20 1.8 kg	R900752950
Sandwich plate	HSZ 16 B452-3X/ Y00M00 R900771785		140 x 91 x 20 1.8 kg	R900752950
Sandwich plate	HSZ 16 B452-3X/ X00Y00M00 R900771796		140 x 91 x 20 1.8 kg	R900752950

**Spacer plates with port** (1) = component side, (2) = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
Sandwich plate	HSZ 16 B036-3X/M01 R900561046		140 x 91 x 40 3.7 kg Side E   Side F A, T   B, P G1/4   G1/4	R900265685
Sandwich plate	HSZ 16 B027-3X/M01 R900568513		160 x 91 x 80 8.5 kg Side F P G1 1/4	R900266208
Sandwich plate	HSZ 16 B325-3X/M01 R900926622		160 x 91 x 80 8.5 kg Side E T G1 1/4	R900270853
Sandwich plate	HSZ 16 B048-3X/M01 R900568514		160 x 91 x 60 6.4 kg Side E   Side F A   B G1   G1	R900266209
Sandwich plate	HSZ 16 B095-3X/M01 R900568516		175 x 91 x 40 4.7 kg Side E   Side F L   X, Y G1/2   G1/2	R900266210
Sandwich plate	HSZ 16 B098-3X/M01 R900954895		175 x 91 x 40 4.7 kg Side E   Side F L   X, Y G1/2   G1/2	R900276834

**Spacer plates with connections** (1) = component side, (2) = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
Sandwich plate	HSZ 16 B061-3X/M00 R900547897		140 x 91 x 80 7.5 kg	R900278080

## Function group: Closing function

Example: **HSZ 16 B**  - 3X/

### Supplementary details on sandwich plates with integrated closing function (complete components):

11 <input type="text"/>	<b>Cracking pressure</b> of check valve type M-SR 20... (cartridge kit)	0.5 bar	= 05
12.1 <input type="text"/>	<b>Cracking pressure</b> of check valve type Z1S 16... (cartridge kit / sandwich plate)	Cracking pressure 0.5 bar	= 1
		Cracking pressure 3.0 bar	= 2
		Cracking pressure 5.0 bar	= 3
13 <input type="text"/>	<b>Cracking pressure</b> of check valve type Z2S 16... (pilot operated)	Cracking pressure 3.0 bar	= 1
		Cracking pressure 5.0 bar	= 2
		Cracking pressure 7.5 bar	= 3
		Cracking pressure 10.0 bar	= 4
14 <input type="text"/>	<b>Type of seal</b> <b>Note:</b> Observe compatibility of seals with hydraulic fluid used! (Other seals on enquiry)	NBR seals	= No code
		FKM seals	= V
26 <input type="text"/>	<b>Solenoid voltage</b> of directional valve	24 V DC voltage	= G24
		96 V DC voltage	= G96
		205 V DC voltage	= G205

AC voltage network (permissible voltage tolerance $\pm 10\%$ )	Nominal voltage of the DC solenoid when operated with AC voltage	Ordering code
110 V - 50/60 Hz 120 V - 60 Hz	96 V	G96
230 V - 50/60 Hz	205 V	G205

For connection to the AC voltage network, a DC solenoid that is controlled via a rectifier must be used (see table on the left).

In the case of individual connection, a plug-in connector with integrated rectifier may be used (separate order).

**Check valves** (1) = component side, (2) = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
Sandwich plate	Z1S 16 A <sup>12.1</sup> -1X/V		120 x 90 x 50 4.2 kg	R900263206
Supplement type designation according to page 6.				
Sandwich plate	Z1S 16 B <sup>12.1</sup> -1X/V		120 x 90 x 50 4.2 kg	R900263206
Supplement type designation according to page 6.				
Sandwich plate	Z1S 16 P <sup>12.1</sup> -1X/V		120 x 90 x 50 4.2 kg	R900263206
Supplement type designation according to page 6.				
Sandwich plate	Z1S 16 C <sup>12.1</sup> -1X/V		120 x 90 x 50 4.2 kg	R900263206
Supplement type designation according to page 6.				
Sandwich plate	Z1S 16 T <sup>12.1</sup> -1X/V		120 x 90 x 50 4.2 kg	R900263206
Supplement type designation according to page 6.				
Sandwich plate	Z1S 16 D <sup>12.1</sup> -1X/V SO4		120 x 90 x 50 4.2 kg	EV 4755C-00-3
Supplement type designation according to page 6.				
Sandwich plate	Z1S 16 E <sup>12.1</sup> -1X/V SO4		120 x 90 x 50 4.2 kg	EV 4755C-00-3
Supplement type designation according to page 6.				
Sandwich plate	Z1S 16 F <sup>12.1</sup> -1X/V		120 x 90 x 50 4.2 kg	R900263206
Supplement type designation according to page 6.				
Sandwich plate	Z1S 16 P <sup>12.1</sup> -1X/V SO68		120 x 90 x 50 4.2 kg Side F P G1/2	EV 5078-00-3
Supplement type designation according to page 6.				

Order example of complete unit: Z1S 16 A<sup>12.1</sup><sub>1</sub>-1X/<sub>V</sub><sup>14</sup>



**Check valves** (1) = component side, (2) = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<b>Sandwich plate</b>	<b>HSZ 16 B187-3X/05M00</b> R900905700		200 x 91 x 120 15.9 kg	R900266362
<b>Sandwich plate fitted with:</b>				
Check valve (cartridge kit)	M-SR 20 KE05-1X/14			RE 20380
<b>Sandwich plate</b>	<b>HSZ 16 B330-3X/05-D51M00</b>		200 x 91 x 120 15.9 kg	R900266363
<b>Sandwich plate fitted with:</b>				
Check valve (cartridge kit)	M-SR 20 KE05-1X/14 DUESE51 M8x1-DIN906			RE 20380 RN 115.06
Material no., see page 25				
<b>Sandwich plate</b>	<b>HSZ 16 B200-3X/05M00</b> R900907797		200 x 91 x 80 10.6 kg	R900266408
<b>Sandwich plate fitted with:</b>				
Check valve (cartridge kit)	M-SR 20 KE05-1X/14			RE 20380
<b>Sandwich plate</b>	<b>HSZ 16 B338-3X/05M00</b> R900737647		210 x 91 x 60 8.4 kg	R900266084
<b>Sandwich plate fitted with:</b>				
Check valve (cartridge kit)	M-SR 20 KE05-1X/14			RE 20380
<b>Sandwich plate</b>	<b>HSZ 16 B188-3X/02M00</b> R900965227		210 x 91 x 120 16.7 kg	R900278563
<b>Sandwich plate fitted with:</b>				
Check valve (cartridge kit)	M-SR 20 KE02-1X/14			RE 20380

**Order example**of complete unit: HSZ 16 B200-3X/05 11 2 3  
M 00**Order example**of complete unit: HSZ 16 B330-3X/05-D 11 51 2 3  
08 M 00

Supplement type designation according to page 6.

**Check valves, pilot operated** (1) = component side, (2) = plate side

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
Sandwich plate	Z2S 16 A <sup>13</sup> -5X/ <sup>14</sup> SO40		179 x 91 x 80 6.5 kg Side F X G1/4	RE 21558
Supplement type designation according to page 6.				
Sandwich plate	Z2S 16 B <sup>13</sup> -5X/ <sup>14</sup> SO40		179 x 91 x 80 6.5 kg Side E X G1/4	RE 21558
Supplement type designation according to page 6.				
Sandwich plate	Z2S 16 A <sup>13</sup> -5X/ <sup>14</sup> SO60		179 x 91 x 80 6.5 kg	RE 21558
Supplement type designation according to page 6.				
Sandwich plate	Z2S 16 B <sup>13</sup> -5X/ <sup>14</sup> SO60		179 x 91 x 80 6.5 kg	RE 21558
Supplement type designation according to page 6.				
Sandwich plate	HSZ 16 B526-3X/ERVEM01 R900900617		385 x 91 x 140 35.8 kg Side E X G1/4	R900266358
Sandwich plate fitted with:				
Check valve, pilot operated	FL-ERVE-R1 1/2-10X			
Sandwich plate	HSZ 16 B527-3X/ERVE-D <sup>51</sup> M00		385 x 91 x 140 35.8 kg	R900266265
Sandwich plate fitted with:				
Check valve, pilot operated	FL-ERVE-R1 1/2-10X DUESE <sup>51</sup> M8x1-DIN906			
Material no., see page 25				
Sandwich plate	HSZ 16-29794-CA/ G24N9K4M01 R900784043		200 x 120 x 200 45.4 kg Side A MA, MB G1/4 X G1/2	R900784447
Sandwich plate fitted with:				
4WE 6 D6X/EG24N9K4				
SL 20 PA2-4X/				
SL 20 PA2-4X/				

**Closing function, electrical operation** (1 = component side, 2 = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
Sandwich plate	M-Z4SEH 16 E2X/3C 26 K4		225 x 92 x 100 14.7 kg	R901071320
<b>Supplement type designation according to page 6.</b>				
Sandwich plate	M-Z4SEH 16 E2X/3C 26 ETK4		225 x 92 x 100 14.7 kg	R901071320
<b>Supplement type designation according to page 6.</b>				
Sandwich plate	M-Z4SEH 16 E2X/3C 26 EK4		225 x 92 x 100 14.7 kg	R901071320
<b>Supplement type designation according to page 6.</b>				
Sandwich plate	M-Z4SEH 16 E2X/3C 26 TK4		225 x 92 x 100 14.7 kg	R901071320
<b>Supplement type designation according to page 6.</b>				
Sandwich plate	M-Z4SEH 16 E2X/3C 26 K4		225 x 92 x 100 14.7 kg	R901071320
<b>Supplement type designation according to page 6.</b>				
Sandwich plate	M-Z4SEH 16 A2X/3C 26 K4		225 x 92 x 100 14.7 kg	R901071320
<b>Supplement type designation according to page 6.</b>				
Sandwich plate	M-Z4SEH 16 B2X/3C 26 K4		225 x 92 x 100 14.7 kg	R901071320
<b>Supplement type designation according to page 6.</b>				

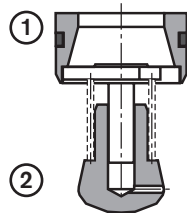
### Function group: Pressure function

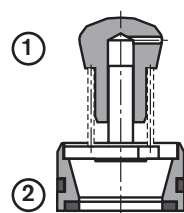
Example: **HSZ 16 B**  - 3X/

**Supplementary details on sandwich plates with integrated pressure control function (complete units):**

<p>14</p> <input type="text"/>	<p><b>Type of seal</b>  <b>Note:</b> Observe compatibility of seals with hydraulic fluid used! (Other seals on enquiry)</p>	<p>NBR seals = No code                  FKM seals = V</p>
<p>15</p> <input type="text"/>	<p><b>Adjustment element</b> on pressure relief valve type DBD..20...:</p>	<p>Grub screw with hexagon and protective cap = S                  Rotary knob = H <sup>1)</sup>                  Lockable rotary knob = A <sup>1)</sup></p>
<p>16</p> <input type="text"/>	<p><b>Pressure setting</b> on pressure relief valve Type DBD..20...:  <b>Note:</b> Code () for complete type!</p>	<p>up to 25 bar = 25 (025)                  up to 50 bar = 50 (050)                  up to 100 bar = 100                  up to 200 bar = 200                  up to 315 bar = 315</p>
<p>17</p> <input type="text"/>	<p><b>Adjustment element</b> on pressure relief valve type DB 20 K... :</p>	<p>Rotary knob = 1                  Sleeve with hexagon and protective cap = 2                  Lockable rotary knob with scale = 3                  Rotary knob with scale = 7</p>
<p>18</p> <input type="text"/>	<p><b>Pressure setting</b> on pressure relief valve type DB 20 K... :  <b>Note:</b> Code () for complete type!</p>	<p>up to 50 bar = 50 (050)                  up to 100 bar = 100                  up to 200 bar = 200                  up to 315 bar = 315</p>
<p>12</p> <input type="text"/>	<p><b>Cracking pressure</b> of check valve type D18...:</p>	<p>0.5 bar = 05BAR</p>

**Cartridge kit (versions "P" and "T"):**

	<b>Version "P" (cracking pressure 0.5 bar)</b>	
	<b>Seal material</b>	<b>Material no.</b>
	NBR	R900545200
FKM	R900545206	

	<b>Version "T" (cracking pressure 0.5 bar)</b>	
	<b>Seal material</b>	<b>Material no.</b>
	NBR	R900545203
FKM	R900545209	

<p>37</p> <input type="text"/>	<p><b>Adjustment element</b> on pressure reducing valve type DR 20 K... :</p>	<p>Rotary knob = 4                  Sleeve with hexagon and protective cap = 5                  Lockable rotary knob with scale = 6                  Rotary knob with scale = 7</p>
<p>38</p> <input type="text"/>	<p><b>Pressure setting</b> on pressure reducing valve type DR 20 K... :  <b>Note:</b> Code () for complete type!</p>	<p>Secondary pressure                  up to 50 bar = 50 (050)                  up to 100 bar = 100                  up to 200 bar = 200                  up to 315 bar = 315</p>

<sup>1)</sup> Please observe installation dimensions!

### Function group: Pressure function

Supplementary details on sandwich plates with short-circuit valves (complete units):

31	<input type="checkbox"/> <b>Size of</b> 2/2 directional poppet valve:	up to 3 l/min (symbols Y and Z) = 1 up to 20 l/min (symbols V and W) = 5 up to 30 l/min (symbols Z, ZR, Y and YR) = 5
32	<input type="checkbox"/> <b>Type code of</b> 2/2 directional poppet valve:	<b>Direct operated</b> Size 1 (symbols Y and Z) = 1 Size 5 (symbols V and W) = 1 <b>Pilot operated</b> Size 5 (symbols Y, YR, Z and ZR) = 2
33	<input type="checkbox"/> <b>Symbol of</b> 2/2 directional poppet valve:	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>= V</p> </div> <div style="text-align: center;"> <p>= W</p> </div> <div style="text-align: center;"> <p>= Y</p> </div> <div style="text-align: center;"> <p>= Z</p> </div> <div style="text-align: center;"> <p>= YR <sup>1)</sup></p> </div> <div style="text-align: center;"> <p>= ZR <sup>1)</sup></p> </div> </div>
34	<input type="checkbox"/> <b>Solenoid voltage of</b> 2/2 directional poppet valve:	24 V DC voltage = G24 230 V AC voltage, 50/60 Hz = W230
35	<input type="checkbox"/> <b>Manual override of</b> 2/2 directional poppet valve:	Without manual override (standard) = No code Manual override operation by means of pin tool = N Manual override operation using thumb pressure (only symbols V, W, Y and YR) = Size
25	<input type="checkbox"/> <b>Types of electrical connection</b> of 2/2 directional poppet valve:	Individual connection; with coupler plug = K4 <sup>2)</sup> DIN EN 175301-803, <b>without</b> female plug-in connector

<sup>1)</sup> Size 5 only

<sup>2)</sup> Female plug-in connectors must be ordered separately (see below).

### Ordering code: Plug-in connectors to DIN EN 175301-803 and ISO 4400 for coupler plug "K4"

For further plug-in connectors, see RE 08006				
	<b>Material no.</b>			
<b>Colour</b>	Without circuitry	With indicator lamp 12 ... 240 V	With rectifier 12 ... 240 V	With indicator lamp and Zener-diode suppressor circuit 24 V
Grey	<b>R901017010</b>	-	-	-
Black	<b>R901017011</b>	-	-	-
Black	-	<b>R901017022</b>	<b>R901017025</b>	<b>R901017026</b>

**Pressure relief valves, direct operated (① = component side, ② = plate side)**

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Pressure relief valve, direct operated	<b>HSZ 16 B100-3X/</b> $\begin{matrix} 15 & 16 \\ \square & \square \end{matrix}$ M00		160 x 91 x 80 9.0 kg	R900266174  RE 25402 DBD on side E
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Pressure relief valve, direct operated	<b>HSZ 16 B102-3X/</b> $\begin{matrix} 15 & 16 \\ \square & \square \end{matrix}$ M00		145 x 91 x 80 8.2 kg	R900266180  RE 25402 DBD on side F
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Pressure relief valve, direct operated	<b>HSZ 16 B106-3X/</b> $\begin{matrix} 15 & 16 \\ \square & \square \end{matrix}$ M00		200 x 91 x 80 11.1 kg	R900265651  RE 25402 DBD on side E
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Pressure relief valve, direct operated	<b>HSZ 16 B107-3X/</b> $\begin{matrix} 15 & 16 \\ \square & \square \end{matrix}$ M00		220 x 91 x 80 12.2 kg	R900265669  RE 25402 DBD on side E
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Pressure relief valve, direct operated	<b>HSZ 16 B117-3X/</b> $\begin{matrix} 15 & 16 \\ \square & \square \end{matrix}$ M00		270 x 91 x 140 26.0 kg	R900270171  RE 25402 DBD on side E
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Pressure relief valve, direct operated	<b>HSZ 16 B104-3X/A</b> $\begin{matrix} 15 & 16 & 15 & 16 \\ \square & \square & \square & \square \end{matrix}$ M00		260 x 91 x 80 14.8 kg	R900262700  RE 25402 DBD on sides E and F
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Pressure relief valve, direct operated	<b>HSZ 16 B108-3X/A</b> $\begin{matrix} 15 & 16 & 15 & 16 \\ \square & \square & \square & \square \end{matrix}$ M00		145 x 91 x 110 11.6 kg	R900266179  RE 25402 DBD on sides E and F

**Order example of complete unit with two pressure relief valves:** HSZ 16 B104-3X/A  $\begin{matrix} 15 & 16 \\ \square & \square \end{matrix}$  S  $\begin{matrix} 15 & 16 \\ \square & \square \end{matrix}$  200-B  $\begin{matrix} 15 & 16 \\ \square & \square \end{matrix}$  S  $\begin{matrix} 15 & 16 \\ \square & \square \end{matrix}$  200 M  $\begin{matrix} 2 & 3 \\ \square & \square \end{matrix}$  00

**Supplement type designation according to page 11.**

Protected channel

**Pressure relief valves, pilot operated, electrically unloadable**

(1) = component side, (2) = plate side

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Pressure relief valve, pilot operated  2/2 directional valve	HSZ 16 B562-3X/ <sup>17</sup> <input type="checkbox"/> - <sup>18</sup> <input type="checkbox"/> XYU- <sup>31</sup> <input type="checkbox"/> <sup>32</sup> <input type="checkbox"/> <sup>33</sup> <input type="checkbox"/> <sup>34</sup> <input type="checkbox"/> <sup>35</sup> <input type="checkbox"/> <sup>25</sup> <input type="checkbox"/> M01  DB 20 K <sup>17</sup> <input type="checkbox"/> -1X/ <sup>18</sup> <input type="checkbox"/> XYU  FL-2SV <sup>31</sup> <input type="checkbox"/> E <sup>32</sup> <input type="checkbox"/> <sup>33</sup> <input type="checkbox"/> .X/ <sup>34</sup> <input type="checkbox"/> <sup>35</sup> <input type="checkbox"/>		180 x 91 x 80 10.1 kg  G1/4	R900265571   RE 25818 Valve on side E  Valve on side F Port closed pressure-tight
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Pressure relief valve, pilot operated  2/2 directional valve	HSZ 16 B562-3X/ <sup>17</sup> <input type="checkbox"/> - <sup>18</sup> <input type="checkbox"/> XYU- <sup>31</sup> <input type="checkbox"/> <sup>32</sup> <input type="checkbox"/> <sup>33</sup> <input type="checkbox"/> <sup>34</sup> <input type="checkbox"/> <sup>35</sup> <input type="checkbox"/> <sup>25</sup> <input type="checkbox"/> YM01  DB 20 K <sup>17</sup> <input type="checkbox"/> -1X/ <sup>18</sup> <input type="checkbox"/> XYU  FL-2SV <sup>31</sup> <input type="checkbox"/> E <sup>32</sup> <input type="checkbox"/> <sup>33</sup> <input type="checkbox"/> .X/ <sup>34</sup> <input type="checkbox"/> <sup>35</sup> <input type="checkbox"/>		180 x 91 x 80 10.1 kg  Side F Y G1/4	R900265571   RE 25818 Valve on side E  Valve on side F

Order example of complete unit: HSZ 16 B562-3X/ <sup>17</sup>  <sup>18</sup>  <sup>31</sup>  <sup>32</sup>  <sup>33</sup>  <sup>34</sup>  <sup>35</sup>  <sup>25</sup>  Y <sup>2</sup>  <sup>3</sup>

Supplement type designation according to pages 11 and 12.

**Pressure reducing valves, pilot operated** (1 = component side, 2 = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further informa- tion
<p><b>Sandwich plate</b></p> <p>Sandwich plate fitted with:</p> <p>Pressure re- ducing valve, pilot operated</p>	<p>HSZ 16 B550-3X/<sup>37</sup> -<sup>38</sup>M01</p> <p>DR 20 K<sup>37</sup>-1X/<sup>38</sup> YM<sup>14</sup></p>		<p>140 x 91 x 100 9.5 kg</p> <p>Side E P G1/4</p>	<p>R900265046</p> <p>RE 26893 DR on side F Port Y closed pres- sure-tight</p>
<p><b>Sandwich plate</b></p> <p>Sandwich plate fitted with:</p> <p>Pressure re- ducing valve, pilot operated</p>	<p>HSZ 16 B550-3X/<sup>37</sup>- <sup>38</sup>YM01</p> <p>DR 20 K<sup>37</sup>-1X/<sup>38</sup> YM<sup>14</sup></p>		<p>140 x 91 x 100 9.5 kg</p> <p>Side E   Side F P   Y G1/4   G1/4</p>	<p>R900265046</p> <p>RE 26893 DR on side F</p>
<p><b>Sandwich plate</b></p> <p>Sandwich plate fitted with:</p> <p>Pressure re- ducing valve, pilot operated</p>	<p>HSZ 16 B557-3X/<sup>37</sup> -<sup>38</sup>M01</p> <p>DR 20 K<sup>37</sup>-1X/<sup>38</sup> YM<sup>14</sup></p>		<p>220 x 91 x 100 15.8 kg</p> <p>Side E A G1/4</p>	<p>R900265981</p> <p>RE 26893 DR on side E Port Y closed pres- sure-tight</p>
<p><b>RUECKSCHLAGVENTIL D18-<sup>12</sup><sub>05BAR</sub>/<sup>14</sup>Z1S16P</b></p>				
<p><b>Sandwich plate</b></p> <p>Sandwich plate fitted with:</p> <p>Pressure re- ducing valve, pilot operated</p>	<p>HSZ 16 B557-3X/<sup>37</sup>- <sup>38</sup>YM01</p> <p>DR 20 K<sup>37</sup>-1X/<sup>38</sup> YM<sup>14</sup></p>		<p>220 x 91 x 100 15.8 kg</p> <p>Side E   Side F A   Y G1/4   G1/4</p>	<p>R900265981</p> <p>RE 26893 DR on side E</p>
<p><b>RUECKSCHLAGVENTIL D18-<sup>12</sup><sub>05BAR</sub>/<sup>14</sup>Z1S16P</b></p>				
<p><b>Sandwich plate</b></p> <p>Sandwich plate fitted with:</p> <p>Pressure re- ducing valve, pilot operated</p>	<p>HSZ 16 B565-3X/<sup>37</sup> -<sup>38</sup>M01</p> <p>DR 20 K<sup>37</sup>-1X/<sup>38</sup> YM<sup>14</sup></p>		<p>160 x 91 x 100 11.5 kg</p> <p>Side F B, Y G1/4</p>	<p>R900262987</p> <p>RE 26893 DR on side F Port Y closed pres- sure-tight</p>
<p><b>RUECKSCHLAGVENTIL D18-<sup>12</sup><sub>05BAR</sub>/<sup>14</sup>Z1S16P</b></p>				



**Pressure reducing valve, pilot operated** (1 = component side, 2 = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<b>Sandwich plate</b>  Sandwich plate fitted with:  Pressure reducing valve, pilot operated	HSZ 16 B565-3X/ <sup>37</sup> <sup>38</sup> YM01  DR 20 K <sup>37</sup> -1X/ <sup>38</sup> YM <sup>14</sup>		160 x 91 x 100 11.5 kg  Side F B, Y G1/4	R900262987  RE 26893 DR on side F
RUECKSCHLAGVENTIL D18- <sup>12</sup> 05BAR/ <sup>14</sup> Z1S16P				

Order example of complete unit: HSZ 16 B557-3X/<sup>37</sup><sub>5</sub>-<sup>38</sup><sub>100</sub> Y <sup>2</sup><sub>M</sub> <sup>3</sup><sub>01</sub>

**Pressure reducing valves, pilot operated with 2nd pressure stage**

(1 = component side, 2 = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<b>Sandwich plate</b>  Sandwich plate fitted with:  Pressure reducing valve, pilot operated  Pressure relief valve, direct operated  2/2 directional poppet valve	HSZ 16 B640-3X/ <sup>37</sup> <sub>32</sub> - <sup>38</sup> <sub>33</sub> - <sup>15</sup> <sub>34</sub> - <sup>16</sup> <sub>35</sub> - <sup>31</sup> <sub>25</sub> M00  DR 20 K <sup>37</sup> -1X/ <sup>38</sup> YM  DBD <sup>15</sup> <sub>6</sub> K1X/ <sup>16</sup> <sub>14</sub>  FL-2SV <sup>31</sup> <sub>34</sub> E <sup>32</sup> <sub>34</sub> <sup>33</sup> <sub>35</sub> X/		185 x 91 x 100 14.0 kg	R900279887  RE 26893 DR on side F  RE 25402 DBD on side E  Valve on side E
<b>Sandwich plate</b>  Sandwich plate fitted with:  Pressure reducing valve, pilot operated  Pressure relief valve, direct operated  2/2 directional poppet valve	HSZ 16 B567-3X/ <sup>37</sup> <sub>32</sub> - <sup>38</sup> <sub>33</sub> - <sup>15</sup> <sub>34</sub> - <sup>16</sup> <sub>35</sub> - <sup>31</sup> <sub>25</sub> M00  DR 20 K <sup>37</sup> -1X/ <sup>38</sup> YM  DBD <sup>15</sup> <sub>6</sub> K1X/ <sup>16</sup> <sub>14</sub>  FL-2SV <sup>31</sup> <sub>34</sub> E <sup>32</sup> <sub>34</sub> <sup>33</sup> <sub>35</sub> X/		185 x 91 x 100 14.0 kg	R900262405  RE 26893 DR on side F  RE 25402 DBD on side E  Valve on side E
RUECKSCHLAGVENTIL D18- <sup>12</sup> 05BAR/ <sup>14</sup> Z1S16P				


## Function group: Combination of pressure and closing function

Example of load lowering function: **HSZ 16 B**  - **3X/L**

### Supplementary details on sandwich plates with integrated pressure and closing function (complete units):


<p>15</p> <input type="text" value="15"/>	<p><b>Adjustment element</b> on pressure relief valve type DBD..20...:</p>	<p>Grub screw with hexagon and protective cap = <b>S</b></p> <p>Rotary knob = <b>H</b> <sup>1)</sup></p> <p>Lockable rotary knob = <b>A</b> <sup>1)</sup></p>
<p>16</p> <input type="text" value="16"/>	<p><b>Pressure setting</b> on pressure relief valve type DBD..20...: <b>Note:</b> Code () for complete type!</p>	<p>up to 25 bar = <b>25 (025)</b></p> <p>up to 50 bar = <b>50 (050)</b></p> <p>up to 100 bar = <b>100</b></p> <p>up to 200 bar = <b>200</b></p> <p>up to 315 bar = <b>315</b></p>
<p>12</p> <input type="text" value="12"/>	<p><b>Cracking pressure</b> of check valve types D18... and D18...SO4:</p>	<p>0.5 bar = <b>05BAR</b></p>


#### Cartridge kit (versions "P" and "T"):

① 

(Version "P" (cracking pressure 0.5 bar))

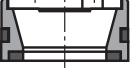
Seal material	Material no.
NBR	R900545200
FKM	R900545206

② 

① 

(Version "T" (cracking pressure 0.5 bar))

Seal material	Material no.	
NBR	R900545203	
FKM	R900545209	
D18...SO4	NBR	R900545359
	FKM	R900545360

② 

<p>14</p> <input type="text" value="14"/>	<p><b>Type of seal</b> <b>Note:</b> Observe compatibility of seals with hydraulic fluid used! (Other seals on enquiry)</p>	<p>NBR seals = <b>No code</b></p> <p>FKM seals = <b>V</b></p>
<p>44</p> <input type="text" value="44"/>	<p><b>Opening ratio</b> of load lowering valve: Further opening ratios on enquiry</p>	<p>Opening ratio 4.5 : 1 = <b>G (standard)</b> for systems with variable load conditions and structure-related fluctuations</p> <p>Opening ratio 10 : 1 = <b>H</b> for systems with relatively constant load</p>
<p>39</p> <input type="text" value="39"/>	<p><b>Pressure setting</b></p>	<p>70 to 175 bar (set value 140) = <b>K</b></p> <p>140 to 350 bar (set value 210) = <b>J</b></p>
<p>45</p> <input type="text" value="45"/>	<p><b>Opening ratio</b></p>	<p>4.5 : 1 = <b>4</b></p> <p>10 : 1 = <b>10</b></p>

<sup>1)</sup> Please observe installation dimensions!

**Counterbalance function** (1) = component side, (2) = plate side

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<b>Sandwich plate</b>  Sandwich plate fitted with:  Pressure relief valve, direct operated	HSZ 16 B216-3X/ <sup>15</sup> <sup>16</sup> M01		220 x 91 x 100 16.2 kg  Side E A G1/4	R900265832   RE 25402 DBD on side E
<b>Sandwich plate</b>  Sandwich plate fitted with:  Pressure relief valve, direct operated	HSZ 16 B218-3X/ <sup>15</sup> <sup>16</sup> M01		220 x 91 x 100 16.2 kg  Side E B G1/4	R900265743   RE 25402 DBD on side F

Order example of complete unit: HSZ 16 B216-3X/<sup>15</sup><sub>S</sub> <sup>16</sup><sub>100</sub> <sup>2</sup><sub>M</sub> <sup>3</sup><sub>01</sub>

<b>Sandwich plate</b>  Sandwich plate fitted with:  Pressure relief valve, direct operated	HSZ 16 B217-3X/A <sup>15</sup> <sup>16</sup> -B <sup>15</sup> <sup>16</sup> M01		300 x 91 x 100 22.4 kg  Side E   Side F A   B G1/4   G1/4	R900266181   RE 25402 DBD on sides E and F
--	--	--	--	--

Order example of complete unit: HSZ 16 B217-3X/A<sup>15</sup><sub>S</sub> <sup>16</sup><sub>100</sub>-B<sup>15</sup><sub>S</sub> <sup>16</sup><sub>100</sub> <sup>2</sup><sub>M</sub> <sup>3</sup><sub>01</sub>

Protected channel

Supplement type designation according to page 17.

**Pressure relief/anti-cavitation function (1 = component side, 2 = plate side)**

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<b>Sandwich plate</b>  Sandwich plate fitted with:  Pressure relief valve, direct operated  Check valve (cartridge kit)	<b>HSZ 16 B214-3X/A</b> 15 16-B 15 16 M01		380 x 91 x 130 33.8 kg  Side E   Side F A   B G1/4   G1/4	R900266191  RE 25402 DBD on sides E and F  RE 20380
<b>Sandwich plate</b>  Sandwich plate fitted with:  Pressure relief valve, direct operated  Check valve (cartridge kit)	<b>HSZ 16 B207-3X/A</b> 15 16-B 15 16 M00		270 x 91 x 140 26.1 kg	R900266094  RE 25402 DBD on sides E and F  RE 20380

Order example of complete unit: **HSZ 16 B214-3X/A** <sup>15</sup><sub>S</sub> <sup>16</sup><sub>315</sub>-**B** <sup>15</sup><sub>S</sub> <sup>16</sup><sub>315</sub> <sup>2</sup><sub>M</sub> <sup>3</sup><sub>01</sub>  
 Protected channel

<b>Sandwich plate</b>  Sandwich plate fitted with:  Pressure relief valve, direct operated  Check valve (cartridge kit)	<b>HSZ 16 B222-3X/</b> 15 16 M01		220 x 91 x 100 14.5 kg  Side E   Side F A   B G1/4   G1/4	R900766947  RE 25402 DBD on side E  RE 20380
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Order example of complete unit: **HSZ 16 B222-3X/** <sup>15</sup><sub>S</sub> <sup>16</sup><sub>100</sub> <sup>2</sup><sub>M</sub> <sup>3</sup><sub>01</sub>

Supplement type designation according to page 17.



**Throttle valves** (1) = component side, (2) = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further informa- tion
Sandwich plate	Z2FS 16-3X/S SO71 R900560759		173 x 91 x 51 4.7 kg	EV 5829-00-3
Sandwich plate	Z2FS 16-3X/S SO72 R900560760		173 x 91 x 51 4.7 kg	EV 5829-00-3
Sandwich plate	Z2FS 16-3X/S SO73 R900560761		173 x 91 x 51 4.8 kg	EV 5829-00-3
Sandwich plate	HSZ 16 B167-3X/ DVEM00 R900921382		150 x 91 x 100 10.5 kg	R900266211
Sandwich plate fitted with: Throttle valve	FL-DVE-16-01.X/0			
Sandwich plate	HSZ 16 B085-3X/A 53 M00		140 x 91 x 20 1.8 kg	R900774325
Sandwich plate fitted with:	DUESE 53 R3/8-DIN906 Material no., see page 25			RN 115.06
Sandwich plate	HSZ 16 B085-3X/B 53 M00		140 x 91 x 20 1.8 kg	R900774325
Sandwich plate fitted with:	DUESE 53 R3/8-DIN906 Material no. see page 25			RN 115.06
Sandwich plate	HSZ 16 B085-3X/P 53 M00		140 x 91 x 20 1.8 kg	R900774325
Sandwich plate fitted with:	DUESE 53 R3/8-DIN906 Material no., see page 25			RN 115.06
Sandwich plate	HSZ 16 B085-3X/T 53 M00		140 x 91 x 20 1.8 kg	R900774325
Sandwich plate fitted with:	DUESE 53 R3/8-DIN906 Material no., see page 25			RN 115.06

Order example of complete unit with 2.5 mm orifice in channel A: HSZ 16 B085-3X/A <sup>53</sup>25 <sup>2</sup>M <sup>3</sup>00

**Flow control valves, meter-in and meter-out control** (1 = component side, 2 = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
Sandwich plate Sandwich plate fitted with: STROMREGELVENTIL FDEA-LAN	HSZ 16 B459-3X/ LAM00 R900774457		220 x 91 x 100 14.5 kg	R900774477  FDEA on side E RE 18118-36
Sandwich plate Sandwich plate fitted with: STROMREGELVENTIL FDEA-LAN	HSZ 16 B460-3X/ LAM00 R900774459		220 x 91 x 100 14.5 kg	R900774478  FDEA on side F RE 18118-36
Sandwich plate Sandwich plate fitted with: STROMREGELVENTIL FDEA-LAN	HSZ 16 B454-3X/ALA- BLAM00 R900774454		220 x 91 x 100 14.5 kg	R900774476  FDEA on sides E and F RE 18118-36
Sandwich plate Sandwich plate fitted with: STROMREGELVENTIL FDEA-LAN	HSZ 16 B455-3X/ LAM00 R900774465		220 x 91 x 100 14.5 kg	R900774479  FDEA on side F RE 18118-36
Sandwich plate Sandwich plate fitted with: STROMREGELVENTIL FDEA-LAN	HSZ 16 B456-3X/ LAM00 R900774438		220 x 91 x 100 14.5 kg	R900774474  FDEA on side E RE 18118-36
Sandwich plate Sandwich plate fitted with: STROMREGELVENTIL FDEA-LAN	HSZ 16 B457-3X/ LAM00 R900774447		220 x 91 x 100 14.5 kg	R900774475  FDEA on side F RE 18118-36
Sandwich plate Sandwich plate fitted with: STROMREGELVENTIL FDEA-LAN	HSZ 16 B453-3X/ALA- BLAM00 R900774430		220 x 91 x 100 14.5 kg	R900774473  FDEA on sides E and F RE 18118-36

Order example of complete unit with two flow control valves: HSZ 16 B454-3X/ALA-BLA <sup>2</sup>M <sup>3</sup>00

Protected channel

Order example of complete unit with one flow control valve: HSZ 16 B456-3X/LA <sup>2</sup>M <sup>3</sup>00

**Flow control valve, meter-in and meter-out control** (① = component side, ② = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b>  <b>STROMREGELVENTIL FDEA-LAN</b>	<b>HSZ 16 B458-3X/ LAM00</b> <b>R900774451</b>		220 x 91 x 100 14.5 kg	R900774480  FDEA on side E RE 18118-36

- Leakage 1 -> 2 while orifice is closed  $\leq 0.8$  l/min at 350 bar
- Pre-loading of by-pass check valve = 0.7 bar
- Flow range of flow control valve: 0.8 to 95 l/min

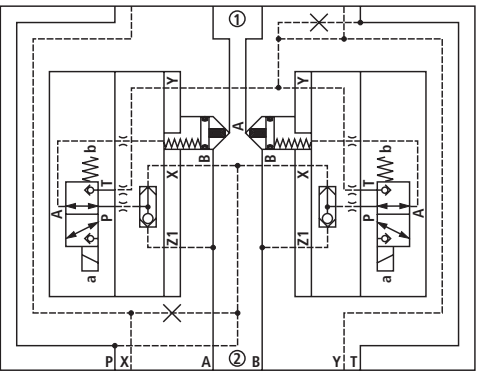
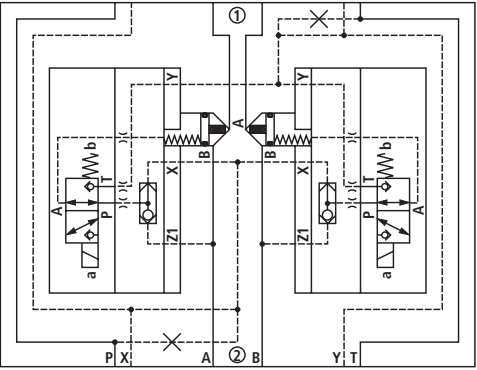
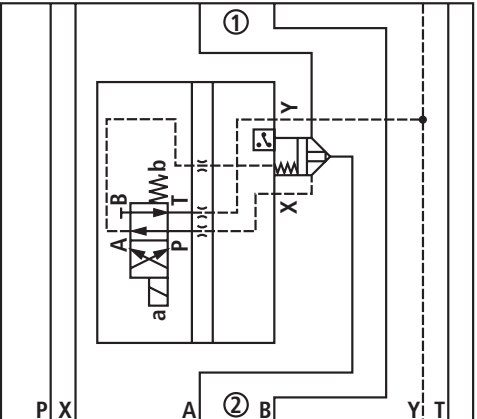
For further technical information, see RE 18115-01.

**Shuttle valve** (① = component side, ② = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b>  <b>Shuttle valve</b>	<b>HSZ 16 B232-3X/WVEM01</b> <b>R900943807</b>  <b>FL-WVE-R1/4-01X/VITON</b>		140 x 91 x 60 5.6 kg Side F X G1/4	R900266206

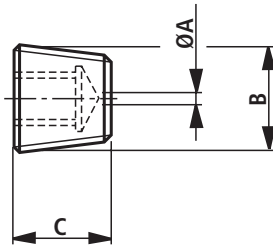


**Logic functions** (1) = component side, (2) = plate side

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<p><b>Sandwich plate</b></p> <p><b>HSZ 16-26673-AB/ G24N9K4M00 R900968903</b></p> <p>Sandwich plate fitted with:                      LC 16 A40D7X/-004                      LFA 16 D19-7X/                      LFA 16 GWA-7X/A07P07T07                      M-3SED 6 UK1X/350CG24N9K4</p> <p>(A different component placement requires another type designation and material no.)</p>			<p>200 x 91 x 120 21 kg</p>	<p>R900279458</p> <p>RE 21010 RE 21010 RE 21010 RE 22049</p> <p>Logics on sides E and F Pilot oil from P-channel Drain oil in Y-channel</p>
<p><b>Sandwich plate</b></p> <p><b>HSZ 16-26673-AC/ G24N9K4M00 R900727217</b></p> <p>Sandwich plate fitted with:                      LC 16 A40D7X/-004                      LFA 16 D19-7X/                      LFA 16 GWA-7X/A07P07T07                      M-3SED 6 UK1X/350CG24N9K4</p> <p>(A different component placement requires another type designation and material no.)</p>			<p>200 x 91 x 120 21 kg</p>	<p>R900727216</p> <p>RE 21010 RE 21010 RE 21010 RE 22049</p> <p>Logics on sides E and F Pilot oil from X-channel Drain oil in Y-channel</p>
<p><b>Sandwich plate</b></p> <p><b>HSZ 16-26859-AA/ G24N9K4M00 R900756270</b></p> <p>Sandwich plate fitted with:                      LFA 16 EWA-7X/CA10DQMG24                      A08P08T08                      4WE 6 D6X/EG24N9K4</p> <p>(A different component placement requires another type designation and material no.)</p>			<p>180 x 91 x 110 18 kg</p>	<p>R900757442</p> <p>RE 21010 RE 23178</p> <p>Logic on side E</p>

## Orifices, seals

RNI 115.06 , Form 7  
(Plug screw DIN 906)



Note: Code ( ) for complete type!

50



51



52



53



B	M6	M8 x 1	R1/8	R 3/8
C	6	8	8	10
ØA	Material no.			
<b>0.6 (06)</b>	R900157934	R900149430	R900159145	–
<b>0.7 (07)</b>	R900157931	R900143957	–	–
<b>0.8 (08)</b>	R900152276	R900136843	R900144212	R900159043
<b>0.9 (09)</b>	R900695625	R900643104	–	–
<b>1.0 (10)</b>	R900149335	R900136842	R900135607	R900159033
<b>1.1 (11)</b>	R900645667	R900144763	–	–
<b>1.2 (12)</b>	R900152286	R900139101	R900146270	R900159032
<b>1.3 (13)</b>	R900152291	R900144762	R900891295	R900163839
<b>1.4 (14)</b>	R900171199	R900158791	R900135606	–
<b>1.5 (15)</b>	R900148823	R900133712	R900144910	R900159031
<b>1.8 (18)</b>	R900157932	R900150953	R900142840	R900159030
<b>2.0 (20)</b>	R900156650	R900137299	R900155897	R900159029
<b>2.5 (25)</b>	R900157929	R900137445	R900148351	R900146259
<b>3.0 (30)</b>	R900181894	R900144761	R900111282	R900149044
<b>3.5 (35)</b>	–	–	–	R900146258
<b>4.0 (40)</b>	–	–	–	R900149052
<b>5.0 (50)</b>	–	–	–	R900152287
<b>6.0 (60)</b>	–	–	–	R900135774
<b>7.0 (70)</b>	–	–	–	R900152289
<b>7.5 (75)</b>	–	–	–	R900137643
<b>8.0 (80)</b>	–	–	–	R900626397

## Seal kit – plate:

Seal material	Material no.
NBR	R900853074
FKM	R900841029

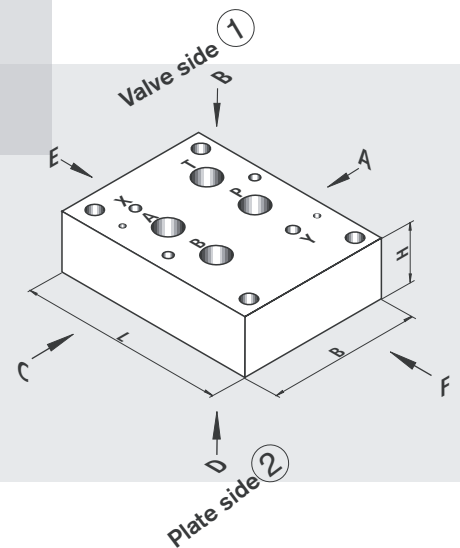
# Sandwich plates

## Porting pattern to DIN 24340 form A and ISO 4401

RE 48056/04.06  
Replaces: 10.05

1/24

### Type HSZ 22

Size 22  
Component series 3X  
Maximum operating pressure 315 bar

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## Features

- Vertical stacking modules of sandwich plate design
- Supplements the existing sandwich plate product range
- Mounted as individual modules or as vertical stacking assemblies on multi-station manifolds, modular plate system IH20 or vario-plates
- Great variability due to the possibility of different combinations and subsequent changes or extension of functions
- Maximum operating pressure
  - Without valve function: 315 bar
  - With valve function: Max. 315 bar (depends on valves fitted)
- Weight data includes installed or mounted valves

## Explanation of type code for sandwich plates HSZ 22

HSZ 22 B 1 – 3X/ 2 3 4

**1**  
  Serial number of function version from 001 ... 999 (determined in the factory)

**2**  
  **Type of seal:** NBR seals = M (standard)  
 (other seals on enquiry) FKM seals = V

**Note: Observe compatibility of seals with hydraulic fluid used!**

**3**  
  **Type of connection:** No external connection = 00  
 Connection to DIN 3852 part = 01  
 Thread to DIN ISO 228 (pipe thread)

**4**  
\* Further details in clear text

## Order examples:

Material no.	Type designation	Component designation
R900901980	HSZ 22 B036-3X/M01	Sandwich plate without valve function
R900959272	HSZ 22 B181-3X/05M01	Sandwich plate with fixed valve configuration
R900900309	HSZ 22 B106-3X/ <sup>15</sup> <span style="border: 1px solid black; padding: 0 2px;">S</span> <sup>16</sup> <span style="border: 1px solid black; padding: 0 2px;">200</span> M00	Sandwich plate with selectable valve configuration

For the type codes and order examples of sandwich plates fitted with valves, see the relevant function groups!

Sandwich plates with optional valves fitted can be delivered as complete unit (with valves installed) or as assembly kit (only with seals, plug screws, nameplate).

- **For circuits and versions other than those given in the data sheet, please consult us!**
- **Connection threads in HSZ plates are always closed with pressure-tight plugs.**

**Spacer plates without connection** (1) = component side, (2) = plate side

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
Sandwich plate	HSZ 22 B007-3X/M00 R901005966		160 x 117 x 20 2.7 kg	R901005941 Thread M12 x 1.5 provided in channels X and Y
Sandwich plate	HSZ 22 B004-3X/M00 R900907504		160 x 117 x 50 6.8 kg	R900267861

## Spacer plates without port, with blocked system drilling

(1) = component side, (2) = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
Sandwich plate	HSZ 22 B452-3X/ A00M00 R900785382		160 x 117 x 20 2.7 kg	R900785370
Sandwich plate	HSZ 22 B452-3X/ B00M00 R900785411		160 x 117 x 20 2.7 kg	R900785370
Sandwich plate	HSZ 22 B452-3X/ P00M00 R900785418		160 x 117 x 20 2.7 kg	R900785370
Sandwich plate	HSZ 22 B452-3X/ T00M00 R900785417		160 x 117 x 20 2.7 kg	R900785370
Sandwich plate	HSZ 22 B452-3X/ X00M00 R900785419		160 x 117 x 20 2.7 kg	R900785370
Sandwich plate	HSZ 22 B452-3X/ Y00M00 R900785420		160 x 117 x 20 2.7 kg	R900785370
Sandwich plate	HSZ 22 B452-3X/ X00Y00M00 R900785421		160 x 117 x 20 2.7 kg	R900785370

**Spacer plates with port** (① = component side, ② = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
Sandwich plate	HSZ 22 B036-3X/M01 R900901980		160 x 117 x 40 5.4 kg Side E   Side F A, T, X   B, P, Y G1/4   G1/4	R900266840
Sandwich plate	HSZ 22 B021-3X/M01 R900900605		170 x 117 x 80 11.6 kg Side F P G1 1/2	R900266623
Sandwich plate	HSZ 22 B065-3X/M01 R900547682		170 x 117 x 80 11.5 kg Side E   Side F T   P G1 1/2   G1 1/2	R900255851
Sandwich plate	HSZ 22 B048-3X/M01 R900533129		170 x 117 x 80 11.5 kg Side E   Side F A   B G1 1/2   G1 1/2	R900265145

**Spacer plates with connections** (① = component side, ② = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
Sandwich plate	HSZ 22 B061-3X/M00 R900910922		160 x 117 x 110 15.0 kg	R900268465

## Function group, isolating function

Example: HSZ 22 B  - 3X/

### Supplementary details on sandwich plates with integrated isolating function (complete units):

11 <input type="text"/>	<b>Cracking pressure</b> of check valve type M-SR20..., M-SR25..., M-SR30... (cartridge)	0.5 bar	= 05
12.1 <input type="text"/>	<b>Cracking pressure</b> of check valve type Z1S22...: (cartridge/sandwich plate)	Cracking pressure 0.5 bar	= 1
		Cracking pressure 3.0 bar	= 2
		Cracking pressure 5.0 bar	= 3
13 <input type="text"/>	<b>Cracking pressure</b> of check valve type Z2S22...: (pilot operated)	Cracking pressure 3.0 bar	= 1
		Cracking pressure 5.0 bar	= 2
		Cracking pressure 7.5 bar	= 3
		Cracking pressure 10.0 bar	= 4
14 <input type="text"/>	<b>Type of seals:</b> (other seals on enquiry)	NBR seals	= No code
		FKM seals	= V

**Note: Observe compatibility of seals with hydraulic fluid used!**



**Check valves** (1) = component side, (2) = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
Sandwich plate	Z1S 22 P <sup>12.1</sup> <input type="text"/> -1X/ <sup>14</sup> <input type="text"/>		155 x 115 x 55 6.4 kg	R900263207
Complete type designation according to page 6.				
Sandwich plate	Z1S 22 C <sup>12.1</sup> <input type="text"/> -1X/ <sup>14</sup> <input type="text"/>		155 x 115 x 55 6.4 kg	R900263207
Complete type designation according to page 6.				
Sandwich plate	Z1S 22 T <sup>12.1</sup> <input type="text"/> -1X/ <sup>14</sup> <input type="text"/>		155 x 115 x 55 6.4 kg	R900263207
Complete type designation according to page 6.				
Sandwich plate	Z1S 22 D <sup>12.1</sup> <input type="text"/> -1X/ <sup>14</sup> <input type="text"/>		155 x 115 x 55 6.4 kg	R900263207
Complete type designation according to page 6.				

Order example of complete unit: Z1S 22 P<sup>12.1</sup>-1X/<sup>14</sup>

**Check valves** (1) = component side, (2) = plate side

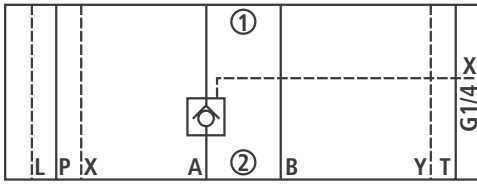
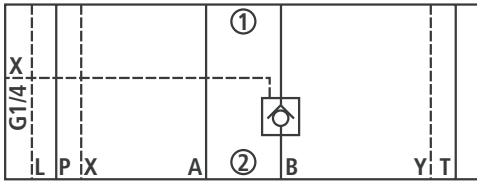
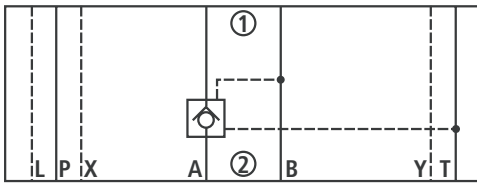
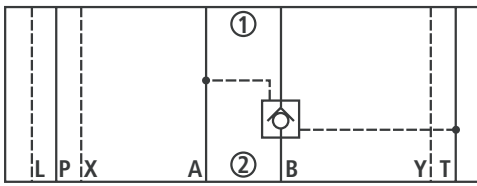
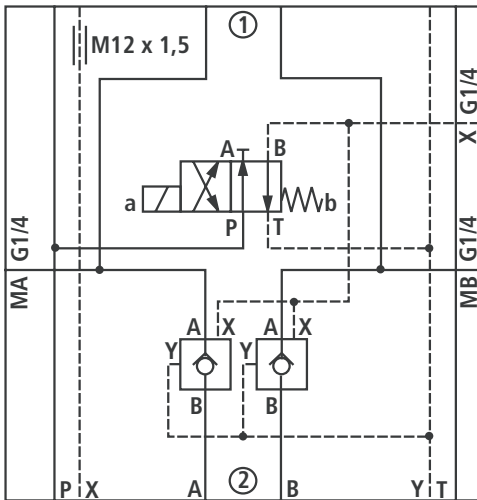
Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Check valve (cartridge)	<b>HSZ 22 B184-3X/05M00</b> <b>R900724088</b>  <b>M-SR 25 KE05-1X/□</b> <sup>14</sup>		290 x 117 x 140 34.4 kg	R900724546  RE 20380
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Check valve (cartridge)	<b>HSZ 22 B187-3X/05M00</b> <b>R900902917</b>  <b>M-SR 25 KE05-1X/□</b> <sup>14</sup>		225 x 117 x 140 26.7 kg	R900263130  RE 20380
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Check valve (cartridge)	<b>HSZ 22 B330-3X/05-<sup>51</sup></b> <b>D □ M00</b>  <b>M-SR 25 KE05-1X/□</b> <sup>14</sup> <b>DUESE □ M8x1-DIN906</b> <sup>51</sup> For material no., see page 24		225 x 117 x 140 26.7 kg	R900263129  RE 20380 RN 115.06
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Check valve (cartridge)	<b>HSZ 22 B200-3X/05M00</b> <b>R901010313</b>  <b>M-SR 20 KE05-1X/□</b> <sup>14</sup>		210 x 117 x 80 14.2 kg	R900266409  RE 20380
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Check valve (cartridge)	<b>HSZ 22 B181-3X/05M01</b> <b>R900959272</b>  <b>M-SR 30 KE05-1X/□</b> <sup>14</sup>		240 x 117 x 120 24.4 kg  Side F P G1	R900277608  RE 20380

**Order example**

 of complete unit: **HSZ 22 B200-3X/**<sup>11</sup>**05**<sup>2</sup>**M**<sup>3</sup>**00**

 of complete unit: **HSZ 22 B330-3X/**<sup>11</sup>**05**<sup>51</sup>**-D**<sup>2</sup>**08**<sup>3</sup>**M****00**
**Complete type designation according to page 6.**

**Check valves, pilot operated** (① = component side, ② = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
Sandwich plate	Z2S 22 A <sup>13</sup> □-5X/ <sup>14</sup> □ SO40		210 x 117 x 100 12 kg Side F X G1/4	RE 21564
Complete type designation according to page 6.				
Sandwich plate	Z2S 22 B <sup>13</sup> □-5X/ <sup>14</sup> □ SO40		210 x 117 x 100 12 kg Side E X G1/4	RE 21564
Complete type designation according to page 6.				
Sandwich plate	Z2S 22 A <sup>13</sup> □-5X/ <sup>14</sup> □ SO60		210 x 117 x 100 12 kg	RE 21564
Complete type designation according to page 6.				
Sandwich plate	Z2S 22 B <sup>13</sup> □-5X/ <sup>14</sup> □ SO60		210 x 117 x 100 12 kg	RE 21564
Complete type designation according to page 6.				
Sandwich plate	HSZ 22-31029-BA/ G24NK4M01 R900782835		230 x 140 x 210 67.3 kg Side A MA, MB, X G1/4	R900782917  RE 21468  RE 23178
Sandwich plate fitted with: Check valve, pilot operated 4/2 directional valve	SL 30 PA2-4X/  4WE 6 D6X/ EG24N9K4			SL valves on side E and F  Directional valve on side A
(Deviations require different type designation and material no.)				
Thread M12 x 1.5 provided in channel X				

## Function group, pressure function

Example: **HSZ 22 B** 1 - **3X/** 15 16 2 3

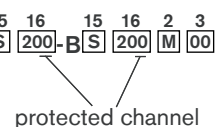
### Supplementary details for sandwich plates with integrated pressure function (complete units):

<p>14</p> <div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px;"></div>	<p><b>Type of seal:</b> (other seals on enquiry)</p>	<p>NBR seals FKM seals</p>	<p>= No code = V</p>	
<b>Note: Observe compatibility of seals with hydraulic fluid used!</b>				
<p>15</p> <div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px;"></div>	<p><b>Adjustment element on pressure relief valve type DBD.30...:</b></p>	<p>Set screw with hexagon and protective cap Rotary knob Lockable rotary knob</p>	<p>= S = H <sup>1)</sup> = A <sup>1)</sup></p>	<p><sup>1)</sup> Please observe installation dimensions!</p>
<p>16</p> <div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px;"></div>	<p><b>Pressure setting on pressure relief valve type DBD.30...:</b></p>	<p>up to 25 bar up to 50 bar up to 100 bar up to 200 bar up to 315 bar</p>	<p>= 25 (025) = 50 (050) = 100 = 200 = 315</p>	
<b>Note: Code () for complete type!</b>				
<p>37</p> <div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px;"></div>	<p><b>Adjustment element on pressure reducing valve type DR 20..., DR 30...:</b></p>	<p>Rotary knob Sleeve with hexagon and protective cap Lockable rotary knob with scale Rotary knob with scale</p>	<p>= 4 = 5 = 6 = 7</p>	
<p>38</p> <div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px;"></div>	<p><b>Pressure setting on pressure reducing valve type DR 20..., DR 30...:</b></p>	<p>Secondary pressure up to 50 bar up to 100 bar up to 200 bar up to 315 bar</p>	<p>= 50 (050) = 100 = 200 = 315</p>	
<b>Note: Code () for complete type!</b>				
<p>40</p> <div style="border: 1px solid black; width: 30px; height: 20px; margin-bottom: 5px;"></div>	<p><b>Check valve in pressure reducing valve type DR 20..., DR 30...:</b></p>	<p>with check valve without check valve</p>	<p>= No code = M</p>	

**Pressure relief valves, direct operated (① = component side, ② = plate side)**

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<b>Sandwich plate</b>	HSZ 22 B100-3X/ <input type="checkbox"/> <input type="checkbox"/> M00		280 x 117 x 100 24.8 kg	R900266083
<b>Sandwich plate fitted with:</b> Pressure relief valve, direct operated	DBD <input type="checkbox"/> 30 K1X/ <input type="checkbox"/> <input type="checkbox"/>			RE 25402 DBD on side E
<b>Sandwich plate</b>	HSZ 22 B106-3X/ <input type="checkbox"/> <input type="checkbox"/> M00		290 x 117 x 120 30.5 kg	R900264686
<b>Sandwich plate fitted with:</b> Pressure relief valve, direct operated	DBD <input type="checkbox"/> 30 K1X/ <input type="checkbox"/> <input type="checkbox"/>			RE 25402 DBD on side E
<b>Sandwich plate</b>	HSZ 22 B107-3X/ <input type="checkbox"/> <input type="checkbox"/> M00		290 x 117 x 120 30.5 kg	R900264581
<b>Sandwich plate fitted with:</b> Pressure relief valve, direct operated	DBD <input type="checkbox"/> 30 K1X/ <input type="checkbox"/> <input type="checkbox"/>			RE 25402 DBD on side E
<b>Sandwich plate</b>	HSZ 22 B139-3X/ <input type="checkbox"/> <input type="checkbox"/> M00		245 x 117 x 210 45.6 kg	R900278105
<b>Sandwich plate fitted with:</b> Pressure relief valve, direct operated	DBD <input type="checkbox"/> 30 K1X/ <input type="checkbox"/> <input type="checkbox"/>		Side F T G1/4	RE 25402 2 x DBD on side E
<b>Sandwich plate</b>	HSZ 22 B105-3X/A <input type="checkbox"/> <input type="checkbox"/> -B <input type="checkbox"/> <input type="checkbox"/> M00		360 x 117 x 120 38.6 kg	R900265073
<b>Sandwich plate fitted with:</b> Pressure relief valve, direct operated	DBD <input type="checkbox"/> 30 K1X/ <input type="checkbox"/> <input type="checkbox"/>			RE 25402 DBD on side E and F
<b>Sandwich plate</b>	HSZ 22 B108-3X/A <input type="checkbox"/> <input type="checkbox"/> -B <input type="checkbox"/> <input type="checkbox"/> M00		390 x 117 x 120 41.7 kg	R900266622
<b>Sandwich plate fitted with:</b> Pressure relief valve, direct operated	DBD <input type="checkbox"/> 30 K1X/ <input type="checkbox"/> <input type="checkbox"/>			RE 25402 DBD on side E and F

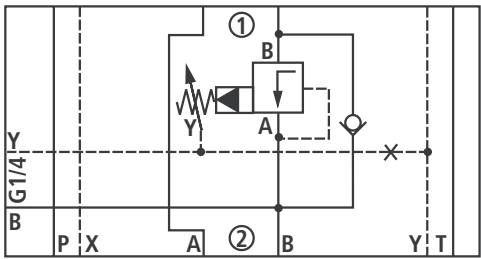
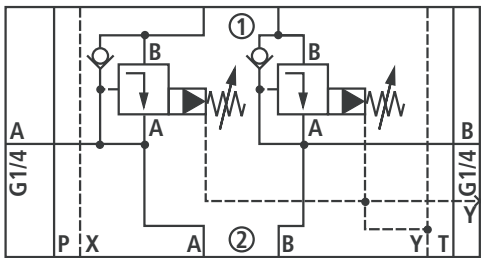
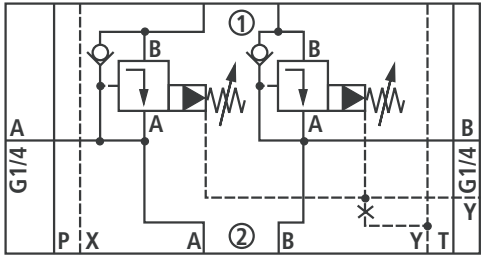
**Order example**

 of complete unit with **two** pressure relief valves: HSZ 22 B105-3X/A<sup>15</sup><sub>S</sub><sup>16</sup><sub>200</sub>-B<sup>15</sup><sub>S</sub><sup>16</sup><sub>200</sub><sup>2</sup><sub>M</sub><sup>3</sup><sub>00</sub>
**Complete type designation according to page 10.**


**Pressure reducing valves, pilot operated (DR valves size 20) (1 = component side, 2 = plate side)**

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<p><b>Sandwich plate</b></p> <p><b>Sandwich plate fitted with:</b></p> <p>Pressure reducing valve, pilot operated</p>	<p>HSZ 22 B563-3X/ 37 38 □-□M01</p> <p>DR 20-□-5X/□YM□ 37 38 14</p>		<p>210 x 117 x 150 32.0 kg</p> <p>Side F P G1/4</p>	<p>R900265747</p> <p>RE 26892 DR on side E Port Y plugged pressure-tight</p>
<p><b>Sandwich plate</b></p> <p><b>Sandwich plate fitted with:</b></p> <p>Pressure reducing valve, pilot operated</p>	<p>HSZ 22 B563-3X/ 37 38 □-□YM01</p> <p>DR 20-□-5X/□YM□ 37 38 14</p>		<p>210 x 117 x 150 32.0 kg</p> <p>Side F P, Y G1/4</p>	<p>R900265747</p> <p>RE 26892 DR on side E</p>
<p><b>Sandwich plate</b></p> <p><b>Sandwich plate fitted with:</b></p> <p>Pressure reducing valve, pilot operated</p>	<p>HSZ 22 B573-3X/ 37 38 40 □-□□M01</p> <p>DR 20-□-5X/□Y□□ 37 38 40 14</p>		<p>210 x 117 x 150 32.0 kg</p> <p>Side F A G1/4</p>	<p>R900265840</p> <p>RE 26892 DR on side E Port Y plugged pressure-tight</p>
<p><b>Sandwich plate</b></p> <p><b>Sandwich plate fitted with:</b></p> <p>Pressure reducing valve, pilot operated</p>	<p>HSZ 22 B573-3X/ 37 38 40 □-□Y□M01</p> <p>DR 20-□-5X/□Y□□ 37 38 40 14</p>		<p>210 x 117 x 150 32.0 kg</p> <p>Side F A, Y G1/4</p>	<p>R900265840</p> <p>RE 26892 DR on side E</p>
<p><b>Sandwich plate</b></p> <p><b>Sandwich plate fitted with:</b></p> <p>Pressure reducing valve, pilot operated</p>	<p>HSZ 22 B574-3X/ 37 38 40 □-□□M01</p> <p>DR 20-□-5X/□Y□□ 37 38 40 14</p>		<p>210 x 117 x 150 32.0 kg</p> <p>Side E B G1/4</p>	<p>R900267524</p> <p>RE 26892 DR on side F Port Y plugged pressure-tight</p>

Pressure reducing valves, pilot operated (DR valves size 20) (1) = component side, (2) = plate side

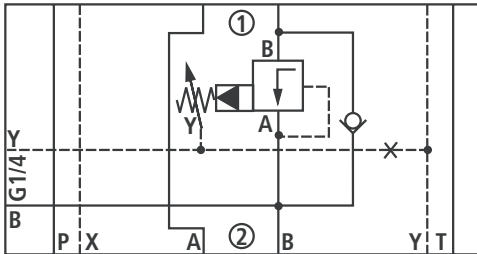
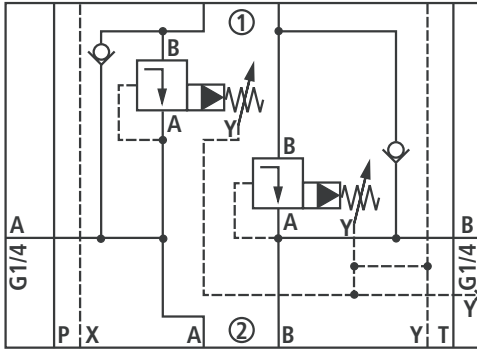
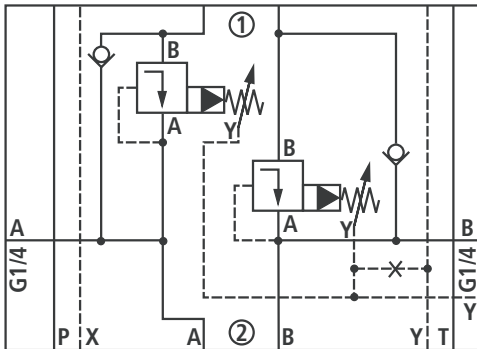
Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<p><b>Sandwich plate</b></p> <p>Sandwich plate fitted with:</p> <p>Pressure reducing valve, pilot operated</p>	<p>HSZ 22 B574-3X/ 37 38 40 □-□Y□M01</p> <p>DR 20-□-5X/□Y□□</p>		<p>210 x 117 x 150 32.0 kg</p> <p>Side E B, Y G1/4</p>	<p>R900267524</p> <p>RE 26892 DR on side F</p>
<p><b>Sandwich plate</b></p> <p>Sandwich plate fitted with:</p> <p>Pressure reducing valve, pilot operated</p>	<p>HSZ 22 B575-3X/A 37 38 37 38 40 □-□-□B□-□□M01</p> <p>DR 20-□-5X/□Y□□</p>		<p>220 x 117 x 160 40.5 kg</p> <p>Side E   Side F A   B G1/4   G1/4</p>	<p>R900265841</p> <p>RE 26892 DR on side E and F Port Y plugged pressure-tight</p>
<p><b>Sandwich plate</b></p> <p>Sandwich plate fitted with:</p> <p>Pressure reducing valve, pilot operated</p>	<p>HSZ 22 B575-3X/A 37 38 37 38 40 □-□-□B□-□Y□M01</p> <p>DR 20-□-5X/□Y□□</p>		<p>220 x 117 x 160 40.5 kg</p> <p>Side E   Side F A   B, Y G1/4   G1/4</p>	<p>R900265841</p> <p>RE 26892 DR on side E and F</p>

**Pressure reducing valves, pilot operated (DR valves size 30) (① = component side, ② = plate side)**

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of Ports	Dimensional sheet Further information
<b>Sandwich plate</b>  Sandwich plate fitted with:  Pressure reducing valve, pilot operated	HSZ 22 B558-3X/ 37 38 □-□M01  DR 30-□-5X/□YM□ 37 38 14		200 x 120 x 151 34.3 kg  Side E P G1/4	R900263198  RE 26892 DR on side F Port Y plugged pressure-tight
<b>Sandwich plate</b>  Sandwich plate fitted with:  Pressure reducing valve, pilot operated	HSZ 22 B558-3X/ 37 38 □-□YM01  DR 30-□-5X/□YM□ 37 38 14		200 x 120 x 151 34.3 kg  Side E P, Y G1/4	R900263198  RE 26892 DR on side F
<b>Sandwich plate</b>  Sandwich plate fitted with:  Pressure reducing valve, pilot operated	HSZ 22 B561-3X/ 37 38 40 □-□□M01  DR 30-□-5X/□Y□□ 37 38 40 14		200 x 120 x 151 34.3 kg  Side F A G1/4	R900263196  RE 26892 DR on side E Port Y plugged pressure-tight
<b>Sandwich plate</b>  Sandwich plate fitted with:  Pressure reducing valve, pilot operated	HSZ 22 B561-3X/ 37 38 40 □-□Y□M01  DR 30-□-5X/□Y□□ 37 38 40 14		200 x 120 x 151 34.3 kg  Side F A, Y G1/4	R900263196  RE 26892 DR on side E
<b>Sandwich plate</b>  Sandwich plate fitted with:  Pressure reducing valve, pilot operated	HSZ 22 B571-3X/ 37 38 40 □-□□M01  DR 30-□-5X/□Y□□ 37 38 40 14		200 x 120 x 151 34.3 kg  Side E B G1/4	R900255781  RE 26892 DR on side F Port Y plugged pressure-tight



**Pressure reducing valves, pilot operated (DR valves size 30) (1) = component side, (2) = plate side)**

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<b>Sandwich plate</b>	<b>HSZ 22 B571-3X/</b> 37 38 40 □-□Y□M01		200 x 120 x 151 34.3 kg	R900255781
<b>Sandwich plate fitted with:</b>  Pressure reducing valve, pilot operated	37 38 40 14 <b>DR 30-□-5X/□Y□□</b>		Side E B, Y G1/4	RE 26892 DR on side F
<b>Sandwich plate</b>	<b>HSZ 22 B560-3X/A</b> 37 38 37 38 40 □-□-□B□-□□M01		240 x 120 x 190 55.7 kg	R900263197
<b>Sandwich plate fitted with:</b>  Pressure reducing valve, pilot operated	37 38 40 14 <b>DR 30-□-5X/□Y□□</b>		Side E   Side F A   B G1/4   G1/4	RE 26892 DR on side E and F Port Y plugged pressure-tight
<b>Sandwich plate</b>	<b>HSZ 22 B560-3X/A</b> 37 38 37 38 40 □-□-□B□-□Y□M01		240 x 120 x 190 55,7 kg	R900263197
<b>Sandwich plate fitted with:</b>  Pressure reducing valve, pilot operated	37 38 40 14 <b>DR 30-□-5X/□Y□□</b>		Side E   Side F A   B, Y G1/4   G1/4	RE 26892 DR on side E and F

**Order example**

of complete unit with **one** pressure reducing valve: HSZ 22 B563-3X/<sup>37 38 40 2 3</sup><sub>5-100 M M 01</sub>

of complete unit with **two** pressure reducing valves : HSZ 22 B575-3X/A<sup>37 38 37 38 40 2 3</sup><sub>5-100-B5-200 M M 01</sub>

Complete type designation according to page 10.

protected channel

## Function group, combined pressure and isolating function

Example of load lowering function: **HSZ 22 B** 1 - **3X/L** 39 45 2 3

### Supplementary details for sandwich plates with integrated pressure and isolating function (complete units):

<div style="border: 1px solid black; width: 30px; height: 25px; margin-bottom: 5px; text-align: center; font-size: 10px;">15</div> <div style="border: 1px solid black; width: 30px; height: 25px; margin-bottom: 5px;"></div>	<p><b>Adjustment element</b> on pressure relief valve type DBD.20..., DBD.30...:</p>	<p>Set screw with hexagon and protective cap</p> <p>Rotary knob</p> <p>Lockable rotary knob</p>	<p>= S</p> <p>= H <sup>1)</sup></p> <p>= A <sup>1)</sup></p>	<p><sup>1)</sup> Please observe installation dimensions!</p>
<div style="border: 1px solid black; width: 30px; height: 25px; margin-bottom: 5px; text-align: center; font-size: 10px;">16</div> <div style="border: 1px solid black; width: 30px; height: 25px; margin-bottom: 5px;"></div>	<p><b>Pressure setting</b> on pressure relief valve type DBD.20..., DBD.30...:</p> <p><b>Note:</b> Code ( ) for complete type!</p>	<p>up to 25 bar</p> <p>up to 50 bar</p> <p>up to 100 bar</p> <p>up to 200 bar</p> <p>up to 315 bar</p>	<p>= 25 (025)</p> <p>= 50 (050)</p> <p>= 100</p> <p>= 200</p> <p>= 315</p>	
<div style="border: 1px solid black; width: 30px; height: 25px; margin-bottom: 5px; text-align: center; font-size: 10px;">14</div> <div style="border: 1px solid black; width: 30px; height: 25px; margin-bottom: 5px;"></div>	<p><b>Type of seal:</b> (other seals on enquiry)</p>	<p>NBR seals</p> <p>FKM seals</p>	<p>= No code</p> <p>= V</p>	
<p><b>Note: Observe compatibility of seals with hydraulic fluid used!</b></p>				
<div style="border: 1px solid black; width: 30px; height: 25px; margin-bottom: 5px; text-align: center; font-size: 10px;">44</div> <div style="border: 1px solid black; width: 30px; height: 25px; margin-bottom: 5px;"></div>	<p><b>Opening ratio</b> of load lowering valve:</p>	<p>Opening ratio 4.5 : 1 for systems with variable load conditions and structure-related fluctuations</p> <p>Opening ratio 10 : 1 for systems with relatively constant load (other opening ratios on enquiry)</p>	<p>= G (standard)</p> <p>= H</p>	
<div style="border: 1px solid black; width: 30px; height: 25px; margin-bottom: 5px; text-align: center; font-size: 10px;">39</div> <div style="border: 1px solid black; width: 30px; height: 25px; margin-bottom: 5px;"></div>	<p><b>Adjustment range</b></p>	<p>70 to 175 bar (setting 140)</p> <p>140 to 350 bar (setting 210)</p>	<p>= K</p> <p>= J</p>	
<div style="border: 1px solid black; width: 30px; height: 25px; margin-bottom: 5px; text-align: center; font-size: 10px;">45</div> <div style="border: 1px solid black; width: 30px; height: 25px; margin-bottom: 5px;"></div>	<p><b>Opening ratio</b></p>	<p>4.5 : 1</p> <p>10 : 1</p>	<p>= 4</p> <p>= 10</p>	

**Counterbalance function** (1 = component side, 2 = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Pressure relief valve, direct operated Check valve (cartridge)	HSZ 22 B216-3X/ <input type="checkbox"/> <input type="checkbox"/> M01  DBD <input type="checkbox"/> 30 K1X/ <input type="checkbox"/> <input type="checkbox"/> M-SR 25 KE05-1X/ <input type="checkbox"/>		290 x 117 x 120 30.5 kg  Side E A G1/4	R900264618  RE 25402 DBD on side E  RE 20380
<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Pressure relief valve, direct operated Check valve (cartridge)	HSZ 22 B218-3X/ <input type="checkbox"/> <input type="checkbox"/> M01  DBD <input type="checkbox"/> 30 K1X/ <input type="checkbox"/> <input type="checkbox"/> M-SR 25 KE05-1X/ <input type="checkbox"/>		290 x 117 x 120 30.5 kg  Side E B G1/4	R900264566  RE 25402 DBD on side F  RE 20380

Order example of complete unit: HSZ 22 B218-3X/<sup>15</sup><sup>16</sup><sup>2</sup><sup>3</sup>

<b>Sandwich plate</b>  <b>Sandwich plate fitted with:</b> Pressure relief valve, direct operated Check valve (cartridge)	HSZ 22 B217-3X/ <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> - <sup>15</sup> <input type="checkbox"/> <sup>16</sup> <input type="checkbox"/> M01  DBD <input type="checkbox"/> 30 K1X/ <input type="checkbox"/> <input type="checkbox"/> M-SR 25 KE05-1X/ <input type="checkbox"/>		400 x 117 x 140 49.5 kg  Side E A G1/4  Side F B G1/4	R900239395  RE 25402 DBD on side E and F  RE 20380
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Order example of complete unit: HSZ 22 B217-3X/A<sup>15</sup><sup>16</sup>-B<sup>15</sup><sup>16</sup><sup>2</sup><sup>3</sup>

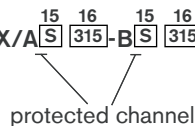
protected channel

Complete type designation according to page 16.

**Pressure relief/anti-cavitation function** (1 = component side, 2 = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<b>Sandwich plate</b>  Sandwich plate fitted with: Pressure relief valve, direct operated Check valve (cartridge)	HSZ 22 B214-3X/ 15 16 15 16 A□ □-B□ □M01  DBD□ 20 K1X/□ □  M-SR 25 KE05-1X/□		345 x 117 x 140 42.0 kg  Side E   Side F A   B G1/4   G1/4	R900276537  RE 25402 DBD on side E and F  RE 20380
<b>Sandwich plate</b>  Sandwich plate fitted with: Pressure relief valve, direct operated Check valve (cartridge)	HSZ 22 B590-3X/ 15 16 15 16 A□ □-B□ □M01  DBD□ 30 K1X/□ □  M-SR 30 KE05-1X/□		325 x 117 x 240 68.0 kg  Side E   Side F A   B G1/4   G1/4	R900273785  RE 25402 DBD on side E and F  RE 20380
<b>Sandwich plate</b>  Sandwich plate fitted with: Pressure relief valve, direct operated Check valve (cartridge)	HSZ 22 B207-3X/ 15 16 15 16 A□ □-B□ □M00  DBD□ 20 K1X/□ □  M-SR 20 KE05-1X/□		240 x 117 x 130 27.5 kg	R900262897  RE 25402 DBD on side E and F  RE 20380
<b>Sandwich plate</b>  Sandwich plate fitted with: Pressure relief valve, direct operated Check valve (cartridge)	HSZ 22 B582-3X/ 15 16 15 16 A□ □-B□ □M00  DBD□ 30 K1X/□ □  M-SR 20 KE05-1X/□		390 x 117 x 160 54.0 kg	R900270358  RE 25402 DBD on side E and F  RE 20380

Order example of complete unit: HSZ 22 B214-3X/A<sup>15</sup><sub>S</sub><sup>16</sup><sub>315</sub>-B<sup>15</sup><sub>S</sub><sup>16</sup><sub>315</sub><sup>2</sup><sub>M</sub><sup>3</sup><sub>01</sub>



Complete type designation according to page 16.

**Pressure relief/anti-cavitation function (1 = component side, 2 = plate side)**

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<p><b>Sandwich plate</b></p> <p><b>Sandwich plate fitted with:</b></p> <p>Pressure relief valve, direct operated</p> <p>Check valve (cartridge)</p>	<p>HSZ 22 B222-3X/  <sup>15</sup> <sup>16</sup>  <input type="checkbox"/> <input type="checkbox"/> M01</p> <p><sup>15</sup> <sup>16</sup> <sup>14</sup>                      DBD <input type="checkbox"/> 30 K1X/<input type="checkbox"/> <input type="checkbox"/></p> <p><sup>14</sup>                      M-SR 30 KE05-1X/<input type="checkbox"/></p>		<p>300 x 120 x 180 46.0 kg</p> <p>Side E   Side F                      A   B                      G1/4   G1/4</p>	<p>R901007254</p> <p>RE 25402 DBD on side E</p> <p>RE 20380</p>

Order example of complete unit: HSZ 22 B222-3X/<sup>15</sup> <sup>16</sup> <sup>2</sup> <sup>3</sup>

Complete type designation according to page 16.

**Load lowering function (complete unit) (1) = component side, (2) = plate side**

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
Sandwich plate  Sandwich plate fitted with:  SENKBREMSVENTIL CBI <input type="checkbox"/> <sup>44</sup> -L <input type="checkbox"/> <sup>39</sup> N	HSZ 22 B430-3X/L <sup>39 45</sup> <input type="checkbox"/> <input type="checkbox"/> M01		250 x 117 x 140 30.0 kg  Side F A G1/4	R901001247  RE 18115-09 RE 18115-13 CBG on side E
Sandwich plate  Sandwich plate fitted with:  SENKBREMSVENTIL CBI <input type="checkbox"/> <sup>44</sup> -L <input type="checkbox"/> <sup>39</sup> N	HSZ 22 B431-3X/L <sup>39 45</sup> <input type="checkbox"/> <input type="checkbox"/> M01		250 x 117 x 140 30.0 kg  Side E B G1/4	R900720707  RE 18115-09 RE 18115-13 CBG on side F

**Order example**

 of complete unit with **one load lowering valve**: HSZ 22 B430-3X/L  <sup>39</sup>  <sup>45</sup>  <sup>2</sup>  <sup>3</sup>

Pre-loading of check valve = 2 bar

**Not** suitable for use with a proportional directional valve and for regenerative circuits (please consult us!)

For further technical information, see RE 18115-01.

Complete type designation according to page 16.

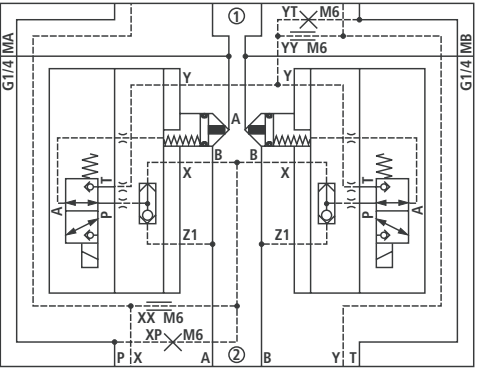
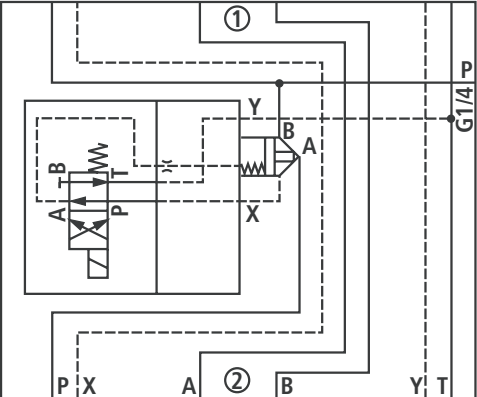
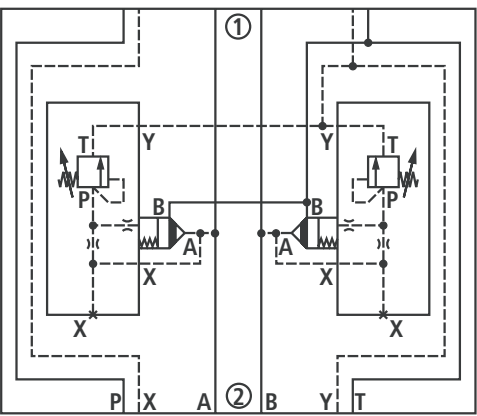
**Throttling functions** (1) = component side, (2) = plate side)

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<b>Sandwich plate</b>  <b>Sandwich plate fitted with</b> <b>DUESE</b> <input type="checkbox"/> R1/2-DIN906 For material no., see page 24	<b>HSZ 22 B085-3X/</b> <sup>54</sup> <b>A</b> <input type="checkbox"/> M00		160 x 117 x 20 2.7 kg	R900786367  RN 115.06
<b>Sandwich plate</b>  <b>Sandwich plate fitted with</b> <b>DUESE</b> <input type="checkbox"/> R1/2-DIN906 For material no., see page 24	<b>HSZ 22 B085-3X/</b> <sup>54</sup> <b>B</b> <input type="checkbox"/> M00		160 x 117 x 20 2.7 kg	R900786367  RN 115.06
<b>Sandwich plate</b>  <b>Sandwich plate fitted with</b> <b>DUESE</b> <input type="checkbox"/> R1/2-DIN906 For material no., see page 24	<b>HSZ 22 B085-3X/</b> <sup>54</sup> <b>P</b> <input type="checkbox"/> M00		160 x 117 x 20 2.7 kg	R900786367  RN 115.06
<b>Sandwich plate</b>  <b>Sandwich plate fitted with</b> <b>DUESE</b> <input type="checkbox"/> R1/2-DIN906 For material no., see page 24	<b>HSZ 22 B085-3X/</b> <sup>54</sup> <b>T</b> <input type="checkbox"/> M00		160 x 117 x 20 2.7 kg	R900786367  RN 115.06

**Order example**

 of complete unit with 0.8 mm orifice in channel A: **HSZ 22 B085-3X/A** <sup>54</sup><sub>08</sub> <sub>M</sub> <sub>00</sub>

**Logic functions** (1) = component side, (2) = plate side

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<p><b>Sandwich plate</b></p> <p><b>HSZ 22-26679-AC/ G24N9K4M01 R900723039</b></p> <p>Sandwich plate fitted with:  <b>LC 25 A40D7X/-004</b>  <b>LFA 25 D19-7X/</b>  <b>LFA 25 GWA-7X/A10P10T10</b>  <b>M-3SED 6 UK1X/350CG24N9K4</b>                      (Deviations require different type designation and material no.)</p>		<p>260 x 117 x 150 45 kg</p> <p>Side C MA, MB G1/4</p>	<p>R900723913</p> <p>RE 21010 RE 21010 RE 21010 RE 22049</p> <p>Logics on side E and F Pilot oil from X-channel Drain oil in Y-channel</p>	
<p><b>Sandwich plate</b></p> <p><b>HSZ 22-26733-AA/ G24N9K4M01 R900957409</b></p> <p>Sandwich plate fitted with:  <b>LC 32 A20E7X/</b>  <b>LFA 32 WEA-7X/A10</b>  <b>4WE 6 D6X/EG24N9K4</b>                      (Deviations require different type designation and material no.)</p>		<p>240 x 117 x 160 38 kg</p> <p>Side F P G1/4</p>	<p>R900277281</p> <p>RE 21010 RE 21010 RE 23178</p> <p>Logic on side F</p>	
<p><b>Sandwich plate</b></p> <p><b>HSZ 22-26764-AA/ HM00 R900970000</b></p> <p>Sandwich plate fitted with:  <b>LC 32 DB20D7X/</b>  <b>LFA 32 DB2-7X/315</b>                      (Deviations require different type designation and material no.)</p>		<p>280 x 130 x 180 55 kg</p>	<p>R900279564</p> <p>RE 21050 RE 21050</p> <p>Logics on side E and F</p>	



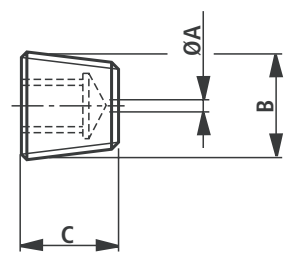
**Logic functions** (1) = component side, (2) = plate side

Component designation	Type designation Material no.	Symbol	Plate L x W x H Weight Size of ports	Dimensional sheet Further information
<p><b>Sandwich plate</b></p> <p><b>HSZ 22-26779-AA/ G24N9K4M00 R900973219</b></p> <p>Sandwich plate fitted with:  <b>LC 32 A10D7X/ LFA 32 WEA-7X/A10P10 M-3SEW 6 C3X/420MG24N9K4 M-SR 25 KE05-1X/</b>                      (Deviations require different type designation and material no.)</p>			<p>270 x 130 x 150 43.3 kg</p>	<p>R900239440</p> <p>RE 21010 RE 21010 RE 22058 RE 20380 Logics on side E</p>
<p><b>Sandwich plate</b></p> <p><b>HSZ 22-26531-CA/ HM01 R900617404</b></p> <p>Sandwich plate fitted with:  <b>LC 32 DB40E7X/ LFA 32 DR2-7X/210 M-SR 8 KE05-1X/</b>                      (Deviations require different type designation and material no.)</p>			<p>245 x 130 x 160 37.5 kg</p> <p>Side E MP G1/4</p>	<p>R900617406</p> <p>RE 21050 RE 21050 RE 20380 Logic on side F</p>

## Orifices, seals

Form 7 (RN 115.06)

Plug screw to DIN 906

**Note:**

Code () for complete type.

	50	51	52	53	54
<b>B</b>	M6	M8 x 1	R1/8	R3/8	R1/2
<b>C</b>	6	8	8	10	10
<b>ØA</b>	<b>Material no.</b>				
<b>0.6 (06)</b>	R900157934	R900149430	R900159145	–	–
<b>0.7 (07)</b>	R900157931	R900143957	–	–	–
<b>0.8 (08)</b>	R900152276	R900136843	R900144212	R900159043	R900691565
<b>0.9 (09)</b>	R900695625	R900643104	–	–	–
<b>1.0 (10)</b>	R900149335	R900136842	R900135607	R900159033	R900139115
<b>1.1 (11)</b>	R900645667	R900144763	–	–	–
<b>1.2 (12)</b>	R900152286	R900139101	R900146270	R900159032	R900150714
<b>1.3 (13)</b>	R900152291	R900144762	R900891295	R900163839	–
<b>1.4 (14)</b>	R900171199	R900158791	R900135606	–	–
<b>1.5 (15)</b>	R900148823	R900133712	R900144910	R900159031	R900139117
<b>1.8 (18)</b>	R900157932	R900150953	R900142840	R9001590301	R900159026
<b>2.0 (20)</b>	R900156650	R900137299	R900155897	R900159029	R900148352
<b>2.5 (25)</b>	R900157929	R900137445	R900148351	R900146259	R900148353
<b>3.0 (30)</b>	R900181894	R900144761	R900111282	R900149044	R900148361
<b>3.5 (35)</b>	–	–	–	R900146258	–
<b>4.0 (40)</b>	–	–	–	R900149052	R900644450
<b>4.5 (45)</b>	–	–	–	–	R900635896
<b>5.0 (50)</b>	–	–	–	R900152287	R900143775
<b>6.0 (60)</b>	–	–	–	R900135774	R900147875
<b>6.5 (65)</b>	–	–	–	–	R900173555
<b>7.0 (70)</b>	–	–	–	R900152289	–
<b>7.5 (75)</b>	–	–	–	R900137643	–
<b>8.0 (80)</b>	–	–	–	R900626397	R900159028
<b>10.0 (100)</b>	–	–	–	–	R900626653

**Seal kit – plate:**

Seal material	Material no.
NBR	R900853079
FKM	R901010970

# 2-way flow control valve

## Type 2FRM

**RE 28163**

Edition: 2015-07

Replaces: 02.09



H5851+5852

- ▶ Size 6
- ▶ Component series 3X
- ▶ Maximum operating pressure 315 bar
- ▶ Maximum flow 32 l/min

### Features

- ▶ Porting pattern according to DIN 24340 form A
- ▶ External closing of the pressure compensator, optional
- ▶ As threaded connection for control panel installation with connection thread G3/8
- ▶ Check valve, optional
- ▶ 2 adjustment types, optionally:
  - Rotary knob with scale
  - Lockable rotary knob with scale

### Contents

Features	1
Ordering codes	2, 3
Symbols	3, 4
Function, section	4 ... 6
Technical data	7, 8
Characteristic curves	8, 9
Dimensions	10 ... 13
More information	14

**Ordering code:** 2-way flow control valve

01	02	03	04	05	06	07	08	09	10
<b>2FRM</b>	<b>6</b>			<b>6</b>	<b>-</b>	<b>3X</b>	<b>/</b>		<b>*</b>

01	2-way flow control valve	<b>2FRM</b>
02	Size 6	<b>6</b>
03	<b>With</b> closing of the pressure compensator (suppression of the start-up jump)	<b>A</b>
	<b>Without</b> closing of the pressure compensator	<b>B</b>
	<b>Without</b> closing of the pressure compensator – <b>for control panel installation</b>	<b>SB</b>

**Adjustment type**

04	Lockable rotary knob with scale <sup>1)</sup>	<b>3</b>
	Rotary knob with scale	<b>7</b>
05	Zero position of the marking at port P	<b>6</b>
06	Component series 30 ... 39 (30 ... 39: Unchanged installation and connection dimensions)	<b>3X</b>


**Flow (A → B)**

07	up to 0.2 l/min	<b>0.2Q</b>
	up to 0.6 l/min	<b>0.6Q</b>
	up to 1.5 l/min	<b>1.5Q</b>
	up to 3.0 l/min	<b>3Q</b>
	up to 6.0 l/min	<b>6Q</b>
	up to 10.0 l/min	<b>10Q</b>
	up to 16.0 l/min	<b>16Q</b>
	up to 25.0 l/min	<b>25Q</b>
	up to 32.0 l/min	<b>32Q</b>
08	<b>With</b> check valve	<b>R</b>
	<b>Without</b> check valve	<b>M</b>

**Seal material**

09	NBR seals	<b>no code</b>
	FKM seals	<b>V</b>
	Observe compatibility of seals with hydraulic fluid used! (Other seals upon request)	
10	Further details in the plain text	<b>*</b>

<sup>1)</sup> Key with the material no. **R900008158** is included in the scope of delivery.

 **Notice:** Preferred types and standard units are contained in the EPS (standard price list).

**Ordering code:** Rectifier sandwich plate (only version "B")

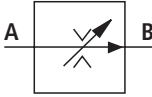
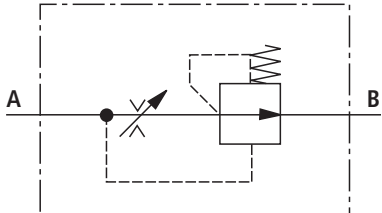
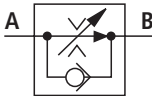
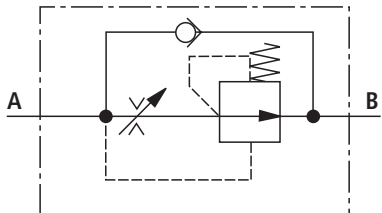
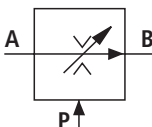
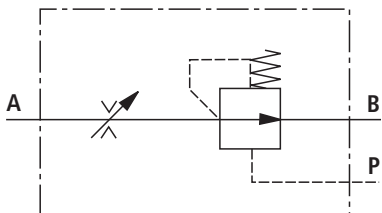
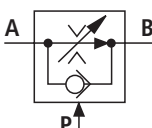
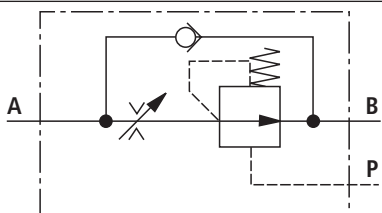
01	02	03	04	05
Z4S	6	-	1X	/
				*

01	Rectifier sandwich plate	Z4S
02	Size 6	6
03	Component series 10 ... 19 (10 ... 19: Unchanged installation and connection dimensions)	1X

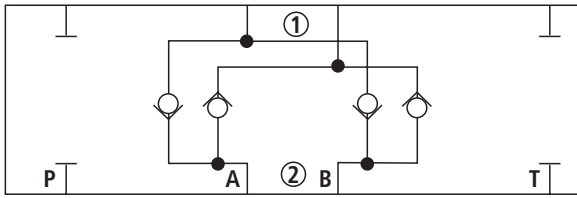
**Seal material**

04	NBR seals	no code
	FKM seals	V
Observe compatibility of seals with hydraulic fluid used! (Other seals upon request)		
05	Further details in the plain text	*

**Symbols:** 2-way flow control valves

	Simplified	Detailed
<p><b>Without</b> check valve;  <b>without</b> external closing                      Type 2FRM 6 B...M...                      Type 2FRM 6 SB...M...</p>		
<p><b>With</b> check valve;  <b>without</b> external closing                      Type 2FRM 6 B...R...                      Type 2FRM 6 SB...R...</p>		
<p><b>Without</b> check valve;  <b>with</b> external closing                      Type 2FRM 6 A...M...</p>		
<p><b>With</b> check valve;  <b>with</b> external closing                      Type 2FRM 6 A...R...</p>		

**Symbol:** Rectifier sandwich plate (① = component side, ② = plate side)



### Function, section: Type 2FRM 6 B...

#### General

The flow control valve type 2FRM is a 2-way flow control valve. It is used for maintaining a constant flow, independent of pressure and temperature.

The valve basically comprises a housing (1), a rotary knob (2), orifice bush (3), pressure compensator (4) and an optional check valve.

#### Version "B" ... "M"

(**without** external closing, **without** check valve)

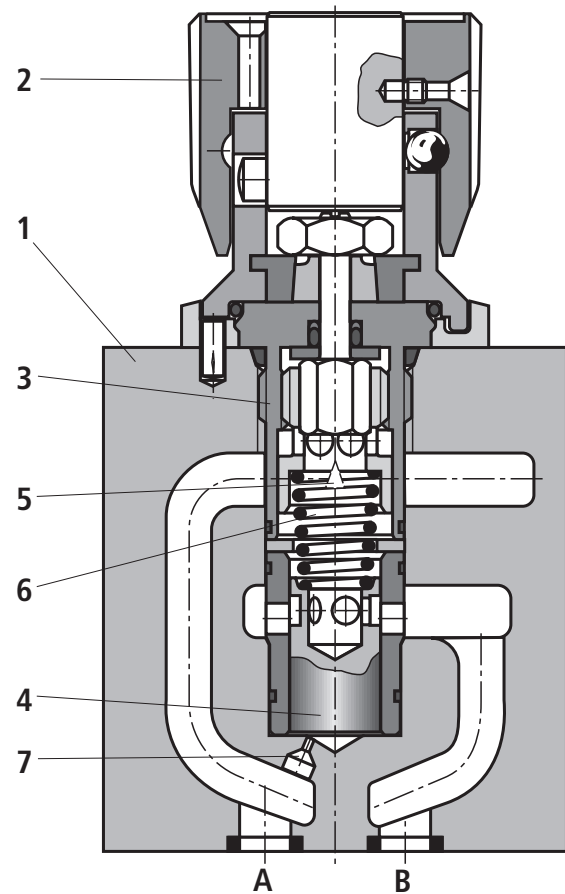
The flow from channel A to B is throttled at the throttling point (5). The throttle cross-section is set by turning the rotary knob (2).

In order to keep the flow in channel B constant, independent of the pressure, a pressure compensator (4) is fitted downstream of the throttling point (5).

The compression spring (6) presses the pressure compensator (4) downwards against its stop and keeps the pressure compensator (4) in the open position when there is no flow through the valve. When fluid flows through the valve, the pressure acting in channel A applies a force to the pressure compensator (4) via nozzle (7).

The pressure compensator (4) moves into the controlled position until the forces balance. If the pressure in channel A rises, the pressure compensator (4) moves in the closing direction until a balance of forces is once again attained. Due to this continuous compensation of the pressure compensator (4), a constant flow is obtained.

In order to control a flow through the valve in both directions, a rectifier sandwich plate type Z4S 6 may be fitted below this flow control valve.



Type 2FRM 6 B76-3X/.M...

## Function, section, circuit example: Type 2FRM 6 A...

### General

The flow control valve type 2FRM is a 2-way flow control valve.

It is used for maintaining a constant flow, independent of pressure and temperature.

The valve basically comprises a housing (1), a rotary knob (2), orifice bush (3), pressure compensator (4) and an optional check valve (8).

### Version "A" ... "R"

(with external closing, with check valve)

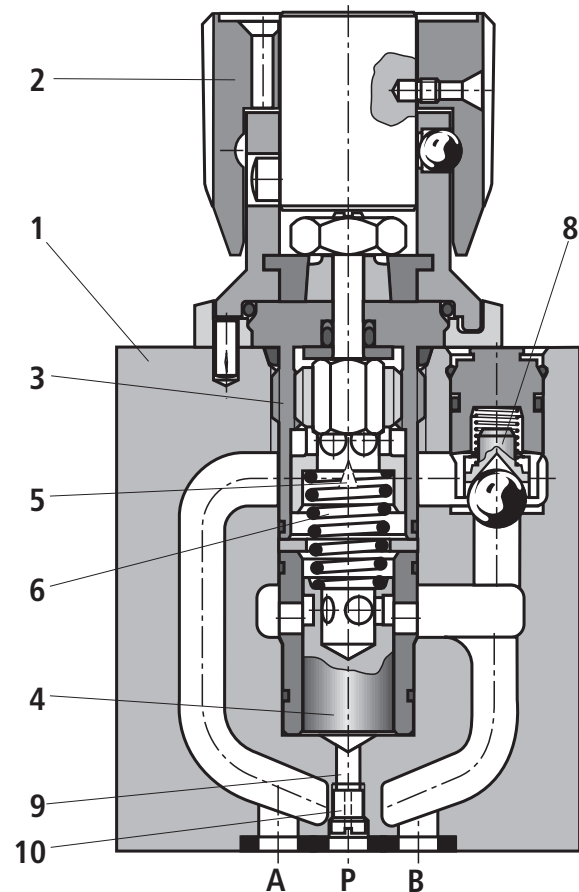
In principle, the function of this valve corresponds to the function of version "B" ... "M".

However, the flow control valve is provided with the possibility of an external closing of the pressure compensator (4) via channel P (9). The external pressure acting in channel P (9) via nozzle (10), holds the pressure compensator (4) in closed position against the compression spring (6). When the connected directional valve (11) is switched over to permit flow from P to B, control is achieved as with type "B". Thus, a start-up jump is avoided. This version can only be used for the supply control. The free return flow from channel B to A is via the check valve (8).

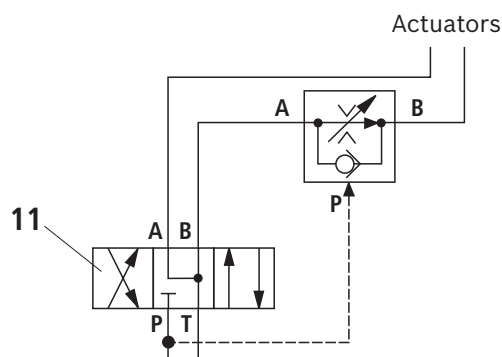


#### Notice:

The pressure loss of port P upstream of the directional valve to port A upstream of the flow control valve makes itself felt by a reduced flow.



Type 2FRM 6 A76-3X/..RV



**Function, section: Type 2FRM 6 SB...****General**

The flow control valve type 2FRM is a 2-way flow control valve.

It is used for maintaining a constant flow, independent of pressure and temperature.

The valve basically comprises a housing (1), a rotary knob (2), orifice bush (3), pressure compensator (4) and an optional check valve (8).

**Version "SB" ... "RV"**

(**without** external closing, **with** check valve, with threaded connection **for control panel installation**)

The flow from channel A to B is throttled at the throttling point (5). The throttle cross-section is set by turning the rotary knob (2).

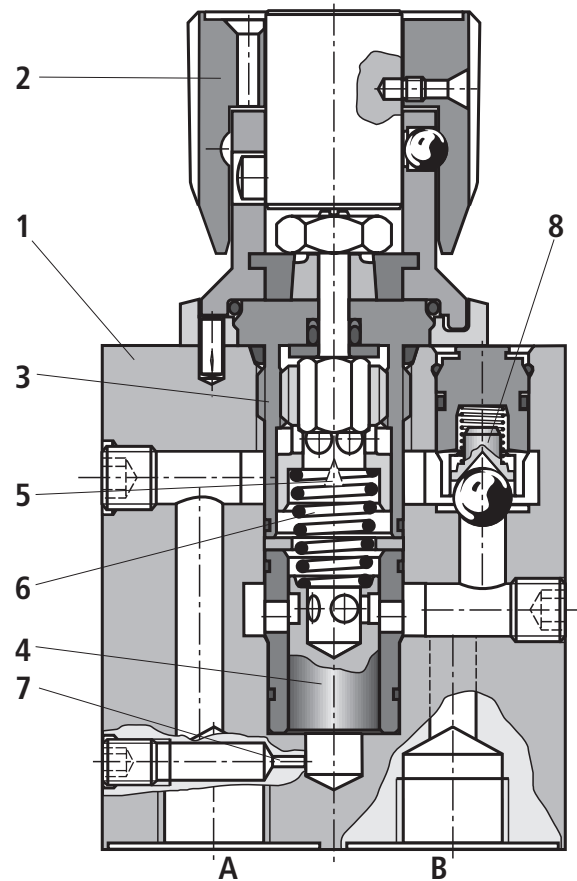
In order to keep the flow in channel B constant, independent of the pressure, a pressure compensator (4) is fitted downstream of the throttling point (5).

The compression spring (6) presses the pressure compensator (4) downwards against its stop and keeps the pressure compensator (4) in the open position when there is no flow through the valve. When fluid flows through the valve, the pressure acting in channel A applies a force to the pressure compensator (4) via nozzle (7).

The pressure compensator (4) moves into the controlled position until the forces balance. If the pressure in channel A rises, the pressure compensator (4) moves in the closing direction until a balance of forces is once again attained.

Due to this continuous compensation of the pressure compensator (4), a constant flow is obtained.

The free return flow from channel B to channel A is via the check valve (8).

**Type 2FRM 6 SB76-3X/..R...**



**Technical data:** 2-way flow control valve

(For applications of the component outside the specified values, please contact us!)

general			
Weight	► Version "A" and "B"	kg	Approx. 1.3
	► Version "SB"	kg	Approx. 1.5
Installation position		Any	
Ambient temperature range		°C	-30 ... +50 (NBR seals) -20 ... +50 (FKM seals)

hydraulic			
Maximum operating pressure (port A)		bar	315
Pressure differential $\Delta p$ with free return flow B → A		bar	See characteristic curves page 9
Minimum pressure differential		bar	6 ... 14
Pressure stable up to $\Delta p = 315$ bar		%	$\pm 2$ ( $q_{V \max}$ )
Maximum flow		l/min	0.2   0.6   1.5   3.0   6.0   10.0   16.0   25.0   32.0
Minimum flow	► up to 100 bar	cm <sup>3</sup> /min	15   15   15   15   25   50   70   100   250
	► up to 315 bar	cm <sup>3</sup> /min	25   25   25   25   25   50   70   100   250
Hydraulic fluid		See table below	
Hydraulic fluid temperature range		°C	-30 ... +80 (NBR seals) -20 ... +80 (FKM seals)
Viscosity range		mm <sup>2</sup> /s	10 ... 800
Maximum permitted degree of contamination of the hydraulic fluid - cleanliness class according to ISO 4406 (c)		Class 20/18/15 <sup>1)</sup>	

Hydraulic fluid	Classification	Suitable sealing materials	Standards	Data sheet
Mineral oils	HL, HLP	NBR, FKM	DIN 51524	90220
Bio-degradable	► insoluble in water	HETG	ISO 15380	90221
		HEES		
	► soluble in water	HEPG	ISO 15380	
Flame-resistant	► water-free	HFDU	ISO 12922	90222
	► containing water	HFC (Fuchs Hydrotherm 46M, Petrofer Ultra Safe 620)	ISO 12922	90223

**Important information on hydraulic fluids:**

- For more information and data on the use of other hydraulic fluids, please refer to the data sheets above or contact us!
- There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.)!
- The flash point of the hydraulic fluid used must be 50 K higher than the maximum solenoid surface temperature.

**► Flame-resistant – containing water:**

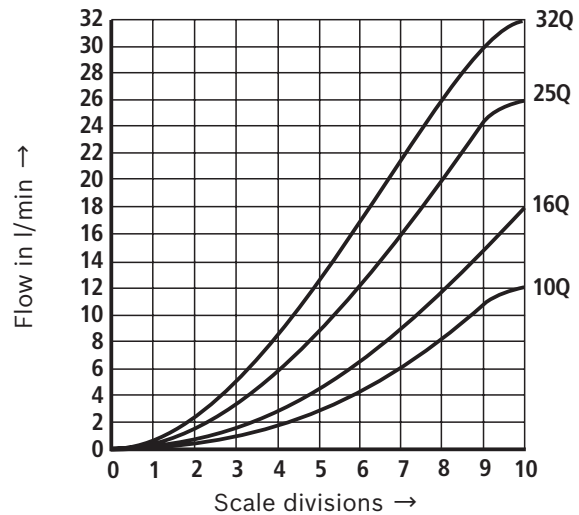
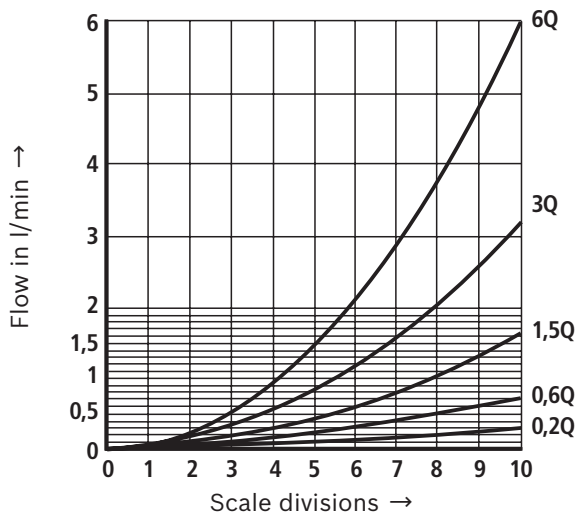
- Maximum operating pressure of 210 bar
- Maximum hydraulic fluid temperature 60 °C
- Life cycle compared to operation with mineral oil HL, HLP 30 to 100 %

<sup>1)</sup> The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and at the same time increases the life cycle of the components.

**Technical data:** Rectifier sandwich plate

(For applications of the component outside the specified values, please contact us!)

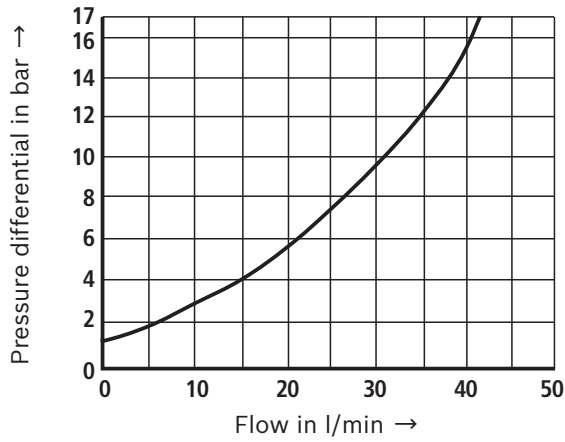
general		
Weight	kg	Approx. 0.9
hydraulic		
Maximum operating pressure	bar	210
Cracking pressure	bar	0.7
Maximum flow	l/min	32

**Characteristic curves**(measured with HLP46,  $\vartheta_{oil} = 40 \pm 5 \text{ } ^\circ\text{C}$ )**Flow dependency on the scale setting** (flow control A → B)

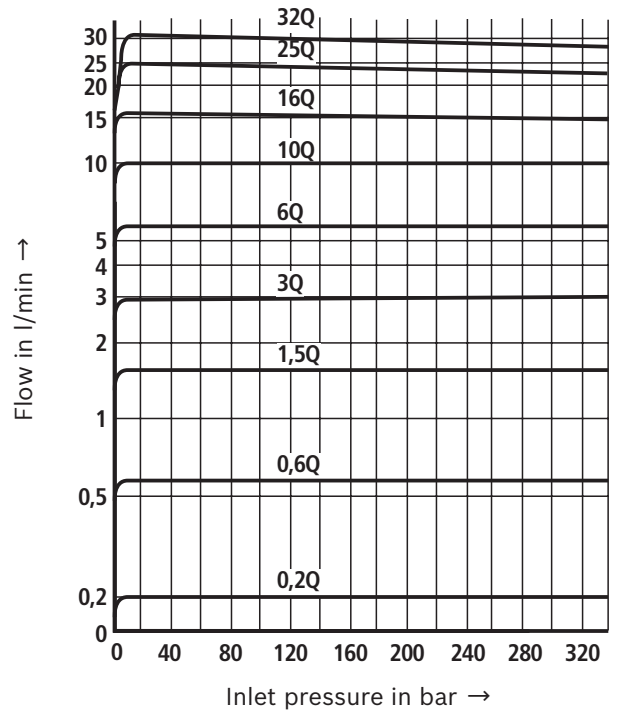
### Characteristic curves

(measured with HLP46,  $\vartheta_{oil} = 40 \pm 5 \text{ }^\circ\text{C}$ )

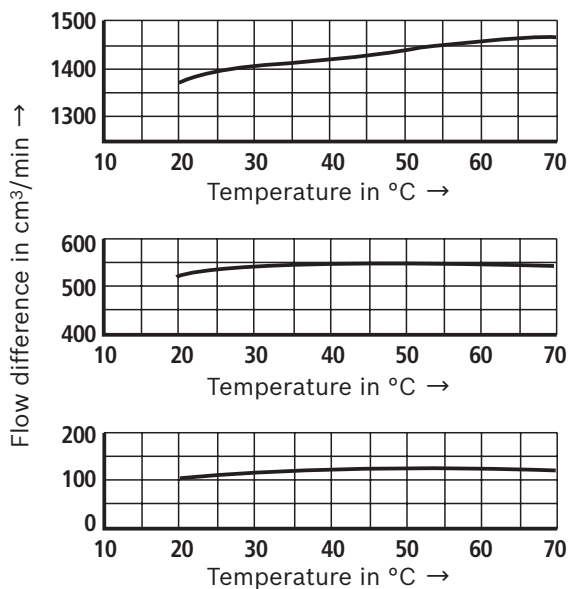
**$\Delta p$ - $q_V$  characteristic curve** via check valve B  $\rightarrow$  A;  
orifice closed



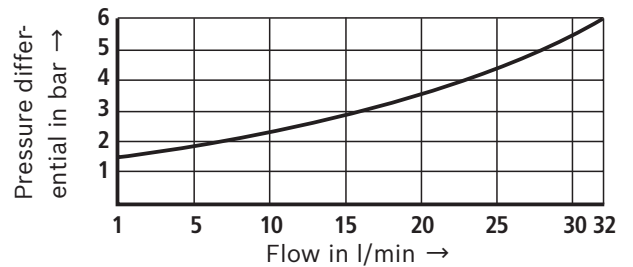
**$p_E$ - $q_V$  characteristic curve**



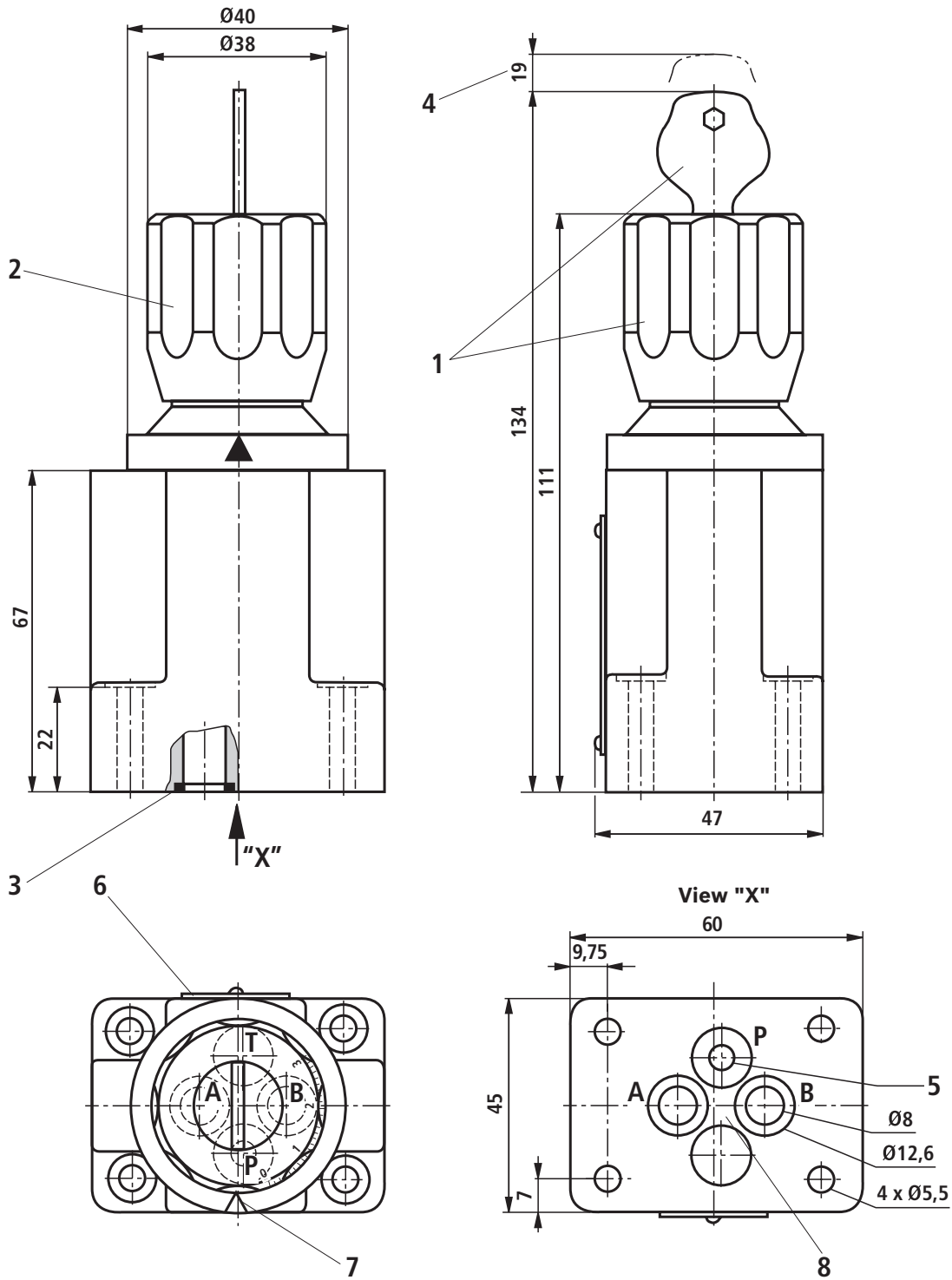
**Temperature dependency at  $\Delta p = 20 \text{ bar}$**



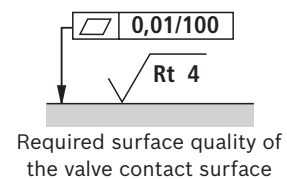
**Rectifier sandwich plate  $\Delta p$ - $q_V$  characteristic curve**



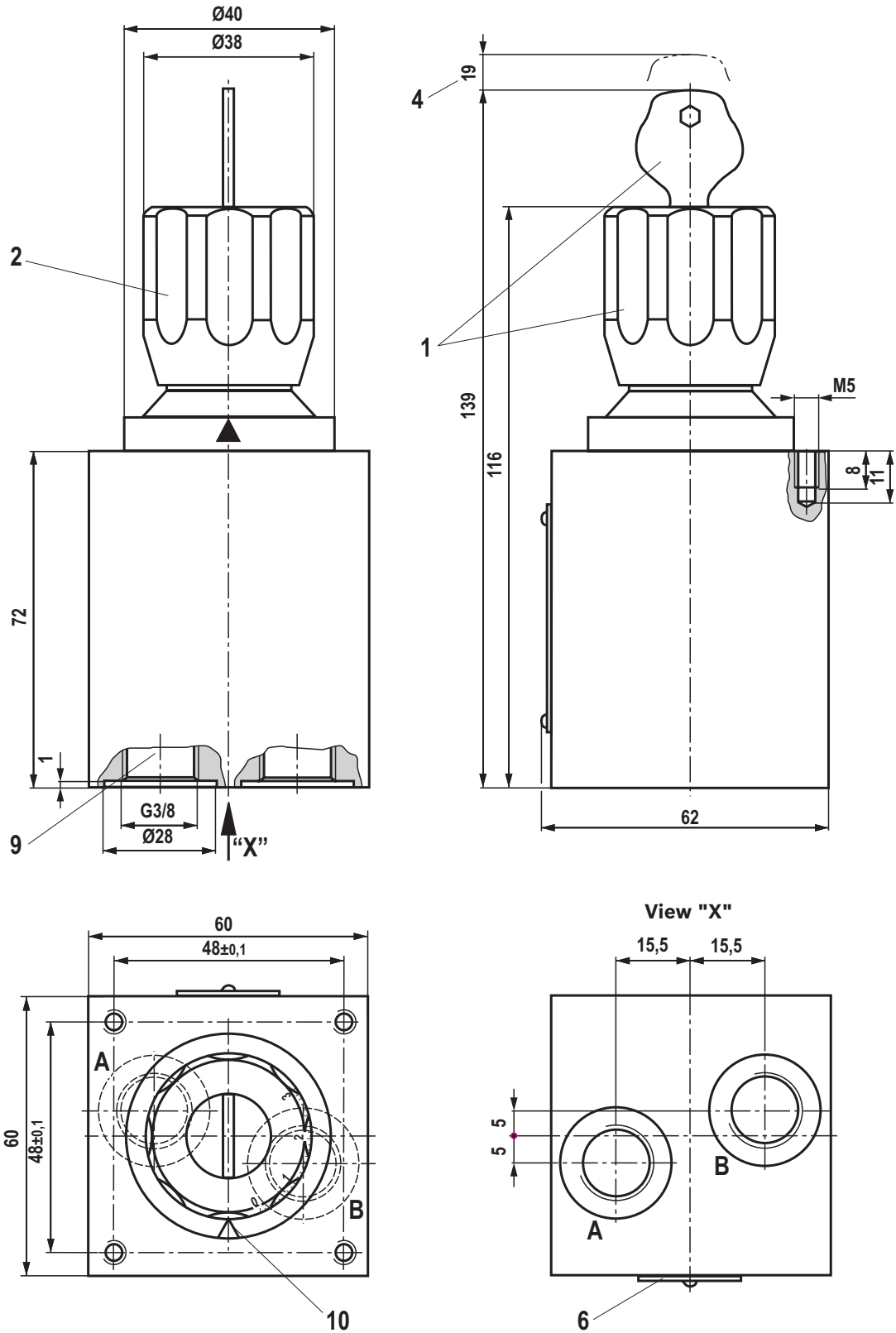
**Dimensions:** Subplate mounting – version "A" and "B"  
(dimensions in mm)



Item explanations, subplates, and valve mounting screws see page 12.

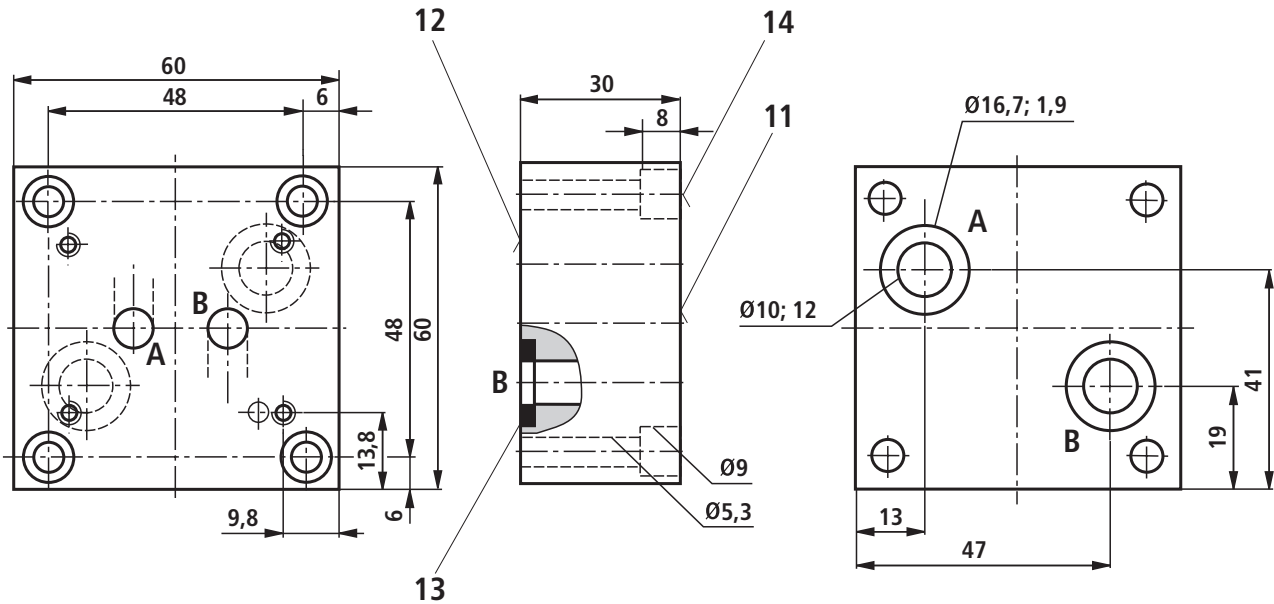


**Dimensions:** Threaded connection for control panel installation – version "SB"  
(dimensions in mm)



Item explanations and valve mounting screws see page 12.

**Dimensions:** Adapter plate HSE 05 G06A001-3X/V00  
(dimensions in mm)



**Notice:**  
The adapter plate (material no. **R900496121**) is required for mounting a flow control valve type 2FRM 6 B..-3X/.. to an existing flow control valve type 2FRM 5 -3X/...

**Dimensions**

- 1 Adjustment type "3" (lockable rotary knob with scale)
  - 2 Adjustment type "7" (rotary knob with scale)
  - 3 Identical seal rings for ports A, B, P, and T
  - 4 Space required to remove the key
  - 5 Ø3 bore in version "B" not bored (without external closing)
  - 6 Name plate
  - 7 Position of the marking at port P
  - 8 Porting pattern according to DIN 24340 form A
  - 9 Connection thread G3/8 according to ISO 228-1
  - 10 Position of the marking vis-à-vis name plate
  - 11 Connection surface for flow control valve type 2FRM 6
  - 12 Connection surface for flow control valve type 2FRM 5
  - 13 Seal ring
  - 14 Mounting bolts for adapter plate (included in the scope of delivery)
- 4 hexagon socket head cap screws**  
**ISO 4762 - M5 x 30 - 10.9-fIZn-240h-L**  
(friction coefficient  $\mu_{total} = 0.09 \dots 0.14$ );  
tightening torque  $M_A = 7 \text{ Nm} \pm 10 \%$

**Control panel installation (version "SB"):**

**Valve mounting screws** (separate order)  
**4 hexagon socket head cap screws**  
**ISO 4762 - M5 - 8.8-fIZn-240h-L**  
(friction coefficient  $\mu_{total} = 0.09 \dots 0.14$ );  
tightening torque  $M_A = 7 \text{ Nm} \pm 10 \%$ ,  
(minimum useable thread depth = 6.5 mm)

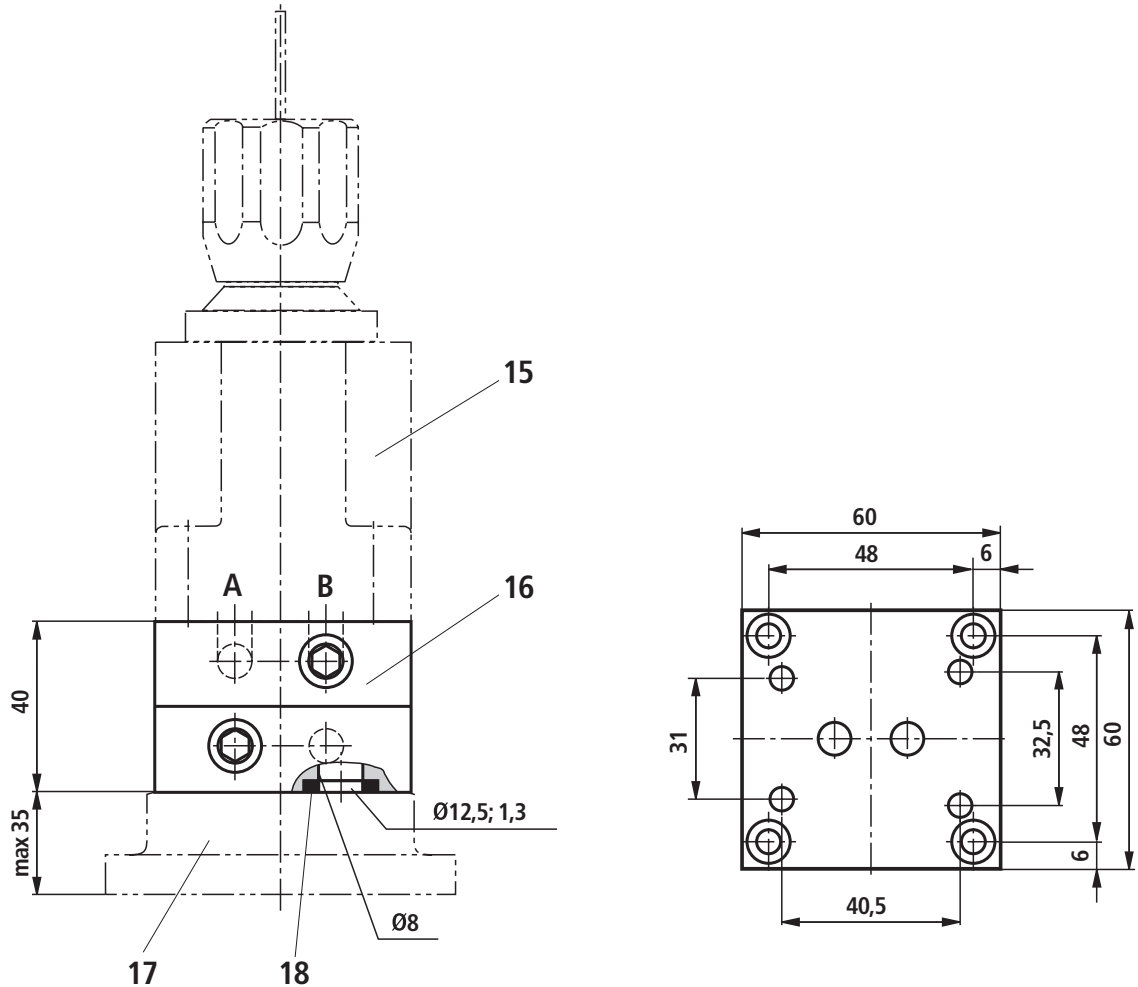
**Subplate mounting (version "A" and "B"):**

**Subplates** according to data sheet 45052 (separate order)  
Type G 341/01 (G1/4)  
Type G 342/01 (G3/8)  
Type G 502/01 (G1/2)

**Valve mounting screws** (separate order)  
▶ Without rectifier sandwich plate  
**4 hexagon socket head cap screws**  
**ISO 4762 - M5 x 30 - 10.9-fIZn-240h-L**  
(friction coefficient  $\mu_{total} = 0.09 \dots 0.14$ );  
tightening torque  $M_A = 7 \text{ Nm} \pm 10 \%$ ,  
material no. **R913000316**

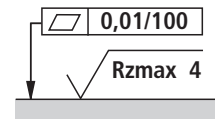
▶ With rectifier sandwich plate  
**4 hexagon socket head cap screws**  
**ISO 4762 - M5 x 70 - 10.9-fIZn-240h-L**  
(friction coefficient  $\mu_{total} = 0.09 \dots 0.14$ );  
tightening torque  $M_A = 7 \text{ Nm} \pm 10 \%$ ,  
material no. **R913000325**

**Dimensions:** Rectifier sandwich plate type Z4S 6-1X/V  
(dimensions in mm)



**Notice:**

The rectifier sandwich plate Type Z4S 6-1X/V can **only** be used in connection with the flow control valve Type 2FRM 6 B.-3X/.. (without closing of the pressure compensator)!



Required surface quality of the valve contact surface

- 15 2-way flow control valve
- 16 Rectifier sandwich plate
- 17 Subplate according to data sheet 45052 and valve mounting screws see page 12.
- 18 Seal ring

## Additional information

- ▶ Subplates Data sheet 45052
- ▶ Hydraulic fluids on mineral oil basis Data sheet 90220
- ▶ Environmentally compatible hydraulic fluids Data sheet 90221
- ▶ Flame-resistant, water-free hydraulic fluids Data sheet 90222
- ▶ Flame-resistant hydraulic fluids - containing water (HFAE, HFAS, HFB, HFC) Data sheet 90223
- ▶ Hydraulic valves for industrial applications Operating instructions 07600-B
- ▶ General product information on hydraulic products Data sheet 07008
- ▶ Assembly, commissioning and maintenance of industrial valves Data sheet 07300
- ▶ Selection of the filters



# 2-way flow control valve

## Type 2FRM

**RE 28389**

Edition: 2019-07

Replaces: 2019-02



H5552

- ▶ Sizes 10 and 16
- ▶ Component series 3X
- ▶ Maximum operating pressure 315 bar
- ▶ Maximum flow 160 l/min

### Features

- ▶ For subplate mounting
- ▶ Porting pattern according to DIN 24340 form G and ISO 6263
- ▶ Mechanical actuation
- ▶ Pressure compensator stroke limitation, optional
- ▶ Start-up jump reduction
- ▶ Flow control in both directions by means of rectifier sandwich plate
- ▶ Corrosion-protected design

### Contents

Features	1
Ordering code	2, 3
Symbols	3
Function, section	4
Technical data	5, 6
Characteristic curves	6, 7
Dimensions	8 ... 11
Further information	11

**Ordering code:** 2-way flow control valve

01	02	03	04	05	06	07	08	09
<b>2FR</b>	<b>M</b>		<b>-</b>	<b>3X</b>	<b>/</b>			<b>*</b>

01	2-way flow control valve	<b>2FR</b>
----	--------------------------	------------

**Type of actuation**

02	Mechanical	<b>M</b>
----	------------	----------

03	Size 10	<b>10</b>
	Size 16	<b>16</b>

04	Component series 30 ... 39 (30 ... 39: unchanged installation and connection dimension)	<b>3X</b>
----	---	-----------

**Flow range A to B**

05	<b>- Size 10, linear</b>	
	up to 10 l/min	<b>10L</b>
	up to 16 l/min	<b>16L</b>
	up to 25 l/min	<b>25L</b>
	up to 50 l/min	<b>50L</b>
	<b>- Size 16, linear</b>	
	up to 60 l/min	<b>60L</b>
	up to 100 l/min	<b>100L</b>
	up to 160 l/min	<b>160L</b>

06	<b>Without</b> pressure compensator stroke limitation	<b>no code</b>
	<b>With</b> pressure compensator stroke limitation	<b>B</b>


**Corrosion resistance** (outside; thick film passivation according to DIN 50979 – Fe//Zn8//Cr//T0)

07	None (valve housing primed)	<b>no code</b>
	Improved corrosion protection	<b>J</b>

**Seal material** (observe compatibility of seals with hydraulic fluid used, see page 6)

08	NBR seals	<b>no code</b>
	FKM seals	<b>V</b>

09	Further details in the plain text	
----	-----------------------------------	--

 **Notice:** Preferred types and standard units are contained in the EPS (standard price list).

**Ordering code:** Rectifier sandwich plate

01	02	03	04	05
<b>Z4S</b>		-	/	*

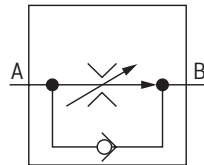
01	Rectifier sandwich plate	<b>Z4S</b>
02	Size 10	<b>10</b>
	Size 16	<b>16</b>
03	Component series 30 ... 39 (30 ... 39: unchanged installation and connection dimension) - <b>NG10</b>	<b>3X</b>
	Component series 20 ... 29 (20 ... 29: unchanged installation and connection dimension) - <b>NG16</b>	<b>2X</b>

**Seal material** (observe compatibility of seals with hydraulic fluid used, see page 6)

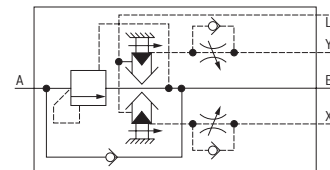
04	NBR seals	<b>no code</b>
	FKM seals	<b>V</b>
05	Further details in the plain text	

**Symbols:** 2-way flow control valve

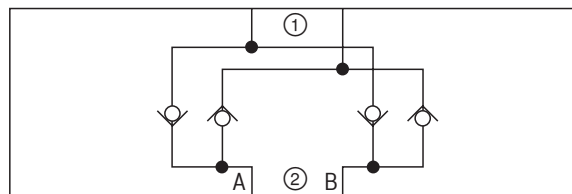
**simplified**



**detailed**



**Symbols:** Rectifier sandwich plate (① = component side, ② = plate side)



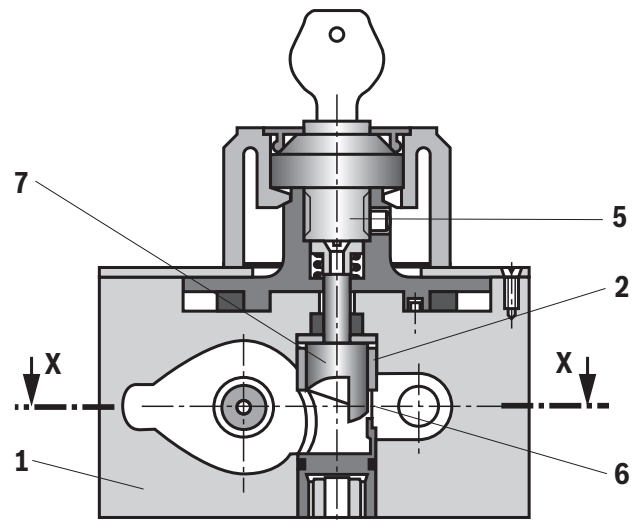
## Function, section

Flow control valves type 2FRM are 2-way flow control valves. They are used to maintain a constant flow, mostly independent of pressure and temperature. Generally, the valves consist of housing (1), orifice bush (2), pressure compensator (3) with optional stroke limitation (3.1), check valve (4) and adjustment element (5). The flow from channel A to channel B is throttled at the throttling point (6). The throttle cross-section is set by mechanically turning the curved bolt (7) over the adjustment element (5). An upstream pressure compensator (3) is included to ensure a pressure-independent and constant flow at throttling point (6).

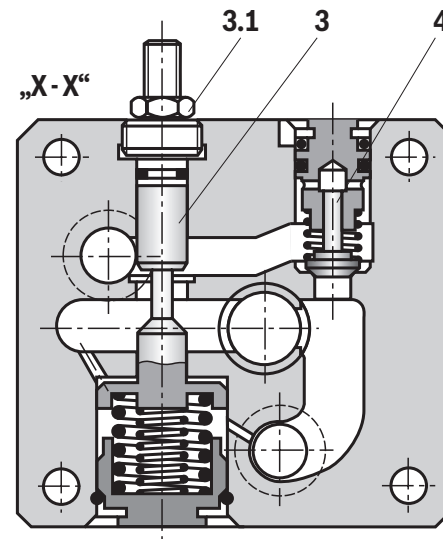
Temperature independence is achieved thanks to the orifice design of the throttling point.

The free return flow from channel B to channel A is via the check valve (4).

The regulated flow only flows from channel A to B. For oscillating flows (forward and return flow), a rectifier sandwich plate type Z4S can be installed under the flow control valve.



Type 2 FRM...



**Technical data**

(For applications outside these values, please consult us!)

<b>General</b>		
Size		
Weight	► Type 2FRM	kg
	► Rectifier sandwich plate	kg
Installation position	any	
Ambient temperature range	°C	-30 ... +80 (NBR seals) -20 ... +80 (FKM seals)

<b>hydraulic – 2-way flow control valve type 2FRM</b>								
Size		<b>NG10</b>				<b>NG16</b>		
Maximum flow	l/min	10	16	25	50	60	100	160
Maximum operating pressure (port A)	bar	315						
Pressure differential with free return flow B to A, $q_V$ dependent	bar	2	2.5	3.5	6	2.8	4.3	7.3
Minimum pressure differential	bar	3 ... 7				5 ... 12		
Flow control	► Temperature stability (-20 ... +80 °C)	±2% ( $q_{V \max}$ )				±2% ( $q_{V \max}$ )		
	► Pressure stability (up to $\Delta p = 315$ bar)	±2% ( $q_{V \max}$ )				< ±5% ( $q_{V \max}$ )		
Hydraulic fluid		see table page 6						
Hydraulic fluid temperature range	°C	-30 ... +80 (NBR seals) -20 ... +80 (FKM seals)						
Viscosity range	mm <sup>2</sup> /s	10 ... 800						
Maximum admissible degree of contamination of the hydraulic fluid, cleanliness class according to ISO 4406 (c)		Class 20/18/15 <sup>1)</sup>						

<b>hydraulic – rectifier sandwich plate type Z4S</b>			
Maximum flow	l/min	50	160
Maximum operating pressure	bar	315	
Cracking pressure	bar	1.5	

<sup>1)</sup> The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and simultaneously increases the life cycle of the components.

## Technical data

(For applications outside these values, please consult us!)

Hydraulic fluid		Classification	Suitable sealing materials	Standards	Data sheet
Mineral oils		HL, HLP, HLPD, HVLP, HVLPD	NBR, FKM	DIN 51524	90220
Bio-degradable	▶ Insoluble in water	HETG	FKM	ISO 15380	90221
		HEES	FKM		
	▶ Soluble in water	HEPG	FKM	ISO 15380	
Flame-resistant	▶ Water-free	HFDU (glycol base)	FKM	ISO 12922	90222
		HFDU (ester base)	FKM		
		HFDR	FKM		
	▶ Containing water	HFC (Fuchs: Hydrotherm 46M, Renosafe 500; Petrofer: Ultra Safe 620; Houghton: Safe 620; Union: Carbide HP5046)	NBR	ISO 12922	90223

### Important information on hydraulic fluids:

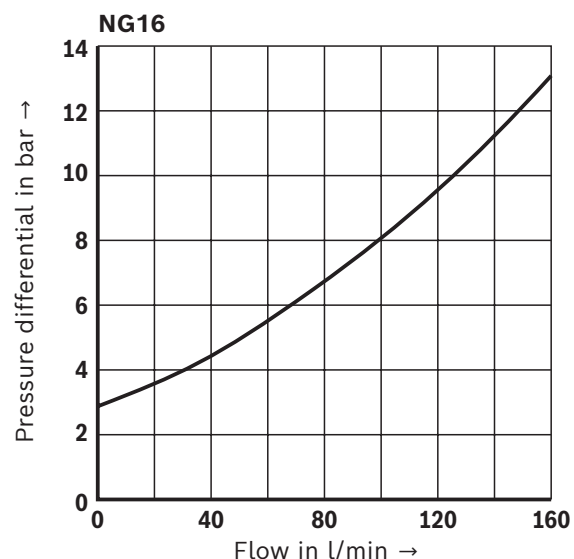
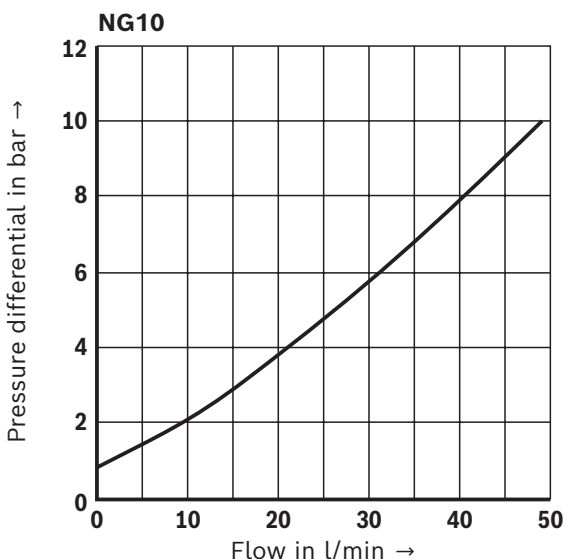
- ▶ For further information and data on the use of other hydraulic fluids, please refer to the data sheets above or contact us.
- ▶ There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.).
- ▶ The ignition temperature of the hydraulic fluid used must be 50 K higher than the maximum surface temperature.
- ▶ **Bio-degradable and flame-resistant – containing water:** If components with galvanic zinc coating (e.g. version "J3" or "J5") or parts containing zinc are used, small amounts of dissolved zinc may get into the hydraulic system and cause accelerated aging of the hydraulic fluid. Zinc soap may form as a chemical reaction product, which may clog filters, nozzles and solenoid valves – particularly in connection with local heat input.

### ▶ Flame-resistant – containing water:

Due to the increased cavitation tendency with HFC hydraulic fluids, the life cycle of the component may be reduced by up to 30% as compared to the use with mineral oil HLP. In order to reduce the cavitation effect, it is recommended - if possible specific to the installation - to back up the return flow pressure in ports T to approx. 20% of the pressure differential at the component.

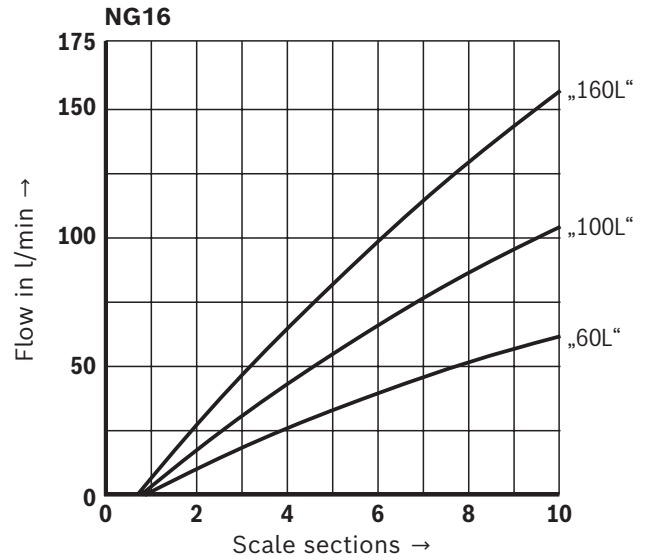
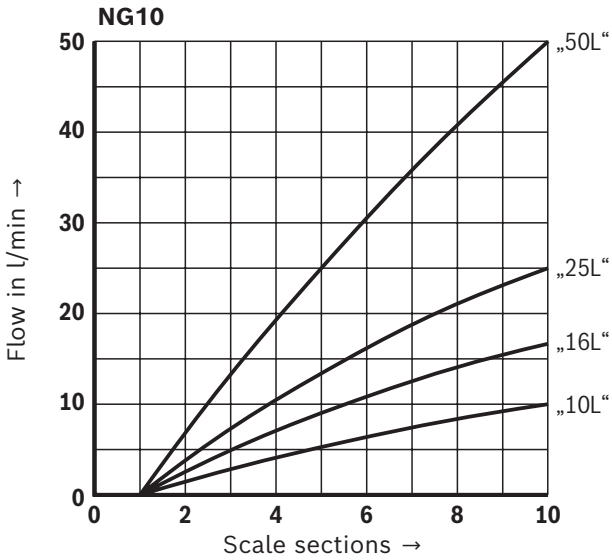
## Characteristic curves: Rectifier sandwich plate (measured with HLP46, $\vartheta_{oil} = 40 \pm 5 \text{ }^\circ\text{C}$ )

The pressure differential  $\Delta p$  in both directions of flow is equal; flow  $q_v$  from A → B (B → A)

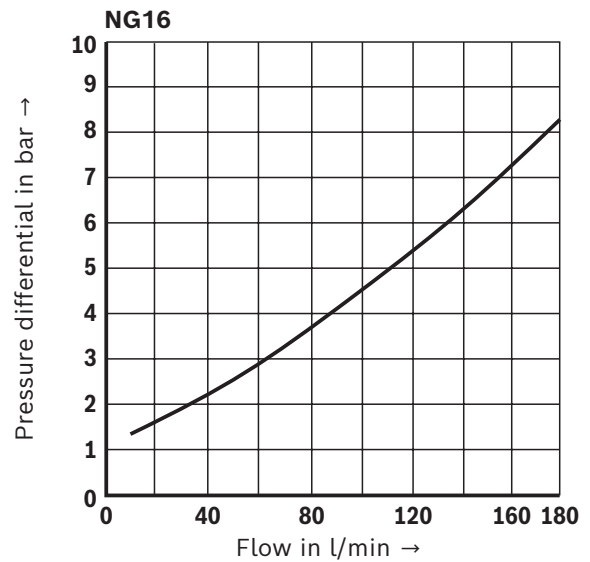
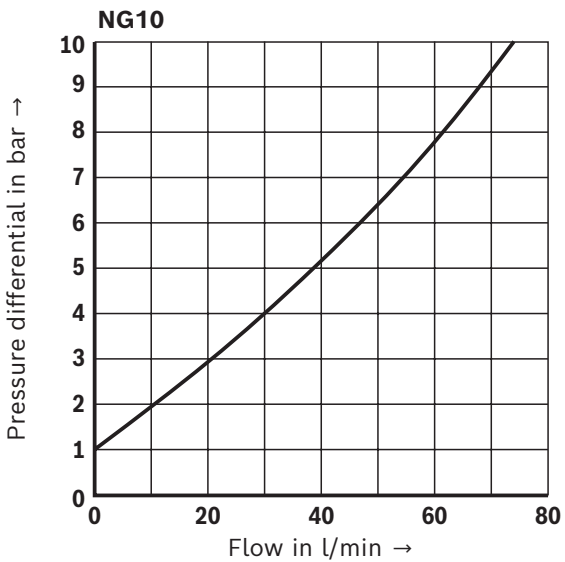


**Characteristic curves: 2-way flow control valve**  
(measured with HLP46,  $\vartheta_{oil} = 40 \pm 5 \text{ }^\circ\text{C}$ )

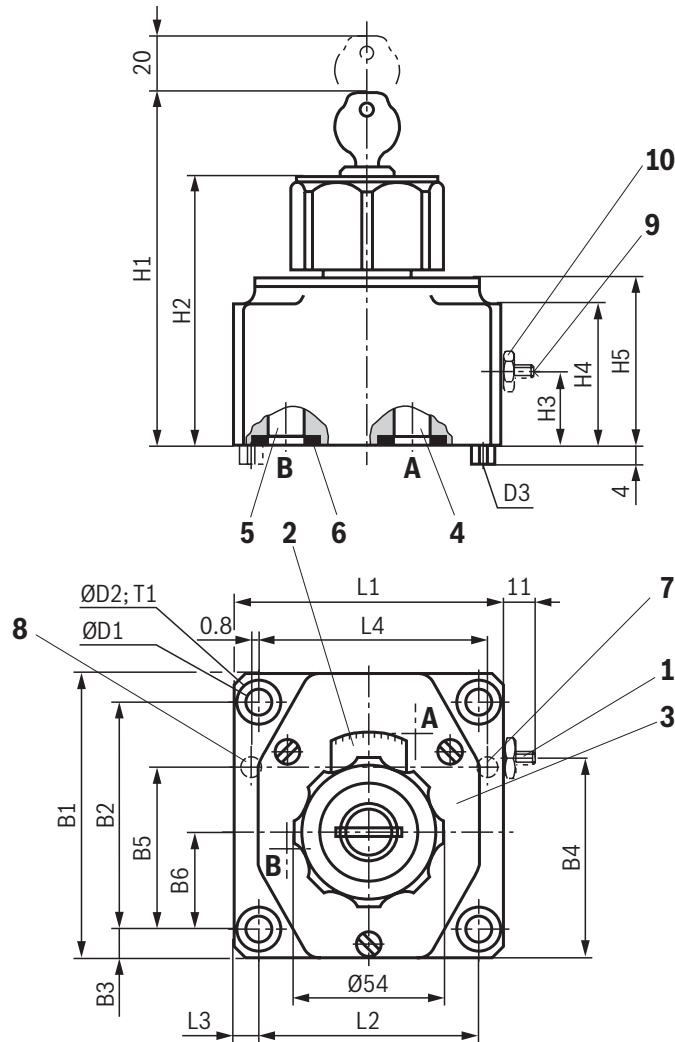
**Flow control (A → B)**



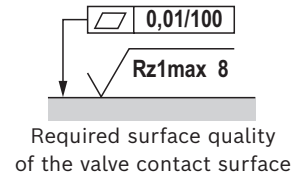
**Free return flow (B → A)**



**Dimensions:** 2-way flow control valve  
(Dimensions in mm)



- 1 Pressure compensator stroke limitation, optional
- 2 Adjustment element, rotary knob security lock (all positions can be locked), rotation range 300° = 10 scale sections,  $M_d \approx 0.7 \text{ Nm}$
- 3 Name plate
- 4 Input A
- 5 Output B
- 6 Seal ring
- 7 Locating pin (NG10 and 16)
- 8 Locating pin (NG16)
- 9 Internal hexagon SW3
- 10 Hexagon wrench size 10

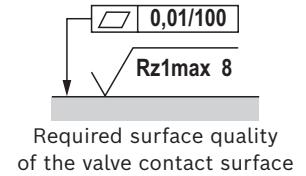
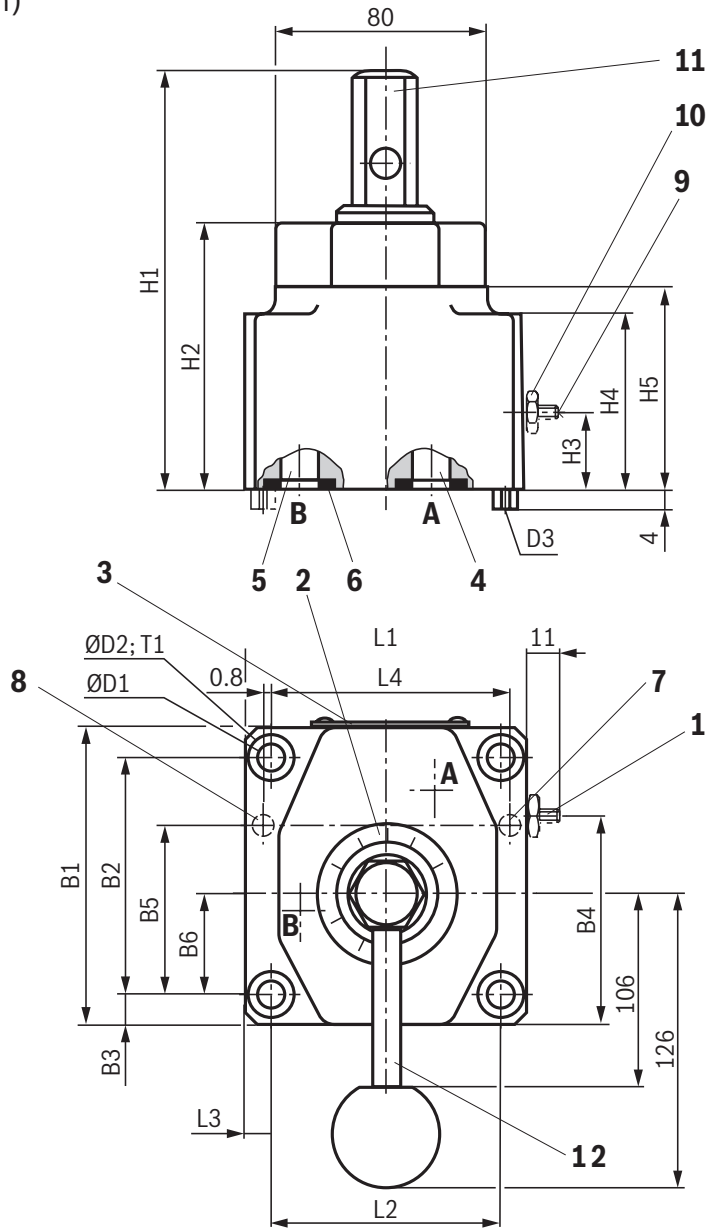


**Valve mounting screws and subplates, see page 11.**

NG	B1	B2	B3	B4	B5	B6	ØD1	ØD2	D3	H1	H2	H3	H4	H5	L1	L2	L3	L4	T1
10	101.5	82.5	9.5	68	58.7	35.5	9	15	6	125	95	26	51	60	95	76	9.5	79.4	13
16	123.5	101.5	11	81.5	72.9	41.5	11	18	6	147	117	34	72	82	123.5	101.5	11	102.4	12



**Dimensions:** 2-way flow control valve – version "2FRM...J"  
(Dimensions in mm)

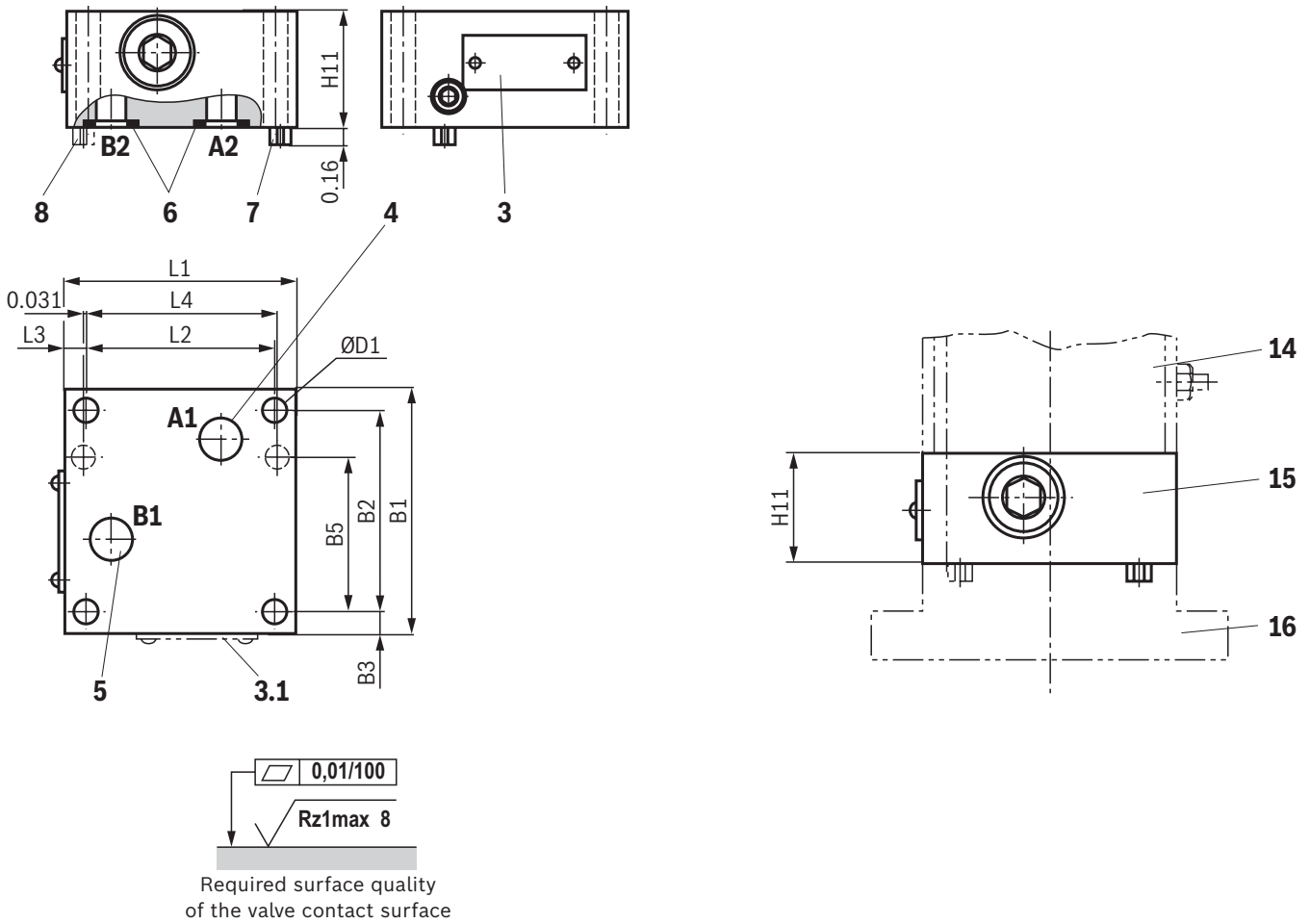


- 1 Pressure compensator stroke limitation, optional
- 2 Adjustment element, rotary knob security lock (all positions can be locked), rotation range 300° = 10 scale sections,  $M_d \approx 0.7 \text{ Nm}$
- 3 Name plate
- 4 Input A
- 5 Output B
- 6 Seal ring
- 7 Locating pin (NG10 and 16)
- 8 Locating pin (NG16)
- 9 Internal hexagon SW3
- 10 Hexagon wrench size 10
- 11 Lock nut SW24
- 12 Lever

**Valve mounting screws and subplates, see page 11.**

NG	B1	B2	B3	B4	B5	B6	ØD1	ØD2	D3	H1	H2	H3	H4	H5	L1	L2	L3	L4	T1
10	101.5	82.5	9.5	58.8	58.7	35.5	9	15	6	137	81	26	51	58	95	76	9.5	79.4	13
16	123.5	101.5	11	70.5	72.9	41.5	11	18	6	159	103	34	72	80	123.5	101.5	11	102.4	12

## Dimensions: Rectifier sandwich plate (Dimensions in mm)



- 3 Name plate
- 3.1 Name plate NG16
- 4 Input A
- 5 Output B
- 6 Seal ring
- 7 Locating pin (NG10 and 16)
- 8 Locating pin (NG16)

**Valve mounting screws** for the installation of a rectifier sandwich plate between subplate and flow control valve (separate order)

► Size 10:

**4 hexagon socket head cap screws ISO 4762 - M8 x 100 - 10.9-flZn/nc/480h/C**

(friction coefficient  $\mu_{\text{total}} = 0.09 \dots 0.14$ )

Tightening torque  $M_A = 30 \text{ Nm} \pm 10\%$

Material no. **R913014764**

► Size 16:

**4 hexagon socket head cap screws ISO 4762 - M10 x 160 - 10.9-flZn/nc/480h/C**

(friction coefficient  $\mu_{\text{total}} = 0.09 \dots 0.14$ )

Tightening torque  $M_A = 64 \text{ Nm} \pm 10\%$

Material no. **R913015565**

**Subplates** see page 11. **For valve connection dimensions**, see page 8.

NG	B1	B2	B3	B5	Ø D1	H11	L1	L2	L3	L4
10	101.5	82.5	9.5	58.7	9	50	95	76	9.5	79.4
16	123.5	101.5	11	72.9	11	85	123.5	101.5	11	102.4

## Dimensions

### Valve mounting screws (separate order)

Size	Quantity	Hexagon socket head cap screws	Material number
10	4	<b>ISO 4762 - M8 x 50 - 10.9-fZn/nc/480h/C</b> Friction coefficient $\mu_{\text{total}} = 0.09 \dots 0.14$ ; tightening torque $M_A = 30 \text{ Nm} \pm 10\%$	<b>R913015800</b>
16	4	<b>ISO 4762 - 10 x 80 - 10.9-fZn/nc/480h/C</b> Friction coefficient $\mu_{\text{total}} = 0.09 \dots 0.14$ ; tightening torque $M_A = 64 \text{ Nm} \pm 10\%$	<b>R913014560</b>

**Subplates** (separate order) with porting pattern according to ISO 4401, see data sheet 45100.

## Further information

- ▶ Subplates Data sheet 45100
- ▶ Hydraulic fluids on mineral oil basis Data sheet 90220
- ▶ Environmentally compatible hydraulic fluids Data sheet 90221
- ▶ Flame-resistant, water-free hydraulic fluids Data sheet 90222
- ▶ Flame-resistant hydraulic fluids - containing water (HFAE, HFAS, HFB, HFC) Data sheet 90223
- ▶ Use of non-electrical hydraulic components in a potentially explosive environment (ATEX) Data sheet 07011
- ▶ Hydraulic valves for industrial applications Operating instructions 07600-B
- ▶ Selection of filters
- ▶ Information on available spare parts

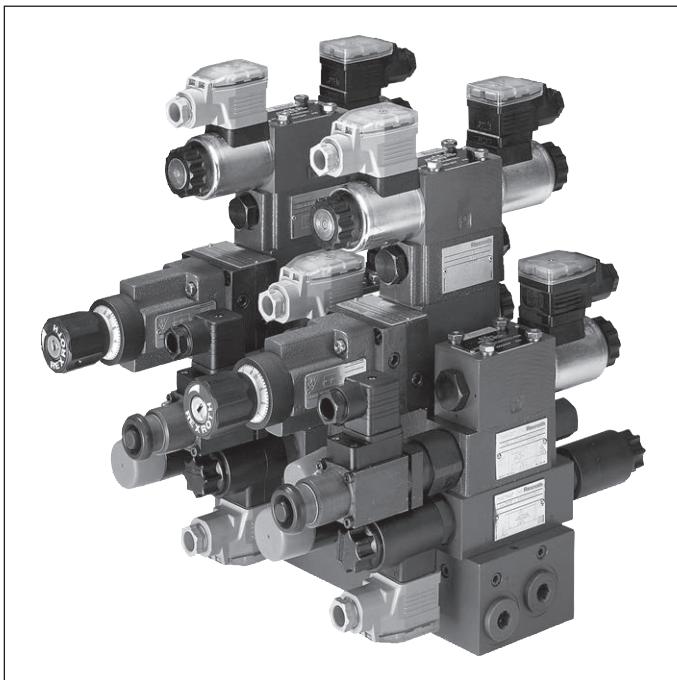
# Manifolds

## Type HSR 06

**RE 48107**

Edition: 2018-02

Replaces: 08.15



- ▶ Size 6
- ▶ Component series 25 and 35
- ▶ Maximum operating pressure 315 bar
- ▶ 1 ... 10 stations

### Features

- ▶ Base element for ready-for-connection controls in vertical stacking design
- ▶ Compact hydraulic controls
- ▶ Common pump line
- ▶ Common tank line
- ▶ Separate actuator ports of the stations
- ▶ Measuring ports in the actuator lines, optional
- ▶ Mounting of sandwich plates and valves of size 6

### Contents

Features	1
Ordering code	2
Description	2
Standard program	3, 4
Technical data	5
Schematic circuit diagram	5
Dimensions	6 ... 13
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Project planning information	15
Selection of possible subplate-mounted valves	16
Required ordering code of a completely mounted manifold	16
The manifold configurator	17

## Ordering code

	01	02	03	04	05	06	07	08
<b>Manifold</b>		<b>HSR</b>	<b>06</b>	<b>-</b>	<b>/</b>	<b>01</b>		

### Number of ready-for-connection controls in vertical stacking design

01	1 control	<b>1</b>
	2 controls	<b>2</b>
	3 controls	<b>3</b>
	4 controls	<b>4</b>
	5 controls	<b>5</b>
	6 controls	<b>6</b>
	7 controls	<b>7</b>
	8 controls	<b>8</b>
	9 controls	<b>9</b>
	10 controls	<b>10</b>
02	Manifold	<b>HSR</b>
03	Size 6	<b>06</b>

### Component series

04	Port size: A, B = G3/8; P, T = G1/2	<b>25</b>
	With enlarged connection thread; port size: A, B = G1/2; P, T = G3/4	<b>35</b>

### Connection thread

05	Pipe thread according to ISO 228 Part 1	<b>01</b>
----	---	-----------

### Position of actuator ports

06	Lateral	<b>C</b>
	Bottom	<b>D</b>

### Types

07	Standard	<b>no code</b>
	With measuring ports in A and B	<b>SO8<sup>1)</sup></b>

### Coating

08	Phosphate coating DIN EN 12476	<b>PHOSPHATED<sup>2)</sup></b>
	Galvanic coating DIN 50979	<b>FE//ZN8//CN/T0</b>

<sup>1)</sup> Not possible with component series 25 with lateral actuator ports

<sup>2)</sup> Standard version (manganese or zinc phosphate coating)

## Description

- ▶ Manifolds are the base element for ready-for-connection controls in vertical stacking design
- ▶ Manifolds of NG6 are available with 1 to 10 stations
- ▶ On each station, highly compact hydraulic controls can be built using vertically stackable sandwich plate valves in connection with on/off or proportional servo valves of NG6
- ▶ All stations have a common pump and tank port
- ▶ Ports P and T are led through the two front sides of the manifold
- ▶ Every station is equipped with separate actuator ports A and B
- ▶ Actuator ports are optionally located at the bottom or laterally
- ▶ Another option are measuring ports in the actuator ports A and B

## Standard program including preferred types: HSR 06

Measuring port	Number of mounting positions	Port size A, B	Porting pattern A, B	Port size P, T	Type key Manifold ...	Material no.	Weight in kg	MKZ <sup>1)</sup>	
without	1	G3/8	lateral	G1/2	1HSR06-25/01C PHOSPHATED	R900815077	1.9	A2	
	2	G3/8	lateral	G1/2	2HSR06-25/01C PHOSPHATED	R900172220	4.3	A2	
			bottom		2HSR06-25/01D PHOSPHATED	R900172199	3.8	A2	
		G1/2	lateral	G3/4	2HSR06-35/01C PHOSPHATED	R900170948	7.7	A2	
			bottom		2HSR06-35/01D PHOSPHATED	R900170955	7.0	A2	
	3	G3/8	lateral	G1/2	3HSR06-25/01C PHOSPHATED	R900172221	6.2	A2	
			bottom		3HSR06-25/01D PHOSPHATED	R900172200	5.6	A2	
		G1/2	lateral	G3/4	3HSR06-35/01C PHOSPHATED	R900170949	9.5	A2	
			bottom		3HSR06-35/01D PHOSPHATED	R900170956	10.2	A2	
		4	G3/8	lateral	G1/2	4HSR06-25/01C PHOSPHATED	R900172222	6.5	A2
				bottom		4HSR06-25/01D PHOSPHATED	R900172201	8.6	A2
	G1/2		lateral	G3/4	4HSR06-35/01C PHOSPHATED	R900170950	12.5	A2	
			bottom		4HSR06-35/01D PHOSPHATED	R900170957	13.3	A2	
	5	G3/8	lateral	G1/2	5HSR06-25/01C PHOSPHATED	R900172223	10.0	A2	
			bottom		5HSR06-25/01D PHOSPHATED	R900172202	9.0	A2	
		G1/2	lateral	G3/4	5HSR06-35/01C PHOSPHATED	R900170951	18.2	A2	
			bottom		5HSR06-35/01D PHOSPHATED	R900170958	16.5	A3	
		6	G3/8	lateral	G1/2	6HSR06-25/01C PHOSPHATED	R900172224	11.9	A2
				bottom		6HSR06-25/01D PHOSPHATED	R900172203	10.7	A2
	G1/2		lateral	G3/4	6HSR06-35/01C PHOSPHATED	R900170952	18.5	A2	
			bottom		6HSR06-35/01D PHOSPHATED	R900170959	19.7	A3	
	7	G3/8	lateral	G1/2	7HSR06-25/01C PHOSPHATED	R900172225	11.7	A2	
			bottom		7HSR06-25/01D PHOSPHATED	R900172204	12.6	A2	
		G1/2	lateral	G3/4	7HSR06-35/01C PHOSPHATED	R900170953	25.2	A3	
			bottom		7HSR06-35/01D PHOSPHATED	R900170960	19.7	A3	
	8	G3/8	lateral	G1/2	8HSR06-25/01C PHOSPHATED	R900172226	13.3	A2	
			bottom		8HSR06-25/01D PHOSPHATED	R900172205	14.2	A2	
		G1/2	lateral	G3/4	8HSR06-35/01C PHOSPHATED	R900170954	28.7	A3	
			bottom		8HSR06-35/01D PHOSPHATED	R900170961	22.6	A3	
	9	G3/8	lateral	G1/2	9HSR06-25/01C PHOSPHATED	R900809778	15.0	A3	
			bottom		9HSR06-25/01D PHOSPHATED	R900808525	16.0	A2	
		G1/2	lateral	G3/4	9HSR06-35/01C PHOSPHATED	R901406286	27.3	A3	
			bottom		9HSR06-35/01D PHOSPHATED	R901406292	23.4	A3	
	10	G3/8	lateral	G1/2	10HSR06-25/01C PHOSPHATED	R900804259	19.6	A2	
			bottom		10HSR06-25/01D PHOSPHATED	R900800927	17.9	A2	
		G1/2	lateral	G3/4	10HSR06-35/01C PHOSPHATED	R901406287	35.8	A3	
			bottom		10HSR06-35/01D PHOSPHATED	R901406293	28.2	A3	

<sup>1)</sup> Material mark: A2 = preferred; A3 = standard

## Order example for a manifold with galvanic coating:

**Manifold 9HSR 06 -35/01C FE//ZN8//CN/T0**

## Standard program including preferred types: HSR 06...SO08

Measuring port	Number of mounting positions	Port size A, B	Porting pattern A, B	Port size P, T	Type key Manifold ...	Material no.	Weight in kg	MKZ <sup>1)</sup>
with	1	G3/8	bottom	G1/2	1HSR06-25/01D SO8 PHOSPHATED	R900815078	2.5	A2
		G1/2	lateral	G3/4	1HSR06-35/01C SO8 PHOSPHATED	R900815079	3.7	A2
			bottom		1HSR06-35/01D SO8 PHOSPHATED	R901406296	3.3	A3
	2	G3/8	bottom	G1/2	2HSR06-25/01D SO8 PHOSPHATED	R900644674	3.7	A2
		G1/2	lateral	G3/4	2HSR06-35/01C SO8 PHOSPHATED	R900194952	6.3	A2
			bottom		2HSR06-35/01D SO8 PHOSPHATED	R900188031	7.0	A2
	3	G3/8	bottom	G1/2	3HSR06-25/01D SO8 PHOSPHATED	R900644675	5.3	A2
		G1/2	lateral	G3/4	3HSR06-35/01C SO8 PHOSPHATED	R900194953	11.2	A2
			bottom		3HSR06-35/01D SO8 PHOSPHATED	R900188032	10.2	A2
	4	G3/8	bottom	G1/2	4HSR06-25/01D SO8 PHOSPHATED	R900644676	7.1	A2
		G1/2	lateral	G3/4	4HSR06-35/01C SO8 PHOSPHATED	R900194954	12.4	A2
			bottom		4HSR06-35/01D SO8 PHOSPHATED	R900188033	11.2	A2
	5	G3/8	bottom	G1/2	5HSR06-25/01D SO8 PHOSPHATED	R900644677	8.8	A2
		G1/2	lateral	G3/4	5HSR06-35/01C SO8 PHOSPHATED	R900194955	18.2	A2
			bottom		5HSR06-35/01D SO8 PHOSPHATED	R900188034	16.5	A2
	6	G3/8	bottom	G1/2	6HSR06-25/01D SO8 PHOSPHATED	R900644678	12.7	A2
		G1/2	lateral	G3/4	6HSR06-35/01C SO8 PHOSPHATED	R900194956	21.7	A2
			bottom		6HSR06-35/01D SO8 PHOSPHATED	R900188035	16.7	A2
	7	G3/8	bottom	G1/2	7HSR06-25/01D SO8 PHOSPHATED	R900644679	12.2	A3
		G1/2	lateral	G3/4	7HSR06-35/01C SO8 PHOSPHATED	R900188615	21.3	A3
			bottom		7HSR06-35/01D SO8 PHOSPHATED	R900188036	22.9	A3
	8	G3/8	bottom	G1/2	8HSR06-25/01D SO8 PHOSPHATED	R900644680	13.8	A2
		G1/2	lateral	G3/4	8HSR06-35/01C SO8 PHOSPHATED	R901406288	24.3	A3
			bottom		8HSR06-35/01D SO8 PHOSPHATED	R900188037	21.6	A3
	9	G3/8	bottom	G1/2	9HSR06-25/01D SO8 PHOSPHATED	R901406279	15.7	A3
		G1/2	lateral	G3/4	9HSR06-35/01C SO8 PHOSPHATED	R901406290	27.1	A3
			bottom		9HSR06-35/01D SO8 PHOSPHATED	R901406297	37.0	A3
	10	G3/8	bottom	G1/2	10HSR06-25/01D SO8 PHOSPHATED	R900811950	17.2	A3
		G1/2	lateral	G3/4	10HSR06-35/01C SO8 PHOSPHATED	R901406291	30.5	A3
			bottom		10HSR06-35/01D SO8 PHOSPHATED	R901406298	32.5	A3

<sup>1)</sup> Material mark: A2 = preferred; A3 = standard

**Order example for a manifold with galvanic coating:**

**Manifold 9HSR 06 -35/01CSO8FE//ZN8//CN/T0**

### Technical data

(For applications outside these parameters, please consult us!)

General	
Size	6
Material	GGG40
Surface coating	Standard coating: Phosphate coating <sup>1)</sup> according to DIN EN 12476 with after-treatment (greases, oils, lubricants)
Maximum operating pressure <sup>2)</sup>	bar 315

<sup>1)</sup> Manganese or zinc phosphate coating

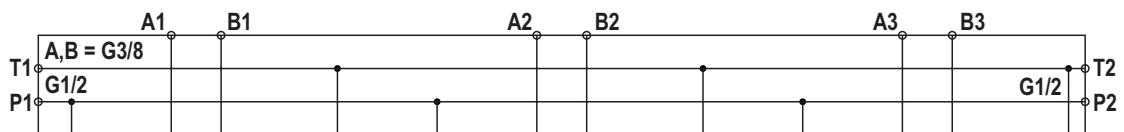
<sup>2)</sup> Manifold without valve fitting

**Notice:**

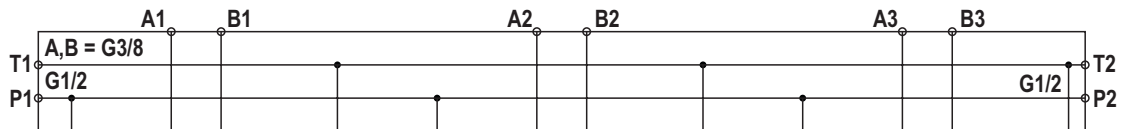
For the assembly, commissioning and maintenance of hydraulic systems, see data sheet 07900

### Schematic circuit diagram: Manifolds with 3 stations

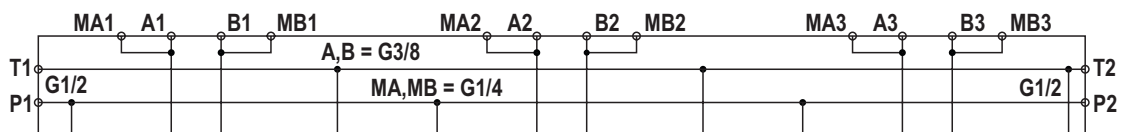
**Manifold HSR 06 -25/01C**



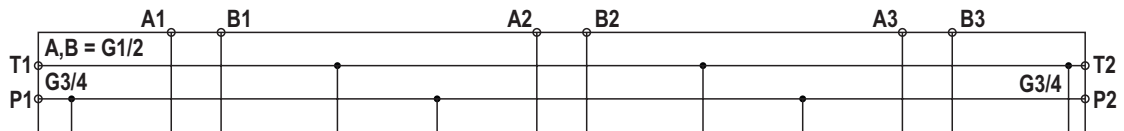
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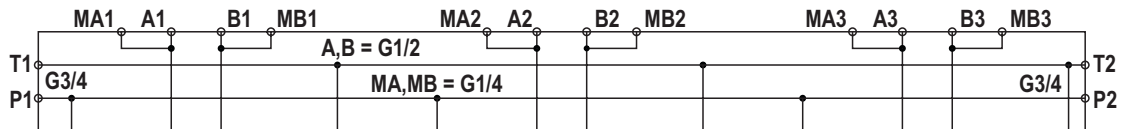
**Manifold HSR 06 -25/01D SO8**



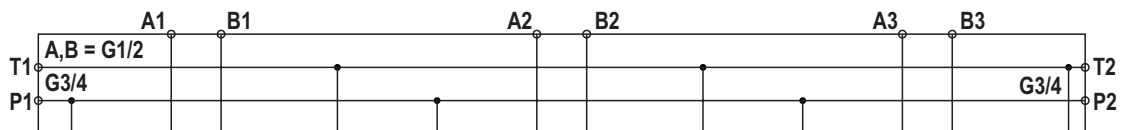
**Manifold HSR 06 -35/01C**



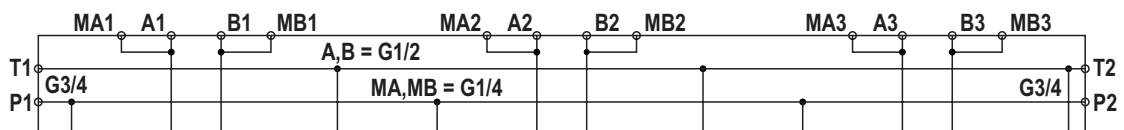
**Manifold HSR 06 -35/01C SO8**



**Manifold HSR 06 -35/01D**

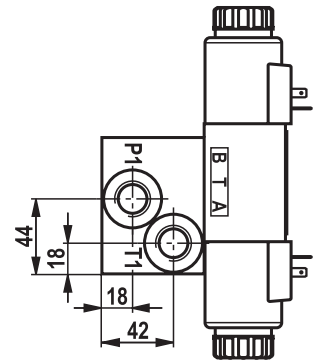
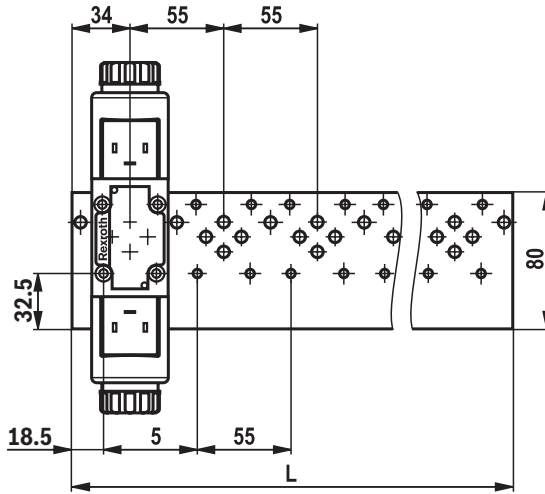
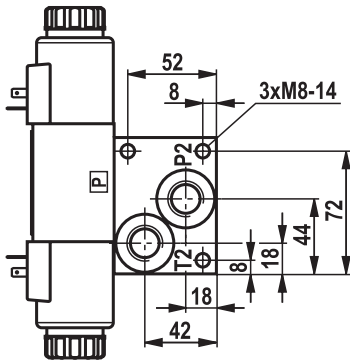
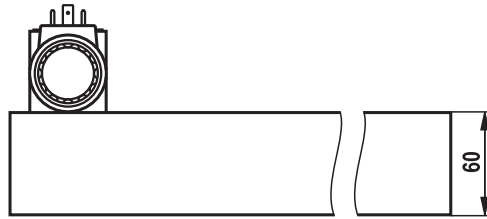
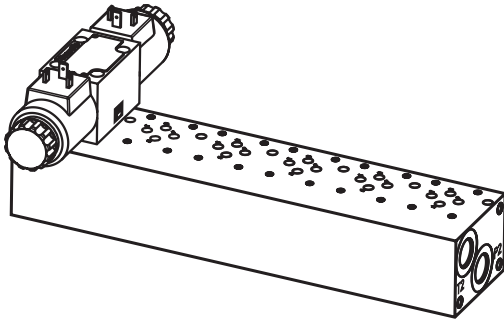


**Manifold HSR 06 -35/01D SO8**

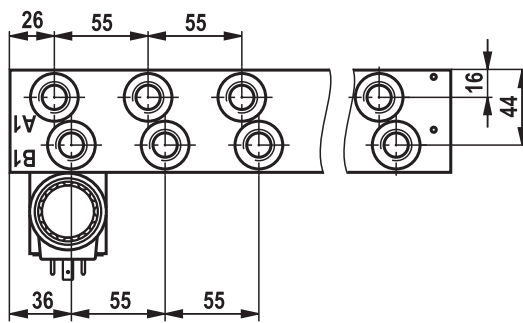




**Dimensions: Version "2 ... 10..25/01C"**  
(dimensions in mm)

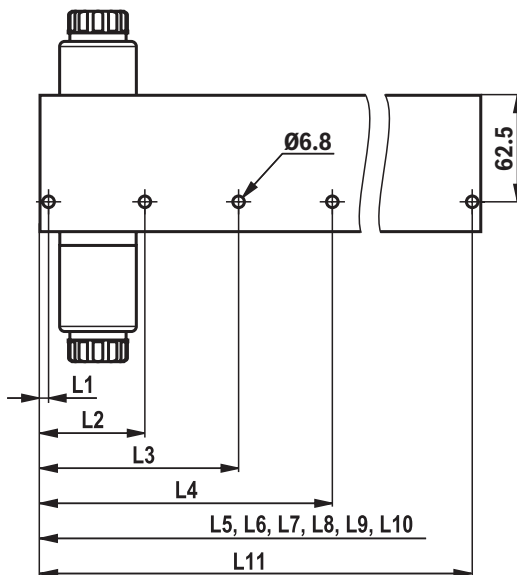


<b>Thread type</b>	Pipe thread according to ISO 228 Part 1	
<b>Port</b>	A1 ... A10 B1 ... B10	P1; P2 T1; T2
<b>Thread diameter</b>	G3/8	G1/2
<b>Thread depth</b>	13	15
<b>Counter bore diameter</b>	28	34
<b>Recess depth</b>	0.2	0.2

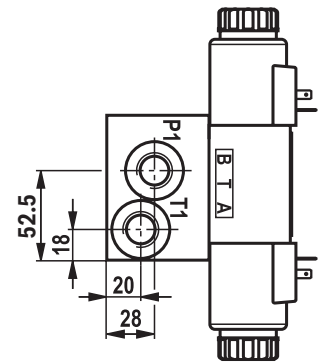
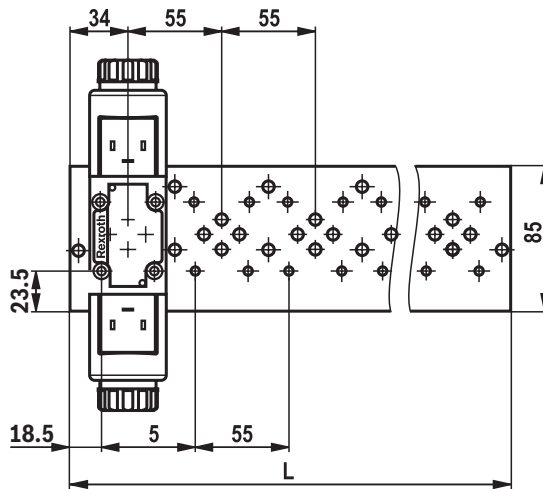
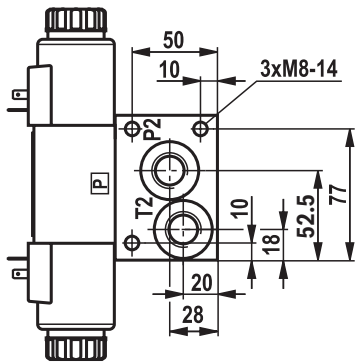
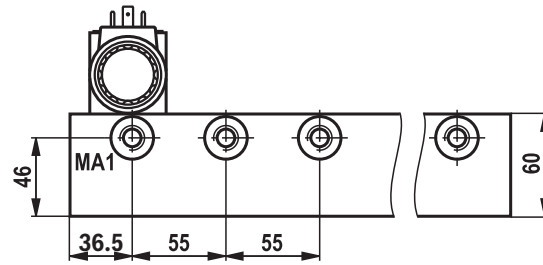
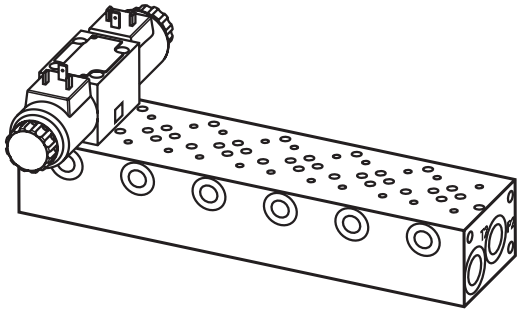


Number of stations	Overall length L	Fixing holes <sup>1)</sup>				
		L1	L2	L3	L4	L5
2	123	5	61.5	118		
3	178	5	61.5	116.5	173	
4	233	5	61.5	116.5	171.5	228
5	288	5	61.5	116.5	171.5	226.5
6	343	5	61.5	116.5	171.5	226.5
7	398	5	61.5	116.5	171.5	226.5
8	453	5	61.5	116.5	171.5	226.5
9	508	5	61.5	116.5	171.5	226.5
10	563	5	61.5	116.5	171.5	226.5

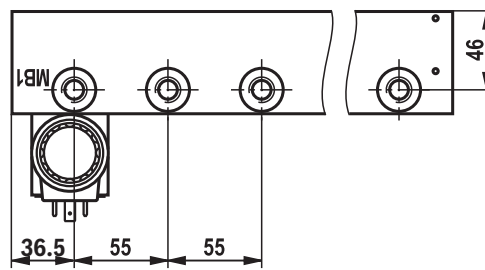
Number of stations	Fixing holes <sup>1)</sup>					
	L6	L7	L8	L9	L10	L11
5	283					
6	281.5	338				
7	281.5	336.5	393			
8	281.5	336.5	391.5	448		
9	281.5	336.5	391.5	446.5	503	
10	281.5	336.5	391.5	446.5	501.5	558



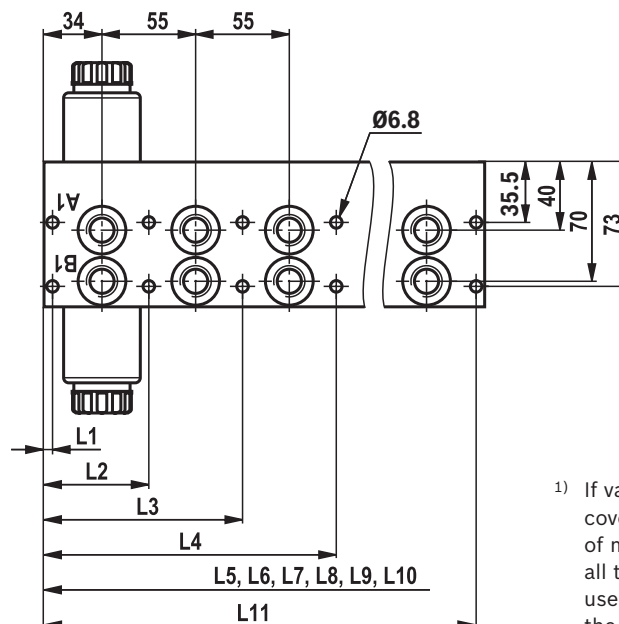
<sup>1)</sup> If valves, sandwich and cover plates have a width of more than 45 mm, not all through holes can be used for the fixation of the manifolds.

**Dimensions: Version "2 ... 10..25/01D (SO8)"**  
 (dimensions in mm)


Thread type	Pipe thread according to ISO 228 Part 1		
Port	A1 ... A10 B1 ... B10	P1; P2 T1; T2	MA1 ... MA10 MB1 ... MB10
Thread diameter	G3/8	G1/2	G1/4
Thread depth	13	15	13
Counter bore diameter	28	34	25
Recess depth	0.2	0.2	0.2



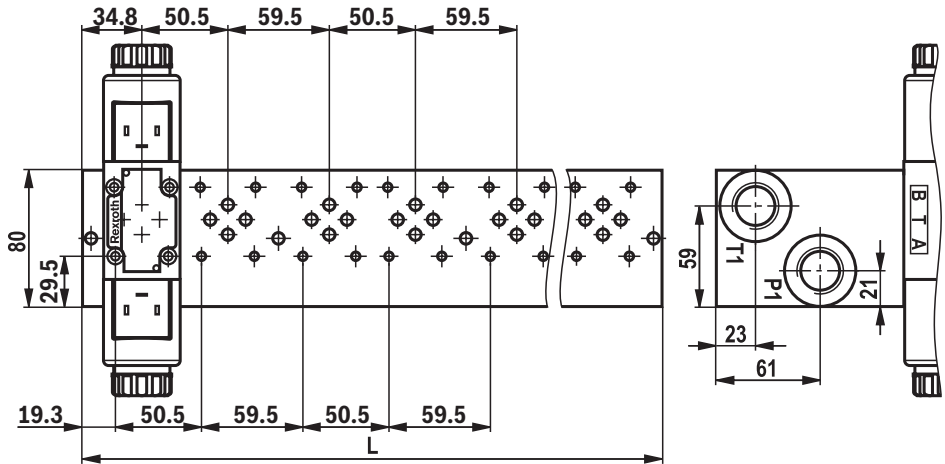
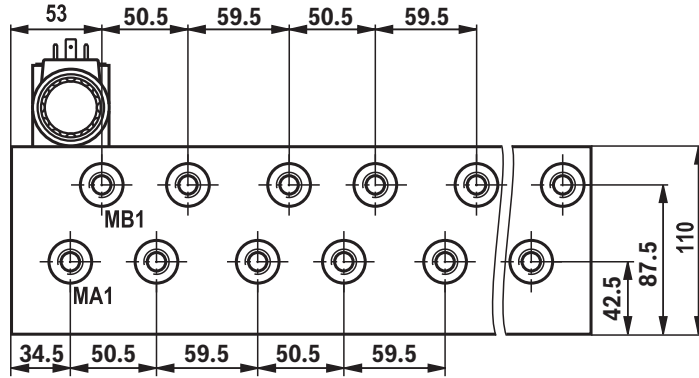
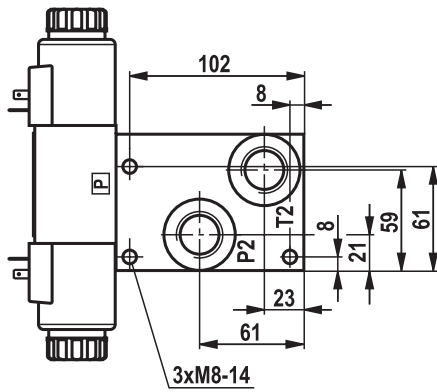
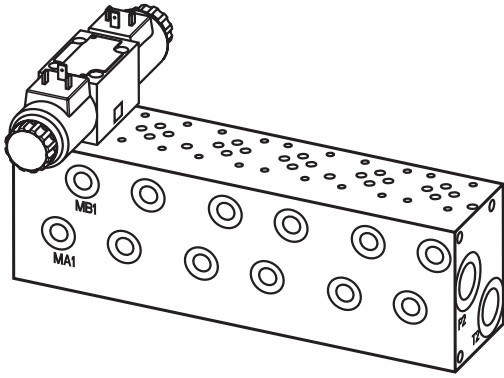
Number of stations	Overall length L	Fixing holes <sup>1)</sup>				
		L1	L2	L3	L4	L5
2	123	5	61.5	118		
3	178	5	61.5	116.5	173	
4	233	5	61.5	116.5	171.5	228
5	288	5	61.5	116.5	171.5	226.5
6	343	5	61.5	116.5	171.5	226.5
7	398	5	61.5	116.5	171.5	226.5
8	453	5	61.5	116.5	171.5	226.5
9	508	5	61.5	116.5	171.5	226.5
10	563	5	61.5	116.5	171.5	226.5



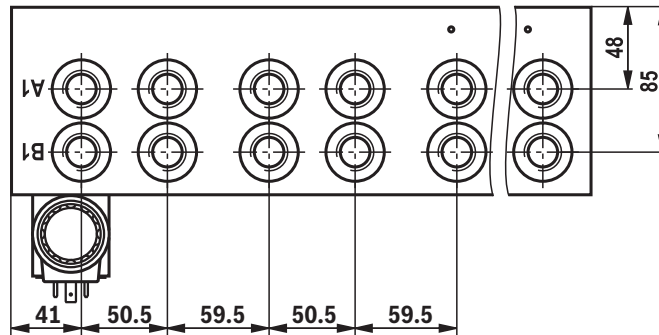
Number of stations	Fixing holes <sup>1)</sup>					
	L6	L7	L8	L9	L10	L11
5	283					
6	281.5	338				
7	281.5	336.5	393			
8	281.5	336.5	391.5	448		
9	281.5	336.5	391.5	446.5	503	
10	281.5	336.5	391.5	446.5	501.5	558

<sup>1)</sup> If valves, sandwich and cover plates have a width of more than 45 mm, not all through holes can be used for the fixation of the manifolds.

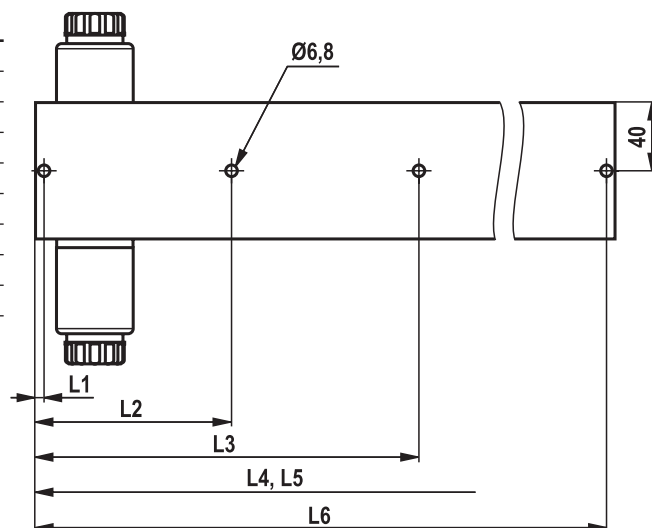
**Dimensions: Version "2 ... 10..35/01C (SO8)"**  
(dimensions in mm)



<b>Thread type</b>	Pipe thread according to ISO 228 Part 1		
<b>Port</b>	A1 ... A10 B1 ... B10	P1; P2 T1; T2	MA1 ... MA10 MB1 ... MB10
<b>Thread diameter</b>	G1/2	G3/4	G1/4
<b>Thread depth</b>	15	17	12
<b>Counter bore diameter</b>	34	42	25
<b>Recess depth</b>	0.2	0.2	0.2

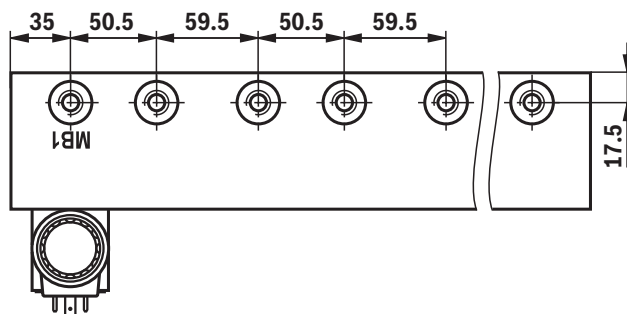
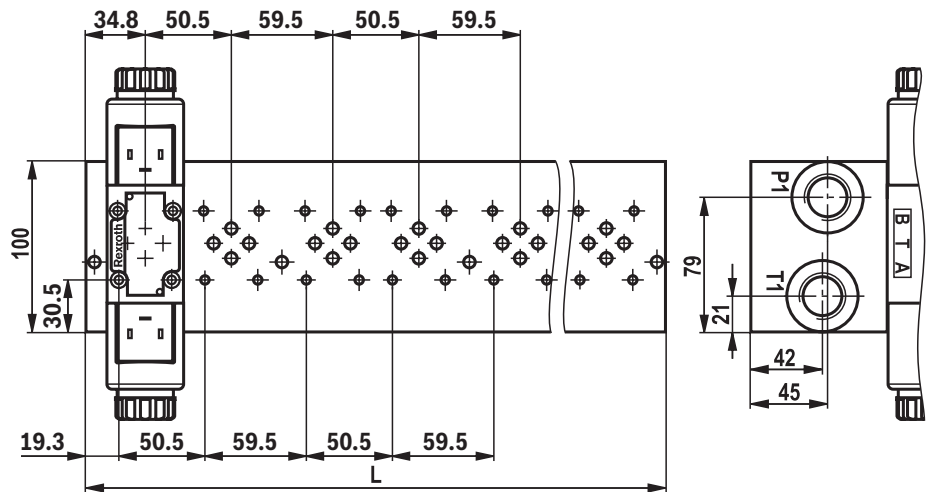
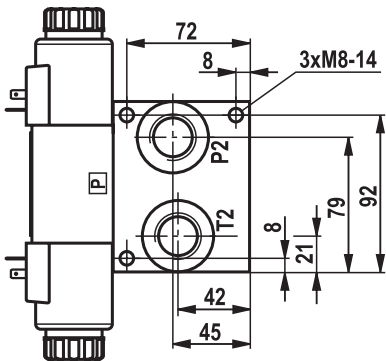
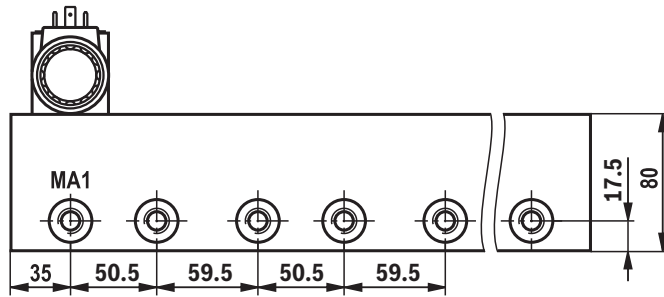
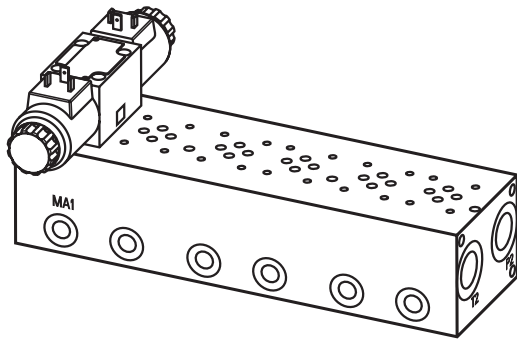


Number of stations	Overall length L	Fixing holes <sup>1)</sup>					
		L1	L2	L3	L4	L5	L6
2	120	5	115				
3	175	5	115				
4	230	5	115	225			
5	285	5	115	225			
6	340	5	115	225	335		
7	395	5	115	225	335		
8	450	5	115	225	335	445	
9	505	5	115	225	335	445	
10	560	5	115	225	335	445	555



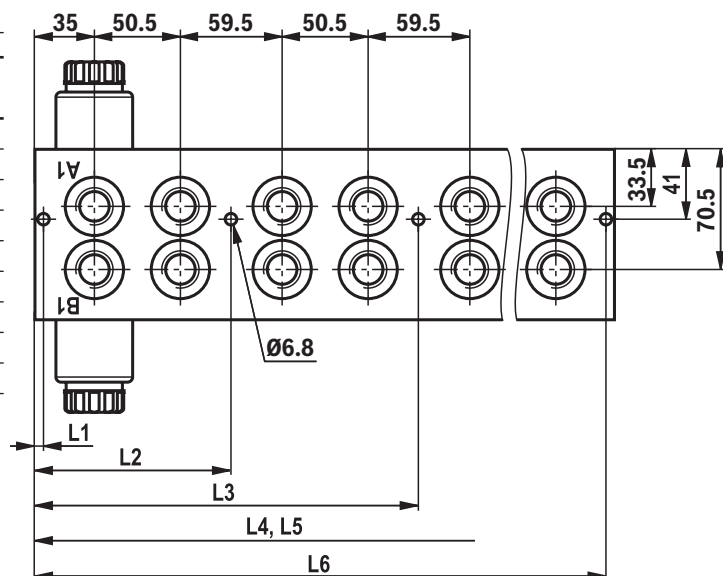
<sup>1)</sup> If valves, sandwich and cover plates have a width of more than 49 mm, not all through holes can be used for the fixation of the manifolds.

**Dimensions: Version "2 ... 10..35/01D (S08)"**  
(dimensions in mm)



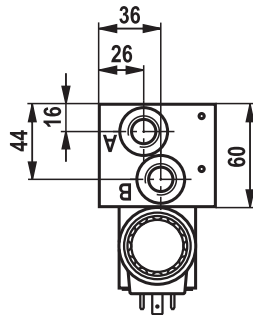
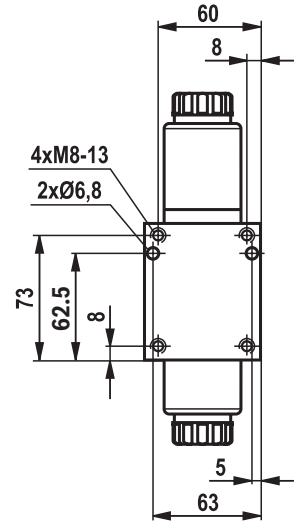
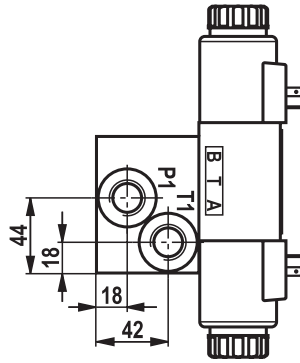
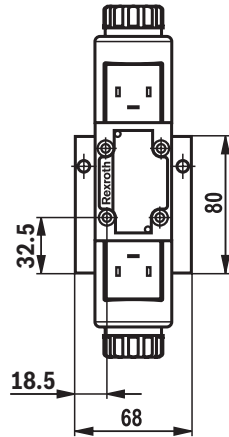
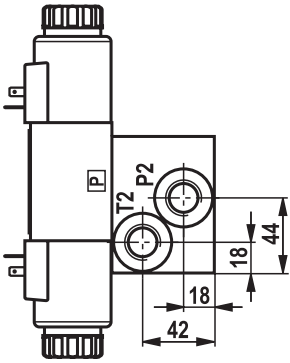
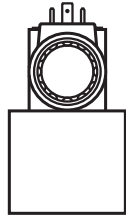
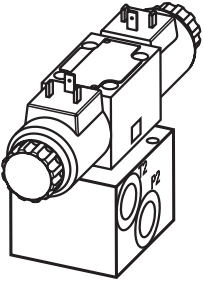
<b>Thread type</b>	Pipe thread according to ISO 228 Part 1		
<b>Port</b>	A1 ... A10 B1 ... B10	P1; P2 T1; T2	MA1 ... MA10 MB1 ... MB10
<b>Thread diameter</b>	G1/2	G3/4	G1/4
<b>Thread depth</b>	15	17	13
<b>Counter bore diameter</b>	34	42	25
<b>Recess depth</b>	0.2	0.2	0.2

Number of stations	Overall length L	Fixing holes <sup>1)</sup>					
		L1	L2	L3	L4	L5	L6
2	120	5	115				
3	175	5	115				
4	230	5	115	225			
5	285	5	115	225			
6	340	5	115	225	335		
7	395	5	115	225	335		
8	450	5	115	225	335	445	
9	505	5	115	225	335	445	
10	560	5	115	225	335	445	555



<sup>1)</sup> If valves, sandwich and cover plates have a width of more than 49 mm, not all through holes can be used for the fixation of the manifolds.

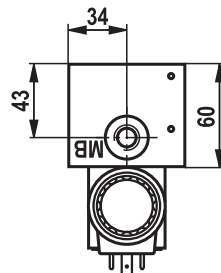
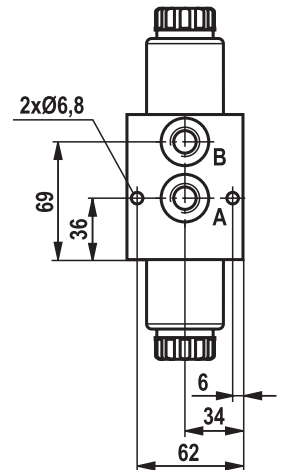
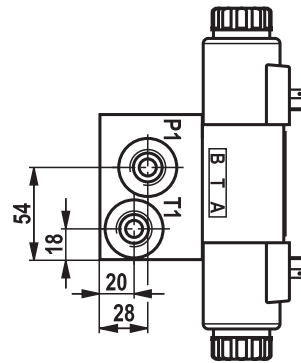
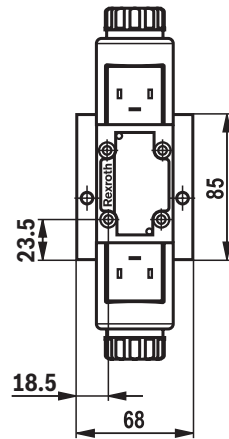
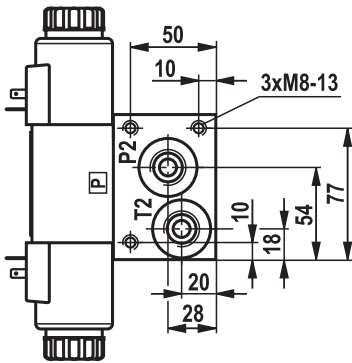
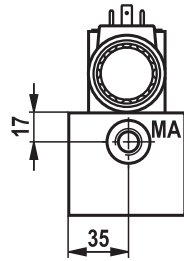
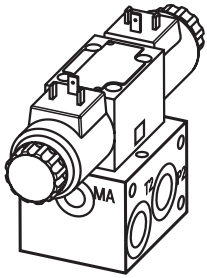
**Dimensions: Version "1HSR..25/01C"**  
(dimensions in mm)



<b>Thread type</b>	Pipe thread according to ISO 228 Part 1	
<b>Port</b>	A1 ... A10 B1 ... B10	P1; P2 T1; T2
<b>Thread diameter</b>	G3/8	G1/2
<b>Thread depth</b>	13	15
<b>Counter bore diameter</b>	28	34
<b>Recess depth</b>	0.2	0.2

If valves, sandwich and cover plates have a width of more than 48 mm, not all through holes can be used for the fixation of the manifolds!

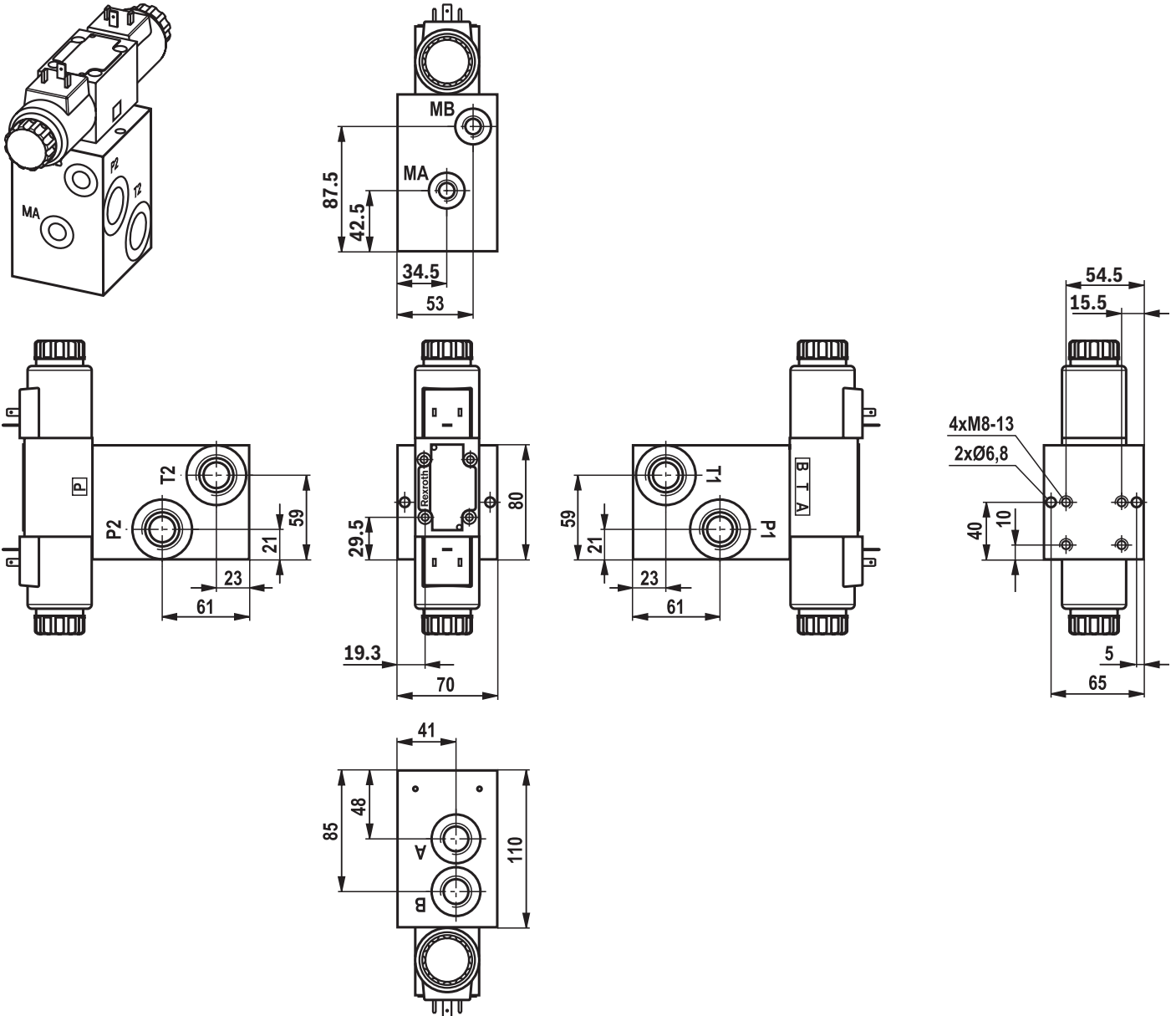
**Dimensions:** Version "1HSR..25/01D SO8"  
(dimensions in mm)



Thread type	Pipe thread according to ISO 228 Part 1		
<b>Port</b>	A1 ... A10 B1 ... B10	P1; P2 T1; T2	MA1 ... MA10 MB1 ... MB10
<b>Thread diameter</b>	G3/8	G1/2	G1/4
<b>Thread depth</b>	13	15	13
<b>Counter bore diameter</b>	28	34	25
<b>Recess depth</b>	0.2	0.2	0.2

If valves, sandwich and cover plates have a width of more than 46 mm, problems regarding the fixation of the manifold may result!

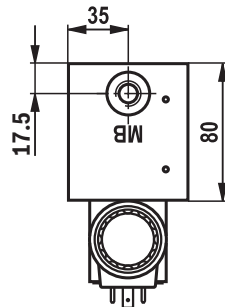
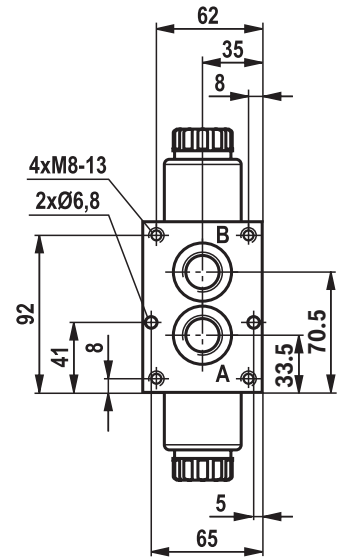
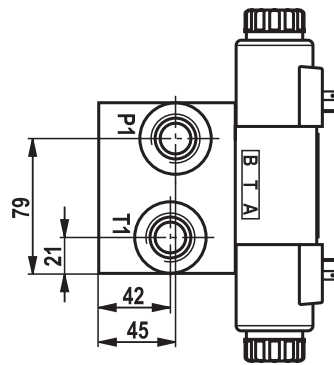
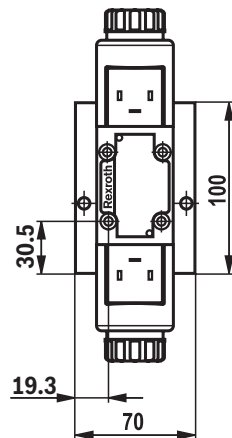
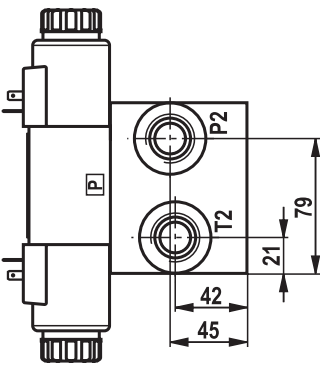
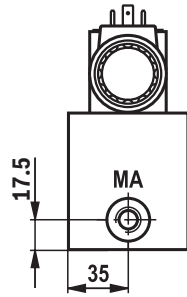
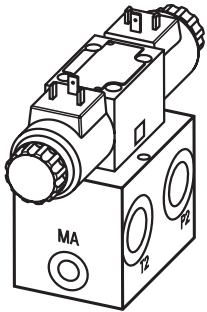
**Dimensions: Version "1HSR..35/01C SO8"**  
(dimensions in mm)



Thread type	Pipe thread according to ISO 228 Part 1		
Port	A1 ... A10 B1 ... B10	P1; P2 T1; T2	MA1 ... MA10 MB1 ... MB10
Thread diameter	G1/2	G3/4	G1/4
Thread depth	15	17	13
Counter bore diameter	34	42	25
Recess depth	0.2	0.2	0.2

If valves, sandwich and cover plates have a width of more than 50 mm, not all through holes can be used for the fixation of the manifolds!

**Dimensions:** Version "1HSR..35/01D S08"  
(dimensions in mm)



Thread type	Pipe thread according to ISO 228 Part 1		
Port	A1 ... A10 B1 ... B10	P1; P2 T1; T2	MA1 ... MA10
Thread diameter	G1/2	G3/4	G1/4
Thread depth	15	17	13
Counter bore diameter	34	42	25
Recess depth	0.2	0.2	0.2

If valves, sandwich and cover plates have a width of more than 50 mm, not all through holes can be used for the fixation of the manifolds!



## Mounting screws dependent on the valve fitting

**Screw selection table:** Vertical stackings in combination with size 6 directional valves

Number of sandwich plates	Clamping lengths of the sandwich plates	Hexagon socket head cap screws according to ISO 4762; stud screws according to DIN 939		Stability	Material no.
1	1 x 40 mm	M5 x 90	ISO 4762	10.9	R913051578
2	2 x 40 mm	M5 x 130	DIN 939	10.9	R913055302
3	3 x 40 mm	M5 x 170	DIN 939	10.9	R913052749
4	4 x 40 mm	M5 x 210	DIN 939	10.9	R913025153
5	5 x 40 mm	M5 x 250	DIN 939	10.9	R913052751

For the tightening torques of the screws, please refer to the corresponding data sheets of the valves

**Notice:**

The clamping lengths of the mounted sandwich plates and valves must be checked for each individual case.

**Example for mountable sandwich plates with a clamping length of 40 mm:**

- pressure reducing valve type ZDR 6 D...-4X/...,
- pressure relief valve type Z.DB 6 V...-4X/...,
- check valve type Z2S 6...-6X/...,
- check valve type Z1S6...-4X.../,
- throttle check valve type Z2FS 6...-4X/...,
- pressure switch with sandwich plate type HED 8 O.2X/...

Directional valve	Hexagon socket head cap screws according to ISO 4762		Stability	Material no.
Direct operated directional valve type WE 6 -6X	M5 x 50	ISO 4762	10.9	R913000064
Proportional valve type WR. 6	M5 x 40	ISO 4762	10.9	R913000139

For the tightening torques of the screws, please refer to the corresponding data sheets of the valves

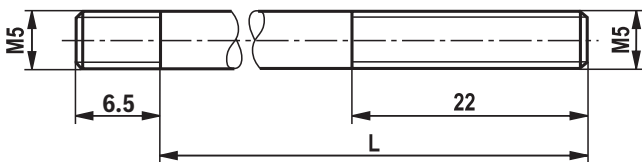
**Notice:**

The screw selection table does not apply to directional valves in their seawater-protected version due to differences in the clamping lengths on the directional valve (dimensions see data sheets – seawater-protected directional valves).

**Notice:**

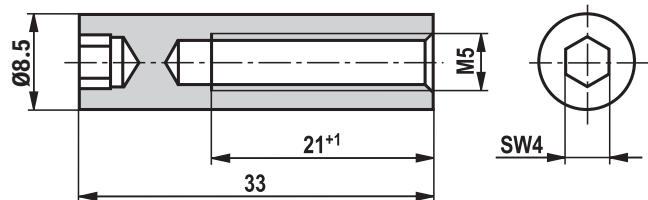
Directional valves with central ports "D", "DL", "DZ" and "DZL" can only be used with hexagon socket head cap screws or stud screws and round nut according to ZN 10035, material no. **R913020308**.

**Stud screw M5 DIN 939, property class 10.9**



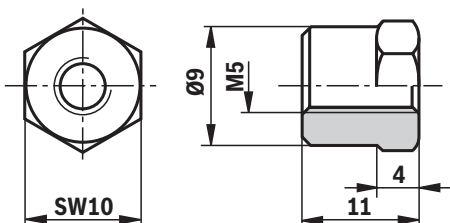
L = length of the stud screw according to DIN 939

**Round nut ZN10035-M5-ST, material no. R913020308**



**Hexagon nut ZN10034-M5-ST-CM-FE-ZN-8-CN-T0-LB**

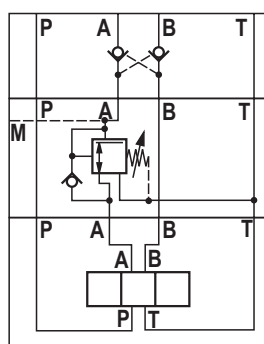
Material no. R913017599



## Project planning information

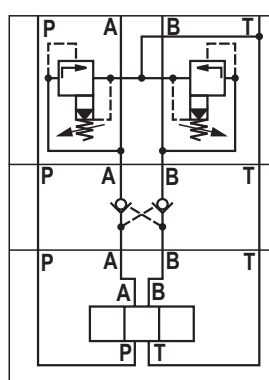
### Pressure reducing valve in connection with check valve

The pressure reducing valve type ZDR..DA (pressure reduction in channel A) **must** always be installed between the directional valve and the check valve type Z2S... This ensures that the check valve can block in a leakage-free manner.



### Pressure relief valve in connection with check valve

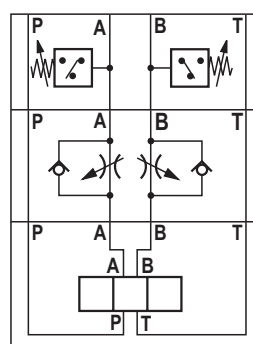
Leakage-free blocking of the actuator is **not** possible if a pressure relief valve type ZDB../Z2DB.. is effective in channel A and/or B and a check valve is installed.



### Pressure switch in connection with throttle check valve

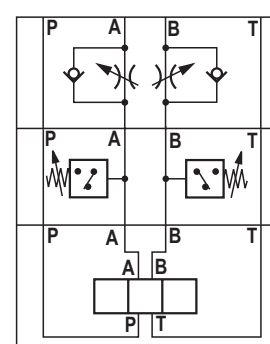
#### Supply control

The pressure switch type HED 8 OH, effective in channel A and/or B, is installed between subplate and the throttle check valve type Z2FS.



#### Discharge control

The pressure switch type HED 8 OH, effective in channel A and/or B, is installed between directional valve and throttle check valve type Z2FS.



#### Notice:

The illustrated sections of circuit diagrams are examples. The project planning information must also be observed for valves with a similar function.

#### Notice:

The installation of sandwich plates with two pressure switches on manifolds with lateral ports "C" is possible in individual cases. Upon request.

#### Notice:

Due to the valves and sandwich plates with "excessive width", some through holes for the fixation of the manifold can not be used. The end user is responsible for evaluating, assessing and taking the responsibility with regard to the decision whether the mounting screws in these positions can be renounced.

Possible countermeasures may include:

- ▶ Use of a narrower distance plate under the broader valves and sandwich plates e.g.: R900516529 Sandwich plate HSZ 06 A003-3X/M00
- ▶ Exchanging the order of the sandwich plates of the individual vertical stackings unless this impairs the function.
- ▶ It may possibly also be useful to change the order of the vertical stackings.

Alternatively, you can use available mounting threads for the fixation.

### Selection of available subplate-mounted valves

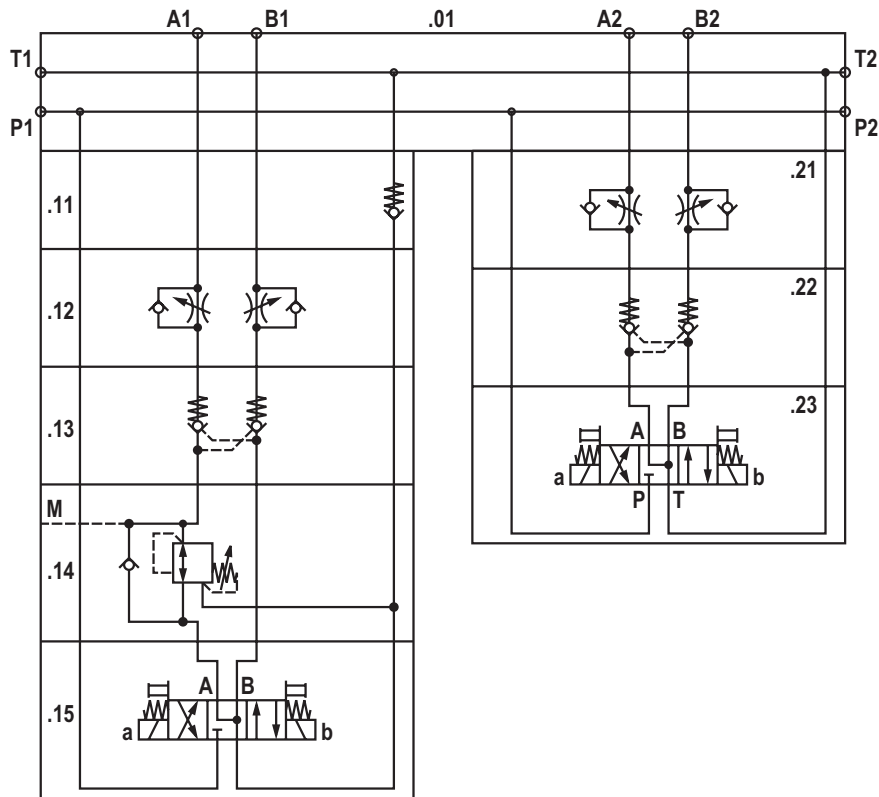
Sandwich plate valves NG6	Data sheet
Sandwich plates type HSZ	48050
Pressure reducing valve type ZDR	26570
Pressure relief valve type ZDB	25751
Check valve type Z2S	21548
Check valve type Z1S	21534
Throttle check valve type Z2FS	27506
Pressure switch type HED8	50061
Cover plate NG6	Data sheet
Type HSA	48042

Directional spool valve NG6	Data sheet
Type WE (electrically operated)	23178
Type WP and WH (fluidic actuation)	22282
Type WM (mechanically or manually operated)	22280

Proportional directional valve NG6	Data sheet
Type WRA (direct operated, without electrical position feedback)	29055
Type WRE (direct operated, with electrical position feedback)	29061

### Required ordering code of a completely mounted manifold

**Example:**  
2-fold manifold



Item	Quantity	Device designation	Type designation	Material no.
.0	1		2HSR 06 C2X... <sup>1)</sup>	<sup>1)</sup>
.01	1	Manifold	2HSR06-35/01C PHOSPHATED	R900170948
.11	1	Check valve	Z1S 6 T05-4X/V	R901086058
.12	1	Throttle check valve	Z2FS 6-2-4X/2QV	R900481624
.13	1	Pilot operated check valve	Z2S 6-2-6X/	R900347496
.14	1	Pressure reducing valve	ZDR 6 DA2-4X/150Y	R900410849
.15	1	Directional valve	4WE 6 J6X/EG24N9K4	R900561288
	4	Stud screw	DIN939-M5X250-10.9-C&	R913025153
	4	Round nut	ZN10035-M5-ST	R913020308
.21	1	Throttle check valve	Z2FS 6-2-4X/2QV	R900481624
.22	1	Pilot operated check valve	Z2S 6-2-6X/	R900347496
.23	1	Directional valve	4WE 6 J6X/EG24N9K4	R900561288
	4	Stud screw	DIN939-M5X130-10.9-CM-FE-ZNNI-5-CN-T0-H-R	R913055302
	4	Round nut	ZN10035-M5-ST	R913020308

<sup>1)</sup> Material number and type designation are determined by the plant or the manifold configurator

# Manifolds with installation bore for a pressure relief valve

## Type HSR 06 and 10

**RE 48113**

Edition: 2017-06



04-4\_5HRS-06

- ▶ Sizes 6 and 10
- ▶ Component series 40
- ▶ Maximum operating pressure 315 bar
- ▶ 1 ... 8 stations

### Features

- ▶ Base element for ready-for-connection controls in vertical stacking design
- ▶ Compact hydraulic controls
- ▶ Common pump and tankline
- ▶ Separate actuator ports of the stations
- ▶ Measuring ports in the actuator lines
- ▶ Mounting of NG6 or NG10 sandwich plates and valves
- ▶ Pressure relief valve type DBD in pressure line P
- ▶ Connection possibility of a pressure gauge in pressure line P

### Contents

Features	1
Ordering code	2
Description	2
Standard program	3
Technical data	4
Switching symbols	5
Dimensions	6, 7
Required ordering code of a completely mounted manifold	8, 9
Selection of possible subplate-mounted valves	10
Accessories	11
Project planning information	12

## Ordering code

	01	02	03	04		05		06	07
<b>Manifold</b>		<b>HSR</b>		<b>M</b>	-	<b>40</b>	/	<b>01</b>	<b>D</b>

### Number of ready-for-connection controls in vertical stacking design

01	1 control	<b>1</b>
	2 controls	<b>2</b>
	3 controls	<b>3</b>
	4 controls	<b>4</b>
	5 controls	<b>5</b>
	6 controls	<b>6</b>
	7 controls	<b>7</b>
	8 controls	<b>8</b>

02	Manifold	<b>HSR</b>
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### Size

03	Size 6	<b>06</b>
	Size 10	<b>10</b>

### Measuring ports

04	With measuring ports in the actuator ports A and B	<b>M</b>
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### Component series

05	Manifold with installation possibility for a pressure relief valve type DBD 6 (with NG06) or DBD 10 (with NG10) and attachment possibility for a pressure gauge type ABZMM in pressure channel P	<b>40</b>
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### Connection thread

06	Pipe thread according to ISO 228 Part 1	<b>01</b>
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### Position of actuator ports

07	Bottom	<b>D</b>
----	--------	----------

### Coating

08	Galvanic coating DIN 50979	<b>Fe//ZN8//CN/T0</b>
	Phosphate coating DIN EN 12476	<b>PHOSPHATED<sup>1)</sup></b>

<sup>1)</sup> Manganese or zinc phosphate coating

## Description

- ▶ Manifolds are the base element for ready for connection controls in vertical stacking design.
- ▶ On each station, highly compact hydraulic controls can be build using vertically stackable sandwich plate valves in connection with on/off and proportional servo valves.
- ▶ All stations have a common pump and tank port (P2 and T2).
- ▶ The pump line is lead out at both front sides of the manifold.
- ▶ Every station is equipped with separate actuator ports "A" and "B" and measuring ports "MA" and "MB".
- ▶ The actuator ports are located at the bottom side of the plate.
- ▶ The manifolds are prepared for the installation of a pressure relief valve type DBD 6 or DBD 10 and a pressure gauge type ABZMM in channel P.

## Standard program

NG	Number of stations	Port size A, B	Port size P, T	Type key Manifold...	Material number	Weight in kg	MKZ <sup>1)</sup>
6	1	G3/8	G1/2	1HSR06M-40/01D PHOSPHATED	R900731948	4.9	A3
6	2	G3/8	G1/2	2HSR06M-40/01D PHOSPHATED	R900731949	6.6	A3
6	3	G3/8	G1/2	3HSR06M-40/01D PHOSPHATED	R900731951	8.4	A3
6	4	G3/8	G1/2	4HSR06M-40/01D PHOSPHATED	R900731952	10.1	A3
6	5	G3/8	G1/2	5HSR06M-40/01D PHOSPHATED	R900731953	11.8	A3
6	6	G3/8	G1/2	6HSR06M-40/01D PHOSPHATED	R900731954	13.6	A3
6	7	G3/8	G1/2	7HSR06M-40/01D PHOSPHATED	upon request	15.3	A3
6	8	G3/8	G1/2	8HSR06M-40/01D PHOSPHATED	R900731956	17.1	A3
6	1	G3/8	G1/2	1HSR06M-40/01D FE//ZN8//CN/T0	R901447930	4.9	A3
6	2	G3/8	G1/2	2HSR06M-40/01D FE//ZN8//CN/T0	R901475552	6.6	A3
6	3	G3/8	G1/2	3HSR06M-40/01D FE//ZN8//CN/T0	R901473532	8.4	A3
6	4	G3/8	G1/2	4HSR06M-40/01D FE//ZN8//CN/T0	R901464548	10.1	A3
6	5	G3/8	G1/2	5HSR06M-40/01D FE//ZN8//CN/T0	R901475553	11.8	A3
6	6	G3/8	G1/2	6HSR06M-40/01D FE//ZN8//CN/T0	R901475554	13.6	A3
6	7	G3/8	G1/2	7HSR06M-40/01D FE//ZN8//CN/T0	R900731955	15.3	A3
6	8	G3/8	G1/2	8HSR06M-40/01D FE//ZN8//CN/T0	R901466553	17.1	A3
10	1	G3/4	G1	1HSR10M-40/01D FE//ZN8//CN/T0	R901280497	11.0	A3
10	2	G3/4	G1	2HSR10M-40/01D FE//ZN8//CN/T0	R901282333	17.0	A3
10	3	G3/4	G1	3HSR10M-40/01D FE//ZN8//CN/T0	R901283657	23.5	A3
10	4	G3/4	G1	4HSR10M-40/01D FE//ZN8//CN/T0	R901287176	29.0	A3
10	5	G3/4	G1	5HSR10M-40/01D FE//ZN8//CN/T0	R901287178	35.0	A3
10	6	G3/4	G1	6HSR10M-40/01D FE//ZN8//CN/T0	R901287180	41.0	A3
10	7	G3/4	G1	7HSR10M-40/01D FE//ZN8//CN/T0	R901287181	47.0	A3
10	8	G3/4	G1	8HSR10M-40/01D FE//ZN8//CN/T0	R901287182	53.0	A3

<sup>1)</sup> MKZ = material mark; A3 = standard delivery range

### Order example for a manifold with phosphate coating:

Manifold with 5 stations of NG6, series 40, pipe thread and outlets at the bottom, with Minimes connections;  
Manifold 5HSR06M-40/01D PHOSPHATED, material number: R900731953

## Technical data

(For applications outside these values, please consult us!)

general	
Size	6, 10
Stations	From 1 ... 8
Material	GGG40
Surface coating	Galvanic coating according to DIN 50979 (FE//ZN8//CN//T0) Phosphate coating according to DIN EN 12476 with after-treatment (greases, oils, lubricants) (FE//ZNP/R/5/T4 or FE//MNP/R/5/T4)
Maximum operating pressure <sup>1)</sup>	bar 315
Hydraulic fluid	See table below
Fixing holes	4 x M8 front threads for vertical attachment, 2 through holes ø9 for front attachment

Hydraulic fluid	Classification	Standards	Data sheet
Mineral oils	Mineral oil HLP	DIN 51524	90220
Bio-degradable	▶ Insoluble in water	Triglycerides (rape seed oil) HETG Synthetic esters HEES	ISO 15380 90221
	▶ Soluble in water	Polyglycols HEPG	
Flame-resistant	▶ Water-free	Organic esters HFDU, phosphoric acid esters HFDR	ISO 12922 90222
	▶ Containing water	Emulsions HFA-E, aqueous solution HFC	ISO 12922 90223



### Important information on hydraulic fluids:

- ▶ For further information and data on the use of other hydraulic fluids, please refer to the data sheets above or contact us.
- ▶ Some hydraulic fluids (HFC, HFD ...) may attack and destroy galvanized surfaces. Phosphatized plates (zinc phosphate coating, if applicable) are therefore not suitable.

The zinc content of plates with galvanized insides, however, is very low. After a flushing procedure with subsequent filter exchange, the zinc is washed out. Special caution is required regarding leaking hydraulic fluid, especially during maintenance and disassembly of the manifold.

<sup>1)</sup> Manifold without valve fitting

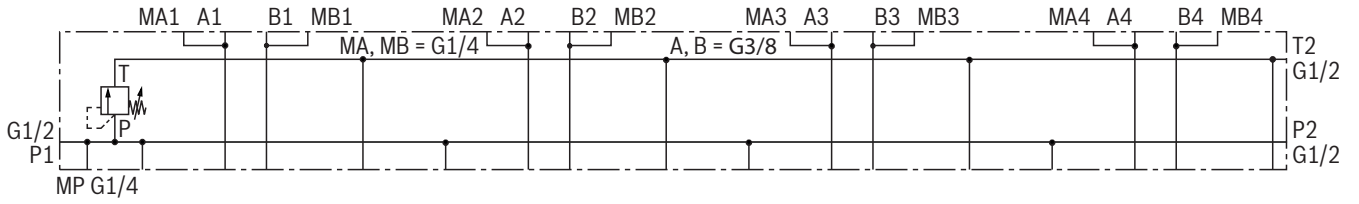


### Notice:

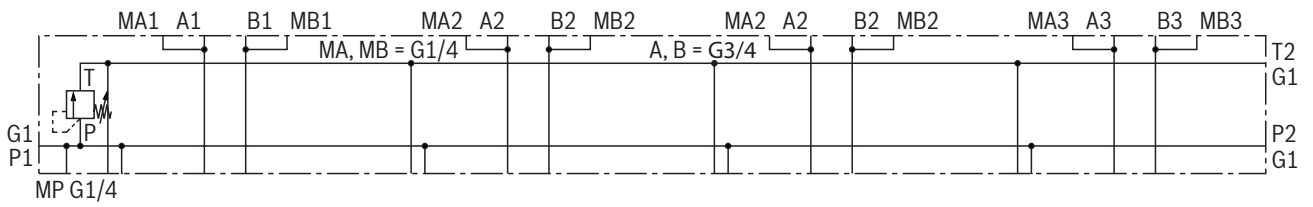
For the installation, commissioning and maintenance of oil hydraulic systems, please observe data sheet 07900.

**Switching symbols:** Manifolds with 4 stations

**Manifold 4HSR06M-40/01D**



**Manifold 4HSR10M-40/01D**

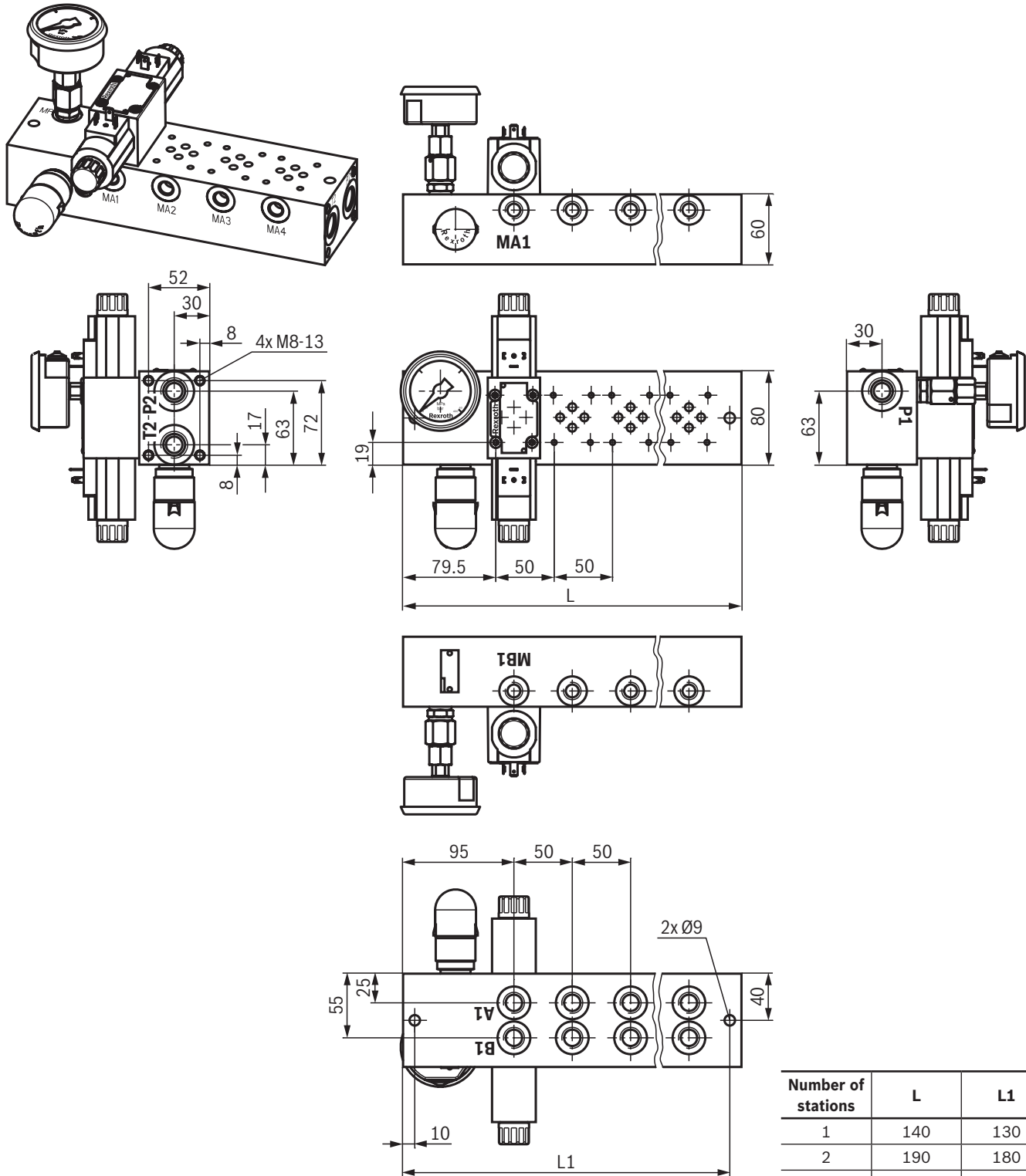


**Notice:**

The pressure relief valves are not included in the scope of delivery.

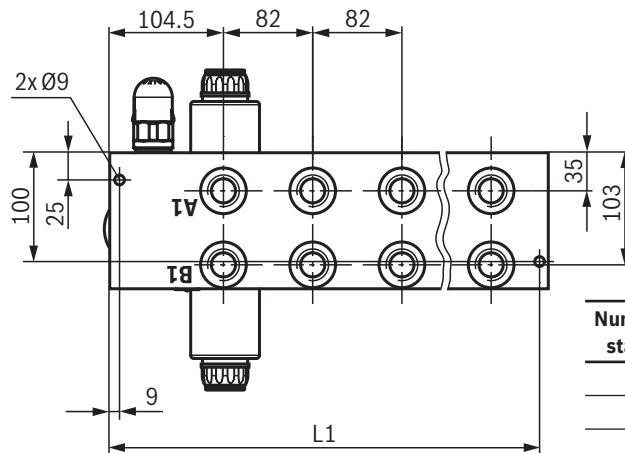
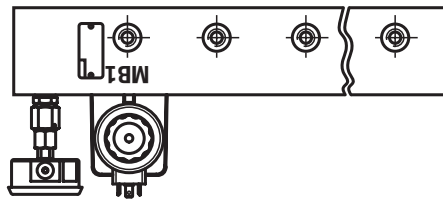
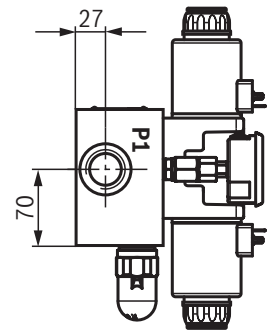
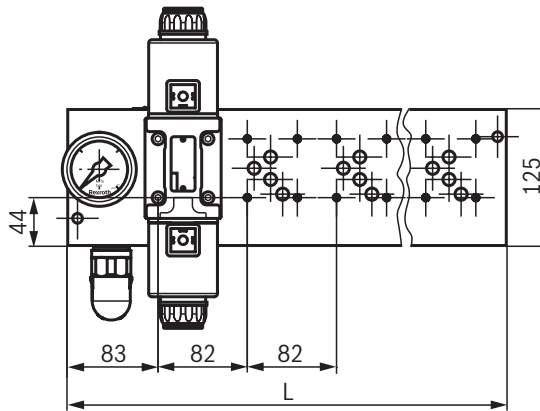
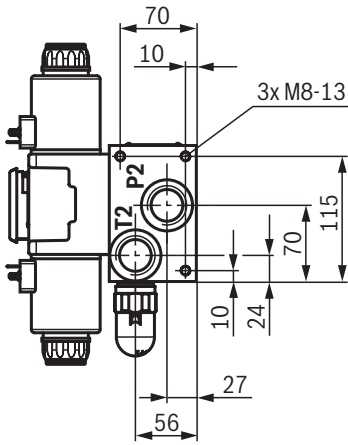
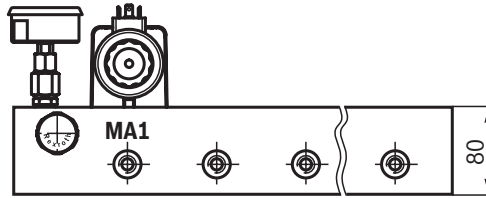
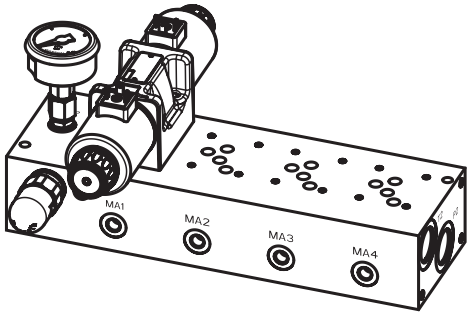


**Dimensions:** Manifold 1-8HSR06M-40/01  
(dimensions in mm)



Number of stations	L	L1
1	140	130
2	190	180
3	240	230
4	290	280
5	340	330
6	390	380
7	440	430
8	490	480

**Dimensions:** Manifold 1-8HSR10M-40/01C S08  
(dimensions in mm)

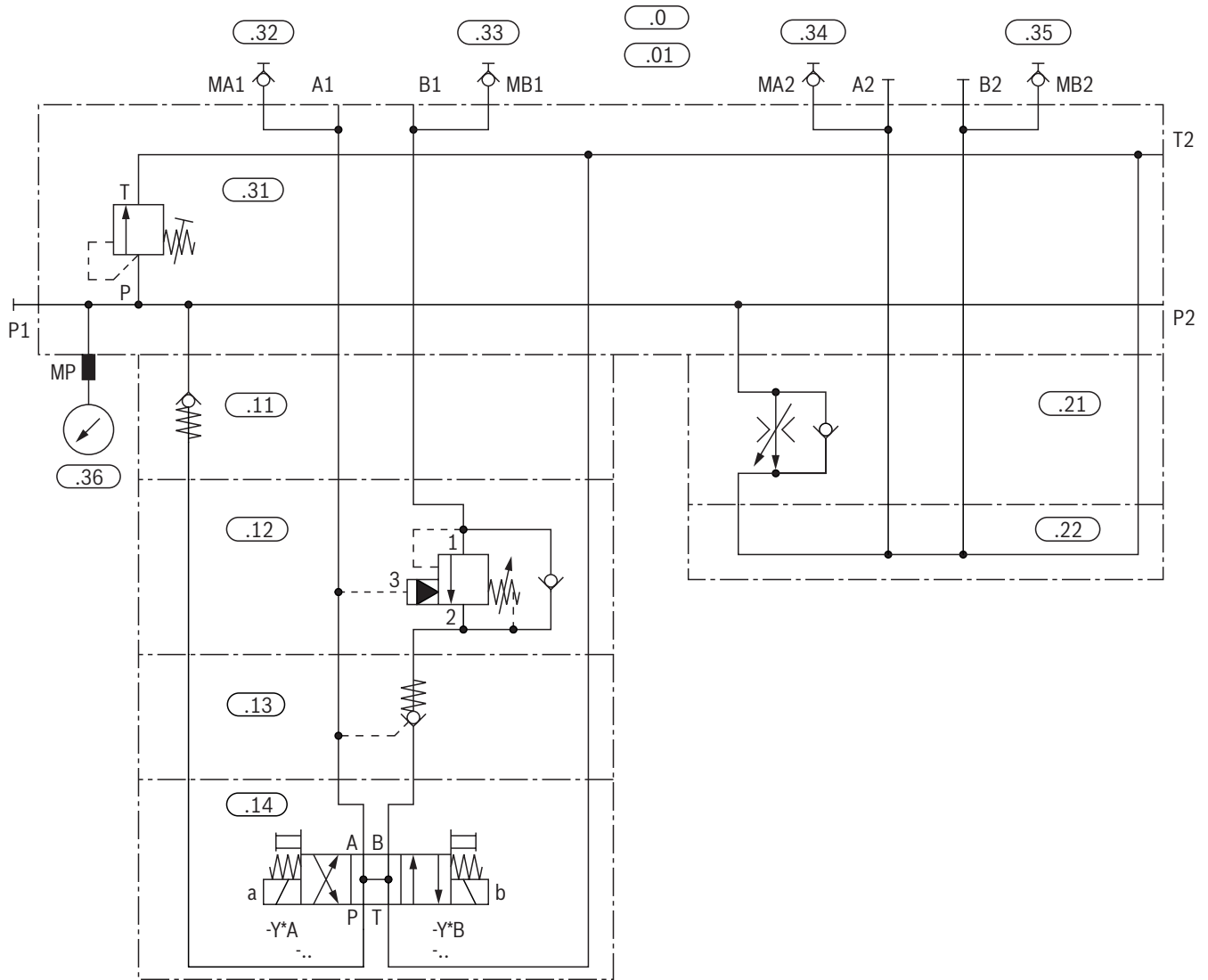


Number of stations	L	L1
1	157	149
2	239	231
3	321	313
4	403	395
5	485	477
6	567	559
7	649	641
8	731	723

### Required ordering code of a completely mounted manifold

**Example:**

2-fold manifold



## Required ordering code of a completely mounted manifold

### Example:

2-fold manifold

Item	Quantity	Device designation	Type designation	Material number
.0	1		2HSR06MD4X...C736A/G24N9K4M01 <sup>1)</sup>	<sup>1)</sup>
.01	1	Manifold	2HSR06M-40/01D PHOSPHATED	R900731949
.11	1	Check valve	Z1S 6 P15-4X/N	R901219725
.12	1	Sandwich plate	HSZ 06 A431-1X/LJ4M00	R900971827
.13	1	Check valve	Z2S 6B1-6X/	R900347501
.14	1	Directional spool valve	4WE 6 H73-6X/EG24N9K4/A12	R900906660
	4	Stud screw	DIN939-M5X180-10.9	R900028125
	4	Round nut	ZN10035-M5-ST	R913020308
.21	1	Flow control valve	Z2FRM 6 TB2-2X/6QRV	R900910912
.22	1	Cover plate	HSA 06 A005-4X/M00	R901092289
	4	Hexagon socket head cap screw	ISO4762-M5X80-10.9-F&	R913000070
.31	1	Pressure relief valve	DBDS 6 K1X/315P220	R900773948
.32	1	Measuring coupling	MCS20-SDS-E-G1/4-ST3N00Z-M	R900009090
.33	1	Measuring coupling	MCS20-SDS-E-G1/4-ST3N00Z-M	R900009090
.34	1	Measuring coupling	MCS20-SDS-E-G1/4-ST3N00Z-M	R900009090
.35	1	Measuring coupling	MCS20-SDS-E-G1/4-ST3N00Z-M	R900009090
.36	1	Pressure gauge	ABZMM 63- 400BAR/MPA-R/B-G	R900022459
	1	Assembly kit	AB-G1/4-G-G1/4-NBR	R901126946
	2	Plug screw	ZN10001-G3/8A-N-ST	R913011602
			For port A2, B2:	
	1	Plug screw	ZN1001-G1/2A-N-ST	R913011603
			For port P1:	
	1	Name plate	RNI-17620-001-REXROTH	R900002783

<sup>1)</sup> Material number and short designation of the type are defined by Rexroth.

## Selection of available subplate-mounted valves

<b>Sandwich plate valves</b>	<b>Data sheet</b>
Sandwich plates, type HSZ 06	48050
Sandwich plates, type HSZ 10	48052
Pressure reducing valves, type ZDR 6	26570
Pressure reducing valves, type ZDR 10	26585
Pressure relief valves, type ZDB 6 and Z2DB 6	25751
Pressure relief valves, type ZDB 10 and Z2DB 10	25761
Check valves, type Z2S 6	21548
Check valves, type Z2S 10	21553
Check valves, type Z1S 6	21534
Check valves, type Z1S 10	21537
Throttle check valves, type Z2FS 6	27506
Throttle check valves, type Z2FS 10	27518
Pressure switch, type HED 8	50061

<b>Cover plates</b>	<b>Data sheet</b>
Type HSA 06 and HSA 10	48042

<b>Adapter plates</b>	<b>Data sheet</b>
Type HSE	48045

<b>Pressure gauge</b>	<b>Data sheet</b>
Type ABZMM63	50205

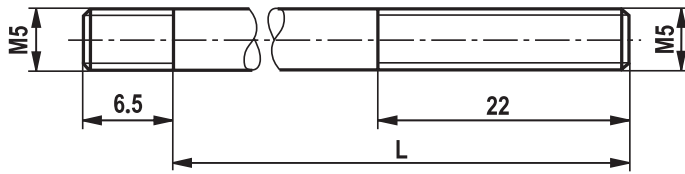
<b>Directional valves</b>	<b>Data sheet</b>
Type WE6 (electrically operated)	23178
Type WE10 (electrically operated)	23340
Type M-SED 6	22049
Type M-SEW 6	22058
Type M-SED 10	22045
Type M-SEW 10	22075
Type WP6 and WH6 (fluidicly operated)	22282
Type WM10, WP10 and WN10 (manually, fluidicly operated)	22334
Type WM6 (mechanically or manually operated)	22280
Type WEH10 (electro-hydraulic)	24751

<b>Proportional directional valves</b>	<b>Data sheet</b>
Type WRA6 and WRA10 (direct operated, without electrical position feedback)	29055
Type WRE6 and WRE10 (direct operated, with electrical position feedback)	29061
Type WRZ/WRH (pilot-operated, without position feedback)	29115

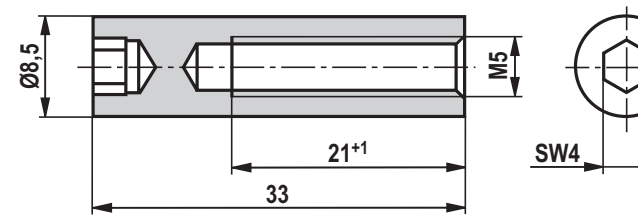
<b>Cartridge valve</b>	<b>Data sheet</b>
Pressure relief valve, type DBD 6 and DBD 10	25402

**Accessories:** Mounting screws dependent on the valve fitting

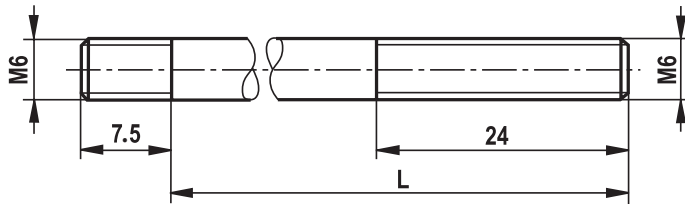
**Stud screw M5 DIN 939, property class 10.9**



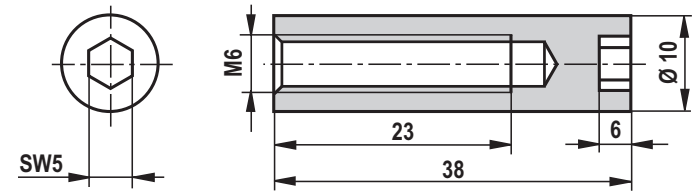
**Round nut ZN10035-M5-ST, material no.: R913020308**



**Stud screw M6 DIN 939, property class 10.9**



**Round nut ZN10035-M6-ST, material no.: R913020310**



L = length of the stud screws according to DIN 939

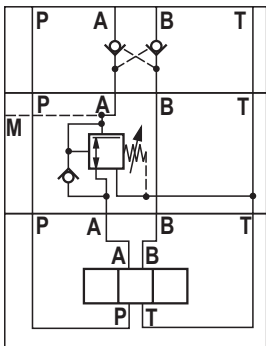
**Notice:**

- ▶ The length of the mounting screws of the attached vertical stackings have to be calculated individually.
- ▶ Up to 115 mm, hexagon socket head cap screw according to ISO 4762 with stability 10.9 may be used. From 120 mm, stud screws according to DIN 939 or threaded bolts with stability 10.9 and corresponding round nuts are to be used.
- ▶ For the tightening torques, please refer to the data sheets of the valves used.

## Project planning information

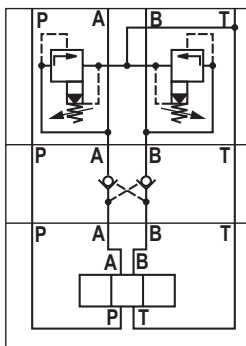
### Pressure reducing valve in connection with check valve

The pressure reducing valve type ZDR..DA (pressure reduction in channel A) **must** always be installed between the directional valve and the check valve type Z2S... This ensures that the check valve can block in a leak-free manner.



### Pressure relief valve in connection with check valve

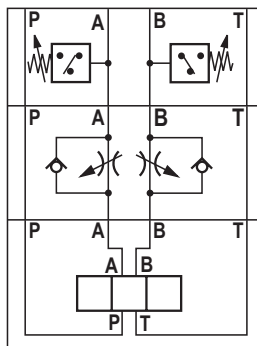
Leak-free blocking of the actuator is **not** possible if a pressure relief valve type ZDB../Z2DB.. is effective in channel A and/or B and a check valve is installed.



### Pressure switch in connection with throttle check valve

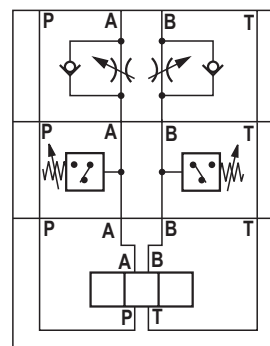
#### Supply control

The pressure switch type HED 8 OH, effective in channel A and/or B, is installed between the subplate and the throttle check valve type Z2FS.



#### Discharge control

The pressure switch type HED 8 OH, effective in channel A and/or B, is installed between the directional valve and the throttle check valve type Z2FS.



**Notice:**

The illustrated sections of circuit diagrams are examples. The project planning information must also be observed for valves with a similar function.

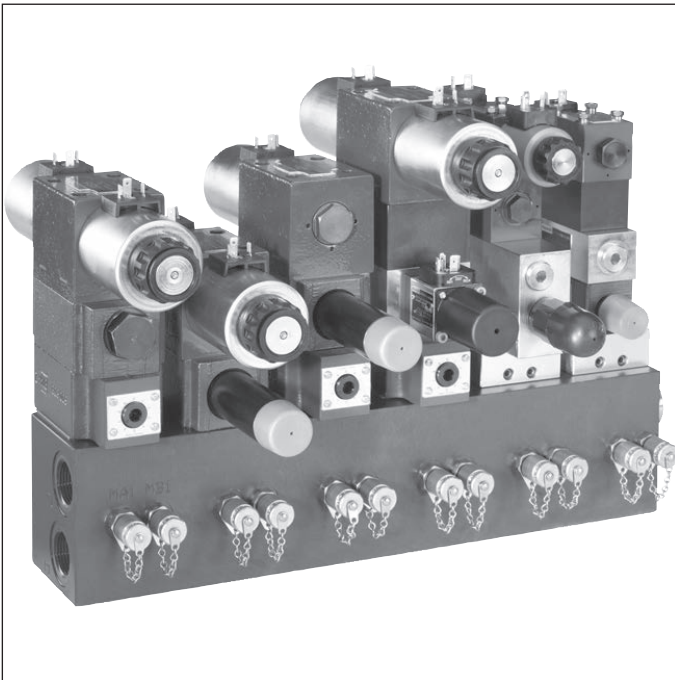
# Manifolds

## Type HSR 10

**RE 48110**

Edition: 2018-05

Replaces: 03.15



- ▶ Size 10
- ▶ Component series 15 and 35
- ▶ Maximum operating pressure 315 bar
- ▶ 1 to 8 stations

### Features

- ▶ Base element for ready-for-connection controls in vertical stacking design
- ▶ Compact hydraulic controls
- ▶ Common pump line
- ▶ Common tank line
- ▶ Separate actuator ports of the stations
- ▶ Optional measuring ports in the actuator lines
- ▶ Mounting of NG10 sandwich plates and valves
- ▶ Mounting of NG6 sandwich plates and valves possible by means of an additional adapter plate

### Contents

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Required ordering code of a completely mounted manifold	17



## Ordering code

	01	02	03	04	05	06	07	08
<b>Manifold</b>		<b>HSR</b>	<b>10</b>	<b>-</b>	<b>/</b>	<b>01</b>		

### Number of ready-for-connection controls in vertical stacking design

01	1 control	<b>1</b>
	2 controls	<b>2</b>
	3 controls	<b>3</b>
	4 controls	<b>4</b>
	5 controls	<b>5</b>
	6 controls	<b>6</b>
	7 controls	<b>7</b>
	8 controls	<b>8</b>

02	Manifold	<b>HSR</b>
----	----------	------------

03	Size 10	<b>10</b>
----	---------	-----------

### Component series

04	Port size: A, B = G1/2"; P, T = G3/4"	<b>15</b>
	With enlarged connection thread: Port size: A, B = G3/4"; P, T = G1"	<b>35</b>

### Connection thread

05	Pipe thread according to ISO 228 Part 1	<b>01</b>
----	---	-----------

### Position of actuator ports

06	Lateral	<b>C</b>
	Bottom	<b>D</b>

### Types

07	Standard	<b>no code</b>
	With measuring ports in A and B	<b>SO8<sup>1)</sup></b>

### Coating

08	Phosphate coating DIN EN 12476	<b>PHOSPHATED<sup>2)</sup></b>
	Galvanic coating DIN 50979	<b>FE//ZN8//CN/T0</b>

<sup>1)</sup> Not possible with series 15 with lateral actuator ports

<sup>2)</sup> Standard version (manganese or zinc phosphate coating)

## Description

- ▶ Manifolds are the base element for ready-for-connection controls in vertical stacking design
- ▶ Manifolds of NG10 are available with 1 to 8 stations
- ▶ On each station, highly compact hydraulic controls can be built using vertically stackable sandwich plate valves in connection with shift valves or proportional servo valves of NG10 or NG6 (adapter plate required).
- ▶ All stations have a common pump port and a common tank port
- ▶ The pump line "P" and the tank line "T" are lead through the two front sides of the manifold
- ▶ Every station is equipped with separate actuator ports "A" and "B"
- ▶ Actuator ports are either located at the bottom or laterally
- ▶ Another option are measuring ports in the actuator channels "A" and "B"

## Standard program including preferred types: HSR10

Measuring port	Number of stations	Port size A, B	Porting pattern A, B	Port size P, T	Type key Manifold...	Material number	Weight in kg	MKZ <sup>1)</sup>
without	1	G1/2"	lateral	G3/4"	1HSR10-15/01C PHOSPHATED	R900815073	6.4	A3
	2	G1/2"	lateral	G3/4"	2HSR10-15/01C PHOSPHATED	R900154881	8.2	A2
			bottom		2HSR10-15/01D PHOSPHATED	R900158686	9.4	A2
		G3/4"	lateral	G1"	2HSR10-35/01C PHOSPHATED	R900170962	12.5	A2
			bottom		2HSR10-35/01D PHOSPHATED	R900170967	11.4	A3
	3	G1/2"	lateral	G3/4"	3HSR10-15/01C PHOSPHATED	R900154882	12.5	A3
			bottom		3HSR10-15/01D PHOSPHATED	R900158687	12.4	A2
		G3/4"	lateral	G1"	3HSR10-35/01C PHOSPHATED	R900170963	15.7	A2
			bottom		3HSR10-35/01D PHOSPHATED	R900170968	14.4	A3
	4	G1/2"	lateral	G3/4"	4HSR10-15/01C PHOSPHATED	R900154883	16.8	A3
			bottom		4HSR10-15/01D PHOSPHATED	R900158688	19.2	A2
		G3/4"	lateral	G1"	4HSR10-35/01C PHOSPHATED	R900170964	21.1	A3
			bottom		4HSR10-35/01D PHOSPHATED	R900170969	23.3	A3
	5	G1/2"	lateral	G3/4"	5HSR10-15/01C PHOSPHATED	R900154884	24.8	A3
			bottom		5HSR10-15/01D PHOSPHATED	R900158689	20.6	A3
		G3/4"	lateral	G1"	5HSR10-35/01C PHOSPHATED	R900170965	32	A3
			bottom		5HSR10-35/01D PHOSPHATED	R900170970	29.2	A2
	6	G1/2"	lateral	G3/4"	6HSR10-15/01C PHOSPHATED	R900154885	29.9	A3
			bottom		6HSR10-15/01D PHOSPHATED	R900158690	29	A3
		G3/4"	lateral	G1"	6HSR10-35/01C PHOSPHATED	R900170966	38.4	A3
			bottom		6HSR10-35/01D PHOSPHATED	R901406308	29.4	A3
	7	G1/2"	lateral	G3/4"	7HSR10-15/01C PHOSPHATED	R901406300	30	A3
			bottom		7HSR10-15/01D PHOSPHATED	R901406303	29	A3
		G3/4"	lateral	G1"	7HSR10-35/01C PHOSPHATED	R900809787	37.9	A3
			bottom		7HSR10-35/01D PHOSPHATED	R900809788	34.2	A3
	8	G1/2"	lateral	G3/4"	8HSR10-15/01C PHOSPHATED	R901406301	34.1	A3
			bottom		8HSR10-15/01D PHOSPHATED	R901406304	40	A3
		G3/4"	lateral	G1"	8HSR10-35/01C PHOSPHATED	R901406305	44	A3
			bottom		8HSR10-35/01D PHOSPHATED	R901406309	47	A3

<sup>1)</sup> Material mark; A2 = preferred; A3 = standard;

**Order example for a manifold with galvanic coating:  
Manifold 6HSR10-35/01D FE//ZN8//CN/TO**

## Standard program including preferred types: HSR10...SO8

Measuring port	Number of stations	Port size A, B	Porting pattern A, B	Port size P, T	Type key Manifold...	Material number	Weight in kg	MKZ <sup>1)</sup>
with	1	G1/2"	bottom	G3/4"	1HSR10-15/01D SO8 PHOSPHATED	R901406693	5	A3
		G3/4"	lateral	G1"	1HSR10-35/01C SO8 PHOSPHATED	R900815075	5.8	A2
			bottom		1HSR10-35/01D SO8 PHOSPHATED	R900815076	7.3	A3
	2	G1/2"	bottom	G3/4"	2HSR10-15/01D SO8 PHOSPHATED	R901406694	7.9	A3
		G3/4"	lateral	G1"	2HSR10-35/01C SO8 PHOSPHATED	R900689383	10.1	A2
			bottom		2HSR10-35/01D SO8 PHOSPHATED	R900196376	11.4	A3
	3	G1/2"	bottom	G3/4"	3HSR10-15/01D SO8 PHOSPHATED	R901406696	12.1	A3
		G3/4"	lateral	G1"	3HSR10-35/01C SO8 PHOSPHATED	R900689384	15.5	A3
			bottom		3HSR10-35/01D SO8 PHOSPHATED	R900196377	18.8	A3
	4	G1/2"	bottom	G3/4"	4HSR10-15/01D SO8 PHOSPHATED	R901406697	16.3	A3
		G3/4"	lateral	G1"	4HSR10-35/01C SO8 PHOSPHATED	R900689385	25.5	A3
			bottom		4HSR10-35/01D SO8 PHOSPHATED	R900196378	19.1	A2
	5	G1/2"	bottom	G3/4"	5HSR10-15/01D SO8 PHOSPHATED	R901406700	20.5	A3
		G3/4"	lateral	G1"	5HSR10-35/01C SO8 PHOSPHATED	R900689386	28	A3
			bottom		5HSR10-35/01D SO8 PHOSPHATED	R901406310	24.1	A3
	6	G1/2"	bottom	G3/4"	6HSR10-15/01D SO8 PHOSPHATED	R901406701	24.7	A3
		G3/4"	lateral	G1"	6HSR10-35/01C SO8 PHOSPHATED	R900689387	38.4	A3
			bottom		6HSR10-35/01D SO8 PHOSPHATED	R900196380	35.2	A3
	7	G1/2"	bottom	G3/4"	7HSR10-15/01D SO8 PHOSPHATED	R901406702	33.9	A3
		G3/4"	lateral	G1"	7HSR10-35/01C SO8 PHOSPHATED	R901406306	37.3	A3
			bottom		7HSR10-35/01D SO8 PHOSPHATED	R901406311	34	A3
	8	G1/2"	bottom	G3/4"	8HSR10-15/01D SO8 PHOSPHATED	R901406703	33	A3
		G3/4"	lateral	G1"	8HSR10-35/01C SO8 PHOSPHATED	R901406307	42.2	A3
			bottom		8HSR10-35/01D SO8 PHOSPHATED	R901406312	38.8	A3

<sup>1)</sup> Material mark; A2 = preferred; A3 = standard;

## Order example for a manifold with galvanic coating:

**Manifold 5HSR10-35/01D SO8 FE//ZN8//CN/T0**

**Technical data**

(For applications outside these parameters, please consult us.)

general	
Size	10
Material	GGG40
Surface coating	Standard coating: Phosphate coating <sup>1)</sup> according to DIN EN 12476 with after-treatment (greases, oils, lubricants)
Maximum operating pressure <sup>2)</sup>	bar 315

<sup>1)</sup> Manganese or zinc phosphate coating

<sup>2)</sup> Manifold without valve fitting!

**Notice!**

For installation, commissioning and maintenance of oil hydraulic systems, please note data sheet 07900!

**Switching symbols for manifolds with 4 stations**

**Manifold HSR10-15/01C**



**Manifold HSR10-15/01D**



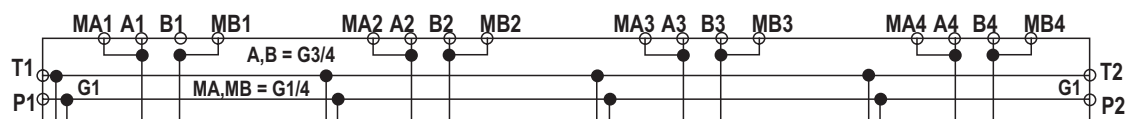
**Manifold HSR10-15/01D SO8**



**Manifold HSR10-35/01C**



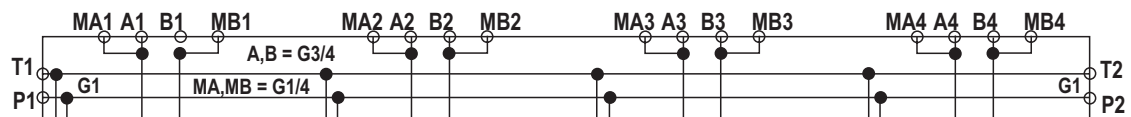
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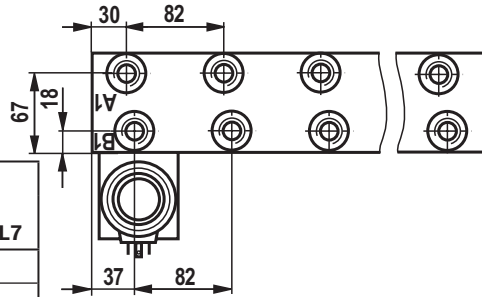
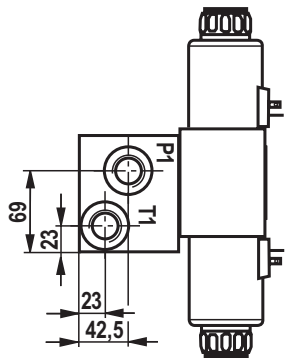
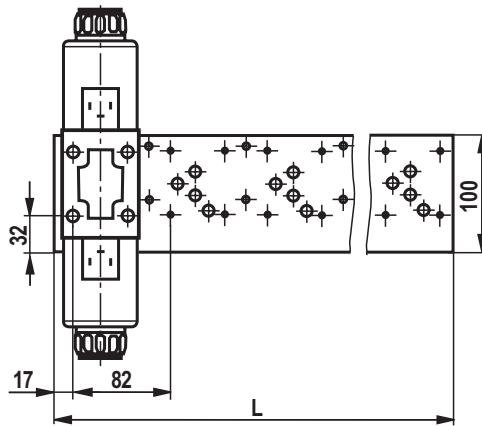
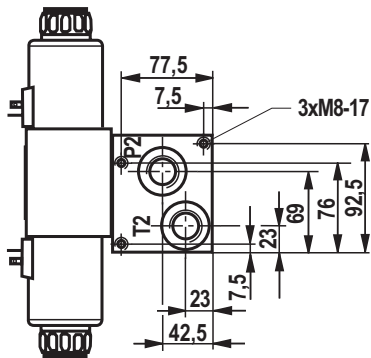
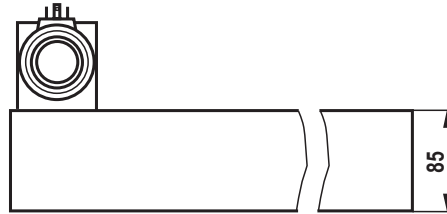
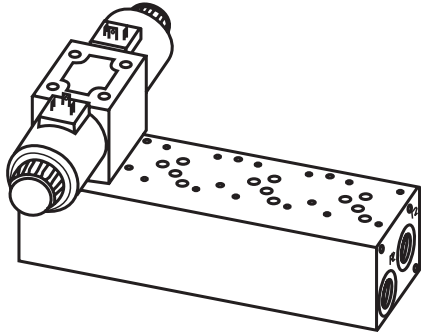
**Manifold HSR10-35/01D**



**Manifold HSR10-35/01D SO8**



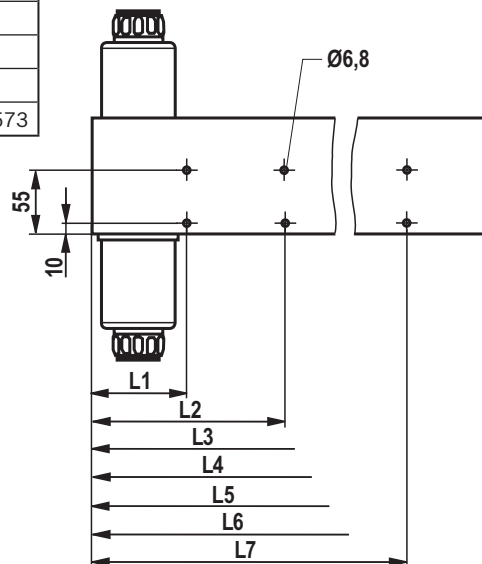
**Dimensions: Manifold 2...8HSR10-15/01C**  
(dimensions in mm)



Dimensional table (all dimensions in mm)

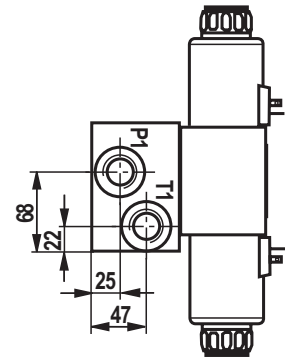
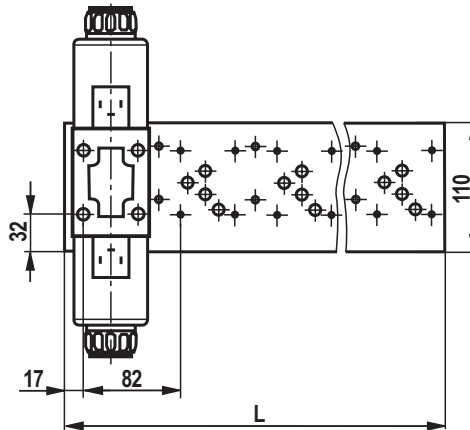
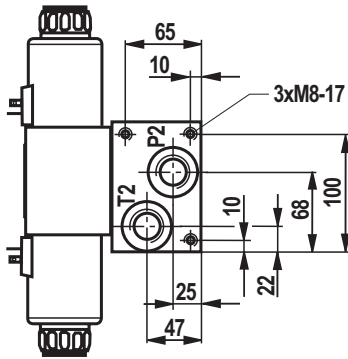
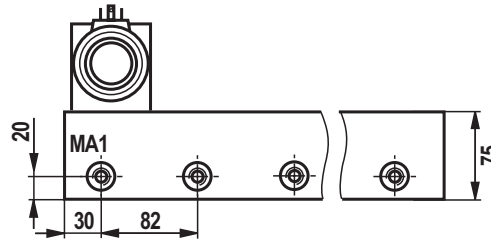
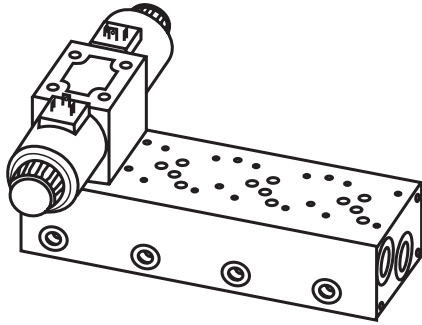
Number of stations	Overall length L	Fixing holes <sup>1)</sup>						
		L1	L2	L3	L4	L5	L6	L7
2	157	81						
3	239	81	163					
4	321	81	163	245				
5	403	81	163	245	327			
6	485	81	163	245	327	409		
7	567	81	163	245	327	409	491	
8	649	81	163	245	327	409	491	573

Thread type	Pipe thread according to ISO 228 Part 1	
Port	A1 ... A8 B1 ... B8	P1; P2 T1; T2
Thread diameter	G1/2	G3/4
Thread depth	15	17
Counter bore diameter	34	42
Recess depth	0.2	0.2



<sup>1)</sup> If valves, sandwich, adapter and cover plates have a width of more than 70 mm, not all through holes can be used for the fixation of the manifolds.

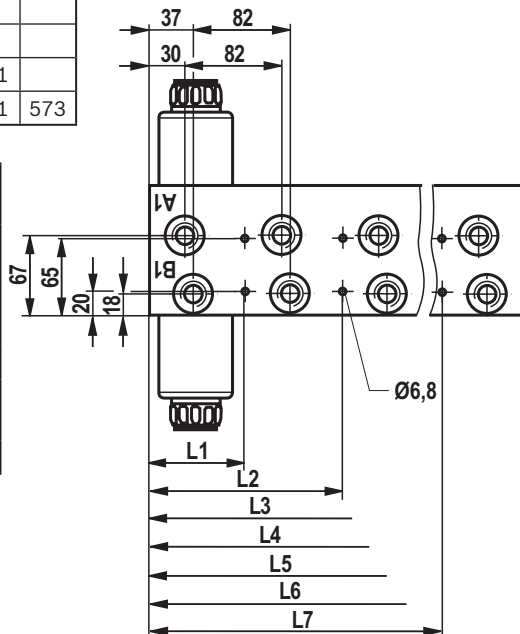
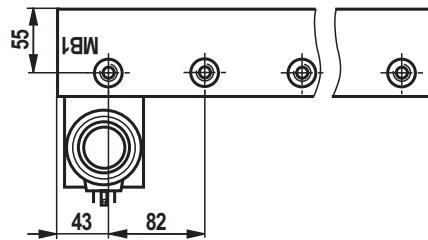
**Dimensions:** **Manifold 2...8HSR10-15/01D** (without measuring ports MA, MB)  
**Manifold 2...8HSR10-15/01D SO8** (with measuring ports MA, MB)  
 (dimensions in mm)



Dimensional table (all dimensions in mm)

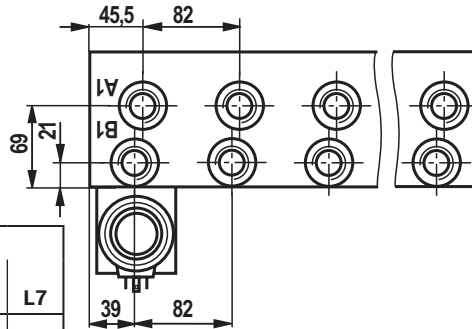
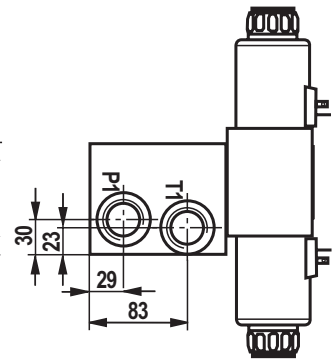
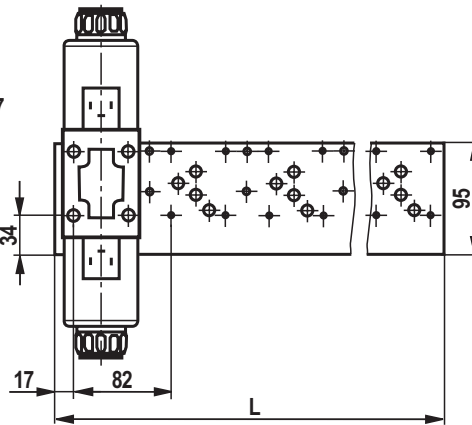
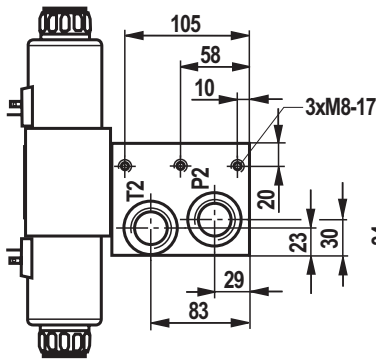
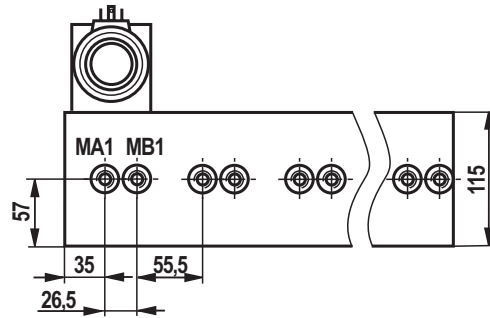
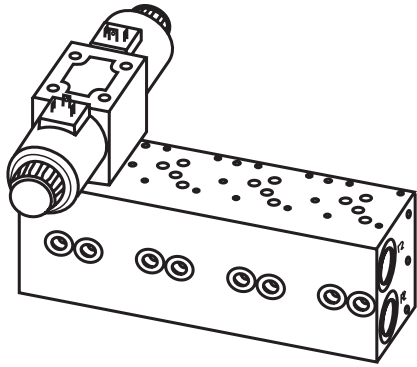
Number of stations	Overall length L	Fixing holes <sup>1)</sup>						
		L1	L2	L3	L4	L5	L6	L7
2	157	81						
3	239	81	163					
4	321	81	163	245				
5	403	81	163	245	327			
6	485	81	163	245	327	409		
7	567	81	163	245	327	409	491	
8	649	81	163	245	327	409	491	573

Thread type	Pipe thread according to ISO 228 Part 1		
Port	A1 ... A8 B1 ... B8	P1; P2 T1; T2	MA1...MA8 MB1...MB8
Thread diameter	G1/2	G3/4	G1/4
Thread depth	15	17	13
Counter bore diameter	34	42	25
Recess depth	0.2	0.2	0.2



<sup>1)</sup> If valves, sandwich, adapter and cover plates have a width of more than 70 mm, not all through holes can be used for the fixation of the manifolds.

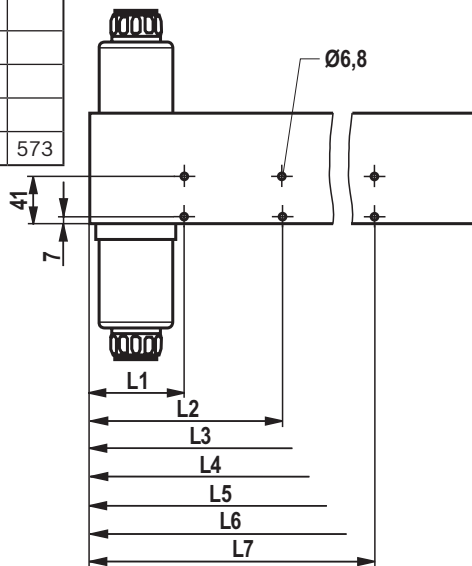
**Dimensions:** **Manifold 2...8HSR10-35/01C** (without measuring ports MA, MB)  
**Manifold 2...8HSR10-35/01C SO8** (with measuring ports MA, MB)  
 (dimensions in mm)



Dimensional table (all dimensions in mm)

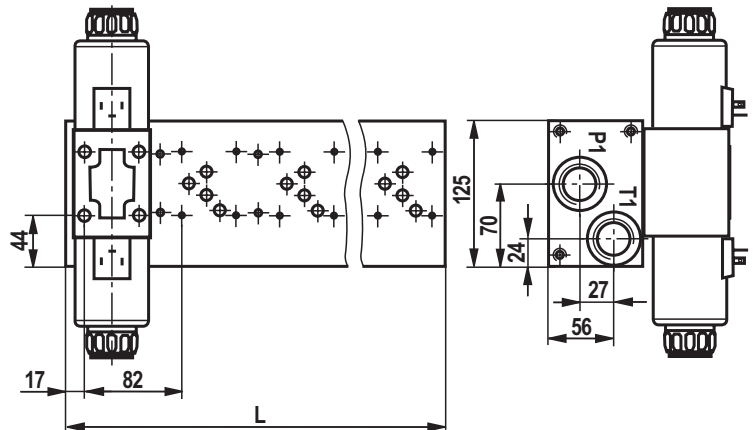
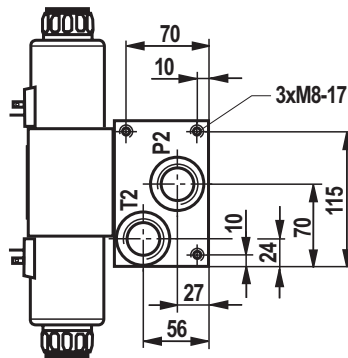
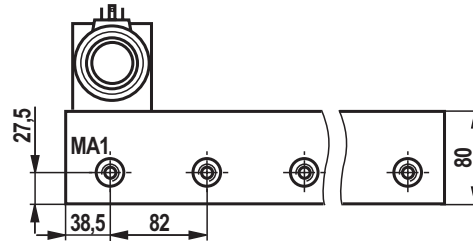
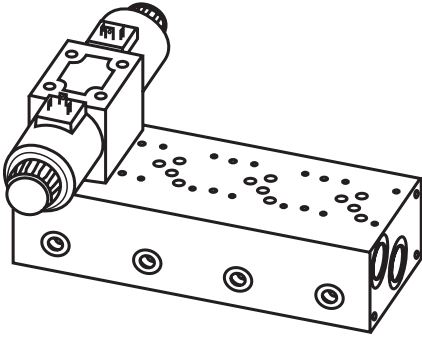
Number of stations	Overall length L	Fixing holes <sup>1)</sup>						
		L1	L2	L3	L4	L5	L6	L7
2	157	81						
3	239	81	163					
4	321	81	163	245				
5	403	81	163	245	327			
6	485	81	163	245	327	409		
7	567	81	163	245	327	409	491	
8	649	81	163	245	327	409	491	573

Thread type	Pipe thread according to ISO 228 Part 1		
Port	A1 ... A8 B1 ... B8	P1; P2 T1; T2	MA1...MA8 MB1...MB8
Thread diameter	G3/4	G1	G1/4
Thread depth	17	19	13
Counter bore diameter	42	47	25
Recess depth	0.2	0.2	0.2



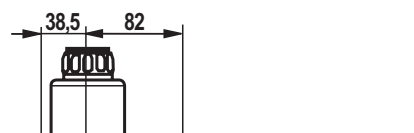
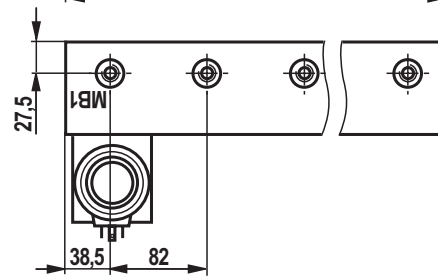
<sup>1)</sup> If valves, sandwich, adapter and cover plates have a width of more than 70 mm, not all through holes can be used for the fixation of the manifolds.

**Dimensions:** Manifold 2...8HSR10-35/01D (without measuring ports MA, MB)  
 Manifold 2...8HSR10-35/01D SO8 (with measuring ports MA, MB)  
 (dimensions in mm)

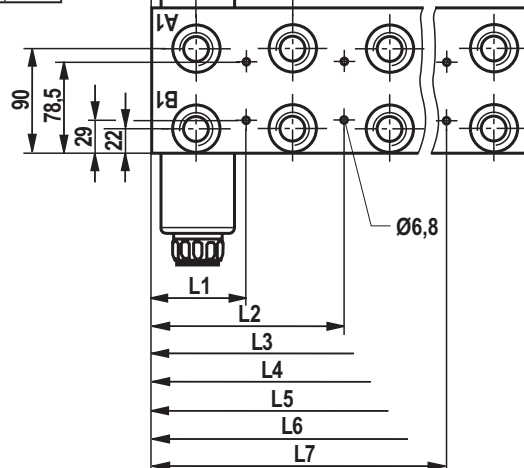


Dimensional table (all dimensions in mm)

Number of stations	Overall length L	Fixing holes <sup>1)</sup>						
		L1	L2	L3	L4	L5	L6	L7
2	157	81						
3	239	81	163					
4	321	81	163	245				
5	403	81	163	245	327			
6	485	81	163	245	327	409		
7	567	81	163	245	327	409	491	
8	649	81	163	245	327	409	491	573



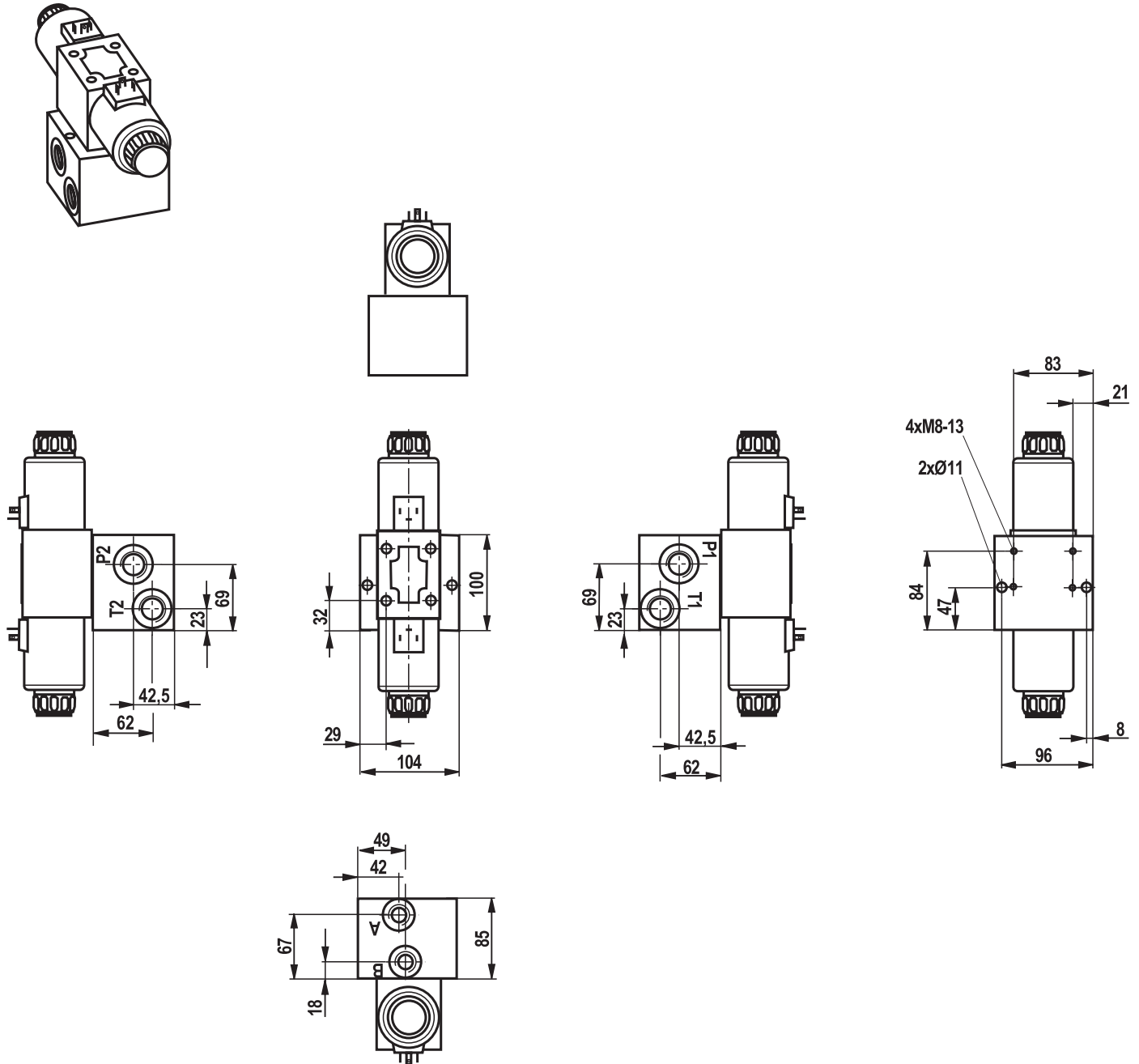
Thread type	Pipe thread according to ISO 228 Part 1		
Port	A1 ... A8 B1 ... B8	P1; P2 T1; T2	MA1...MA8 MB1...MB8
Thread diameter	G3/4	G1	G1/4
Thread depth	17	19	13
Counter bore diameter	42	47	25
Recess depth	0.2	0.2	0.2



<sup>1)</sup> If valves, sandwich, adapter and cover plates have a width of more than 70 mm, not all through holes can be used for the fixation of the manifolds.



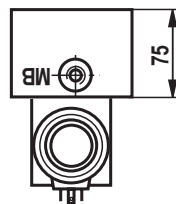
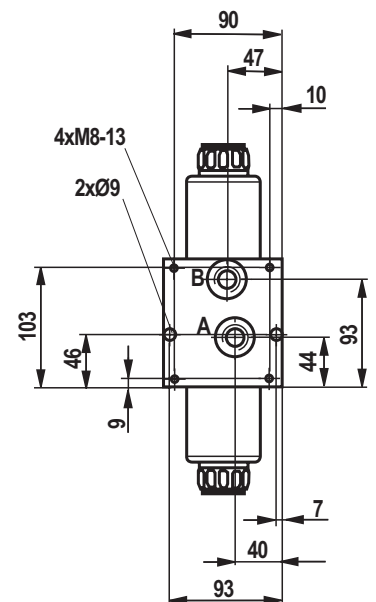
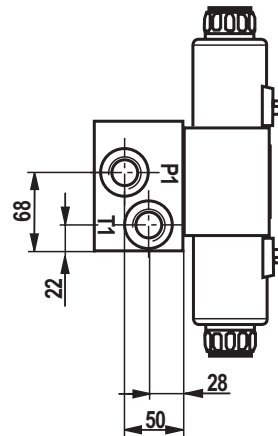
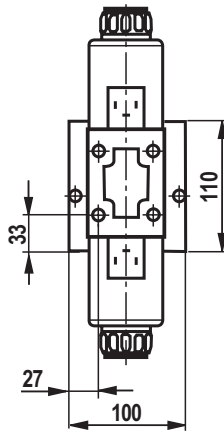
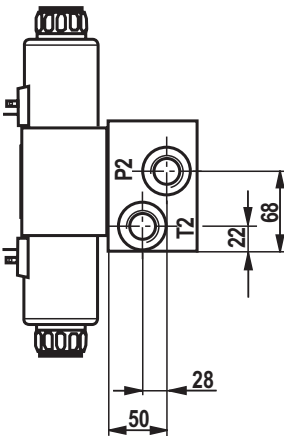
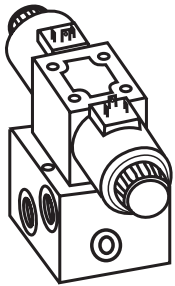
**Dimensions: Manifold 1HSR10-15/01C** (dimensions in mm)



Thread type	Pipe thread according to ISO 228 Part 1	
Port	A; B	P1; P2; T1; T2
Thread diameter	G1/2	G3/4
Thread depth	15	17
Counter bore diameter	34	42
Recess depth	0.2	0.2

If valves, sandwich adapter and cover plates have a width of more than 72 mm, not all through holes can be used for the fixation of the manifolds!

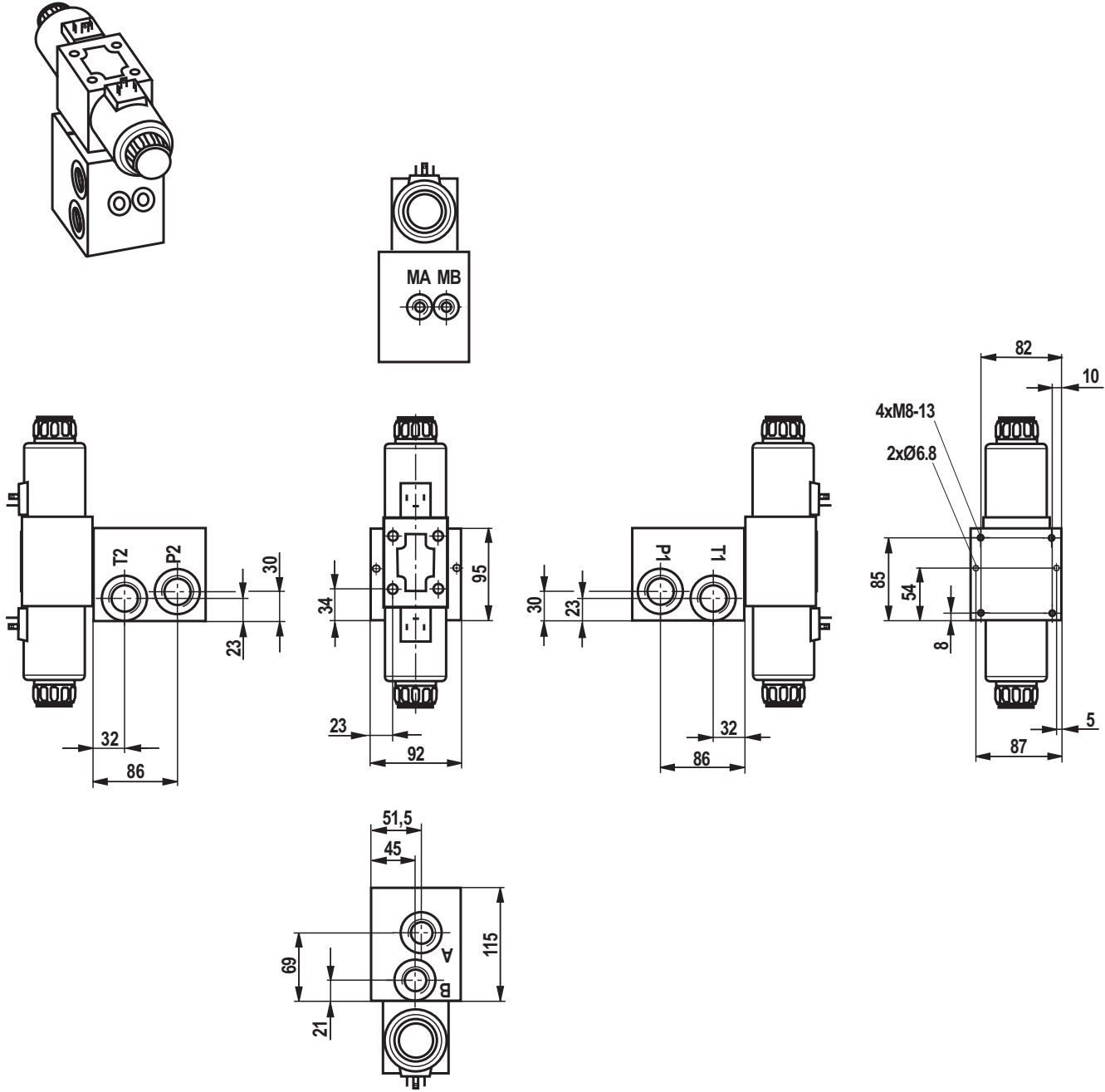
**Dimensions: Manifold 1HSR10-15/01D SO8** (dimensions in mm)



<b>Thread type</b>	Pipe thread according to ISO 228 Part 1		
<b>Port</b>	A; B	P1; P2; T1; T2	MA; MB
<b>Thread diameter</b>	G1/2	G3/4	G1/4
<b>Thread depth</b>	15	17	13
<b>Counter bore diameter</b>	34	42	25
<b>Recess depth</b>	0.2	0.2	0.2

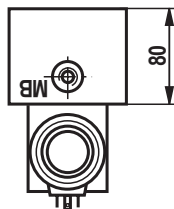
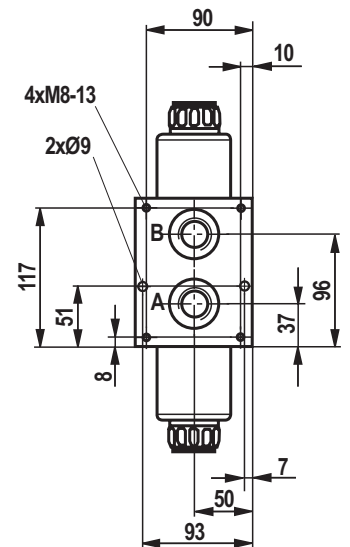
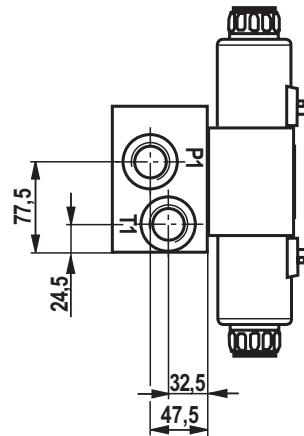
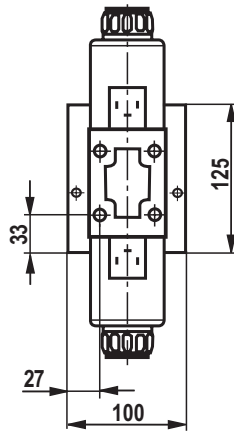
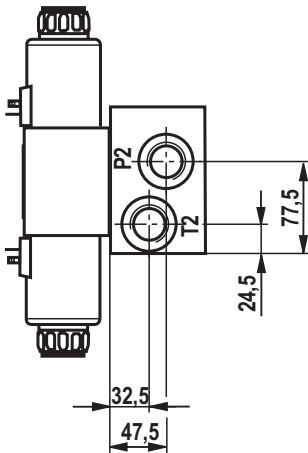
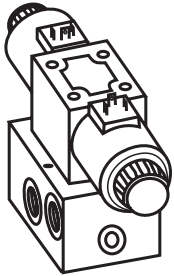
If valves, sandwich adapter and cover plates have a width of more than 73 mm, not all through holes can be used for the fixation of the manifolds!

**Dimensions: Manifold 1HSR10-35/01C SO8** (dimensions in mm)



<b>Thread type</b>	Pipe thread according to ISO 228 Part 1		
<b>Port</b>	A; B	P1; P2; T1; T2	MA; MB
<b>Thread diameter</b>	G3/4	G1	G1/4
<b>Thread depth</b>	17	19	13
<b>Counter bore diameter</b>	42	47	25
<b>Recess depth</b>	0.2	0.2	0.2

If valves, sandwich adapter and cover plates have a width of more than 72 mm, not all through holes can be used for the fixation of the manifolds!

**Dimensions: Manifold 1HSR10-35/01D SO8** (dimensions in mm)


<b>Thread type</b>	Pipe thread according to ISO 228 Part 1		
<b>Port</b>	A; B	P1; P2; T1; T2	MA; MB
<b>Thread diameter</b>	G3/4	G1	G1/4
<b>Thread depth</b>	17	19	13
<b>Counter bore diameter</b>	42	47	25
<b>Recess depth</b>	0.2	0.2	0.2

If valves, sandwich adapter and cover plates have a width of more than 73 mm, not all through holes can be used for the fixation of the manifolds!

## Mounting screws depending on valve fitting

### Screw selection table for vertical stacking in combination with size 10 directional valves

Number of sandwich plates	Clamping lengths of sandwich plates	Hexagon socket head cap screws according to ISO 4762; stud screws according to DIN 939		Stability	Material no.
1	1 x 50 mm	M6 x 90	ISO 4762	10.9	R913048089
2	2 x 50 mm	M6 x 140	ISO 4762	10.9	R913043041
3	3 x 50 mm	M6 x 190	DIN 939	10.9	R900014968
4	4 x 50 mm	M6 x 240	DIN 939	10.9	R900024864
5	5 x 50 mm	M6 x 295	DIN 939	10.9	R900012024

For the torques of the screws, please refer to the corresponding data sheets of the valves

#### Notice!

- ▶ The clamping lengths of the mounted sandwich plates and valves must be checked for each individual case.

### Example for mountable sandwich plates with a clamping length of 50 mm:

Pressure reducing valve ZDR 10 D...-5X/..., pressure relief valve ZDB 10 V...-4X/..., double check valve Z2S 10...-3X/..., check valve Z1S10...-.../, double throttle check valve Z2FS 10...-3X/V, pressure switch with sandwich plate HED 8 OH2X/...

Directional valve	Hexagon socket head cap screws according to ISO 4762;		Stability	Material no.
direct operated directional valve WE 10	M6 x 40	ISO 4762	10.9	R913000058
pilot operated directional valve WEH 10	M6 x 45	ISO 4762	10.9	R913000258
direct operated proportional valve WRA 10, WRE 10	M6 x 40	ISO 4762	10.9	R913000058
pilot operated proportional valve WRK 10, WRZ 10	M6 x 45	ISO 4762	10.9	R913000258

For the torques of the screws, please refer to the corresponding data sheets of the valves

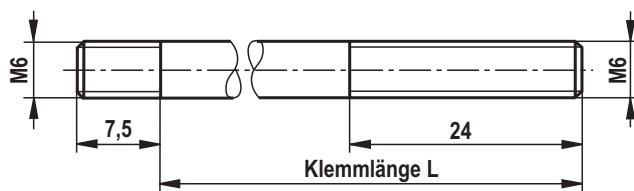
#### Notice!

- ▶ The screw selection table does not apply to directional valves in their seawater-protected version due to differences in the clamping lengths on the directional valve (dimensions see data sheets – seawater-protected directional valves).

#### Notice!

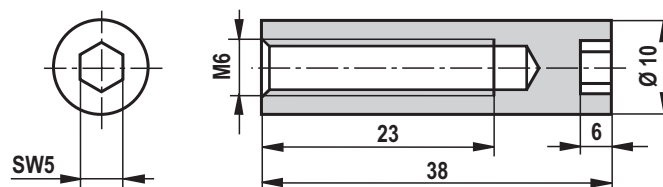
- ▶ Directional valves with central ports "D", "DL", "DZ" and "DZL" can only be used with hexagon socket head cap screws or stud screws and round nut according to ZN 10035, material no. R913020310.

### Stud screw M6 DIN 939, property class 10.9



L see screw selection table

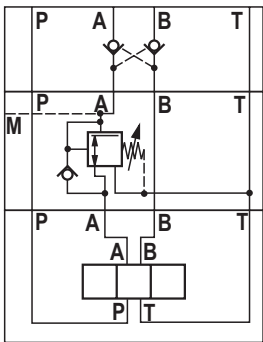
### Round nut ZN10035-M6-ST, material no. R913020310



## Project planning information

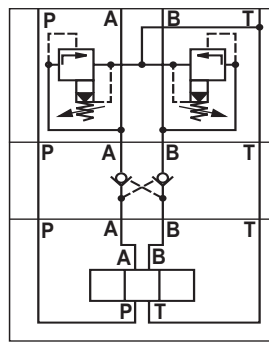
### Pressure reducing valve in connection with double check valve

The pressure reducing valve ZDR..DA (pressure reduction in channel A) **must** always be installed between the directional valve and the double check valve Z2S... This ensures that the double check valve can block in a leak-free manner.



### Pressure relief valve in connection with double check valve

Leak-free blocking of the actuator is **not** possible if a pressure relief valve ZDB../Z2DB.. is effective in channel A and/or B and a double check valve is installed.



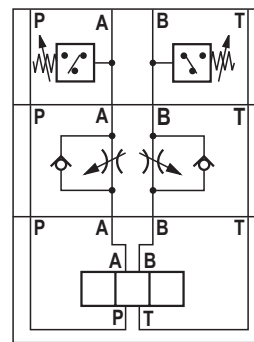
### Notice!

The installation of sandwich plates with two pressure switches on manifolds with lateral ports "C" is **not possible**.

### Pressure switches in connection with twin throttle check valve

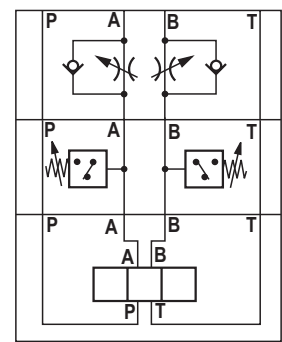
#### Supply control

The pressure switch HED 8 OH, effective in channel A and/or B, is installed between the subplate and the twin throttle check valve Z2FS.



#### Discharge control

The pressure switch HED 8 OH, effective in channel A and/or B, is installed between the directional valve and the twin throttle check valve Z2FS.

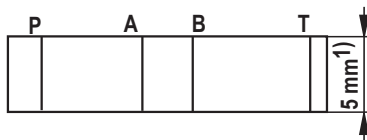


The illustrated sections of circuit diagrams are examples. The project planning information must also be observed for valves with a similar function.

## Sandwich plate (with or without separate port X, Y) for use with pilot operated valve

### Notice!

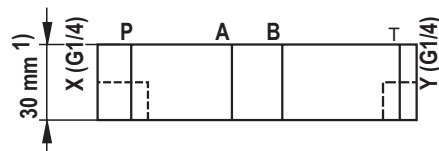
To seal channels X and Y on manifold version "C" (lateral actuator ports), the sandwich plate with material no. **R900320784** (NBR) or **R900321346** (FKM) are generally required for use of pilot operated valves!



1) Plate clamping length

### Notice!

For all designs, the external pilot oil supply is only possible if the sandwich plate with material no. **R900320785** (NBR) or **R900321347** (FKM) is used!



### Notice:

Due to the valves and sandwich plates with "excessive width", some through holes for the fixation of the manifold cannot be used. The end user is responsible for evaluating, assessing and taking the responsibility with regard to the decision whether the mounting screws in these positions can be renounced.

Possible countermeasures may include:

- ▶ Use of a narrower distance plate under the broader valves and sandwich plates e. g.: R900516529 sandwich plate HSZ 06 A003-3X/M00
- ▶ Exchanging the order of the sandwich plates of the individual vertical stackings unless this impairs the function.
- ▶ It may possibly also be useful to change the order of the vertical stackings.

Alternatively, you can use available mounting threads for the fixation.

## Selection of available subplate-mounted valves

Sandwich plates NG10	Data sheet
Sandwich plates HSZ	48052
Pressure reducing valve ZDR	26585
Pressure relief valve ZDB	25761
Double check valve Z2S	21553
Check valve Z1S	21537
Twin throttle check valve Z2FS	27518
Pressure switch HED8	50061

Adapter plate NG10	Data sheet
HSE	48045

Cover plate NG10	Data sheet
HSA	48042

Directional valves NG10	Data sheet
WE (electrically operated)	23327
WM, WP, WHD and WN (mechanically, manually, fluidically operated)	22331
WEH (pilot operated)	24751 <sup>1)</sup>

Proportional valves NG10	Data sheet
WRA (direct operated, without feedback)	29055
WRE (direct operated, with el. feedback)	29061
WRZ/WRH (pilot operated without feedback)	29115 <sup>1)</sup>

<sup>1)</sup> Observe notice on page 16

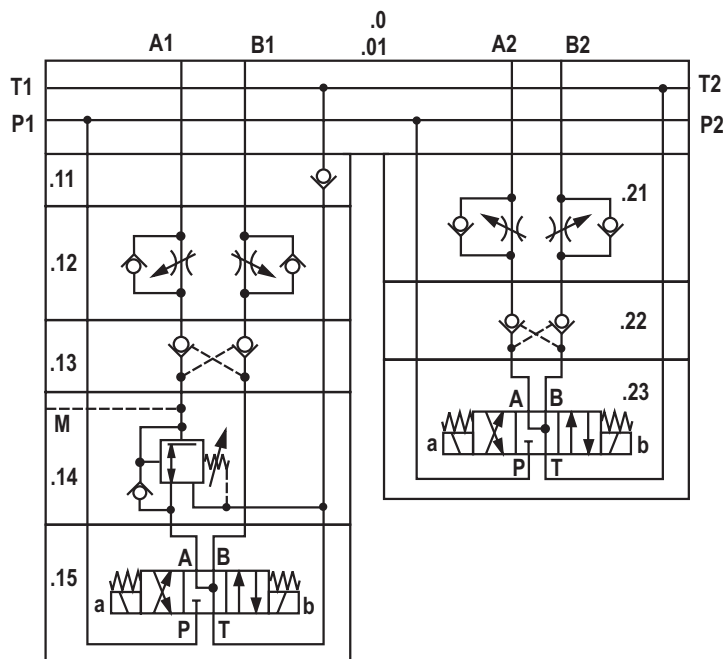
NG = size

If adapter plates are used, valves of other sizes can also be mounted.

## Required ordering code of a completely mounted manifold

### Example:

2-fold manifold



Position	Quantity	Device designation	Type designation	Material no.
.0	1	Manifold	2HSR 10 C1X/... <sup>1)</sup>	<sup>1)</sup>
.01	1	Manifold	2HSR 10-35/01C SO8 PHOSPHATED	R900689383
.11	1	Check valve	Z1S 10 TA05-2TB9-4X/F	R901274760
.12	1	Twin throttle check valve	Z2FS 10-5-3X/V	R900517812
.13	1	Double check valve	Z2S 10-2-3X/	R900421985
.14	1	Pressure reducing valve	ZDR 10 DA2-5X/150Y	R900406178
.15	1	Directional valve	4WE10 J5X/EG24N9K4/M	R901278744
	4	Stud screw	M6 x 240-10.9 DIN 939	R900024864
	4	Round nut	Round nut ZN10035-M6-ST	R913020310
.21	1	Twin throttle check valve	Z2FS 10-5-3X/V	R900517812
.22	1	Double check valve	Z2S 10-2-3X/	R900421985
.23	1	Directional valve	4WE10 J5X/EG24N9K4/M	R901278744
	4	Hexagon socket head cap screw	M6 x 140-10.9 DIN 912	R913043041

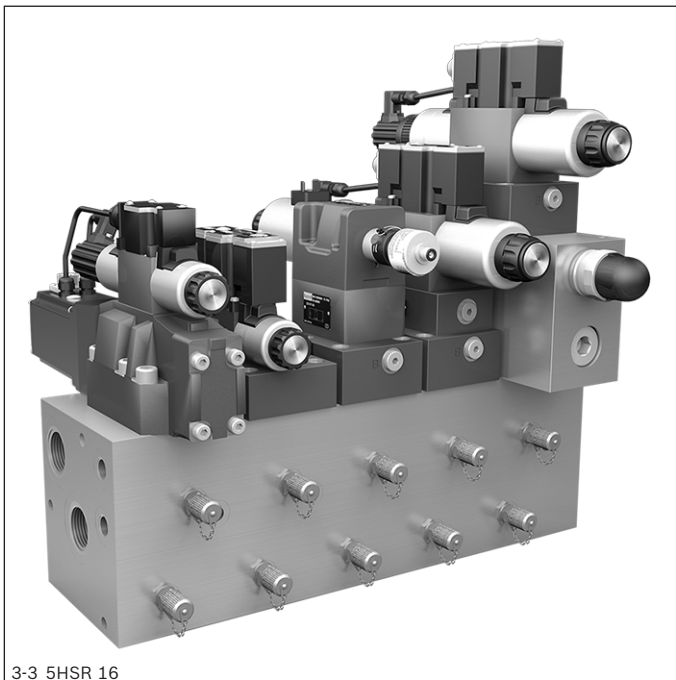
<sup>1)</sup> Material number and type designation are determined by the plant or the manifold configurator!

# Manifolds

## Type HSR 16

**RE 48115**

Edition: 2018-01



- ▶ Size 16
- ▶ Component series 15
- ▶ Maximum operating pressure 315 bar
- ▶ 1 ... 6 stations

### Features

- ▶ Base element for ready-for-connection controls in vertical stacking design
- ▶ Compact hydraulic controls
- ▶ Joint
  - Pump line
  - Tank line
  - Pilot oil line and
  - Drain line
- ▶ Separate actuator ports of the stations
- ▶ Measuring ports in the actuator lines
- ▶ Mounting of NG16 sandwich plates and valves
- ▶ Mounting of NG6 and NG10 sandwich plates and valves possible by means of an additional adapter plate

### Contents

Features	1
Ordering code	2
Description	2
Standard program	3
Technical data	3
Switching symbols	4
Dimensions	5-8
Required ordering code of a completely mounted manifold	9, 10
Accessories	11
Project planning information	11



## Ordering code

	01	02	03	04	05	06	07	08	09	10
<b>Manifold</b>		<b>HSR</b>	<b>16</b>	<b>M</b>	<b>15</b>	<b>/</b>	<b>315</b>		<b>01</b>	<b>XY</b>

### Number of ready-for-connection controls in vertical stacking design

01	1 control	<b>1</b>
	2 controls	<b>2</b>
	3 controls	<b>3</b>
	4 controls	<b>4</b>
	5 controls	<b>5</b>
	6 controls	<b>6</b>

02	Manifold	<b>HSR</b>
----	----------	------------

03	Size 16	<b>16</b>
----	---------	-----------

04	With measuring ports in the actuator ports	<b>M</b>
----	--	----------

### Component series

05	Port sizes A, B = G1 1/4; P, T = G1 1/2; Y, X = G1/4	<b>15</b>
----	--	-----------

06	Maximum pressure 315 bar	<b>315</b>
----	--------------------------	------------

### Position of actuator ports

07	Lateral	<b>C</b>
	Bottom	<b>D</b>

### Connection thread

08	Pipe thread according to ISO 228 Part 1	<b>01</b>
----	---	-----------

09	Channels for pilot and leakage oil available	<b>XY</b>
----	--	-----------

### Coating

10	Galvanic coating DIN 50979	<b>Fe//Zn8//CN/T0</b>
	Phosphate coating DIN EN 12476	<b>PHOSPHATED<sup>1)</sup></b>

<sup>1)</sup> Manganese or zinc phosphate coating

## Description

- ▶ Manifolds are the base element for ready-for-connection controls in vertical stacking design.
- ▶ Manifolds of size 16 are available with 1 ... 6 stations.
- ▶ On each station, highly compact hydraulic controls can be built using vertically stackable sandwich plate valves in connection with on/off and proportional servo valves of sizes 16, 10 and 6 (with sizes 10 and 6, adapter plates are necessary).
- ▶ All stations have a joint pump, tank, pilot oil and leakage oil connection.
- ▶ The pump line P, the tank line T, the control line X and the drain line Y are led through the two front sides of the manifold.
- ▶ Lines P, T, X and Y can in each case be locked after the first and in front of the last place.
- ▶ Ports X and Y can in each case be locked at the valve connection pattern.
- ▶ Every station is equipped with separate actuator ports A and B and measuring ports in the actuator ports.
- ▶ Actuator ports are optionally either located at the bottom or laterally.

## Standard program

Measuring port	Number of stations	Port size A, B	Porting pattern A, B	Port size P, T	Type key Manifold...	Material number	Weight in kg
with	1	G1 1/4	lateral	G1 1/2	1HSR16M15/315C01XY FE//ZN8//CN/T0	R900853322	24.3
			bottom		1HSR16M15/315D01XY FE//ZN8//CN/T0	R900853321	18.1
	2	G1 1/4	lateral	G1 1/2	2HSR16M15/315C01XY FE//ZN8//CN/T0	R900195604	41.5
			bottom		2HSR16M15/315D01XY FE//ZN8//CN/T0	R900195594	31.4
	3	G1 1/4	lateral	G1 1/2	3HSR16M15/315C01XY FE//ZN8//CN/T0	R900195605	57.7
			bottom		3HSR16M15/315D01XY FE//ZN8//CN/T0	R900195595	44.1
	4	G1 1/4	lateral	G1 1/2	4HSR16M15/315C01XY FE//ZN8//CN/T0	R900195606	76.0
			bottom		4HSR16M15/315D01XY FE//ZN8//CN/T0	R900195596	63.0
	5	G1 1/4	lateral	G1 1/2	5HSR16M15/315C01XY FE//ZN8//CN/T0	R900195607	114.0
			bottom		5HSR16M15/315D01XY FE//ZN8//CN/T0	R900195597	79.0
	6	G1 1/4	lateral	G1 1/2	6HSR16M15/315C01XY FE//ZN8//CN/T0	R900195608	120.0
			bottom		6HSR16M15/315D01XY FE//ZN8//CN/T0	R900195598	83.4

### Order example for a manifold with phosphate coating:

Manifold with 5 stations, series 15, outlets at bottom, "Phosphated" coating:

Manifold 5HSR16M15/315D01XY PHOSPHATED, material number: R901406720

## Technical data

(For applications outside these parameters, please consult us!)

general	
Size	16
Stations	From 1 ...6
Material	5.3106/EN-GJS-400-15
Surface coating	Galvanic coating according to DIN 50979 (FE//ZN8//CN//T0) Phosphate coating according to DIN EN 12476 with after-treatment (greases, oils, lubricants) (FE//ZNP/R/5/T4 or FE//MNP/R/5/T4)
Maximum operating pressure <sup>1)</sup>	bar 315

Hydraulic fluid	Classification	Standards	Data sheet
Mineral oils	Mineral oil HLP	DIN 51524	90220
Bio-degradable	▶ Insoluble in water	Triglycerides (rape seed oil) HETG	90221
		Synthetic esters HEES	
	▶ Soluble in water	Polyglycols HEPG	ISO 15380
Flame-resistant	▶ Water-free	Organic esters HFDU, phosphoric acid esters HFDR	ISO 12922
	▶ Containing water	Emulsions HFA-E, aqueous solution HFC	ISO 12922



### Important information on hydraulic fluids:

- ▶ For further information and data on the use of other hydraulic fluids, please refer to the data sheets above or contact us.
- ▶ Some hydraulic fluids (HFC, HFD ...) may attack and destroy galvanized surfaces. Phosphatized plates (zinc phosphate coating, if applicable) are therefore not suitable.

The zinc content of plates with galvanized insides, however, is very low. After a flushing procedure with subsequent filter exchange, the zinc is washed out. Special caution is required regarding leaking hydraulic fluid, especially during maintenance and disassembly of the manifold.

<sup>1)</sup> Manifold without valve fitting

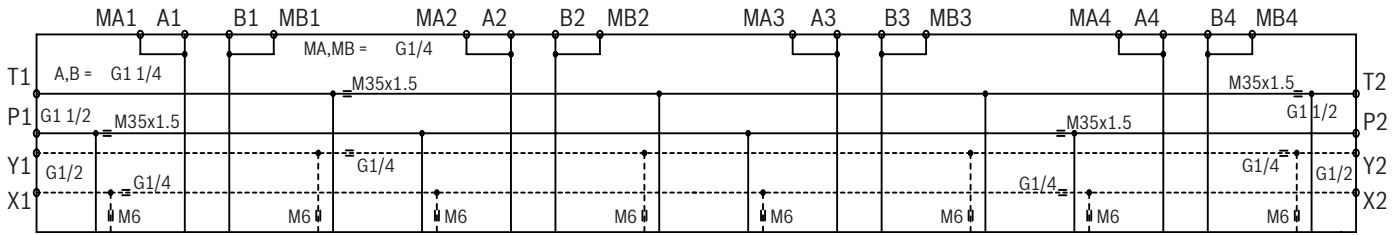


### Notice:

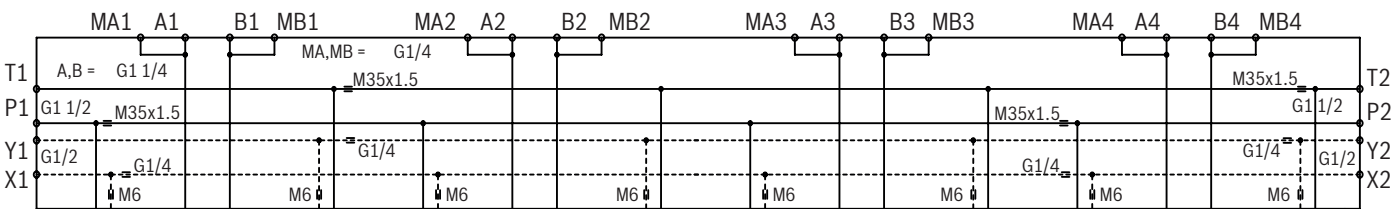
For the installation, commissioning and maintenance of oil hydraulic systems, please observe data sheet 07900.

## Switching symbols: Manifolds with 4 stations

### Manifold 4HSR16M15/315C01XY



### Manifold 4HSR16M15/315D01XY

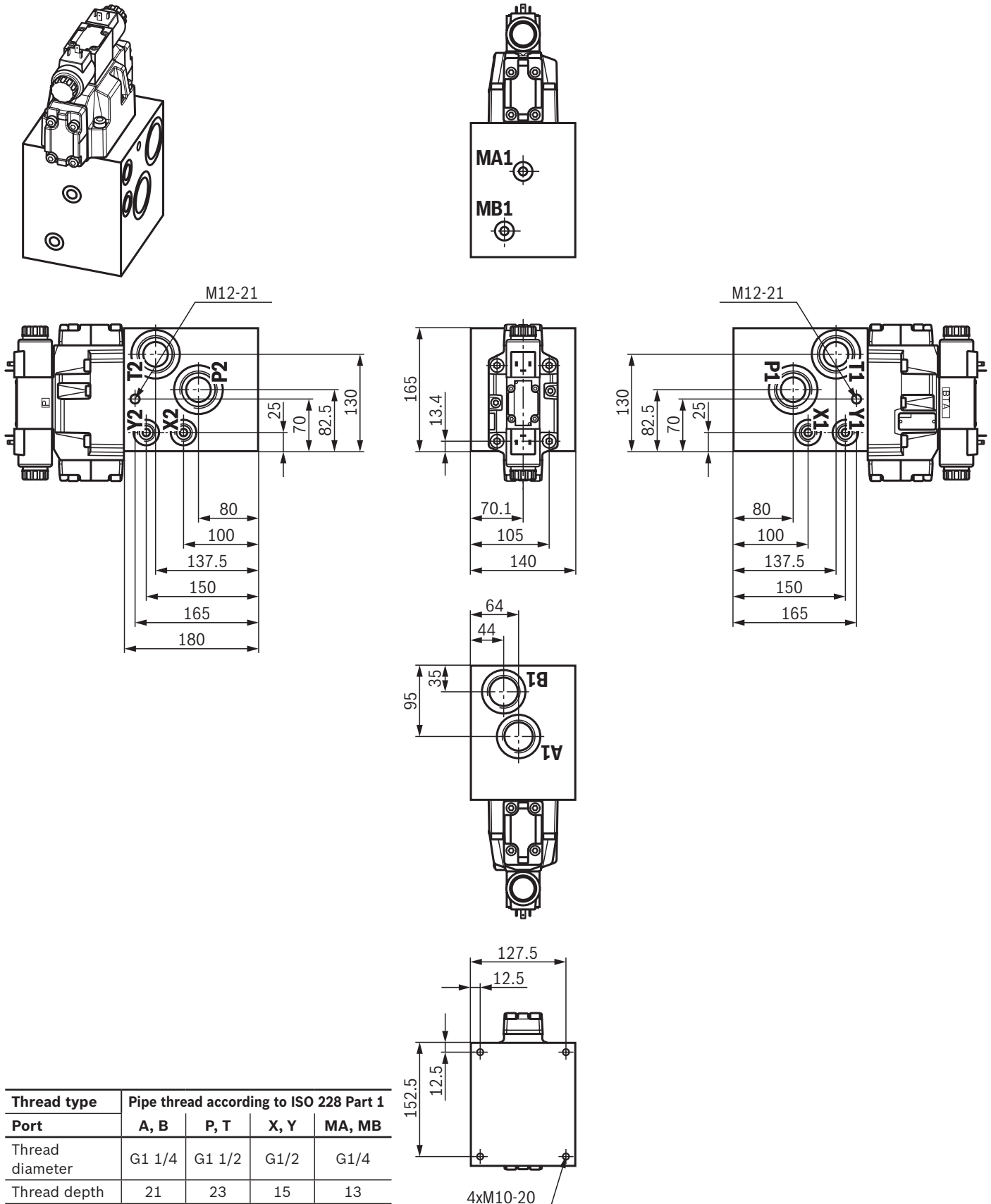


**Notice:**

In a fitted manifold, the X and Y bores of the porting patterns are to be closed unless they are required and/or sealed by other sandwich plates or valves!

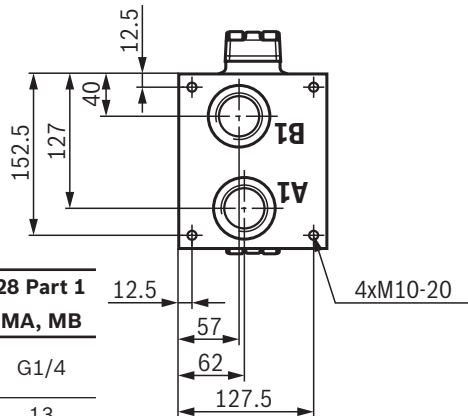
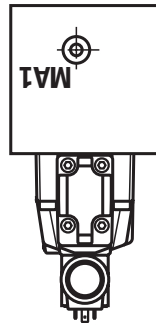
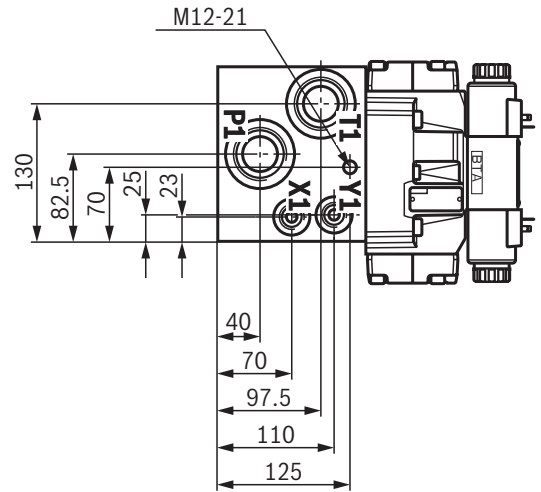
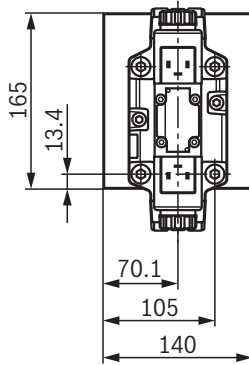
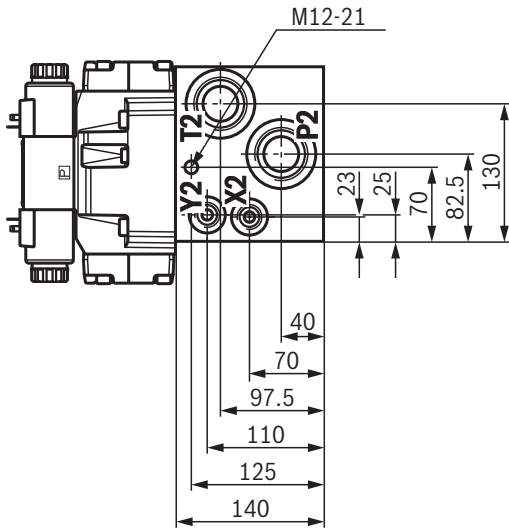
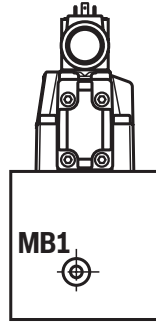
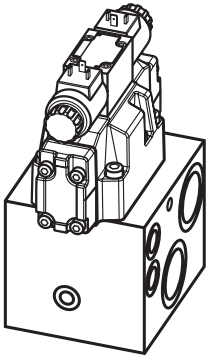
Non-compliance may cause malfunctions and leakage!

**Dimensions:** Manifold 1HSR16M15/315C01XY (dimensions in mm)

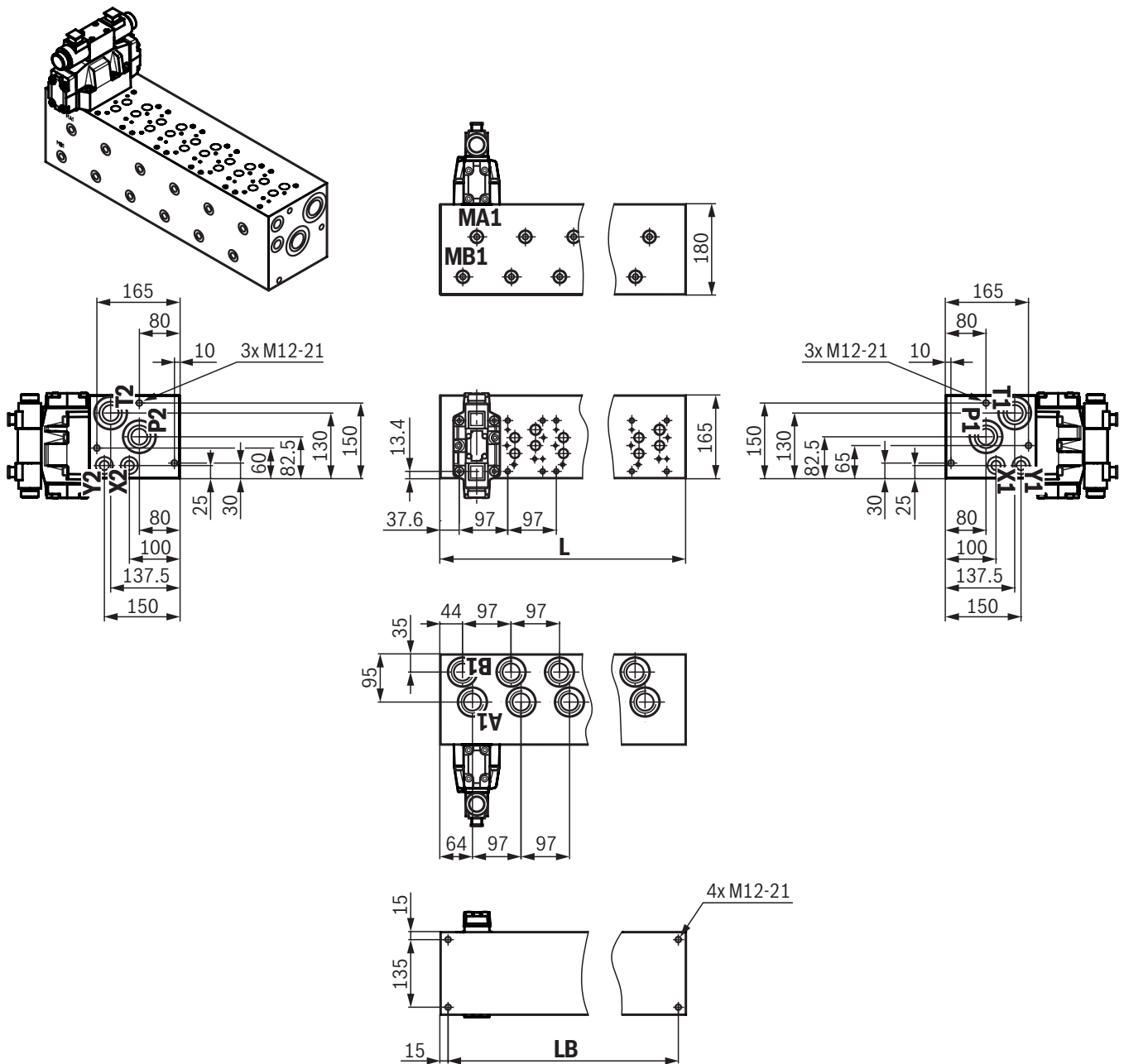


Thread type	Pipe thread according to ISO 228 Part 1			
	A, B	P, T	X, Y	MA, MB
Thread diameter	G1 1/4	G1 1/2	G1/2	G1/4
Thread depth	21	23	15	13
Counter bore diameter	42.5	48.5	21.4	13.6
Recess depth	0.2	0.2	0.2	0.2

**Dimensions:** Manifold 1HSR16M15/315D01XY (dimensions in mm)



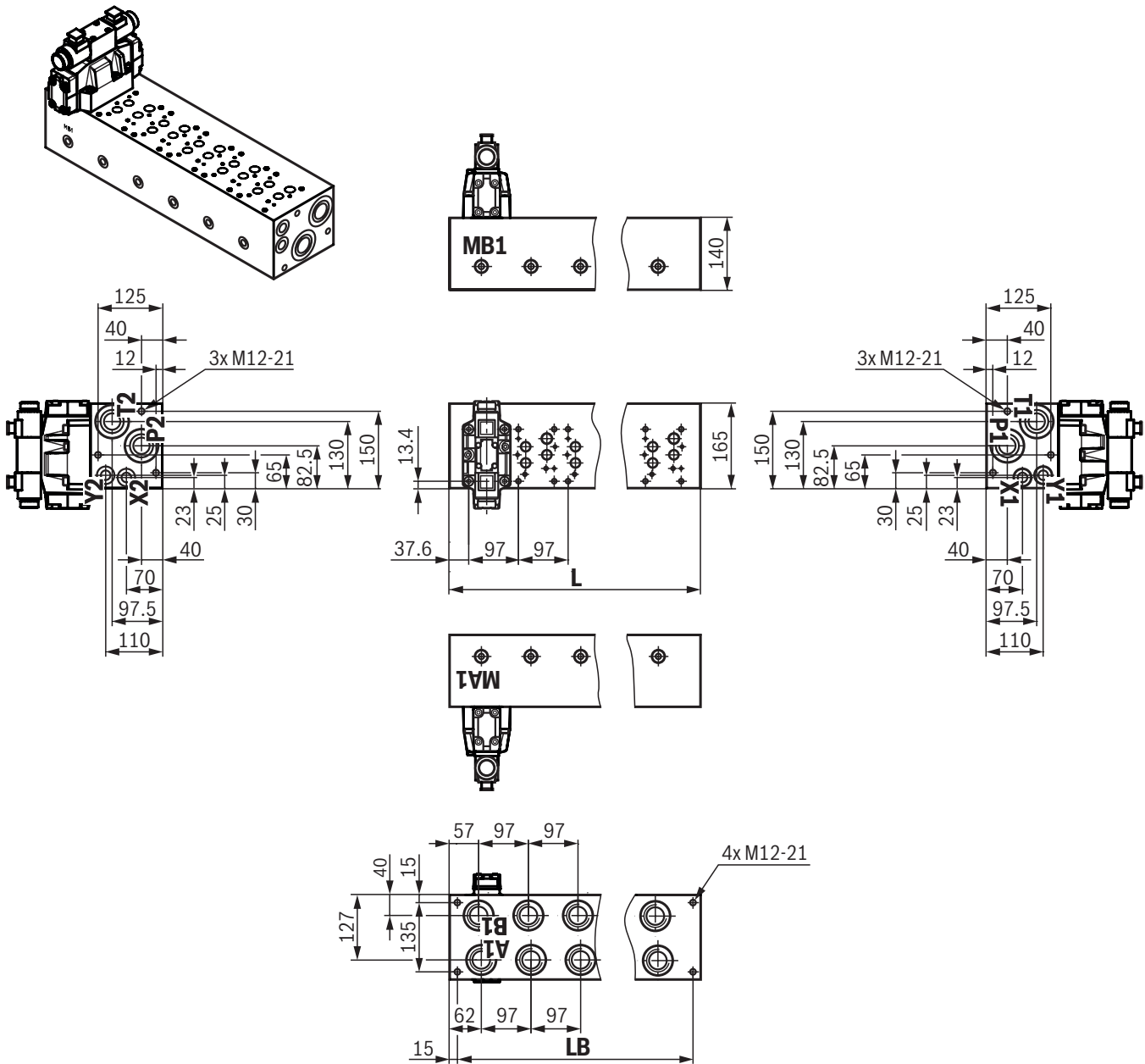
Thread type	Pipe thread according to ISO 228 Part 1			
	A, B	P, T	X, Y	MA, MB
Thread diameter	G1 1/4	G1 1/2	G1/2	G1/4
Thread depth	21	23	15	13
Counter bore diameter	42.5	48.5	21.4	13.6
Recess depth	0.2	0.2	0.2	0.2

**Dimensions:** Manifold 2-6HSR16M15/315C01XY (dimensions in mm)


Thread type	Pipe thread according to ISO 228 Part 1			
	A, B	P, T	X, Y	MA, MB
Port	A, B	P, T	X, Y	MA, MB
Thread diameter	G1 1/4	G1 1/2	G1/2	G1/4
Thread depth	21	23	15	13
Counter bore diameter	42.5	48.5	21.4	13.6
Recess depth	0.2	0.2	0.2	0.2

Number of stations	L	
	L	LB
2	242	212
3	339	309
4	436	406
5	533	503
6	630	600

**Dimensions:** Manifold 2-6HSR16M15/315D01XY (dimensions in mm)



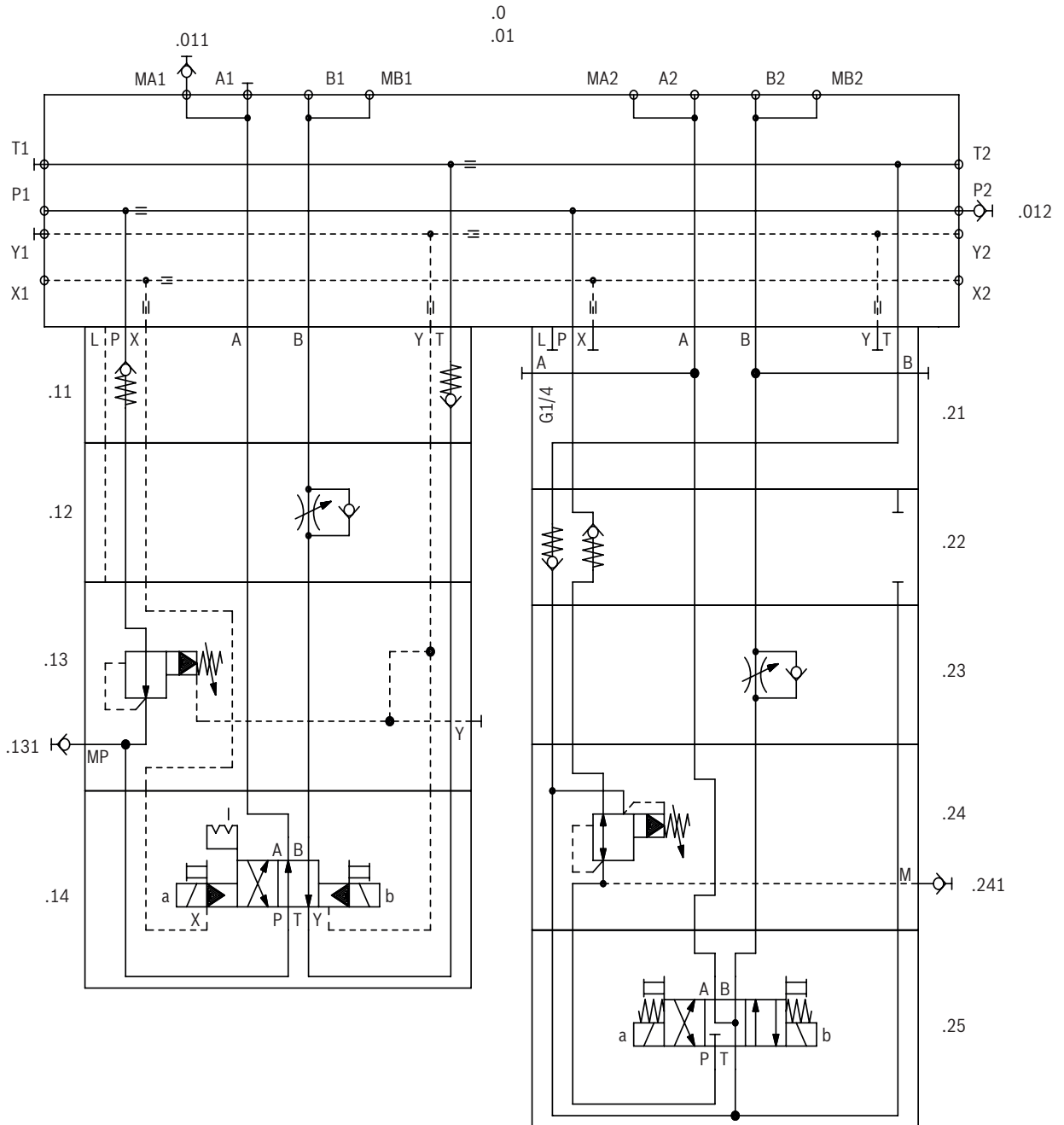
Thread type	Pipe thread according to ISO 228 Part 1			
	A, B	P, T	X, Y	MA, MB
Thread diameter	G1 1/4	G1 1/2	G1/2	G1/4
Thread depth	21	23	15	13
Counter bore diameter	42.5	48.5	21.4	13.6
Recess depth	0.2	0.2	0.2	0.2

Number of stations	L	
	L	LB
2	242	212
3	339	309
4	436	406
5	533	503
6	630	600

### Required ordering code of a completely mounted manifold

**Example:**

2-fold manifold





**Required ordering code of a completely mounted manifold****Example:**


2-fold manifold

Position	Quantity	Device designation	Type designation	Material no.
.0	1	Manifold	2HSR 16 MC1X/... <sup>1)</sup>	<sup>1)</sup>
.01	1	Manifold	2HSR16M15/315C01XY FE//ZN8//CN/T0	R900195604
.011	1	Measuring coupling	MCS20-SDS-E-G1/4-ST3N00Z-M	R900009090
.012	1	Measuring coupling		
.11	1	Check valve	Z1S 16 F1-1X/	R901153039
.12	1	Throttle check valve	Z2FS 16B8-3X/S2	R900498949
.13	1	Sandwich plate	HSZ 16 B550-3X/5-100M01	R900558726
.131	1	Measuring coupling	MCS20-SDS-E-G1/4-ST3N00Z-M	R900009090
.14	1	Directional spool valve	4WEH 16 HD7X/OF6EG24N9ES2K4/B10	R900971896
	2	Stud screw	DIN939-M6X270-10.9	R900012021
	4	Stud screw	DIN939-M10X260-10.9	R900025372
	2	Round nut	ZN10035-M6-ST	R913020310
	4	Round nut	ZN10035-M10-ST	R913020311
.21	1	Adapter plate	HSE 16B 10A 001-3X/M01	R900494609
.22	1	Check valve	Z1S 10 P05-1TA05-2TB9-4X/F	R901274768
.23	1	Throttle check valve	Z2FS 10B5-3X/S2	R900989106
.24	1	Pressure reducing valve	ZDR 10 VP5-3X/100YM	R900411309
.241	1	Measuring coupling	MCS20-SDS-E-G1/4-ST3N00Z-M	R900009090
.25	1	Directional spool valve	4WE10J73-5X/EG24N9K4/A12M	R901341855
	4	Stud screw	DIN939-M6X190-10.9	R900014968
	4	Round nut	ZN10035-M6-ST for port A1	R913020310
	1	Plug screw	G1 1/4-NBR *BG for port Y1 and Y2	R900838090
	2	Plug screw	ZN1001-G1/2A-N-ST for port T1	R913011603
	1	Plug screw	ZN10001-G1 1/2A-N-ST for port P1	R913011607
	1	Plug screw	G1 1/4-NBR *BG	R900838095
	1	Name plate	ZN20001-1-REXROTH	R900005158

<sup>1)</sup> Material number and short designation of the type are defined by Bosch Rexroth.

## Accessories: Plug screws

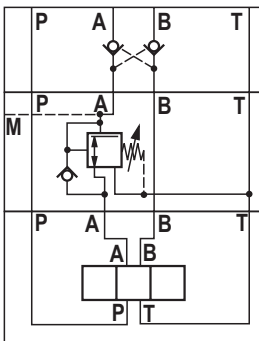
Channel	Thread	Material no.	Designation
X1, X2, Y1, Y2	G1/4	R913019136	ZN10027-R1/4-SV
P1, P2, T1, T2	M35x1.5	R900622789	M35X1.5X26-ST
X, Y in the porting pattern	M6	R913019128	ZN10027-M6-SV

 **Notice:**  
Plug screws must be ordered separately!

## Project planning information

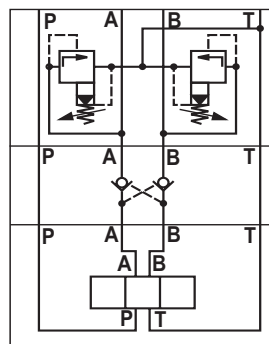
### Pressure reducing valve in connection with check valve

The pressure reducing valve type ZDR..DA (pressure reduction in channel A) **must** always be installed between the directional valve and the check valve type Z2S... This ensures that the check valve can block in a leak-free manner.



### Pressure relief valve in connection with check valve

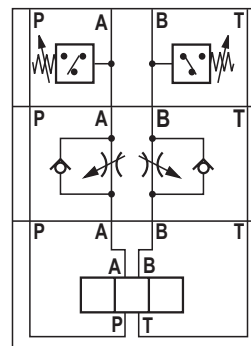
Leak-free blocking of the actuator is **not** possible if a pressure relief valve type ZDB../Z2DB.. is effective in channel A and/or B and a check valve is installed.



### Pressure switch in connection with throttle check valve

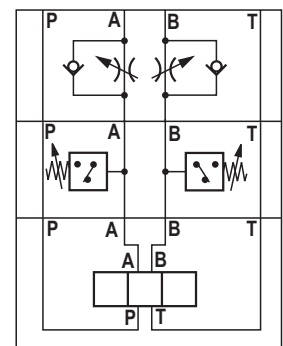
#### Supply control


The pressure switch type HED 8 OH, effective in channel A and/or B, is installed between the subplate and the throttle check valve type Z2FS.



#### Discharge control

The pressure switch type HED 8 OH, effective in channel A and/or B, is installed between the directional valve and the throttle check valve type Z2FS.



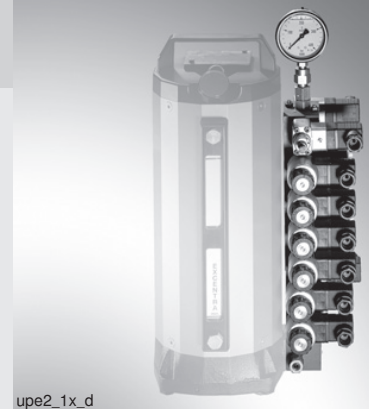
 **Notice:**  
The illustrated sections of circuit diagrams are examples. The project planning information must also be observed for valves with a similar function.

# Control modules for clamping and drive modules UPE2

**RE 51144/05.13**  
Replaces: 09.11

1/92

## Type IH15A

Component series 1X  
Maximum operating pressure 500 bar  
Maximum flow 14 l/min

upe2\_1x\_d

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		• End module with accumulator and stop valve	68 to 70
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		• Module with check valve	56 to 57

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• Module SAB4	53 to 55	• Tank connection module with reduction to IH15A	79
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• Module SBAT2 with pressure relief valve	44 to 45		
• Module SPA2	38 to 39	Module for external attachment	
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• Accumulator shut-off module	71 to 72	Type key	
• Circulation module	35	• Information on the type key	84 to 89
• Circulation module with stop valve	34	• Type keys for modules with vertical stacking	90
• Sandwich module with P1 channel interruption	60		
		Accessories	
Module for external attachment		• Filter element	91
• Attachment with application examples	73	• Assembly tool	91
• Connection module	74		
• Connection module with pressure relief valve	75	Dimensions	
• End module	78	• Dimensions	3
• Sandwich module	76	• Tank break-through	91
• Sandwich module with pressure relief valve	77		

## Features

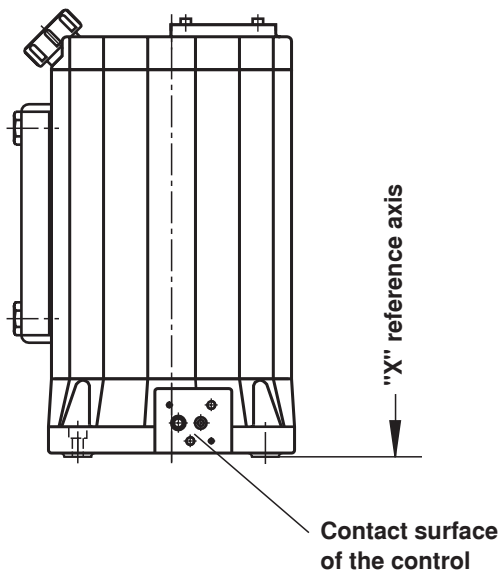
- Compact design
- No piping of the control
- Few joints
- Variable set-up
- Can be combined individually
- Direct attachment to the clamping and drive module, external attachment possible, as well
- Direct mounting on drive unit tank cover
- Ready for connection

## Description, general

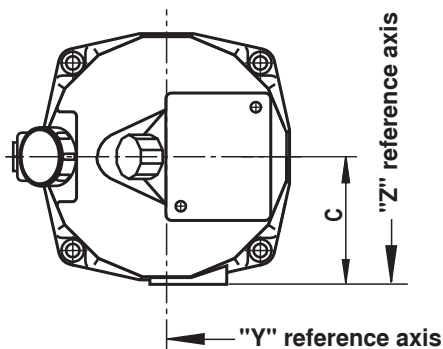
The IH15A control modules for the UPE2 clamping and drive module (51142) serve the realization of complete hydraulic controls. They can be fitted and mounted individually. The directional valve modules and seat valve modules can be combined. The control modules allow for direct attachment to the UPE2 clamping and drive module. Using the modules for external attachment, the hydraulic controls can, however, also be installed arbitrarily into every system. The reducing module

type RBAIH15A allows for direct attachment of the IH15A modules to the tank cover of a conventional drive unit. Using the reducing module type RIH15AR, the hydraulic control can be attached to one control of the IH15B control module family. The modules have preferably been designed for hydraulic controls for low-flow actuators up to a flow of 14 l/min. They are connected by means of two tie rods.

### Dimensions (dimensions in mm)



Type	Size	C
UPE2	3	85
	4	85
	5	98
	7	98



**X, Y and Z** are **reference axes** for determining the installation dimensions for attachment of the control blocks.

For calculating the installation height, the height dimension X on pages 16 to 21 and 23 to 71 must be added up according to the control blocks used.

## Technical data (For applications outside these parameters, please consult us!)

### hydraulic

Installation position	Any <sup>1)</sup>		
Hydraulic fluid	Mineral oil (HL, HLP) according to DIN 51524 part 2 other hydraulic fluids upon request		
Hydraulic fluid temperature range	°C	-20 to +80 (with FKM seals) (observe the admissible viscosity range of the pump and the valves!)	
Ambient temperature range	°C	-30 to +50	
Viscosity range	mm <sup>2</sup> /s	2.8 to 500 <sup>1)</sup>	
Maximum admissible degree of contamination of the hydraulic fluid, cleanliness class according to ISO 4406 (c)	Class 20 / 18 / 15 <sup>1)</sup> Class 18 / 16 / 13 applies to SPDB and SPDR		
Valve pressure rating	Refer to the related data sheet		
Maximum flow of the directional seat valves type: KSDR1...	$q_v$	l/min	20 (2/2 directional seat valve) 12 (3/2 directional seat valve)

### electric

Voltage type	Direct voltage			
Available voltage <sup>2)</sup>	$U$	V	24	
Voltage tolerance (nominal voltage)		%	±10	
Power consumption	$P$	W	19 and/or 30 <sup>1)</sup>	
Switching time according to ISO 6403	ON	$T$	ms	25 to ≤ 80
	OFF	$T$	ms	10 to 25
Switching frequency		cy/h	Up to 15,000	
Protection class according to DIN 40050 <sup>3)</sup>	IP 65			
Coil temperature <sup>4)</sup>		°C	150	

<sup>1)</sup> Observe the valve details

<sup>2)</sup> Special voltage on request

<sup>3)</sup> With mating connector mounted and locked

<sup>4)</sup> Due to the temperatures occurring at the surfaces of  
the solenoid coils, the European standards EN563 and  
EN982 need to be adhered to!

## Project planning information

When designing the control with accumulator you have to make sure that the accumulator is protected against inadmissible overpressure by means of a type examination-tested pressure relief valve. The type-examination tested pressure relief valve must not accept any control tasks.

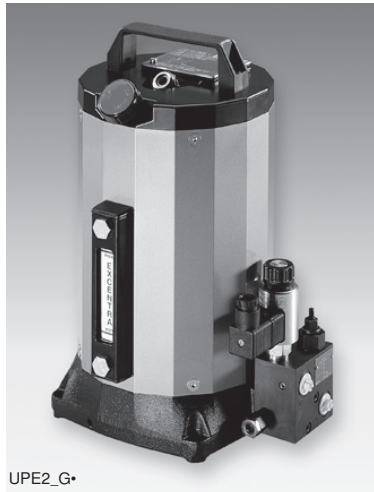
The set pressure of the type-examination tested pressure relief valve must be less than or equal to the maximum admissible operating pressure of the accumulator.

In order to achieve the best utilization of the accumulator volume possible as well as long service life, compliance with the following nitrogen filling pressure value is recommended:

$$p_o = 0.9 \times p_{(\text{minimum operating pressure})}$$

When using the SPDB and SPDR modules, a filter with a filter rating of 6 µm is to be used.

## Overview of the modules

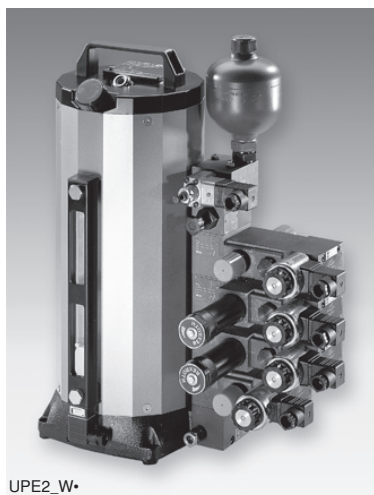


UPE2\_G•

Basic module "G"

### Basic module "G"

- Basic module with integrated pressure relief valve for simple lifting/lowering or pressure holding functions
- If the "G" basic modules are used, no further stacking is possible
- For more information see page 8

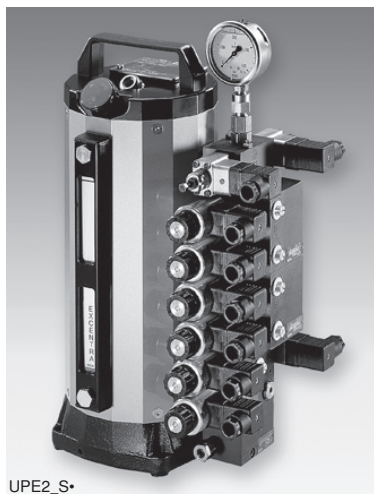


UPE2\_W•

Directional valve module "W"

### Directional valve module "W"

- Allows the design of controls using valves with porting pattern according to DIN 24340 form A
- The number of directional valve modules depends on the working volume and the delivery volume of the pump
- Directional valve modules and seat valve modules can be combined
- For more information see page 15



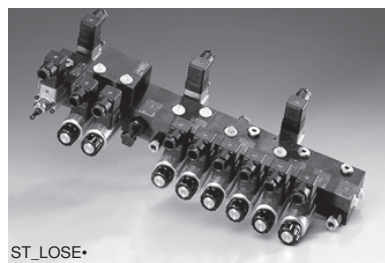
UPE2\_S•

Seat valve modules "S"

### Seat valve modules "S"

- Seat valve modules basically consist of:
  - A pressure relief module
  - One or several control blocks
  - One end block
- The control is designed depending on the relevant application
- The number of seat valve modules depends on the working volume and the delivery volume of the pump
- Seat valve modules and directional valve modules can be combined
- For more information see page 22

## Overview of the modules



ST\_LOSE

Modules for external attachment

### Module for external attachment

- Allows for the attachment of the directional seat valve modules to any hydraulic system or any machine
- For more information see page 73

## Overview of the modules

Short designation	Basic module, type "G"	Page
GA	Connection module	9
GD45	Distance module	9
GD45R	Distance module with check valve	10
GDB	Pressure relief module	11
GDH	Pressure holding module	13
GHS	Lifting/lowering module	12

Short designation	Directional valve module, type "W"	Page
WAE	Connection module with electrical unloading	16
WDB	Pressure relief module with one valve station	17
WSK	Cooler module	18
WZ	Sandwich module	19
WZ3	Sandwich module with 3 valve stations	20
WZ4	Sandwich module with 4 valve stations	21
WZP1	Sandwich module with P1 channel	19

Short designation	Seat valve module, type "S"	Page
DF40DB6	Pressure filter module with pressure relief valve size 6 (P line $p_{\max} = 250$ bar)	27
F06	Filter module (flow $q_{v\max} = 6$ l/min)	23
F06DB	Filter module with pressure relief valve (flow $q_{v\max} = 6$ l/min)	24
F30DB	Filter module with pressure relief valve (T line $p_{\max} = 7$ bar)	25
F30DBU	Filter module with pressure relief valve and circulation valve (T line $p_{\max} = 7$ bar)	26
SAB4	Module SAB4	53
SAB4P1	Module SAB4 with P1 channel	54
SAT2	Module SAT2	40
SBAT2DB	Module SBAT2 with pressure relief valve	44
SD	Module with pressure switch	58
SDB	Pressure relief module	28
SDB6	Pressure relief module size 6	29
SDBU	Pressure relief module with circulation valve	30
SDP1	Module with pressure switch and P1 channel	58



## Overview of the modules

Short designation	Seat valve module, type "S"	Page
SDR	Pressure reducing module	33
SDRP1	Pressure reducing module with P1 channel	33
SESA	End module with accumulator and drain cock	68
SESAP1	End module with accumulator, drain cock and P1 channel	69
SP	Module SP	36
SPA2	Module SPA2	38
SPA3	Module SPA3	48
SPA3P1	Module SPA3 with P1 channel	49
SPAT2	Module SPAT2	41
SPAT2DB	Module SPAT2 with pressure relief valve	43
SPAT3DB	Module SPAT3 with pressure relief valve	51
SPBAT2DB	Module SPBAT2 with pressure relief valve	46
SPDB	Module with proportional pressure relief valve	31
SPDR	Module with proportional pressure reducing valve	32
SPDV	Module SP with throttle valve	37
SPDVP1	Module SP with throttle valve and P1 channel	37
SPP1	Module P with P1 channel	36
SR	Module with check valve	56
SSB	Accumulator shut-off module	71
SSBP1	Accumulator shut-off module with P1 channel	71
SU	Circulation module	35
SUA	Circulation module with stop valve	34
SUAP1	Circulation module with stop valve and P1 channel	34
SUP1	Circulation module with P1 channel	35
SZP1	Sandwich module with P1 channel interruption	60
WSE	Directional seat valve module	61
WSED	End module with pressure switch	62
WSEDA	End module with pressure switch and stop valve	65
WSEDAP1	End module with pressure switch, stop valve and P1 channel	66
WSEDP1	End module with pressure switch and P1 channel	63
WSEP1	End module with P1 channel	61

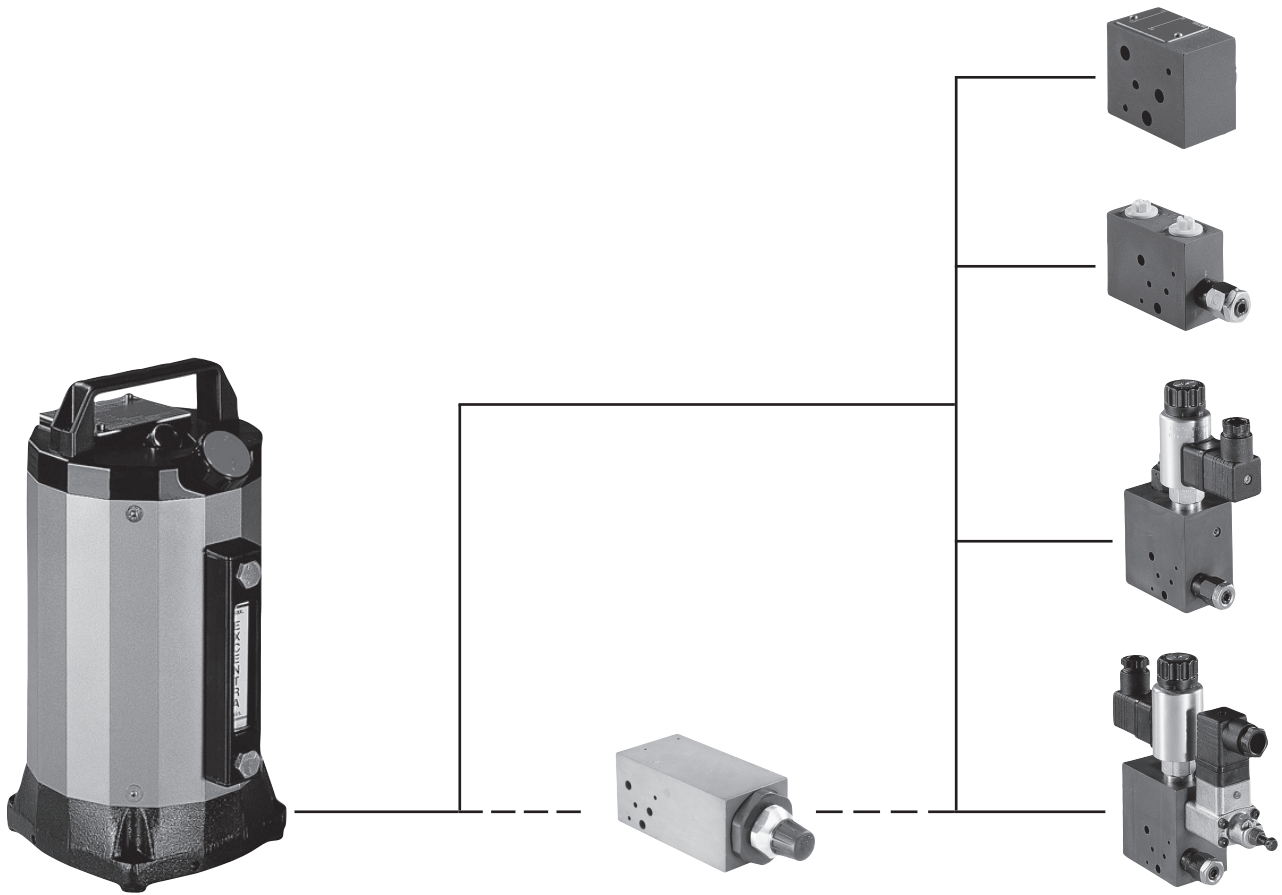
Short designation	Module for external attachment	Page
A	Connection module	74
ADB	Connection module with pressure relief valve	75
BA	Tank connection module	80
E	End module	78
EP1	End module with P1 channel	78
Z	Sandwich module	76
ZDB	Sandwich module with pressure relief valve	77
ZP1	Sandwich module with P1 channel	76

Short designation	Reducing module, type "R"	Page
RBAlH15A	Tank connection module with reduction to IH15A	79
RIH15AR	Reducing module IH15B to IH15A (right)	79

Short designation	Module with threaded connection for pipeline installation	Page
SDRG	Pressure reducing module with threaded connection	81
SPA2G	Module SPA2 with threaded connection	82
SPA3G	Module SPA3 with threaded connection	83

## Basic module, type "G": Attachment

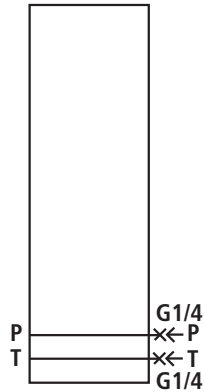
---



**Basic module, type "G"** (dimensions in mm)

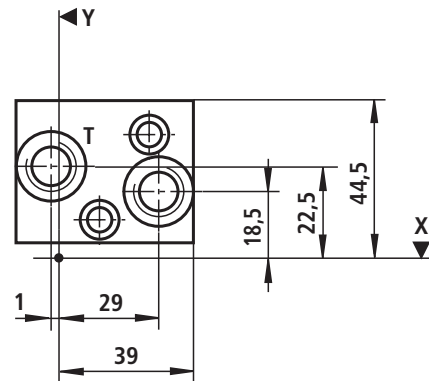
**Connection module, type "GA"**

Symbol



Dimensions

Dimension Z = 30 mm

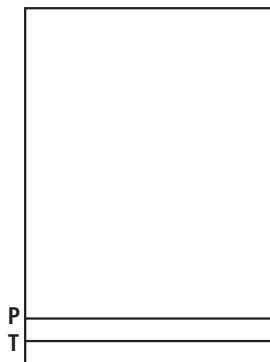


Material no.	Device designation	Type designation
	Connection module	IH15MA-1X/GA- <input type="text" value="26"/>
R900992205		IH15MA-1X/GA-V

<input type="text" value="26"/> Seal	Seal material	FKM	= V
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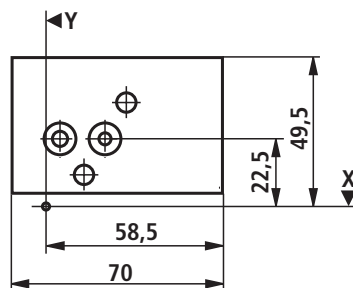
**Distance module, type "GD45"**

Symbol



Dimensions

Dimension Z = 45 mm



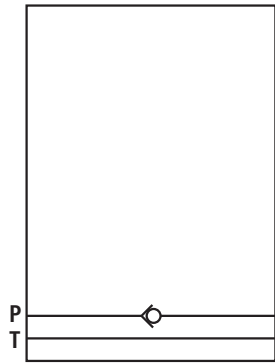
Material no.	Device designation	Type designation
	Distance module	IH15MA-1X/GD45- <input type="text" value="26"/>
R901178923		IH15MA-1X/GD45-V

<input type="text" value="26"/> Seal	Seal material	FKM	= V
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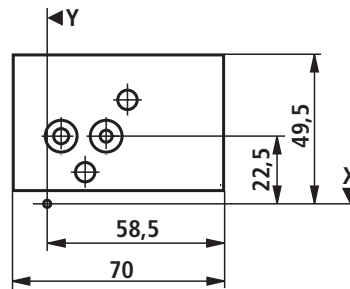
**Basic module, type "G" (dimensions in mm)**

**Distance module with check valve, type "GD45R"**

Symbol



Dimensions



Dimension Z = 45 mm

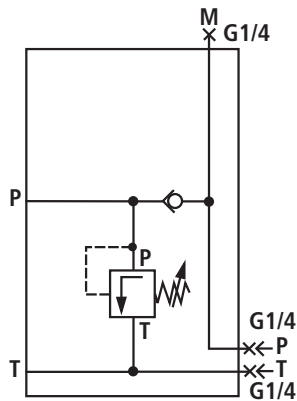
Material no.	Device designation	Type designation
	Distance module with check valve	IH15MA-1X/GD45R- <sup>26</sup> <input type="text"/>
R901256485		IH15MA-1X/GD45R- V

<sup>26</sup> <input type="text"/> Seal	Seal material	FKM	= V
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### Basic module, type "G" (dimensions in mm)

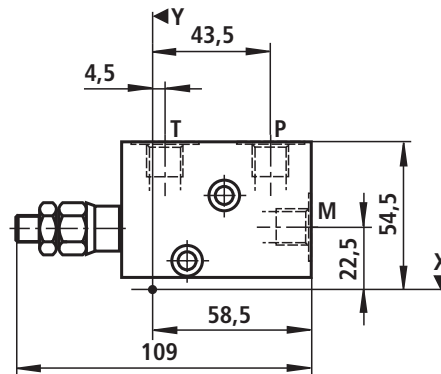
#### Pressure relief module, type "GDB"

**Symbol**



**Dimensions**

Dimension Z = 30 mm



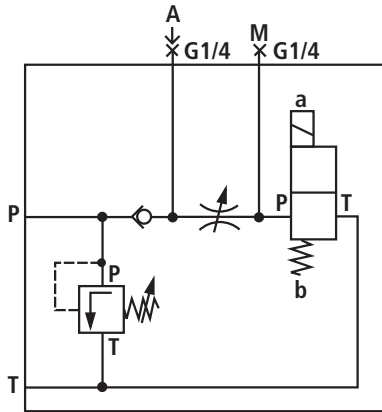
Material no.	Device designation	Type designation
	Pressure relief module	IH15EA-1X/GDB- <input type="checkbox"/> 1 <input type="checkbox"/> 2 / <input type="checkbox"/> 14 <input type="checkbox"/> 26
R900249996		IH15EA-1X/GDB-S350/D/V
R900333690		IH15EA-1X/GDB-S350/M/V
R900992206		IH15EA-1X/GDB-S350/O/V

<input type="checkbox"/> 1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
<input type="checkbox"/> 2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar = 50 = 100 = 200 = 350 = 500
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!			
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar = 210E = 250E = 400E = 500E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD 4../.E Type testing according to Pressure Equipment Directive 97/23/EC			See page 85
<input type="checkbox"/> 14	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
<input type="checkbox"/> 26	Seal	Seal material	FKM = V

**Basic module, type "G" (dimensions in mm)**

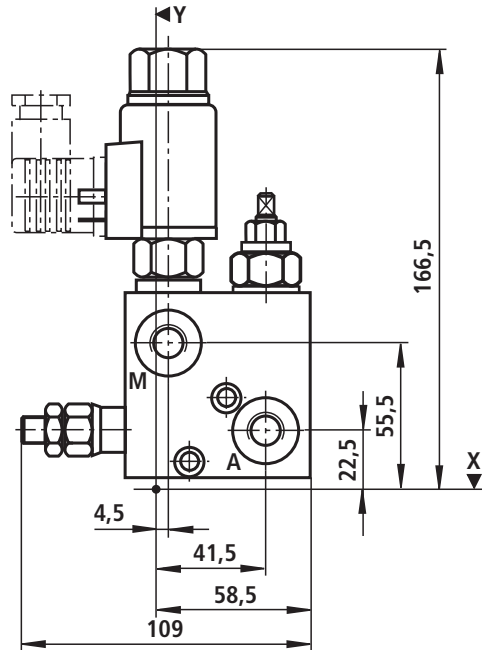
**Lifting/lowering module, type "GHS"**

**Symbol**



**Dimensions**

Dimension Z = 45 mm



Material no.	Device designation	Type designation
	Lifting/lowering module	IH15EA-1X/GHS- <input type="checkbox"/> 1 <input type="checkbox"/> 2 / <input type="checkbox"/> 14 <input type="checkbox"/> 4 <input type="checkbox"/> 8 / <input type="checkbox"/> 26
R900712062		IH15EA-1X/GHS-S350/DPG/V
R904100577		IH15EA-1X/GHS-S350/MPG/V
R901099456		IH15EA-1X/GHS-S350/OPG/V

<input type="checkbox"/> 1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
<input type="checkbox"/> 2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar = 50 100 bar = 100 200 bar = 200 350 bar = 350 500 bar = 500

Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive)  
More pressure ratings on request!

		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar = 210E 250 bar = 250E 400 bar = 400E 500 bar = 500E
--	--	--	--

**Characteristic curve** for type-examination tested pressure relief valves type: DBD 4../..E  
Type testing according to Pressure Equipment Directive 97/23/EC

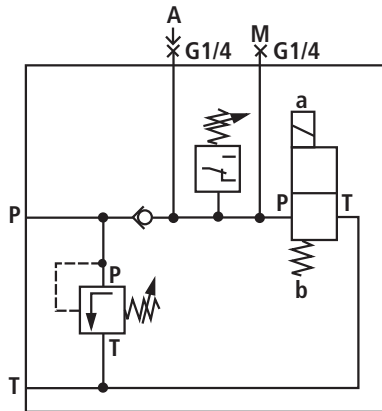
See page 85

<input type="checkbox"/> 4	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
<input type="checkbox"/> 8	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="checkbox"/> 14	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
<input type="checkbox"/> 26	Seal	Seal material	FKM = V

**Basic module, type "G"** (dimensions in mm)

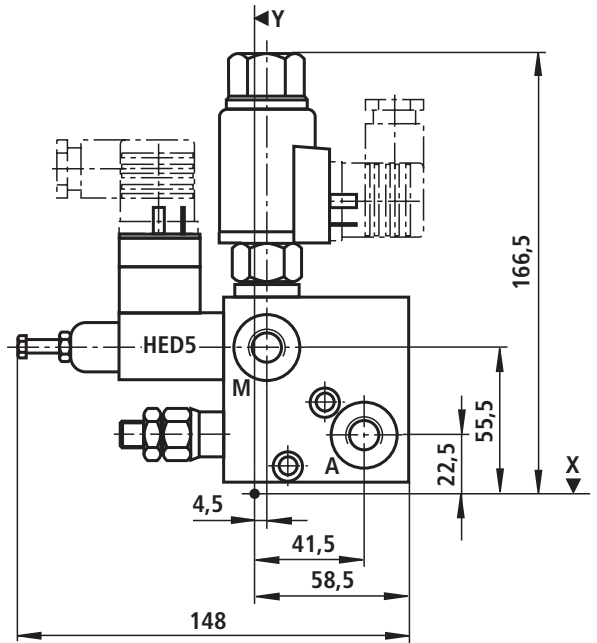
Pressure holding module, type "GDH"

Symbol

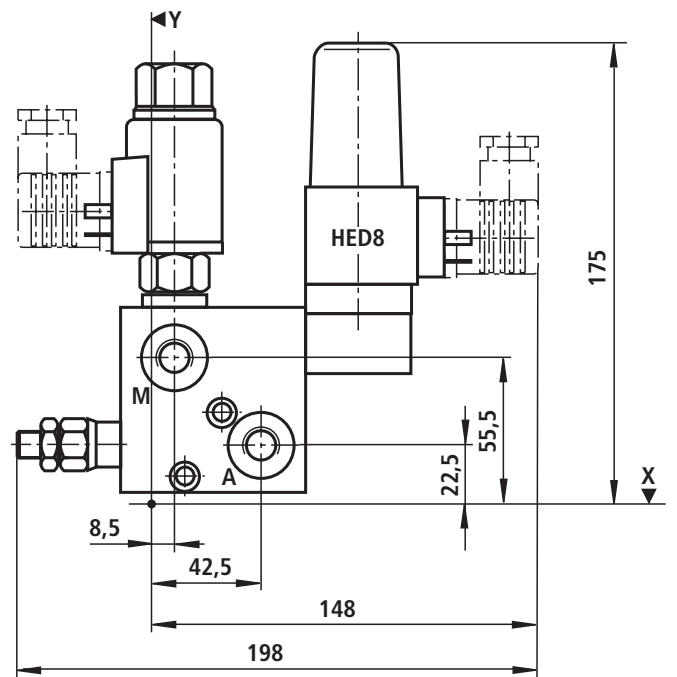


Dimensions

Dimension Z = 45 mm



Dimension Z = 45 mm



**Basic module, type "G" (dimensions in mm)**

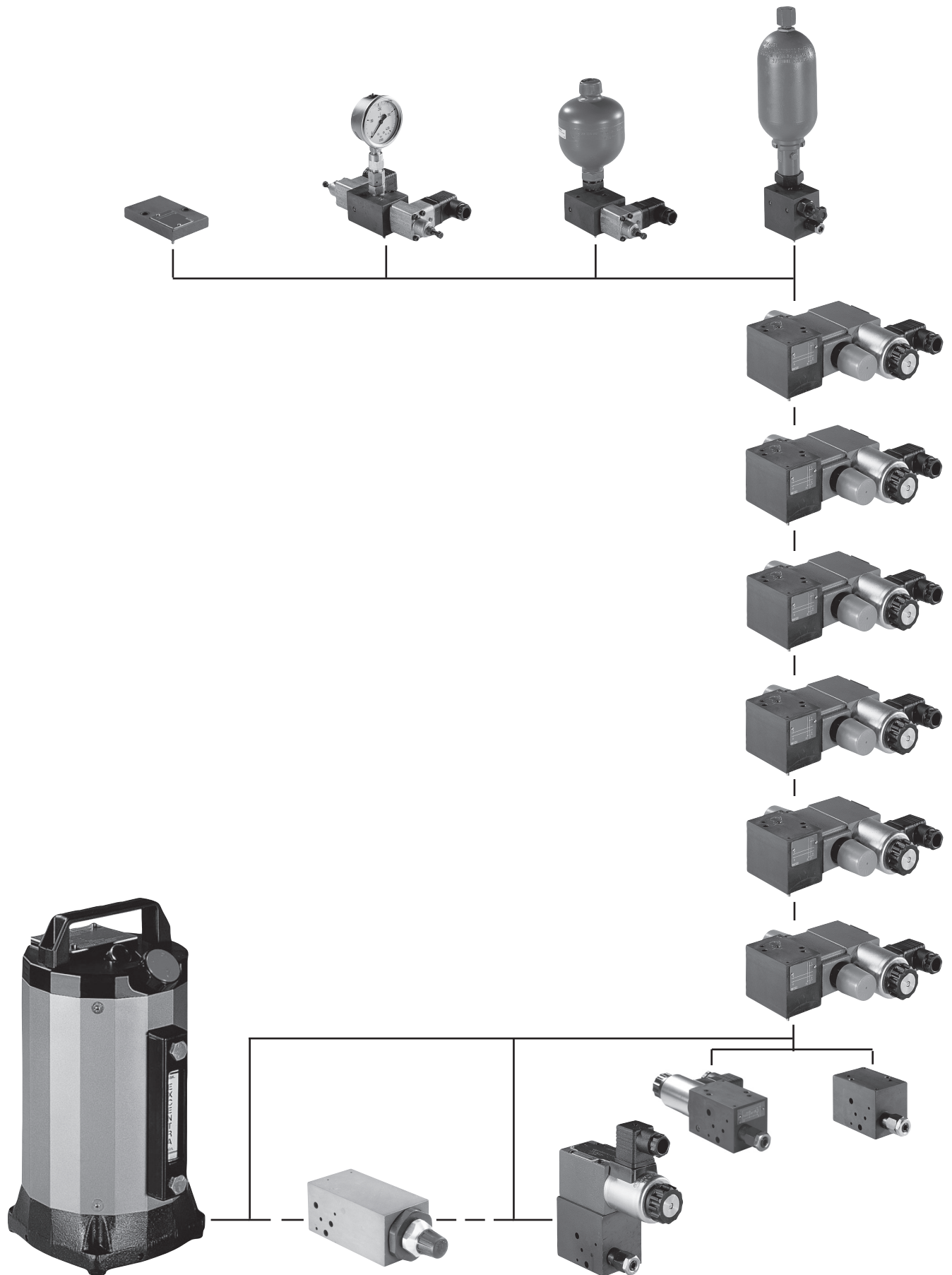
Material no.	Device designation	Type designation
	Pressure holding module	IH15EA-1X/GDH- <input type="checkbox"/> <sup>1</sup> <input type="checkbox"/> <sup>2</sup> / <input type="checkbox"/> <sup>14</sup> <input type="checkbox"/> <sup>4</sup> <input type="checkbox"/> <sup>11</sup> <input type="checkbox"/> <sup>8</sup> / <input type="checkbox"/> <sup>26</sup>
R900714698		IH15EA-1X/GDH-S350/DPHED8G24/V
R901099353		IH15EA-1X/GDH-S350/MPHED8G24/V
R900266488		IH15EA-1X/GDH-S350/OPHED8G24/V

<input type="checkbox"/> <sup>1</sup>	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob		= S = H
<input type="checkbox"/> <sup>2</sup>	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar	= 50 = 100 = 200 = 350 = 500 <sup>1)</sup>
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!				
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar	= 210E = 250E = 400E <sup>1)</sup> = 500E <sup>1)</sup>
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC				See page 85
<input type="checkbox"/> <sup>4</sup>	Designation of the 2/2 seat valve	Normally closed Normally open		= N = P
<input type="checkbox"/> <sup>8</sup>	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
<input type="checkbox"/> <sup>11</sup>	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2		= no code = HED 5 = HED 8 = HEDE 10
<input type="checkbox"/> <sup>14</sup>	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
<input type="checkbox"/> <sup>26</sup>	Seal	Seal material	FKM	= V

<sup>1)</sup> Not possible with HED 5



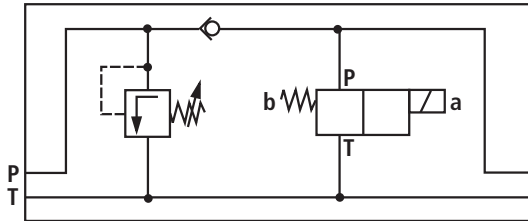
### Directional valve module, type "W": Attachment



## Directional valve module, type "W" (dimensions in mm)

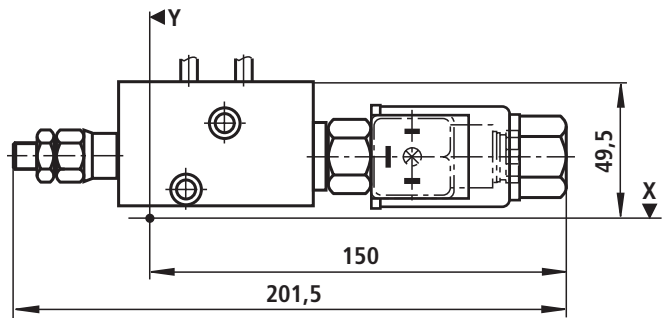
### Connection module with electrical unloading, type "WAE"

**Symbol**



**Dimensions**

Dimension Z = 45 mm



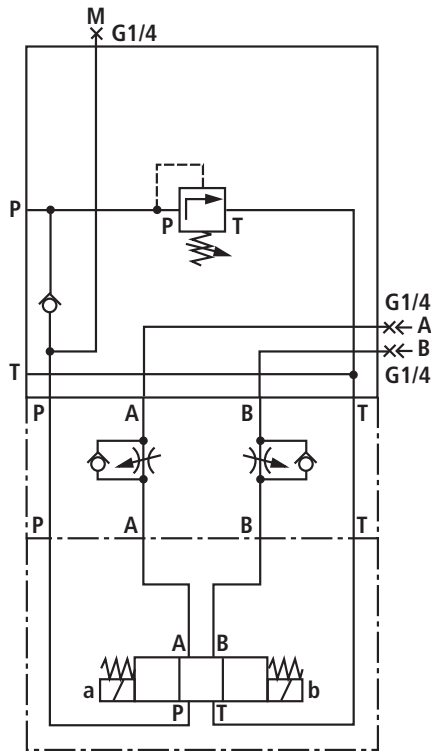
Material no.	Device designation	Type designation
	Connection module with electrical unloading	IH15EA-1X/WAE- <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> / <input type="text"/>
R904100245		IH15EA-1X/WAE-S350/NG24/V
R900992207		IH15EA-1X/WAE-S350/PG24/V

<input type="text"/>	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
<input type="text"/>	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar = 50 100 bar = 100 200 bar = 200 350 bar = 350 500 bar = 500
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!			
			Setting pressure up to max. = 210E Setting pressure up to max. = 250E Setting pressure up to max. = 400E Setting pressure up to max. = 500E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC			See page 85
<input type="text"/>	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
<input type="text"/>	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="text"/>	Seal	Seal material	FKM = V

### Directional valve module, type "W" (dimensions in mm)

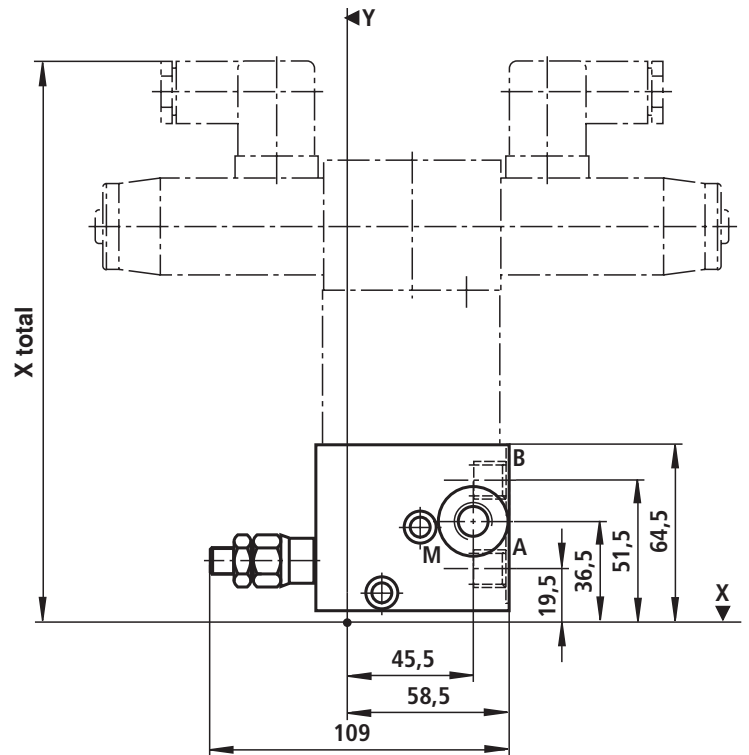
#### Pressure relief module with one valve station, type "WDB"

Symbol



Dimensions

Dimension Z = 50 mm



Material no.	Device designation	Type designation
	Pressure relief module with one valve station	IH15EA-1X/WDB- <input type="checkbox"/> 1 <input type="checkbox"/> 2 / <input type="checkbox"/> 14 <input type="checkbox"/> 26
R904101462		IH15EA-1X/WDB-S350/D/V
R904101434		IH15EA-1X/WDB-S350/M/V
R901099354		IH15EA-1X/WDB-S350/O/V

<input type="checkbox"/> 1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
<input type="checkbox"/> 2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar = 50 100 bar = 100 200 bar = 200 350 bar = 350 500 bar = 500

Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive)

More pressure ratings on request!

		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar	= 210E = 250E = 400E = 500E
--	--	--	--	--------------------------------------

**Characteristic curve** for type-examination tested pressure relief valves type: DBD 4../..E  
Type testing according to Pressure Equipment Directive 97/23/EC

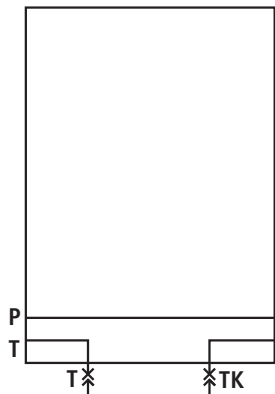
See page 85

<input type="checkbox"/> 14	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
<input type="checkbox"/> 26	Seal	Seal material	FKM = V

**Directional valve module, type "W" (dimensions in mm)**

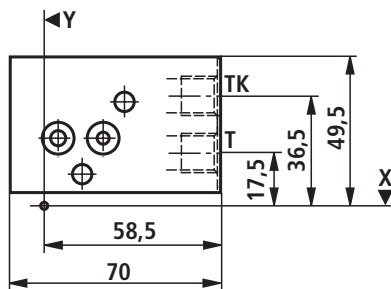
**Cooler module, type "WSK"**

Symbol



Dimensions

Dimension Z = 45 mm



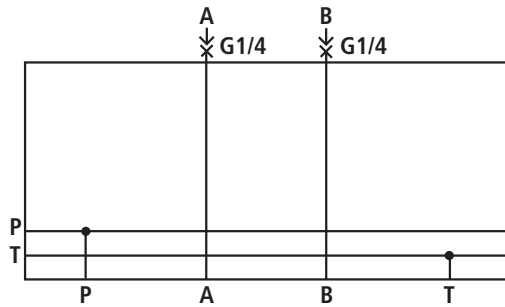
Material no.	Device designation	Type designation
	Cooler module	IH15MA-1X/WSK- <sup>26</sup> <input type="text"/>
R904100535		IH15MA-1X/WSK-V

<sup>26</sup> <input type="text"/> Seal	Seal material	FKM	= V
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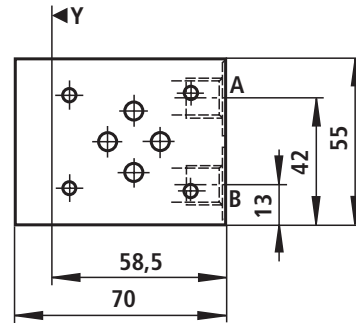
### Directional valve module, type "W" (dimensions in mm)

#### Sandwich module, type "WZ"

##### Symbol



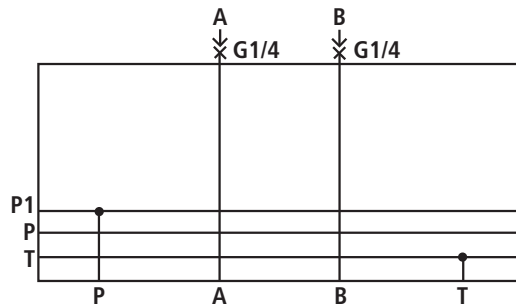
##### Dimensions



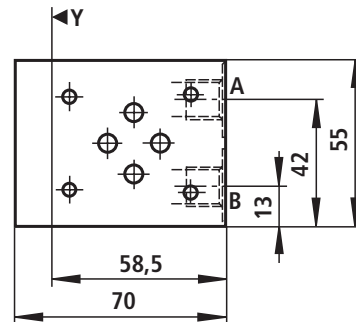
Dimension Z = 45 mm

#### Sandwich module with P1 channel, type "WZP1"

##### Symbol



##### Dimensions



Dimension Z = 45 mm

Material no.	Device designation	Type designation
	Sandwich module	IH15MA-1X/WZ- <sup>26</sup> <input type="text"/>
R900991532		IH15MA-1X/WZ-V

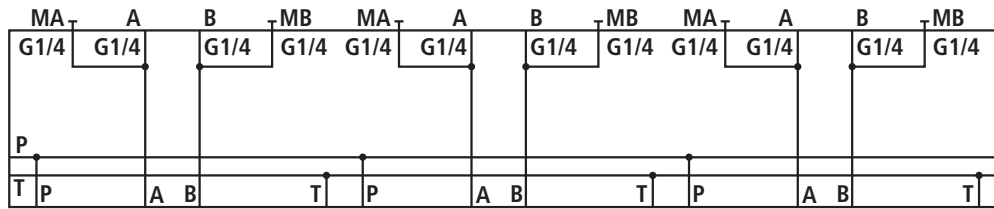
Material no.	Device designation	Type designation
	Sandwich module with P1 channel	IH15MA-1X/WZP1- <sup>26</sup> <input type="text"/>
R904100110		IH15MA-1X/WZP1-V

<sup>26</sup> <input type="text"/> Seal	Seal material	FKM	= V
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### Directional seat valve module, type "W" (dimensions in mm)

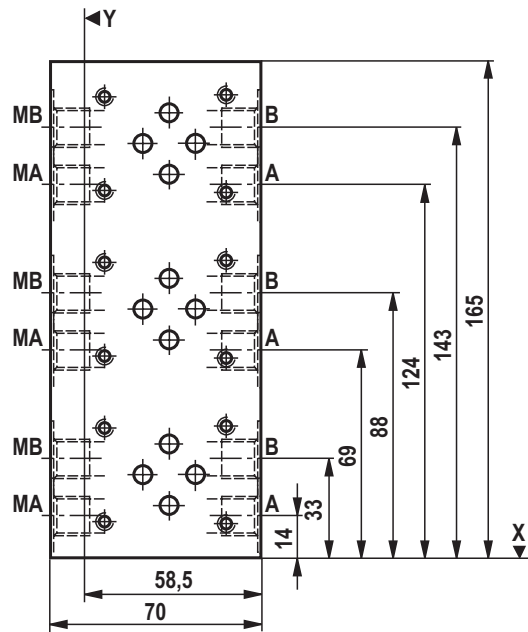
Sandwich module with 3 valve stations, type "WZ3"

Symbol



Dimensions

Dimension Z = 64 mm



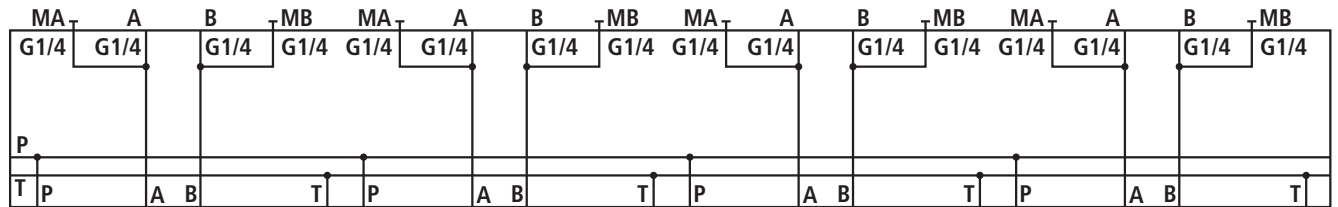
Material no.	Device designation	Type designation
		IH15MA-1X/WZ3- <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901176548	Sandwich module with 3 valve stations	IH15MA-1X/WZ3-M/V
R901176546		IH15MA-1X/WZ3-O/V

<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
<input type="checkbox"/> <sup>26</sup> Seal	Seal material	FKM = V

### Directional seat valve module, type "W" (dimensions in mm)

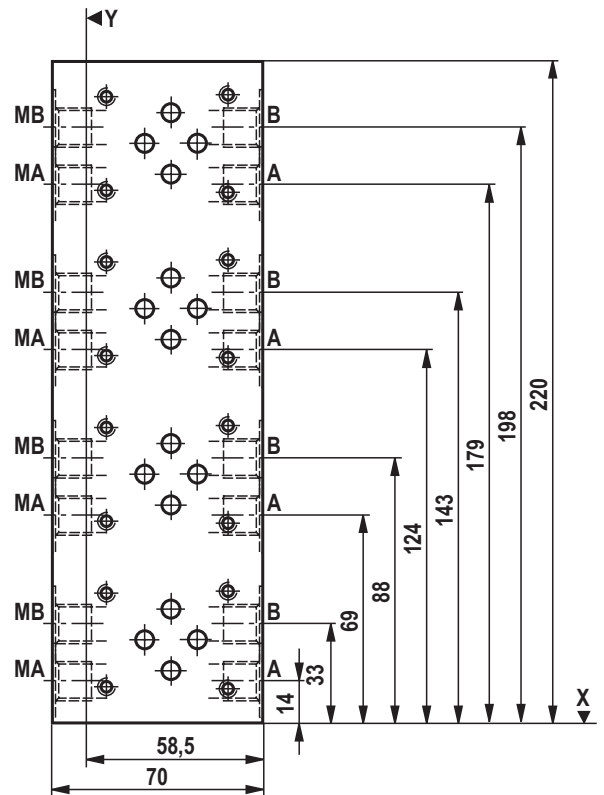
Sandwich module with 4 valve stations, type "WZ4"

Symbol



Dimensions

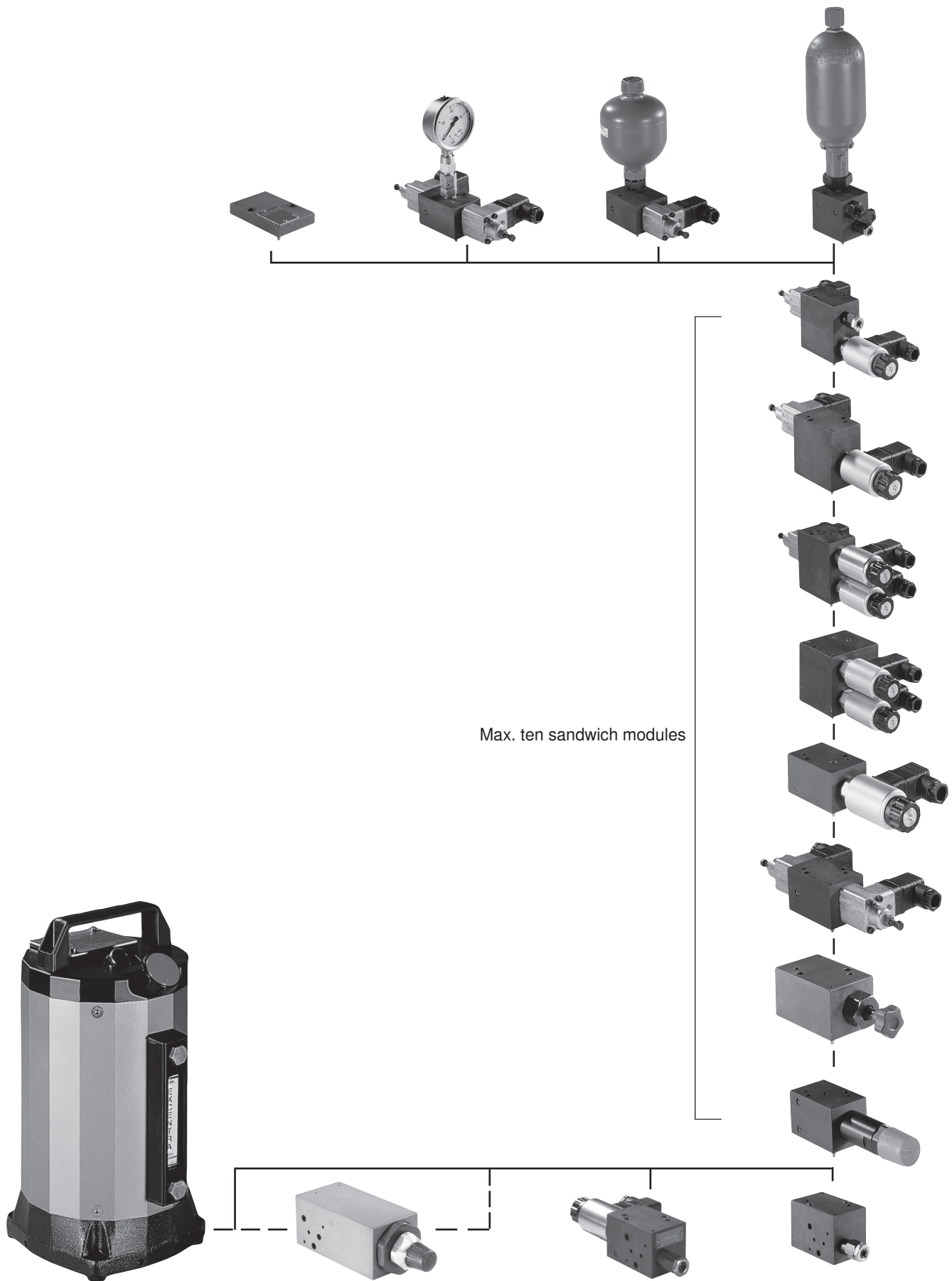
Dimension Z = 64 mm



Material no.	Device designation	Type designation
		IH15MA-1X/WZ4- <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901176552	Sandwich module with 4 valve stations	IH15MA-1X/WZ4-M/V
R901176550		IH15MA-1X/WZ4-O/V

<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
<input type="checkbox"/> <sup>26</sup> Seal	Seal material	FKM = V

# Seat valve module, type "S": Attachment



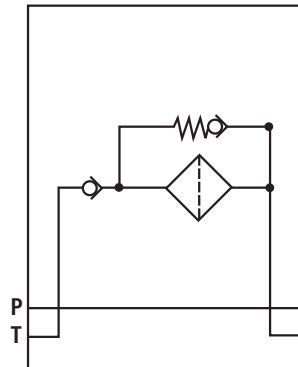


## Seat valve module, type "S" (dimensions in mm)

### Filter module, type "F06"

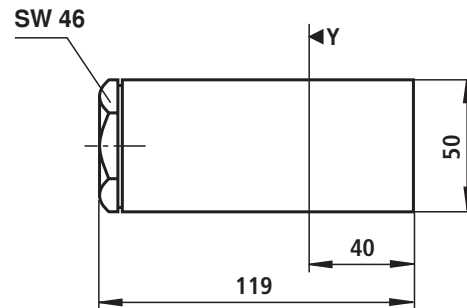
(max. flow  $q_{vmax} = 6 \text{ l/min}$ )

#### Symbol



#### Dimensions

Dimension Z = 55 mm



Spare part: Filter element see page 91

Material no.	Device designation	Type designation
	Filter module	IH15EA-1X/F06- <input type="text" value="19"/> / <input type="text" value="20"/> / <input type="text" value="26"/>
R900260940		IH15EA-1X/F06-10/A/V
R900242844		IH15EA-1X/F06-10/E/V
R900992204		IH15EA-1X/F06-10/O/V

<input type="text" value="19"/>	Filter rating		06 $\mu\text{m}$ 10 $\mu\text{m}$	= 06 <sup>1)</sup> = 10 <sup>2)</sup>
<input type="text" value="20"/>	Clogging indicator	Without clogging indicator Visual clogging indicator Electric clogging indicator		= A = O = E
<input type="text" value="26"/>	Seal	Seal material	FKM	= V

<sup>1)</sup> For degree of contamination class 18 / 16 / 13

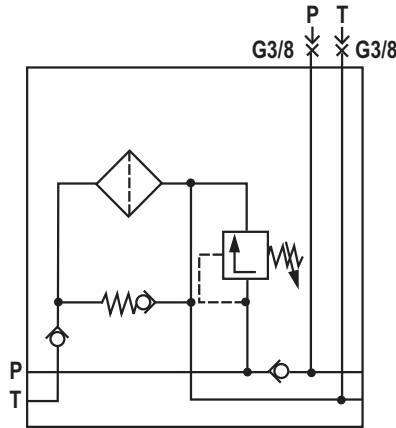
<sup>2)</sup> For degree of contamination class 20 / 18 / 15



## Seat valve module, type "S" (dimensions in mm)

**Filter module with pressure relief valve, type "F30DB"**  
 (max. flow  $q_{vmax} = 30$  l/min,  $p_{vmax} = 7$  bar)

**Symbol**

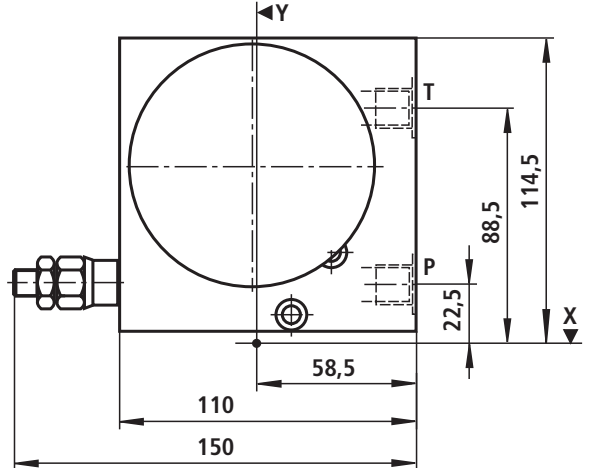


**Installation information:**

Wind the filter cartridge as tight as possible on the block. Then, wind the filter cartridge by further 1/3 of a rotation.

**Dimensions**

**Dimension Z = 140 mm**



**Spare part:** Filter cartridge see page 91

**Assembly tool:** Strap wrench Material no. **R904001048**

Material no.	Device designation	Type designation
	Filter module with pressure relief valve	IH15EA-1X/F30DB- <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/>
R901099541		IH15EA-1X/F30DB-S350/10/A/V
R901099029		IH15EA-1X/F30DB-S350/10/E/V
R904100109		IH15EA-1X/F30DB-S350/10/O/V

<input type="checkbox"/> 1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
<input type="checkbox"/> 2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar = 50 = 100 = 200 = 350 = 500

Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive)

More pressure ratings on request!

		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar = 210E = 250E = 400E = 500E
--	--	--	--

**Characteristic curve** for type-examination tested pressure relief valves type: DBD 4../.E  
 Type testing according to Pressure Equipment Directive 97/23/EC

See page 85

<input type="checkbox"/> 19	Filter rating	06 µm 10 µm	= 06 <sup>1)</sup> = 10 <sup>2)</sup>
<input type="checkbox"/> 20	Clogging indicator	Without clogging indicator Visual clogging indicator Electric clogging indicator	= A = O = E
<input type="checkbox"/> 26	Seal	Seal material	FKM = V

<sup>1)</sup> For degree of contamination class 18 / 16 / 13

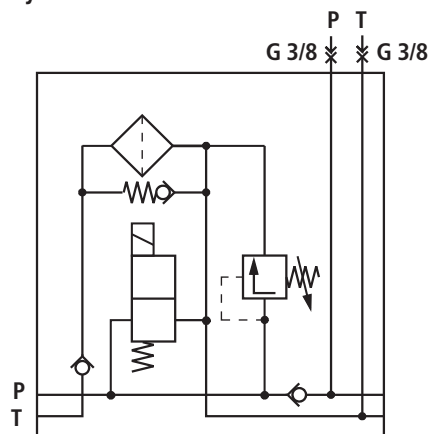
<sup>2)</sup> For degree of contamination class 20 / 18 / 15

## Seat valve module, type "S" (dimensions in mm)

### Filter module with pressure relief valve and circulation valve, type "F30DBU"

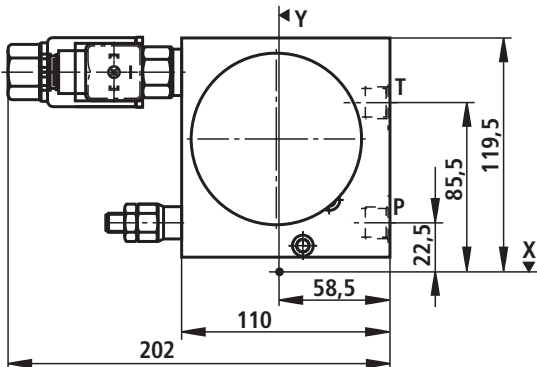
(max. flow  $q_{vmax} = 30$  l/min,  $p_{vmax} = 7$  bar)

#### Symbol



#### Dimensions

Dimension Z = 140 mm



#### Installation information:

Wind the filter cartridge as tight as possible on the block. Then, wind the filter cartridge by further 1/3 of a rotation.

**Spare part:** Filter cartridge see page 91

**Assembly tool:** Strap wrench Material no. **R904001048**

Material no.	Device designation	Type designation
	Filter module with pressure relief valve and circulation valve	IH15EA-1X/F30DBU- <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 4 <input type="checkbox"/> 8 <input type="checkbox"/> 19 <input type="checkbox"/> 20 <input type="checkbox"/> 26
R901099530		IH15EA-1X/F30DBU-S200/PG24/10/A/V
R904102272		IH15EA-1X/F30DBU-S200/PG24/10/E/V
R901095317		IH15EA-1X/F30DBU-S200/PG24/10/O/V

<input type="checkbox"/> 1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H	
<input type="checkbox"/> 2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar	= 50 = 100 = 200 = 350 = 500

Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive). More pressure ratings on request!

		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar	= 210E = 250E = 400E = 500E
--	--	--	--	--------------------------------------

**Characteristic curve** for type-examination tested pressure relief valves type: DBD 4../.E  
Type testing according to Pressure Equipment Directive 97/23/EC

See page 85

<input type="checkbox"/> 4	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
<input type="checkbox"/> 8	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="checkbox"/> 19	Filter rating		06 $\mu$ m 10 $\mu$ m = 06 <sup>1)</sup> = 10 <sup>2)</sup>
<input type="checkbox"/> 20	Clogging indicator	Without clogging indicator Visual clogging indicator Electric clogging indicator	= A = O = E
<input type="checkbox"/> 26	Seal	Seal material	FKM = V

<sup>1)</sup> For degree of contamination class 18 / 16 / 13

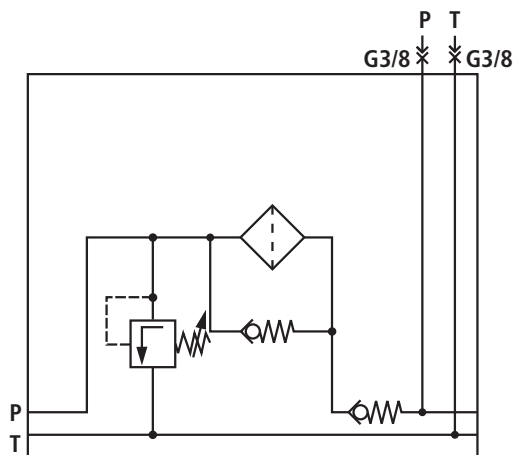
<sup>2)</sup> For degree of contamination class 20 / 18 / 15

### Seat valve module, type "S" (dimensions in mm)

#### Pressure filter module with pressure relief valve size 6, type "DF40DB6"

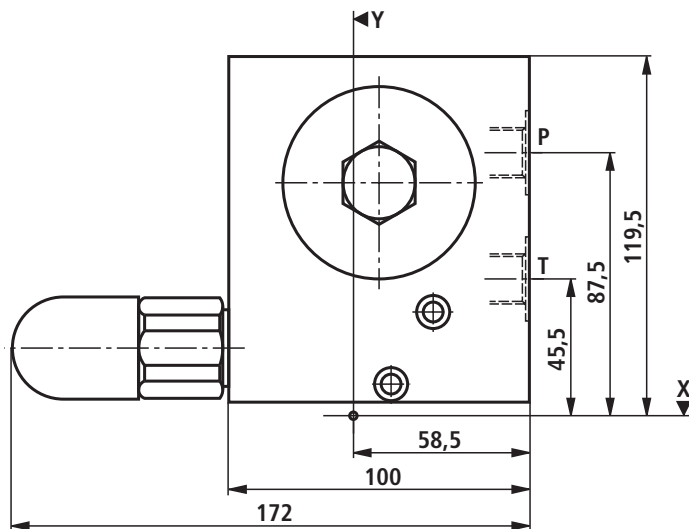
(max. flow  $q_{vmax} = 40$  l/min,  $p_{vmax} = 250$  bar)

#### Symbol



#### Dimensions

Dimension Z = 195 mm



#### Installation information:

Wind the filter cartridge as tight as possible on the block. Then, wind it back by 1/8 to 1/4 of a rotation.

**Spare part:** Filter cartridge see page 91

**Assembly tool:** Strap wrench Material no. **R904001048**

Material no.	Device designation	Type designation
	Pressure filter module with pressure relief valve size 6	IH15EA-1X/DF40DB6- <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/>
R901278258		IH15EA-1X/DF40DB6-S200/10/A/V
R901278259		IH15EA-1X/DF40DB6-S200/10/E/V
R901278260		IH15EA-1X/DF40DB6-S200/10/O/V

<input type="checkbox"/>	Adjustment element at the pressure relief valve	Setscrew with internal hexagon and protective cap Rotary knob Lockable rotary knob	= S = H = A
<input type="checkbox"/>	Pressure rating of the pressure relief valve (size 6)	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar = 50 100 bar = 100 200 bar = 200 315 bar = 315

Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive)  
More pressure ratings on request!

		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar = 50E 100 bar = 100E 140 bar = 140E 210 bar = 210E
--	--	--	--

**Characteristic curve** for type-examination tested pressure relief valves type: DBD 6...E  
Type testing according to Pressure Equipment Directive 97/23/EC

<input type="checkbox"/>	Filter rating		06 $\mu$ m = 06 <sup>1)</sup> 10 $\mu$ m = 10 <sup>2)</sup>
<input type="checkbox"/>	Clogging indicator	Without clogging indicator Visual clogging indicator Electric clogging indicator	= A = O = E
<input type="checkbox"/>	Seal	Seal material	FKM = V

<sup>1)</sup> For degree of contamination class 18 / 16 / 13

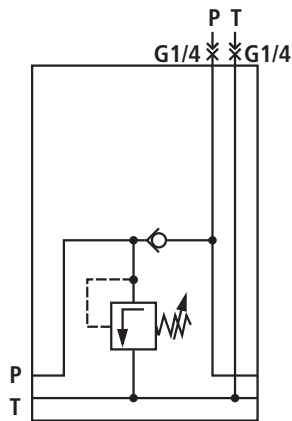
<sup>2)</sup> For degree of contamination class 20 / 18 / 15



### Seat valve module, type "S" (dimensions in mm)

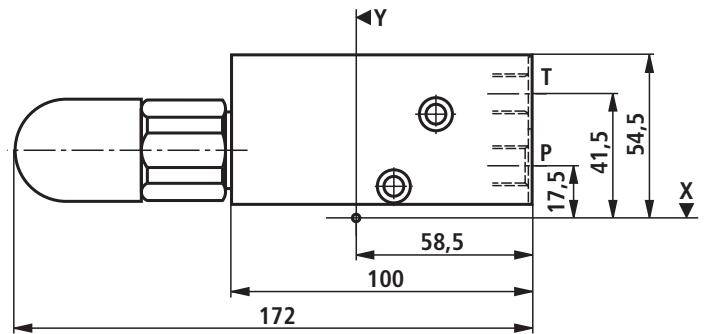
Pressure relief module, size 6, type "SDB6"

Symbol



Dimensions

Dimension Z = 45 mm



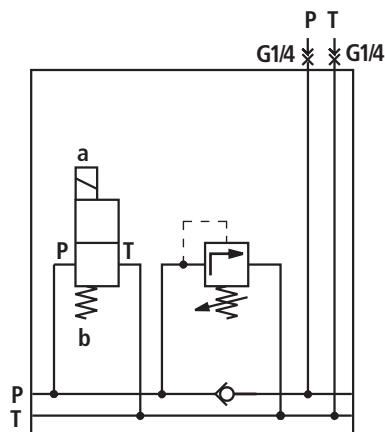
Material no.	Device designation	Type designation
	Pressure relief module size 6	IH15EA-1X/SDB6 - <input type="text"/> <input type="text"/> / <input type="text"/>
R904101817		IH15EA-1X/SDB6-S50/V
R901099611		IH15EA-1X/SDB6-S100/V
R901099613		IH15EA-1X/SDB6-S200/V
R901099614		IH15EA-1X/SDB6-S315/V

<input type="text"/>	Adjustment element at the pressure relief valve	Setscrew with internal hexagon and protective cap Rotary knob Lockable rotary knob	= S = H = A
<input type="text"/>	Pressure rating of the pressure relief valve (size 6)	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar = 50 100 bar = 100 200 bar = 200 315 bar = 315
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!			
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar = 50E 100 bar = 100E 140 bar = 140E 210 bar = 210E 330 bar = 330E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD 6...E Type testing according to Pressure Equipment Directive 97/23/EC			See page 86
<input type="text"/>	Seal	Seal material	FKM = V

## Seat valve module, type "S" (dimensions in mm)

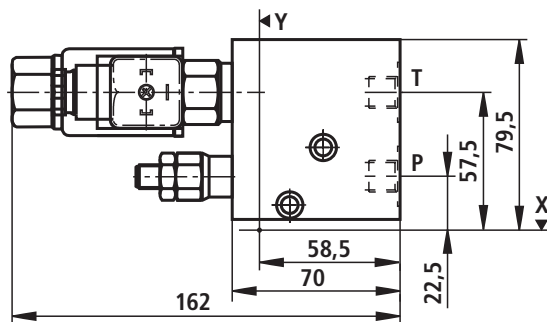
### Pressure relief module with circulation valve, type "SDBU"

#### Symbol



#### Dimensions

Dimension Z = 45 mm



Material no.	Device designation	Type designation
	Pressure relief module with circulation valve	IH15EA-1X/SDBU- <input type="checkbox"/> 1 <input type="checkbox"/> 2 / <input type="checkbox"/> 4 <input type="checkbox"/> 8 / <input type="checkbox"/> 26
R901099615		IH15EA-1X/SDBU-S350/NG24/V
R904101274		IH15EA-1X/SDBU-S350/PG24/V

<input type="checkbox"/> 1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H	
<input type="checkbox"/> 2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar	= 50 = 100 = 200 = 350 = 500
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!				
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar	= 210E = 250E = 400E = 500E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC			See page 85	
<input type="checkbox"/> 4	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P	
<input type="checkbox"/> 8	Solenoid voltage of the seat valves	Volt	24 V DC = G24	
<input type="checkbox"/> 26	Seal	Seal material	FKM = V	



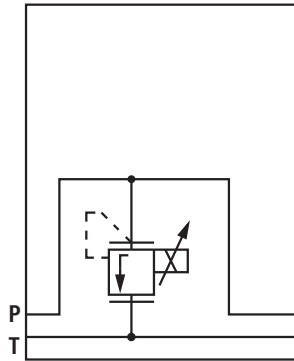
## Seat valve module, type "S" (dimensions in mm)

### Project planning information

When using the SPDB module, a filter with a filter rating of 6 µm is to be used.

### Proportional pressure relief module, type "SPDB"

#### Symbol

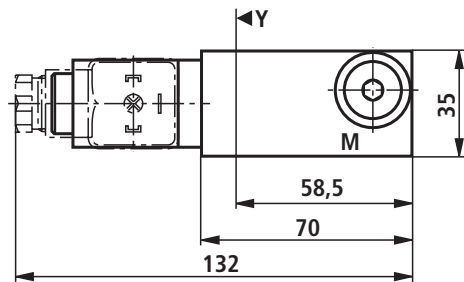


Area of application pressure rating:

$p = 20 \text{ bar}$	$q_{\text{max}} = 8 \text{ l/min}$
$p = 100 \text{ bar}$	$q_{\text{max}} = 8 \text{ l/min}$
$p = 200 \text{ bar}$	$q_{\text{max}} = 6 \text{ l/min}$
$p = 315 \text{ bar}$	$q_{\text{max}} = 3 \text{ l/min}$

#### Dimensions

Dimension Z = 45 mm



Material no.	Device designation	Type designation
	Proportional pressure relief module	IH15EA-1X/SPDB- <input type="text" value="24"/> <input type="text" value="8"/> / <input type="text" value="26"/>
R904101391		IH15EA-1X/SPDB-100G24/V
R900993538		IH15EA-1X/SPDB-315G24/V

<input type="text" value="8"/>	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
<input type="text" value="26"/>	Seal	Seal material	FKM	= V
<input type="text" value="35"/>	Pressure rating of the proportional valve	Setting pressure up to max.	20 bar	= 20
		Setting pressure up to max.	100 bar	= 100
		Setting pressure up to max.	200 bar	= 200
		Setting pressure up to max.	315 bar	= 315

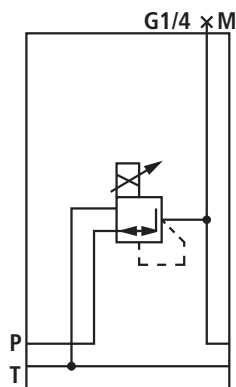
## Seat valve module, type "S" (dimensions in mm)

### Project planning information

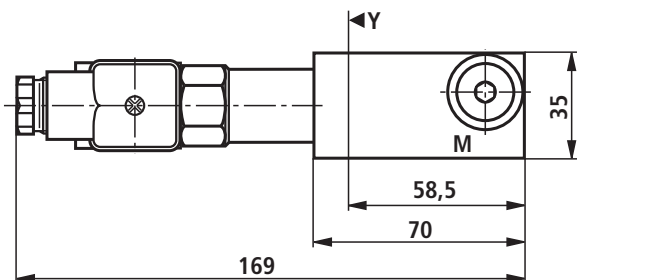
When using the SPDR module, a filter with a filter rating of 6 µm is to be used.

### Proportional pressure reducing valve, type "SPDR"

#### Symbol



#### Dimensions

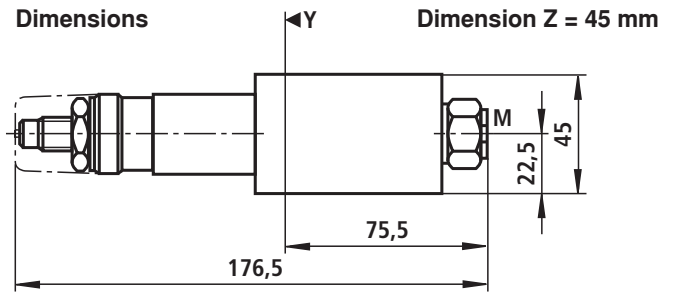
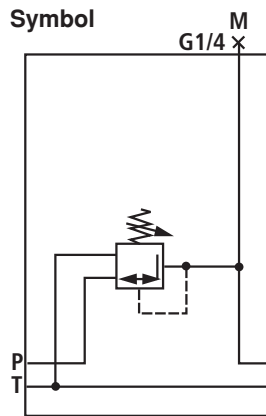


Material no.	Device designation	Type designation
	Proportional pressure reducing valve	IH15EA-1X/SPDR- <input type="text" value="24"/> / <input type="text" value="14"/> <input type="text" value="8"/> / <input type="text" value="26"/>
R904101209		IH15EA-1X/SPDR-315/DG24/V

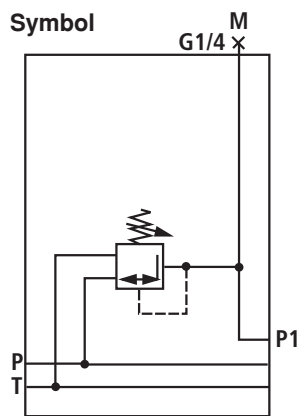
<input type="text" value="8"/>	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
<input type="text" value="14"/>	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
<input type="text" value="26"/>	Seal	Seal material	FKM	= V
<input type="text" value="35"/>	Pressure rating of the proportional valve	Setting pressure up to max.	20 bar	= 20
		Setting pressure up to max.	100 bar	= 100
		Setting pressure up to max.	200 bar	= 200
		Setting pressure up to max.	315 bar	= 315

### Seat valve module, type "S" (dimensions in mm)

Pressure reducing module, type "SDR" (min. secondary pressure which can be set  $p_{max} = 15$  bar)



Pressure reducing module with P1 channel, type "SDRP1"



Material no.	Device designation	Type designation
	Pressure reducing module	IH15EA-1X/SDR- <input type="checkbox"/> <sup>16</sup> / <input type="checkbox"/> <sup>17</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R904101712		IH15EA-1X/SDR-2/210/D/V
R904100719		IH15EA-1X/SDR-2/210/M/V
R904102202		IH15EA-1X/SDR-2/210/O/V

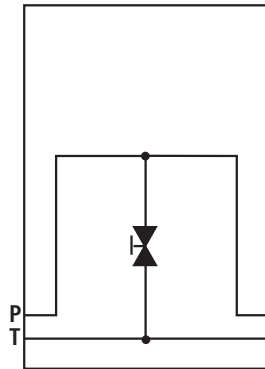
Material no.	Device designation	Type designation
	Pressure reducing module with P1 channel	IH15EA-1X/SDRP1- <input type="checkbox"/> <sup>16</sup> / <input type="checkbox"/> <sup>17</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R904100561		IH15EA-1X/SDRP1-2/210/D/V
R904100659		IH15EA-1X/SDRP1-2/210/M/V
R901099714		IH15EA-1X/SDRP1-2/210/O/V

<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
<input type="checkbox"/> <sup>16</sup> Adjustment element	Setscrew with internal hexagon and protective cap	= 2
<input type="checkbox"/> <sup>17</sup> Secondary pressure	Max. secondary pressure	25 bar = 25
	Max. secondary pressure	75 bar = 75
	Max. secondary pressure	150 bar = 150
	Max. secondary pressure	210 bar = 210
<input type="checkbox"/> <sup>26</sup> Seal	Seal material	FKM = V

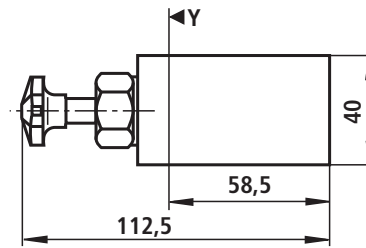
## Seat valve module, type "S" (dimensions in mm)

### Circulation module with stop valve, type "SUA"

#### Symbol



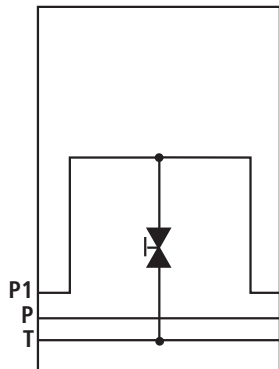
#### Dimensions



Dimension Z = 45 mm

### Circulation module with stop valve and P1 channel, type "SUAP1"

#### Symbol



Material no.	Device designation	Type designation
	Circulation module with stop valve	IH15EA-1X/SUA- <input type="text" value="26"/>
R900992137		IH15EA-1X/SUA-V

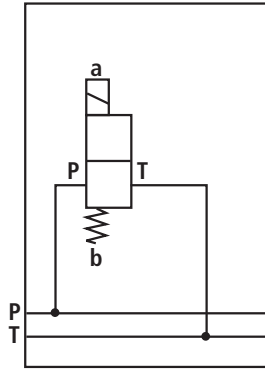
Material no.	Device designation	Type designation
	Circulation module with stop valve and P1 channel	IH15EA-1X/SUAP1- <input type="text" value="26"/>
R901099721		IH15EA-1X/SUAP1-V

<input type="text" value="26"/> Seal	Seal material	FKM	= V
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### Seat valve module, type "S" (dimensions in mm)

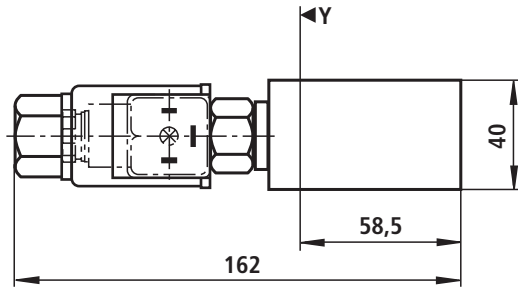
#### Circulation module, type "SU"

Symbol



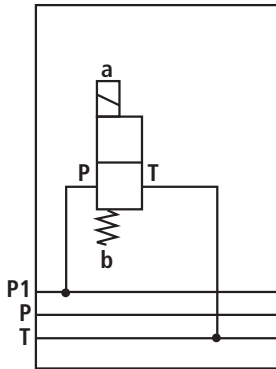
Dimensions

Dimension Z = 45 mm



#### Circulation module with P1 channel, type "SUP1"

Symbol



Material no.	Device designation	Type designation
	Circulation module	IH15EA-1X/SU- <input type="text"/> <sup>4</sup> <input type="text"/> <sup>8</sup> / <input type="text"/> <sup>7</sup> / <input type="text"/> <sup>26</sup>
R900337092		IH15EA-1X/SU-NG24/350/V
R900992143		IH15EA-1X/SU-PG24/350/V

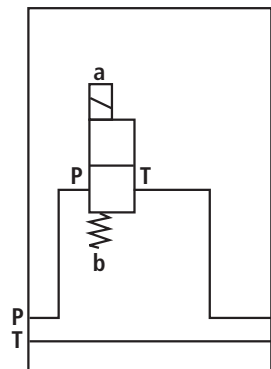
Material no.	Device designation	Type designation
	Circulation module with P1 channel	IH15EA-1X/SUP1- <input type="text"/> <sup>4</sup> <input type="text"/> <sup>8</sup> / <input type="text"/> <sup>7</sup> / <input type="text"/> <sup>26</sup>
R901099723		IH15EA-1X/SUP1-PG24/350/V

<input type="text"/> <sup>4</sup>	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
<input type="text"/> <sup>7</sup>	Pressure rating of the seat valve	$p_{max}$ $p_{max}$	= 350 bar = 500 bar = 350 = 500
<input type="text"/> <sup>8</sup>	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="text"/> <sup>26</sup>	Seal	Seal material	FKM = V

### Seat valve module, type "S" (dimensions in mm)

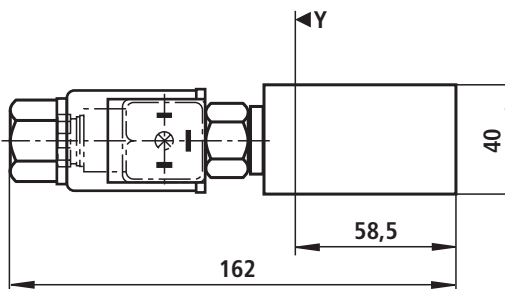
#### Module P, type "SP"

##### Symbol



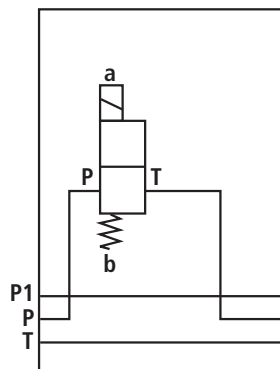
##### Dimensions

Dimension Z = 45 mm



#### Module P with P1 channel, type "SPP1"

##### Symbol



Material no.	Device designation	Type designation
	Module SP	IH15EA-1X/SP- <input type="text" value="4"/> <input type="text" value="8"/> / <input type="text" value="7"/> / <input type="text" value="26"/>
R900993536		IH15EA-1X/SP-NG24/350/V
R904101690		IH15EA-1X/SP-NG24/500/V
R904100795		IH15EA-1X/SP-PG24/350/V
R904101683		IH15EA-1X/SP-PG24/500/V

Material no.	Device designation	Type designation
	Module SP with P1 channel	IH15EA-1X/SPP1- <input type="text" value="4"/> <input type="text" value="8"/> / <input type="text" value="7"/> / <input type="text" value="26"/>
R904102280		IH15EA-1X/SPP1-PG24/350/V

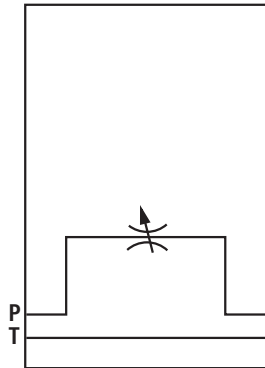
<input type="text" value="4"/>	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
<input type="text" value="7"/>	Pressure rating of the seat valve	$p_{max}$ $p_{max}$	= 350 bar = 500 bar = 350 = 500
<input type="text" value="8"/>	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="text" value="26"/>	Seal	Seal material	FKM = V

### Seat valve module, type "S" (dimensions in mm)

#### Module P with throttle valve, type "SPDV"

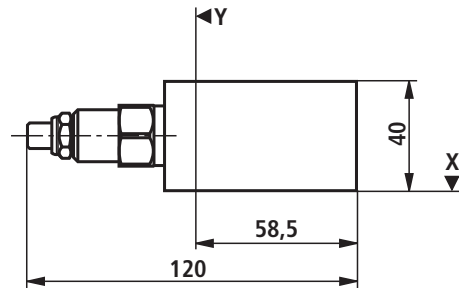
( $p_{max} = 350 \text{ bar}$ )

##### Symbol



##### Dimensions

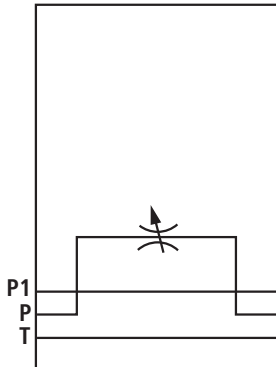
Dimension Z = 45 mm



#### Module P with throttle valve and P1 channel, type "SPDVP1"

( $p_{max} = 350 \text{ bar}$ )

##### Symbol



Material no.	Device designation	Type designation
	Module SPDV	IH15EA-1X/SPDV- <input type="text" value="26"/>
R901189446		IH15EA-1X/SPDV-V

Material no.	Device designation	Type designation
	Module SPDV with P1 channel	IH15EA-1X/SPDVP1- <input type="text" value="26"/>
R901266878		IH15EA-1X/SPDVP1-V

<input type="text" value="26"/> Seal	Seal material	FKM	= V
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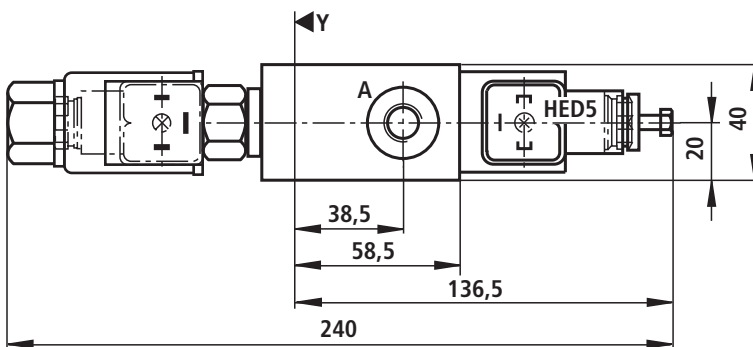
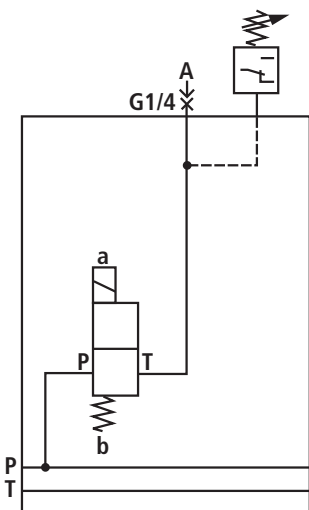
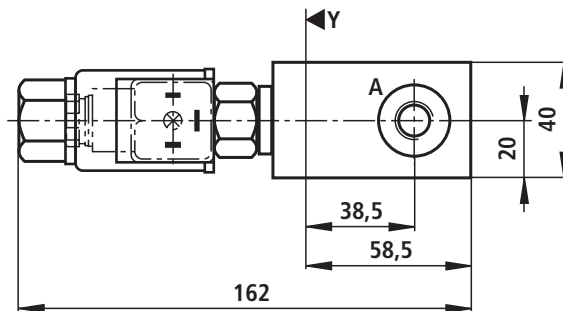
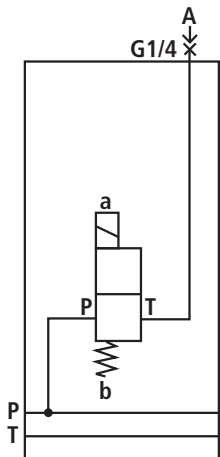
### Seat valve module, type "S" (dimensions in mm)

Module SPA2, type "SPA2"

Symbol

Dimensions

Dimension Z = 45 mm





## Seat valve module, type "S" (dimensions in mm)

Material no.	Device designation	Type designation
	Module SPA2	IH15EA-1X/SPA2- <input type="text"/> <sup>4</sup> <input type="text"/> <sup>10</sup> / <input type="text"/> <sup>12</sup> <input type="text"/> <sup>8</sup> / <input type="text"/> <sup>7</sup> / <input type="text"/> <sup>26</sup>
R904101492		IH15EA-1X/SPA2-N/G24/350/V
R900242502		IH15EA-1X/SPA2-N/G24/500/V
R904101491		IH15EA-1X/SPA2-NHED5/100G24/V
R900992210		IH15EA-1X/SPA2-P/G24/350/V
R901063412		IH15EA-1X/SPA2-P/G24/500/V
R901231102		IH15EA-1X/SPA2-PHED5/200G24/V

<input type="text"/> <sup>4</sup>	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
<input type="text"/> <sup>7</sup>	Pressure rating of the seat valve	$p_{\max}$ $p_{\max}$	= 350 bar = 500 bar = 350 <sup>1)</sup> = 500 <sup>1, 2)</sup>
<input type="text"/> <sup>8</sup>	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="text"/> <sup>10</sup>	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HEDE 10 A1-2X/...K41...2	= no code = HED 5 = HEDE 10
<input type="text"/> <sup>12</sup>	Pressure rating of the pressure switch	Without pressure switch Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure	= no code = 50 = 100 = 200 = 350 = 630 <sup>2)</sup>
<input type="text"/> <sup>26</sup>	Seal	Seal material	FKM = V

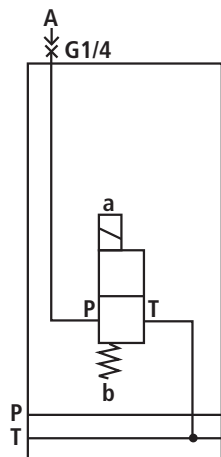
<sup>1)</sup> Indication is only necessary if the module is not equipped with a pressure switch.

<sup>2)</sup> Not possible with HED 5

## Seat valve module, type "S" (dimensions in mm)

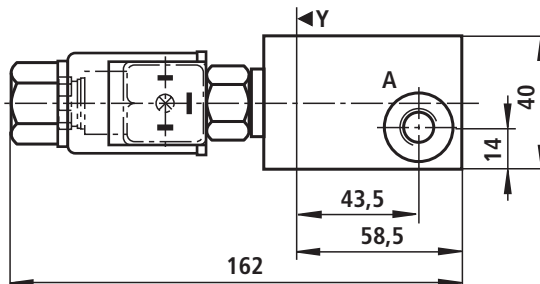
### Module A – T, type "SAT2"

#### Symbol



#### Dimensions

Dimension Z = 45 mm



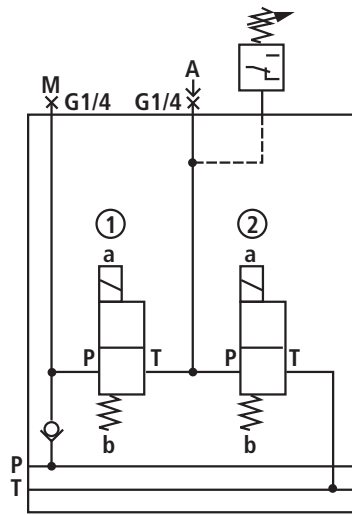
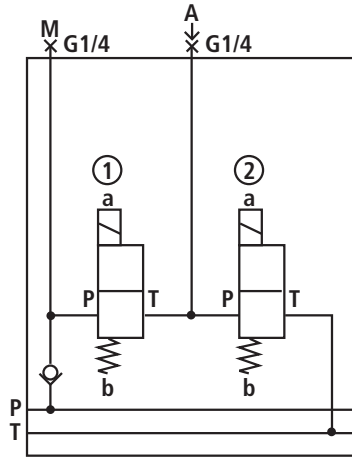
Material no.	Device designation	Type designation
	Module SAT2	IH15EA-1X/SAT2- <input type="text" value="4"/> <input type="text" value="8"/> / <input type="text" value="7"/> / <input type="text" value="26"/>
R904100867		IH15EA-1X/SAT2-NG24/350/V
R901063391		IH15EA-1X/SAT2-NG24/500/V
R901065613		IH15EA-1X/SAT2-PG24/350/V
R901063388		IH15EA-1X/SAT2-PG24/500/V

<input type="text" value="4"/>	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
<input type="text" value="7"/>	Pressure rating of the seat valve	$p_{\max}$ $p_{\max}$	= 350 bar = 500 bar = 350 = 500
<input type="text" value="8"/>	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="text" value="26"/>	Seal	Seal material	FKM = V

### Seat valve module, type "S" (dimensions in mm)

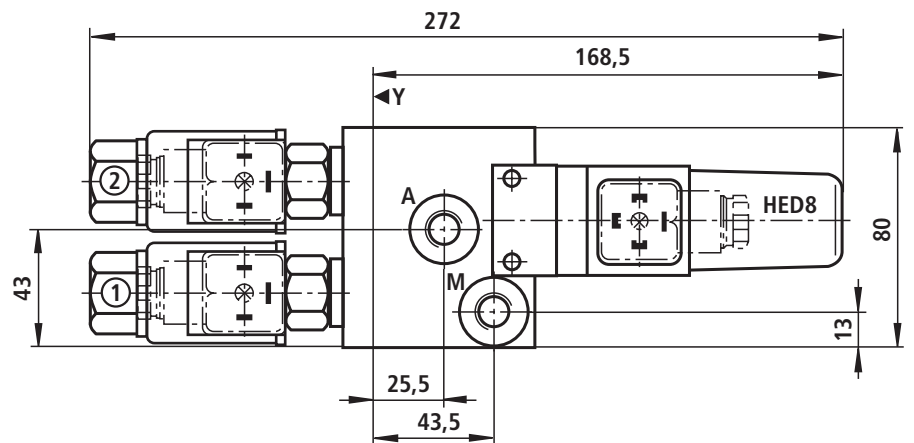
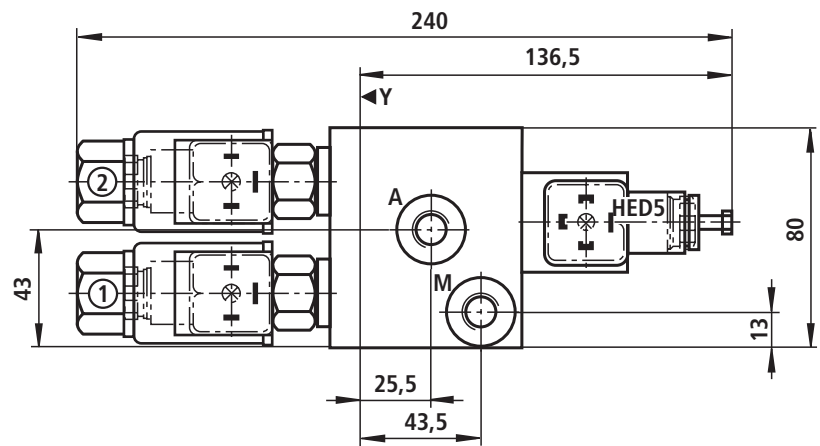
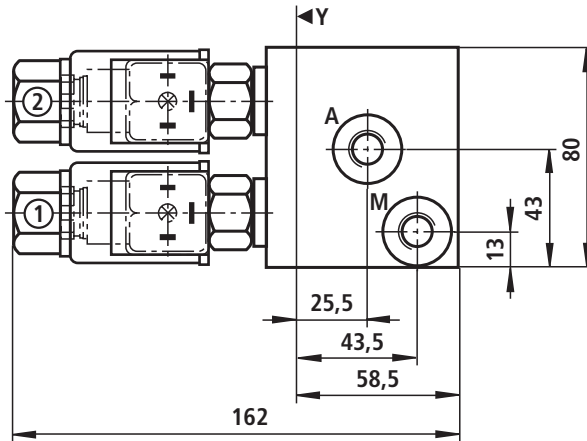
Module P – A – T, type "SPAT2"

Symbol



Dimensions

Dimension Z = 45 mm



## Seat valve module, type "S" (dimensions in mm)

Material no.	Device designation	Type designation
	Module SPAT2	IH15EA-1X/SPAT2- <div style="display: flex; justify-content: space-around; font-size: small;"> <span>4</span> <span>11</span> <span>12</span> <span>14</span> <span>8</span> <span>7</span> <span>26</span> </div> <div style="display: flex; justify-content: space-around; font-size: x-small;"> <input type="text"/> <input type="text"/> / <input type="text"/> / <input type="text"/> <input type="text"/> / <input type="text"/> / <input type="text"/> </div>
R900334895		IH15EA-1X/SPAT2-N/OG24/350/V
R900242500		IH15EA-1X/SPAT2-N/OG24/500/V
R901231122		IH15EA-1X/SPAT2-NHED5/200/MG24/V
R901231121		IH15EA-1X/SPAT2-NHED5/200/OG24/V
R901231125		IH15EA-1X/SPAT2-PHED5/200/OG24/V

4	Designation of the 2/2 seat valve	Normally closed	= N
<input type="text"/>		Normally open	= P
7	Pressure rating of the seat valve	$p_{\max}$	= 350 bar = 350 <sup>1)</sup>
<input type="text"/>		$p_{\max}$	= 500 bar = 500 <sup>1, 2)</sup>
8	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="text"/>			
11	Pressure switch	Without pressure switch	= no code
<input type="text"/>		HED 5 OH-3X/...K14	= HED5
		HED 8 OP-2X/...K14	= HED8
		HEDE 10 A1-2X/...K41...2	= HEDE 10
12	Pressure rating of the pressure switch	Without pressure switch	= no code
<input type="text"/>		Max. setting pressure	50 bar = 50
		Max. setting pressure	100 bar = 100
		Max. setting pressure	200 bar = 200
		Max. setting pressure	350 bar = 350
	Max. setting pressure	630 bar = 630 <sup>2)</sup>	
14	Pressure monitoring	With pressure gauge size 63	= D
<input type="text"/>		With measuring port	= M
		Without pressure monitoring	= O
26	Seal	Seal material	FKM = V
<input type="text"/>			

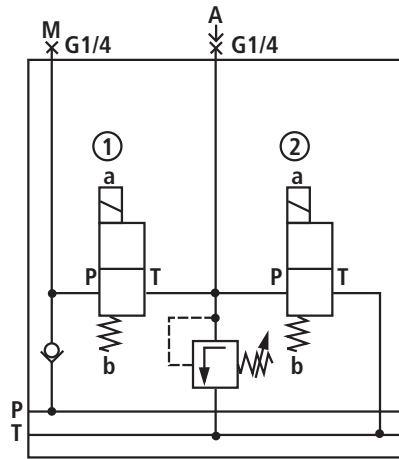
<sup>1)</sup> Indication is only necessary if the module is not equipped with a pressure switch.

<sup>2)</sup> Not possible with HED 5

### Seat valve module, type "S" (dimensions in mm)

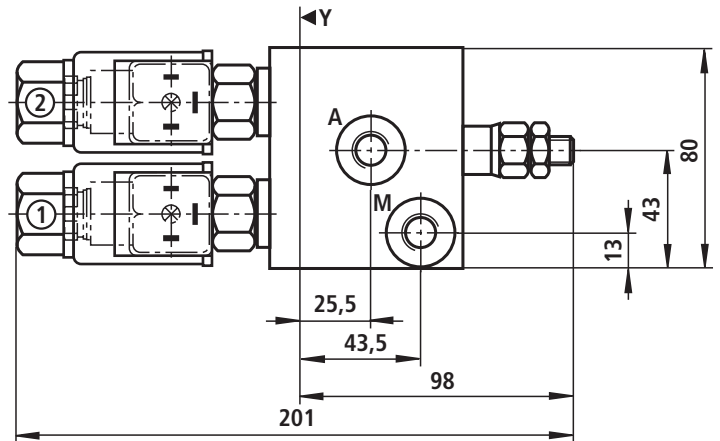
Module P – A – T with pressure relief valve, type "SPAT2DB"

Symbol



Dimensions

Dimension Z = 45 mm



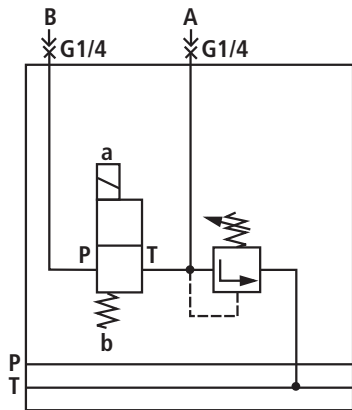
Material no.	Device designation	Type designation
	Module SPAT2DB	IH15EA-1X/SPAT2DB- <input type="checkbox"/> 1 <input type="checkbox"/> 2 / <input type="checkbox"/> 14 <input type="checkbox"/> 4 <input type="checkbox"/> 8 / <input type="checkbox"/> 26
R900608552		IH15EA-1X/SPAT2DB-S 50/MPG24/V
R904100980		IH15EA-1X/SPAT2DB-S100/MNG24/V
R900992144		IH15EA-1X/SPAT2DB-S200/OPG24/V

<input type="checkbox"/> 1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
<input type="checkbox"/> 2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar = 50 100 bar = 100 200 bar = 200 350 bar = 350 500 bar = 500
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!			
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar = 210E 250 bar = 250E 400 bar = 400E 500 bar = 500E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC			See page 85
<input type="checkbox"/> 4	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
<input type="checkbox"/> 8	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="checkbox"/> 14	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
<input type="checkbox"/> 26	Seal	Seal material	FKM = V

### Seat valve module, type "S" (dimensions in mm)

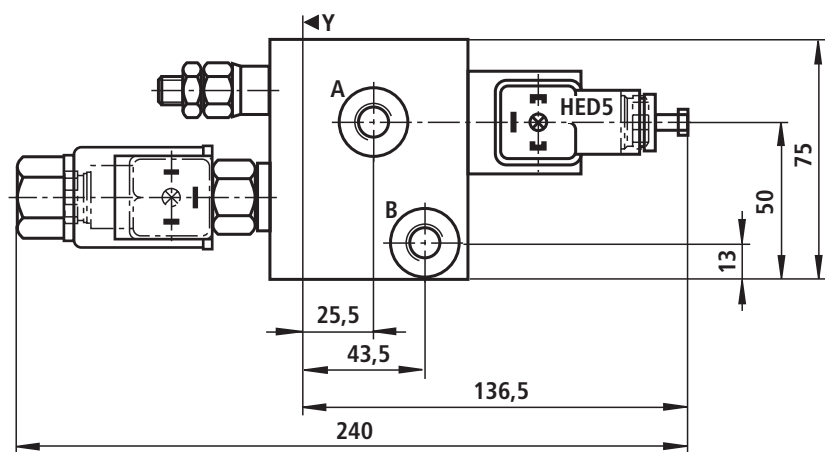
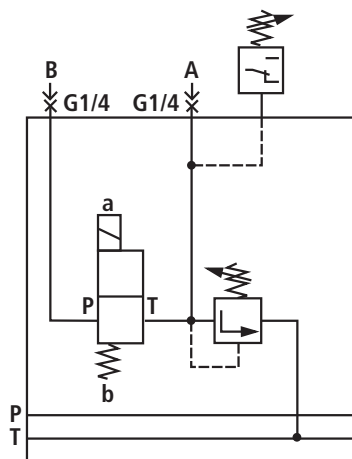
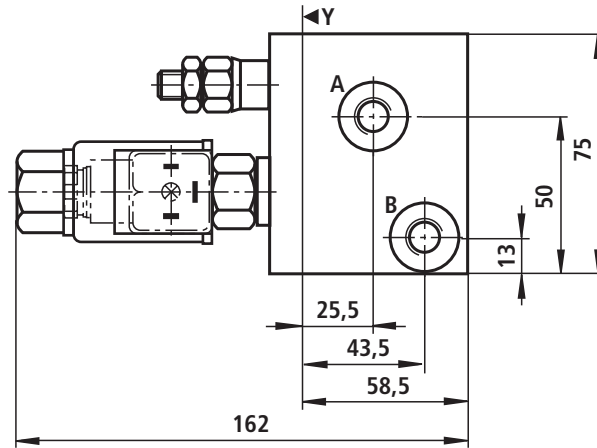
Module B – A – T with pressure relief valve, type "SBAT2DB"

Symbol



Dimensions

Dimension Z = 45 mm



## Seat valve module, type "S"

Material no.	Device designation	Type designation
	Module SBAT2DB	IH15EA-1X/SBAT2DB- <input type="checkbox"/> <sup>1</sup> <input type="checkbox"/> <sup>2</sup> / <input type="checkbox"/> <sup>4</sup> / <input type="checkbox"/> <sup>10</sup> <input type="checkbox"/> <sup>8</sup> / <input type="checkbox"/> <sup>26</sup>
R900717193		IH15EA-1X/SBAT2DB-S100/N/G24/V
R900992145		IH15EA-1X/SBAT2DB-S200/P/HED5G24/V

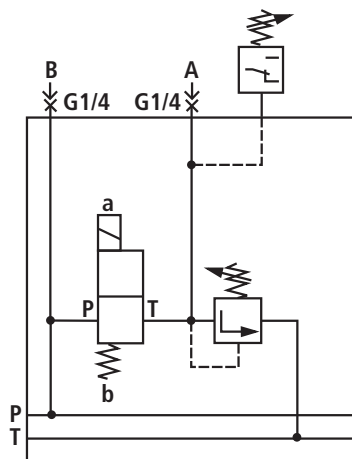
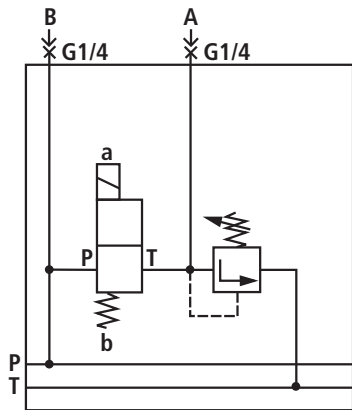
<input type="checkbox"/> <sup>1</sup>	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
<input type="checkbox"/> <sup>2</sup>	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar = 50 100 bar = 100 200 bar = 200 350 bar = 350 500 bar = 500 <sup>1)</sup>
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!			
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar = 210E 250 bar = 250E 400 bar = 400E <sup>1)</sup> 500 bar = 500E <sup>1)</sup>
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC			See page 85
<input type="checkbox"/> <sup>4</sup>	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
<input type="checkbox"/> <sup>8</sup>	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="checkbox"/> <sup>10</sup>	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HEDE 10 A1-2X/...K41...2	= no code = HED 5 = HEDE 10
<input type="checkbox"/> <sup>26</sup>	Seal	Seal material	FKM = V

<sup>1)</sup> Not possible with HED 5

### Seat valve module, type "S" (dimensions in mm)

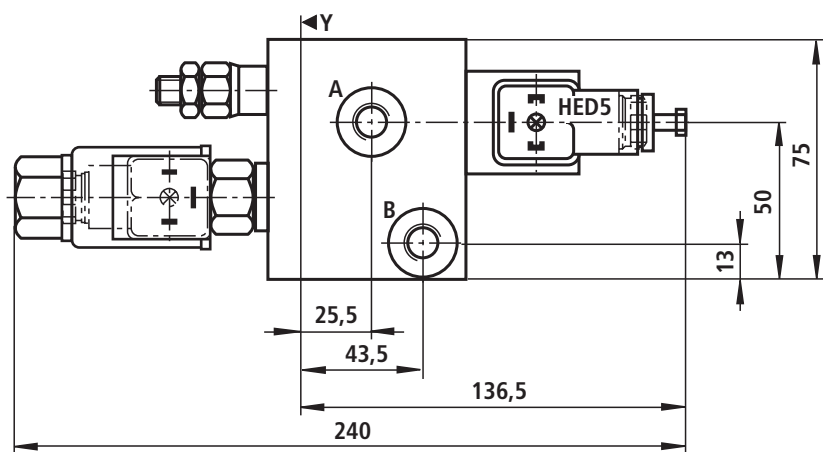
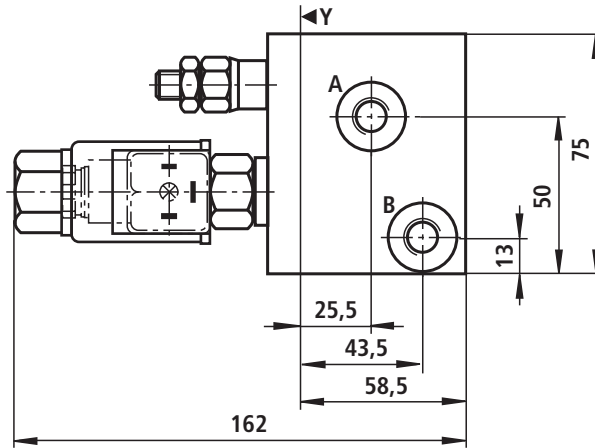
Module P – B – A – T with pressure relief valve, type "SPBAT2DB"

Symbol



Dimensions

Dimension Z = 45 mm





## Seat valve module, type "S"

Material no.	Device designation	Type designation
	Module SPBAT2DB	IH15EA-1X/SPBAT2DB- <input type="checkbox"/> <sup>1</sup> <input type="checkbox"/> <sup>2</sup> / <input type="checkbox"/> <sup>4</sup> / <input type="checkbox"/> <sup>10</sup> <input type="checkbox"/> <sup>8</sup> / <input type="checkbox"/> <sup>26</sup>
R904100985		IH15EA-1X/SPBAT2DB-S100/N/G24/V
R901072232		IH15EA-1X/SPBAT2DB-S200/N/G24/V
R901072233		IH15EA-1X/SPBAT2DB-S350/N/G24/V
R904100172		IH15EA-1X/SPBAT2DB-S 50/N/HED5/G24/V

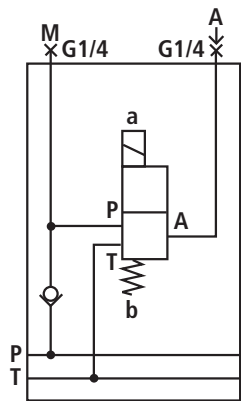
<input type="checkbox"/> <sup>1</sup>	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
<input type="checkbox"/> <sup>2</sup>	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar = 50 100 bar = 100 200 bar = 200 350 bar = 350 500 bar = 500 <sup>1)</sup>
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!			
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar = 210E 250 bar = 250E 400 bar = 400E <sup>1)</sup> 500 bar = 500E <sup>1)</sup>
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC			See page 85
<input type="checkbox"/> <sup>4</sup>	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
<input type="checkbox"/> <sup>8</sup>	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="checkbox"/> <sup>10</sup>	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HEDE 10 A1-2X/...K41...2	= no code = HED 5 = HEDE 10
<input type="checkbox"/> <sup>26</sup>	Seal	Seal material	FKM = V

<sup>1)</sup> Not possible with HED 5

# Seat valve module, type "S" (dimensions in mm)

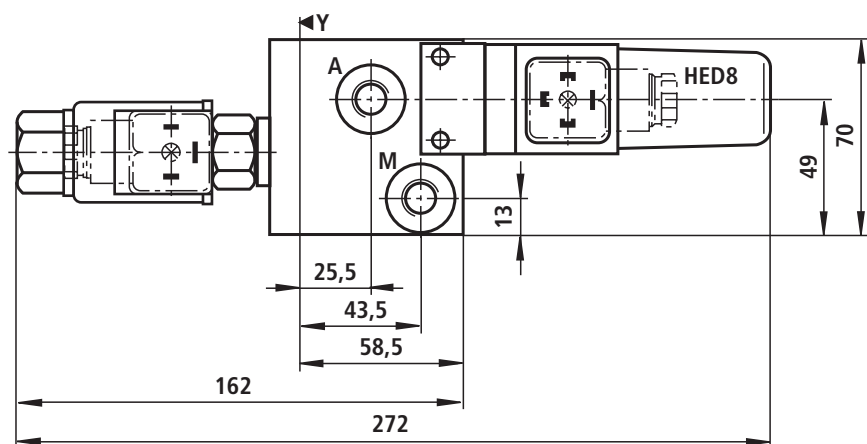
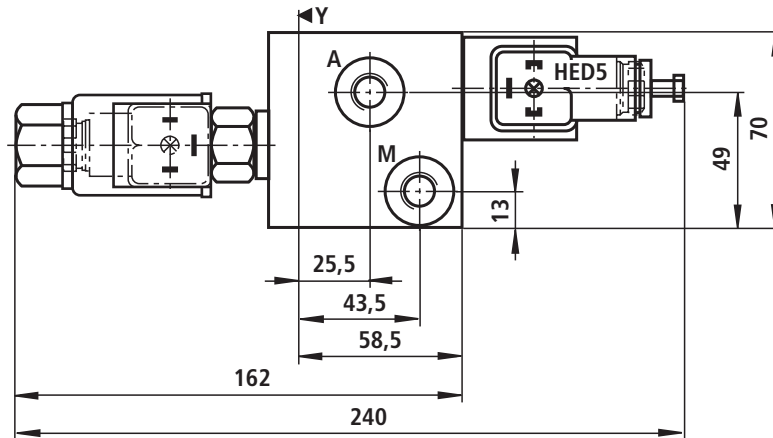
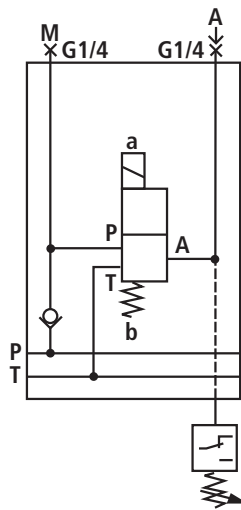
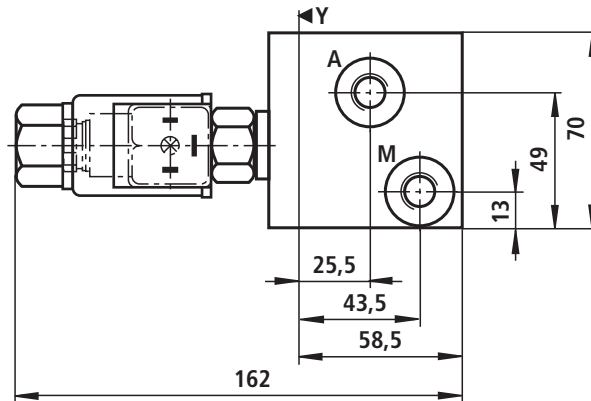
Module P – A, type "SPA3"

Symbol



Dimensions

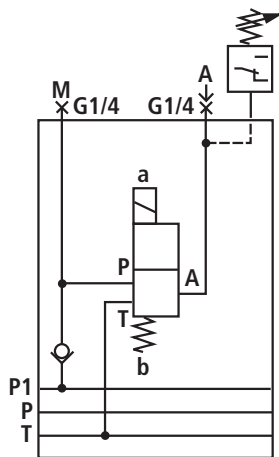
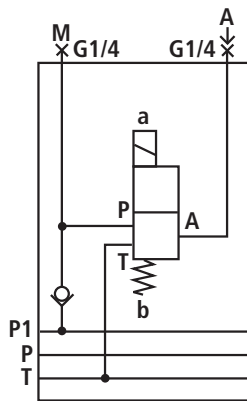
Dimension Z = 45 mm



## Seat valve module, type "S"

Module P – A with P1 channel, type "SPA3P1"

Symbol



## Seat valve module, type "S"

Material no.	Device designation	Type designation
	Module SPA3	IH15EA-1X/SPA3- <div style="display: flex; justify-content: space-around; font-size: small;"> <span>5</span> <span>11</span> <span>12</span> <span>14</span> <span>8</span> <span>7</span> <span>26</span> </div> <div style="display: flex; justify-content: space-around; font-size: x-small;"> <input type="text"/> <input type="text"/> / <input type="text"/> / <input type="text"/> <input type="text"/> / <input type="text"/> / <input type="text"/> </div>
R900993540		IH15EA-1X/SPA3-C/MG24/350/V
R904100943		IH15EA-1X/SPA3-CHED5/350/MG24/V
R900993541		IH15EA-1X/SPA3-U/MG24/350/V
R900719081		IH15EA-1X/SPA3-UHED5/350/MG24/V

Material no.	Device designation	Type designation
	Module SPA3P1	IH15EA-1X/SPA3P1- <div style="display: flex; justify-content: space-around; font-size: small;"> <span>5</span> <span>11</span> <span>12</span> <span>14</span> <span>8</span> <span>7</span> <span>26</span> </div> <div style="display: flex; justify-content: space-around; font-size: x-small;"> <input type="text"/> <input type="text"/> / <input type="text"/> / <input type="text"/> <input type="text"/> / <input type="text"/> / <input type="text"/> </div>
R904101002		IH15EA-1X/SPA3P1-C/MG24/350/V
R904100789		IH15EA-1X/SPA3P1-CHED5/100/OG24/V
R901100035		IH15EA-1X/SPA3P1-U/MG24/350/V
R904100879		IH15EA-1X/SPA3P1-UHED5/100/OG24/V

<input type="checkbox"/> 5 Designation of the 3/2 seat valve			= U
			= C
<input type="checkbox"/> 7 Pressure rating of the seat valve	$p_{max}$ $p_{max}$	= 350 bar = 500 bar	= 350 <sup>1)</sup> = 500 <sup>1, 2)</sup>
<input type="checkbox"/> 8 Solenoid voltage of the seat valves	Volt	24 V DC	= G24
<input type="checkbox"/> 11 Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2		= no code = HED 5 = HED 8 = HEDE 10
<input type="checkbox"/> 12 Pressure rating of the pressure switch	Without pressure switch Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure	50 bar 100 bar 200 bar 350 bar 630 bar	= no code = 50 = 100 = 200 = 350 = 630 <sup>2)</sup>
<input type="checkbox"/> 14 Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
<input type="checkbox"/> 26 Seal	Seal material	FKM	= V

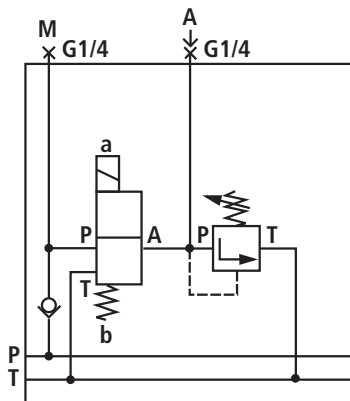
<sup>1)</sup> Indication is only necessary if the module is not equipped with a pressure switch.

<sup>2)</sup> Not possible with HED 5

### Seat valve module, type "S" (dimensions in mm)

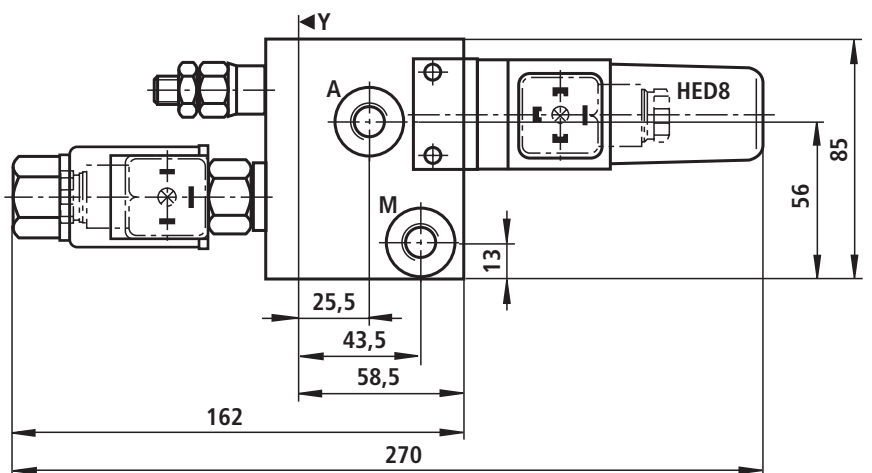
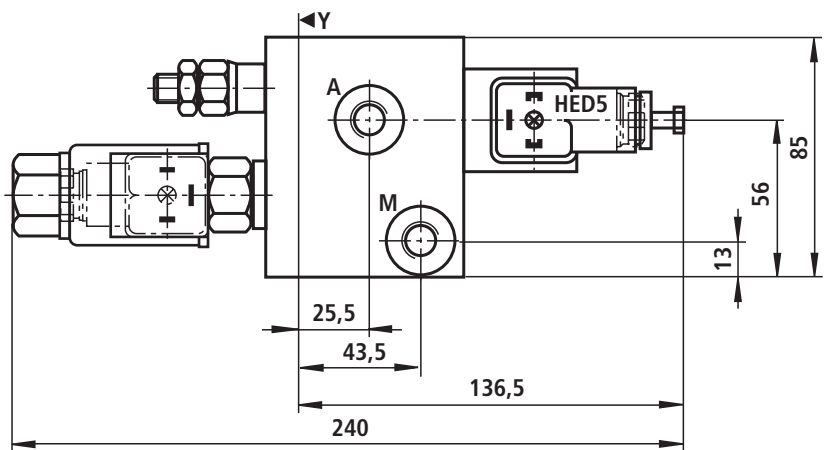
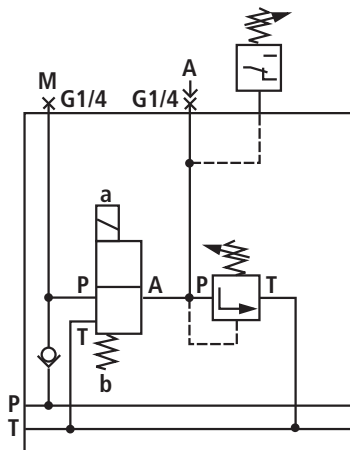
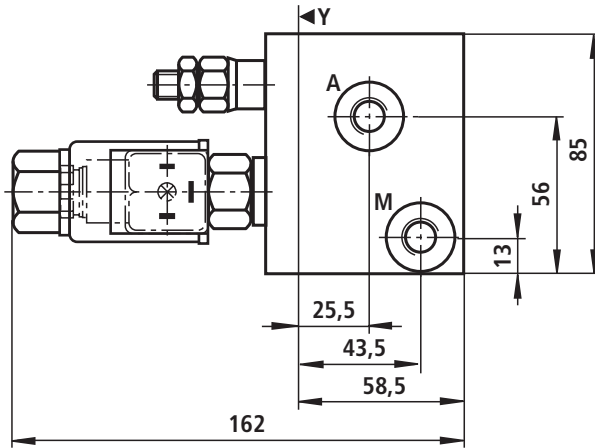
Module P – A – T with pressure relief valve, type "SPAT3DB"

Symbol



Dimensions

Dimension Z = 45 mm



## Seat valve module, type "S"

Material no.	Device designation	Type designation
	Module SPAT3DB	IH15EA-1X/SPAT3DB- <div style="display: flex; justify-content: space-around; font-size: small;"> <span>1</span> <span>2</span> <span>5</span> <span>11</span> <span>14</span> <span>8</span> <span>26</span> </div> <div style="display: flex; justify-content: space-around; font-size: x-small;"> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> / <input type="text"/> </div>
R904101659		IH15EA-1X/SPAT3DB-S200CHED5/DG24/V
R901063501		IH15EA-1X/SPAT3DB-S200CHED5/MG24/V
R901100755		IH15EA-1X/SPAT3DB-S200CHED5/OG24/V

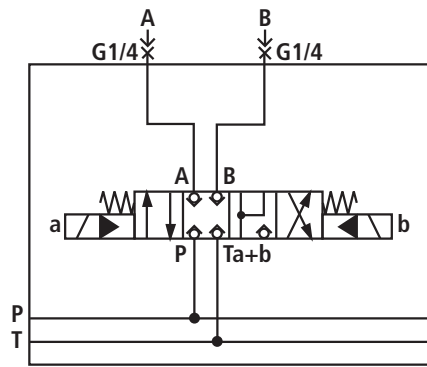
<input type="checkbox"/> 1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob		= S = H
<input type="checkbox"/> 2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 200 bar 350 bar 500 bar	= 50 = 100 = 200 = 350 = 500 <sup>1)</sup>
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!				
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar 250 bar 400 bar 500 bar	= 210E = 250E = 400E <sup>1)</sup> = 500E <sup>1)</sup>
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC				See page 85
<input type="checkbox"/> 5	Designation of the 3/2 seat valve			= U = C
<input type="checkbox"/> 8	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
<input type="checkbox"/> 11	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2		= no code = HED 5 = HED 8 = HEDE 10
<input type="checkbox"/> 14	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
<input type="checkbox"/> 26	Seal	Seal material	FKM	= V

<sup>1)</sup> Not possible with HED 5

### Seat valve module, type "S" (dimensions in mm)

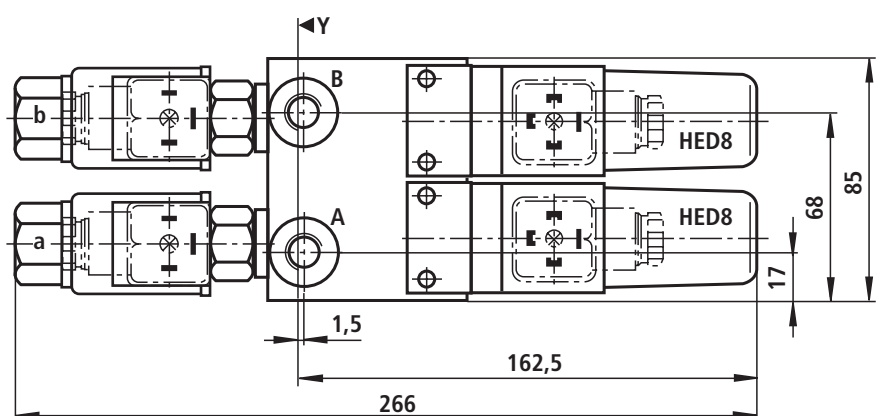
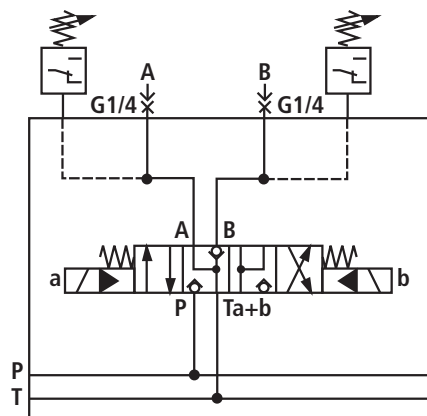
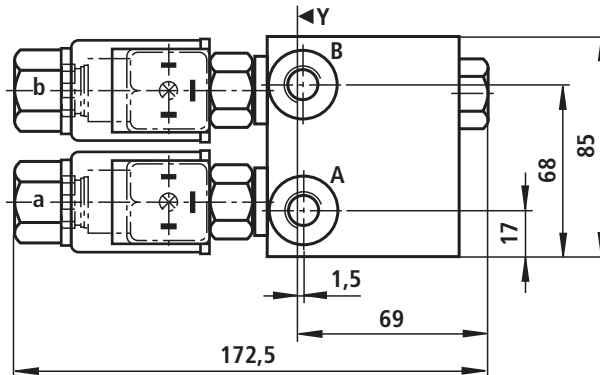
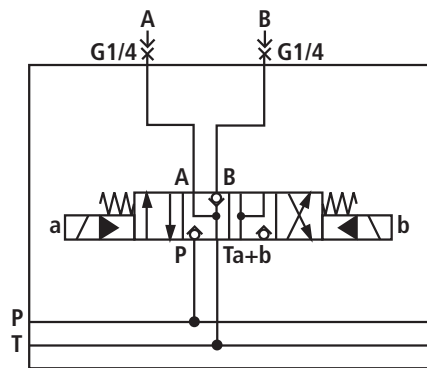
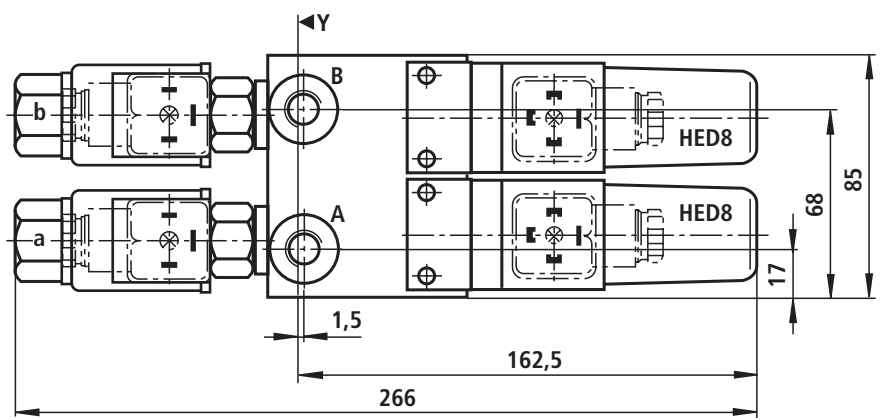
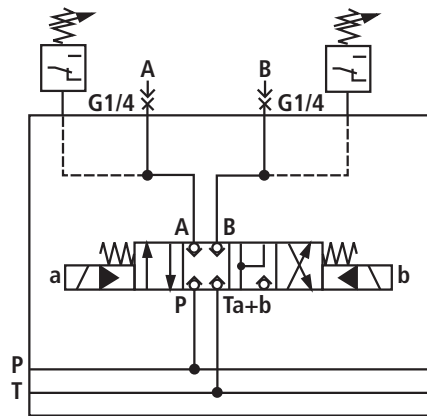
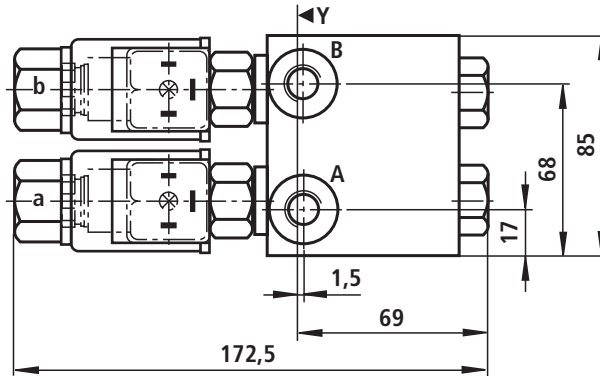
Module AB, type "SAB4"

Symbol



Dimensions

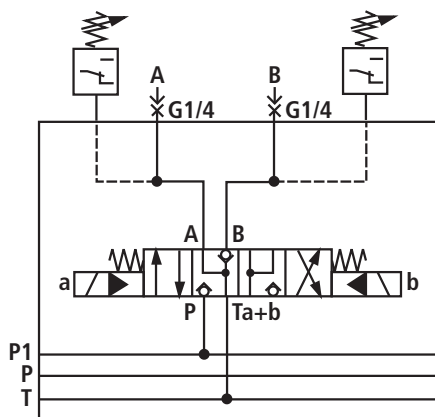
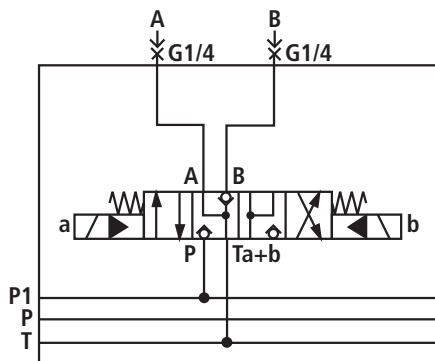
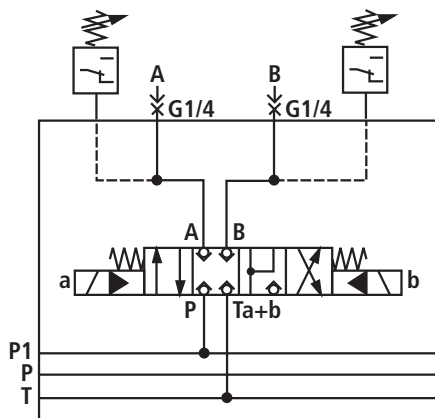
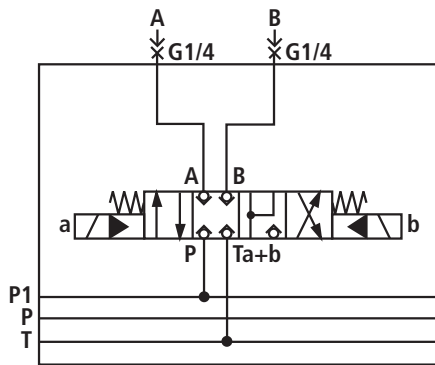
Dimension Z = 70 mm



## Seat valve module, type "S"

Module AB with P1 channel, type "SAB4P1"

Symbol

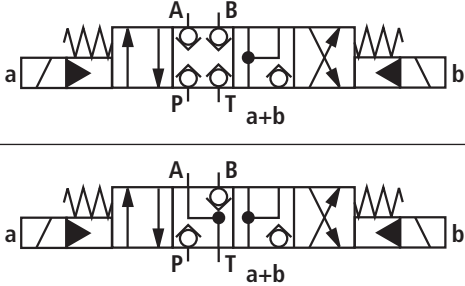




## Seat valve module, type "S"

Material no.	Device designation	Type designation
	Module SAB4	IH15EA-1X/SAB4- <input type="text"/> <sup>6</sup> <input type="text"/> <sup>13</sup> / <input type="text"/> <sup>12</sup> / <input type="text"/> <sup>8</sup> / <input type="text"/> <sup>7</sup> / <input type="text"/> <sup>26</sup>
R900717196		IH15EA-1X/SAB4-KA/350/G24/V
R904100708		IH15EA-1X/SAB4-KAB/200/G24/V
R904101412		IH15EA-1X/SAB4-LG24/500/V
R901102715		IH15EA-1X/SAB4-LAB/200/G24/V

Material no.	Device designation	Type designation
	Module SAB4 with P1 channel	IH15EA-1X/SAB4P1- <input type="text"/> <sup>6</sup> <input type="text"/> <sup>13</sup> / <input type="text"/> <sup>12</sup> / <input type="text"/> <sup>8</sup> / <input type="text"/> <sup>7</sup> / <input type="text"/> <sup>26</sup>
R900718647		IH15EA-1X/SAB4P1-KG24/350/V
R901102732		IH15EA-1X/SAB4P1-KAB/200/G24/V
R901102733		IH15EA-1X/SAB4P1-LG24/500/V
R901102734		IH15EA-1X/SAB4P1-LAB/200/G24/V

<input type="text"/> <sup>6</sup>	Designation of the 4/4 seat valve		= K	
<input type="text"/> <sup>7</sup>	Pressure rating of the seat valve	$p_{\max}$ $p_{\max}$	= 350 bar = 500 bar	= 350 <sup>1)</sup> = 500 <sup>1, 2)</sup>
<input type="text"/> <sup>8</sup>	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
<input type="text"/> <sup>12</sup>	Pressure rating of the pressure switch	Without pressure switch Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure	 50 bar 100 bar 200 bar 350 bar 630 bar	= no code = 50 = 100 = 200 = 350 = 630 <sup>2)</sup>
<input type="text"/> <sup>13</sup>	Pressure switch in the channel	Without pressure switch A B A and B		= no code = A = B = AB
<input type="text"/> <sup>26</sup>	Seal	Seal material	FKM	= V

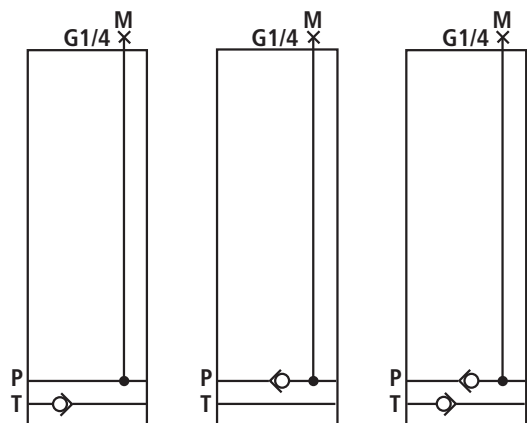
<sup>1)</sup> Indication is only necessary if the module is not equipped with a pressure switch.

<sup>2)</sup> Not possible with HED 5

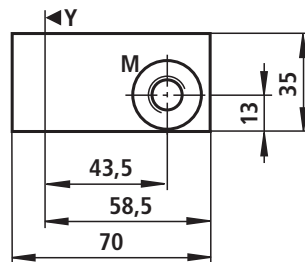
## Seat valve module, type "S" (dimensions in mm)

### Module with check valve, type "SR"

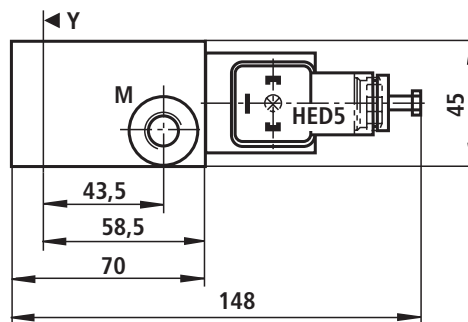
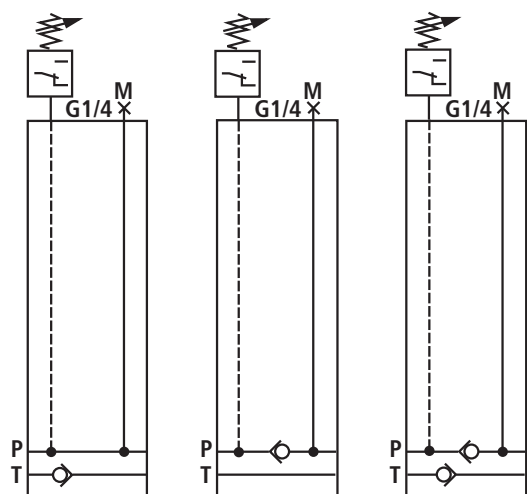
#### Symbol



#### Dimensions



Dimension Z = 45 mm



## Seat valve module, type "S"

Material no.	Device designation	Type designation
	Module with check valve	IH15EA-1X/SR- <input type="checkbox"/> <sup>21</sup> / <input type="checkbox"/> <sup>11</sup> / <input type="checkbox"/> <sup>12</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>15</sup> / <input type="checkbox"/> <sup>26</sup>
R904100056		IH15EA-1X/SR-PT/O/V
R901102735		IH15EA-1X/SR-PT/M/V
R901093516		IH15EA-1X/SR-P/M/V
R901231134		IH15EA-1X/SR-P/HED5/200/O/V
R900618480		IH15EA-1X/SR-P/O/V
R901091505		IH15EA-1X/SR-T/HED5/630/O/V
R904101786		IH15EA-1X/SR-T/M/V
R904100046		IH15EA-1X/SR-T/O/V

<input type="checkbox"/> <sup>11</sup> Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2	= no code = HED 5 = HED 8 = HEDE 10
<input type="checkbox"/> <sup>12</sup> Pressure rating of the pressure switch	Without pressure switch Max. setting pressure 50 bar Max. setting pressure 100 bar Max. setting pressure 200 bar Max. setting pressure 350 bar Max. setting pressure 630 bar	= no code = 50 = 100 = 200 = 350 = 630 <sup>2)</sup>
<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
<input type="checkbox"/> <sup>15</sup> Max. pressure range of the pressure gauge	Without pressure monitoring Display range 60 bar Display range 100 bar Display range 250 bar Display range 400 bar Display range 600 bar	= no code = 60 <sup>1)</sup> = 100 <sup>1)</sup> = 250 <sup>1)</sup> = 400 <sup>1, 2)</sup> = 600 <sup>1, 2)</sup>
<input type="checkbox"/> <sup>21</sup> Check valve	In channel P In channel T In channel P and T	= P = T = PT
<input type="checkbox"/> <sup>26</sup> Seal	Seal material	FKM = V

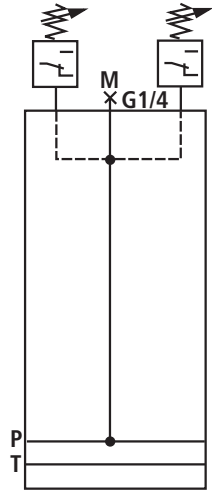
<sup>1)</sup> Indication is only necessary if the module is not equipped with a pressure switch.

<sup>2)</sup> Not possible with HED 5

### Seat valve module, type "S" (dimensions in mm)

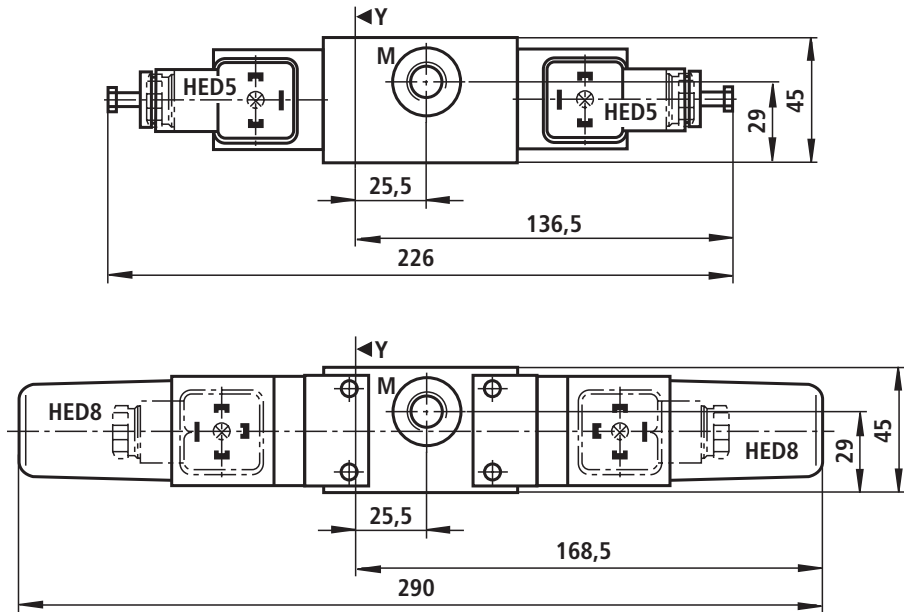
#### Module with pressure switch, type "SD"

##### Symbol



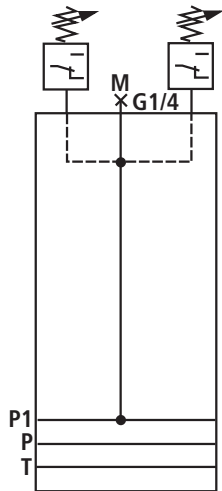
##### Dimensions

Dimension Z = 45 mm



#### Module with pressure switch, type "SDP1"

##### Symbol



## Seat valve module, type "S"

Material no.	Device designation	Type designation
	Module with pressure switch	IH15MA-1X/SD- <input type="checkbox"/> <sup>9</sup> <input type="checkbox"/> <sup>11</sup> / <input type="checkbox"/> <sup>12</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>15</sup> / <input type="checkbox"/> <sup>26</sup>
R900335708		IH15MA-1X/SD-0/D100/V
R904100532		IH15MA-1X/SD-1HED5/100/D/V
R901231137		IH15MA-1X/SD-1HED5/200/D/V
R901231136		IH15MA-1X/SD-1HED5/200/M/V
R901231135		IH15MA-1X/SD-1HED5/200/O/V
R904100082		IH15MA-1X/SD-1HED8/200/D/V
R901231143		IH15MA-1X/SD-2HED5/200/D/V
R901231142		IH15MA-1X/SD-2HED5/200/O/V
R904100536		IH15MA-1X/SD-2HED8/200/O/V

Material no.	Device designation	Type designation
	Module with pressure switch	IH15MA-1X/SDP1- <input type="checkbox"/> <sup>9</sup> <input type="checkbox"/> <sup>11</sup> / <input type="checkbox"/> <sup>12</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>15</sup> / <input type="checkbox"/> <sup>26</sup>
R901103711		IH15MA-1X/SDP1-1HED5/100/D/V

<input type="checkbox"/> <sup>9</sup>	Number of pressure switches	Without pressure switch One pressure switch Two pressure switches	= 0 = 1 = 2
<input type="checkbox"/> <sup>11</sup>	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2	= no code = HED 5 = HED 8 = HEDE 10
<input type="checkbox"/> <sup>12</sup>	Pressure rating of the pressure switch	Without pressure switch Max. setting pressure 50 bar Max. setting pressure 100 bar Max. setting pressure 200 bar Max. setting pressure 350 bar Max. setting pressure 630 bar	= no code = 50 = 100 = 200 = 350 = 630 <sup>2)</sup>
<input type="checkbox"/> <sup>14</sup>	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
<input type="checkbox"/> <sup>15</sup>	Max. pressure range of the pressure gauge	Without pressure monitoring Display range 60 bar Display range 100 bar Display range 250 bar Display range 400 bar Display range 600 bar	= no code = 60 <sup>1)</sup> = 100 <sup>1)</sup> = 250 <sup>1)</sup> = 400 <sup>1,2)</sup> = 600 <sup>1,2)</sup>
<input type="checkbox"/> <sup>26</sup>	Seal	Seal material	FKM = V

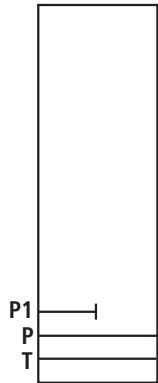
<sup>1)</sup> Indication is only necessary if the module is not equipped with a pressure switch.

<sup>2)</sup> Not possible with HED 5

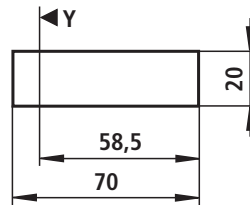
### Seat valve module, type "S" (dimensions in mm)

Sandwich module with P1 channel, type "SZP1"

Symbol



Dimensions



Dimension Z = 45 mm

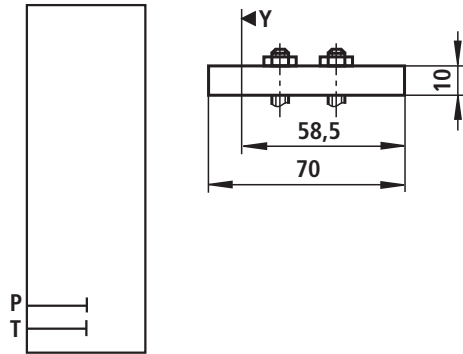
Material no.	Device designation	Type designation
	Sandwich module with P1 channel interruption	IH15MA-1X/SZP1- <sup>26</sup> <input type="text"/>
R901103710		IH15MA-1X/SZP1-V

<sup>26</sup> <input type="text"/> Seal	Seal material	FKM	= V
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**Seat valve module, type "S" (dimensions in mm)**

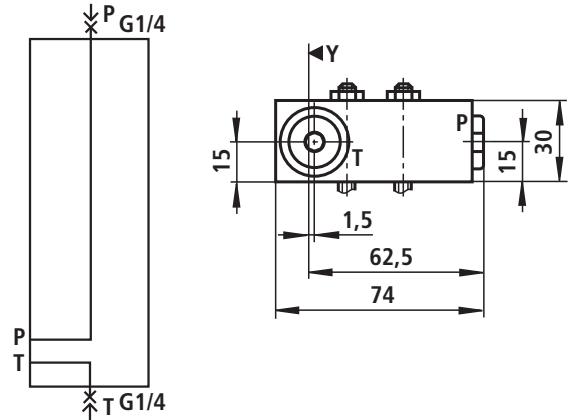
End module, type "WSE"

Symbol      Dimensions      Dimension Z = 45 mm



with port P and T, laterally

Symbol      Dimensions      Dimension Z = 45 mm



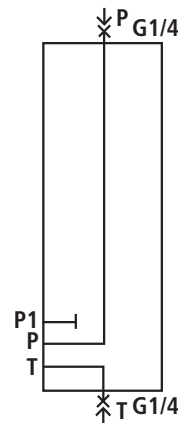
End module with P1 channel, type "WSEP1"

Symbol



with port P and T, laterally

Symbol



Material no.	Device designation	Type designation
	End module	IH15MA-1X/WSE- <input type="text" value="22"/> / <input type="text" value="26"/>
R900334850		IH15MA-1X/WSE-PT/V
R900992158		IH15MA-1X/WSE-V

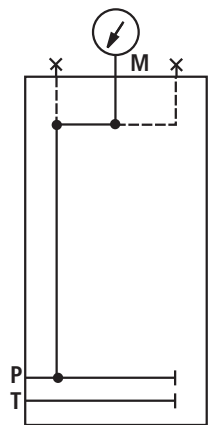
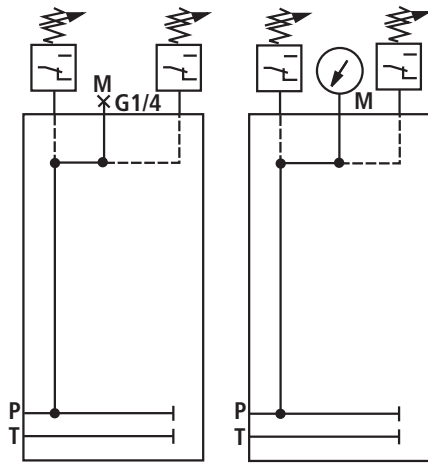
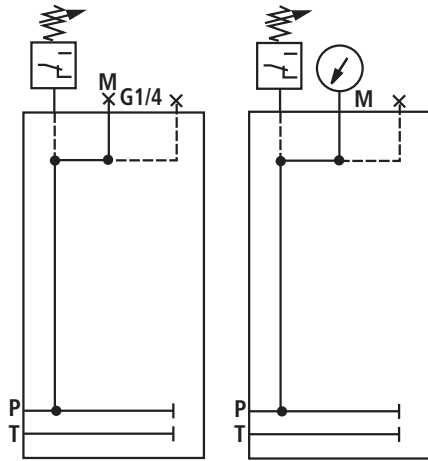
Material no.	Device designation	Type designation
	End module with P1 channel	IH15MA-1X/WSEP1- <input type="text" value="22"/> / <input type="text" value="26"/>
R904101255		IH15MA-1X/WSEP1-V

<input type="text" value="22"/> Ports	Without ports P and T	G 1/4	= no code = PT
<input type="text" value="26"/> Seal	Seal material	FKM	= V

### Seat valve module, type "S" (dimensions in mm)

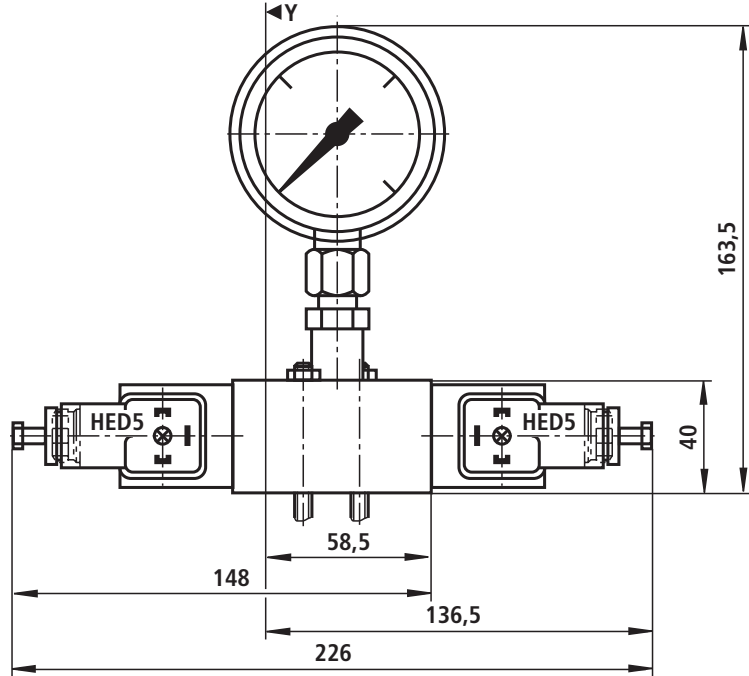
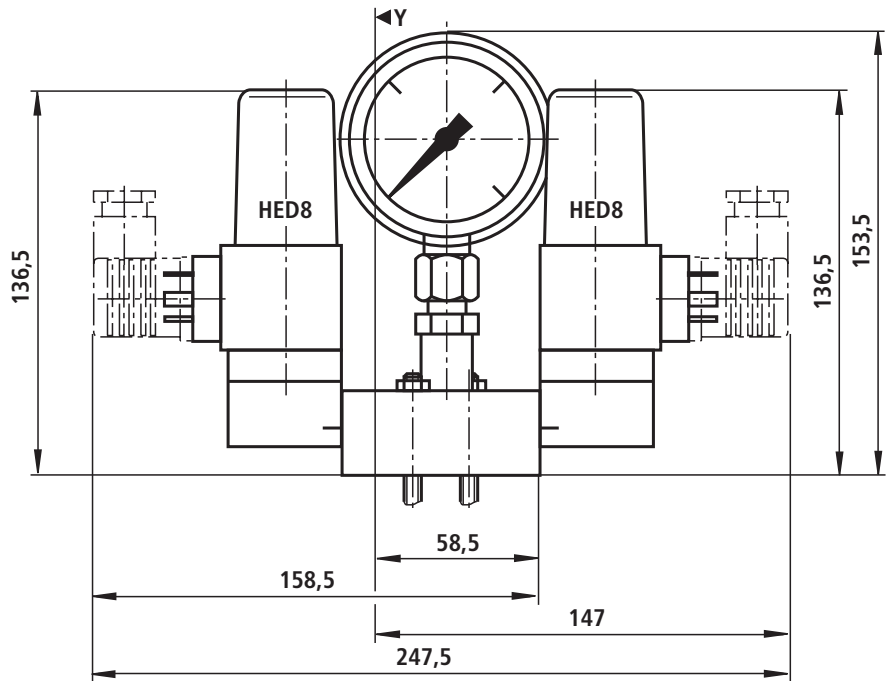
#### End module with pressure switch, type "WSED"

##### Symbol



##### Dimensions

Dimension Z = 45 mm

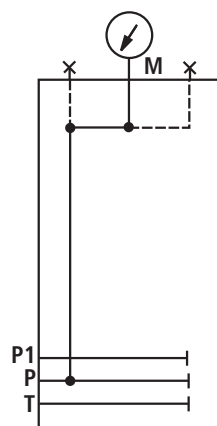
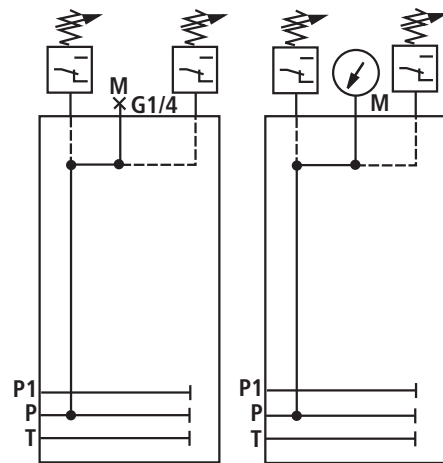
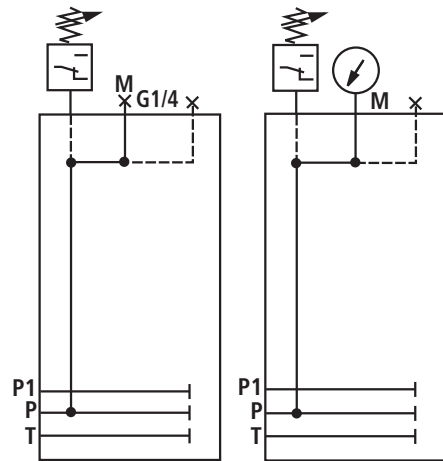




## Seat valve module, type "S"

End module with pressure switch and P1 channel, type "WSEDP1"

Symbol



## Seat valve module, type "S"

Material no.	Device designation	Type designation
	End module with pressure switch	IH15MA-1X/WSED- <input type="checkbox"/> <sup>9</sup> <input type="checkbox"/> <sup>11</sup> / <input type="checkbox"/> <sup>12</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>15</sup> / <input type="checkbox"/> <sup>26</sup>
R900260936		IH15MA-1X/WSED-0/D100/V
R900991530		IH15MA-1X/WSED-0/D250/V
R900260993		IH15MA-1X/WSED-0/D400/V
R904100142		IH15MA-1X/WSED-0/D600/V
R900334886		IH15MA-1X/WSED-1HED5/350/D/V
R904100035		IH15MA-1X/WSED-1HED5/350/O/V
R900701320		IH15MA-1X/WSED-1HED8/350/D/V
R900703207		IH15MA-1X/WSED-1HED8/350/O/V
R900706818		IH15MA-1X/WSED-2HED5/350/D/V
R900702052		IH15MA-1X/WSED-2HED8/350/D/V

Material no.	Device designation	Type designation
	End module with pressure switch and P1 channel	IH15MA-1X/WSEDP1- <input type="checkbox"/> <sup>9</sup> <input type="checkbox"/> <sup>11</sup> / <input type="checkbox"/> <sup>12</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>15</sup> / <input type="checkbox"/> <sup>26</sup>
R904100559		IH15MA-1X/WSEDP1-0/D/400/V
R904100786		IH15MA-1X/WSEDP1-2HED5/210/D/V

<input type="checkbox"/> <sup>9</sup> Number of pressure switches	Without pressure switch One pressure switch Two pressure switches	= 0 = 1 = 2
<input type="checkbox"/> <sup>11</sup> Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2	= no code = HED 5 = HED 8 = HEDE 10
<input type="checkbox"/> <sup>12</sup> Pressure rating of the pressure switch	Without pressure switch Max. setting pressure 50 bar Max. setting pressure 100 bar Max. setting pressure 200 bar Max. setting pressure 350 bar Max. setting pressure 630 bar	= no code = 50 = 100 = 200 = 350 = 630 <sup>2)</sup>
<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
<input type="checkbox"/> <sup>15</sup> Max. pressure range of the pressure gauge	Without pressure monitoring Display range 60 bar Display range 100 bar Display range 250 bar Display range 400 bar Display range 600 bar	= no code = 60 <sup>1)</sup> = 100 <sup>1)</sup> = 250 <sup>1)</sup> = 400 <sup>1,2)</sup> = 600 <sup>1,2)</sup>
<input type="checkbox"/> <sup>26</sup> Seal	Seal material	FKM = V

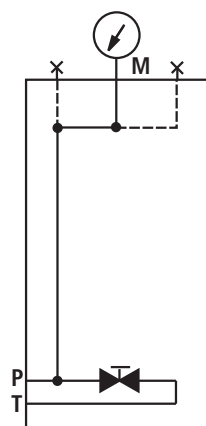
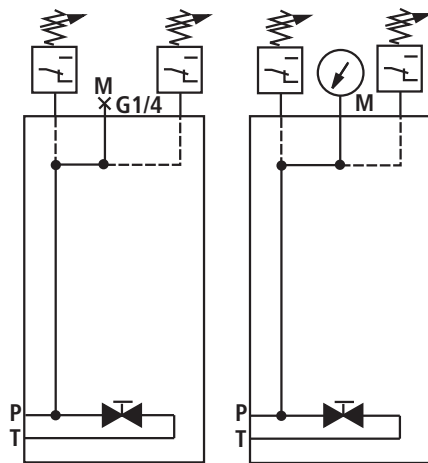
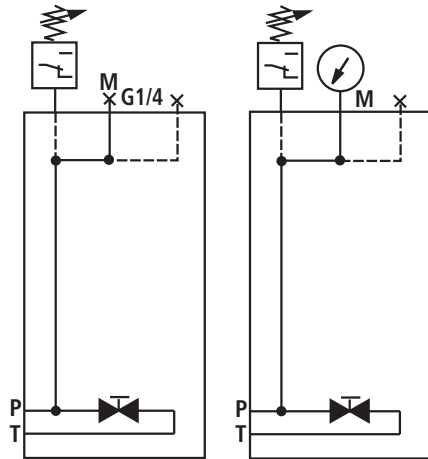
<sup>1)</sup> Indication is only necessary if the module is not equipped with a pressure switch.

<sup>2)</sup> Not possible with HED 5

### Seat valve module, type "S" (dimensions in mm)

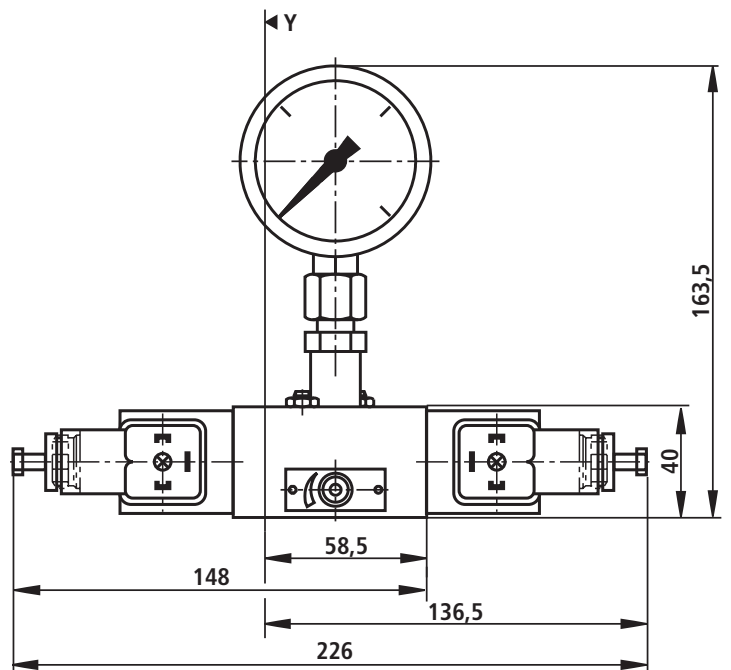
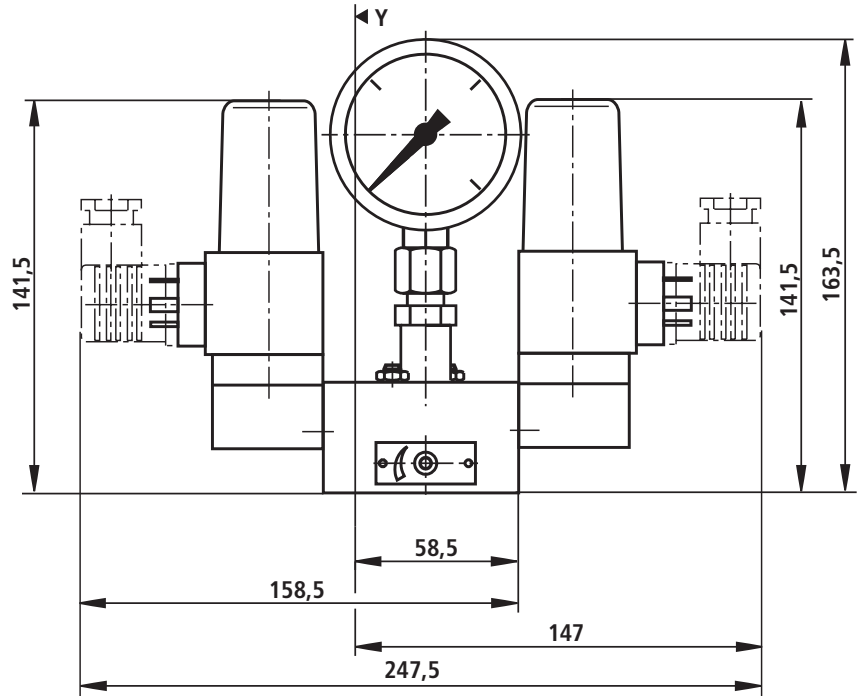
#### End module with pressure switch and stop valve, type "WSEDA"

Symbol



Dimensions

Dimension Z = 55 mm

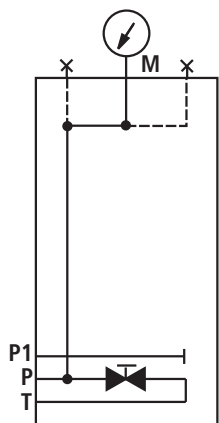
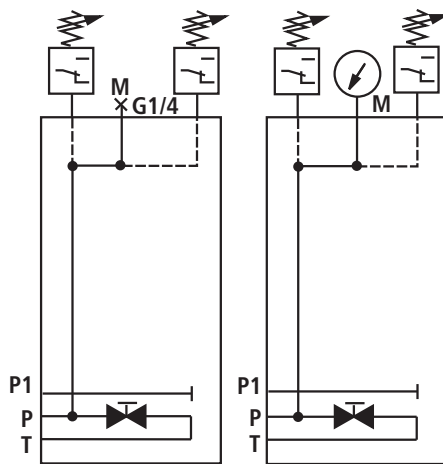
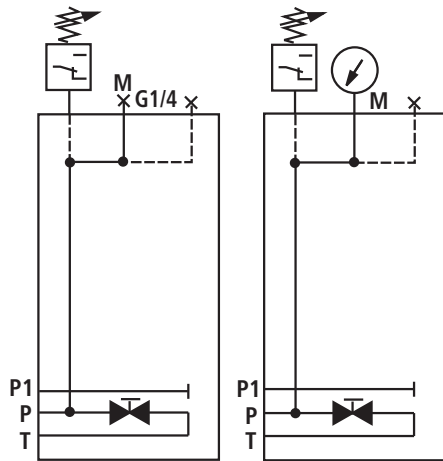


Operating information: Manual unloading must be closed in the operating condition.

## Seat valve module, type "S"

End module with pressure switch, stop valve and P1 channel, type "WSEDAP1"

### Symbol



Operating information: Manual unloading must be closed in the operating condition.

## Seat valve module, type "S"

Material no.	Device designation	Type designation
	End module with pressure switch and stop valve	IH15EA-1X/WSEDA- <input type="text" value="9"/> <input type="text" value="11"/> / <input type="text" value="12"/> / <input type="text" value="14"/> / <input type="text" value="15"/> / <input type="text" value="26"/>
R904100815		IH15EA-1X/WSEDA-0/D/100/V
R901094566		IH15EA-1X/WSEDA-0/D/400/V
R904100208		IH15EA-1X/WSEDA-1HED5/100/D/V
R901231132		IH15EA-1X/WSEDA-1HED5/200/D/V
R904100040		IH15EA-1X/WSEDA-1HED5/200/O/V
R904100071		IH15EA-1X/WSEDA-1HED8/200/O/V
R904100675		IH15EA-1X/WSEDA-1HED8/350/D/V
R901231130		IH15EA-1X/WSEDA-2HED5/200/D/V
R901071162		IH15EA-1X/WSEDA-2HED8/200/D/V

Material no.	Device designation	Type designation
	End module with pressure switch, stop valve and P1 channel	IH15EA-1X/WSEDAP1- <input type="text" value="9"/> <input type="text" value="11"/> / <input type="text" value="12"/> / <input type="text" value="14"/> / <input type="text" value="15"/> / <input type="text" value="26"/>
R901102912		IH15EA-1X/WSEDAP1-0/D/400/V
R901102913		IH15EA-1X/WSEDAP1-2HED5/210/D/V

<input type="text" value="9"/>	Number of pressure switches	Without pressure switch One pressure switch Two pressure switches	= 0 = 1 = 2
<input type="text" value="11"/>	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2	= no code = HED 5 = HED 8 = HEDE 10
<input type="text" value="12"/>	Pressure rating of the pressure switch	Without pressure switch Max. setting pressure 50 bar Max. setting pressure 100 bar Max. setting pressure 200 bar Max. setting pressure 350 bar Max. setting pressure 630 bar	= no code = 50 = 100 = 200 = 350 = 630 <sup>2)</sup>
<input type="text" value="14"/>	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
<input type="text" value="15"/>	Max. pressure range of the pressure gauge	Without pressure monitoring Display range 60 bar Display range 100 bar Display range 250 bar Display range 400 bar Display range 600 bar	= no code = 60 <sup>1)</sup> = 100 <sup>1)</sup> = 250 <sup>1)</sup> = 400 <sup>1,2)</sup> = 600 <sup>1,2)</sup>
<input type="text" value="26"/>	Seal	Seal material	FKM = V

<sup>1)</sup> Indication is only necessary if the module is not equipped with a pressure switch.

<sup>2)</sup> Not possible with HED 5

## Seat valve module, type "S" (dimensions in mm)

### Project planning information

When designing the control with accumulator you have to make sure that the accumulator is protected against inadmissible overpressure by means of a type examination-tested pressure relief valve. The type-examination tested pressure relief valve must not accept any control tasks. The set pressure of the type-examination tested pressure relief valve must be less than or equal to the maximum admissible operating pressure of the accumulator.

In order to achieve the best utilization of the accumulator volume possible as well as long service life, compliance with the following nitrogen filling pressure value is recommended:

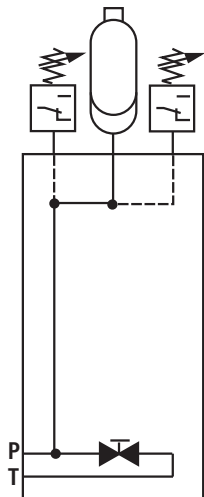
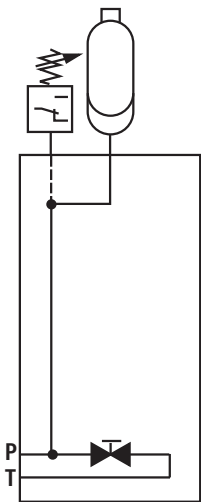
$$p_o = 0.9 \times p_{(\text{minimum operating pressure})}$$

### Operating information

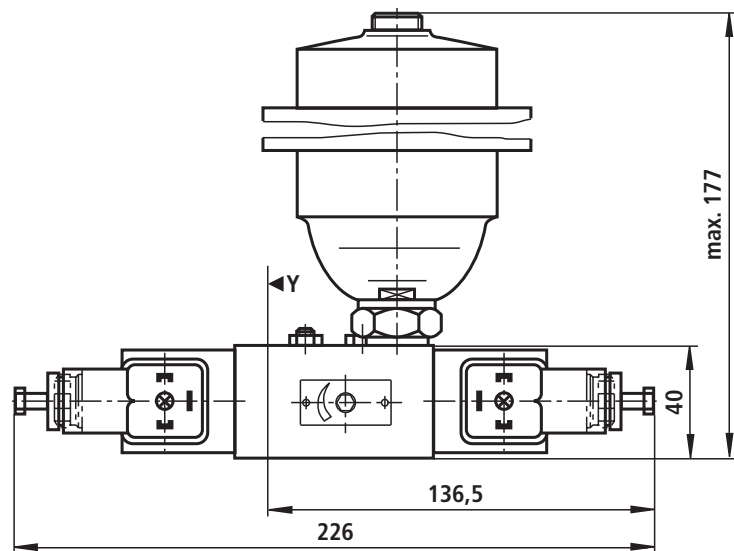
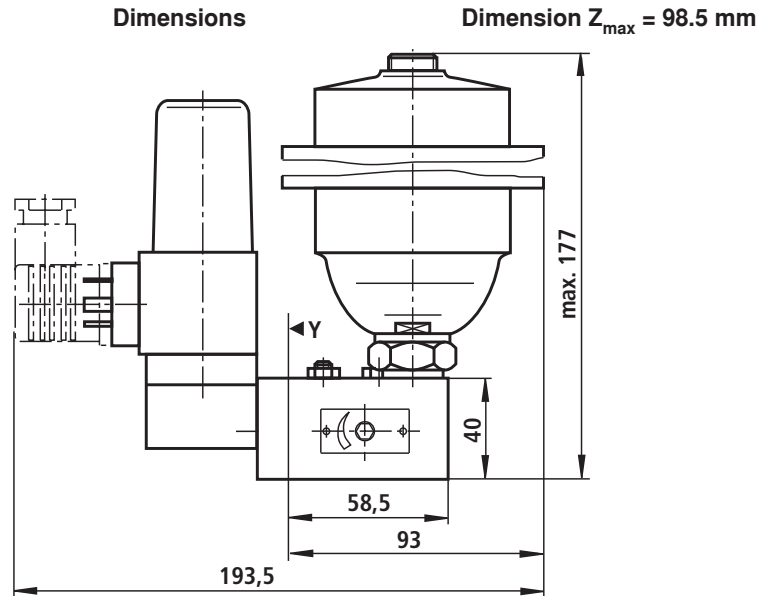
Manual unloading must be closed in the operating condition.

## End module with accumulator and stop valve, type "SESA"

### Symbol



### Dimensions

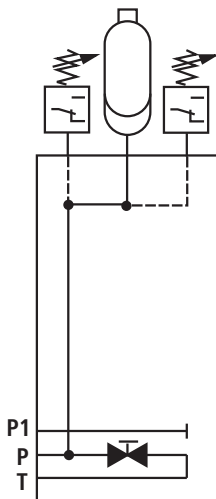
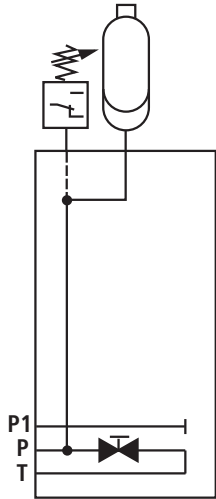


## Seat valve module, type "S"

---

End module with accumulator, stop valve and P1 channel, type "SESAP1"

Symbol



## Seat valve module, type "S"

Material no.	Device designation	Type designation
	End module with accumulator and stop valve	IH15EA-1X/SESA- <input type="text"/> <sup>9</sup> <input type="text"/> <sup>11</sup> / <input type="text"/> <sup>12</sup> / <input type="text"/> <sup>18</sup> / <input type="text"/> <sup>26</sup>
R904100869		IH15EA-1X/SESA-0/0,32/V
R901230854		IH15EA-1X/SESA-1HED5/200/0,32/V
R901231018		IH15EA-1X/SESA-2HED5/200/0,32/V

Material no.	Device designation	Type designation
	End module with accumulator, stop valve and P1 channel	IH15EA-1X/SESAP1- <input type="text"/> <sup>9</sup> <input type="text"/> <sup>11</sup> / <input type="text"/> <sup>12</sup> / <input type="text"/> <sup>18</sup> / <input type="text"/> <sup>26</sup>
R901098223		IH15EA-1X/SESAP1-1HED5/100/0,32/V
R904101711		IH15EA-1X/SESAP1-2HED5/350/0,50/V

<input type="text"/> <sup>9</sup>	Number of pressure switches	Without pressure switch One pressure switch Two pressure switches	= 0 = 1 = 2	
<input type="text"/> <sup>11</sup>	Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2	= no code = HED 5 = HED 8 = HEDE 10	
<input type="text"/> <sup>12</sup>	Pressure rating of the pressure switch	Without pressure switch Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure	50 bar 100 bar 200 bar 350 bar 630 bar	= no code = 50 = 100 = 200 = 350 = 630 <sup>2)</sup>
<input type="text"/> <sup>18</sup>	Diaphragm-type accumulator  Bladder-type accumulator	Nominal volume in l Without accumulator 0.075 0.10 0.16 0.32 0.50	Max. pressure in bar 250 500 250 210 400	= no code = 0.075 = 0.10 = 0.16 = 0.32 = 0.50
<input type="text"/> <sup>26</sup>	Seal	Seal material	FKM	= V

<sup>2)</sup> Not possible with HED 5



## Seat valve module, type "S" (dimensions in mm)

### Project planning information

When designing the control with accumulator you have to make sure that the accumulator is protected against inadmissible overpressure by means of a type examination-tested pressure relief valve. The type-examination tested pressure relief valve must not accept any control tasks. The set pressure of the type-examination tested pressure relief valve must

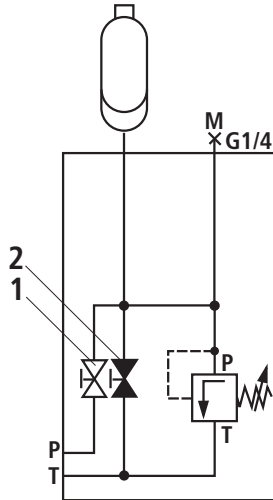
be less than or equal to the maximum admissible operating pressure of the accumulator.

In order to achieve the best utilization of the accumulator volume possible as well as long service life, compliance with the following nitrogen filling pressure value is recommended:

$$p_o = 0.9 \times p_{i(\text{minimum operating pressure})}$$

### Accumulator safety block, type "SSB"

#### Symbol

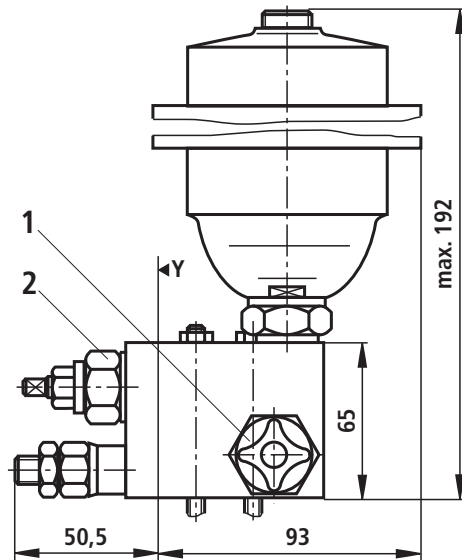


#### Operating information:

- 1 System stop valve must be open in the operating condition
- 2 Manual unloading must be closed in the operating condition

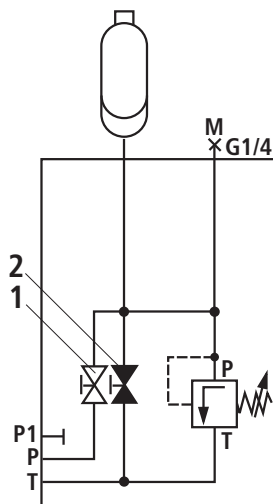
#### Dimensions

Dimension  $Z_{\text{max}} = 88.5 \text{ mm}$



### Accumulator safety block with P1 channel, type "SSBP1"

#### Symbol



#### Operating information:

- 1 System stop valve must be open in the operating condition
- 2 Manual unloading must be closed in the operating condition

## Seat valve module, type "S"

Material no.	Device designation	Type designation
	Accumulator safety block	IH15EA-1X/SSB- <input type="checkbox"/> <sup>1</sup> <input type="checkbox"/> <sup>3</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>18</sup> / <input type="checkbox"/> <sup>26</sup>
R904100486		IH15EA-1X/SSB-S210E/M/0,32/V
R900618898		IH15EA-1X/SSB-S210E/O/0,32/V
R900335037		IH15EA-1X/SSB-S210E/D/0,32/V

Material no.	Device designation	Type designation
	Accumulator safety block with P1 channel	IH15EA-1X/SSBP1- <input type="checkbox"/> <sup>1</sup> <input type="checkbox"/> <sup>3</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>18</sup> / <input type="checkbox"/> <sup>26</sup>
R904101907		IH15EA-1X/SSBP1-S210E/O/0,32/V

<input type="checkbox"/>	<sup>1</sup> Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
<input type="checkbox"/>	<sup>3</sup> Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar = 210E 250 bar = 250E 400 bar = 400E 500 bar = 500E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD 4../..E Type testing according to Pressure Equipment Directive 97/23/EC			See page 85
<input type="checkbox"/>	<sup>14</sup> Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
<input type="checkbox"/>	<sup>18</sup> Diaphragm-type accumulator	Nominal volume in l Without accumulator	= no code = 0.075 = 0.10 = 0.16 = 0.35 = 0.50
	Bladder-type accumulator	Max. pressure in bar	
		0.075 250	
		0.10 500	
		0.16 250	
		0.35 210	
		0.50 400	
<input type="checkbox"/>	<sup>26</sup> Seal	Seal material	FKM = V

## Module for external attachment: Attachment with application examples

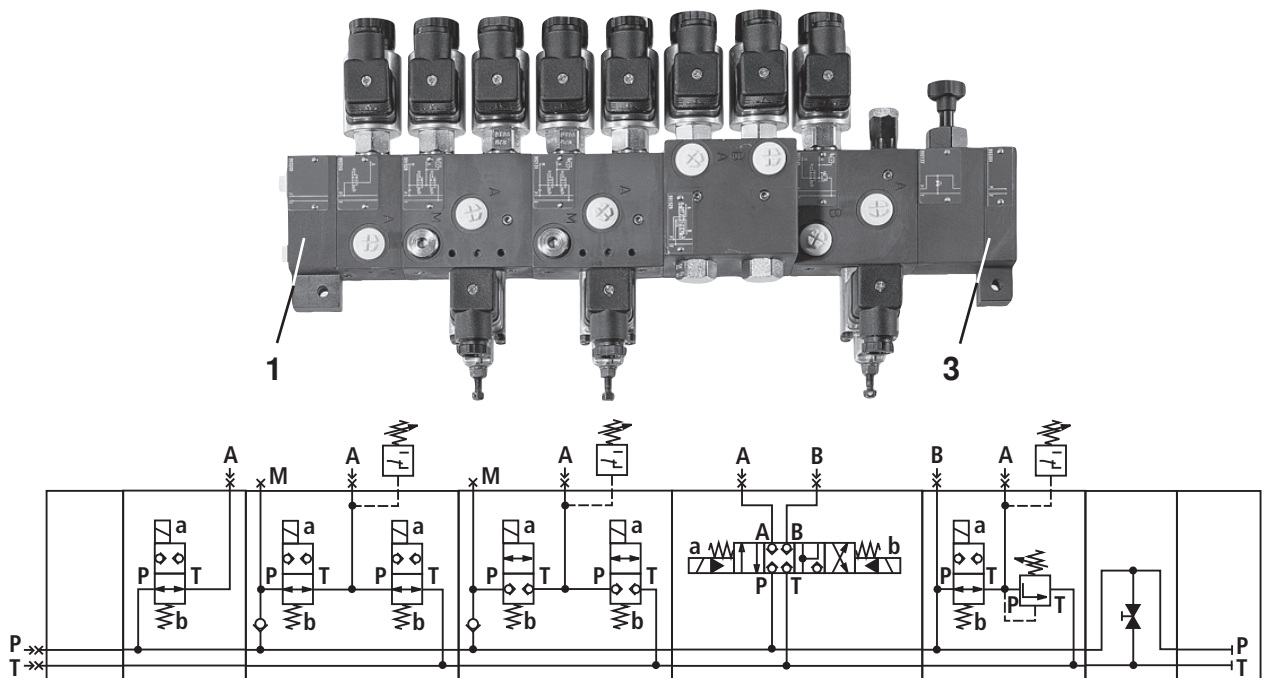
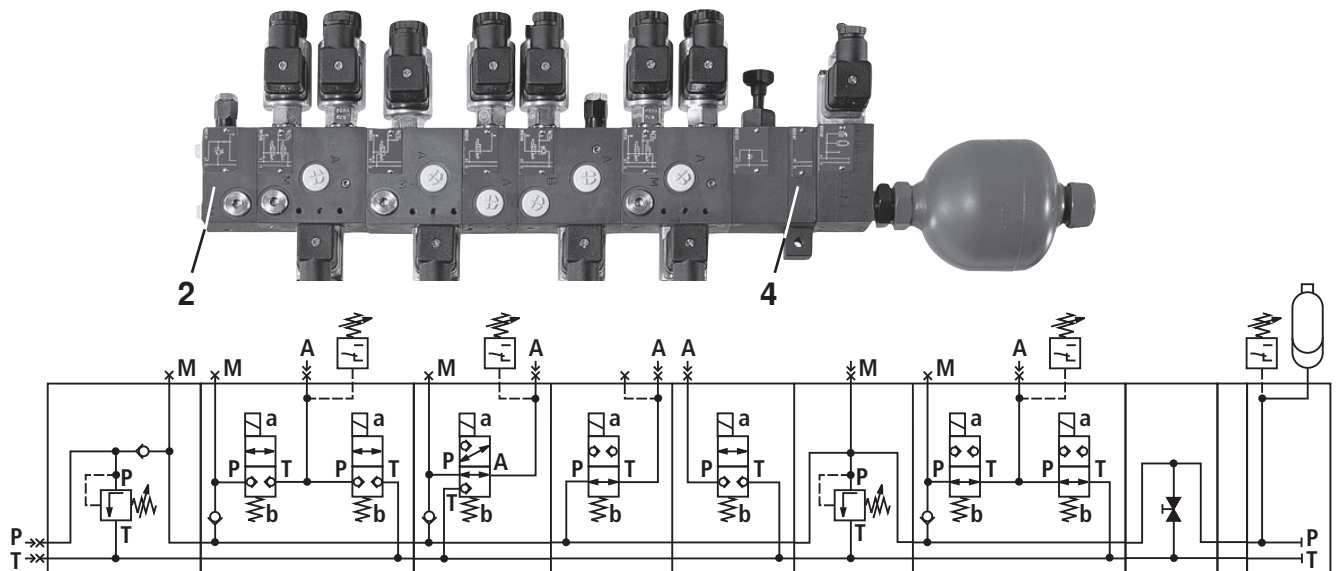
### Project planning information

When designing the control with accumulator you have to make sure that the accumulator is protected against inadmissible overpressure by means of a type examination-tested pressure relief valve. The type-examination tested pressure relief valve must not accept any control tasks. The set pressure of the type-examination tested pressure relief valve must

be less than or equal to the maximum admissible operating pressure of the accumulator.

In order to achieve the best utilization of the accumulator volume possible as well as long service life, compliance with the following nitrogen filling pressure value is recommended:

$$p_o = 0.9 \times p_{(\text{minimum operating pressure})}$$



- 1 Connection module type A (see page 74)
- 2 Connection module with pressure relief valve type ADB (see page 75)
- 3 End module type E (see page 78)

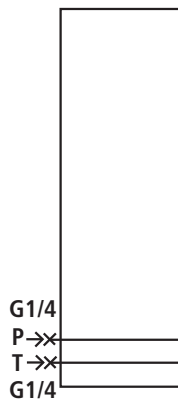
- 4 Sandwich module type Z (see page 76)  
The sandwich module can also be combined with the connection module item 1 or with the end module item 3.

The length dimensions are calculated by adding dimension "X" of the directional valve module (see page 19 to 21) and the seat valve module (see page 31 to 72).

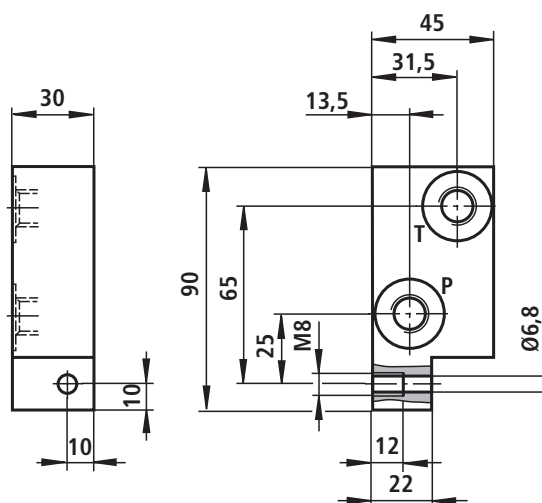
## Modules for external attachment (dimensions in mm)

### Connection module, type "A"

#### Symbol



#### Dimensions



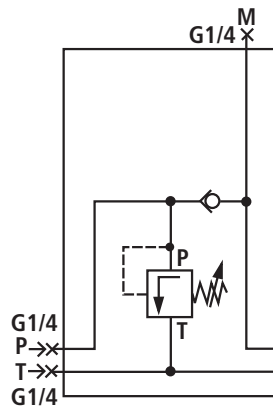
Material no.	Device designation	Type designation
	Connection module	IH15MA-1X/A- <sup>26</sup> <input type="text"/>
R900993200		IH15MA-1X/A-V

<sup>26</sup> <input type="text"/> Seal	Seal material	FKM	= V
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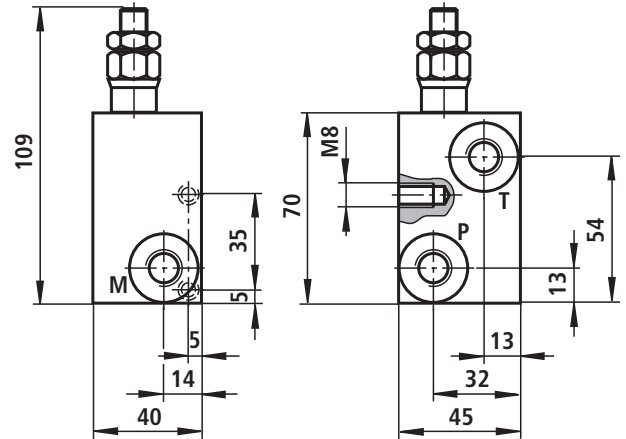
## Modules for external attachment (dimensions in mm)

### Connection module with pressure relief valve, type "ADB"

#### Symbol



#### Dimensions



Material no.	Device designation	Type designation
	Pressure relief module	IH15EA-1X/ADB- <input type="checkbox"/> 1 <input type="checkbox"/> 2 / <input type="checkbox"/> 14 / <input type="checkbox"/> 26
R900703591		IH15EA-1X/ADB-S350/D/V
R901103341		IH15EA-1X/ADB-S350/M/V
R904100621		IH15EA-1X/ADB-S350/O/V

<input type="checkbox"/> 1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
<input type="checkbox"/> 2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar = 50 100 bar = 100 200 bar = 200 350 bar = 350 500 bar = 500
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!			
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar = 210E 250 bar = 250E 400 bar = 400E 500 bar = 500E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD 4../.E Type testing according to Pressure Equipment Directive 97/23/EC			See page 85
<input type="checkbox"/> 14	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
<input type="checkbox"/> 26	Seal	Seal material	FKM = V

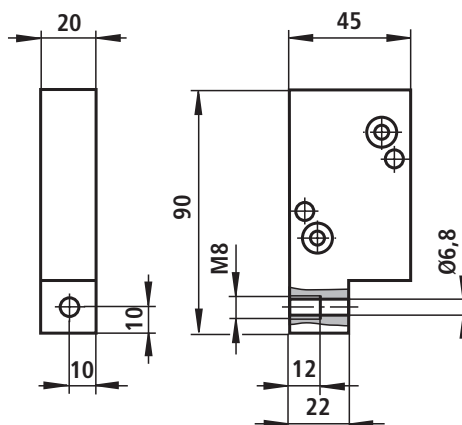
## Modules for external attachment (dimensions in mm)

### Sandwich module, type "Z"

#### Symbol

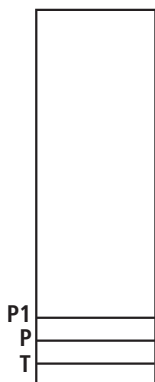


#### Dimensions



### Sandwich module with P1 channel, type "ZP1"

#### Symbol



Material no.	Device designation	Type designation
	Sandwich module	IH15MA-1X/Z- <sup>26</sup> <input type="text"/>
R900992147		IH15MA-1X/Z-V

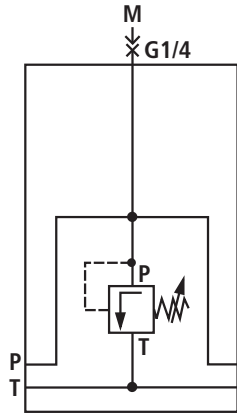
Material no.	Device designation	Type designation
	Sandwich module with P1 channel	IH15MA-1X/ZP1- <sup>26</sup> <input type="text"/>
R904100358		IH15MA-1X/ZP1-V

<sup>26</sup> <input type="text"/> Seal	Seal material	FKM	= V
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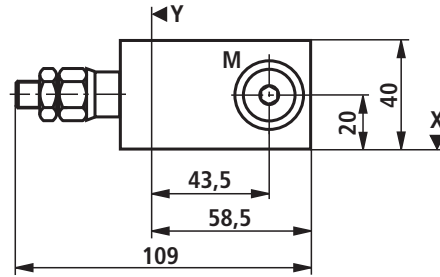
## Modules for external attachment (dimensions in mm)

### Sandwich module with pressure relief valve, type "ZDB"

#### Symbol



#### Dimensions



Material no.	Device designation	Type designation
	Sandwich module with pressure relief valve	IH15EA-1X/ZDB- <input type="checkbox"/> <sup>1</sup> <input type="checkbox"/> <sup>2</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901166973		IH15EA-1X/ZDB-S100/D/V
R901166946		IH15EA-1X/ZDB-S100/M/V
R901166972		IH15EA-1X/ZDB-S100/O/V

<input type="checkbox"/> <sup>1</sup>	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
<input type="checkbox"/> <sup>2</sup>	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar = 50 100 bar = 100 200 bar = 200 350 bar = 350 500 bar = 500
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!			
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	210 bar = 210E 250 bar = 250E 400 bar = 400E 500 bar = 500E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD 4../.E Type testing according to Pressure Equipment Directive 97/23/EC			See page 85
<input type="checkbox"/> <sup>14</sup>	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
<input type="checkbox"/> <sup>26</sup>	Seal	Seal material	FKM = V

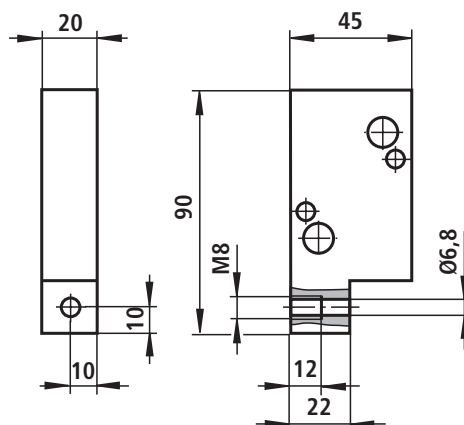
## Modules for external attachment (dimensions in mm)

### End module, type "E"

#### Symbol

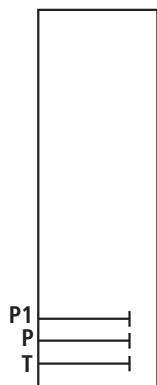


#### Dimensions



### End module with P1 channel, type "EP1"

#### Symbol



Material no.	Device designation	Type designation
	End module	IH15MA-1X/E- <input type="text" value="26"/>
R900993201		IH15MA-1X/E-V

Material no.	Device designation	Type designation
	End module with P1 channel	IH15MA-1X/EP1- <input type="text" value="26"/>
R900262117		IH15MA-1X/EP1-V

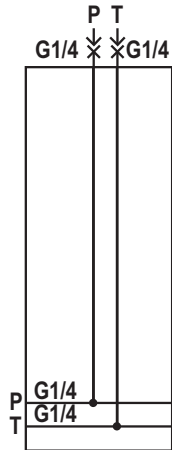
<input type="text" value="26"/> Seal	Seal material	FKM	= V
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### Reducing module, type R (dimensions in mm)

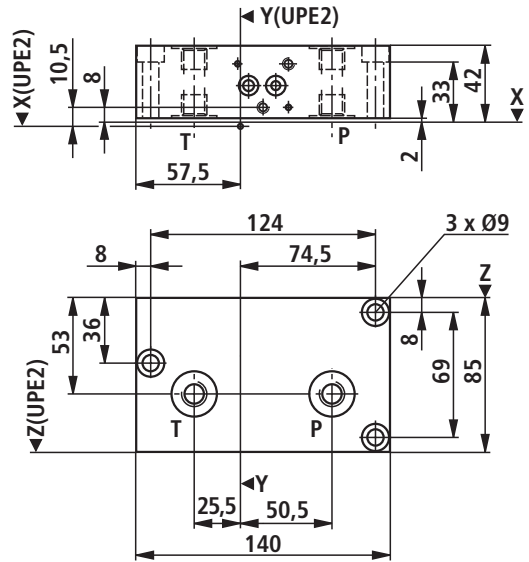
Tank connection module with reduction to IH15A, type "RBAIH15A"

Symbol



Dimensions

Dimension Z = 85 mm

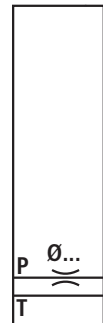


Material no.	Device designation	Type designation
	Tank connection module with reduction to IH15A	IH15MB-1X/RBAIH15A- <input type="text" value="26"/>
R904101835		IH15MB-1X/RBAIH15A-V

<input type="text" value="26"/> Seal	Seal material	FKM	= V
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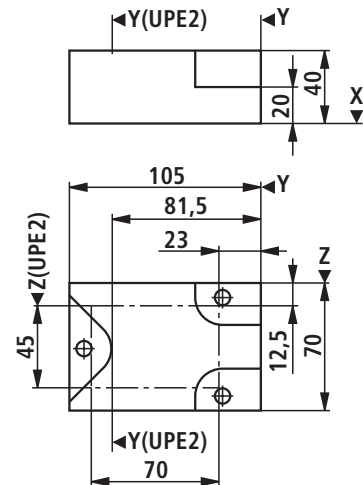
### Reducing module IH15B to IH15A (right), type "RIH15AR"

Symbol



Dimensions

Dimension Z = 70 mm



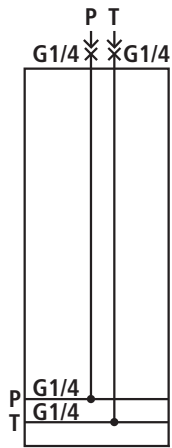
Material no.	Device designation	Type designation
	Reducing module IH15B to IH15A	IH15MA-1X/RIH15AR- <input type="text" value="27"/> / <input type="text" value="26"/>
R904101836		IH15MA-1X/RIH15AR-V

<input type="text" value="26"/> Seal	Seal material	FKM	= V
<input type="text" value="27"/> Throttle	Without throttle		= no code
	Throttle diameter	Ø 1.0 mm	= B10
	Throttle diameter	Ø 2.5 mm	= B25

**Module for external attachment** (dimensions in mm)

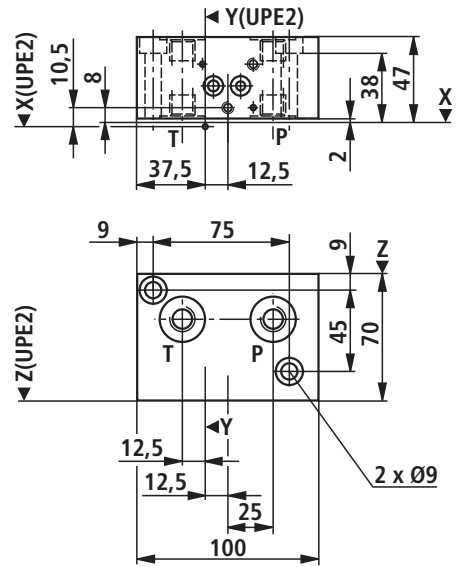
Tank connection module, type "BA"

Symbol



Dimensions

Dimension Z = 70 mm



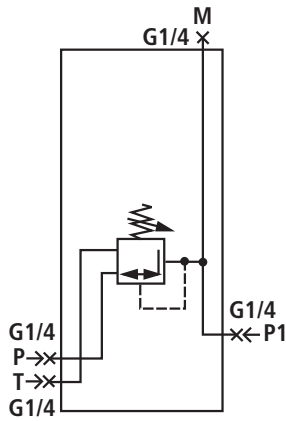
Material no.	Device designation	Type designation
	Tank connection module	IH15MA-1X/BA- <sup>26</sup> <input type="text"/>
R901121784		IH15MA-1X/BA-V

<sup>26</sup> <input type="text"/> Seal	Seal material	FKM	= V
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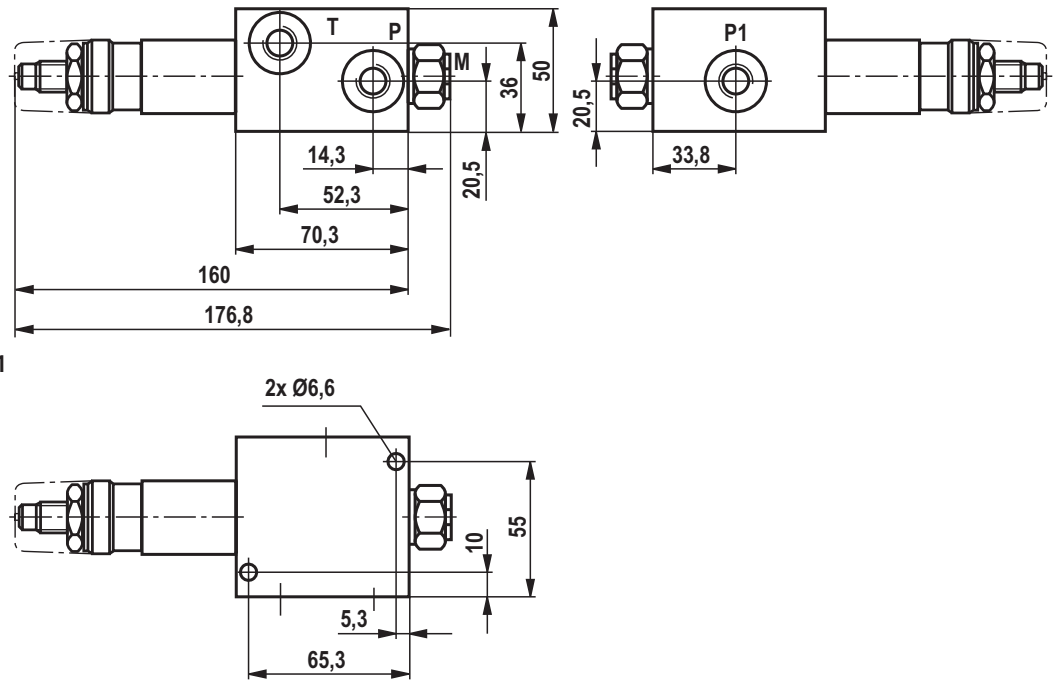
**Module with threaded connection for pipeline installation (dimensions in mm)**

Pressure reducing module with threaded connection, type "SDRG"

Symbol



Dimensions



Dimension Z = 65 mm

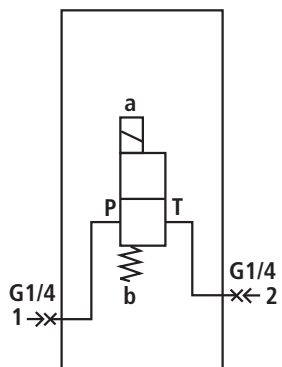
Material no.	Device designation	Type designation
	Pressure reducing module	IH15EA-1X/SDRG- <input type="checkbox"/> <sup>16</sup> / <input type="checkbox"/> <sup>17</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901105958		IH15EA-1X/SDRG-2/210/D/V
R901105959		IH15EA-1X/SDRG-2/210/M/V
R901105960		IH15EA-1X/SDRG-2/210/O/V

<input type="checkbox"/> <sup>14</sup> Pressure monitoring	Pressure monitoring with pressure gauge size 63 With measuring port Without pressure monitoring	= D = M = O
<input type="checkbox"/> <sup>16</sup> Adjustment element	Setscrew with internal hexagon and protective cap	= 2
<input type="checkbox"/> <sup>17</sup> Secondary pressure	Max. secondary pressure 25 bar Max. secondary pressure 75 bar Max. secondary pressure 150 bar Max. secondary pressure 210 bar	= 25 = 75 = 150 = 210
<input type="checkbox"/> <sup>26</sup> Seal	Seal material	FKM = V

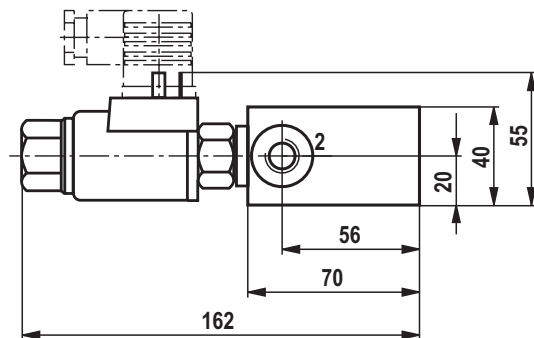
## Modules with threaded connection for pipeline installation (dimensions in mm)

### Module SPA2 with threaded connection, type "SPA2G"

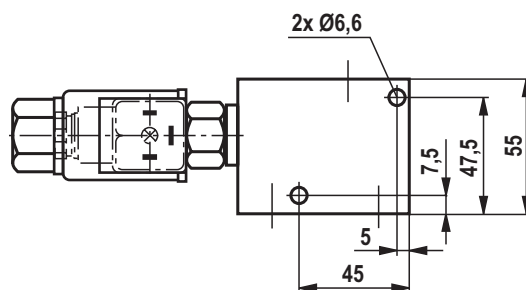
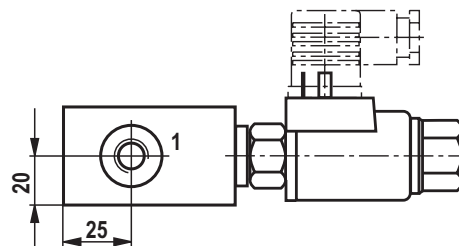
#### Symbol



#### Dimensions



#### Dimension Z = 55 mm



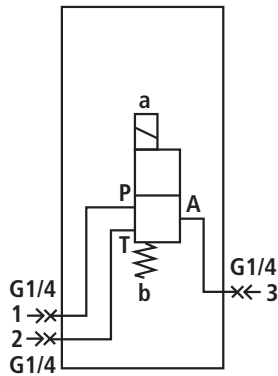
Material no.	Device designation	Type designation
	Module SPA2G	IH15EA-1X/SPA2G- <input type="text" value="4"/> <input type="text" value="8"/> / <input type="text" value="7"/> / <input type="text" value="26"/>
R904101293		IH15EA-1X/SPA2G-NG24/350/V

<input type="text" value="4"/>	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
<input type="text" value="7"/>	Pressure rating of the seat valve	$p_{\max}$ $p_{\max}$	= 350 bar = 500 bar = 350 = 500
<input type="text" value="8"/>	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="text" value="26"/>	Seal	Seal material	FKM = V

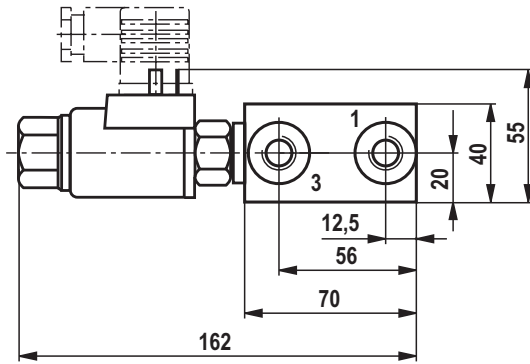
**Modules with threaded connection for pipeline installation (dimensions in mm)**

**Module P – A with threaded connection, type "SPA3G"**

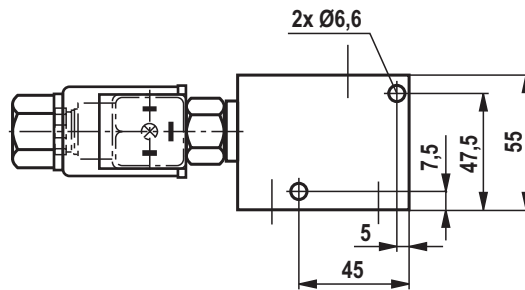
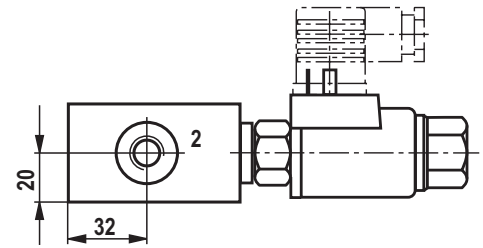
Symbol



Dimensions



Dimension Z = 55 mm



Material no.	Device designation	Type designation
	Module SPA3G	IH15EA-1X/SPA3G- <input type="text" value="5"/> <input type="text" value="8"/> / <input type="text" value="7"/> / <input type="text" value="26"/>
R901103342		IH15EA-1X/SPA3G-CG24/350/V

<input type="text" value="5"/> Designation of the 3/2 seat valve			= U
			= C
<input type="text" value="7"/> Pressure rating of the seat valve	$p_{max}$ $p_{max}$	= 350 bar = 500 bar	= 350 = 500
<input type="text" value="8"/> Solenoid voltage of the seat valves	Volt	24 V DC	= G24
<input type="text" value="26"/> Seal	Seal material	FKM	= V

**Information on the type key (dimensions in mm)**

<input type="checkbox"/> <sup>1</sup> Adjustment element at the pressure relief valve size 4	Setscrew with internal hexagon		= S
	Rotary knob		= H
Adjustment element at the pressure relief valve size 6	Setscrew with hexagon and protective cap		= S
	Rotary knob		
			= H
	Lockable rotary knob		
			= A
<input type="checkbox"/> <sup>2</sup> Pressure rating of the pressure relief valve size 4	Setting pressure up to max.	50 bar	= 50
	Setting pressure up to max.	100 bar	= 100
	Setting pressure up to max.	200 bar	= 200
	Setting pressure up to max.	350 bar	= 350
	Setting pressure up to max.	500 bar	= 500
	Pressure rating of the type-examination tested pressure relief valve size 4, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!		
	Setting pressure up to max.	140 bar	= 140E
	Setting pressure up to max.	210 bar	= 210E
	Setting pressure up to max.	250 bar	= 250E
	Setting pressure up to max.	330 bar	= 330E
	Setting pressure up to max.	400 bar	= 400E
	Setting pressure up to max.	500 bar	= 500E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD 4../.E Type testing according to Pressure Equipment Directive 97/23/EC			See page 85

### Information on the type key

<sup>2</sup> <input type="checkbox"/> Pressure rating of the pressure relief valve size 6	Setting pressure up to max.	25 bar	= 25
	Setting pressure up to max.	50 bar	= 50
	Setting pressure up to max.	100 bar	= 100
	Setting pressure up to max.	200 bar	= 200
	Setting pressure up to max.	315 bar	= 315
	Setting pressure up to max.	400 bar	= 400

Pressure rating of the type-examination tested pressure relief valve size 6, according to Directive 97/23/EC (Pressure Equipment Directive)  
 More pressure ratings on request!

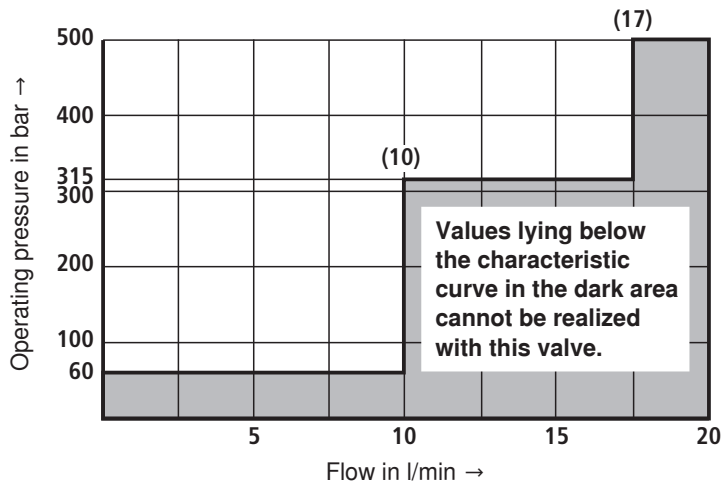
Setting pressure up to max.	50 bar	= 50E
Setting pressure up to max.	100 bar	= 100E
Setting pressure up to max.	140 bar	= 140E
Setting pressure up to max.	210 bar	= 210E
Setting pressure up to max.	330 bar	= 330E

**Characteristic curve** for type-examination tested pressure relief valves type: DBD 6../..E  
 Type testing according to Pressure Equipment Directive 97/23/EC See page 86

<sup>3</sup> <input type="checkbox"/> Pressure rating of the type-examination tested pressure relief valve size 4, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!	Setting pressure up to max.	140 bar	= 140E
	Setting pressure up to max.	210 bar	= 210E
	Setting pressure up to max.	250 bar	= 250E
	Setting pressure up to max.	330 bar	= 330E
	Setting pressure up to max.	400 bar	= 400E
	Setting pressure up to max.	500 bar	= 500E

**Characteristic curve** for type-examination tested pressure relief valves type: DBD 4../..E  
 Type testing according to Pressure Equipment Directive 97/23/EC

**Size 4**



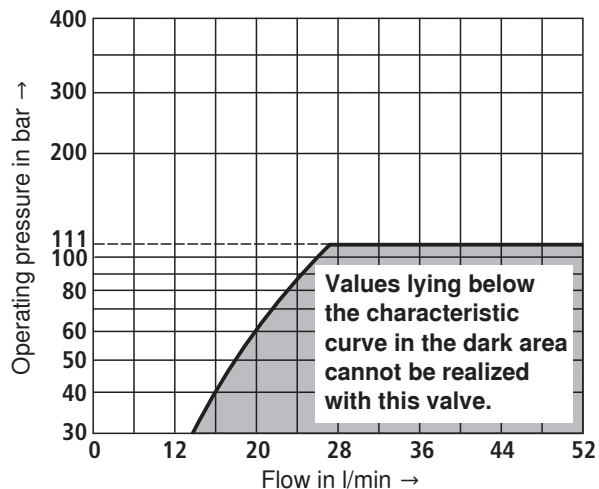
## Information on the type key

<sup>3</sup> Pressure rating of the type-examination tested pressure relief valve size 6, according to Directive 97/23/EC (Pressure Equipment Directive)  
More pressure ratings on request!

Setting pressure up to max.	50 bar	= 50E
Setting pressure up to max.	100 bar	= 100E
Setting pressure up to max.	140 bar	= 140E
Setting pressure up to max.	210 bar	= 210E
Setting pressure up to max.	330 bar	= 330E

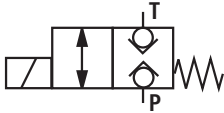
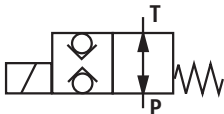
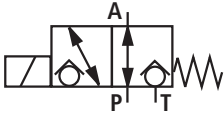
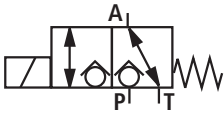
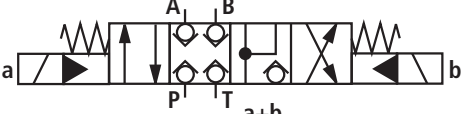
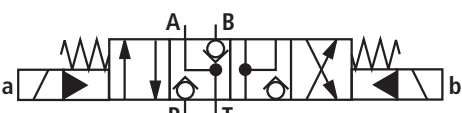
**Characteristic curve** for type-examination tested pressure relief valves type: DBD 6../.E  
Type testing according to Pressure Equipment Directive 97/23/EC

### Size 6





## Information on the type key

<input type="checkbox"/> <sup>4</sup> Designation of the 2/2 seat valve	Normally closed		= N
	Normally open		= P
<input type="checkbox"/> <sup>5</sup> Designation of the 3/2 seat valve		= U	
		= C	
<input type="checkbox"/> <sup>6</sup> Designation of the 4/4 seat valve		= K	
		= L	
<input type="checkbox"/> <sup>7</sup> Pressure rating of the seat valve	$p_{max}$ $p_{max}$	= 350 bar = 500 bar	= 350 <sup>1)</sup> = 500 <sup>1)</sup>
<input type="checkbox"/> <sup>8</sup> Solenoid voltage of the seat valves	Volt	24 V DC	= G24
<input type="checkbox"/> <sup>9</sup> Number of pressure switches	Without pressure switch One pressure switch Two pressure switches		= 0 = 1 = 2
<input type="checkbox"/> <sup>10</sup> Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HEDE 10 A1-2X/...K41...2		= no code = HED 5 = HEDE 10
<input type="checkbox"/> <sup>11</sup> Pressure switch	Without pressure switch HED 5 OH-3X/...K14 HED 8 OP-2X/...K14 HEDE 10 A1-2X/...K41...2		= no code = HED 5 = HED 8 = HEDE 10

<sup>1)</sup> Indication is only necessary if the module is not equipped with a pressure switch.

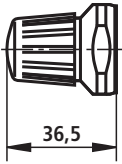
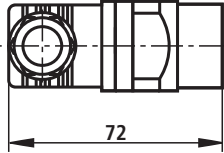
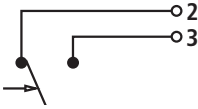
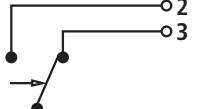
## Information on the type key

12 <input type="checkbox"/>	Pressure rating of the pressure switch	Without pressure switch Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure Max. setting pressure	50 bar 100 bar 200 bar 350 bar 630 bar	= no code = 50 = 100 = 200 = 350 = 630 <sup>2)</sup>
13 <input type="checkbox"/>	Pressure switch in the channel	Without pressure switch A B A and B		= no code = A = B = AB
14 <input type="checkbox"/>	Pressure monitoring	With pressure gauge size 63 With measuring port Without pressure monitoring		= D = M = O
15 <input type="checkbox"/>	Max. pressure range of the pressure gauge	Without pressure monitoring Display range Display range Display range Display range Display range	60 bar 100 bar 250 bar 400 bar 600 bar	= no code = 60 <sup>1)</sup> = 100 <sup>1)</sup> = 250 <sup>1)</sup> = 400 <sup>1,2)</sup> = 600 <sup>1,2)</sup>
16 <input type="checkbox"/>	Adjustment element	Rotary knob Setscrew with hexagon and protective cap Lockable rotary knob with scale Rotary knob with scale		= 1 = 2 = 3 = 7
17 <input type="checkbox"/>	Secondary pressure	Max. secondary pressure Max. secondary pressure Max. secondary pressure Max. secondary pressure Max. secondary pressure	25 bar 75 bar 150 bar 210 bar 315 bar	= 25 = 75 = 150 = 210 = 315
18 <input type="checkbox"/>	Diaphragm-type accumulator	Nominal volume in l Without accumulator 0.075 0.10 0.16 0.35 Bladder-type accumulator	Max. pressure in bar 250 500 250 210 400	= no code = 0.075 = 0.10 = 0.16 = 0.35 = 0.50

<sup>1)</sup> Indication is only necessary if the module is not equipped with a pressure switch.

<sup>2)</sup> Not possible with HED 5

## Information on the type key (dimensions in mm)

19 <input type="checkbox"/> Filter rating		06 µm 10 µm	= 06 <sup>1)</sup> = 10 <sup>2)</sup>
20 <input type="checkbox"/> Clogging indicator	Without clogging indicator		= A
	Visual clogging indicator		= O
	Electric clogging indicator		= E
	Technical data of the electric clogging indicator		
	Maximum voltage	V	42
	Switching power	VA	100
	Protection class with protective cap		IP 65
	Contacts		Normally closed contact
	Terminal assignment		
			
	Filter element clean	Filter element contaminated	
21 <input type="checkbox"/> Check valve	In channel P In channel T In channel P and T		= P = T = PT
22 <input type="checkbox"/> Ports	Without ports P and T		= no code = PT
26 <input type="checkbox"/> Seal	Seal material	FKM	= V
27 <input type="checkbox"/> Throttle	Without throttle Throttle diameter Throttle diameter	Ø 1.0 mm Ø 2.5 mm	= no code = B10 = B25
35 <input type="checkbox"/> Pressure rating of the proportional valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	20 bar 100 bar 200 bar 315 bar	= 20 = 100 = 200 = 315

<sup>1)</sup> For degree of contamination class 18 / 16 / 13

<sup>2)</sup> For degree of contamination class 20 / 18 / 15

## Type keys for modules with vertical stacking

Type: ABCOC / ABBOC

AB COC – IH15A – EXAMPLE – PROTECTIVE GRID – 06 – AA 07

Power units / blocks

Customer-oriented controls = COC

Branch-oriented controls = BOC

Device type

IH15A

Name of customer or branch of trade

e.g.  
Company Example or presses

Serial number

e.g.

07 = Number 7

Variant code

Shows different device fittings

Valve size

Functional designation

(according to customer designation or branch designation)

e.g.

Camping

Hatch small

Revolver

Protective grid

## Type key for complete control system

Type: IH15BA

IH 15 B A 006 – 1X / 07 024 AA / W220 N9 K4 M 01

Industrial hydraulics

Module series

15

Assembly

From module series

Size

Size A

= A

$q_v$  up to 30 l/min

Size of the largest valve

Size 6

= 006

Component series 10 to 19

= 1X

10 to 19 unchanged installation and connection dimensions

Number of modules

e.g.

7 modules

= 07

Type of connection

01 = Pipe thread according to ISO 228 part I

Seal material

M = NBR seals

V = FKM seals

Electrical type of connection

Attachment devices

Version

Manual override

Attachment devices

Valve voltage

e.g.

G24 = 24 V direct voltage

W220 = 220 V alternating voltage

Variant code

Shows different device fittings

Serial number

e.g.

024 = Number 24

Example:

IH15BA006-1X/07024AA/W220N9K4M01

Assembly IH15B of size A up to 14 l/min with valves of size 6, 7 modules, serial number 24, variant AA, 220 V alternating voltage, N9 manual override, K4 type of connection, seal material Perbunan, type of connection with pipe thread according to ISO 228 part 1

## Accessories

### Filter element

Material no.	Module	Denomination	Size	Material	Filter rating
R928037974	F06	99.05929 H6XL-000-6-M	06	FKM	06 µm
R928037972	F06	99.05929 H10XL-000-6-M	06	FKM	10 µm
R928039389	F30	80.30/22 H6XL-S00-5-V	30	FKM	06 µm
R928039388	F30	80.30/22 H10XL-S00-5-V	30	FKM	10 µm
R928006080	DF30	2.0004 H10XL-A00-0-V	30	FKM	10 µm
R928006682	DF40	2.0040 H6XL-B00-0-V	40	FKM	06 µm
R928006683	DF40	2.0040 H10XL-B00-0-V	40	FKM	10 µm

### Assembly tool for filter cartridge

- Strap wrench Material no.: R904001048

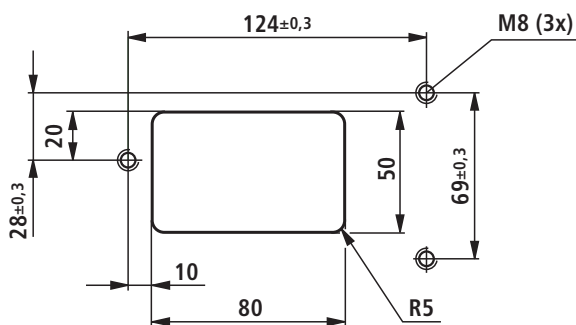
### Installation information for F30:

- Wind the filter cartridge as tight as possible on the block.  
Then, wind the filter cartridge further by further 1/3 of a rotation.

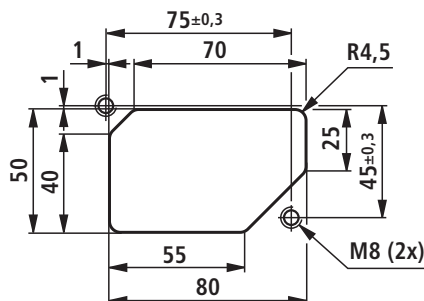
### Installation information for DF30 and DF40:

- Wind the filter cartridge as tight as possible on the block.  
Then, wind it back by 1/8 to 1/4 of a rotation.

### Dimensions: Tank break-through for module RBAIH15A (dimensions in mm)



### Dimensions: Tank break-through for module IH15BA (dimensions in mm)

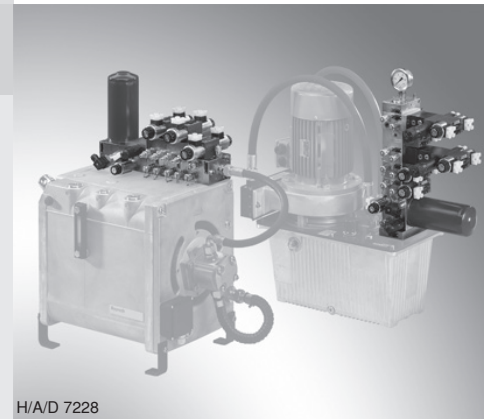


# Control module

**RE 51156/05.13**  
Replaces: 09.11

1/96

## Type IH15B

Component series 1X  
Maximum operating pressure 350 bar  
Maximum flow 30 l/min

H/A/D 7228

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• Tank connection module	9 to 11	• Module SPA3	50 to 51
• Pressure relief module	12	• Accumulator shut-off module	61 to 62
• Module block	13	• Circulation module	45
Directional seat valve module		• Sandwich module	35 to 38, 41
• Attachment	14	• Sandwich module in special design -008	39 to 40
• Tank connection module	15 to 16	• Sandwich module with pressure relief valve	31 to 32
• Pressure cut-off module	28	• Sandwich module with lowering brake valve	33 to 34
• Pressure relief module	17 and 26	• Sandwich module with cartridge valves	42 to 44
• Pressure relief module with circulation valve	27	• Sandwich module with accumulator shut-off block	56 to 57
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• Pressure reducing module	29 to 30		
• End module	58		

Continued on page 2

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• Connection module	65 to 66	• Attachment	80
• Connection module with pressure relief valve	67	• Connection module	81 to 82
• End module	72	• Tank connection module	83
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Reducing module		• Project planning information	80
• Tank connection module with reduction from IH15B to IH15A	73	• Accumulator shut-off module	86 to 87
• Reducing module IH15B to IH20B (left)	74	Type key	
• Reducing module IH15B to IH20B (right)	76	• Information on the type key	88 to 92
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• Tank connection module for sandwich module with threaded connection	77	Accessories	
• Sandwich module with threaded connection	78 to 79	• Filter element	94
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		• Unit dimensions	95
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## Features

- Compact design
- No piping of the control
- Few joints
- Variable set-up
- Can be combined individually
- Direct mounting on power unit tank cover; external set-up possible, as well
- Ready for connection

## Description, general

The IH15B control modules serves the realization of complete hydraulic controls. They can be fitted and mounted individually. The directional valve modules and seat valve modules can be combined.

Using the tank connection modules, the control modules can be directly mounted to the tank cover of the oil tank. Using the modules for external attachment, the control modules can,

however, also be installed arbitrarily into every system. The reducing modules allow for attachment of the IH15B modules to IH15A and IH20B modules.

The modules have preferably been designed for hydraulic controls for low-flow actuators up to a flow of 30 l/min. They are connected by means of three tie rods.

## Technical data (For applications outside these parameters, please consult us!)

### hydraulic

Installation position	Any <sup>1)</sup>	
Hydraulic fluid	Mineral oil (HL, HLP) according to DIN 51524 part 2 <sup>2)</sup> ; fast biodegradable hydraulic fluids according to VDMA 24568 (see 90221); HETG (rape seed oil) <sup>2)</sup> ; HEPG (polyglycols); HEES (synthetic esters) <sup>3)</sup> ; other hydraulic fluids upon request	
Hydraulic fluid temperature range	°C	-30 to +80 (with NBR seals) -20 to +80 (with FKM seals) (observe the admissible viscosity range of the valves!)
Ambient temperature range	°C	-30 to +50
Viscosity range	mm <sup>2</sup> /s	2.8 to 500 <sup>1)</sup>
Maximum admissible degree of contamination of the hydraulic fluid, cleanliness class according to ISO 4406 (c)	Class 20/18/15 <sup>1)</sup>	
Valve pressure rating	Refer to the related data sheet	
Maximum flow of the directional seat valves type: KSER1...	$q_v$	l/min
		20 (2/2 directional seat valve)
		12 (3/2 directional seat valve)

### electric

Voltage type	Direct voltage			
Available voltage <sup>4)</sup>	U	V	24	
Voltage tolerance (nominal voltage)		%	±10	
Power consumption	P	W	19 and/or 30 <sup>1)</sup>	
Switching time according to ISO 6403	On	T	ms	25 to ≤ 80
	Off	T	ms	10 to 25
Switching frequency		cy/h	up to 15,000	
Protection class according to EN 60529 <sup>5)</sup> (VDE 0470-1) DIN 40050-9			IP 65	
Coil temperature <sup>6)</sup>		°C	150	

<sup>1)</sup> Observe the valve details

<sup>2)</sup> Suitable for NBR **and** FKM seals

<sup>3)</sup> Suitable **only** for FKM seals

<sup>4)</sup> Special voltage on request

<sup>5)</sup> With mating connector mounted and locked

<sup>6)</sup> Due to the temperatures occurring at the surfaces of the solenoid coils, the European standards EN563 and EN982 need to be adhered to!

## Project planning information

When designing the control with accumulator you have to make sure that the accumulator is protected against inadmissible overpressure by means of a type examination-tested pressure relief valve. The type-examination tested pressure relief valve must not assume control tasks. The set pressure of the type-examination tested pressure relief valve must be less than or equal to the maximum admissible operating pressure of the accumulator.

In order to achieve the best utilization of the accumulator volume possible as well as long service life, compliance with the following nitrogen filling pressure value is recommended:

$$p_0 = 0.9 \times p_{(\text{minimum operating pressure})}$$

When attaching the IH15B control to a UPE5 drive module, the following has to be observed:

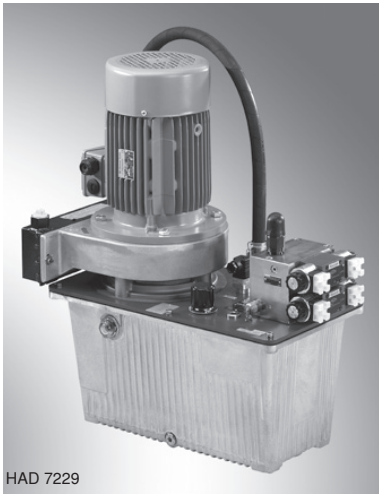
The total length of the IH15B control should not be longer than the UPE5 drive module.

Maximum recommended total length  $l = 500$  mm.

Please consult us if the total length of the required control should be longer.



## Overview of the modules

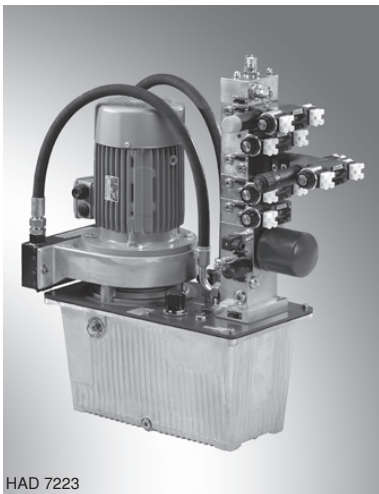


HAD 7229

Basic module "G"

### Basic module "G"

- Basic module with integrated pressure relief valve for pressure setting
- Basic module with two valve stations and integrated pressure relief valve
- if the "G" basic modules are used, no further stacking is possible
- For more information see page 8

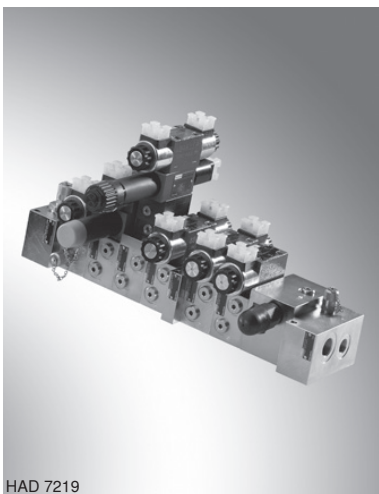


HAD 7223

Directional seat valve module "W", "S"

### Directional seat valve module, "W", "S"

- Directional valve modules
  - Allow the design of controls using valves with porting pattern according to DIN 24340 form A
- Seat valve modules basically consist of:
  - A pressure relief module
  - One or several control modules
  - One end module
- The control is designed depending on the relevant application
- For more information see page 14



HAD 7219

Module for external attachment

### Module for external attachment

- Allows for the attachment of the directional seat valve modules to any hydraulic system or any machine
- For more information see page 63

## Overview of the modules



HAD 7226

Module for drive module UPE5

### Module for drive module UPE5

- Allows for the attachment of the modules to the UPE5 drive module (catalog 51145)
- For more information see page 80

Short designation	Basic module, type "G"	Page
BA	Tank connection module	9
BAP	Tank connection module with external P connection at the front side	9
BAP-2PT	Tank connection module with two external 2x P and T connections at the front side	10
BAY	Tank connection module with Y channel	11
GDB	Pressure relief module	12
G2AABTDB	Module AA - B - T with pressure relief valve and 2 valve stations	13

Short designation	Directional seat valve module, type "W", "S"	Page
BA	Tank connection module	15
BAP	Tank connection module with external P connection at the front side	15
BAY	Tank connection module with Y channel	16
BAZG	Tank connection module for sandwich module with threaded connection	77
DF40	Pressure filter module (P line $p_{max} = 250$ bar)	20
DF40Y	Pressure filter module with Y channel (P line $p_{max} = 250$ bar)	20
DFS40	Pressure filter module filter bowl vertical (P line $p_{max} = 250$ bar)	21
F30DB	Filter module with pressure relief valve (T line $p_{max} = 7$ bar)	22
F30DBU	Filter module with pressure relief valve and circulation valve (T line $p_{max} = 7$ bar)	24
F60DB	Filter module with pressure relief valve (T line $p_{max} = 7$ bar)	22
F60DBU	Filter module with pressure relief valve and circulation valve (T line $p_{max} = 7$ bar)	24
SDA	Pressure cut-off module	28
SDB	Pressure relief module	26
SDBU	Pressure relief module with circulation valve	27
SEDBSA	End module with pressure relief valve, accumulator and stop valve	59
SEDBSAP1	End module with pressure relief valve, accumulator and stop valve with P1 channel	59
SP	Control module P	46
SPDV	Control module P with throttle valve	49
SPA3	Control module SPA3	51
SPA3P1	Control module SPA3 with P1 channel	51
SPBAT2DB	Control module SPBAT2DB	50
SPP1	Control module P with P1 channel	46
SPDVP1	Control module P with throttle valve and P1 channel	49

## Overview of the modules

Short designation	Directional seat valve module, type "W", "S"	Page
SR	Control module with check valve	53
SR2	Control module with check valve	55
SRP1	Control module P with check valve with P1 channel	53
SR2P1	Control module P with check valve with P1 channel	55
ST	Control module T	48
STP1	Control module T with P1 channel	48
SSB	Accumulator shut-off module	61
SSBP1	Accumulator shut-off module with P1 channel	61
SU	Circulation module	45
SUP1	Circulation module with P1 channel	45
WDB	Pressure relief module with one valve station	17
WDR	Pressure reducing module	29
WDRP1	Pressure reducing module with P1 channel	29
WZDR-A	Sandwich module with pressure reducing valve in channel A	31
WZDR-A/A	Sandwich module with pressure reducing valve in channel A and drain cock	31
WZDR-AB	Sandwich module with pressure reducing valve in channel AB	31
WZDR-AB/A	Sandwich module with pressure reducing valve in channel AB and drain cock	31
WZDR-P	Sandwich module with pressure reducing valve in channel P	32
WSE	Directional seat valve module	58
WSEP1	Directional seat valve module with P1 channel	58
WSK	Directional valve seat valve cooler module	18
WSKB	Directional valve seat valve cooler module with bypass	19
WSKY	Directional valve seat valve cooler module with Y channel	18
WSKYB	Directional valve seat valve cooler module with Y channel and bypass	19
WZ	Sandwich module (for directional valve size 6)	35
WZ-008	Sandwich module in special design -008 (for directional valve size 6)	39
WZ2AABB	Sandwich module, 2 valve stations, AA and BB channel connected (for directional valve size 6)	41
WZ2AP	Sandwich module, 2 valve stations, AP channel connected (for directional valve size 6)	41
WZ3	Sandwich module with 3 valve stations (for directional valve size 6)	37
WZ4	Sandwich module with 4 valve stations (for directional valve size 6)	37
WZ4-008	Sandwich module with 4 valve stations in special design -008 (for directional valve size 6)	39
WZE	Sandwich module with cartridge valves (for directional valve size 6)	42
WZEP1	Sandwich module with cartridge valves with P1 channel (for directional valve size 6)	43
WZG	Sandwich module with threaded connection for pipeline installation	78
WZP1	Sandwich module with P1 channel (for directional valve size 6)	35
WZSB	Sandwich module with lowering brake valve	33
ZSSB	Sandwich module with accumulator shut-off block	56
ZSSBP1	Sandwich module with accumulator shut-off module with P1 channel	56

## Overview of the modules

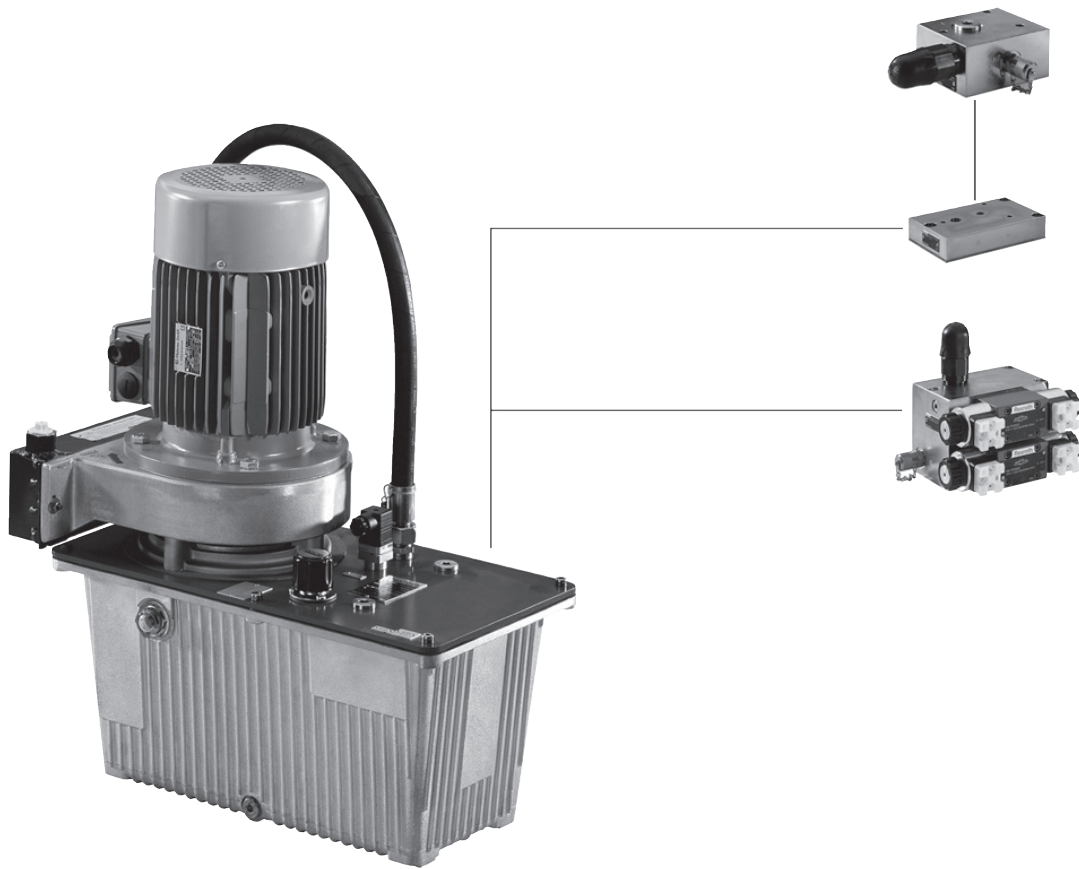
Short designation	Module for external attachment	Page
A	Connection module	65
AD	Connection module with through holes	66
ADB	Connection module with pressure relief valve	67
AY	Connection module with Y channel	65
E	End module	72
EP1	End module with P1 channel	72
Z	Sandwich module	68
ZG	Sandwich module with mounting thread for threaded bolt	70
ZGP1	Sandwich module with mounting thread for threaded bolt and P1 channel	70
ZGPT	Sandwich module with PT interruption and mounting thread for threaded bolt	71
ZGTP1	Sandwich module with PTP1 interruption and mounting thread for threaded bolt	71

Short designation	Reducing module, type "R"	Page
ZPT	Sandwich module with PT interruption	69
ZP1	Sandwich module with P1 channel	68
RBAIH15A	Tank connection module with reduction from IH15B to IH15A	73
RIH15AR	Reducing module IH15B to IH15A (right)	75
RIH20BL	Reducing module IH15B to IH20B (left)	74
RIH20BR	Reducing module IH15B to IH20B (right)	76

Short designation	Module for drive module UPE5, type "UPE5"	Page
UPE5A	Connection module	81
UPE5AR	Connection module with check valve	82
UPE5AY	Connection module with Y channel	81
UPE5AYR	Connection module with Y channel and check valve	82
UPE5BA	Tank connection module	83
UPE5BAP1	Tank connection module with P1 channel	83
UPE5F30	Filter module (T line $p_{\max} = 7$ bar)	84
UPE5F30P1	Filter module with P1 channel (T line $p_{\max} = 7$ bar)	84
UPE5F60	Filter module (T line $p_{\max} = 7$ bar)	84
UPE5F60P1	Filter module with P1 channel (T line $p_{\max} = 7$ bar)	84
UPE5SSB	Accumulator shut-off module	86
UPE5SSBP1	Accumulator shut-off module with P1 channel	86

## Basic module, type "G": Attachment

---

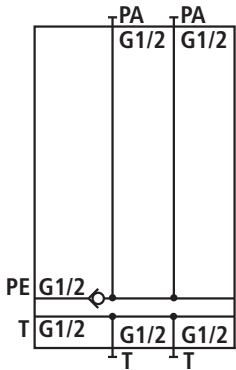




### Basic module, type "G" (dimensions in mm)

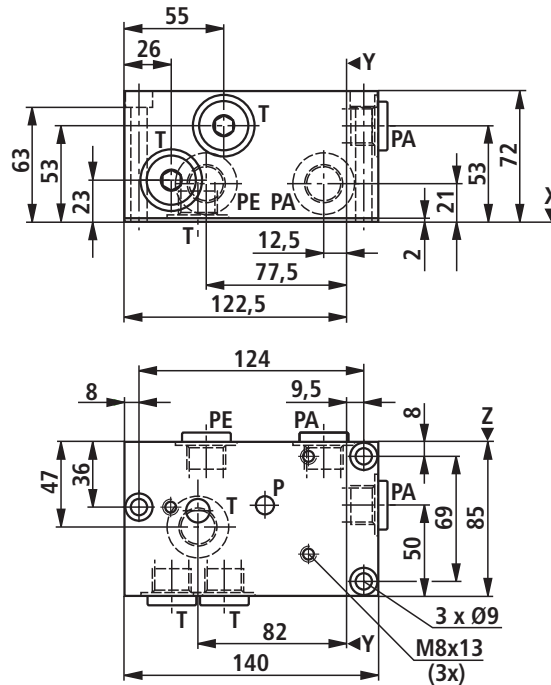
Tank connection module with 2x P and T connection at the front side, type "BAP-2PT"

Symbol



Unit dimensions

Dimension Z = 85 mm



Material no.	Device designation	Type designation
	Tank connection module with 2x external PT connections at the front side	IH15MB-1X/BAP-2PT- <input type="text" value="26"/>
R901134710		IH15MB-1X/BAP-2PT/V

<input type="text" value="26"/> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

### Basic module, type "G" (dimensions in mm)

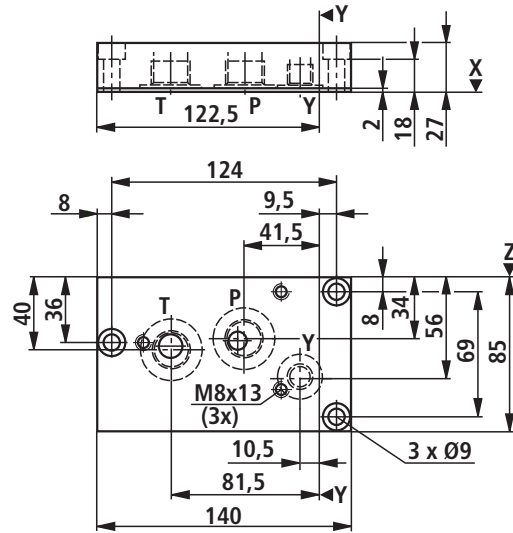
Tank connection module with Y channel, type "BAY"

Symbol



Unit dimensions

Dimension Z = 85 mm



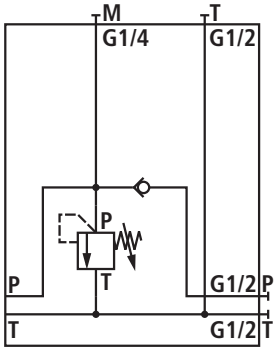
Material no.	Device designation	Type designation
	Tank connection module with Y channel	IH15MB-1X/BAY
R904101843		IH15MB-1X/BAY



**Basic module, type "G" (dimensions in mm)**

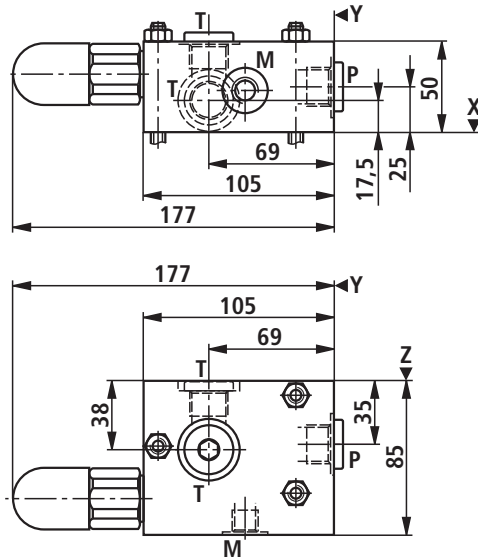
**Pressure relief module, type "GDB"**

**Symbol**



**Unit dimensions**

Dimension Z = 85 mm



Material no.	Device designation	Type designation
	Pressure relief module	IH15EB-1X/GDB- <input type="checkbox"/> 1 <input type="checkbox"/> 2 / <input type="checkbox"/> 14 <input type="checkbox"/> 26
R904101893		IH15EB-1X/GDB-S100/M/V
R904101842		IH15EB-1X/GDB-S200/M/V

<input type="checkbox"/> 1	Adjustment element at the pressure relief valve	Setscrew with hexagon and protective cap Rotary knob Lockable rotary knob	= S = H = A
<input type="checkbox"/> 2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	25 bar 50 bar 100 bar 200 bar 315 bar 400 bar = 25 = 50 = 100 = 200 = 315 = 400

Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive)  
More pressure ratings on request!

		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 140 bar 210 bar 330 bar = 50E = 100E = 140E = 210E = 330E
--	--	---	---

**Characteristic curve** for type-examination tested pressure relief valves type: DBD...E  
Type testing according to Pressure Equipment Directive 97/23/EC

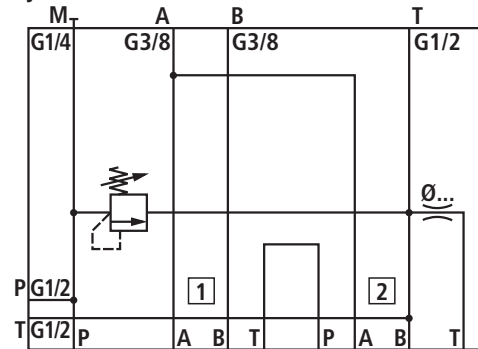
See page 88

<input type="checkbox"/> 14	Pressure monitoring	With measuring port Without pressure monitoring	= M = O
<input type="checkbox"/> 26	Seal	Seal material Seal material	FKM NBR = V = M

### Basic module, type "G" (dimensions in mm)

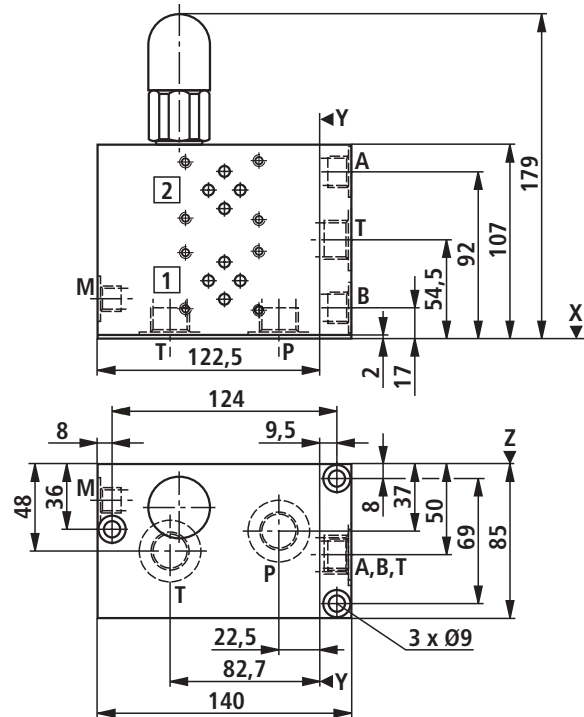
Module block AA - B - T, type "G2AABTDB"

Symbol



Unit dimensions

Dimension Z = 85 mm



Material no.	Device designation	Type designation
	Module block AA - B - T with pressure relief valve	IH15EB-1X/G2AABTDB- 1 2 14 27 26 <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/>
R904101796		IH15EB-1X/G2AABTDB-S200/M/B10/V

1	<input type="checkbox"/> Adjustment element at the pressure relief valve	Setscrew with hexagon and protective cap Rotary knob Lockable rotary knob	= S = H = A
2	<input type="checkbox"/> Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	25 bar = 25 50 bar = 50 100 bar = 100 200 bar = 200 315 bar = 315 400 bar = 400

Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive)

More pressure ratings on request!

		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar = 50E 100 bar = 100E 140 bar = 140E 210 bar = 210E 330 bar = 330E
--	--	---	--

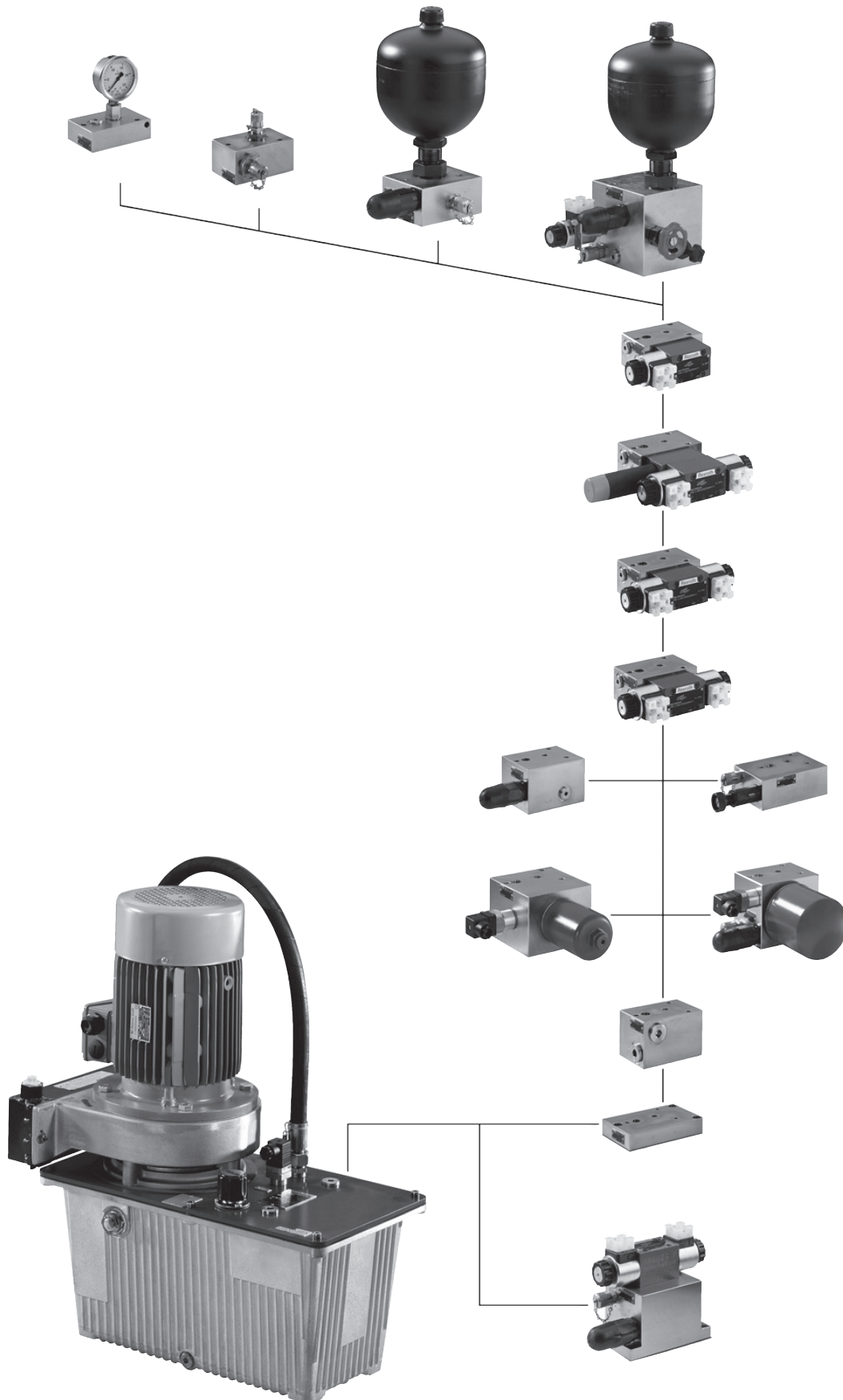
**Characteristic curve** for type-examination tested pressure relief valves type: DBD...E

Type testing according to Pressure Equipment Directive 97/23/EC

See page 88

14	<input type="checkbox"/> Pressure monitoring	With measuring port Without pressure monitoring	= M = O
26	<input type="checkbox"/> Seal	Seal material Seal material	FKM = V NBR = M
27	<input type="checkbox"/> Throttle	Without throttle Throttle diameter Throttle diameter	= no code = B10 = B25

## Directional seat valve module, type "W", "S": Attachment



### Directional seat valve module, type "W", "S" (dimensions in mm)

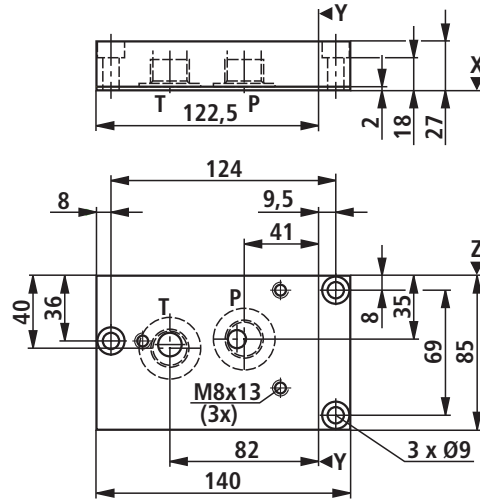
Tank connection module, type "BA"

Symbol



Unit dimensions

Dimension Z = 85 mm



Material no.	Device designation	Type designation
R904101347	Tank connection module	IH15MB-1X/BA

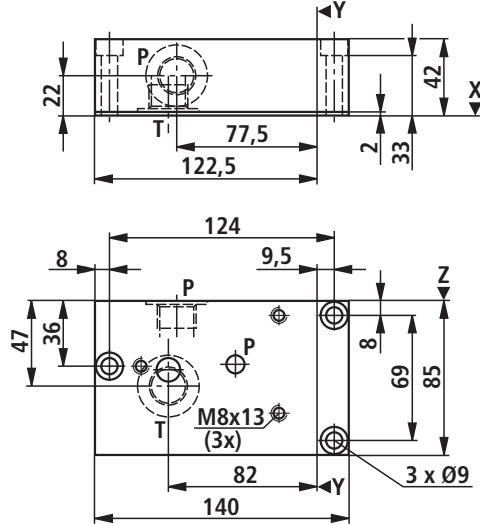
Tank connection module with P connection at the front side, type "BAP"

Symbol



Unit dimensions

Dimension Z = 85 mm



Material no.	Device designation	Type designation
	Tank connection module with external P connection at the front side	IH15MB-1X/BAP- <sup>26</sup> <input type="text"/>
R904101844		IH15MB-1X/BAP-V

<sup>26</sup> <input type="text"/> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

**Directional seat valve module, type "W", "S" (dimensions in mm)**

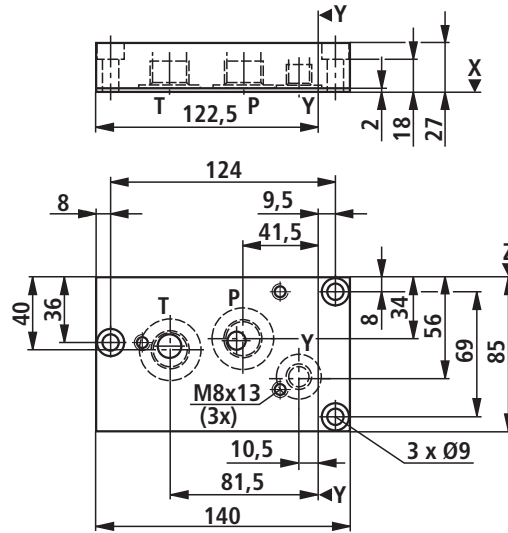
Tank connection module with Y channel, type "BAY"

Symbol



Unit dimensions

Dimension Z = 85 mm

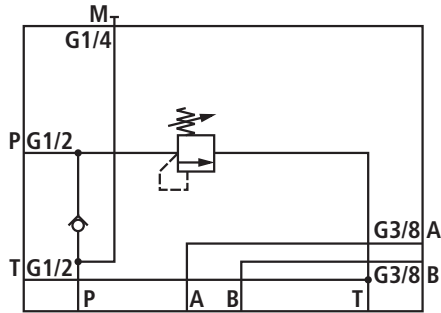


Material no.	Device designation	Type designation
	Tank connection module with Y channel	IH15MB-1X/BAY
R904101843		IH15MB-1X/BAY

### Directional seat valve module, type "W", "S" (dimensions in mm)

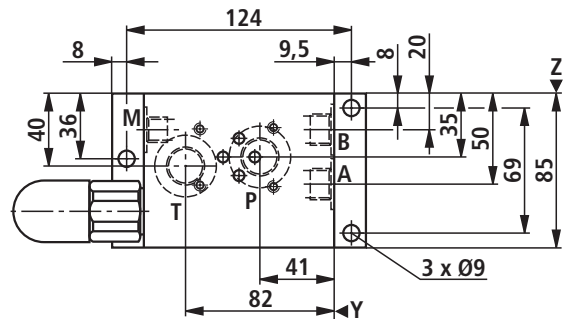
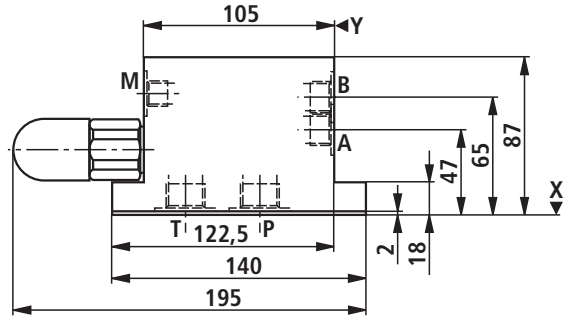
#### Pressure relief module, type "WDB"

##### Symbol



##### Unit dimensions

##### Dimension Z = 85 mm



Material no.	Device designation	Type designation
	Pressure relief module with one valve station	IH15EB-1X/WDB- <input type="checkbox"/> 1 <input type="checkbox"/> 2 / <input type="checkbox"/> 14 <input type="checkbox"/> 26
R904101759		IH15EB-1X/WDB-S200/M/V
R901042115		IH15EB-1X/WDB-S200/O/V

<input type="checkbox"/> 1	Adjustment element at the pressure relief valve	Setscrew with hexagon and protective cap Rotary knob Lockable rotary knob	= S = H = A
<input type="checkbox"/> 2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	25 bar 50 bar 100 bar 200 bar 315 bar 400 bar = 25 = 50 = 100 = 200 = 315 = 400

Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive)

More pressure ratings on request!

		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 140 bar 210 bar 330 bar	= 50E = 100E = 140E = 210E = 330E
--	--	---	--	---

**Characteristic curve** for type-examination tested pressure relief valves type: DBD...E  
Type testing according to Pressure Equipment Directive 97/23/EC

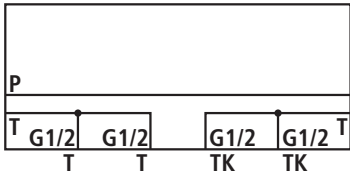
See page 88

<input type="checkbox"/> 14	Pressure monitoring	With measuring port Without pressure monitoring	= M = O
<input type="checkbox"/> 26	Seal	Seal material Seal material	FKM NBR = V = M

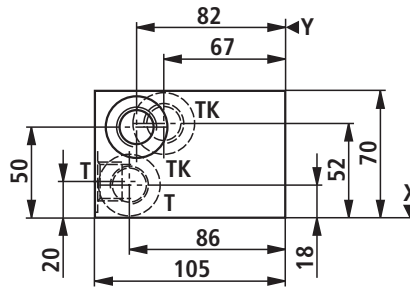
### Directional seat valve module, type "W", "S" (dimensions in mm)

#### Cooler module, type "WSK"

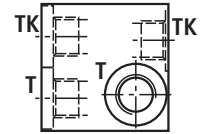
Symbol



Unit dimensions

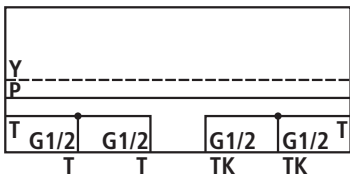


Dimension Z = 70 mm



#### Cooler module with Y channel, type "WSKY"

Symbol



Material no.	Device designation	Type designation
	Cooler module	IH15MB-1X/WSK- <input type="text" value="26"/>
R904101577		IH15MB-1X/WSK-V

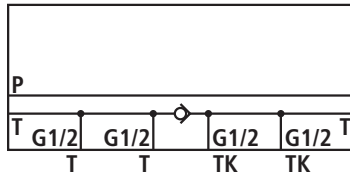
Material no.	Device designation	Type designation
	Cooler module with Y channel	IH15MB-1X/WSKY- <input type="text" value="26"/>
R904101753		IH15MB-1X/WSKY-V

<input type="text" value="26"/>	Seal	Seal material	FKM	= V
		Seal material	NBR	= M

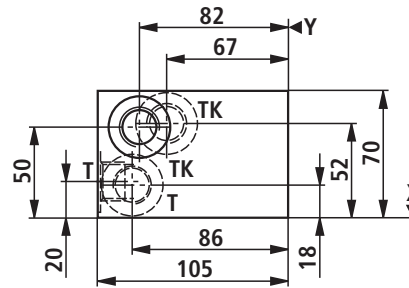
### Directional seat valve module, type "W", "S" (dimensions in mm)

Cooler module with bypass, type "WSKB"  
(cracking pressure 3 bar)

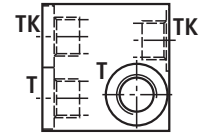
Symbol



Unit dimensions

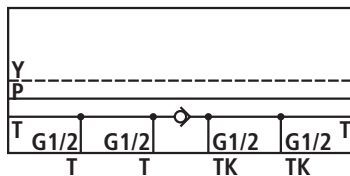


Dimension Z = 70 mm



Cooler module with Y channel and bypass,  
type "WSKYB" (cracking pressure 3 bar)

Symbol



Material no.	Device designation	Type designation
	Cooler module with bypass	IH15MB-1X/WSKB- <input type="text" value="26"/>
R901165376		IH15MB-1X/WSKB-V

Material no.	Device designation	Type designation
	Cooler module with Y channel and bypass	IH15MB-1X/WSKYB- <input type="text" value="26"/>
R901165377		IH15MB-1X/WSKYB-V

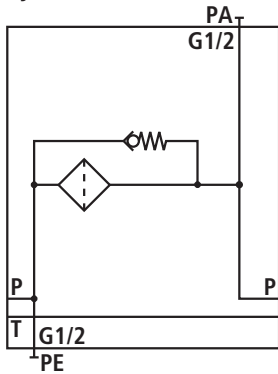
<input type="text" value="26"/>	Seal	Seal material	FKM	= V
		Seal material	NBR	= M



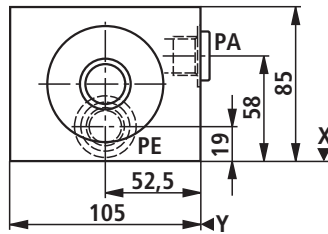
### Directional seat valve module, type "W", "S" (dimensions in mm)

Pressure filter module, type "DF40" ( $q_{Vmax} = 40 \text{ l/min}$ ,  $p_{max} = 250 \text{ bar}$ )

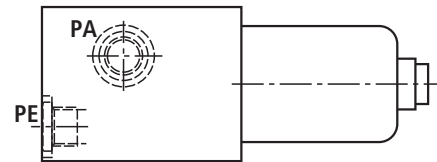
Symbol



Unit dimensions



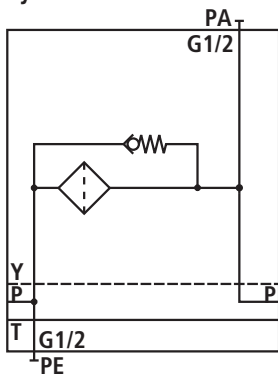
Dimension Z = 213 mm



Pressure filter module with Y channel, type "DF40Y"

( $q_{Vmax} = 40 \text{ l/min}$ ,  $p_{max} = 250 \text{ bar}$ )

Symbol



Installation information:

Wind the filter cartridge as tight as possible on the block. Then, wind it back by 1/8 to 1/4 of a rotation.

Material no.	Device designation	Type designation
	Pressure filter module ( $p_{max} = 250 \text{ bar}$ )	IH15EB-1X/DF40- <input type="checkbox"/> <sup>19</sup> / <input type="checkbox"/> <sup>20</sup> / <input type="checkbox"/> <sup>26</sup>
R901278451		IH15EB-1X/DF40-06/E/V
R901278454		IH15EB-1X/DF40-10/E/V

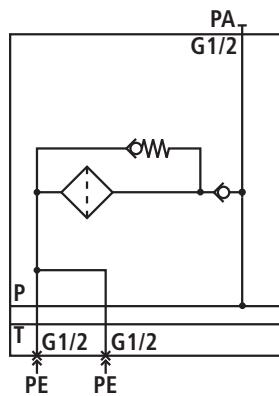
Material no.	Device designation	Type designation
	Pressure filter module with Y channel ( $p_{max} = 250 \text{ bar}$ )	IH15EB-1X/DF40Y- <input type="checkbox"/> <sup>19</sup> / <input type="checkbox"/> <sup>20</sup> / <input type="checkbox"/> <sup>26</sup>
R901278455		IH15EB-1X/DF40Y-06/E/V

<input type="checkbox"/> <sup>19</sup> Filter rating	06 $\mu\text{m}$ 10 $\mu\text{m}$	= 06 = 10
<input type="checkbox"/> <sup>20</sup> Clogging indicator	Without clogging indicator Visual clogging indicator Electric clogging indicator	= A = O = E
<input type="checkbox"/> <sup>26</sup> Seal	Seal material	FKM = V NBR = M

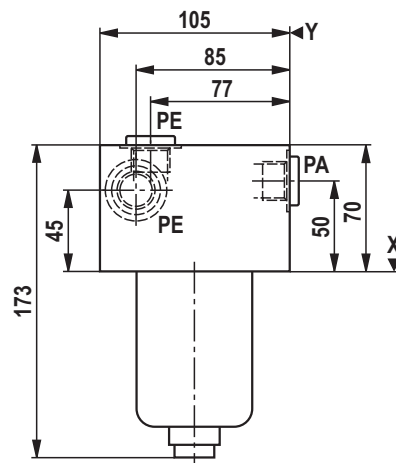
## Directional seat valve module, type "W", "S" (dimensions in mm)

Pressure filter module for vertical installation position,  
type "DFS40" ( $q_{Vmax} = 40$  l/min,  $p_{max} = 250$  bar)

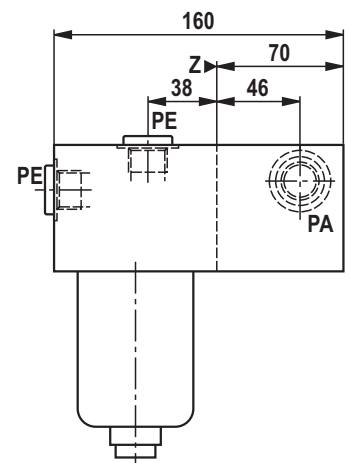
Symbol



Unit dimensions



Dimension Z = 70 mm



### Installation information:

Wind the filter cartridge as tight as possible on the block.  
Then, wind it back by 1/8 to 1/4 of a rotation.

Material no.	Device designation	Type designation
	Pressure filter module for vertical installation position ( $p_{max} = 250$ bar)	IH15EB-1X/DFS40- <input type="text" value="19"/> / <input type="text" value="20"/> / <input type="text" value="26"/>
R901278456		IH15EB-1X/DFS40-10/A/V
R901278457		IH15EB-1X/DFS40-10/E/V
R901278458		IH15EB-1X/DFS40-10/O/V
R901278459		IH15EB-1X/DFS40-06/E/V

<input type="text" value="19"/>	Filter rating	06 $\mu$ m 10 $\mu$ m	= 06 = 10
<input type="text" value="20"/>	Clogging indicator	Without clogging indicator Visual clogging indicator Electric clogging indicator	= A = O = E
<input type="text" value="26"/>	Seal	Seal material	FKM NBR
			= V = M



## Directional seat valve module, type "W", "S"

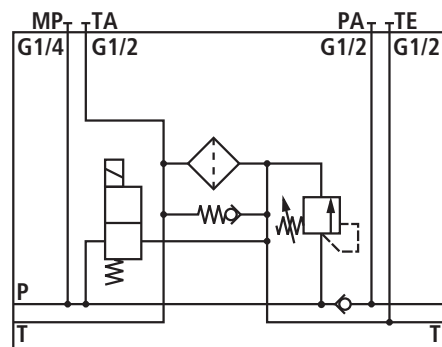
<input type="checkbox"/>	<sup>1</sup> Adjustment element at the pressure relief valve	Setscrew with hexagon and protective cap Rotary knob Lockable rotary knob		= S = H = A
<input type="checkbox"/>	<sup>2</sup> Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	25 bar 50 bar 100 bar 200 bar 315 bar 400 bar	= 25 = 50 = 100 = 200 = 315 = 400
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!				
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 140 bar 210 bar 330 bar	= 50E = 100E = 140E = 210E = 330E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD../..E Type testing according to Pressure Equipment Directive 97/23/EC				See page 88
<input type="checkbox"/>	<sup>14</sup> Pressure monitoring	With measuring port Without pressure monitoring		= M = O
<input type="checkbox"/>	<sup>19</sup> Filter rating	06 µm 10 µm		= 06 = 10
<input type="checkbox"/>	<sup>20</sup> Clogging indicator	Without clogging indicator Visual clogging indicator Electric clogging indicator		= A = O = E
<input type="checkbox"/>	<sup>26</sup> Seal	Seal material Seal material	FKM NBR	= V = M

## Directional seat valve module, type "W", "S" (dimensions in mm)

**Filter module with pressure relief valve and circulation valve, type "F30DBU", "F60DBU" ( $p_{\max} = 7 \text{ bar}$ ) –**

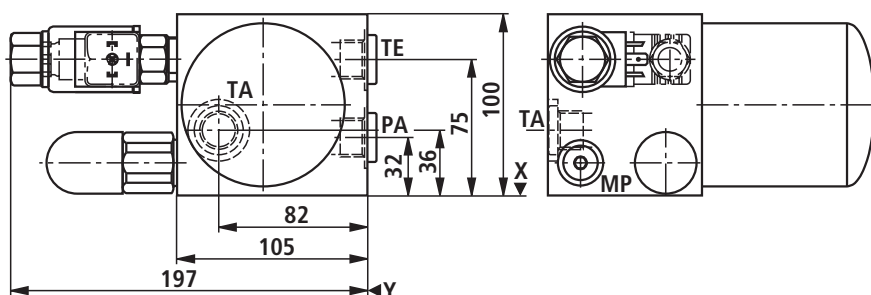
Filter module with pressure relief valve and circulation valve cannot be directly attached to the UPE5 drive module.

### Symbol



### Unit dimensions

Dimension Z = 180 mm F30DBU  
Dimension Z = 290 mm F60DBU



### Installation information:

Wind the filter cartridge as tight as possible on the block. Then, wind the filter cartridge by further 1/3 of a rotation.

Material no.	Device designation	Type designation
	Filter module with pressure relief valve and circulation valve	IH15EB-1X/F30DBU- <input type="text"/> <sup>1</sup> <input type="text"/> <sup>2</sup> / <input type="text"/> <sub>14</sub> <input type="text"/> <sub>4</sub> <input type="text"/> <sub>8</sub> / <input type="text"/> <sub>19</sub> / <input type="text"/> <sub>20</sub> / <input type="text"/> <sub>26</sub>
R901070590		IH15EB-1X/F30DBU-S100/MPG24/10/A/V
R904101867		IH15EB-1X/F30DBU-S100/MPG24/10/E/V
R904101868		IH15EB-1X/F30DBU-S100/MPG24/10/O/V
R901070591		IH15EB-1X/F30DBU-S200/MPG24/10/A/V
R904101869		IH15EB-1X/F30DBU-S200/MPG24/10/E/V
R904101870		IH15EB-1X/F30DBU-S200/MPG24/10/O/V

Material no.	Device designation	Type designation
	Filter module with pressure relief valve and circulation valve	IH15EB-1X/F60DBU- <input type="text"/> <sup>1</sup> <input type="text"/> <sup>2</sup> / <input type="text"/> <sub>14</sub> <input type="text"/> <sub>4</sub> <input type="text"/> <sub>8</sub> / <input type="text"/> <sub>19</sub> / <input type="text"/> <sub>20</sub> / <input type="text"/> <sub>26</sub>
R901070592		IH15EB-1X/F60DBU-S100/MPG24/10/A/V
R904101348		IH15EB-1X/F60DBU-S100/MPG24/10/E/V
R904101873		IH15EB-1X/F60DBU-S100/MPG24/10/O/V
R901070593		IH15EB-1X/F60DBU-S200/MPG24/10/A/V
R904101872		IH15EB-1X/F60DBU-S200/MPG24/10/E/V
R904101871		IH15EB-1X/F60DBU-S200/MPG24/10/O/V

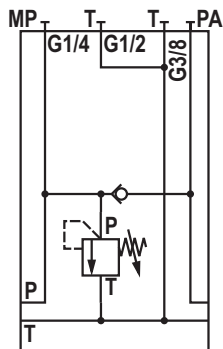
## Directional seat valve module, type "W", "S"

<input type="checkbox"/>	1 Adjustment element at the pressure relief valve	Setscrew with hexagon and protective cap Rotary knob Lockable rotary knob		= S = H = A
<input type="checkbox"/>	2 Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	25 bar 50 bar 100 bar 200 bar 315 bar 400 bar	= 25 = 50 = 100 = 200 = 315 = 400
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!				
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 140 bar 210 bar 330 bar	= 50E = 100E = 140E = 210E = 330E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD../..E Type testing according to Pressure Equipment Directive 97/23/EC				See page 88
<input type="checkbox"/>	4 Designation of the 2/2 seat valve	Normally closed Normally open		= N = P
<input type="checkbox"/>	8 Solenoid voltage of the seat valves	Volt	24 V DC	= G24
<input type="checkbox"/>	14 Pressure monitoring	With measuring port Without pressure monitoring		= M = O
<input type="checkbox"/>	19 Filter rating	06 µm 10 µm		= 06 = 10
<input type="checkbox"/>	20 Clogging indicator	Without clogging indicator Visual clogging indicator Electric clogging indicator		= A = O = E
<input type="checkbox"/>	26 Seal	Seal material Seal material	FKM NBR	= V = M

## Directional seat valve module, type "W", "S" (dimensions in mm)

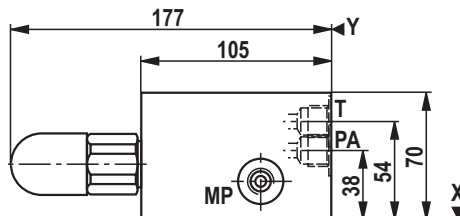
### Pressure relief module, type "SDB"

#### Symbol



#### Unit dimensions

Dimension Z = 85 mm



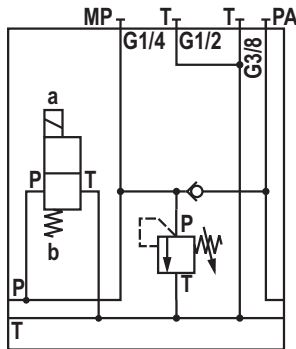
Material no.	Device designation	Type designation
	Pressure relief module	IH15EB-1X/SDB- <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/>
R901065894		IH15EB-1X/SDB-A100/M/V
R901065267		IH15EB-1X/SDB-A100/O/V
R901065895		IH15EB-1X/SDB-H100/M/V
R901065269		IH15EB-1X/SDB-H100/O/V
R901065896		IH15EB-1X/SDB-S100/M/V
R904101875		IH15EB-1X/SDB-S100/O/V

<input type="checkbox"/> 1	Adjustment element at the pressure relief valve	Setscrew with hexagon and protective cap Rotary knob Lockable rotary knob	= S = H = A
<input type="checkbox"/> 2	Pressure rating of the pressure relief valve	Setting pressure up to max. 25 bar Setting pressure up to max. 50 bar Setting pressure up to max. 100 bar Setting pressure up to max. 200 bar Setting pressure up to max. 315 bar Setting pressure up to max. 400 bar	= 25 = 50 = 100 = 200 = 315 = 400
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!			
		Setting pressure up to max. 50 bar Setting pressure up to max. 100 bar Setting pressure up to max. 140 bar Setting pressure up to max. 210 bar Setting pressure up to max. 330 bar	= 50E = 100E = 140E = 210E = 330E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD../..E Type testing according to Pressure Equipment Directive 97/23/EC			See page 88
<input type="checkbox"/> 14	Pressure monitoring	With measuring port Without pressure monitoring	= M = O
<input type="checkbox"/> 26	Seal	Seal material FKM Seal material NBR	= V = M

### Directional seat valve module, type "W", "S" (dimensions in mm)

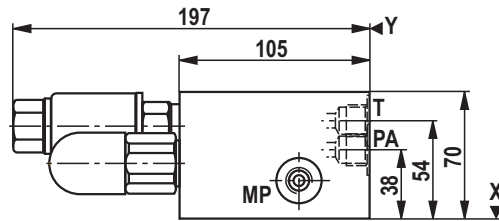
Pressure relief module with circulation valve, type "SDBU"

Symbol



Unit dimensions

Dimension Z = 85 mm



Material no.	Device designation	Type designation
	Pressure relief module with circulation valve	IH15EB-1X/SDBU- 1 2 14 4 8 26 <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/>
R901039998		IH15EB-1X/SDBU-A200/MPG24/V
R901040000		IH15EB-1X/SDBU-A200/OPG24/V
R901039996		IH15EB-1X/SDBU-H200/MPG24/V
R901089997		IH15EB-1X/SDBU-H200/OPG24/V
R904101825		IH15EB-1X/SDBU-S50/MPG24/V
R904101343		IH15EB-1X/SDBU-S100/MPG24/V
R904101833		IH15EB-1X/SDBU-S200/MPG24/V
R901039995		IH15EB-1X/SDBU-S200/OPG24/V
R904101882		IH15EB-1X/SDBU-S315/MPG24/V

<input type="checkbox"/> 1	Adjustment element at the pressure relief valve	Setscrew with hexagon and protective cap Rotary knob Lockable rotary knob	= S = H = A
<input type="checkbox"/> 2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	25 bar = 25 50 bar = 50 100 bar = 100 200 bar = 200 315 bar = 315 400 bar = 400

Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive)  
More pressure ratings on request!

		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar = 50E 100 bar = 100E 140 bar = 140E 210 bar = 210E 330 bar = 330E
--	--	---	--

**Characteristic curve** for type-examination tested pressure relief valves type: DBD...E  
Type testing according to Pressure Equipment Directive 97/23/EC

See page 88

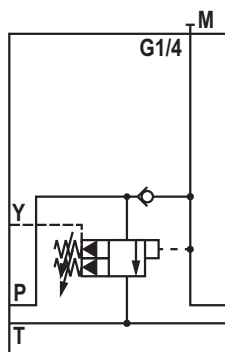
<input type="checkbox"/> 4	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
<input type="checkbox"/> 8	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="checkbox"/> 14	Pressure monitoring	With measuring port Without pressure monitoring	= M = O
<input type="checkbox"/> 26	Seal	Seal material Seal material	FKM = V NBR = M



## Directional seat valve module, type "W", "S" (dimensions in mm)

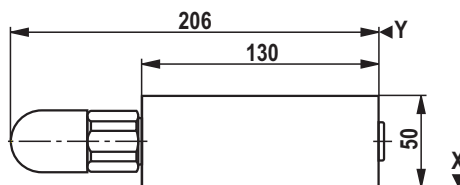
### Pressure cut-off module, type "SDA"

#### Symbol



#### Unit dimensions

Dimension Z = 95 mm



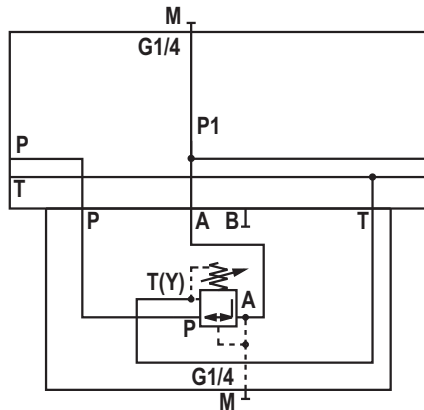
Material no.	Device designation	Type designation
	Pressure cut-off module	IH15EB-2X/SDA- <input type="checkbox"/> <sup>23</sup> / <input type="checkbox"/> <sup>24</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901152738		IH15EB-2X/SDA-2/K/M/V

<input type="checkbox"/> <sup>14</sup>	Pressure monitoring	With measuring port		= M
		Without pressure monitoring		= O
<input type="checkbox"/> <sup>23</sup>	Adjustment type	Hexagon with protective cap		= 2
<input type="checkbox"/> <sup>24</sup>	Pressure rating of the pressure cut-off valve	Setting pressure up to max.	50 bar	= C
		Setting pressure up to max.	100 bar	= F
		Setting pressure up to max.	200 bar	= K
		Setting pressure up to max.	350 bar	= R
<input type="checkbox"/> <sup>26</sup>	Seal	Seal material	FKM	= V
		Seal material	NBR	= M

## Directional seat valve module, type "W", "S" (dimensions in mm)

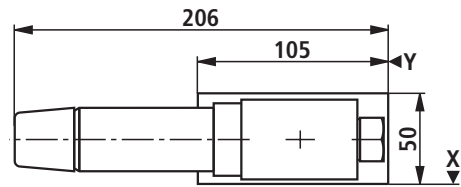
### Pressure reducing module, type "WDR"

Symbol



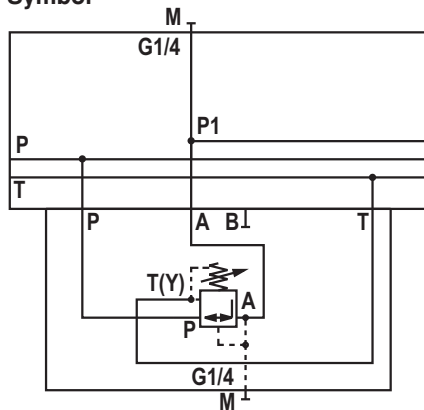
Unit dimensions

Dimension Z = 120 mm



### Pressure reducing module with P1 channel, type "WDRP1"

Symbol



Material no.	Device designation	Type designation
	Pressure reducing module	IH15MB-1X/WDR- <input type="text" value="16"/> / <input type="text" value="17"/> / <input type="text" value="14"/> / <input type="text" value="26"/>
R901066169		IH15MB-1X/WDR-1/210/M/V
R901066168		IH15MB-1X/WDR-1/210/O/V
R904101852		IH15MB-1X/WDR-2/75/M/V
R904102085		IH15MB-1X/WDR-2/75/O/V
R904101559		IH15MB-1X/WDR-2/150/M/V
R904101853		IH15MB-1X/WDR-2/210/M/V
R904101854		IH15MB-1X/WDR-2/315/M/V
R901066167		IH15MB-1X/WDR-3/210/M/V
R901066166		IH15MB-1X/WDR-3/210/O/V
R901066165		IH15MB-1X/WDR-7/210/M/V
R901066164		IH15MB-1X/WDR-7/210/O/V

## Directional seat valve module, type "W", "S"

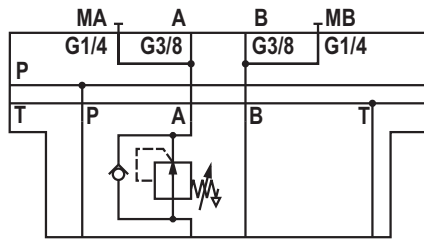
Material no.	Device designation	Type designation
	Pressure reducing module with P1 channel	IH15MB-1X/WDRP1- <input type="checkbox"/> <sup>16</sup> / <input type="checkbox"/> <sup>17</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R904101755		IH15MB-1X/WDRP1-1/150/M/V
R901067481		IH15MB-1X/WDRP1-1/150/O/V
R904101636		IH15MB-1X/WDRP1-2/75/M/V
R901067480		IH15MB-1X/WDRP1-2/75/O/V
R904101855		IH15MB-1X/WDRP1-2/150/M/V
R901067478		IH15MB-1X/WDRP1-2/150/O/V
R901067482		IH15MB-1X/WDRP1-3/210/M/V
R901067483		IH15MB-1X/WDRP1-3/210/O/V
R901067485		IH15MB-1X/WDRP1-7/210/M/V
R901067486		IH15MB-1X/WDRP1-7/210/O/V

<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With measuring port Without pressure monitoring	= M = O	
<input type="checkbox"/> <sup>16</sup> Adjustment element at the pressure reducing valve	Rotary knob Setscrew with hexagon and protective cap Lockable rotary knob with scale Rotary knob with scale	= 1 = 2 = 3 = 7	
<input type="checkbox"/> <sup>17</sup> Secondary pressure	Max. secondary pressure Max. secondary pressure Max. secondary pressure Max. secondary pressure Max. secondary pressure	25 bar 75 bar 150 bar 210 bar 315 bar	= 25 = 75 = 150 = 210 = 315
<input type="checkbox"/> <sup>26</sup> Seal	Seal material Seal material	FKM NBR	= V = M

### Directional seat valve module, type "W", "S" (dimensions in mm)

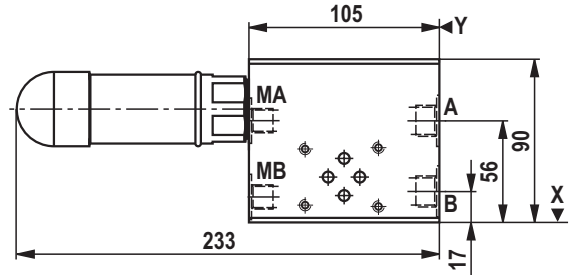
Sandwich module with pressure reducing valve in channel A, type "WZDR-A"

Symbol



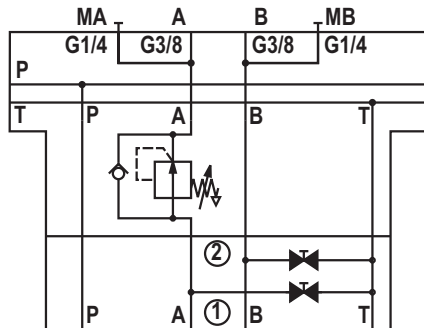
Unit dimensions

Dimension Z = 95 mm



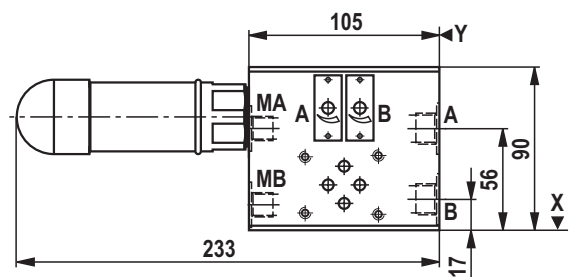
Sandwich module with pressure reducing valve in channel A and drain cock, type "WZDR-A/A"

Symbol



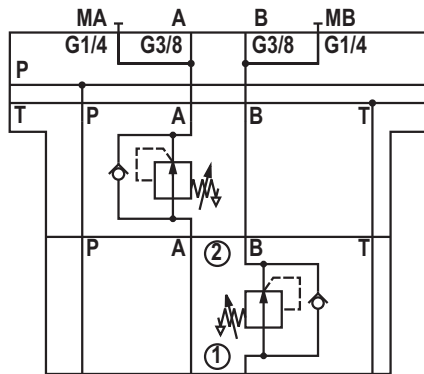
Unit dimensions

Dimension Z = 145 mm



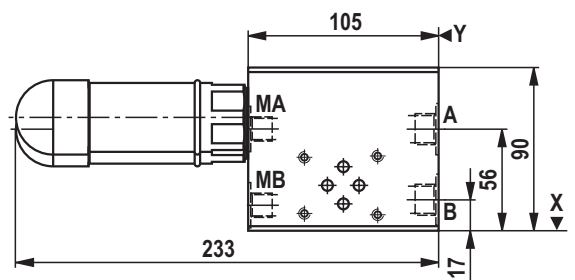
Sandwich module with pressure reducing valve in channel AB, type "WZDR-AB"

Symbol



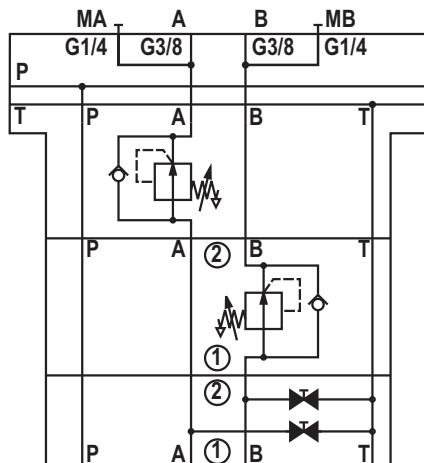
Unit dimensions

Dimension Z = 155 mm



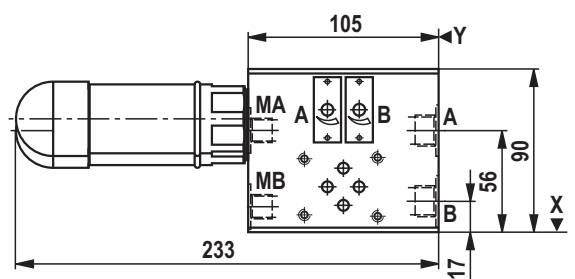
Sandwich module with pressure reducing valve in channel AB and drain cock, type "WZDR-AB/A"

Symbol



Unit dimensions

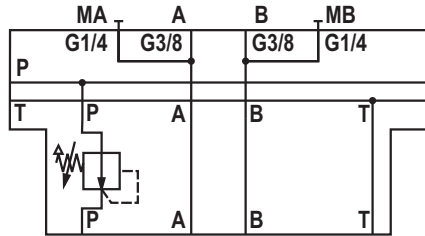
Dimension Z = 205 mm



**Directional seat valve module, type "W", "S" (dimensions in mm)**

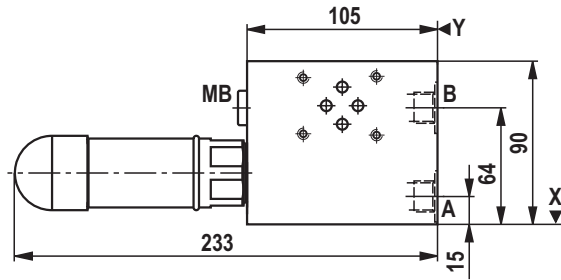
Sandwich module with pressure reducing valve in channel P, type "WZDR-P"

Symbol



Unit dimensions

Dimension Z = 95 mm



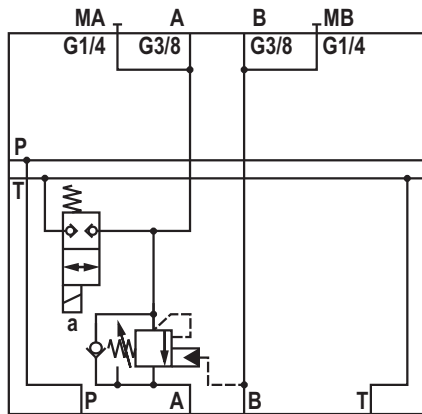
Material no.	Device designation	Type designation
	Sandwich module with pressure reducing valve	IH15EB-1X/WZDR- <input type="checkbox"/> <sub>29</sub> / <input type="checkbox"/> <sub>32</sub> <input type="checkbox"/> <sub>33</sub> / <input type="checkbox"/> <sub>34</sub> / <input type="checkbox"/> <sub>14</sub> / <input type="checkbox"/> <sub>26</sub>
R904102218		IH15EB-1X/WZDR-AB/2/100/M/V
R904102219		IH15EB-1X/WZDR-AB/2/100D/M/V
R901040102		IH15EB-1X/WZDR-AB/2/210/M/V
R901063736		IH15EB-1X/WZDR-AB/2/210D/M/V
R904101639		IH15EB-1X/WZDR-A/2/100/M/V
R904102089		IH15EB-1X/WZDR-A/2/100D/M/V
R901024724		IH15EB-1X/WZDR-A/2/210D/M/V
R904101807		IH15EB-1X/WZDR-A/2/315/M/V
R901110142		IH15EB-1X/WZDR-P/2/210/M/V
R901110143		IH15EB-1X/WZDR-P/2/210D/M/V

<input type="checkbox"/> 14	Pressure monitoring	With measuring port Without pressure monitoring	= M = O
<input type="checkbox"/> 26	Seal	Seal material Seal material	FKM = V NBR = M
<input type="checkbox"/> 29	Cartridge valve	In channel A In channel A and B In channel P	= A = AB = P
<input type="checkbox"/> 32	Stop valve	Without stop valve With stop valve	= no code = A
<input type="checkbox"/> 33	Adjustment element at the pressure reducing valve	Setscrew with hexagon and protective cap Rotary knob with scale, lockable	= 2 = 3
<input type="checkbox"/> 34	Secondary pressure	Max. secondary pressure Max. secondary pressure Max. secondary pressure Max. secondary pressure with pressure switch Max. secondary pressure with pressure switch Max. secondary pressure with pressure switch	100 bar = 100 210 bar = 210 315 bar = 315 100 bar = 100D 210 bar = 210D 315 bar = 315D

### Directional seat valve module, type "W", "S" (dimensions in mm)

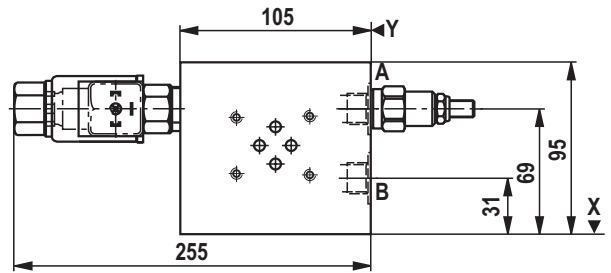
Sandwich module with lowering brake valve in channel A, type "WZSB-A"

Symbol



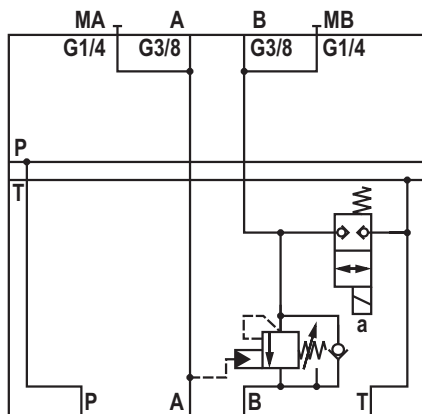
Unit dimensions

Dimension Z = 110 mm



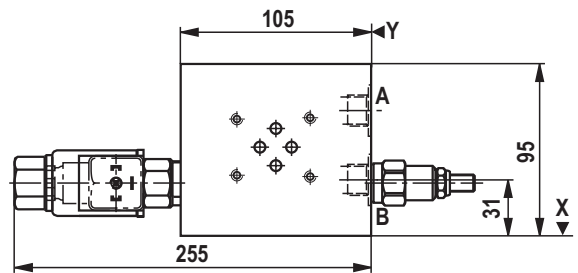
Sandwich module with lowering brake valve in channel B, type "WZSB-B"

Symbol



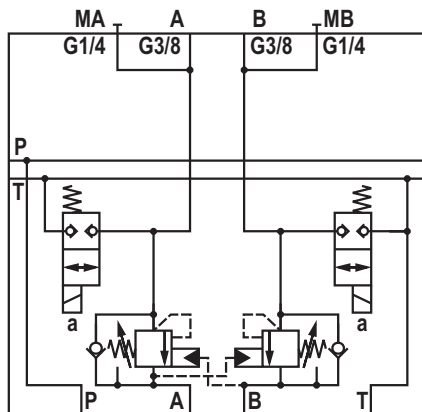
Unit dimensions

Dimension Z = 110 mm



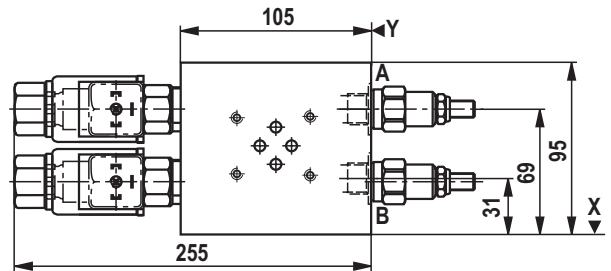
Sandwich module with lowering brake valve in channel A and B, type "WZSB-AB"

Symbol



Unit dimensions

Dimension Z = 110 mm



## Directional seat valve module, type: "W", "S"

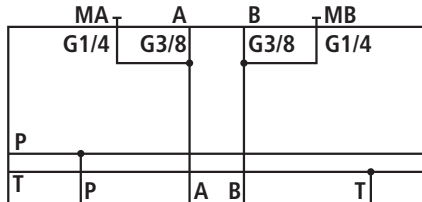
Material no.	Device designation	Type designation
	Sandwich module with lowering brake valve	IH15EB-1X/WZSB- <input type="checkbox"/> <sup>29</sup> / <input type="checkbox"/> <sup>14</sup> <input type="checkbox"/> <sup>4</sup> <input type="checkbox"/> <sup>8</sup> / <input type="checkbox"/> <sup>26</sup>
R901160333		IH15EB-1X/WZSB-AB/MNG24/V

<input type="checkbox"/> <sup>4</sup>	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
<input type="checkbox"/> <sup>8</sup>	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="checkbox"/> <sup>14</sup>	Pressure monitoring	With measuring port Without pressure monitoring	= M = O
<input type="checkbox"/> <sup>26</sup>	Seal	Seal material Seal material	FKM NBR = V = M
<input type="checkbox"/> <sup>29</sup>	Cartridge valve	In channel A In channel B In channel A and B	= A = B = AB

### Directional seat valve module, type "W", "S" (dimensions in mm)

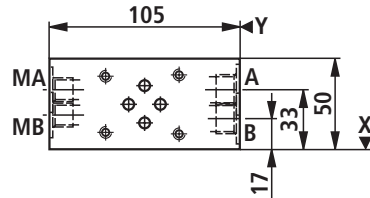
#### Sandwich module, type "WZ"

Symbol



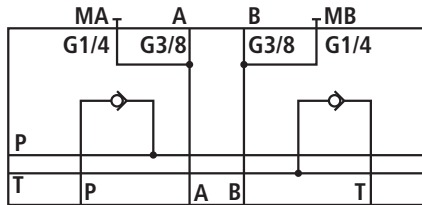
IH15MB-1X/WZ-...

Unit dimensions

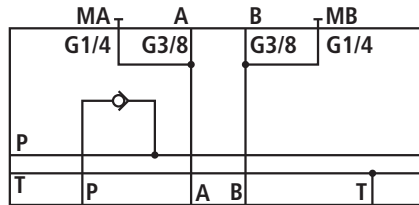


Dimension Z = 70 mm  
without check valve

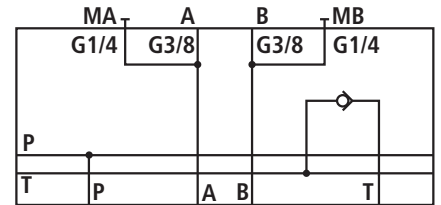
Dimension Z = 85 mm  
with check valve



IH15MB-1X/WZ-PT-...



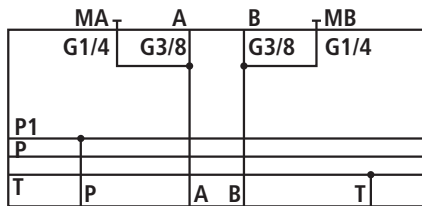
IH15MB-1X/WZ-P-...



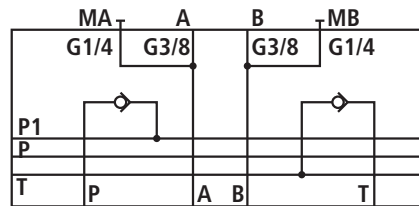
IH15MB-1X/WZ-T-...

#### Sandwich module with P1 channel, type "WZP1"

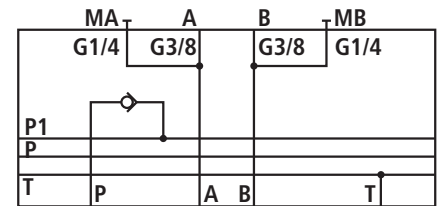
Symbol



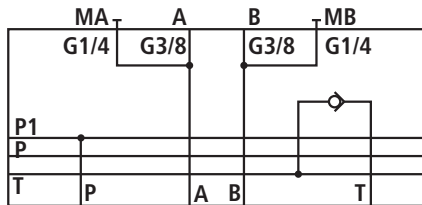
IH15MB-1X/WZP1-...



IH15MB-1X/WZP1-PT-...



IH15MB-1X/WZP1-P-...



IH15MB-1X/WZP1-T-...

Material no.	Device designation	Type designation
	Sandwich module	IH15MB-1X/WZ- <input type="text" value="21"/> / <input type="text" value="14"/> / <input type="text" value="26"/>
R904101345		IH15MB-1X/WZ-M/V
R904101410		IH15MB-1X/WZ-O/V
R901067488		IH15MB-1X/WZ-PT/M/V
R901067489		IH15MB-1X/WZ-PT/O/V
R901067490		IH15MB-1X/WZ-P/M/V
R901067491		IH15MB-1X/WZ-P/O/V
R901065897		IH15MB-1X/WZ-T/M/V
R904101455		IH15MB-1X/WZ-T/O/V



## Directional seat valve module, type "W", "S"

Material no.	Device designation	Type designation
	Sandwich module with P1 channel	IH15MB-1X/WZP1- <input type="checkbox"/> <sup>21</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R904101830		IH15MB-1X/WZP1-M/V
R904101598		IH15MB-1X/WZP1-O/V
R901067493		IH15MB-1X/WZP1-PT/M/V
R901067495		IH15MB-1X/WZP1-PT/O/V
R901067497		IH15MB-1X/WZP1-P/M/V
R904101756		IH15MB-1X/WZP1-P/O/V
R901067498		IH15MB-1X/WZP1-T/M/V
R901067499		IH15MB-1X/WZP1-T/O/V

<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With measuring port Without pressure monitoring	= M = O
<input type="checkbox"/> <sup>21</sup> Check valve	Without check valve In channel P In channel T In channel P and T	= no code = P = T = PT
<input type="checkbox"/> <sup>26</sup> Seal	Seal material Seal material	FKM NBR = V = M

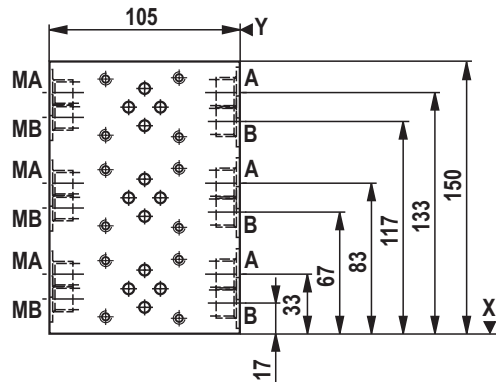
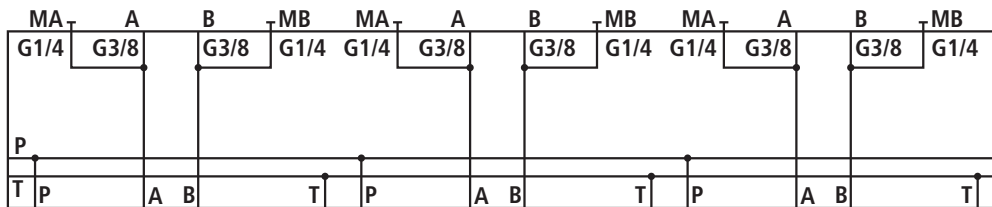
### Directional seat valve module, type "W", "S" (dimensions in mm)

Sandwich module with 3 valve stations, type "WZ3"

Symbol

Unit dimensions

Dimension Z = 70 mm

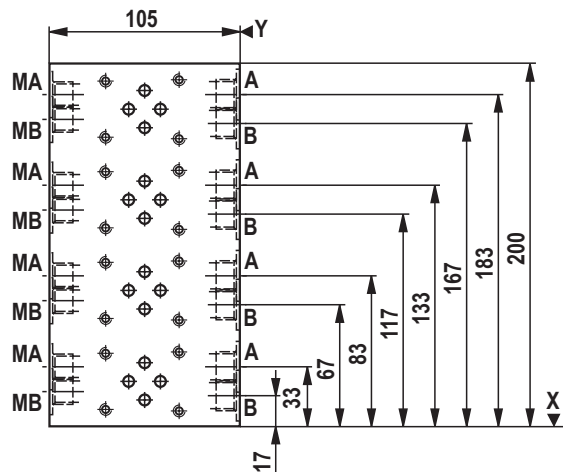
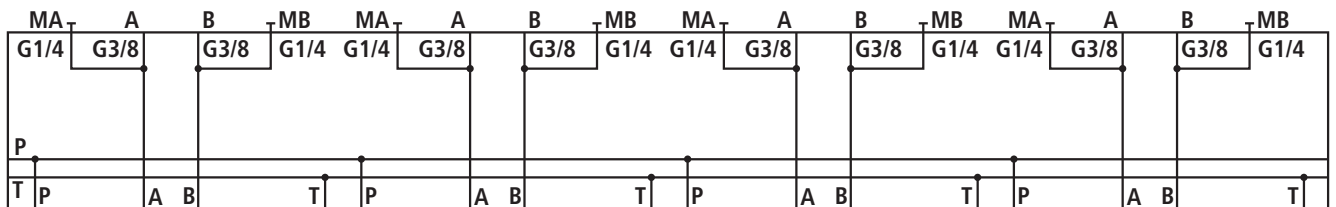


Sandwich module with 4 valve stations, type "WZ4"

Symbol

Unit dimensions

Dimension Z = 70 mm



## Directional seat valve module, type "W", "S"

Material no.	Device designation	Type designation
	Sandwich module, 3 valve stations	IH15MB-1X/WZ3- <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901096707		IH15EB-1X/WZ3-M/V
R901096708		IH15EB-1X/WZ3-O/V

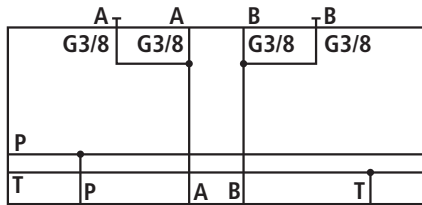
Material no.	Device designation	Type designation
	Sandwich module, 4 valve stations	IH15MB-1X/WZ4- <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901090430		IH15EB-1X/WZ4-M/V
R901096706		IH15EB-1X/WZ4-O/V

<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With measuring port Without pressure monitoring		= M = O
<input type="checkbox"/> <sup>26</sup> Seal	Seal material Seal material	FKM NBR	= V = M

### Directional seat valve module, type "W", "S" (dimensions in mm)

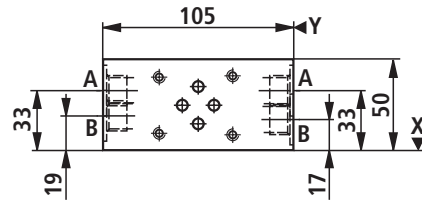
**Sandwich module in special design -008**  
 (outlets A and B 2x G3/8 each), type "WZ-...-008"

**Symbol**



**Unit dimensions**

**Dimension Z = 70 mm**

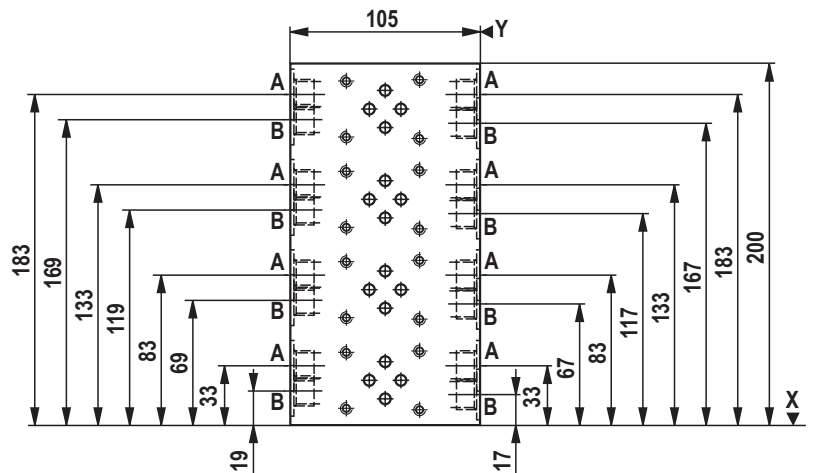
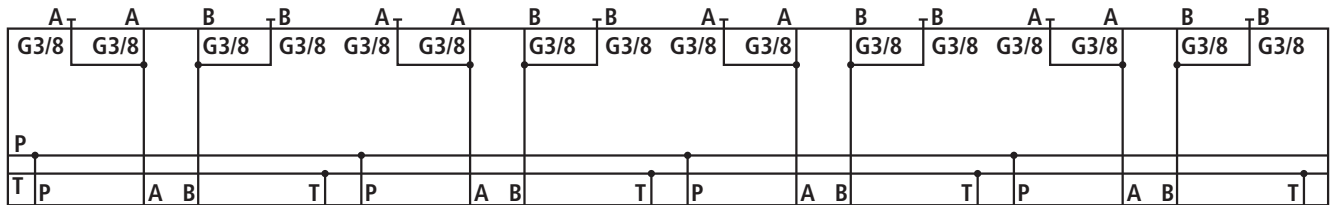


**Sandwich module with 4 valve stations in special design -008**  
 (outlets A and B 2x G3/8 each), type "WZ4-...-008"

**Symbol**

**Unit dimensions**

**Dimension Z = 70 mm**



## Directional seat valve module, type "W", "S"

Material no.	Device designation	Type designation
	Sandwich module in special design -008, 1 valve station	IH15MB-1X/WZ- <sup>14</sup> <input type="checkbox"/> / <sup>26</sup> <input type="checkbox"/> -008
R901128760		IH15MB-1X/WZ-M/V-008
R901125893		IH15MB-1X/WZ-O/V-008

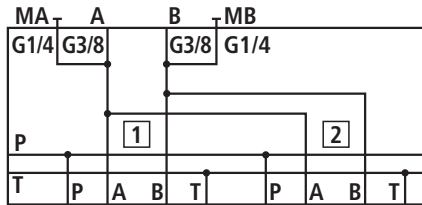
Material no.	Device designation	Type designation
	Sandwich module in special design -008, 4 valve stations	IH15MB-1X/WZ4- <sup>14</sup> <input type="checkbox"/> / <sup>26</sup> <input type="checkbox"/> -008
R901128761		IH15MB-1X/WZ4-M/V-008
R901125863		IH15MB-1X/WZ4-O/V-008

<sup>14</sup> <input type="checkbox"/>	Pressure monitoring	With measuring port Without pressure monitoring	= M = O
<sup>26</sup> <input type="checkbox"/>	Seal	Seal material Seal material	FKM NBR = V = M

### Directional seat valve module, type "W", "S" (dimensions in mm)

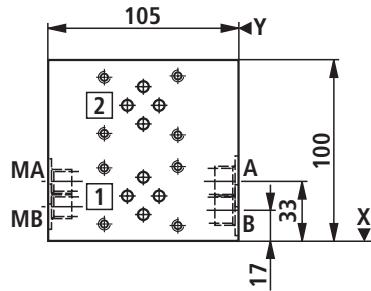
#### Sandwich module 2 - AA - BB, type "WZ2AABB"

Symbol



Unit dimensions

Dimension Z = 70 mm

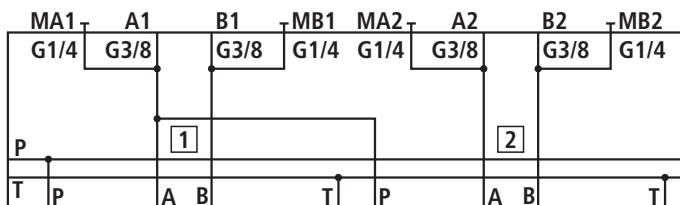


Material no.	Device designation	Type designation
	Sandwich module, 2 valve stations, AA-BB channel connected	IH15MB-1X/WZ2AABB- <input type="checkbox"/> 14 / <input type="checkbox"/> 26
R904101364		IH15MB-1X/WZ2AABB-M/V
R904101411		IH15MB-1X/WZ2AABB-O/V

<input type="checkbox"/> 14	Pressure monitoring	With measuring port	= M
		Without pressure monitoring	= O
<input type="checkbox"/> 26	Seal	Seal material	FKM = V
		Seal material	NBR = M

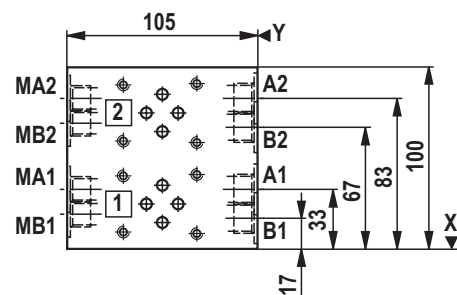
#### Sandwich module 2 - AP, type "WZ2AP"

Symbol



Unit dimensions

Dimension Z = 70 mm



Material no.	Device designation	Type designation
	Sandwich module, 2 valve stations, A-P channel connected	IH15MB-1X/WZ2AP- <input type="checkbox"/> 14 / <input type="checkbox"/> 26
R901094521		IH15MB-1X/WZ2AP-M/V
R901094520		IH15MB-1X/WZ2AP-O/V

<input type="checkbox"/> 14	Pressure monitoring	With measuring port	= M
		Without pressure monitoring	= O
<input type="checkbox"/> 26	Seal	Seal material	FKM = V
		Seal material	NBR = M

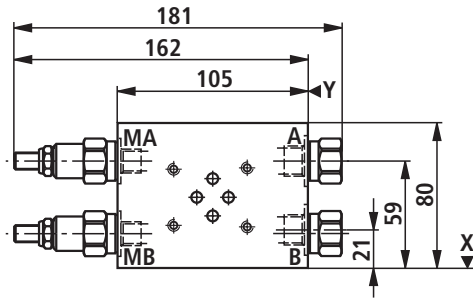
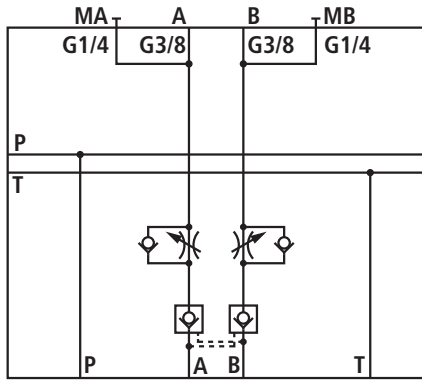
**Directional seat valve module, type "W", "S" (dimensions in mm)**

Sandwich module with cartridge valves, type "WZE"

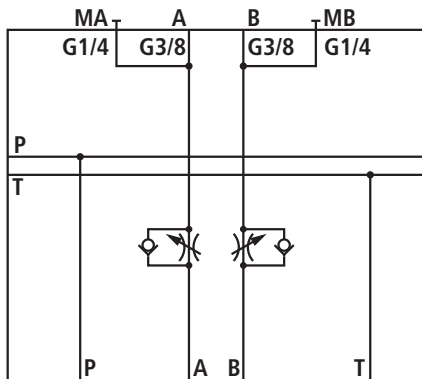
Symbol

Unit dimensions

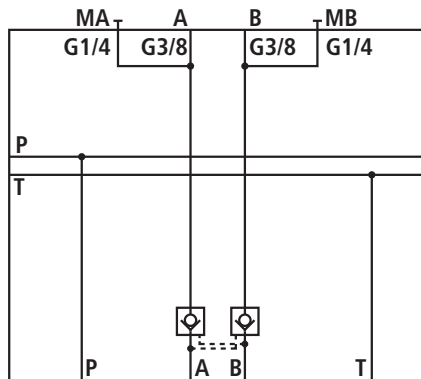
Dimension Z = 110 mm



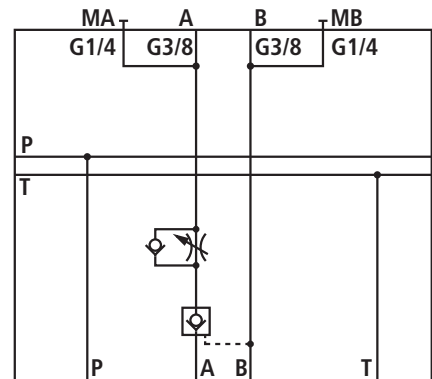
IH15EB-1X/WZE-FSR/AB...



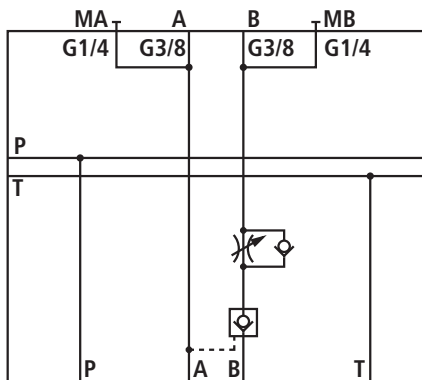
IH15EB-1X/WZE-FS/AB...



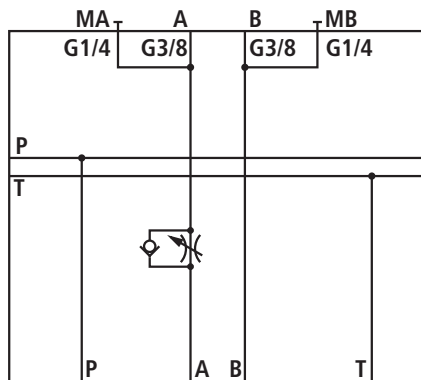
IH15EB-1X/WZE-R/AB...



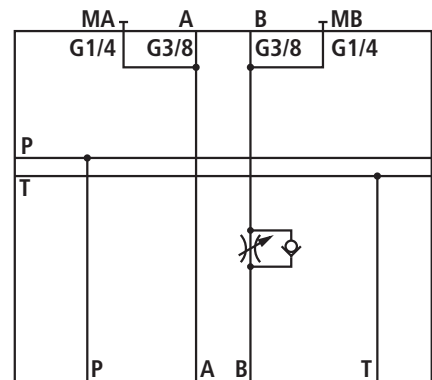
IH15EB-1X/WZE-FSR/A...



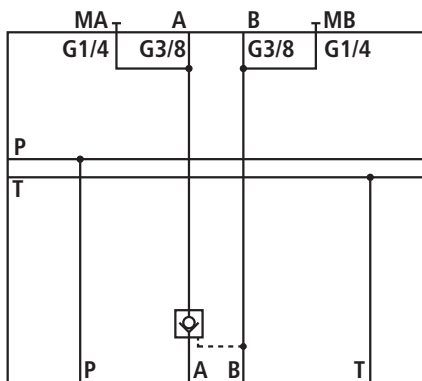
IH15EB-1X/WZE-FSR/B...



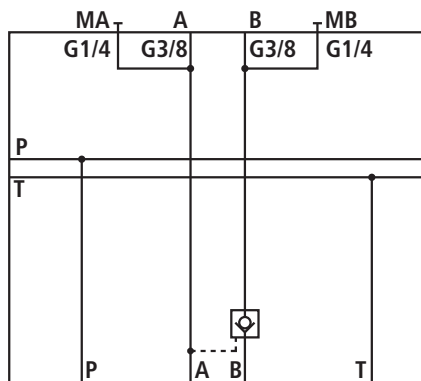
IH15EB-1X/WZE-FS/A...



IH15EB-1X/WZE-FS/B...



IH15EB-1X/WZE-R/A...

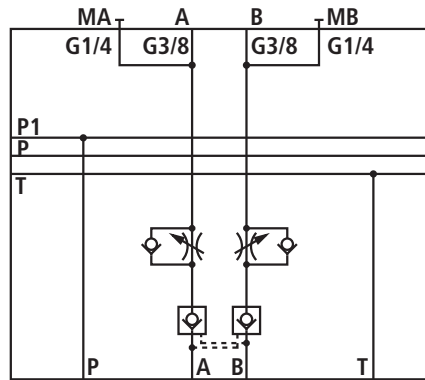


IH15EB-1X/WZE-R/B...

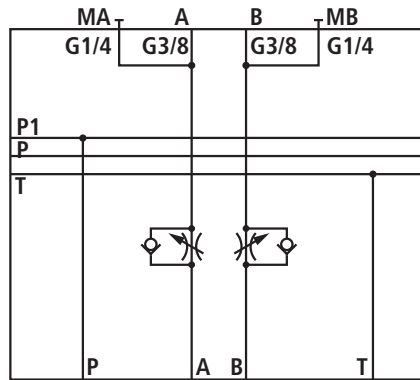
### Directional seat valve module, type "W", "S" (dimensions in mm)

Sandwich module with cartridge valves, type "WZEP1"

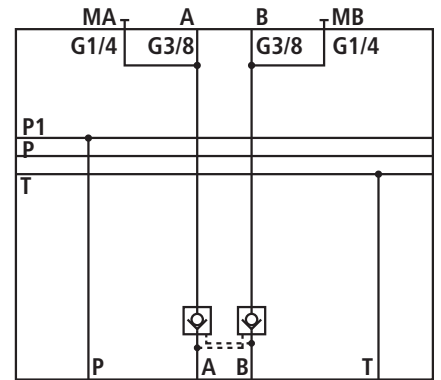
Symbol



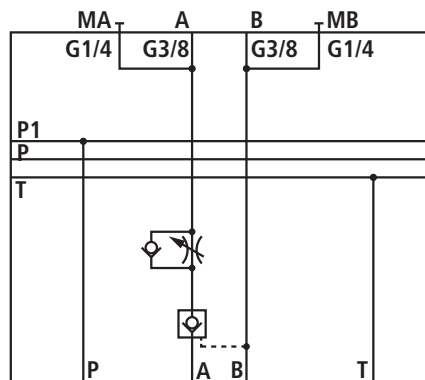
IH15EB-1X/WZEP1-FSR/AB...



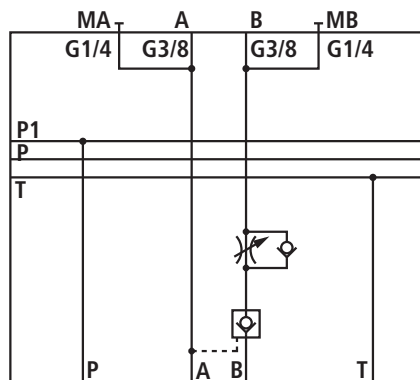
IH15EB-1X/WZEP1-FS/AB...



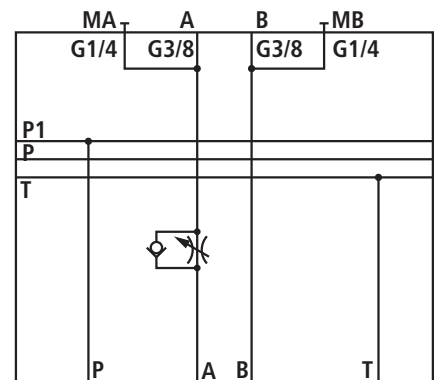
IH15EB-1X/WZEP1-R/AB...



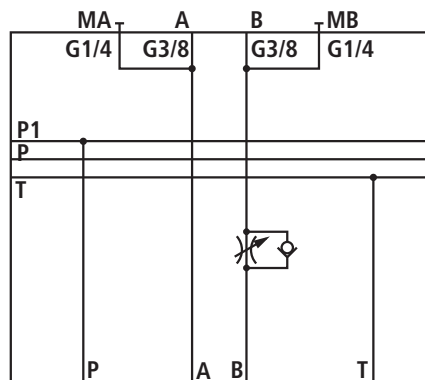
IH15EB-1X/WZEP1-FSR/A...



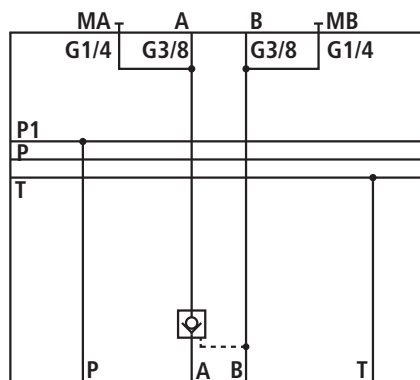
IH15EB-1X/WZEP1-FSR/B...



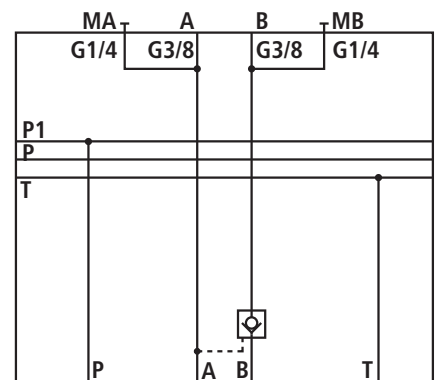
IH15EB-1X/WZEP1-FS/A...



IH15EB-1X/WZEP1-FS/B...



IH15EB-1X/WZEP1-R/A...



IH15EB-1X/WZEP1-R/B...

Material no.	Device designation	Type designation
	Sandwich module with cartridge valves	IH15EB-1X/WZE- <input type="checkbox"/> <sup>28</sup> / <input type="checkbox"/> <sup>29</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R904101344		IH15EB-1X/WZE-FSR/AB/M/V
R901067578		IH15EB-1X/WZE-FSR/AB/O/V
R901067579		IH15EB-1X/WZE-FS/AB/M/V
R901067580		IH15EB-1X/WZE-FS/AB/O/V
R901067581		IH15EB-1X/WZE-R/AB/M/V
R901067582		IH15EB-1X/WZE-R/AB/O/V



## Directional seat valve module, type "W", "S"

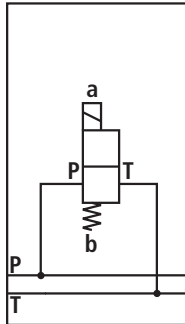
Material no.	Device designation	Type designation
	Sandwich module with cartridge valves and P1 channel	IH15EB-1X/WZEP1- <input type="checkbox"/> <sup>28</sup> / <input type="checkbox"/> <sup>29</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901067583		IH15EB-1X/WZEP1-FSR/AB/M/V
R901067584		IH15EB-1X/WZEP1-FSR/AB/O/V
R901067585		IH15EB-1X/WZEP1-FS/AB/M/V
R901067586		IH15EB-1X/WZEP1-FS/AB/O/V
R901067587		IH15EB-1X/WZEP1-R/AB/M/V
R901067675		IH15EB-1X/WZEP1-R/AB/O/V

<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With measuring port Without pressure monitoring	= M = O
<input type="checkbox"/> <sup>26</sup> Seal	Seal material Seal material	FKM = V NBR = M
<input type="checkbox"/> <sup>28</sup> Cartridge valve	Adjustable throttle check valve Pilot operated check valve Adjustable throttle check valve and pilot operated check valve	= FS = R = FSR
<input type="checkbox"/> <sup>29</sup> Cartridge valve	In channel A In channel B In channel A and B	= A = B = AB

### Directional seat valve module, type "W", "S" (dimensions in mm)

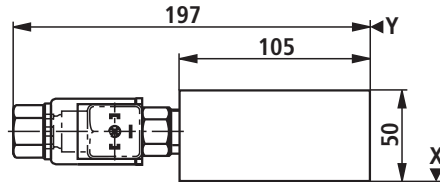
#### Circulation module, type "SU"

Symbol



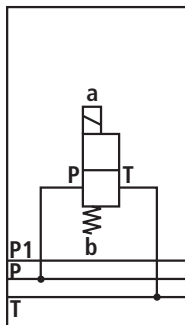
Unit dimensions

Dimension Z = 70 mm



#### Circulation module with P1 channel, type "SUP1"

Symbol



Material no.	Device designation	Type designation
	Circulation module	IH15EB-1X/SU- <input type="text" value="4"/> <input type="text" value="8"/> / <input type="text" value="26"/>
R904101894		IH15EB-1X/SU-NG24/V
R904101895		IH15EB-1X/SU-PG24/V

Material no.	Device designation	Type designation
	Circulation module with P1 channel	IH15EB-1X/SUP1- <input type="text" value="4"/> <input type="text" value="8"/> / <input type="text" value="26"/>
R904101896		IH15EB-1X/SUP1-NG24/V
R904101897		IH15EB-1X/SUP1-PG24/V

<input type="text" value="4"/>	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
<input type="text" value="8"/>	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="text" value="26"/>	Seal	Seal material Seal material	FKM NBR = V = M

**Directional seat valve module, type "W", "S" (dimensions in mm)**

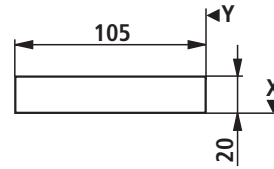
**Module P, type "SP"**

Symbol

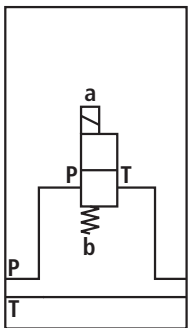


IH15EB-1X/SP -V  
-M

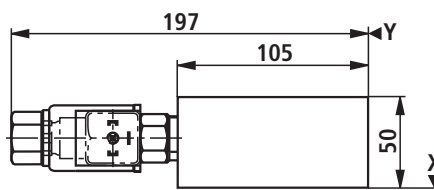
Unit dimensions



Dimension Z = 70 mm



IH15EB-1X/SP -N ...  
-P ...



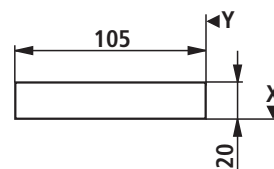
**Module P with P1 channel, type "SPP1"**

Symbol

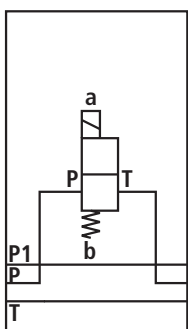


IH15EB-1X/SPP1 -V  
-M

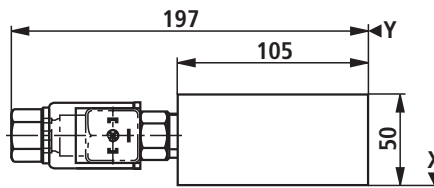
Unit dimensions



Dimension Z = 70 mm



IH15EB-1X/SPP1 -N ...  
-P ...



## Directional seat valve module, type "W", "S"

Material no.	Device designation	Type designation
	Control module P	IH15EB-1X/SP- <sup>26</sup> <input type="text"/>
R904101760		IH15EB-1X/SP/V

Material no.	Device designation	Type designation
	Control module P	IH15EB-1X/SP- <sup>4</sup> <input type="text"/> <sup>8</sup> <input type="text"/> / <sup>26</sup> <input type="text"/>
R904101795		IH15EB-1X/SP-NG24/V
R904101898		IH15EB-1X/SP-PG24/V

Material no.	Device designation	Type designation
	Control module P with P1 channel	IH15EB-1X/SPP1- <sup>26</sup> <input type="text"/>
R901070019		IH15EB-1X/SPP1/V

Material no.	Device designation	Type designation
	Control module P with P1 channel	IH15EB-1X/SPP1- <sup>4</sup> <input type="text"/> <sup>8</sup> <input type="text"/> / <sup>26</sup> <input type="text"/>
R904101899		IH15EB-1X/SPP1-NG24/V
R904101900		IH15EB-1X/SPP1-PG24/V

<sup>4</sup> <input type="text"/>	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
<sup>8</sup> <input type="text"/>	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<sup>26</sup> <input type="text"/>	Seal	Seal material Seal material	FKM NBR = V = M

### Directional seat valve module, type "W", "S" (dimensions in mm)

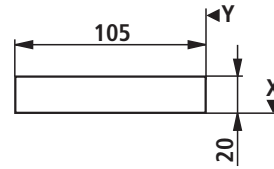
#### Module T, type "ST"

Symbol



IH15EB-1X/ST <sup>-V</sup>  
<sub>-M</sub>

Unit dimensions



Dimension Z = 70 mm

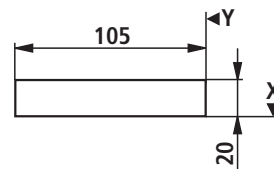
#### Module T with P1 channel, type "STP1"

Symbol



IH15EB-1X/STP1 <sup>-V</sup>  
<sub>-M</sub>

Unit dimensions



Dimension Z = 70 mm

Material no.	Device designation	Type designation
	Control module T	IH15EB-1X/ST- <sup>26</sup> <input type="text"/>
R901300263		IH15EB-1X/ST/V

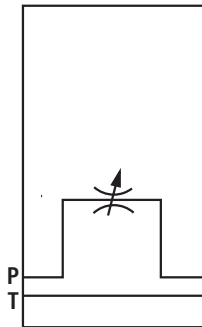
Material no.	Device designation	Type designation
	Control module T with P1 channel	IH15EB-1X/STP1- <sup>26</sup> <input type="text"/>
R901300262		IH15EB-1X/STP1/V

<sup>26</sup> <input type="text"/> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

**Directional seat valve module, type "W", "S" (dimensions in mm)**

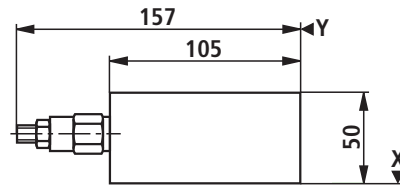
**Module PDV, type "SPDV"**

Symbol



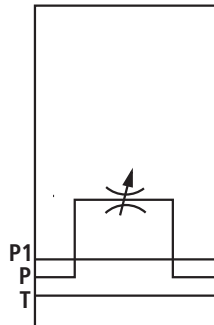
Unit dimensions

Dimension Z = 70 mm



**Module PDV with P1 channel, type "SPDVP1"**

Symbol



Material no.	Device designation	Type designation
	Control module P with throttle valve	IH15MB-1X/SPDV - <sup>26</sup> <input type="text"/>
R901215052		IH15MB-1X/SPDV -V

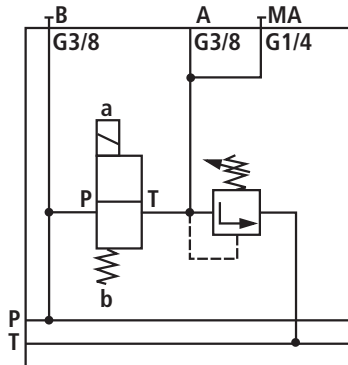
Material no.	Device designation	Type designation
	Control module P with throttle valve and P1 channel	IH15MB-1X/SPDVP1 - <sup>26</sup> <input type="text"/>
R901300246		IH15MB-1X/SPDVP1 - V

<sup>26</sup> <input type="text"/> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

## Directional seat valve module, type "S" (dimensions in mm)

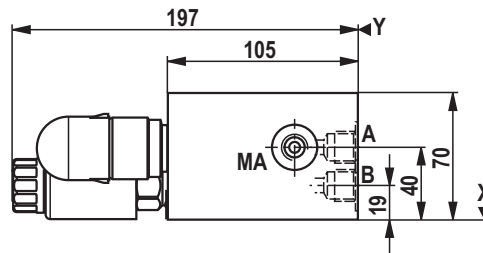
Module P - B - A - T with pressure relief valve,  
type "SPBAT2DB"

Symbol



Unit dimensions

Dimension Z = 85 mm



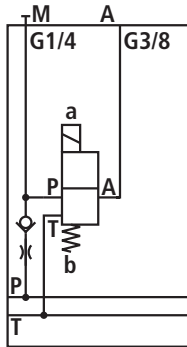
Material no.	Device designation	Type designation
	Module SPBAT2DB	IH15EB-1X/SPBAT2DB- <input type="checkbox"/> 1 <input type="checkbox"/> 2 / <input type="checkbox"/> 14 <input type="checkbox"/> 4 <input type="checkbox"/> 8 <input type="checkbox"/> 26
R901168798		IH15EB-1X/SPBAT2DB-S315/OPG24/V

<input type="checkbox"/> 1	Adjustment element at the pressure relief valve	Setscrew with internal hexagon Rotary knob	= S = H
<input type="checkbox"/> 2	Pressure rating of the pressure relief valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	25 bar 50 bar 100 bar 200 bar 350 bar 500 bar = 25 = 50 = 100 = 200 = 350 = 500
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!			
		Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar 100 bar 140 bar 210 bar 330 bar = 50E = 100E = 140E = 210E = 330E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD 6../..E Type testing according to Pressure Equipment Directive 97/23/EC			See page 88
<input type="checkbox"/> 4	Designation of the 2/2 seat valve	Normally closed Normally open	= N = P
<input type="checkbox"/> 8	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="checkbox"/> 14	Pressure monitoring	With measuring port Without pressure monitoring	= M = O
<input type="checkbox"/> 26	Seal	Seal material	FKM = V

**Directional seat valve module, type "W", "S" (dimensions in mm)**

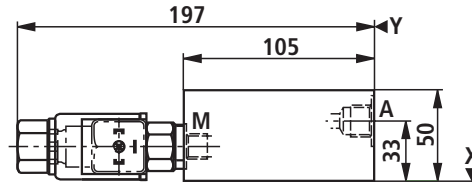
**Module P - A, type "SPA3"**

Symbol



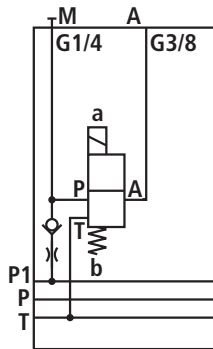
Unit dimensions

Dimension Z = 70 mm



**Module P - A with P1 channel, type "SPA3P1"**

Symbol



Material no.	Device designation	Type designation
	Control module P - A	IH15EB-1X/SPA3- 5 14 8 27 26 □ / □ □ / □ / □
R901019899		IH15EB-1X/SPA3-C/MG24/V
R904101901		IH15EB-1X/SPA3-C/OG24/V
R901070054		IH15EB-1X/SPA3-U/MG24/V
R904101902		IH15EB-1X/SPA3-U/OG24/V

Material no.	Device designation	Type designation
	Control module P - A with P1 channel	IH15EB-1X/SPA3P1- 5 14 8 27 26 □ / □ □ / □ / □
R901070056		IH15EB-1X/SPA3P1-C/MG24/V
R901070058		IH15EB-1X/SPA3P1-C/OG24/V
R901070059		IH15EB-1X/SPA3P1-U/MG24/V
R901070060		IH15EB-1X/SPA3P1-U/OG24/V



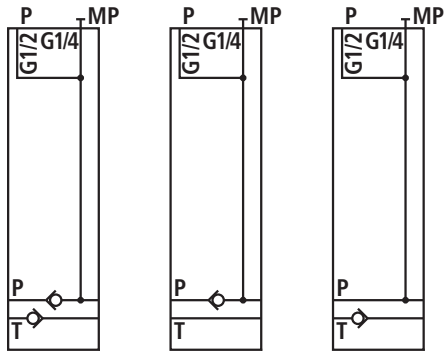
## Directional seat valve module, type "W", "S"

5	Designation of the 3/2 seat valve			= U
				= C
8	Solenoid voltage of the seat valves	Volt	24 V DC	= G24
14	Pressure monitoring	With measuring port Without pressure monitoring		= M = O
26	Seal	Seal material Seal material	FKM NBR	= V = M
27	Throttle	Without throttle Throttle diameter Throttle diameter	Ø 1.0 mm Ø 2.5 mm	= no code = B10 = B25

### Directional seat valve module, type "W", "S" (dimensions in mm)

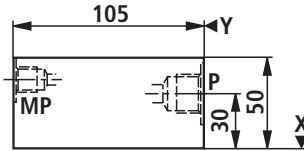
#### Module with check valve, type "SR"

Symbol



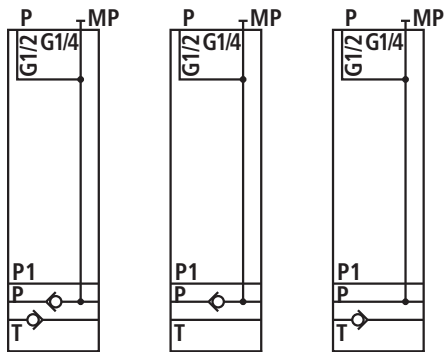
Unit dimensions

Dimension Z = 70 mm



#### Module with check valve and P1 channel, type "SRP1"

Symbol



Material no.	Device designation	Type designation
	Control module with check valve	IH15EB-1X/SR - <input type="text"/> <sup>21</sup> / <input type="text"/> <sup>14</sup> / <input type="text"/> <sup>26</sup>
R901070301		IH15EB-1X/SR-PT/M/V
R904101888		IH15EB-1X/SR-PT/O/V
R901065236		IH15EB-1X/SR-P/M/V
R904101558		IH15EB-1X/SR-P/O/V
R901070303		IH15EB-1X/SR-T/M/V
R904101596		IH15EB-1X/SR-T/O/V

Material no.	Device designation	Type designation
	Control module with check valve and P1 channel	IH15EB-1X/SRP1- <input type="text"/> <sup>21</sup> / <input type="text"/> <sup>14</sup> / <input type="text"/> <sup>26</sup>
R901070304		IH15EB-1X/SRP1-PT/M/V
R904101892		IH15EB-1X/SRP1-PT/O/V
R901070305		IH15EB-1X/SRP1-P/M/V
R904101889		IH15EB-1X/SRP1-P/O/V
R901070306		IH15EB-1X/SRP1-T/M/V
R904101890		IH15EB-1X/SRP1-T/O/V

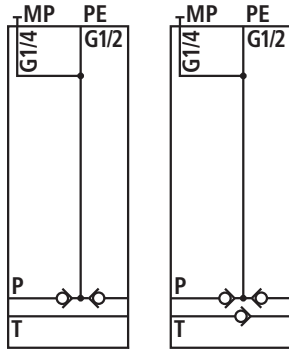
**Directional seat valve module, type "W", "S"**

14 <input type="checkbox"/>	Pressure monitoring	With measuring port Without pressure monitoring	= M = O
21 <input type="checkbox"/>	Check valve	Without check valve In channel P In channel T In channel P and T	= no code = P = T = PT
26 <input type="checkbox"/>	Seal	Seal material Seal material	FKM = V NBR = M

### Directional seat valve module, type "W", "S" (dimensions in mm)

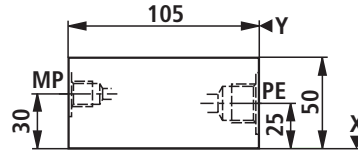
#### Module with check valve, type "SR2"

Symbol



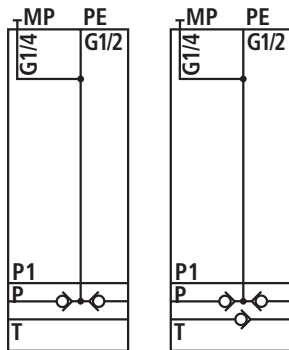
Unit dimensions

Dimension Z = 70 mm



#### Module with check valve and P1 channel, type "SR2P1"

Symbol



Material no.	Device designation	Type designation
	Control module with check valve	IH15EB-1X/SR2 - <input type="checkbox"/> <sup>21</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901140077		IH15EB-1X/SR2-P/O/V

Material no.	Device designation	Type designation
	Control module with check valve and P1 channel	IH15EB-1X/SR2P1- <input type="checkbox"/> <sup>21</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901300658		IH15EB-1X/SR2P1-P/O/V

<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With measuring port Without pressure monitoring	= M = O
<input type="checkbox"/> <sup>21</sup> Check valve	Without check valve In channel P In channel T In channel P and T	= no code = P = T = PT
<input type="checkbox"/> <sup>26</sup> Seal	Seal material Seal material	FKM NBR = V = M

## Directional seat valve module, type "W", "S" (dimensions in mm)

### Project planning information

When designing the control with accumulator you have to make sure that the accumulator is protected against inadmissible overpressure by means of a type examination-tested pressure relief valve. The type-examination tested pressure relief valve must not accept any control tasks. The set pressure of the type-examination tested pressure relief valve must be less than or equal to the maximum admissible operating pressure of the accumulator.

In order to achieve the best utilization of the accumulator volume possible as well as long service life, compliance with the following nitrogen filling pressure value is recommended:

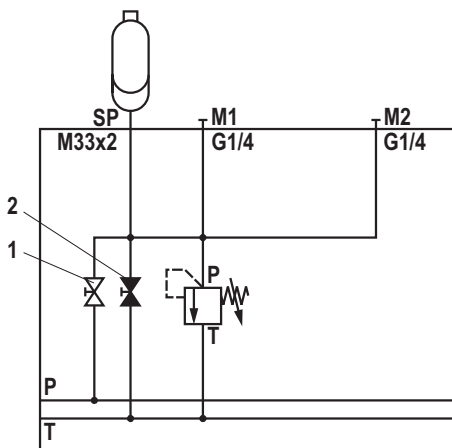
$$p_o = 0.9 \times p_{(\text{minimum operating pressure})}$$

### Mounting information

The accumulators is to be fastened so that in case of operational vibrations, safe hold is guaranteed. No holding forces may be applied via the oil and gas connection.

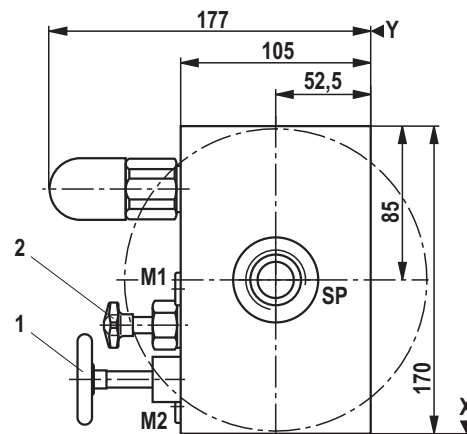
### Sandwich module with accumulator shut-off module, type "ZSSB"

#### Symbol



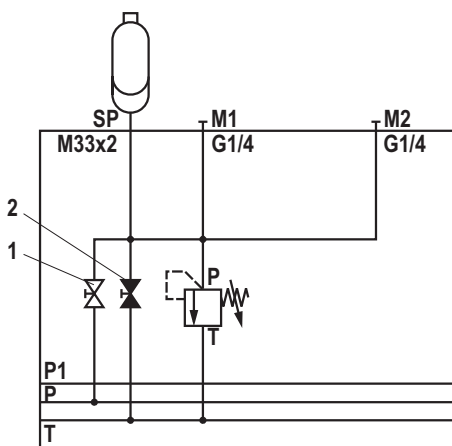
#### Unit dimensions

Dimension Z = max. 295 mm



### Sandwich module with accumulator shut-off module and P1 channel, type "ZSSBP1"

#### Symbol



- Operating information:
- 1 System stop valve must be open in the operating condition
  - 2 Manual unloading must be closed in the operating condition

## Directional seat valve module, type "W", "S"

Material no.	Device designation	Type designation
	Sandwich module with accumulator shut-off module	IH15EB-1X/ZSSB- <input type="checkbox"/> <sup>1</sup> <input type="checkbox"/> <sup>3</sup> / <input type="checkbox"/> <sup>31</sup> / <input type="checkbox"/> <sup>14</sup> <input type="checkbox"/> <sup>8</sup> / <input type="checkbox"/> <sup>18</sup> / <input type="checkbox"/> <sup>26</sup>
R904101904		IH15EB-1X/ZSSB-S140E/E/MG24/1,40/V
R904101903		IH15EB-1X/ZSSB-S140E/M/M/1,40/V
R904102293		IH15EB-1X/ZSSB-S140E/M/M/2,00/V

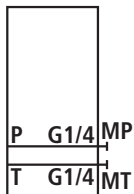
Material no.	Device designation	Type designation
	Sandwich module with accumulator shut-off module and P1 channel	IH15EB-1X/ZSSBP1- <input type="checkbox"/> <sup>1</sup> <input type="checkbox"/> <sup>3</sup> / <input type="checkbox"/> <sup>31</sup> / <input type="checkbox"/> <sup>14</sup> <input type="checkbox"/> <sup>8</sup> / <input type="checkbox"/> <sup>18</sup> / <input type="checkbox"/> <sup>26</sup>
R904101906		IH15EB-1X/ZSSBP1-S140E/E/MG24/1,40/V
R904101905		IH15EB-1X/ZSSBP1-S140E/M/M/1,40/V

<input type="checkbox"/> <sup>1</sup>	Adjustment element at the pressure relief valve	Setscrew with hexagon and protective cap Rotary knob Lockable rotary knob	= S = H = A
<input type="checkbox"/> <sup>3</sup>	Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!	Setting pressure up to max. 50 bar Setting pressure up to max. 100 bar Setting pressure up to max. 140 bar Setting pressure up to max. 210 bar Setting pressure up to max. 330 bar	= 50E = 100E = 140E = 210E = 330E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD...E Type testing according to Pressure Equipment Directive 97/23/EC			See page 89
<input type="checkbox"/> <sup>8</sup>	Solenoid voltage of the seat valves	Volt	24 V DC = G24
<input type="checkbox"/> <sup>14</sup>	Pressure monitoring	With measuring port Without pressure monitoring	= M = O
<input type="checkbox"/> <sup>18</sup>	Diaphragm-type accumulator	Nominal volume in l	Max. pressure in bar
		0.35 0.50 0.70 0.70 1.40 1.40 2.00 2.80 3.50	210 210 210 350 140 350 350 350 350
	Bladder-type accumulator	0.50 4.00	400 330
<input type="checkbox"/> <sup>26</sup>	Seal	Seal material Seal material	FKM NBR = V = M
<input type="checkbox"/> <sup>31</sup>	Unloading	Manual Manual and electromagnetic	= M = E

## Directional seat valve module, type "W", "S" (dimensions in mm)

End module, type "WSE"

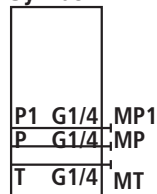
Symbol



IH15MB-1X/WSE...

End module with P1 channel, type "WSEP1"

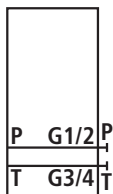
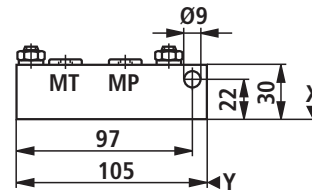
Symbol



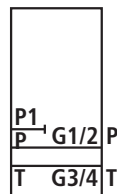
IH15MB-1X/WSEP1...

Unit dimensions

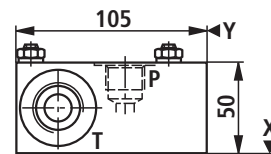
Dimension Z = 70 mm



IH15MB-1X/WSE-PT...



IH15MB-1X/WSEP1-PT...



Material no.	Device designation	Type designation
	End module	IH15MB-1X/WSE- <input type="checkbox"/> <sup>22</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R904101349		IH15MB-1X/WSE-M/V
R904101555		IH15MB-1X/WSE-O/V
R904101793		IH15MB-1X/WSE-PT/M/V
R904101857		IH15MB-1X/WSE-PT/O/V

Material no.	Device designation	Type designation
	End module with P1 channel	IH15MB-1X/WSEP1- <input type="checkbox"/> <sup>22</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R904101599		IH15MB-1X/WSEP1-M/V
R901067146		IH15MB-1X/WSEP1-O/V
R901070307		IH15MB-1X/WSEP1-PT/M/V
R901070308		IH15MB-1X/WSEP1-PT/O/V

<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With measuring port Without pressure monitoring	= M = O
<input type="checkbox"/> <sup>22</sup> Ports	Without ports P and T	= no code = PT
<input type="checkbox"/> <sup>26</sup> Seal	Seal material	FKM NBR
		= V = M

## Directional seat valve module, type "W", "S" (dimensions in mm)

### Project planning information

When designing the control with accumulator you have to make sure that the accumulator is protected against inadmissible overpressure by means of a type examination-tested pressure relief valve. The type-examination tested pressure relief valve must not accept any control tasks. The set pressure of the type-examination tested pressure relief valve must be less than or equal to the maximum admissible operating pressure of the accumulator.

In order to achieve the best utilization of the accumulator volume possible as well as long service life, compliance with the following nitrogen filling pressure value is recommended:

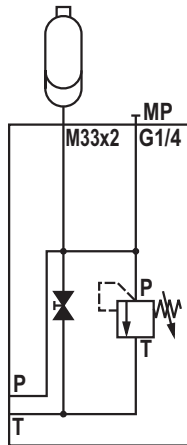
$$p_o = 0.9 \times p_{(\text{minimum operating pressure})}$$

### Mounting information

The accumulator is to be fastened so that in case of operational vibrations, safe hold is guaranteed. No holding forces may be applied via the oil and gas connection.

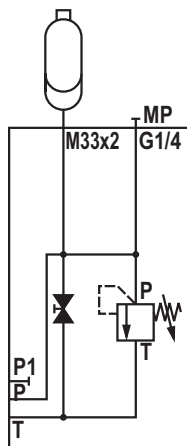
### End module with pressure relief valve, accumulator and stop valve, type "SEDBSA"

#### Symbol



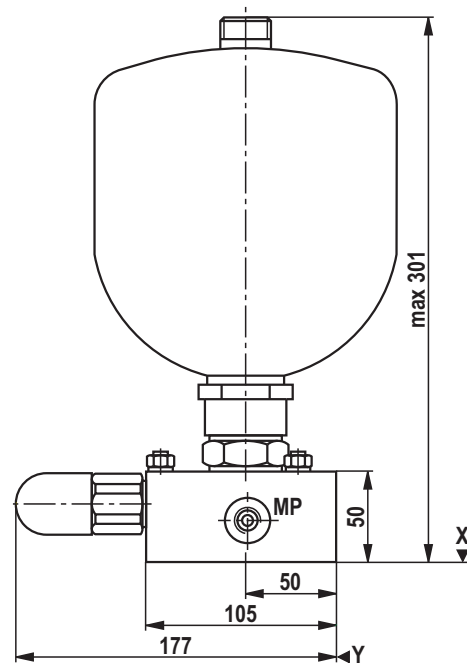
### End module with pressure relief valve, accumulator, stop valve and P1 channel, type "SEDBSAP1"

#### Symbol



#### Unit dimensions

Dimension Z = max 120 mm





## Directional seat valve module, type "W", "S"

Material no.	Device designation	Type designation
	End module with pressure relief valve, accumulator and stop valve	IH15EB-1X/SEDBSA- 1 3 14 18 26 <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/>
R904102091		IH15EB-1X/SEDBSA-S100/M/0,70/V
R904101415		IH15EB-1X/SEDBSA-S100/M/1,40/V

Material no.	Device designation	Type designation
	End module with pressure relief valve, accumulator, stop valve and P1 channel	IH15EB-1X/SEDBSAP1- 1 3 14 18 26 <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/>
R904101886		IH15EB-1X/SEDBSAP1-S100/M/1,40/V

<input type="checkbox"/> 1	Adjustment element at the pressure relief valve	Setscrew with hexagon and protective cap = S Rotary knob = H Lockable rotary knob = A																														
<input type="checkbox"/> 3	Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!	Setting pressure up to max. 50 bar = 50E Setting pressure up to max. 100 bar = 100E Setting pressure up to max. 140 bar = 140E Setting pressure up to max. 210 bar = 210E Setting pressure up to max. 330 bar = 330E																														
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD../..E Type testing according to Pressure Equipment Directive 97/23/EC		See page 89																														
<input type="checkbox"/> 14	Pressure monitoring	With measuring port = M Without pressure monitoring = O																														
<input type="checkbox"/> 18	Diaphragm-type accumulator	<table border="1"> <thead> <tr> <th>Nominal volume in l</th> <th>Max. pressure in bar</th> <th></th> </tr> </thead> <tbody> <tr><td>0.35</td><td>210</td><td>= 0.35</td></tr> <tr><td>0.50</td><td>210</td><td>= 0.50</td></tr> <tr><td>0.70</td><td>210</td><td>= 0.70</td></tr> <tr><td>0.70</td><td>350</td><td>= 0.70</td></tr> <tr><td>1.40</td><td>140</td><td>= 1.40</td></tr> <tr><td>1.40</td><td>350</td><td>= 1.40</td></tr> <tr><td>2.00</td><td>350</td><td>= 2.00</td></tr> <tr><td>2.80</td><td>350</td><td>= 2.80</td></tr> <tr><td>3.50</td><td>350</td><td>= 3.50</td></tr> </tbody> </table>	Nominal volume in l	Max. pressure in bar		0.35	210	= 0.35	0.50	210	= 0.50	0.70	210	= 0.70	0.70	350	= 0.70	1.40	140	= 1.40	1.40	350	= 1.40	2.00	350	= 2.00	2.80	350	= 2.80	3.50	350	= 3.50
Nominal volume in l	Max. pressure in bar																															
0.35	210	= 0.35																														
0.50	210	= 0.50																														
0.70	210	= 0.70																														
0.70	350	= 0.70																														
1.40	140	= 1.40																														
1.40	350	= 1.40																														
2.00	350	= 2.00																														
2.80	350	= 2.80																														
3.50	350	= 3.50																														
	Bladder-type accumulator	<table border="1"> <thead> <tr> <th>Nominal volume in l</th> <th>Max. pressure in bar</th> <th></th> </tr> </thead> <tbody> <tr><td>0.50</td><td>400</td><td>= 0.50</td></tr> <tr><td>4.00</td><td>330</td><td>= 4.00</td></tr> </tbody> </table>	Nominal volume in l	Max. pressure in bar		0.50	400	= 0.50	4.00	330	= 4.00																					
Nominal volume in l	Max. pressure in bar																															
0.50	400	= 0.50																														
4.00	330	= 4.00																														
<input type="checkbox"/> 26	Seal	Seal material FKM = V Seal material NBR = M																														

## Directional seat valve module, type "W", "S" (dimensions in mm)

### Project planning information

When designing the control with accumulator you have to make sure that the accumulator is protected against inadmissible overpressure by means of a type examination-tested pressure relief valve. The type-examination tested pressure relief valve must not accept any control tasks. The set pressure of the type-examination tested pressure relief valve must be less than or equal to the maximum admissible operating pressure of the accumulator.

In order to achieve the best utilization of the accumulator volume possible as well as long service life, compliance with the following nitrogen filling pressure value is recommended:

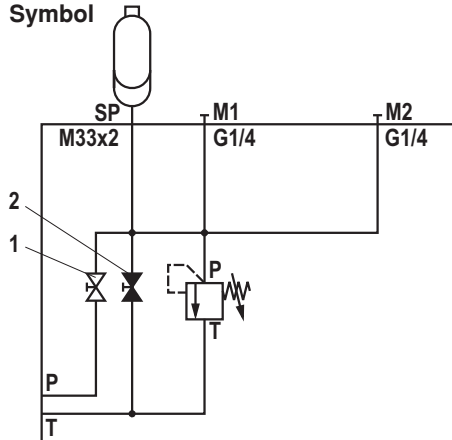
$$p_o = 0.9 \times p_{(\text{minimum operating pressure})}$$

### Mounting information

The accumulators is to be fastened so that in case of operational vibrations, safe hold is guaranteed. No holding forces may be applied via the oil and gas connection.

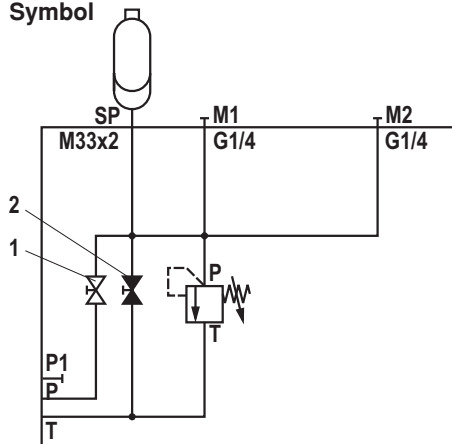
### Accumulator shut-off module, type "SSB"

#### Symbol



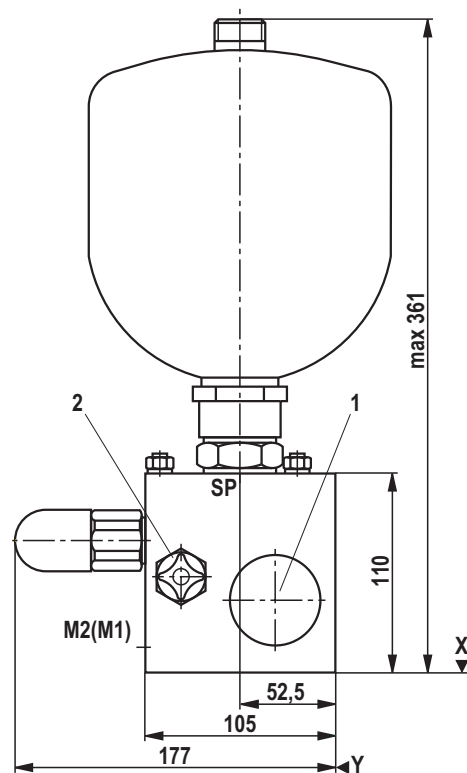
### Accumulator shut-off module with P1 channel, type "SSBP1"

#### Symbol



### Unit dimensions

Dimension Z = 172 mm



- Operating information:
- 1 System stop valve must be open in the operating condition
  - 2 Manual unloading must be closed in the operating condition

Material no.	Device designation	Type designation
	Accumulator shut-off module	IH15EB-1X/SSB- <div style="display: flex; justify-content: space-around; align-items: center;"> <span>1</span> <span>3</span> <span>31</span> <span>14</span> <span>8</span> <span>18</span> <span>26</span> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> </div>
R904101840		IH15EB-1X/SSB-S140E/E/MG24/1,40/V
R901044115		IH15EB-1X/SSB-S140E/E/OG24/1,40/V
R904101848		IH15EB-1X/SSB-S140E/M/M/1,40/V
R901066444		IH15EB-1X/SSB-S140E/M/O/1,40/V
R901039971		IH15EB-1X/SSB-S330E/M/M/0,50/V
R901070594		IH15EB-1X/SSB-S330E/M/O/0,50/V

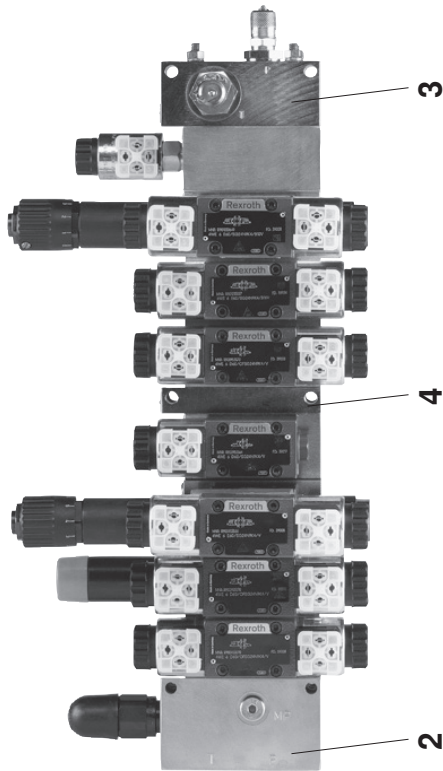
## Directional seat valve module, type "W", "S"

Material no.	Device designation	Type designation
	Accumulator shut-off module with P1 channel	IH15EB-1X/SSBP1- <div style="display: flex; justify-content: space-around; font-size: small;"> <span>1</span> <span>3</span> <span>31</span> <span>14</span> <span>8</span> <span>18</span> <span>26</span> </div> <div style="display: flex; justify-content: space-around; border: 1px solid black; width: 100%; height: 20px; margin-top: 5px;"></div>
R904101846		IH15EB-1X/SSBP1-S140E/E/MG24/1,40/V
R901070596		IH15EB-1X/SSBP1-S140E/E/OG24/1,40/V
R904101845		IH15EB-1X/SSBP1-S140E/M/M/1,40/V
R901070597		IH15EB-1X/SSBP1-S140E/M/O/1,40/V

1	<input type="checkbox"/> Adjustment element at the pressure relief valve	Setscrew with hexagon and protective cap Rotary knob Lockable rotary knob	= S = H = A
3	<input type="checkbox"/> Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!	Setting pressure up to max. 50 bar Setting pressure up to max. 100 bar Setting pressure up to max. 140 bar Setting pressure up to max. 210 bar Setting pressure up to max. 330 bar	= 50E = 100E = 140E = 210E = 330E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD../..E Type testing according to Pressure Equipment Directive 97/23/EC			See page 89
8	<input type="checkbox"/> Solenoid voltage of the seat valves	Volt	24 V DC = G24
14	<input type="checkbox"/> Pressure monitoring	With measuring port Without pressure monitoring	= M = O
18	<input type="checkbox"/> Diaphragm-type accumulator	Nominal volume in l	Max. pressure in bar
		0.35	210 = 0.35
		0.50	210 = 0.50
		0.70	210 = 0.70
		0.70	350 = 0.70
		1.40	140 = 1.40
		1.40	350 = 1.40
		2.00	350 = 2.00
		2.80	350 = 2.80
		3.50	350 = 3.50
	Bladder-type accumulator	0.50	400 = 0.50
		4.00	330 = 4.00
26	<input type="checkbox"/> Seal	Seal material Seal material	FKM = V NBR = M
31	<input type="checkbox"/> Unloading	Manual Manual and electromagnetic	= M = E



## Module for external attachment: Attachment with application examples

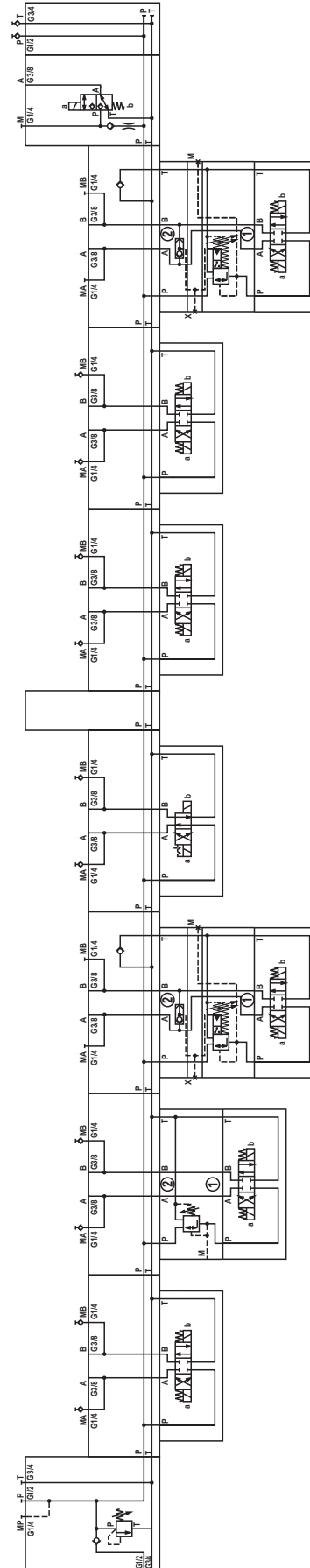


**2** Connection module with pressure relief valve type ADB (see page 67)

**3** End module type E (see page 72)

**4** Sandwich module type Z or ZPT (see page 68 and 69)  
The sandwich module can also be combined with the connection module item 1 type A or item 2 type ADB and with the end module item 3.

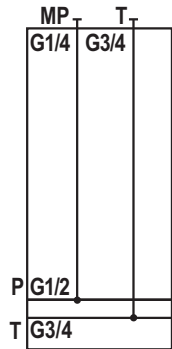
The length dimensions are calculated by adding dimension "X" of the directional valve modules (see page 14 to 62)



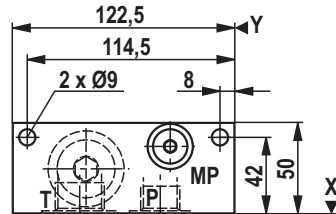
**Module for external attachment (dimensions in mm)**

**Connection module, type "A"**

Symbol



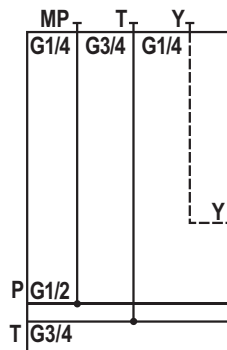
Unit dimensions



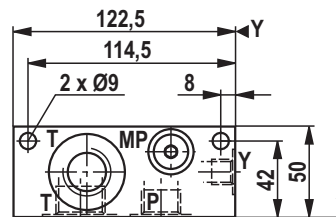
Dimension Z = 70 mm

**Connection module with Y channel, type "AY"**

Symbol



Unit dimensions



Dimension Z = 70 mm

Material no.	Device designation	Type designation
	Connection module	IH15MB-1X/A- <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R904101350		IH15MB-1X/A-M/V
R904101514		IH15MB-1X/A-O/V

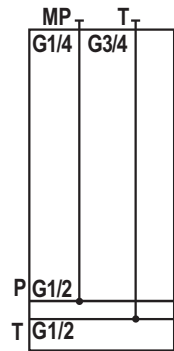
Material no.	Device designation	Type designation
	Connection module with Y channel	IH15MB-1X/AY- <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901066327		IH15MB-1X/AY-M/V
R904101841		IH15MB-1X/AY-O/V

<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With measuring port		= M
	Without measuring port		= O
<input type="checkbox"/> <sup>26</sup> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

### Module for external attachment (dimensions in mm)

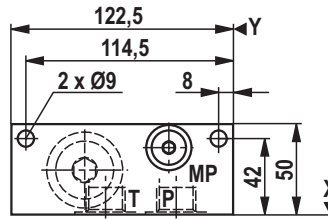
Connection module with through hole,  
type "AD"

Symbol



Unit dimensions

Dimension Z = 70 mm



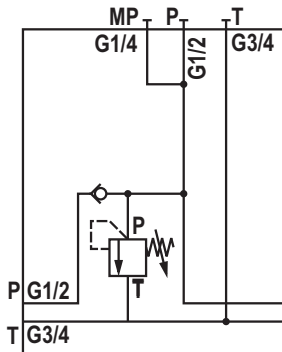
Material no.	Device designation	Type designation
	Connection module with through holes	IH15MB-1X/AD- <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R904101797		IH15MB-1X/AD-M/V
R901066320		IH15MB-1X/AD-O/V

<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With measuring port		= M
	Without pressure monitoring		= O
<input type="checkbox"/> <sup>26</sup> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

### Module for external attachment (dimensions in mm)

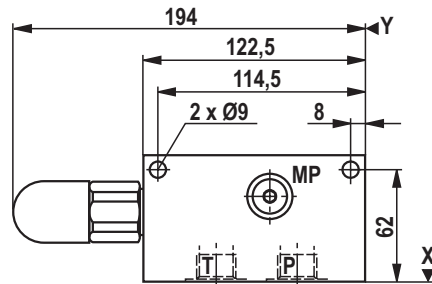
Connection module with pressure relief valve, type "ADB"

Symbol



Unit dimensions

Dimension Z = 85 mm



Material no.	Device designation	Type designation
	Connection module with pressure relief valve	IH15EB-1X/ADB- <input type="checkbox"/> 1 <input type="checkbox"/> 2 / <input type="checkbox"/> 14 <input type="checkbox"/> 26
R901069495		IH15EB-1X/ADB-A200/M/V
R901069497		IH15EB-1X/ADB-A200/O/V
R901069494		IH15EB-1X/ADB-H200/M/V
R901069496		IH15EB-1X/ADB-H200/O/V
R901069238		IH15EB-1X/ADB-S200/M/V
R901069240		IH15EB-1X/ADB-S200/O/V

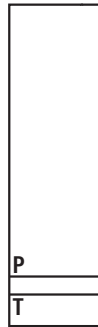
<input type="checkbox"/> 1	Adjustment element at the pressure relief valve	Setscrew with hexagon and protective cap Rotary knob Lockable rotary knob	= S = H = A
<input type="checkbox"/> 2	Pressure rating of the pressure relief valve	Setting pressure up to max. 25 bar Setting pressure up to max. 50 bar Setting pressure up to max. 100 bar Setting pressure up to max. 200 bar Setting pressure up to max. 315 bar Setting pressure up to max. 400 bar	= 25 = 50 = 100 = 200 = 315 = 400
Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!			
		Setting pressure up to max. 50 bar Setting pressure up to max. 100 bar Setting pressure up to max. 140 bar Setting pressure up to max. 210 bar Setting pressure up to max. 330 bar	= 50E = 100E = 140E = 210E = 330E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD...E Type testing according to Pressure Equipment Directive 97/23/EC			See page 88
<input type="checkbox"/> 14	Pressure monitoring	With measuring port Without pressure monitoring	= M = O
<input type="checkbox"/> 26	Seal	Seal material FKM Seal material NBR	= V = M



**Module for external attachment (dimensions in mm)**

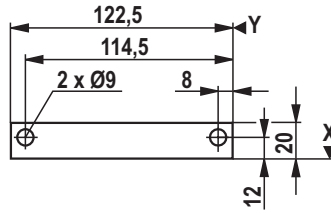
**Sandwich module, type "Z"**

Symbol



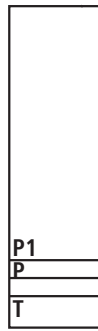
Unit dimensions

Dimension Z = 70 mm



**Sandwich module with P1 channel, type "ZP1"**

Symbol



Material no.	Device designation	Type designation
	Sandwich module	IH15MB-1X/Z- <sup>26</sup> <input type="text"/>
R904101642		IH15MB-1X/Z-V

Material no.	Device designation	Type designation
	Sandwich module with P1 channel	IH15MB-1X/ZP1-V <sup>26</sup> <input type="text"/>
R904101834		IH15MB-1X/ZP1-V

<sup>26</sup> <input type="text"/> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

**Module for external attachment (dimensions in mm)**

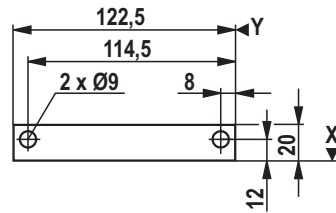
**Sandwich module with PT interruption, type "ZPT"**

**Symbol**



**Unit dimensions**

**Dimension Z = 70 mm**



**Sandwich module with PTP1 interruption, type "ZPTP1"**

**Symbol**



Material no.	Device designation	Type designation
	Sandwich module with PT interruption	IH15MB-1X/ZPT- <sup>26</sup> <input type="text"/>
R901072044		IH15MB-1X/ZPT-V

Material no.	Device designation	Type designation
	Sandwich module with PTP1 interruption	IH15MB-1X/ZPTP1- <sup>26</sup> <input type="text"/>
R901072043		IH15MB-1X/ZPTP1-V

<sup>26</sup> <input type="text"/> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

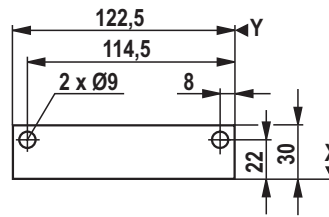
**Module for external attachment (dimensions in mm)**

**Sandwich module with mounting thread for threaded bolt, type "ZG"**

Symbol



Unit dimensions



Dimension Z = 70 mm

**Sandwich module with mounting thread for threaded bolt and P1 channel, type "ZGP1"**

Symbol



Material no.	Device designation	Type designation
	Sandwich module with mounting thread for threaded bolt	IH15MB-1X/ZG- <sup>26</sup> <input type="text"/>
R904101503		IH15MB-1X/ZG-V

Material no.	Device designation	Type designation
	Sandwich module with mounting thread for threaded bolt and P1 channel	IH15MB-1X/ZGP1- <sup>26</sup> <input type="text"/>
R904101831		IH15MB-1X/ZGP1-V

<sup>26</sup> <input type="text"/> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

### Module for external attachment (dimensions in mm)

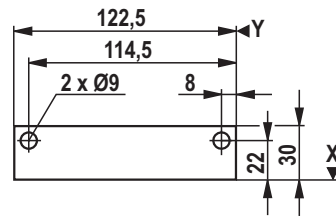
Sandwich module with mounting thread for threaded bolt with PT interruption, type "ZGPT"

Symbol



Unit dimensions

Dimension Z = 70 mm



Sandwich module with mounting thread for threaded bolt with PTP1 interruption, type "ZGPTP1"

Symbol



Material no.	Device designation	Type designation
	Sandwich module with PT interruption and mounting thread for threaded bolt	IH15MB-1X/ZGPT- <sup>26</sup> <input type="text"/>
R904101761		IH15MB-1X/ZGPT-V

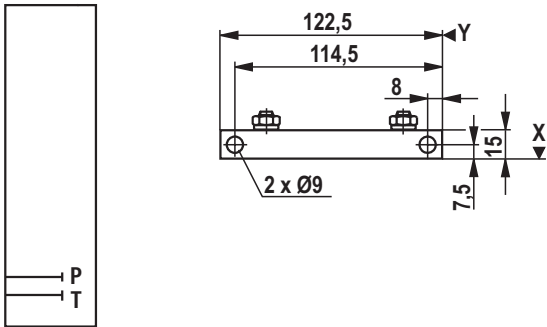
Material no.	Device designation	Type designation
	Sandwich module with PTP1 interruption and mounting thread for threaded bolt	IH15MB-1X/ZGPTP1- <sup>26</sup> <input type="text"/>
R904101832		IH15MB-1X/ZGPTP1-V

<sup>26</sup> <input type="text"/> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

**Module for external attachment** (dimensions in mm)

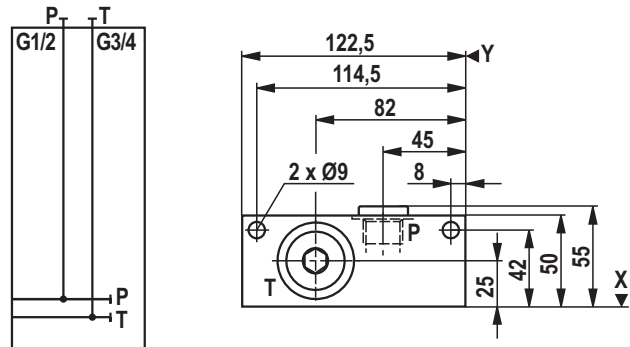
**End module, type "E"**

Symbol      Unit dimensions      Dimension Z = 70 mm



**with port P and T**

Symbol      Unit dimensions      Dimension Z = 70 mm

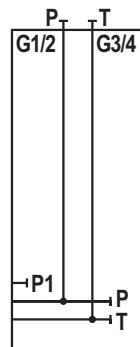


**End module with P1 channel, type "EP1"**

Symbol



Symbol



Material no.	Device designation	Type designation
	End module	IH15MB-1X/E- <input type="checkbox"/> <sup>22</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R904101351		IH15MB-1X/E-PT/M/V
R904101516		IH15MB-1X/E-PT/O/V
R901136829		IH15MB-1X/E-V

Material no.	Device designation	Type designation
	End module with P1 channel	IH15MB-1X/EP1- <input type="checkbox"/> <sup>22</sup> / <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R904101847		IH15MB-1X/EP1-PT/M/V
R904101849		IH15MB-1X/EP1-PT/O/V
R901137570		IH15MB-1X/EP1-V

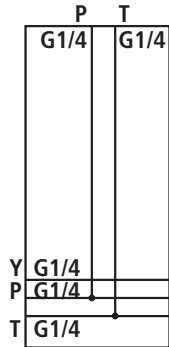
<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With measuring port Without pressure monitoring		= M <sup>1)</sup> = O <sup>1)</sup>
<input type="checkbox"/> <sup>22</sup> Ports	Without ports With port P and T		= no code = PT
<input type="checkbox"/> <sup>26</sup> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

<sup>1)</sup> Indication is only necessary if the module is equipped with port P and T.

### Reducing module, type "R" (dimensions in mm)

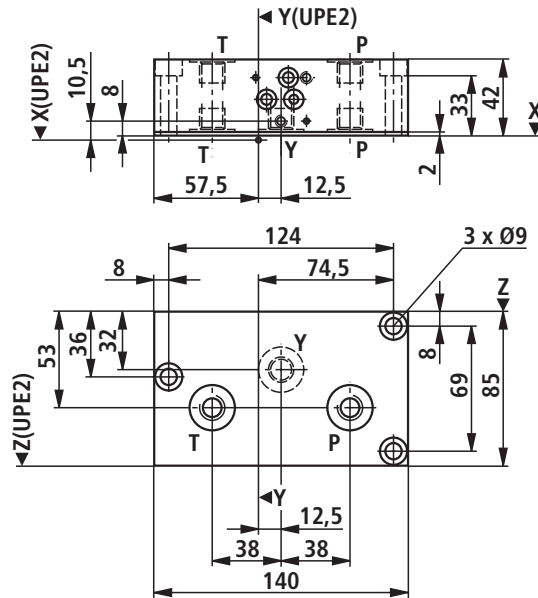
Tank connection module with reduction from IH15B to IH15A, type "RBAIH15A"

Symbol



Unit dimensions

Dimension Z = 85 mm



Material no.	Device designation	Type designation
	Tank connection module with reduction from IH15B to IH15A	IH15MB-1X/RBAIH15A- <input type="text" value="26"/>
R904101835		IH15MB-1X/RBAIH15A-V

<input type="text" value="26"/> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

## Reducing module, type "R" (dimensions in mm)

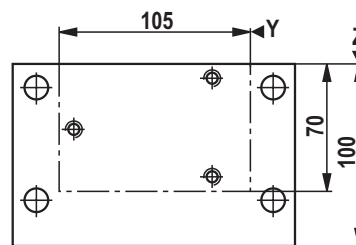
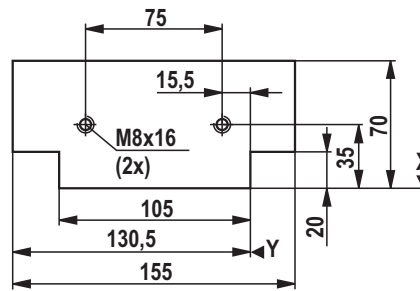
Reducing module IH15B to IH20B (left),  
type "RIH20BL"

Symbol



Unit dimensions

Dimension Z = 100 mm



Material no.	Device designation	Type designation
	Reducing module IH15B to IH20B (left)	IH15MB-1X/RIH20BL- <input type="text" value="27"/> / <input type="text" value="26"/>
R904101839		IH15MB-1X/RIH20BL-V

<input type="text" value="26"/>	Seal	Seal material	FKM	= V
		Seal material	NBR	= M
<input type="text" value="27"/>	Throttle	Without throttle		= no code
		Throttle diameter	Ø 1.0 mm	= B10
		Throttle diameter	Ø 2.5 mm	= B25

### Reducing module, type "R" (dimensions in mm)

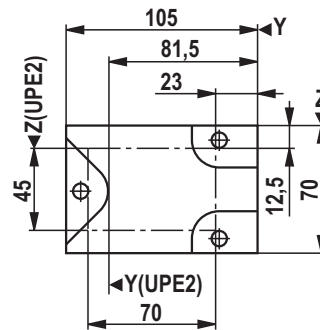
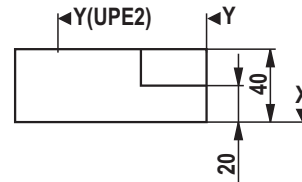
Reducing module IH15B to IH15A (right),  
type "RIH15AR"

Symbol



Unit dimensions

Dimension Z = 70 mm



Material no.	Device designation	Type designation
	Reducing module IH15B to IH15A (right)	IH15MB-1X/RIH15AR- <input type="text" value="27"/> / <input type="text" value="26"/>
R904101836		IH15MB-1X/RIH15AR-V

<input type="text" value="26"/>	Seal	Seal material	FKM	= V
		Seal material	NBR	= M
<input type="text" value="27"/>	Throttle	Without throttle		= no code
		Throttle diameter	Ø 1.0 mm	= B10
		Throttle diameter	Ø 2.5 mm	= B25



### Reducing module, type "R" (dimensions in mm)

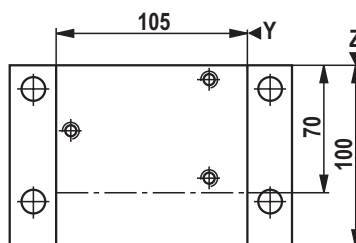
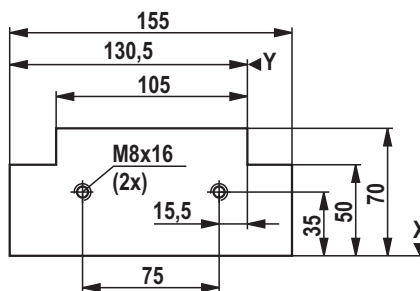
Reducing module IH15B to IH20B (right), type "RIH20BR"

Symbol



Unit dimensions

Dimension Z = 100 mm



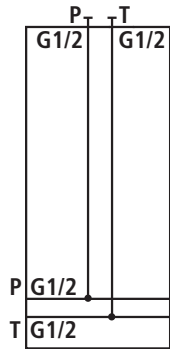
Material no.	Device designation	Type designation
	Reducing module IH15B to IH20B (right)	IH15MB-1X/RIH20BR- <input type="text" value="27"/> / <input type="text" value="26"/>
R904101837		IH15MB-1X/RIH20BR-V

<input type="text" value="26"/> Seal	Seal material	FKM	= V
	Seal material	NBR	= M
<input type="text" value="27"/> Throttle	Without throttle		= no code
	Throttle diameter	Ø 1.0 mm	= B10
	Throttle diameter	Ø 2.5 mm	= B25

**Module with threaded connection for pipeline installation (dimensions in mm)**

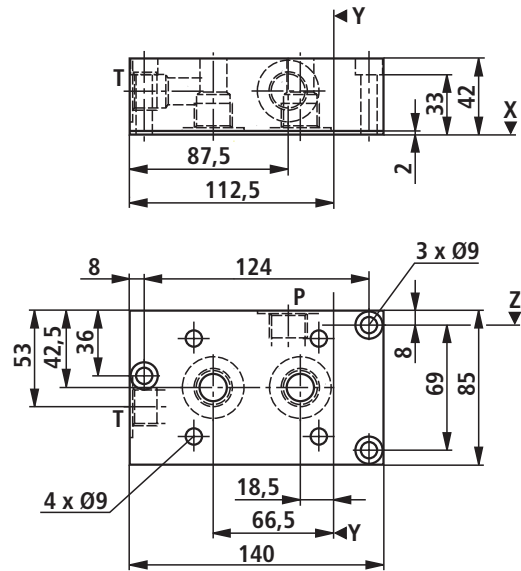
Tank connection module for sandwich module with threaded connection, type "BAZG"

Symbol



Unit dimensions

Dimension Z = 85 mm



Material no.	Device designation	Type designation
	Tank connection module for sandwich module for pipeline installation	IH15MB-1X/BAZG- <input type="text" value="26"/>
R901112004		IH15MB-1X/BAZG-V

<input type="text" value="26"/> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

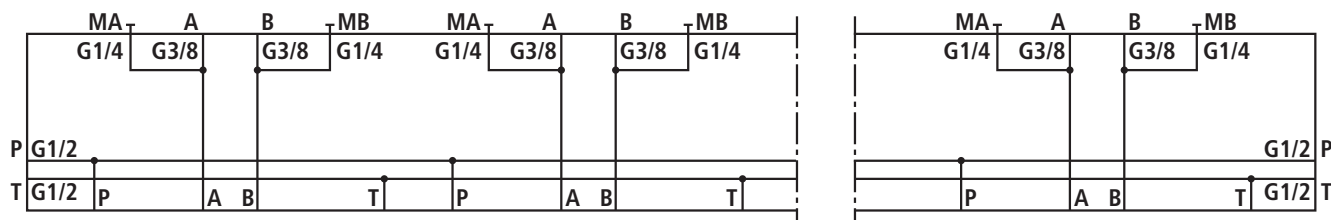
## Module with threaded connection for pipeline installation (dimensions in mm)

Sandwich module with threaded connection, type "WZG..."

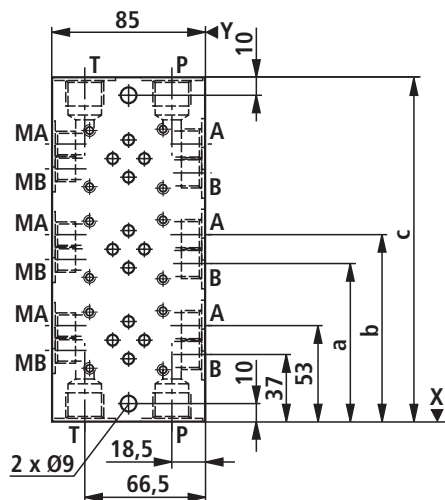
Symbol

Unit dimensions

Dimension Z = 70 mm



Number of valve stations	Dimension a	Dimension b	Dimension c
2-fold	87	103	140
3-fold	137	153	190
4-fold	187	203	240
5-fold	237	253	290
6-fold	287	303	340
7-fold	337	353	390
8-fold	387	403	440
9-fold	437	453	490
10-fold	487	503	540



Material no.	Device designation	Type designation
	Sandwich module with threaded connection, 2 valve stations	IH15MB-1X/WZG2- <input type="text" value="14"/> / <input type="text" value="26"/>
R901300657		IH15MB-1X/WZG2-M/V
R901135266		IH15MB-1X/WZG2-O/V

Material no.	Device designation	Type designation
	Sandwich module with threaded connection, 3 valve stations	IH15MB-1X/WZG3- <input type="text" value="14"/> / <input type="text" value="26"/>
R901300653		IH15MB-1X/WZG3-M/V
R901300656		IH15MB-1X/WZG3-O/V

Material no.	Device designation	Type designation
	Sandwich module with threaded connection, 4 valve stations	IH15MB-1X/WZG4- <input type="text" value="14"/> / <input type="text" value="26"/>
R901300650		IH15MB-1X/WZG4-M/V
R901300652		IH15MB-1X/WZG4-O/V

Material no.	Device designation	Type designation
	Sandwich module with threaded connection, 5 valve stations	IH15MB-1X/WZG5- <input type="text" value="14"/> / <input type="text" value="26"/>
R901300649		IH15MB-1X/WZG5-M/V
R901300648		IH15MB-1X/WZG5-O/V

**Module with threaded connection for pipeline installation (dimensions in mm)**

Material no.	Device designation	Type designation
	Sandwich module with threaded connection, 6 valve stations	IH15MB-1X/WZG6- <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901301740		IH15MB-1X/WZG6-M/V
R901301741		IH15MB-1X/WZG6-O/V

Material no.	Device designation	Type designation
	Sandwich module with threaded connection, 7 valve stations	IH15MB-1X/WZG7- <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901301738		IH15MB-1X/WZG7-M/V
R901301739		IH15MB-1X/WZG7-O/V

Material no.	Device designation	Type designation
	Sandwich module with threaded connection, 8 valve stations	IH15MB-1X/WZG8- <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901301736		IH15MB-1X/WZG8-M/V
R901301737		IH15MB-1X/WZG8-O/V

Material no.	Device designation	Type designation
	Sandwich module with threaded connection, 9 valve stations	IH15MB-1X/WZG9- <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901301734		IH15MB-1X/WZG9-M/V
R901301735		IH15MB-1X/WZG9-O/V

Material no.	Device designation	Type designation
	Sandwich module with threaded connection, 10 valve stations	IH15MB-1X/WZG10- <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901301732		IH15MB-1X/WZG10-M/V
R901301733		IH15MB-1X/WZG10-O/V

<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With measuring port		= M
	Without pressure monitoring		= O
<input type="checkbox"/> <sup>26</sup> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

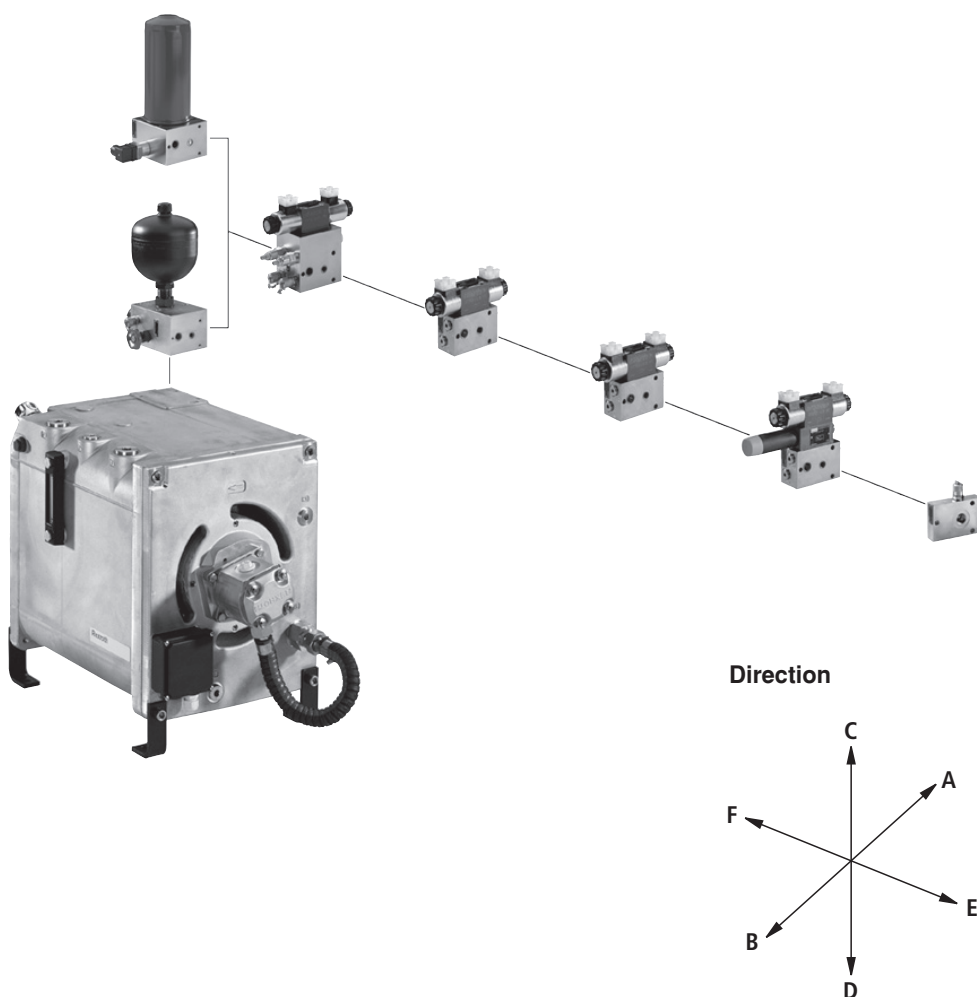
## Module for drive module UPE5, type "UPE5": Description, general

The control modules for the UPE5 drive module serves the realization of complete hydraulic controls. They can be fitted and mounted individually.

The filter **or** accumulator shut-off module establishes the connection of the hydraulic control to the K2 connection of the drive module (see 51145).

Using the connection modules, the IH15B control modules can be attached to the filter **or** accumulator shut-off module.

## Module for drive module UPE5, type "UPE5": Attachment



## Project planning information

The total length of the IH15B control should not be longer than the UPE5 drive module.

Maximum recommended total length  $l = 500$  mm.

Please consult us if the total length of the required control should be longer.

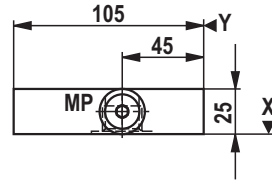
### Module for drive module UPE5, type "UPE5" (dimensions in mm)

Connection module, type "UPE5A"

Symbol



Unit dimensions

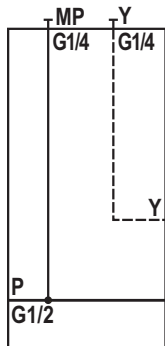


Dimension Z = 70 mm

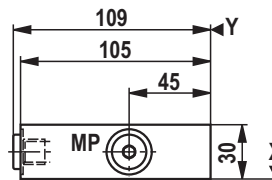
Material no.	Device designation	Type designation
	Connection module	IH15MB-1X/UPE5A- <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R904101342		IH15MB-1X/UPE5A-M/V
R901070572		IH15MB-1X/UPE5A-O/V

Connection module with Y channel, type "UPE5AY"

Symbol



Unit dimensions



Dimension Z = 70 mm



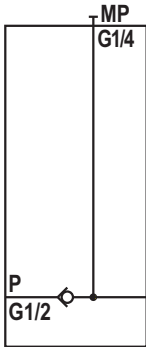
Material no.	Device designation	Type designation
	Connection module with Y channel	IH15MB-1X/UPE5AY- <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R904101850		IH15MB-1X/UPE5AY-M/V
R901070573		IH15MB-1X/UPE5AY-O/V

<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With measuring port		= M
	Without measuring port		= O
<input type="checkbox"/> <sup>26</sup> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

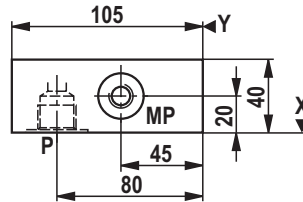
## Module for drive module UPE5, type "UPE5" (dimensions in mm)

### Connection module with check valve, type "UPE5AR"

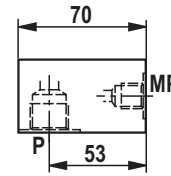
#### Symbol



#### Unit dimensions



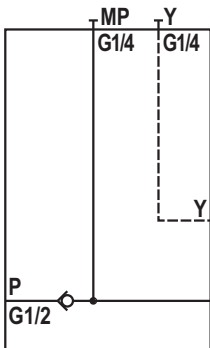
#### Dimension Z = 70 mm



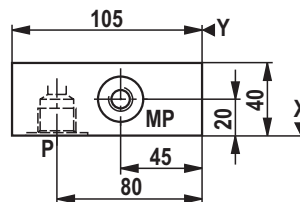
Material no.	Device designation	Type designation
	Connection module with check valve	IH15MB-1X/UPE5AR- <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901184480		IH15MB-1X/UPE5AR-M/V
R901189885		IH15MB-1X/UPE5AR-O/V

### Connection module with Y channel and check valve, type "UPE5AYR"

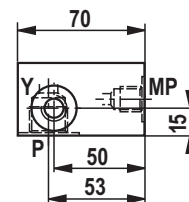
#### Symbol



#### Unit dimensions



#### Dimension Z = 70 mm



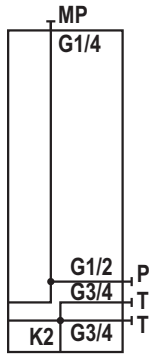
Material no.	Device designation	Type designation
	Connection module with Y channel and check valve	IH15MB-1X/UPE5AYR- <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901184481		IH15MB-1X/UPE5AYR-M/V
R901189886		IH15MB-1X/UPE5AYR-O/V

<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With measuring port		= M
	Without pressure monitoring		= O
<input type="checkbox"/> <sup>26</sup> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

### Module for drive module UPE5, type "UPE5" (dimensions in mm)

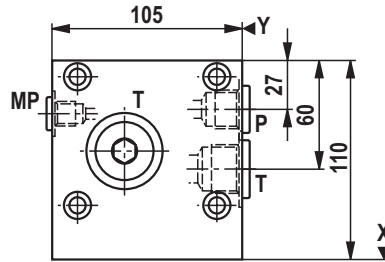
Tank connection module, type "UPE5BA"

Symbol



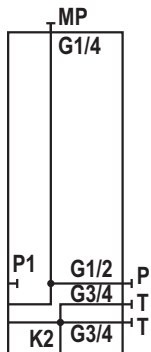
Unit dimensions

Dimension Z = 70 mm



Tank connection module with P1 channel, type "UPE5BAP1"

Symbol



Material no.	Device designation	Type designation
	Tank connection module, type "UPE5BAP1"	IH15MB-1X/UPE5BA-PT/ <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901125941		IH15MB-1X/UPE5BA-PT/M/V
R901124952		IH15MB-1X/UPE5BA-PT/O/V

Material no.	Device designation	Type designation
	Tank connection module with P1 channel, type "UPE5BAP1"	IH15MB-1X/UPE5BAP1-PT/ <input type="checkbox"/> <sup>14</sup> / <input type="checkbox"/> <sup>26</sup>
R901128499		IH15MB-1X/UPE5BAP1-PT/M/V
R901128498		IH15MB-1X/UPE5BAP1-PT/O/V

<input type="checkbox"/> <sup>14</sup> Pressure monitoring	With measuring port		= M
	Without pressure monitoring		= O
<input type="checkbox"/> <sup>26</sup> Seal	Seal material	FKM	= V
	Seal material	NBR	= M

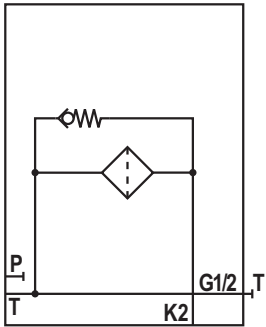


## Module for drive module UPE5, type "UPE5" (dimensions in mm)

### Filter module, type "UPE5F30", "UPE5F60"

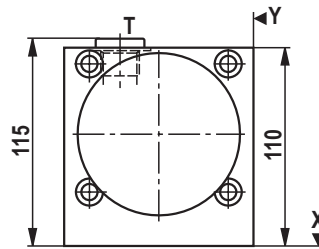
( $p_{\max} = 7 \text{ bar}$ )

#### Symbol

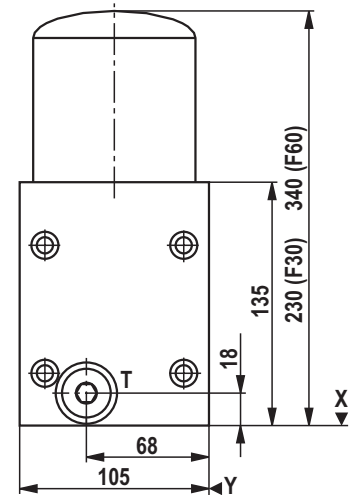


#### Unit dimensions

Dimension Z = 165 mm UPE5F30 position  
Dimension Z = 275 mm UPE5F60 position  
Dimension Z = 70 mm position "F"



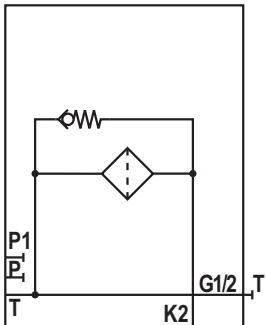
Position of the filter  
Version "C"



Position of the filter  
Version "F"

### Filter module with P1 channel, type "UPE5F30P1", "UPE5F60P1" ( $p_{\max} = 7 \text{ bar}$ )

#### Symbol



#### Installation information:

Wind the filter cartridge as tight as possible on the block.  
Then, wind the filter cartridge by further 1/3 of a rotation.

Material no.	Device designation	Type designation
	Filter module	IH15EB-1X/UPE5F30- <input type="text" value="30"/> <input type="text" value="19"/> / <input type="text" value="20"/> / <input type="text" value="26"/>
R901070574		IH15EB-1X/UPE5F30-C/10/A/V
R904101860		IH15EB-1X/UPE5F30-C/10/E/V
R901070575		IH15EB-1X/UPE5F30-C/10/O/V

Material no.	Device designation	Type designation
	Filter module	IH15EB-1X/UPE5F60- <input type="text" value="30"/> <input type="text" value="19"/> / <input type="text" value="20"/> / <input type="text" value="26"/>
R901070576		IH15EB-1X/UPE5F60-C/10/A/V
R904101346		IH15EB-1X/UPE5F60-C/10/E/V
R901070577		IH15EB-1X/UPE5F60-C/10/O/V

## Module for drive module UPE5, type "UPE5"

Material no.	Device designation	Type designation
	Filter module with P1 channel	IH15EB-1X/UPE5F30P1- <input type="checkbox"/> <sup>30</sup> <input type="checkbox"/> <sup>19</sup> / <input type="checkbox"/> <sup>20</sup> / <input type="checkbox"/> <sup>26</sup>
R901070579		IH15EB-1X/UPE5F30P1-C/10/A/V
R904101863		IH15EB-1X/UPE5F30P1-C/10/E/V
R901070580		IH15EB-1X/UPE5F30P1-C/10/O/V

Material no.	Device designation	Type designation
	Filter module with P1 channel	IH15EB-1X/UPE5F60P1- <input type="checkbox"/> <sup>30</sup> <input type="checkbox"/> <sup>19</sup> / <input type="checkbox"/> <sup>20</sup> / <input type="checkbox"/> <sup>26</sup>
R901070581		IH15EB-1X/UPE5F60P1-C/10/A/V
R904101862		IH15EB-1X/UPE5F60P1-C/10/E/V
R901070582		IH15EB-1X/UPE5F60P1-C/10/O/V

<input type="checkbox"/> <sup>19</sup>	Filter rating	06 µm 10 µm	= 06 = 10
<input type="checkbox"/> <sup>20</sup>	Clogging indicator	Without clogging indicator Visual clogging indicator Electric clogging indicator	= A = O = E
<input type="checkbox"/> <sup>26</sup>	Seal	Seal material Seal material	FKM = V NBR = M
<input type="checkbox"/> <sup>30</sup>	Position of the filter	Direction C Direction F	= C = F

## Module for drive module UPE5, type "UPE5" (dimensions in mm)

### Project planning information

When designing the control with accumulator you have to make sure that the accumulator is protected against inadmissible overpressure by means of a type examination-tested pressure relief valve. The type-examination tested pressure relief valve must not accept any control tasks. The set pressure of the type-examination tested pressure relief valve must be less than or equal to the maximum admissible operating pressure of the accumulator.

In order to achieve the best utilization of the accumulator volume possible as well as long service life, compliance with the following nitrogen filling pressure value is recommended:

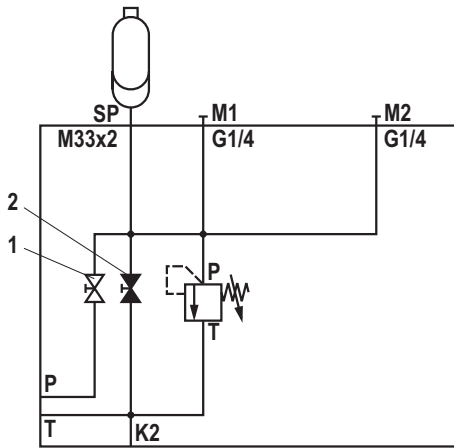
$$p_o = 0.9 \times p_{(\text{minimum operating pressure})}$$

### Mounting information

The accumulators is to be fastened so that in case of operational vibrations, safe hold is guaranteed. No holding forces may be applied via the oil and gas connection.

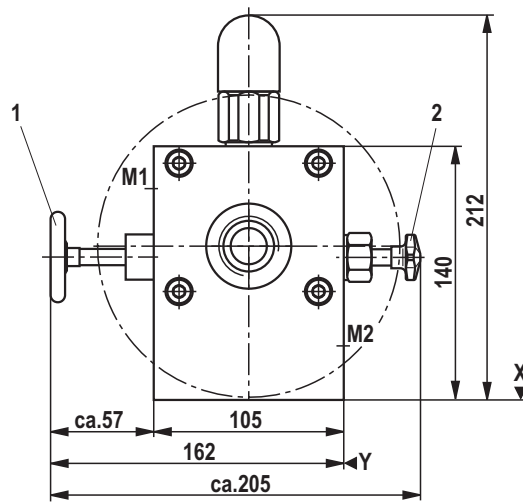
### Accumulator shut-off module, type "UPE5SSB"

#### Symbol



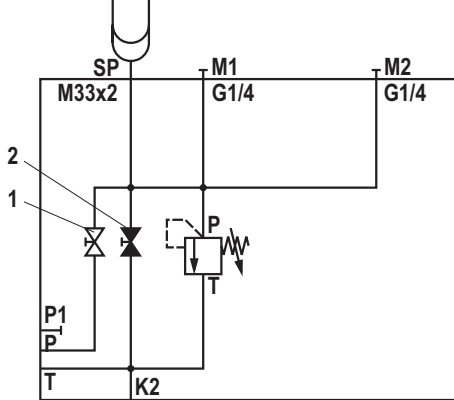
#### Unit dimensions

Dimension Z = max 336 mm



### Accumulator shut-off module with P1 channel, type "UPE5SSBP1"

#### Symbol



- Operating information:
- 1 System stop valve must be open in the operating condition
  - 2 Manual unloading must be closed in the operating condition

Material no.	Device designation	Type designation
	Accumulator shut-off module	IH15EB-1X/UPE5SSB- <div style="display: flex; justify-content: space-around; align-items: center;"> <span>1</span> <span>2</span> <span>31</span> <span>14</span> <span>8</span> <span>18</span> <span>26</span> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 5px;"> <span style="border: 1px solid black; width: 20px; height: 20px;"></span> <span style="border: 1px solid black; width: 20px; height: 20px;"></span> <span style="border: 1px solid black; width: 20px; height: 20px;"></span> <span style="border: 1px solid black; width: 20px; height: 20px;"></span> <span style="border: 1px solid black; width: 20px; height: 20px;"></span> <span style="border: 1px solid black; width: 20px; height: 20px;"></span> <span style="border: 1px solid black; width: 20px; height: 20px;"></span> </div>
R904101864		IH15EB-1X/UPE5SSB-S140E/E/MG24/1,40/V
R901070583		IH15EB-1X/UPE5SSB-S140E/E/OG24/1,40/V
R904101791		IH15EB-1X/UPE5SSB-S140E/M/M/1,40/V
R901070584		IH15EB-1X/UPE5SSB-S140E/M/O/1,40/V

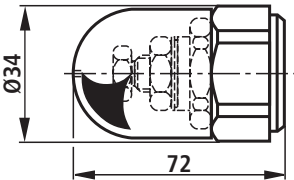
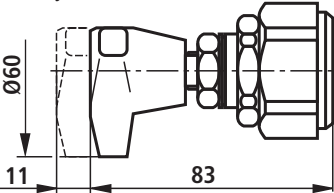
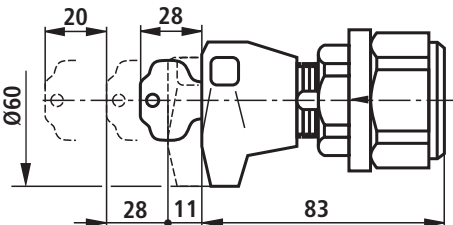
## Module for drive module UPE5, type "UPE5"

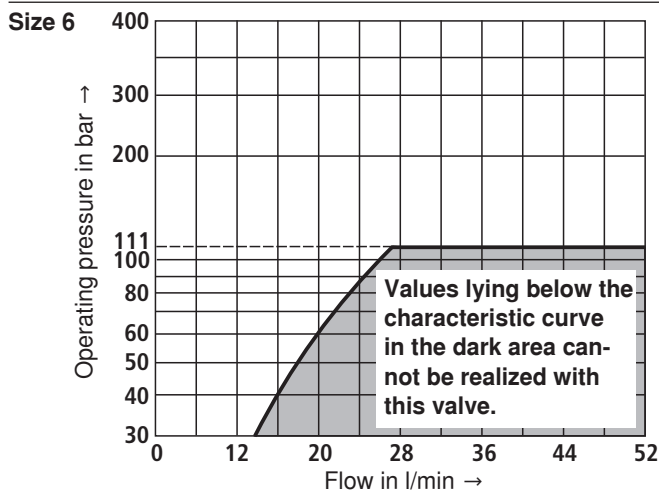
Material no.	Device designation	Type designation
	Accumulator shut-off module with P1 channel	IH15EB-1X/UPE5SSBP1- <div style="display: flex; justify-content: space-around; font-size: small;"> <span>1    3    31    14    8    18    26</span> </div> <div style="display: flex; justify-content: space-around; font-size: x-small;"> <span><input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/></span> </div>
R904101866		IH15EB-1X/UPE5SSBP1-S140E/E/MG24/1,40/V
R901070586		IH15EB-1X/UPE5SSBP1-S140E/E/OG24/1,40/V
R904101865		IH15EB-1X/UPE5SSBP1-S140E/M/M/1,40/V
R901070587		IH15EB-1X/UPE5SSBP1-S140E/M/O/1,40/V

1 <input type="checkbox"/>	Adjustment element at the pressure relief valve	Setscrew with hexagon and protective cap Rotary knob Lockable rotary knob	= S = H = A
3 <input type="checkbox"/>	Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar = 50E 100 bar = 100E 140 bar = 140E 210 bar = 210E 330 bar = 330E
<b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD../.E Type testing according to Pressure Equipment Directive 97/23/EC			See page 89
8 <input type="checkbox"/>	Solenoid voltage of the seat valves	Volt	24 V DC = G24
14 <input type="checkbox"/>	Pressure monitoring	With measuring port Without pressure monitoring	= M = O
18 <input type="checkbox"/>	Diaphragm-type accumulator	Nominal volume in l	Max. pressure in bar
		0.35	210 = 0.35
		0.50	210 = 0.50
		0.70	210 = 0.70
		0.70	350 = 0.70
		1.40	140 = 1.40
		1.40	350 = 1.40
		2.00	350 = 2.00
		2.80	350 = 2.80
		3.50	350 = 3.50
	Bladder-type accumulator	0.50	400 = 0.50
		4.00	330 = 4.00
26 <input type="checkbox"/>	Seal	Seal material Seal material	FKM = V NBR = M
31 <input type="checkbox"/>	Unloading	Manual Manual and electromagnetic	= M = E

## Type key

### Information on the type key

<p>1 <input type="checkbox"/> Adjustment element at the pressure relief valve</p>	<p>Setscrew with hexagon and protective cap</p> 	<p>= S</p>	
	<p>Rotary knob</p> 	<p>= H</p>	
	<p>Lockable rotary knob</p> 	<p>= A</p>	
<p>2 <input type="checkbox"/> Pressure rating of the pressure relief valve</p>	<p>Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.</p>	<p>25 bar 50 bar 100 bar 200 bar 315 bar 400 bar</p>	<p>= 25 = 50 = 100 = 200 = 315 = 400</p>
<p>Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive) More pressure ratings on request!</p>			
	<p>Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.</p>	<p>50 bar 100 bar 140 bar 210 bar 330 bar</p>	<p>= 50E = 100E = 140E = 210E = 330E</p>
<p><b>Characteristic curve</b> for type-examination tested pressure relief valves type: DBD../..E Type testing according to Pressure Equipment Directive 97/23/EC</p>			



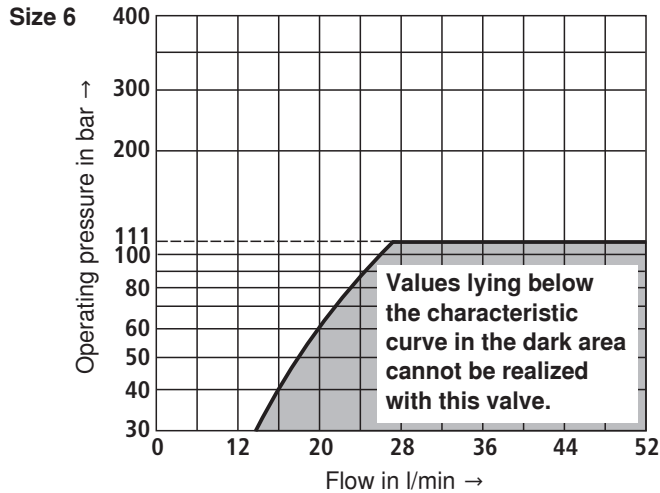
## Type key

### Information on the type key

<sup>3</sup> Pressure rating of the type-examination tested pressure relief valve, according to Directive 97/23/EC (Pressure Equipment Directive)  
 More pressure ratings on request!

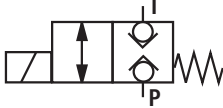
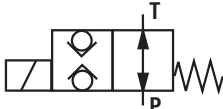
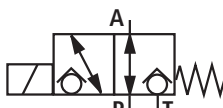
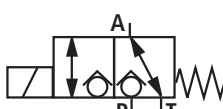
Setting pressure up to max.	50 bar	= 50E
Setting pressure up to max.	100 bar	= 100E
Setting pressure up to max.	140 bar	= 140E
Setting pressure up to max.	210 bar	= 210E
Setting pressure up to max.	330 bar	= 330E

**Characteristic curve** for type-examination tested pressure relief valves type: DBD...E  
 Type testing according to Pressure Equipment Directive 97/23/EC



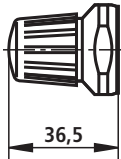
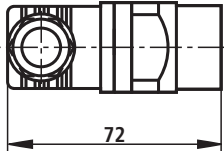
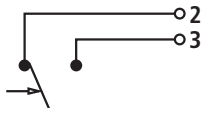
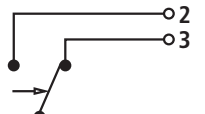
## Type key

### Information on the type key

4 <input type="checkbox"/> Designation of the 2/2 seat valve			= N
			= P
5 <input type="checkbox"/> Designation of the 3/2 seat valve			= U
			= C
8 <input type="checkbox"/> Solenoid voltage of the seat valves	Volt	24 V DC	= G24
14 <input type="checkbox"/> Pressure monitoring	With measuring port Without pressure monitoring		= M = O
15 <input type="checkbox"/> Max. pressure range of the pressure gauge	Without pressure monitoring Display range 60 bar Display range 100 bar Display range 250 bar Display range 400 bar		= no code = 60 = 100 = 250 = 400
16 <input type="checkbox"/> Adjustment element at the pressure reducing valve	Rotary knob Setscrew with hexagon and protective cap Lockable rotary knob with scale Rotary knob with scale		= 1 = 2 = 3 = 7
17 <input type="checkbox"/> Secondary pressure	Max. secondary pressure Max. secondary pressure Max. secondary pressure Max. secondary pressure Max. secondary pressure	25 bar 75 bar 150 bar 210 bar 315 bar	= 25 = 75 = 150 = 210 = 315
18 <input type="checkbox"/> Diaphragm-type accumulator	Nominal volume in l	Max. pressure in bar	
	0.35	210	= 0.35
	0.50	210	= 0.50
	0.70	210	= 0.70
	0.70	350	= 0.70
	1.40	140	= 1.40
	1.40	350	= 1.40
	2.00	350	= 2.00
	2.80	350	= 2.80
	3.50	350	= 3.50
Bladder-type accumulator	0.50	400	= 0.50
	4.00	330	= 4.00

## Type key

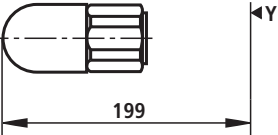
### Information on the type key

<sup>19</sup> <input type="checkbox"/> Filter rating	06 µm 10 µm	= 06 = 10
<sup>20</sup> <input type="checkbox"/> Clogging indicator	Without clogging indicator	= A
	Visual clogging indicator 	= O
	Electric clogging indicator 	= E
Technical data of the electric clogging indicator		
Maximum voltage	V	42
Switching power	VA	100
Protection class with protective cap	IP 65	
Contacts	Normally closed contact	
Terminal assignment		
		
	Filter element clean	Filter element contaminated
<sup>21</sup> <input type="checkbox"/> Check valve	Without check valve In channel P In channel T In channel P and T	= no code = P = T = PT
<sup>22</sup> <input type="checkbox"/> Ports	Without ports P and T	= no code = PT



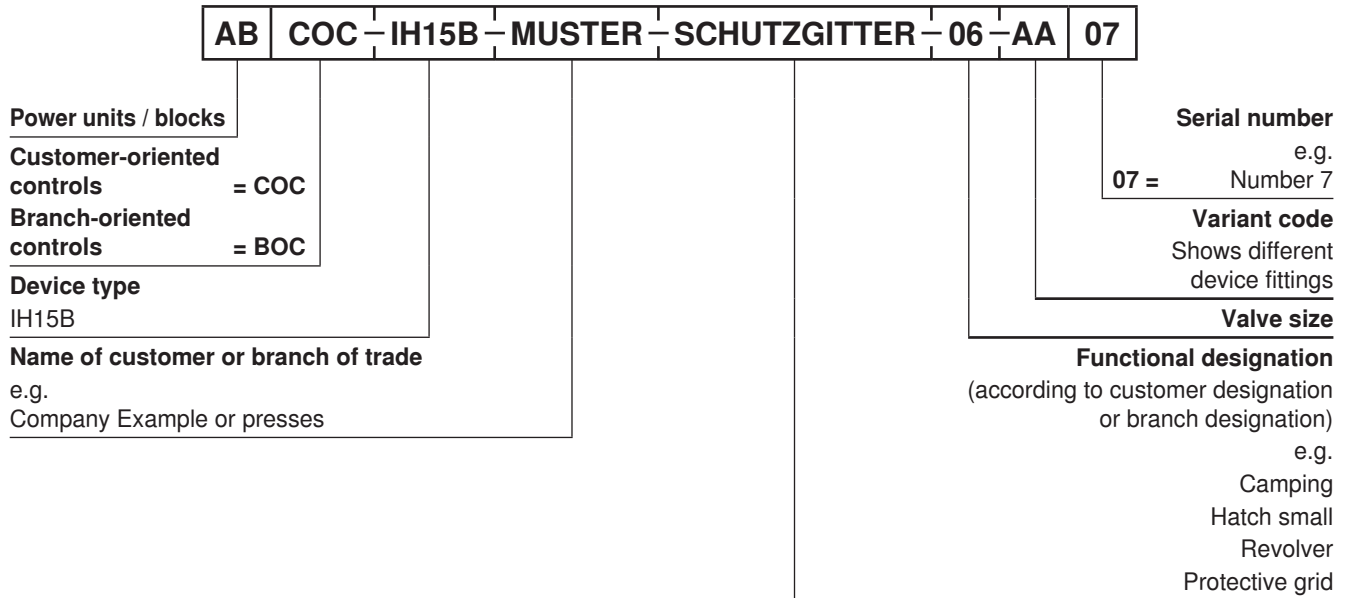
## Type key

### Information on the type key

23 <input type="checkbox"/>	Adjustment type	Hexagon with protective cap	= 2
			
24 <input type="checkbox"/>	Pressure rating of the pressure cut-off valve	Setting pressure up to max. Setting pressure up to max. Setting pressure up to max. Setting pressure up to max.	50 bar = C 100 bar = F 200 bar = K 350 bar = R
26 <input type="checkbox"/>	Seal	Seal material Seal material	FKM = V NBR = M
27 <input type="checkbox"/>	Throttle	Without throttle Throttle diameter Throttle diameter	= no code = B10 = B25
28 <input type="checkbox"/>	Cartridge valve	Adjustable throttle check valve Pilot operated check valve Adjustable throttle check valve and pilot operated check valve	= FS = R = FSR
29 <input type="checkbox"/>	Cartridge valve	In channel A In channel B In channel A and B	= A = B = AB
30 <input type="checkbox"/>	Position of the filter	Direction C Direction F	= C = F
31 <input type="checkbox"/>	Unloading	Manual Manual and electromagnetic	= M = E
32 <input type="checkbox"/>	Stop valve	Without stop valve With stop valve	= no code = A
33 <input type="checkbox"/>	Adjustment element at the pressure reducing valve	Setscrew with hexagon and protective cap Rotary knob with scale, lockable	= 2 = 3
34 <input type="checkbox"/>	Secondary pressure	Max. secondary pressure Max. secondary pressure Max. secondary pressure Max. secondary pressure with pressure switch Max. secondary pressure with pressure switch Max. secondary pressure with pressure switch	100 bar = 100 210 bar = 210 315 bar = 315 100 bar = 100D 210 bar = 210D 315 bar = 315D

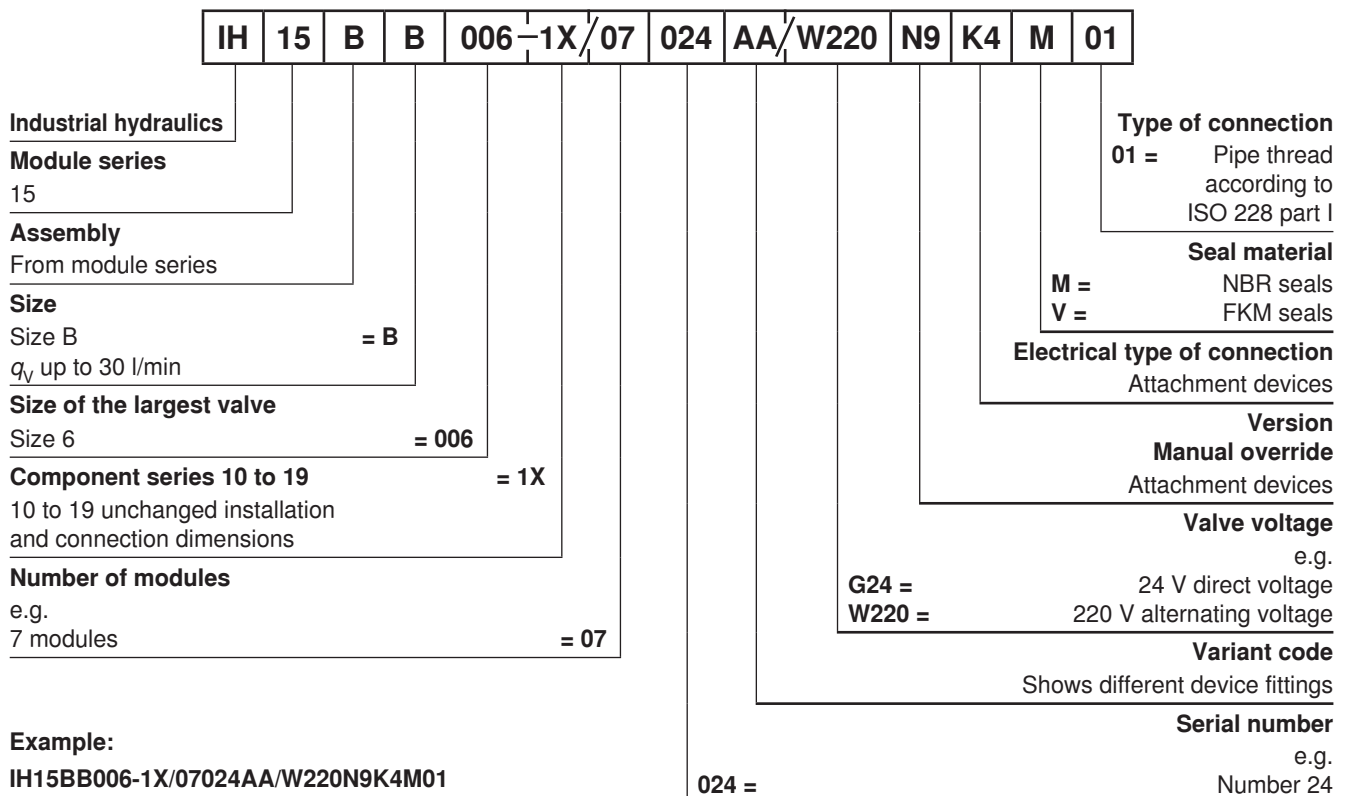
## Type keys for module with vertical stacking

Type: ABCOC / ABBOC



## Type key for complete control system

Type: IH15BB



### Example:

**IH15BB006-1X/07024AA/W220N9K4M01**

Assembly IH15B of size B up to 30 l/min with valves of size 6, 7 modules, serial number 24, variant AA, 220 V alternating voltage, N9 manual override, K4 type of connection, seal material Perbunan, type of connection with pipe thread according to ISO 228 part 1

## Accessories

### Filter element

Material no.	Module	Denomination	Size	Material	Filter rating
R928037999	F30 / UPE5F30	80.30/22 H6XL-S00-5-M	30	NBR	06 µm
R928039389	F30 / UPE5F30	80.30/22 H6XL-S00-5-V	30	FKM	06 µm
R928037978	F30 / UPE5F30	80.30/22 H10XL-S00-5-M	30	NBR	10 µm
R928039388	F30 / UPE5F30	80.30/22 H10XL-S00-5-V	30	FKM	10 µm
R928038331	F60 / UPE5F60	84.60 H10XL-S00-5-M	60	NBR	10 µm
R928038332	F60 / UPE5F60	84.60 H10XL-S00-5-V	60	FKM	10 µm
R928037988	F60 / UPE5F60	84.60 H6XL-S00-5-M	60	NBR	06 µm
R928037989	F60 / UPE5F60	84.60 H6XL-S00-5-V	60	FKM	06 µm
R928006053	DF30 / DFS30	2.0004 H10XL-A00-0-M	30	NBR	10 µm
R928006080	DF30 / DFS30	2.0004 H10XL-A00-0-V	30	FKM	10 µm
R928006655	DF40 / DFS40	2.0040 H6XL-B00-0-M	40	NBR	06 µm
R928006682	DF40 / DFS40	2.0040 H6XL-B00-0-V	40	FKM	06 µm
R928006656	DF40 / DFS40	2.0040 H10XL-B00-0-M	40	NBR	10 µm
R928006683	DF40 / DFS40	2.0040 H10XL-B00-0-V	40	FKM	10 µm
R928006124	DF50 / DFS50	2.0005 H6XL-C00-0-M	50	NBR	06 µm
R928006151	DF50 / DFS50	2.0005 H6XL-C00-0-V	50	FKM	06 µm
R928006125	DF50 / DFS50	2.0005 H10XL-C00-0-M	50	NBR	10 µm
R928006152	DF50 / DFS50	2.0005 H10XL-C00-0-V	50	FKM	10 µm

Assembly tool for filter cartridge

- Strap wrench Material no.: R904001048

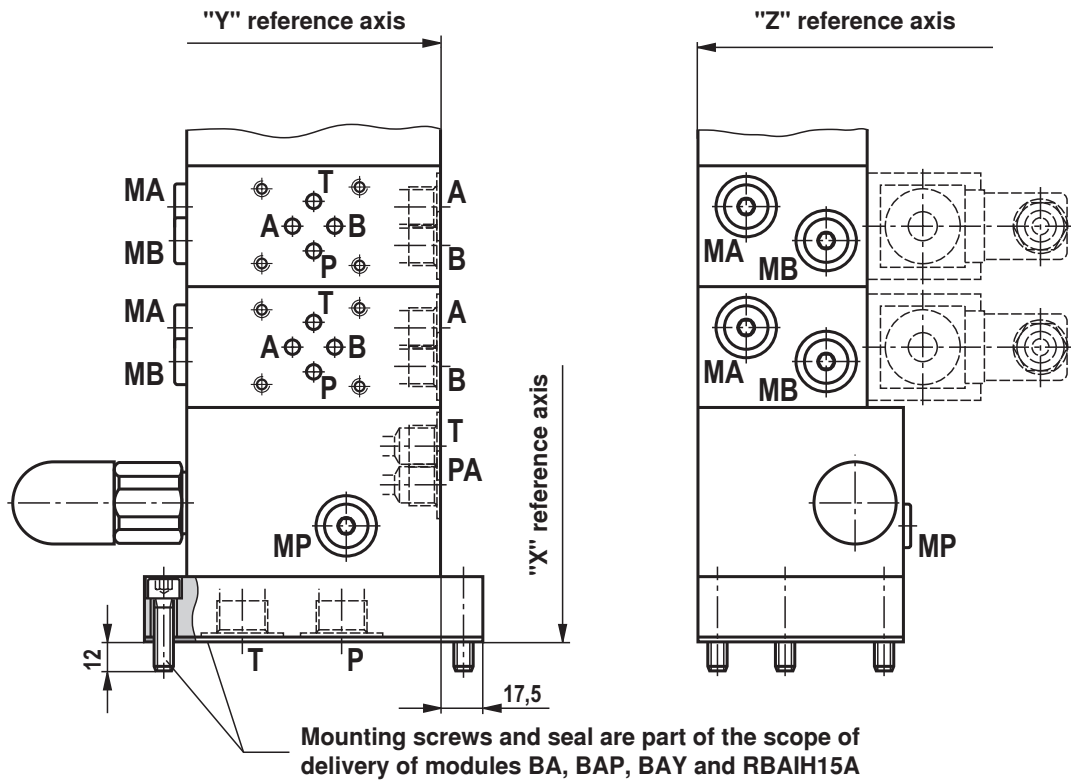
#### Installation information for F30, F60, UPE5F30 and UPE5F60:

- Wind the filter cartridge as tight as possible on the block.  
Then, wind the filter cartridge further by further 1/3 of a rotation.

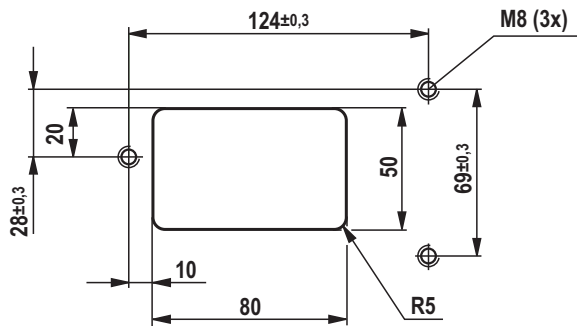
#### Installation information for DF30, DF40, DF50, DFS30, DFS40 and DFS50:

- Wind the filter cartridge as tight as possible on the block.  
Then, wind it back by 1/8 to 1/4 of a rotation.

**Dimensions: Unit dimensions (dimensions in mm)**



**Dimensions: Tank break-through (dimensions in mm)**

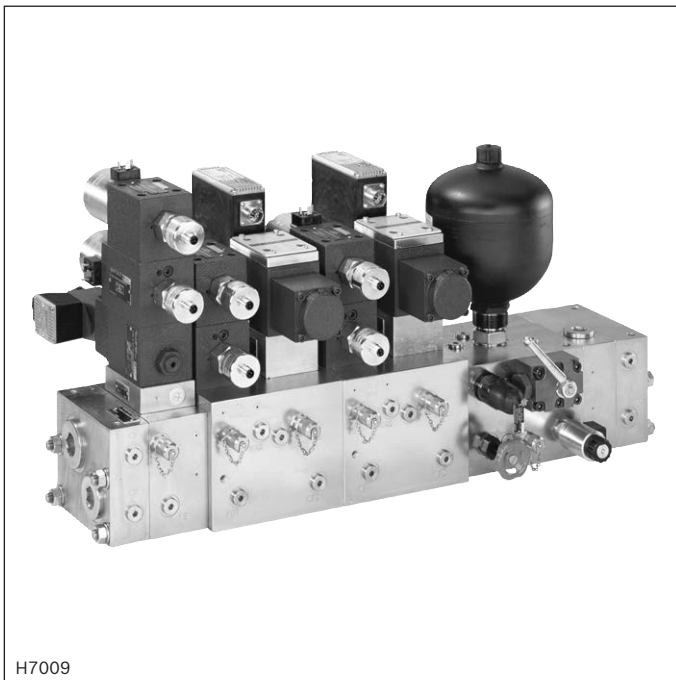


# Modular plate systems

## Type IH20

**RE 51159**

Edition: 2016-01



H7009

- ▶ Frame size A and B
- ▶ Component series 1X
- ▶ Maximum operating pressure 315 bar
- ▶ Rated flow 50 l/min and 200 l/min

### Features

- ▶ Modular block system for set-up of controls in a compact construction, ready for connection
- ▶ Different sizes of one frame size can be combined in any order
- ▶ Pressure and tank ports for all control circuits on both front sides of the mounted IH20 stacking assemblies
- ▶ Separate actuator ports A and B per control circuit
- ▶ The material number includes the respective segment with all plug screws and seals
- ▶ Functional elements such as valves or nozzles are not included
- ▶ For detailed circuit diagrams and device lists of a complete IH20 stacking assembly see the respective order documentation

### Contents

Features	1
General	2
Overview	3 ... 6
Technical data	7
Stacking element	8 ... 17
Pump inlet segment	18 ... 25
Directional function	26 ... 51
Blocking function	52 ... 55
Pressure function	56 ... 65
Flow control function	66, 67
Logic function	68 ... 70
Accumulator function	71, 72
Accessories	73 ... 76
Devices and associated porting pattern types	76, 77
Further information	78

## General

### Function

The type IH20 control system (complete assembly) can be realized individually from different modules and additional vertical stackings. Functionality will differ according to the selected modules, valves etc.

This data sheet describes the properties of the individual modules with frame sizes A and B of the premium and standard programs which are primarily designed for direct operated or for internally pilot-operated directional valves.

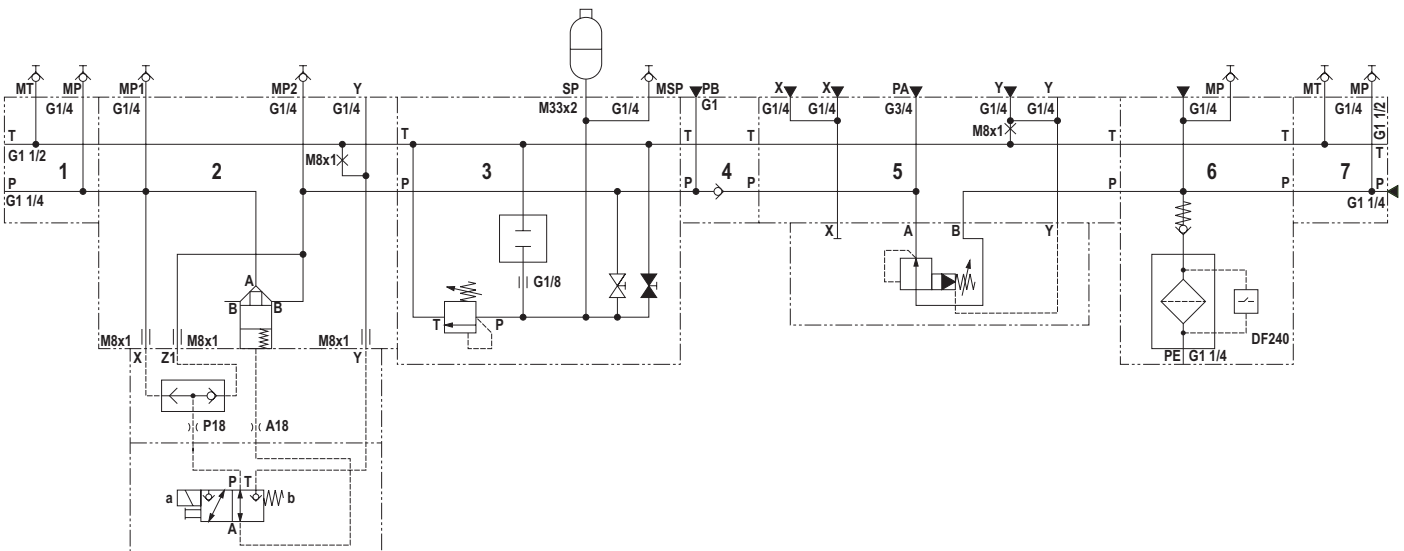
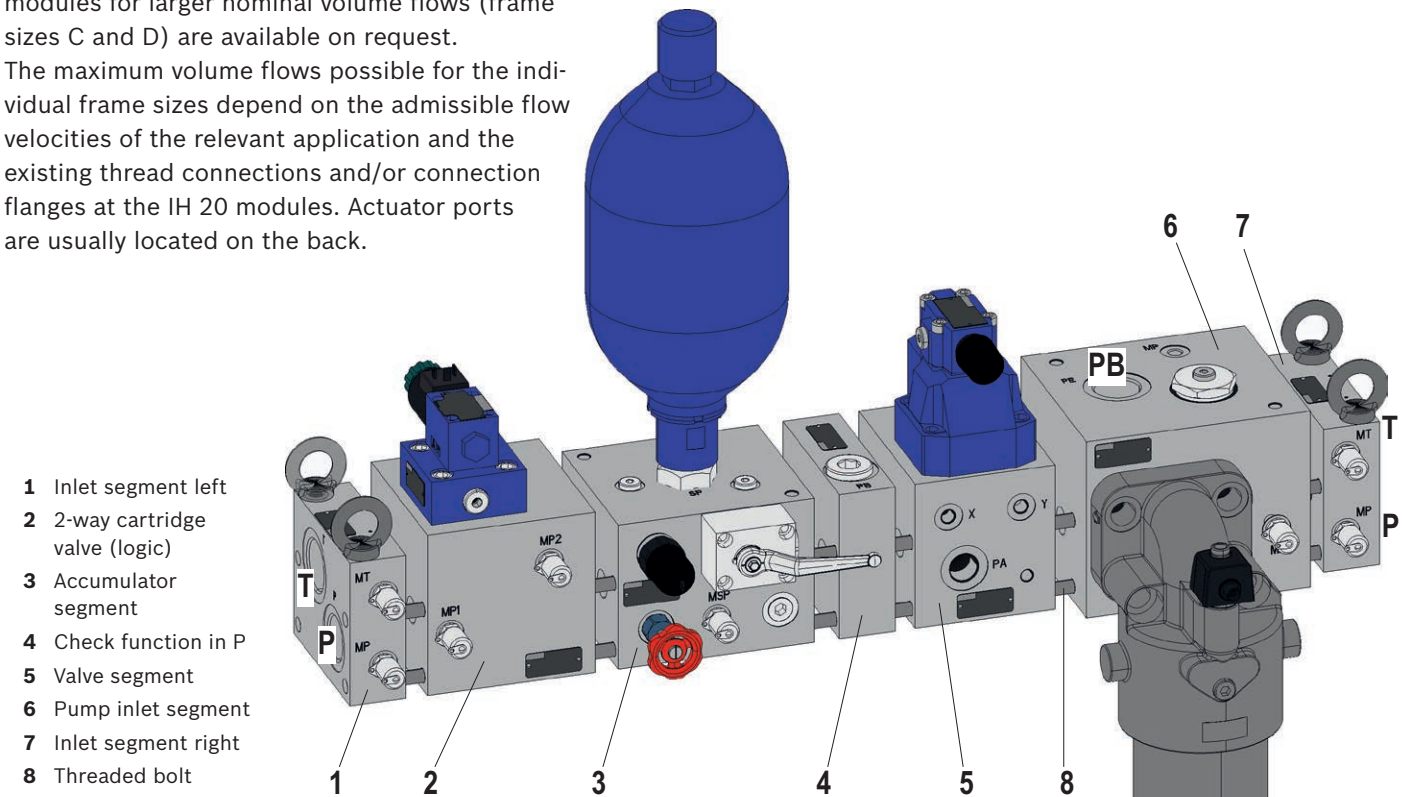
Other functions (modules) in these frame sizes and modules for larger nominal volume flows (frame sizes C and D) are available on request.

The maximum volume flows possible for the individual frame sizes depend on the admissible flow velocities of the relevant application and the existing thread connections and/or connection flanges at the IH 20 modules. Actuator ports are usually located on the back.


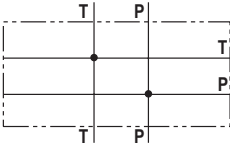
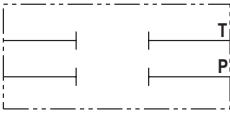

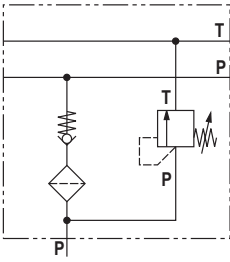
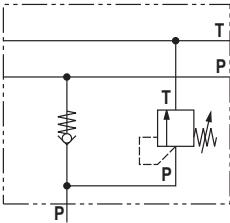
### System set-up

The type IH20 control system (complete assembly) usually consists of the following elements:

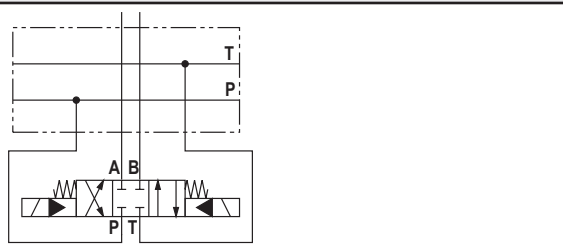
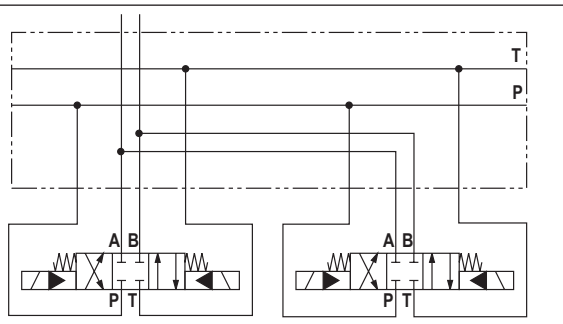
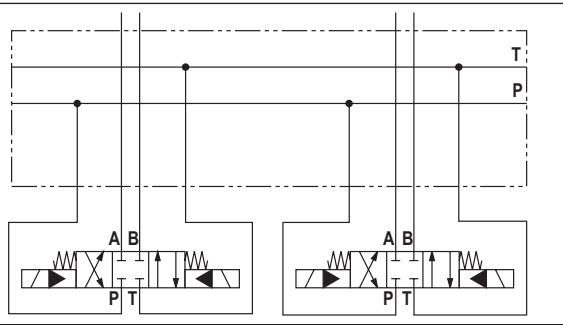
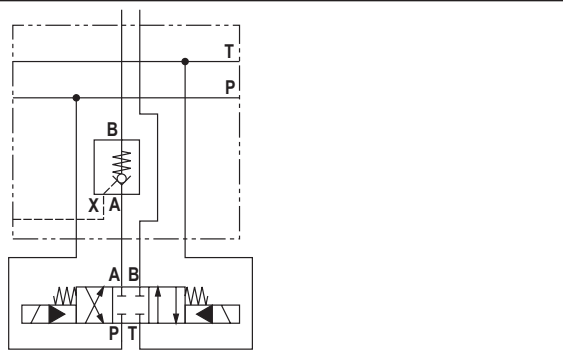
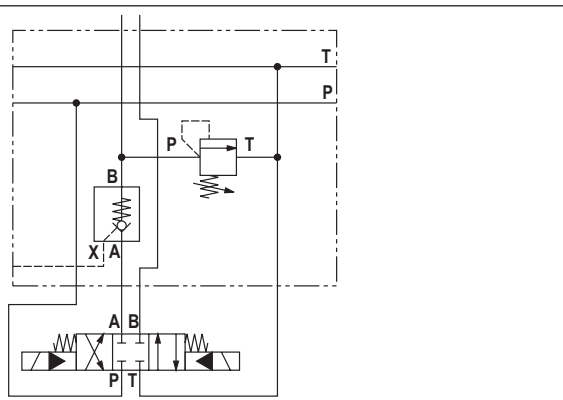
- ▶ Inlet segment
- ▶ Intermediate segment(s)
- ▶ Sandwich plates, valves etc.



## Overview

Stacking elements			Page
	Inlet segments Left/right	Ports P and T front side	8 ... 10
	Ports	Ports P and T lateral	11
	Threaded segments	Thread instead of through holes (for threaded bolts)	12 ... 13
	Spacer segments	Increases the distance between two segments (construction- related)	14
	Separator segments	Interruption of manifold pipes (multi-circuit systems)	15
	Reducer segments	Adaptation between the frame sizes	16 ... 17
Pump inlet segments			
	Inlet segment with filter	Pump inlet with control for pump start-up and filtration	18 ... 22
	Inlet segment without filter	Pump inlet with control for pump start-up without filtration	23 ... 25

## Overview

Directional function	Page		
	Single directional function	Set-up of an individual directional valve (similar to manifold)	26 ... 31
	Directional function internally linked	Set-up of several directional valves with internal function	32 ... 35
	Multi-directional function	Set-up of several directional valves (similar to manifold)	36 ... 38
	Directional function with blocking function	Directional valve set-up combined with blocking function	39 ... 44
	Directional function with blocking and pressure function	Directional valve set-up combined with blocking function and pressure reducing or pressure limiting function	45



Overview

	<p>Directional function with pressure function</p>	<p>Directional valve set-up combined with pressure reducing or pressure limiting function</p>	<p>46 ... 48</p>
	<p>Directional function with flow control function</p>	<p>Directional valve set-up combined with flow control function</p>	<p>49 ... 50</p>
	<p>Switchable differential circuit</p>	<p>Connection between the actuator channels electrically switchable</p>	<p>51</p>
<p><b>Blocking function</b></p>			
	<p>Check function</p>	<p>Check function in channels P and T</p>	<p>52 ... 54</p>
	<p>Releasable check function</p>	<p>Releasable check function in the actuator ports</p>	<p>55</p>
<p><b>Pressure function</b></p>			
	<p>Pressure limiting function</p>	<p>Pressure limitation of pump manifold pipe</p>	<p>56 ... 58</p>

**Overview**

	<p>Pressure shut-off function</p>	<p>Pressure shut-off function of pump inlet</p>	<p>59 ... 60</p>
	<p>Pressure reducing function</p>	<p>Pressure reducing function in the actuator ports or the P manifold pipe</p>	<p>61 ... 65</p>
<p><b>Flow control function</b></p>			
		<p>Flow control function in the actuator ports</p>	<p>66 ... 67</p>
<p><b>Logic function</b></p>			
		<p>Directional and/or pressure function with 2/2 directional cartridge valve</p>	<p>68 ... 70</p>
<p><b>Accumulator function</b></p>			
		<p>Set-up of an accumulator with pressure limiting function</p>	<p>71 ... 72</p>

## Technical data

(For applications outside these values, please consult us!)

general	
Installation position	Any (preferably horizontal) <sup>1)</sup>
Ambient temperature range	°C –30 ... +50 (NBR seals) –20 ... +50 (FKM seals)
Surface protection	Galvanic coating according to DIN 50979 Fe//Zn8//Cr//TO
Material	EN-JS1030/EN-GJS-400-15 (0.7040/GG-40)

hydraulic			
Maximum operating pressure	▶ Ports A, B, P, X	bar	315
	▶ Ports T, Y, L	bar	100
Rated flow	▶ Frame size A	l/min	50
	▶ Frame size B	l/min	200
Hydraulic fluid	See table below		
Hydraulic fluid temperature range	°C	–30 ... +80 (NBR seals) –15 ... +80 (FKM seals)	
Viscosity range	mm <sup>2</sup> /s	2.8 ... 500 <sup>1)</sup>	
Maximum admissible degree of contamination of the hydraulic fluid; Cleanliness class according to ISO 4406 (c)	Class 20/18/15 <sup>1; 2)</sup>		

Hydraulic fluid	Classification	Suitable sealing materials	Standards	Data sheet
Mineral oils	HL, HLP	NBR, FKM	DIN 51524	90220



### Important information on hydraulic fluids:

- ▶ For more information and data on the use of other hydraulic fluids, please refer to data sheet 90220 or contact us.

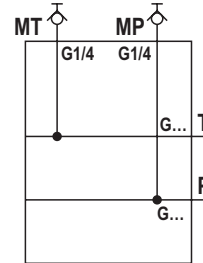
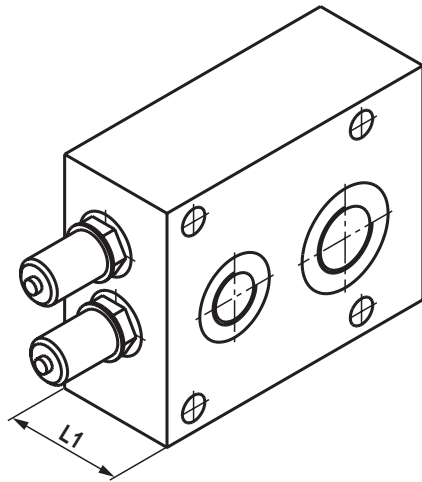
- ▶ There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.)!
- ▶ The flash point of the hydraulic fluid used must be 40 K higher than the maximum solenoid surface temperature.

<sup>1)</sup> Observe details of subplate-mounted valves.

<sup>2)</sup> The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and simultaneously increases the life cycle of the components.

**Stacking element:** inlet segment  
(dimensions in mm)

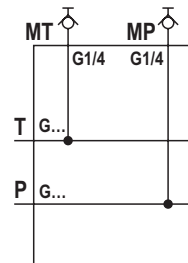
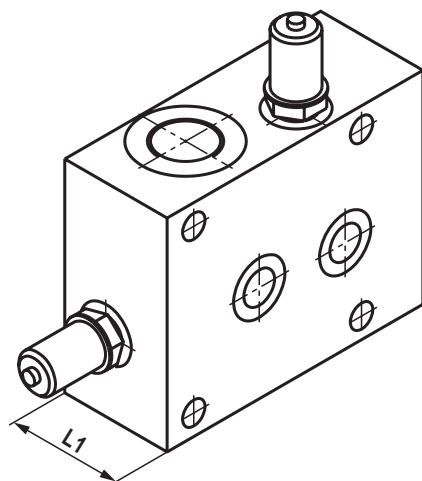
► Inlet segment right "AS"



Frame size	P	T	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
A	G1/2	G3/4	50	IH20M1A-AS01-1X/	R900247600	R901010859	R900619293
A	G3/4	G1	50	IH20M1A-AS02-1X/	R900780022	R901010860	R900780028
B	G1 1/4	G1 1/2	50	IH20M1B-AS01-1X/	R900977159	R901010864	R900245584

**Stacking element:** inlet segment  
(dimensions in mm)

► Inlet segment left "ES"

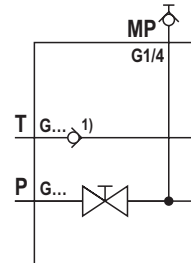
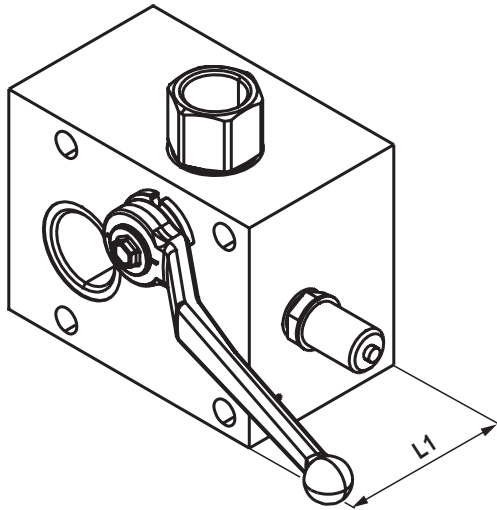


Frame size	P	T	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
A	G3/4	G1	50	IH20M1A-ES02-1X/	R900780029	R901010862	R900780034
A	G1/2	G3/4	50	IH20M1A-ES01-1X/	R900247598	R901010861	R900619292
B	G1 1/4	G1 1/2	50	IH20M1B-ES01-1X/	R900977160	R900786556	R900245857

**Stacking element:** inlet segment  
(dimensions in mm)



► Inlet segment left "ES", with integrated ball valve



	Frame size	P	T	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
<b>a</b>	<b>A</b>	G3/4	G1	75	IH20M1A-ES03-1X/	R901057433	R901102829	R901057437
<b>b</b>	<b>B</b>	G1 1/4	G1 1/2	100	IH20M1B-ES03-1X/	R901057413	R901102807	R901057423

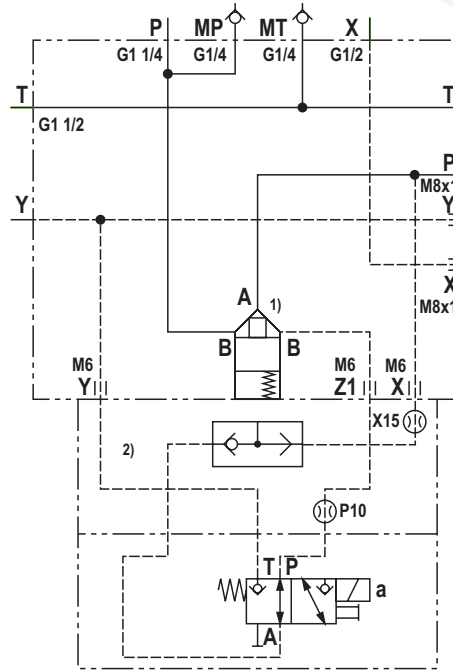
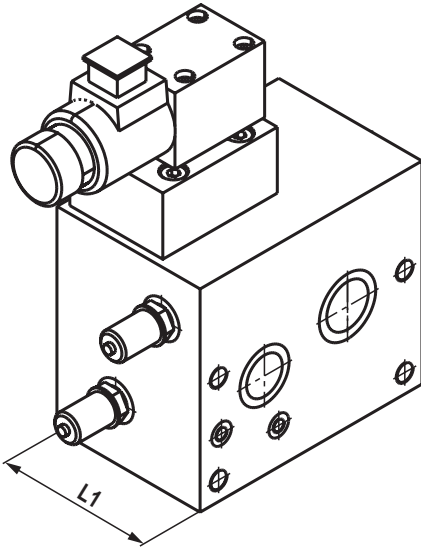
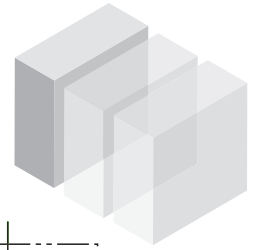
Sample assembly	
<b>a</b>	<ul style="list-style-type: none"> <li>► optional check valve insert type RKVC-16-0,2 bar</li> <li>- NBR: material no. R900031396 (not included) <sup>1)</sup></li> <li>- FKM: material no. R901103578 (not included) <sup>1)</sup></li> </ul>
<b>b</b>	<ul style="list-style-type: none"> <li>► optional check valve insert RKVC-40-0,2 bar</li> <li>- NBR: material no. R900734700 (not included) <sup>1)</sup></li> <li>- FKM: material no. R901103580 (not included) <sup>1)</sup></li> </ul>

**Notice:**

The ball valve is always included in the module.

**Stacking element:** inlet segment  
(dimensions in mm)

► Inlet segment left "ES", for size 16 logic



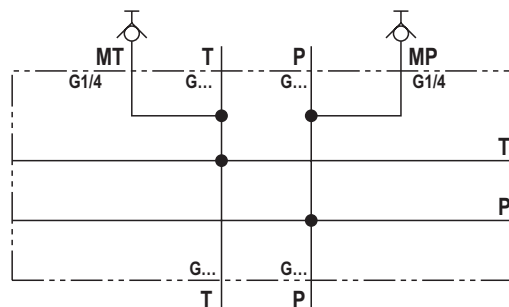
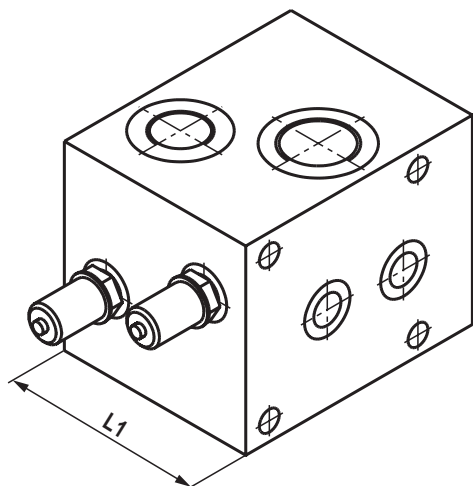
Frame size	P	T	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	G1 1/4	G1 1/2	75	IH20M11B-ES16R01-1X/	R901269142	R901431280	R901269208

**Sample assembly**

- Cartridge valve type LC 16 ...-7X/... (data sheet 21010) <sup>1)</sup>
- Logic cover type LFA 16 ...-7X/... (data sheet 21010) <sup>2)</sup>
- X, Y, Z1 depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129) or ZN10027-M6-SV (material no. R913019128)
- Pilot and leak oil flow externally and into other segments possible

**Stacking element: ports**  
(dimensions in mm)

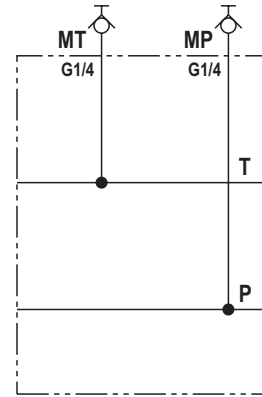
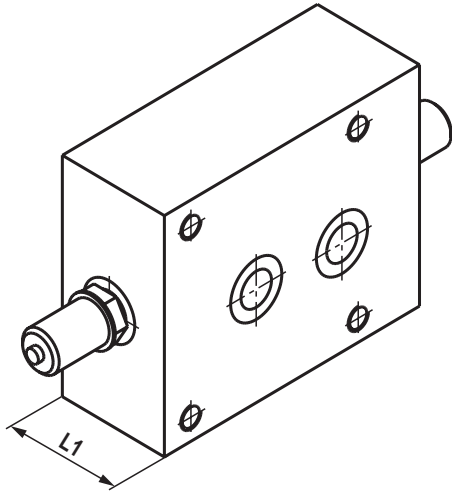
► Segment with functions in channel P and T "PT"




Frame size	P	T	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
A	G 3/4	G 1	100	IH20M4A-PT01-1X/	R901084445	-	R901084456
B	G 1 1/4	G 1 1/2	100	IH20M4B-PT01-1X/	R900720735	R901003944	R900720737

**Stacking element:** threaded segment  
(dimensions in mm)

► **Threaded segment "GS"**



	Frame size	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
<b>a</b>	<b>A</b>	50	IH20M6A-GS1-1X/	R900708074	–	R900718688
<b>b</b>	<b>B</b>	50	IH20M6A-GS1-1X/	R900619832	R901003947	R900719155

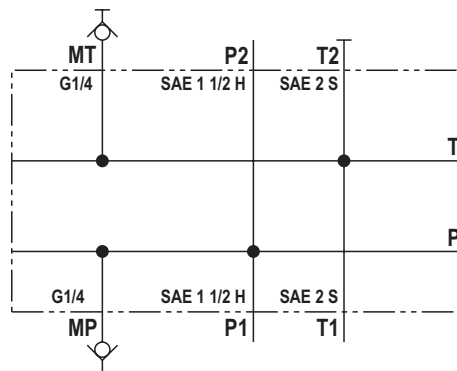
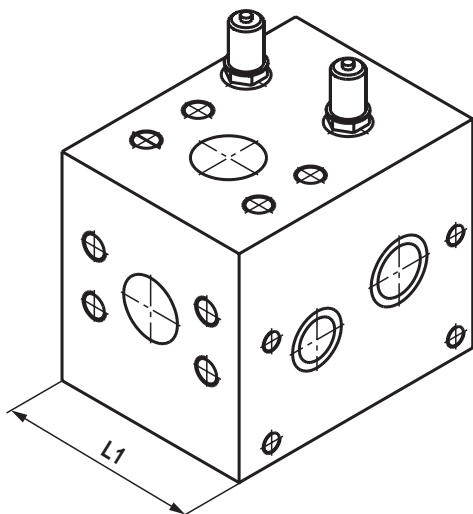
 **Notices:**

- With threads on both sides – no through holes for threaded bolts
- For the assembly of controls with excessive length
- Use only once per stacking assembly



**Stacking element:** threaded segment  
(dimensions in mm)

► **Threaded segment with ports "GS"**



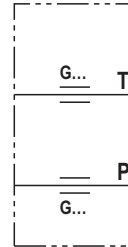
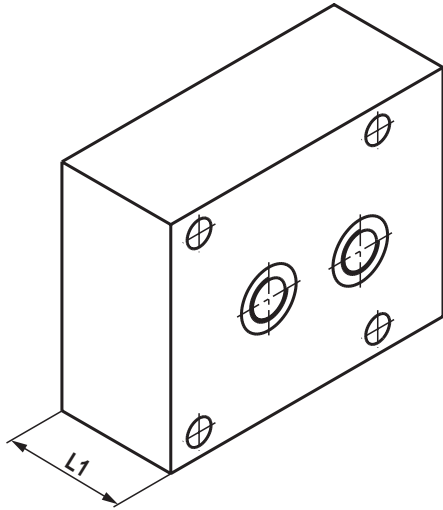
Frame size	P1	P2	T1	T2	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	SAE 1 1/2H	SAE 1 1/2H	SAE 2 S	SAE 2 S	125	IH20M6B-GS03-1X/	R901124350	R901124361	R901124365

**Notices:**

- With threads on both sides – no through holes for threaded bolts
- For the assembly of controls with excessive length
- Use only once per stacking assembly
- P forward and up, T downward and back

**Stacking element:** spacer segment  
(dimensions in mm)

► **Spacer segment "DS"**



	Frame size	P	T	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
<b>a</b>	<b>A</b>	G3/8	G3/8	50	IH20M4A-DS01-1X/	R900708077	R901055381	R900718683
<b>b</b>	<b>B</b>	G3/4	G1	50	IH20M4B-DS01-1X/	R900619739	R900786570	R900718630

<b>Sample assembly</b>	
<b>a</b>	► Plug screw channels P and T: material no. R913019138
<b>b</b>	► Plug screw P: material no. R913023612 ► Plug screw T: material no. R913019140

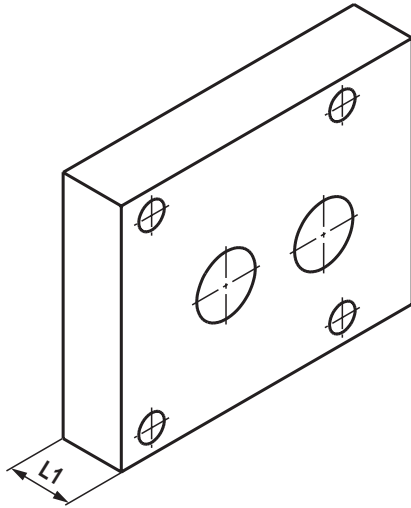


**Notice:**

Plate can also be used as a separator segment (separation of P and T by plug possible).

**Stacking element:** separator segment  
(dimensions in mm)

► Separator segment "TS"



Frame size	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
A	25	IH20M4A-TS01-1X/	R901129334	-	R901129337
B	25	IH20M4B-TS01-1X/	R901131772	R901170590	R901131781

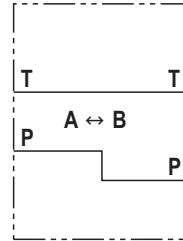
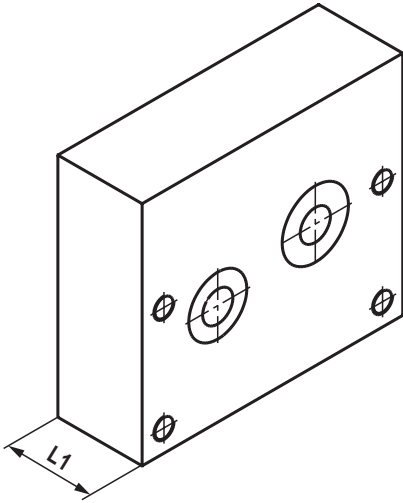


**Notice:**


Can also be used as left and/or right end segment.

**Stacking element:** reducer segment left  
(dimensions in mm)

► Reducer segment frame size B right on A left "RL"



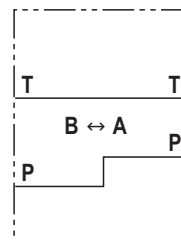
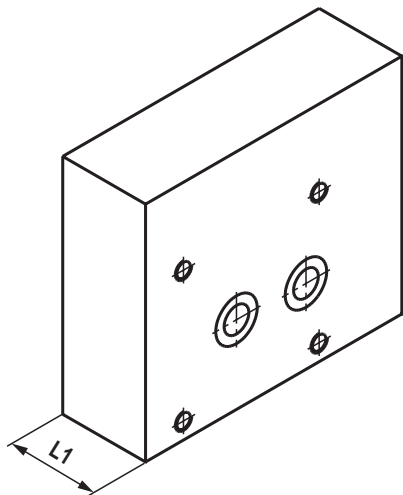
Frame size	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	50	IH20M3B-RL01-1X/	R901069127	-	R901069645

 **Notice:**


- Threaded - no through holes for threaded bolts.
- Use only once per stacking assembly.

**Stacking element:** reducer segment right  
(dimensions in mm)

- ▶ Reducer segment frame size B right on A left "RR"



Frame size	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	50	IH20M3B-RR01-1X/	R901069126	-	R901069648

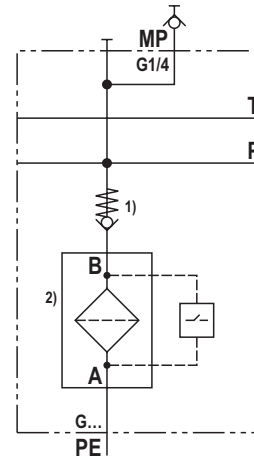
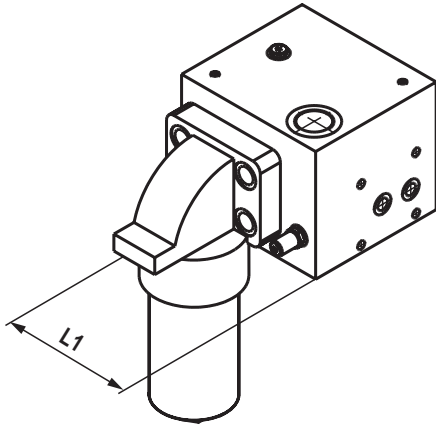
 **Notice:**

- ▶ Threaded - no through holes for threaded bolts.
- ▶ Use only once per stacking assembly.



**Pump inlet segment:** pump inlet segment with filter  
(dimensions in mm)

► **Pressure filter segment "DF"**

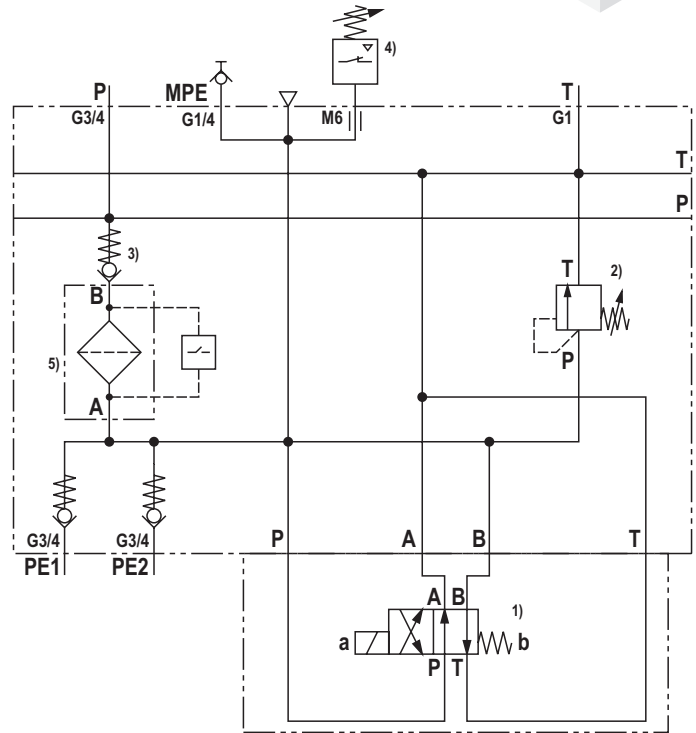
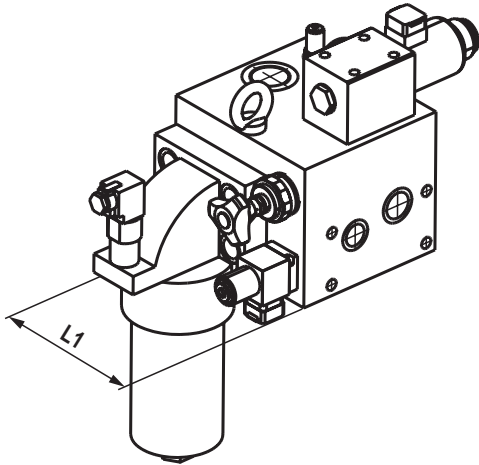


	Frame size	PE	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	G1	150	IH20M4A-DF65-01-1X/	R901061219	–	R901061223
b	A	G1 1/4	200	IH20M4A-DF200-01-1X/	R901061676	–	R901061679
c	B	G1 1/4	150	IH20M4B-DF65-01-1X/	R900760982	–	R900761324
d	B	G1	200	IH20M4B-DF200-01-1X/	R900760983	–	R900761592

	Filter		Sample assembly
	Size	Data sheet	
a	40 ... 100	51418	► Type M-SR 20 KE...-1X/ (data sheet 20380) <sup>1)</sup> ► Filter, e. g.: 245PSFN0063-H10XLB00- V5,0-M (max. 250 bar), material no. R928024393 (NBR) (data sheet 51418) <sup>2)</sup> ► 350PSFN0063-H10XLB00- V5,0-M, material no. R928026491 (NBR) (data sheet 51419)
	40 ... 100	51419	
b	160 ... 400	51418	► Type M-SR 25 KE...-1X/ (data sheet 20380) <sup>1)</sup> ► Filter, e. g.: 245PSFN0160-H10XLB00- V5,0-M (max. 250 bar), material no. R928024397 (NBR) (data sheet 51418) <sup>2)</sup> ► 350PSFN0160-H10XLB00- V5,0-M, material no. R928026495 (NBR) (data sheet 51419)
	160 ... 1000	51419	
c	160 ... 400	51418	► Type M-SR 20 KE...-1X/ (data sheet 20380) <sup>1)</sup> ► Filter, e. g.: 245PSFN0100-H10XLB00- V5,0-M (max. 250 bar), material no. R928024394 (NBR) (data sheet 51418) <sup>2)</sup> ► 350PSFN0100-H10XLB00- V5,0-M, material no. R928026492 (NBR) (data sheet 51419)
	160 ... 1000	51419	
d	160 ... 400	51418	► Type M-SR 25 KE...-1X/ (data sheet 20380) <sup>1)</sup> ► Filter, e. g.: 245PSFN0...-H10XLB00- V5,0-M (max. 250 bar) <sup>2)</sup> – 0160: material no. R928024397 (NBR) – 0250: material no. R928024398 (NBR) (data sheet 51418) ► 350PSFN0...-H10XLB00- V5,0-M – 0160: material no. R928026495 (NBR) – 0250: material no. R928026496 (NBR) (data sheet 51419)
	160 ... 1000	51419	

**Pump inlet segment:** pump inlet segment with filter (dimensions in mm)

- Pump inlet segment for pressure limitation and depressurized circulation with pressure filter "DF"



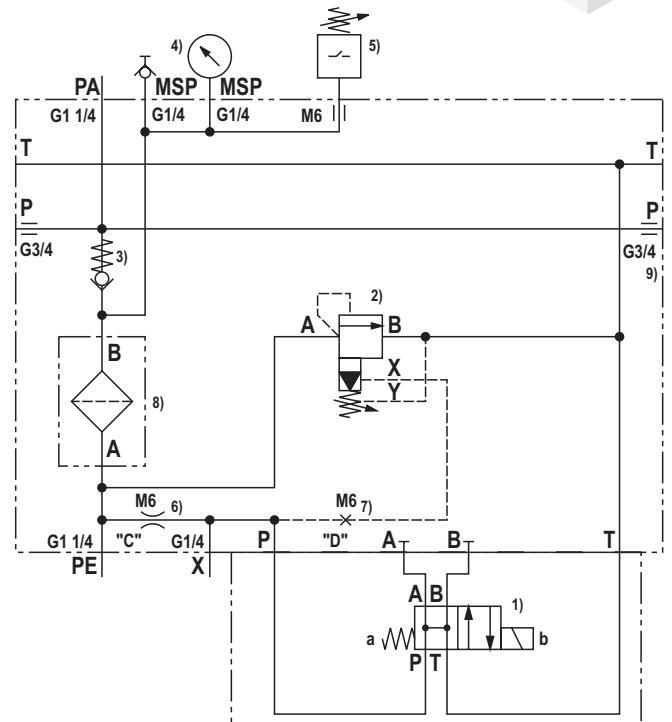
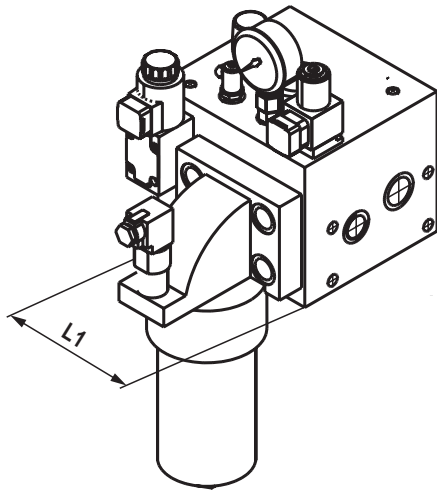
Frame size	P, PE	T	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
A	G3/4	G1	200	IH20M4A-DF65-03-1X/	R901099463	-	R901099469

Size	Filter	
	Data sheet	Sample assembly
40 ... 100	51418	► Type 4WE 6 D73-6X/... (data sheet 23178) <sup>1)</sup>
40 ... 100	51419	► Type DBD... 10 K1X/... (data sheet 25402) <sup>2)</sup>
		► Type M-SR 15 KE...-1X/ (data sheet 20380) <sup>3)</sup>
		► Type HED 8 OH2X/... (data sheet 50061) <sup>4)</sup>
		► Filter, e. g.: 245PSFN0063-H10XLB00- V5,0-M (max. 250 bar), material no. R928024393 (NBR) (data sheet 51418) <sup>5)</sup>
		► 350PSFN0063-H10XLB00- V5,0-M, material no. R928026491 (NBR) (data sheet 51419)



**Pump inlet segment:** pump inlet segment with filter  
(dimensions in mm)

- **Pump inlet segment for pressure limitation and depressurized circulation with pressure filter "DF"**



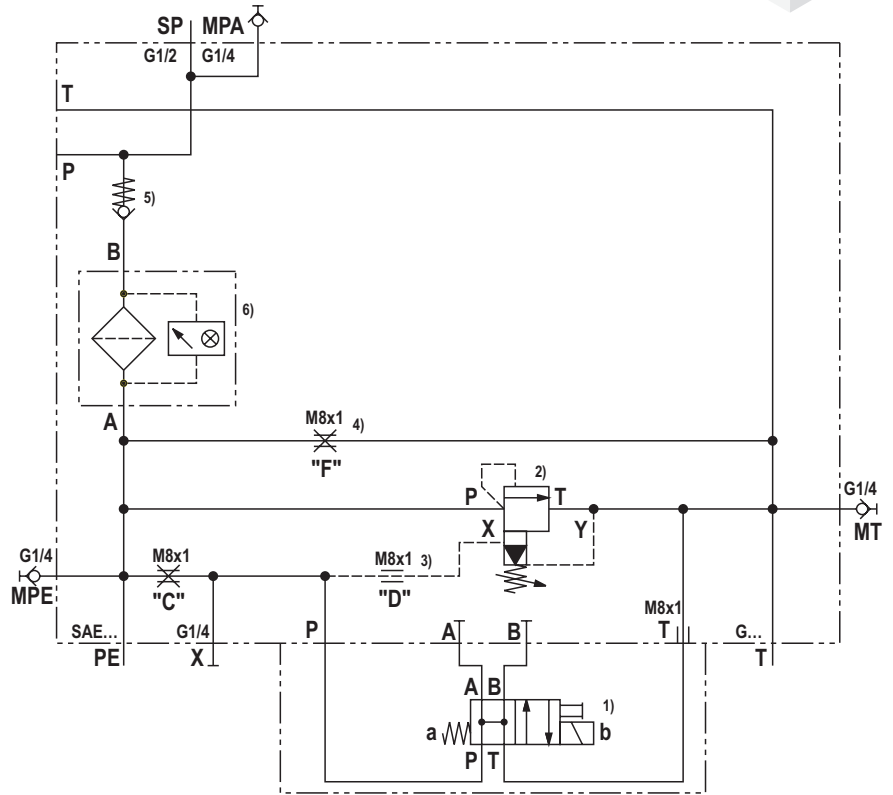
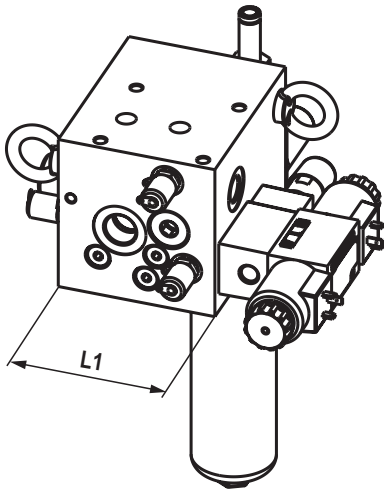
Frame size	PE	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	G1 1/4	200	IH20M4B-DF200-03-1X/	R901082301	-	R901082308

Filter		Sample assembly
Size	Data sheet	
160 ... 400	51418	<ul style="list-style-type: none"> <li>► Type 4WE 6 HB6X/... (data sheet 23178) <sup>1)</sup></li> <li>► Type DB 20 K2-1X/...XY... (data sheet 25818) <sup>2)</sup></li> <li>► Type M-SR 25 KE...-1X/ (data sheet 20380) <sup>3)</sup></li> <li>► Pressure gauge (data sheet 50205) <sup>4)</sup></li> <li>► Type HED 8 OH2X/... (data sheet 50061) <sup>5)</sup></li> <li>► Nozzle ZN10028-0,8-B-M6X6-SV (material no. R913018582) <sup>6)</sup></li> <li>► Plug screw ZN10027-M6-SV (material no. R913019128) <sup>7)</sup></li> <li>► Filter, e. g.: 245PSFN0...-H10XLB00- V5,0-M (max. 250 bar) <sup>8)</sup> <ul style="list-style-type: none"> <li>- 0160: material no. R928024397 (NBR)</li> <li>- 0250: material no. R928024398 (NBR) (data sheet 51418)</li> </ul> </li> <li>► 350PSFN0...-H10XLB00- V5,0-M                             <ul style="list-style-type: none"> <li>- 0160: material no. R928026495 (NBR)</li> <li>- 0250: material no. R928026496 (NBR) (data sheet 51419)</li> </ul> </li> <li>► Thread G3/4 for plug screw ZN10027-R3/4-SV (material no. R913023612) for separation in channel P with multiple pump circuits <sup>9)</sup></li> <li>► Sample nozzle fitting for A10VSO with DFR1 controller nozzle fitting according to installation drawing</li> </ul>
160 ... 1000	51419	

**Pump inlet segment: pump inlet segment with filter**  
(dimensions in mm)



► Vertical design with filter on the ABPAC tank "AS"

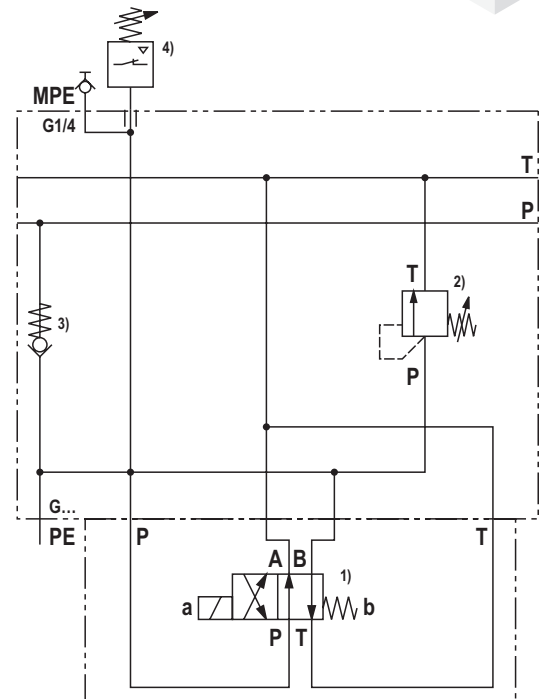
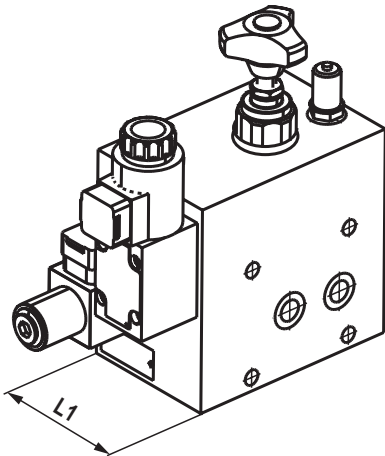


	Frame size	PE	T	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
<b>a</b>	<b>A</b>	SAE 3/4H	G3/4	130	IH20M1A-AS15R02-1X/	R901415774	-	RA54978522
<b>b</b>	<b>B</b>	SAE 1 1/4H	G1 1/4	135	IH20M1B-AS20R02-1X/	R901415777	-	RA55032769

	Filter		Sample assembly
	Size	Data sheet	
<b>a</b>	0015 ... 0018	51405	► Type 4WE 6 HB6X/... (data sheet 23178) <sup>1)</sup> ► Type DB 20 K2-1X/...XY... (data sheet 25818) <sup>2)</sup> ► Nozzle ZN10028-0,8-B-M8X1X8-ST (material no. R913017614) <sup>3)</sup> ► Plug screw ZN10027-M8X1-SV (material no. R913019129) <sup>4)</sup> ► Type M-SR 15 KE...-1X/ (data sheet 20380) <sup>5)</sup> ► Filter, e. g.: 245PSFN0100 (max. 250 bar) material no. R928024394 (NBR) (data sheet 51418) <sup>6)</sup> ► 350PSFN0100, material no. R928026492 (NBR) (data sheet 51418)
	40 ... 100	51418	
	40 ... 100	51419	
<b>b</b>	160 ... 400	51418	
	160 ... 1000	51419	

**Pump inlet segment:** pump inlet segment without filter  
(dimensions in mm)

- **Pump inlet segment for pressure limitation and depressurized circulation "PT"**



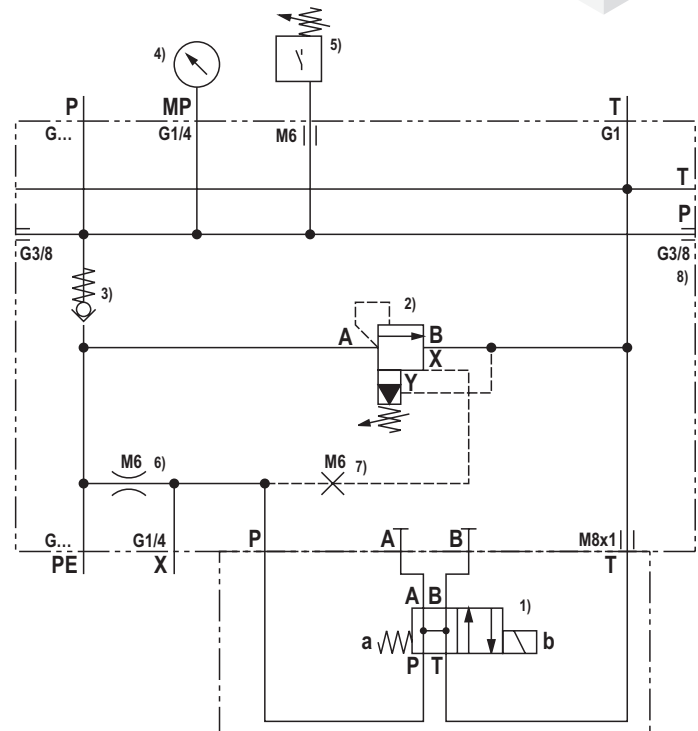
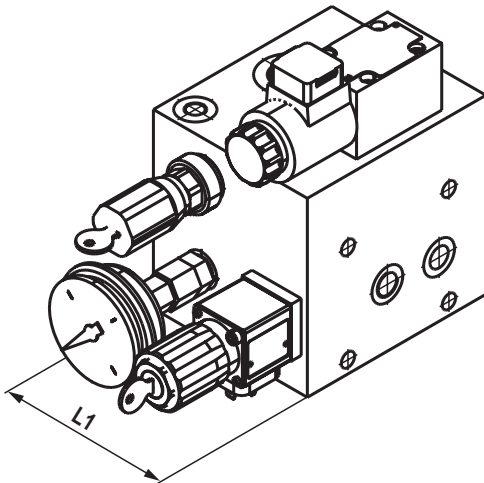
	Frame size	P	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	G3/4	100	IH20M4A-PT15X01-1X/	R901063203	–	R901062799
b	B	G1	100	IH20M4B-PT20X01-1X/	R901063306	R901296804	R901063309
c	B	G1 1/4	150	IH20M4B-PT25X01-1X/	R901063390	R901296808	R901063394

#### Sample assembly

a	<ul style="list-style-type: none"> <li>► Type 4WE 6 D73-6X/... (data sheet 23178) <sup>1)</sup></li> <li>► Type DBD... 10 K1X/... (data sheet 25402) <sup>2)</sup></li> <li>► Type M-SR 15 KE...-1X/ (data sheet 20380) <sup>3)</sup></li> <li>► Type HED 8 OH2X/... (data sheet 50061) <sup>4)</sup></li> </ul>
b	<ul style="list-style-type: none"> <li>► Type 4WE 6 D73-6X/... (data sheet 23178) <sup>1)</sup></li> <li>► Type DBD... 20 K1X/... (data sheet 25402) <sup>2)</sup></li> <li>► Type M-SR 20 KE...-1X/ (data sheet 20380) <sup>3)</sup></li> <li>► Type HED 8 OH1X/... (data sheet 50061) <sup>4)</sup></li> </ul>
c	<ul style="list-style-type: none"> <li>► Type 4WE 10 D73-5X/... (data sheet 23340) <sup>1)</sup></li> <li>► Type DBD... 20 K1X/... (data sheet 25402) <sup>2)</sup></li> <li>► Type M-SR 25 KE...-1X/ (data sheet 20380) <sup>3)</sup></li> <li>► Type HED 8 OH1X/... (data sheet 50061) <sup>4)</sup></li> </ul>

## Pump inlet segment: pump inlet segment without filter (dimensions in mm)

- Pump inlet segment for pressure limitation and depressurized circulation "VP"



	Frame size	P	PE	T	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
<b>a</b>	<b>A</b>	G3/8	G3/4	G1	125	IH20M4A-VP20R04-1X/	R901156578	–	R901156583
<b>b</b>	<b>B</b>	G1 1/4	–	–	125	IH20M4B-VP20R02-2X	R900763561	–	R900764344

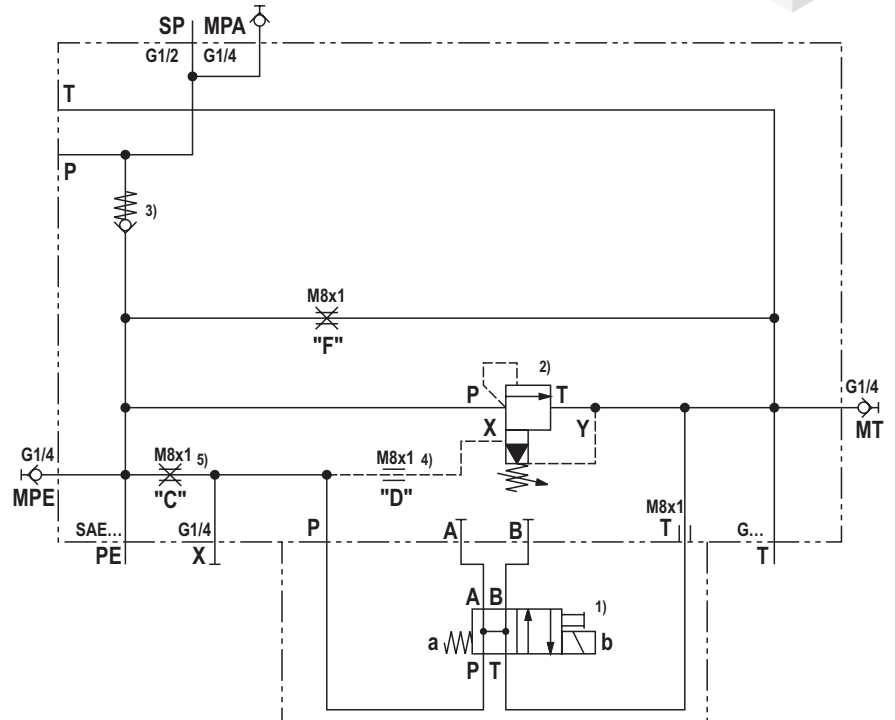
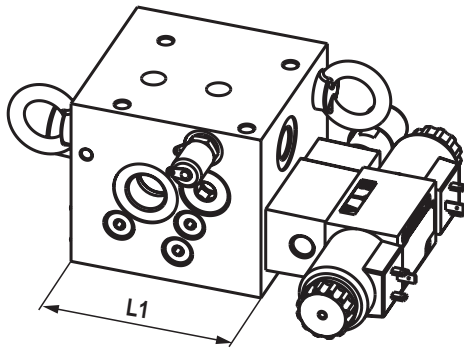
Sample assembly	
<b>a</b>	<ul style="list-style-type: none"> <li>► Type 4WE 6 HB6X/... (data sheet 23178) <sup>1)</sup></li> <li>► Type DB 20 K...-1X/... (data sheet 25402) <sup>2)</sup></li> <li>► Type M-SR 15 KE...-1X/... (data sheet 20380) <sup>3)</sup></li> <li>► Pressure gauge (data sheet 50205) <sup>4)</sup></li> <li>► Type HED 8 OH2X/... (data sheet 50061) <sup>5)</sup></li> <li>► Nozzle ZN10028-0,8-B-M6X6-SV (material no. R913018582) <sup>6)</sup></li> <li>► Plug screw ZN10027-M6-SV (material no. R913019128) <sup>7)</sup></li> <li>► Plug screw ZN10027-R3/8-SV (material no. R913019138) <sup>8)</sup></li> </ul>
<b>b</b>	<ul style="list-style-type: none"> <li>► Type 4WE 6 HB6X/... (data sheet 23340) <sup>1)</sup></li> <li>► Type DB 20 K1-1X/... (data sheet 25818) <sup>2)</sup></li> <li>► Pressure gauge (data sheet 50205) <sup>3)</sup></li> <li>► Type HED 8 OH2X/... (data sheet 50061) <sup>4)</sup></li> <li>► Shut-off valve ABZSS 10-M-2X/M, material no. R900210324 (NBR) <sup>5)</sup></li> <li>► Nozzle ZN10028-0,8-B-M6X6-SV (material no. R913018582) <sup>6)</sup></li> <li>► Plug screw ZN10027-M6-SV (material no. R913019128) <sup>7)</sup></li> <li>► Thread G3/4 for plug screw ZN10027-R3/4-SV (material no. R913023612) for separation in channel P with multiple pump circuits <sup>8)</sup></li> </ul>

### Notices:

- Sample nozzle fitting for A10VSO with DFR1 controller

**Pump inlet segment:** pump inlet segment without filter  
(dimensions in mm)

► Vertical design on the ABPAC tank "AS"



	Frame size	PE	T	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	SAE 3/4H	G3/4	115	IH20M1A-AS15R01-1X/	R901415771	-	RA54913239
b	B	SAE 1 1/4H	G1 1/4	135	IH20M1B-AS20R01-1X/	R901415775	-	RA55069481

**Sample assembly**

a	<ul style="list-style-type: none"> <li>► Type 4WE 6 HB6X/... (data sheet 23178) <sup>1)</sup></li> <li>► Type DB 20 K2-1X/...XY... (data sheet 25818) <sup>2)</sup></li> <li>► Nozzle ZN10028-0,8-B-M8X1X8-ST (material no. R913017614) <sup>4)</sup></li> <li>► Plug screw ZN10027-M8X1-SV (material no. R913019129) <sup>5)</sup></li> </ul>
b	<ul style="list-style-type: none"> <li>► Type 4WE 6 HB6X/... (data sheet 23178) <sup>1)</sup></li> <li>► Type DB 20 K2-1X/...XY... (data sheet 25818) <sup>2)</sup></li> <li>► Type M-SR 20 KE...-1X/... (data sheet 20380) <sup>3)</sup></li> <li>► Nozzle ZN10028-0,8-B-M8X1X8-ST (material no. R913017614) <sup>4)</sup></li> <li>► Plug screw ZN10027-M8X1-SV (material no. R913019129) <sup>5)</sup></li> </ul>

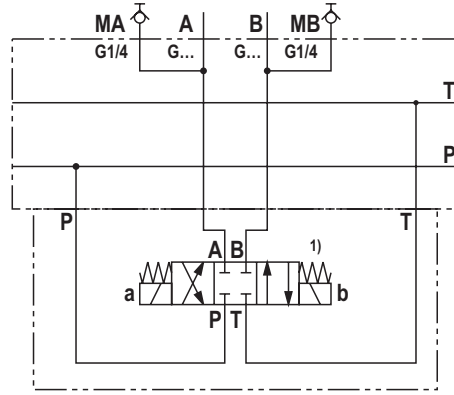
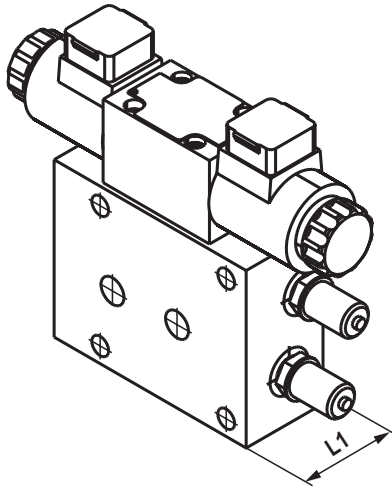


**Notices:**

Nozzle fitting for DR controller or displacement pump without bypass

**Directional function: single**  
(dimensions in mm)

- ▶ Valve segment size 6 with porting pattern type 06A "VS"
- ▶ Valve segment size 10 with porting pattern type 10A "VS"
- ▶ Valve segment size 16 with porting pattern type 16A "VS"

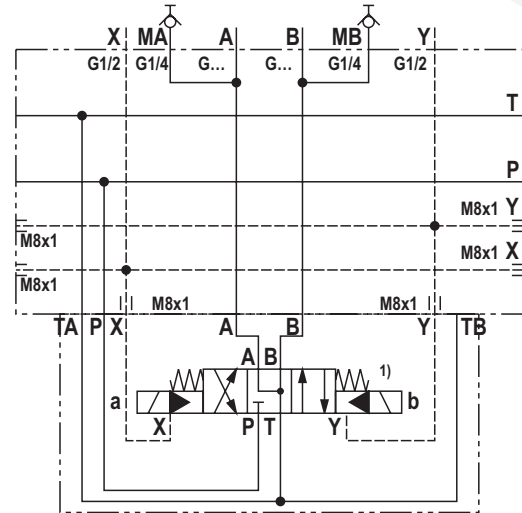
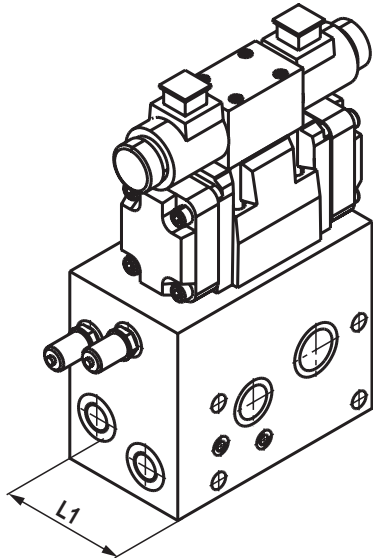


	Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	6	G1/2	G1/2	50	IH20M2A-VS06A01-1X/	R900977155	R901028782	R900619291
b	A	10	G3/4	G3/4	75	IH20M2A-VS10A01-1X/	R900773110	R901103466	R900773113
c	B	6	G1/2	G1/2	50	IH20M2B-VS06A01-1X/	R900977156	R900786558	R900245791
d	B	6	G3/4	G3/4	75	IH20M2B-VS06A02-1X	R900753099	-	R900754365
e	B	10	G3/4	G3/4	75	IH20M2B-VS10A01-1X/	R900977157	R900786560	R900245792
f	B	16	G1	G1	100	IH20M2B-VS16A01-1X/	R900977158	R901001535	R900245801
g	B	16	G1 1/4	G1 1/4	150	IH20M2B-VS16A02-1X	R900753101	R901123063	R900754379
h	B	10	G1	G1	100	IH20M2B-VS10A02-1X/	R900753100	R901135696	R900754370

Sample assembly	
a	▶ Type WE 6 ...-6X/... (data sheet 23178) <sup>1)</sup>
b	▶ Type WE 10 ...-5X/... (data sheet 23340) <sup>1)</sup>
c	▶ Type WE 6 ...-6X/... (data sheet 23178) <sup>1)</sup>
d	▶ Type WE 6 ...-6X/... (data sheet 23178) <sup>1)</sup>
e	▶ Type WE 10 ...-5X/... (data sheet 23340), internal pilot oil flow <sup>1)</sup>
f	▶ Type WEH 16 ...-7X/...ET... (data sheet 24751), internal pilot oil flow <sup>1)</sup>
g	▶ Type WEH 16 ...-7X/...ET... (data sheet 24751), internal pilot oil flow <sup>1)</sup>
h	▶ Type WE 10 ...-5X/... (data sheet 23340) <sup>1)</sup>

**Directional function:** single  
(dimensions in mm)

- ▶ Valve segment size 10 with porting pattern type 10B "VS"
- ▶ Valve segment size 16 with porting pattern type 16B "VS"



	Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	B	10	G1	G1	100	IH20M2B-VS10B01-1X/	R901150332	-	R901150345
b	B	16	G1 1/4	G1 1/4	125	IH20M2B-VS16B01-1X/	R901150350	R901199330	R901150354

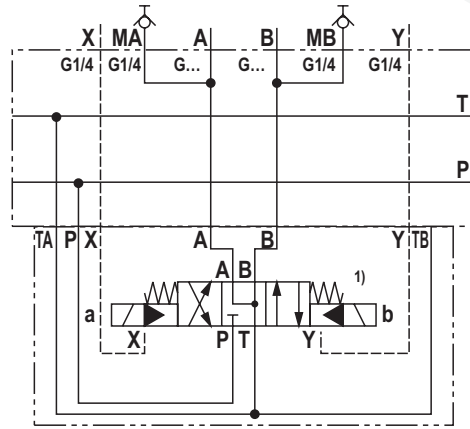
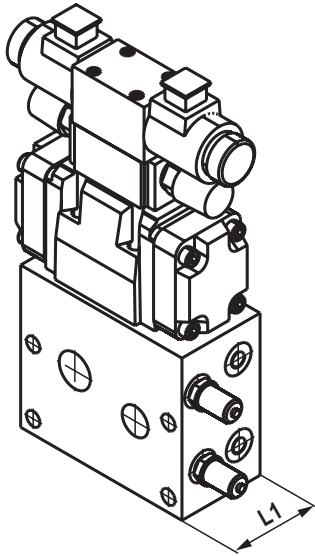
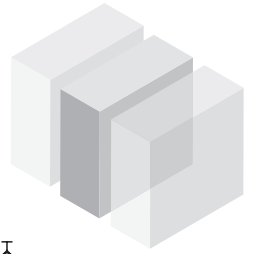
Sample assembly	
a	<ul style="list-style-type: none"> <li>▶ Type WE 10 ...-4X/... (data sheet 24751) <sup>1)</sup></li> <li>▶ X, Y depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)</li> </ul>
b	<ul style="list-style-type: none"> <li>▶ Type WEH 16 ...-7X/... (data sheet 24751) <sup>1)</sup></li> <li>▶ X, Y depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)</li> </ul>

**Notice:**

Pilot and leak oil flow externally and into other segments possible

**Directional function:** single  
(dimensions in mm)

- ▶ Valve segment size 10 with porting pattern type 10B "VS"
- ▶ Valve segment size 16 with porting pattern type 16B "VS"



	Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	B	10	G3/4	G3/4	75	IH20M2B-VS10B04-1X/	R901030689	-	R901030691
b	B	16	G1	G1	10	IH20M2B-VS16B04-1X/	R901030678	R901126048	R901030687

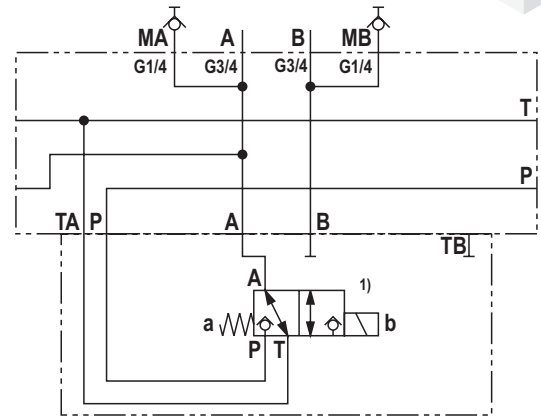
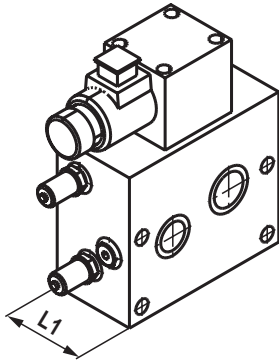
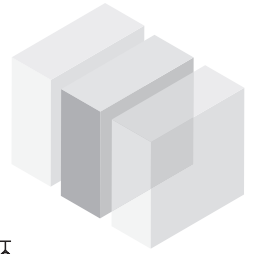
Sample assembly	
a	▶ Type WEH 10 ...-4X/... (data sheet 24751) <sup>1)</sup>
b	▶ Type WEH 16 ...-7X/... (data sheet 24751) <sup>1)</sup>

**Notice:**  
External pilot and leak oil flow



**Directional function:** single  
(dimensions in mm)

► Valve segment size 10 with porting pattern type 10A "VP"



Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	10	G3/4	G3/4	75	IH20M4B-VP10A04-1X/	R901149258	-	R901149262

#### Sample assembly

- Type WE 10 ...-5X/... (data sheet 23340) <sup>1)</sup>
- Type M-...SED 10-1X/... (data sheet 22045) <sup>1)</sup>

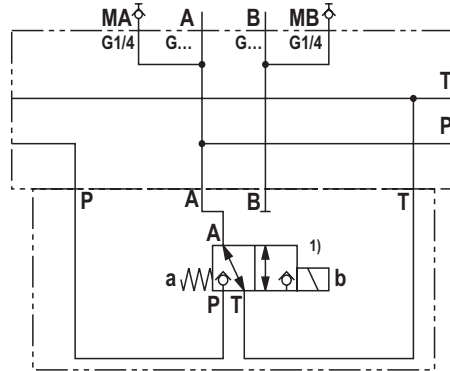
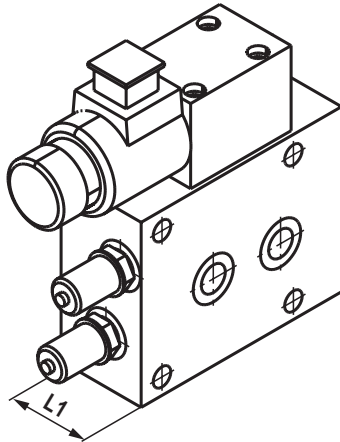


#### Notice:

Channel P to A continuing to the left

**Directional function:** single  
(dimensions in mm)

- ▶ Valve segment size 6 with porting pattern type 06A "VP"
- ▶ Valve segment size 10 with porting pattern type 10A "VP"
- ▶ Valve segment size 16 with porting pattern type 16A "VP"



	Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	6	G1/2	G1/2	50	IH20M4A-VP06A02-1X/	R901009817	R901028784	R901009825
b	A	10	G3/4	G3/4	75	IH20M4A-VP10A02-1X/	R901010203	R901170585	R901010208
c	B	6	G1/2	G1/2	50	IH20M4B-VP06A02-1X/	R900755445	R901003106	R900755774
d	B	10	G3/4	G3/4	75	IH20M4B-VP10A02-1X/	R900762865	R901170651	R900763545
e	B	16	G1	G1	100	IH20M4B-VP16A02-1X/	R900762866	-	R900763413

Sample assembly	
a	<ul style="list-style-type: none"> <li>▶ Type WE 6 ...-6X/... (data sheet 23178) <sup>1)</sup></li> <li>▶ Type M-...SED 6 ...-1X/... (data sheet 22049) <sup>1)</sup></li> </ul>
b	<ul style="list-style-type: none"> <li>▶ Type WE 10 ...-5X/... (data sheet 23340) <sup>1)</sup></li> <li>▶ Type M-...SED 10 ...-1X/... (data sheet 22045) <sup>1)</sup></li> </ul>
c	<ul style="list-style-type: none"> <li>▶ Type WE 6 ...-6X/... (data sheet 23178) <sup>1)</sup></li> <li>▶ Type M-...SED 6 ...-1X/... (data sheet 22049) <sup>1)</sup></li> </ul>
d	<ul style="list-style-type: none"> <li>▶ Type WE 10 ...-5X/... (data sheet 23340) <sup>1)</sup></li> <li>▶ Type M-...SED 10 ...-1X/... (data sheet 22045) <sup>1)</sup></li> </ul>
e	<ul style="list-style-type: none"> <li>▶ Type WEH 16 ...-7X/...ET... (data sheet 24751) <sup>1)</sup></li> <li>▶ Internal pilot and leak oil flow</li> </ul>

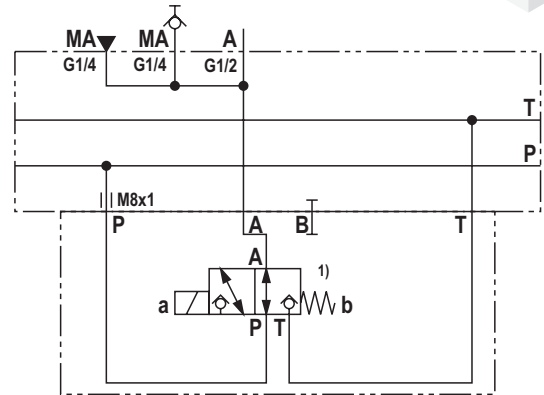
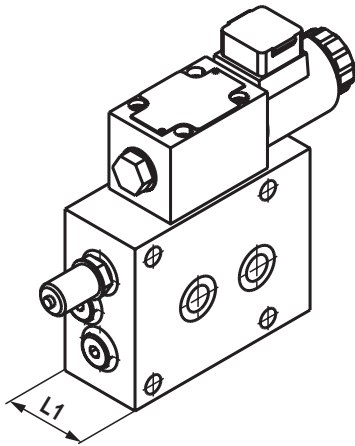


**Notice:**

Channel P to A continuing to the right

**Directional function:** single  
(dimensions in mm)

► Valve segment size 6 with porting pattern type 06A "VS"



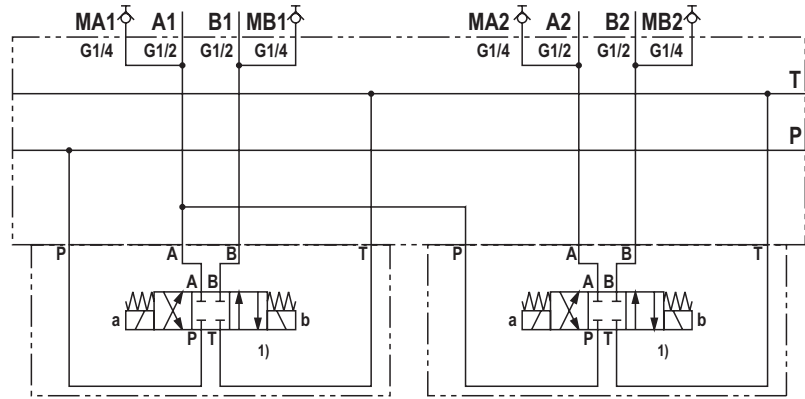
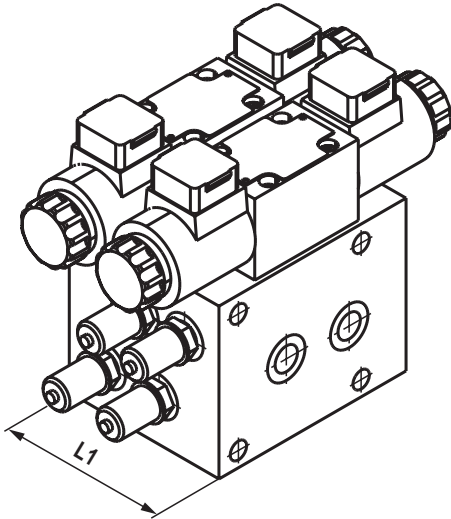
Frame size	Size	A	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
A	6	G1/2	50	IH20M2A-VS06A14-1X/	R901086193	R901423317	R901086197

#### Sample assembly

- Type M-3SED 6 ...-1X/... (data sheet 22049) <sup>1)</sup>
- Type WE 6 ...-6X/... (data sheet 23178) <sup>1)</sup>

**Directional function:** internally linked  
(dimensions in mm)

► Valve segment size 6 with 2 x porting pattern type 06A "VS"



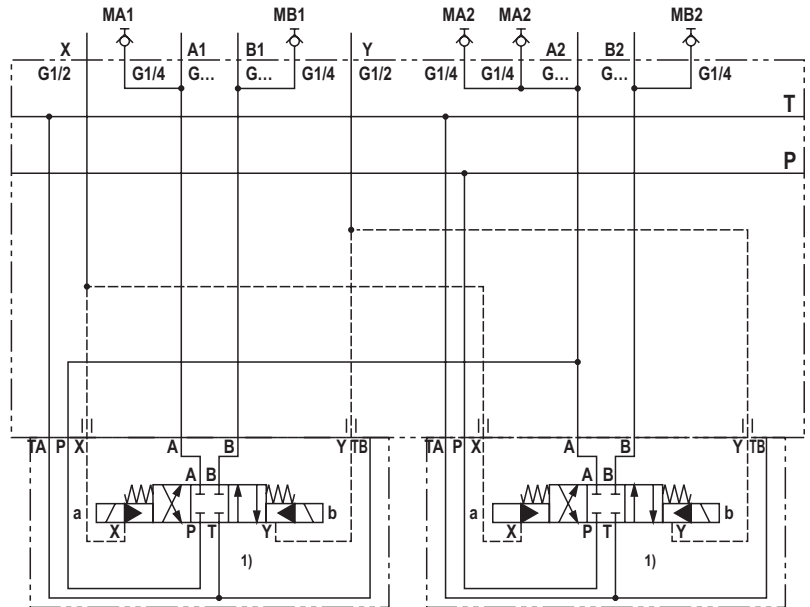
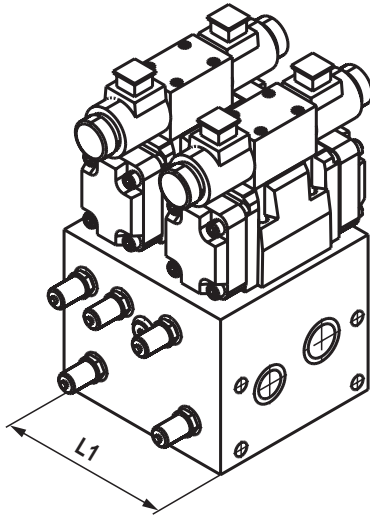
Frame size	Size	A1, A2	B1, B2	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
A	6	G1/2	G1/2	100	IH20M2A-VS06A02-1X/	R900773159	R901296713	R900773164

**Sample assembly**

► Type WE 6 ...-6X/... (data sheet 23178) <sup>1)</sup>

**Directional function:** internally linked  
(dimensions in mm)

- ▶ Valve segment size 10 with 2 x porting pattern type 10B "VE"
- ▶ Valve segment size 16 with 2 x porting pattern type 16B "VE"

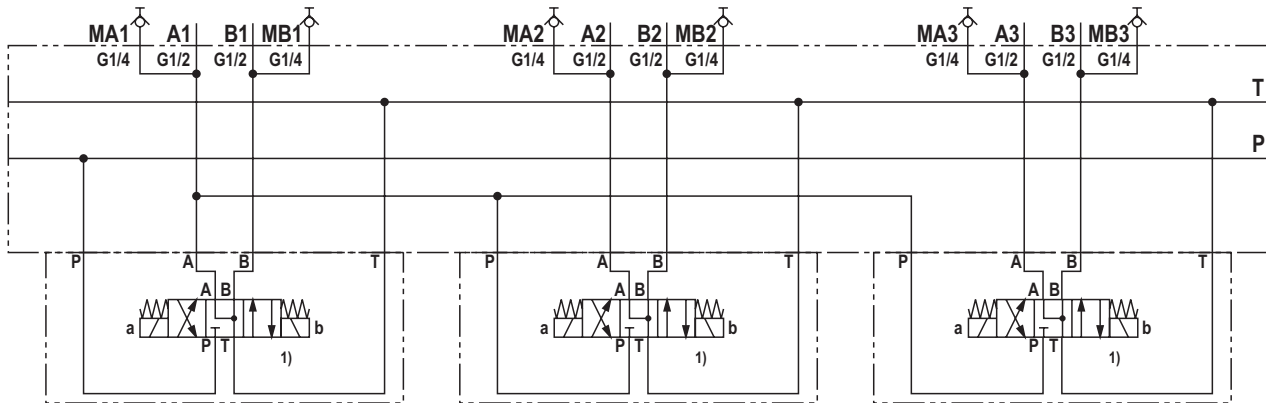
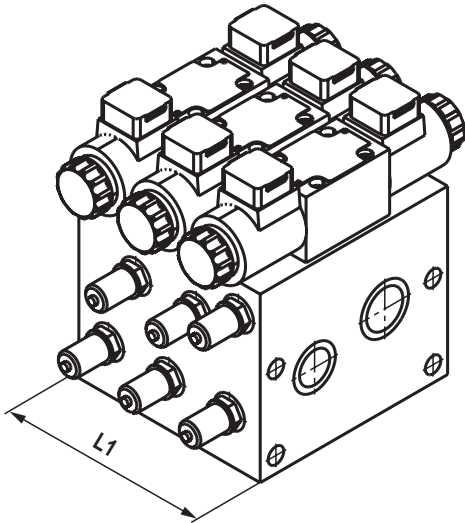


	Frame size	Size	A1, A2	B1, B2	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	10	G3/4	G3/4	175	IH20M2A-VE10B01-1X/	R901068122	-	R901068875
b	B	10	G1	G1	175	IH20M2B-VE10B01-1X/	R900750784	R901003915	R900750789
c	B	16	G1 1/4	G1 1/4	250	IH20M2B-VE16B01-1X/	R901047159	-	R901047170

Sample assembly	
a	<ul style="list-style-type: none"> <li>▶ Type WEH 10 ...-4X/... (data sheet 24751) <sup>1)</sup></li> <li>▶ X, Y depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)</li> </ul>
b	<ul style="list-style-type: none"> <li>▶ Type WEH 10 ...-4X/... (data sheet 24751) <sup>1)</sup></li> <li>▶ X, Y depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)</li> </ul>
c	<ul style="list-style-type: none"> <li>▶ Type WEH 16 ...-7X/... (data sheet 24751) <sup>1)</sup></li> <li>▶ X, Y depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)</li> </ul>

**Directional function:** internally linked  
(dimensions in mm)

► Valve segment size 6 with porting pattern type 06A "VE"



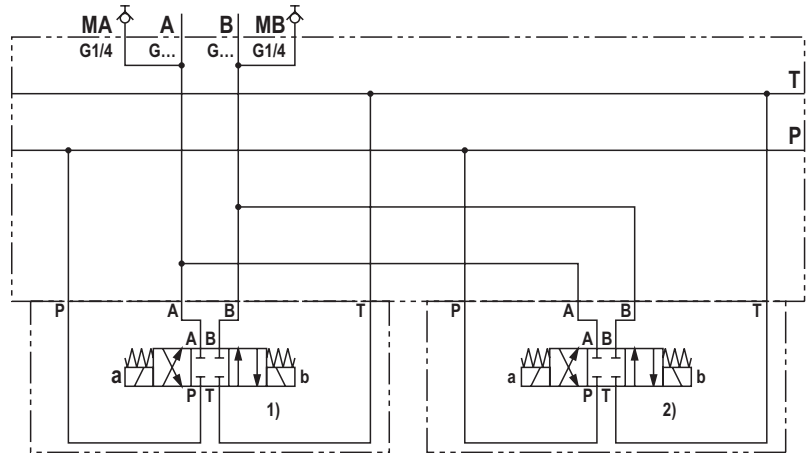
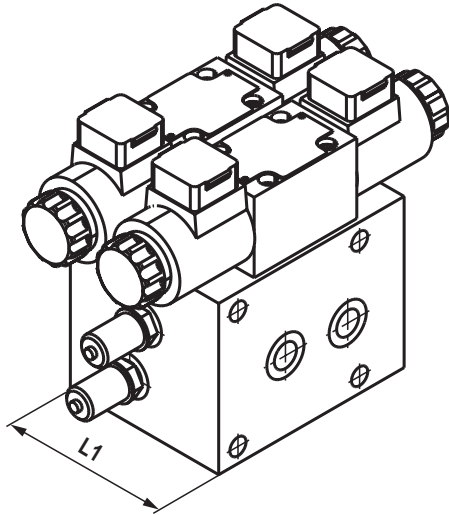
Frame size	Size	A1, A2, A3	B1, B2, B3	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	6	G1/2	G1/2	150	IH20M2B-VE06A3-1X/	R901115084	-	R901115089

**Sample assembly**

► Type WE 6 ...-6X/... (data sheet 23178) <sup>1)</sup>

**Directional function:** internally linked  
(dimensions in mm)

- ▶ Valve segment size 6 with 2 x porting pattern type 06A "VE"
- ▶ Valve segment size 10 with 2 x porting pattern type 10A "VE"
- ▶ Valve segment size 10/16 with 2 x porting pattern type 10/16A "VE"



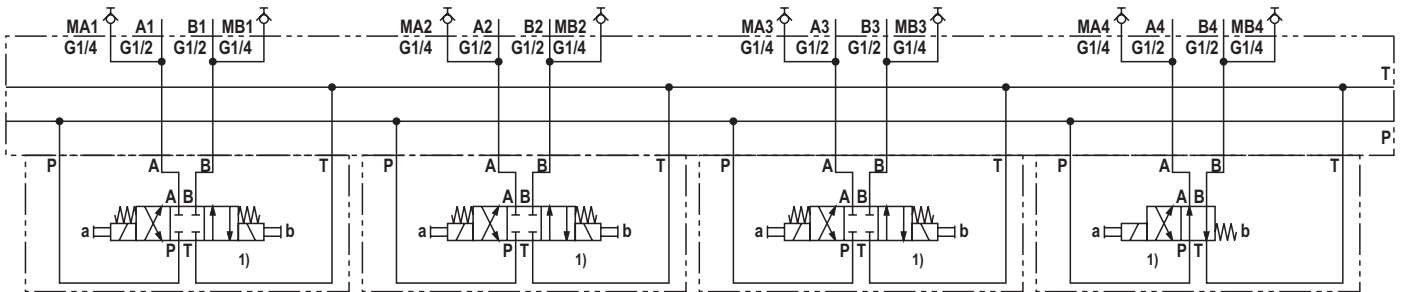
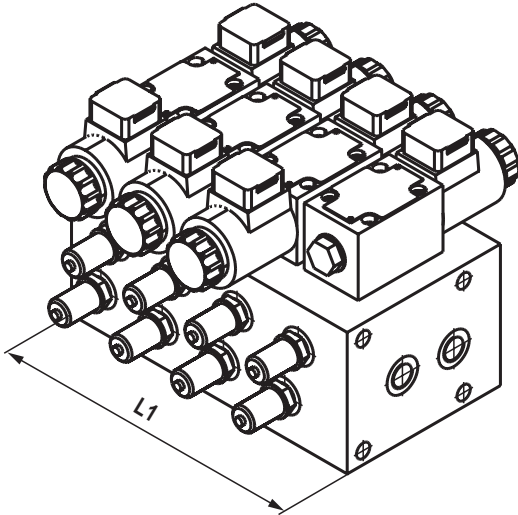
	Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	6	G1/2	G1/2	100	IH20M2A-VE06A01-1X/	R900773166	R901028785	R900773170
b	B	10	G3/4	G3/4	150	IH20M2B-VE10A03-1X/	R900722157	–	R900722158
c	B	10/16	G1	G1	175	IH20M2B-VE16A03-1X/	R900767313	–	R900767324

Sample assembly	
a	▶ Type WE 6 ...-6X/... (data sheet 23178) <sup>1)/2)</sup>
b	▶ Type WE 10 ...-5X/... (data sheet 23340) <sup>1)/2)</sup>
c	▶ Type WEH 16 ...-7X/...ET... (data sheet 24751) and type WE 10 ...-5X/... (Data sheet 23340) <sup>1)/2)</sup>

**Directional function:** multiple  
(dimensions in mm)



- ▶ Valve segment size 6 with 4 x porting pattern type 06A "VS"



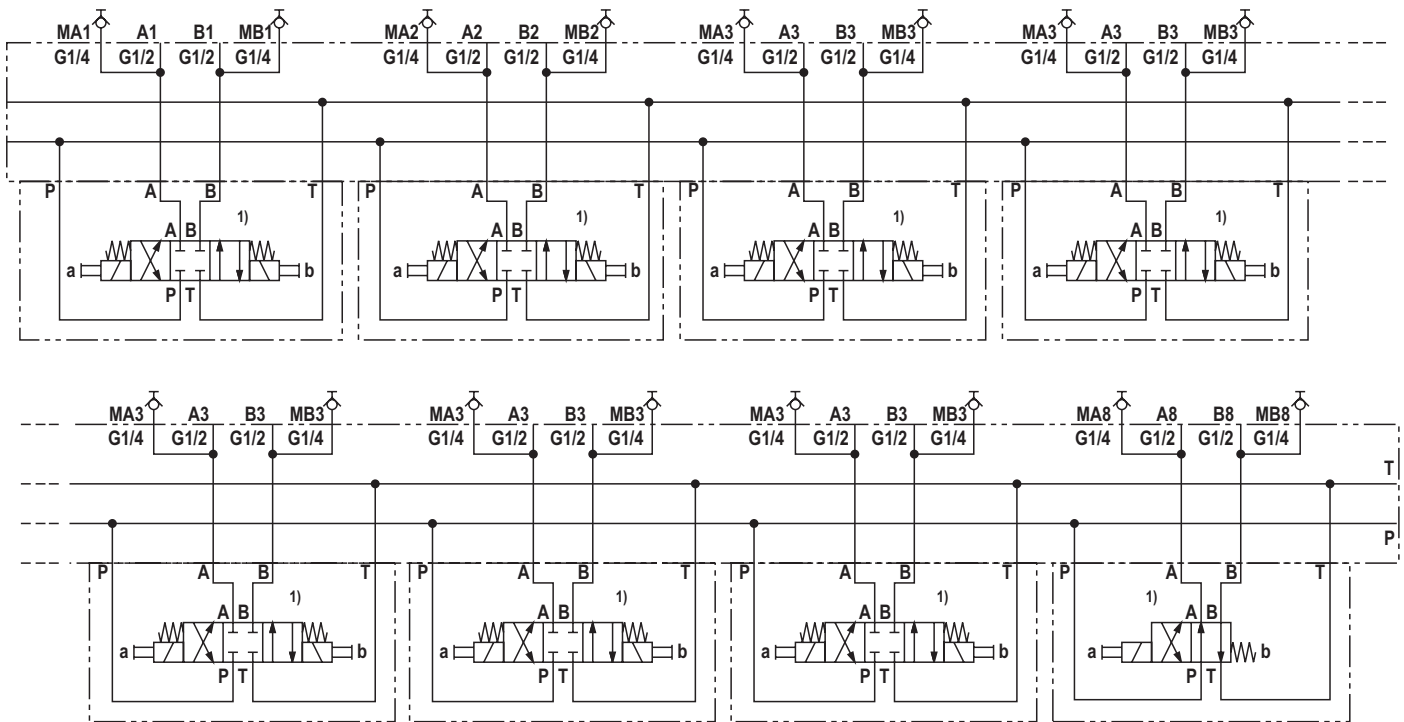
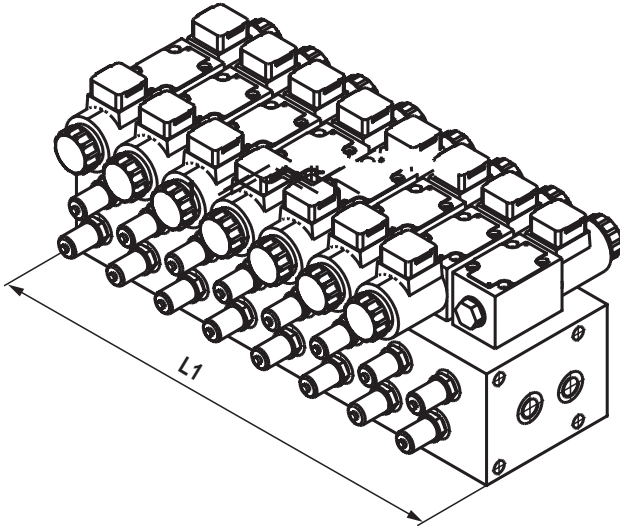
	Frame size	Size	A1, A2, A3, A4	B1, B2, B3, B4	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	6	G1/2	G1/2	225	IH20M2A-VS06A04-1X/	R901201846	R901433493	R901201849
b	B	6	G1/2	G1/2	200	IH20M2B-VS06A04-1X/	R901033078	R901103322	R901033072

Sample assembly	
a	▶ Type WE 6 ...-6X/... (data sheet 23178) <sup>1)</sup>
b	▶ Type WE 6 ...-6X/... (data sheet 23178) <sup>1)</sup>



**Directional function:** multiple  
(dimensions in mm)

► Valve segment size 6 with 8 x porting pattern type 06A "VS"



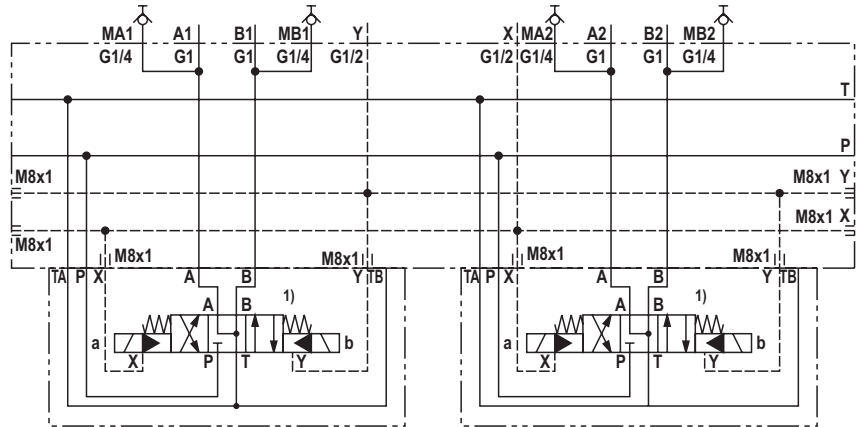
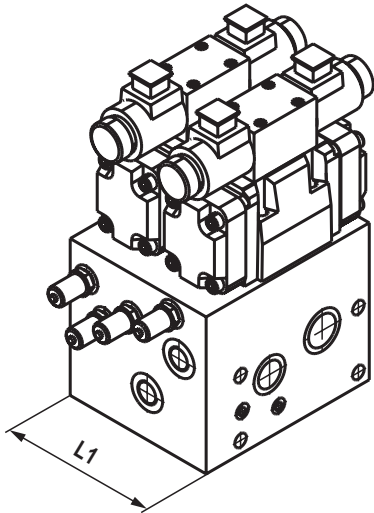
Frame size	Size	A1 ... 8	B1 ... 8	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
A	6	G1/2	G1/2	425	IH20M2A-VS06A03-1X/	R901201850	-	R901201853

**Sample assembly**

► Type WE 6 ...-6X/... (data sheet 23178) <sup>1)</sup>

**Directional function:** multiple  
(dimensions in mm)

- Valve segment size 10 with 2 x porting pattern type 10B "VS"



Frame size	Size	A1, A2	B1, B2	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	10	G1	G1	150	IH20M2B-VS10B02-1X/	R901150346	R901431648	R901150349

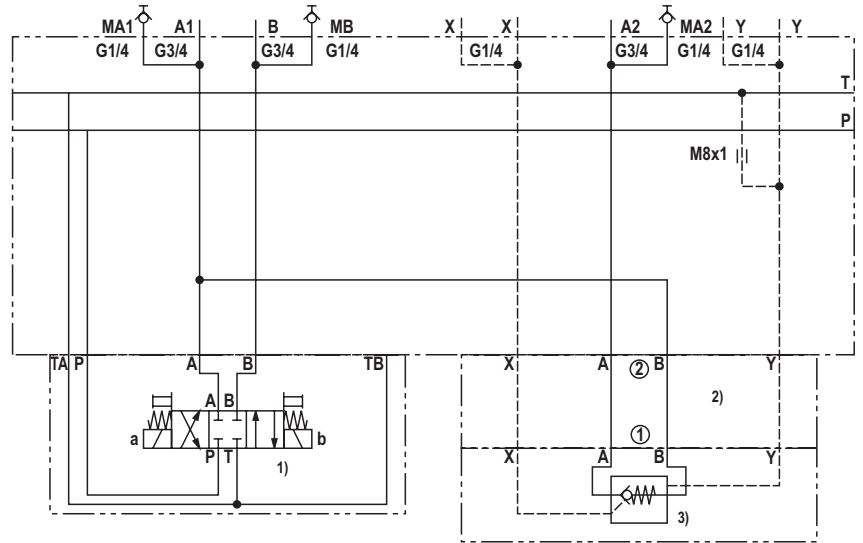
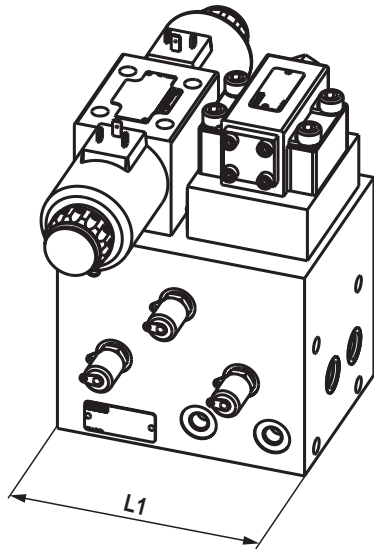
**Sample assembly**

- Type WEH 10 ...-4X/... (data sheet 24751) <sup>1)</sup>
- X, Y depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)

**Notice:**  
Pilot and leak oil flow externally and into other segments possible

**Directional function:** with blocking function  
(dimensions in mm)

- Valve segment size 10 with porting pattern types 10A and 10D "VE"



	Frame size	Size	A1, A2	B1	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	10	G3/4	G3/4	175	IH20M2A-VE10A05-1X/	R901066036	–	R901066818
b	B	10	G3/4	G3/4	175	IH20M2B-VE10A05-1X/	R901005288	R901005289	R901005310

#### Sample assembly

a	<ul style="list-style-type: none"> <li>► Type WE 10 ...-5X/... (data sheet 23340) <sup>1)</sup></li> <li>► Type HSZ 10 D261-3X/M00 (material no. R900947716) <sup>2)</sup> and type SL 10 PA3-4X/ (data sheet 21468) <sup>3)</sup></li> <li>► Y internal depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)</li> </ul>
b	<ul style="list-style-type: none"> <li>► Type WE 10 ...-5X/... (data sheet 23340) <sup>1)</sup></li> <li>► Type HSZ 10 D261-3X/M00 (material no. R900947716) <sup>2)</sup> and type SL 10 PA3-4X/ (data sheet 21468) <sup>3)</sup></li> <li>► Y internal depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129).</li> </ul>

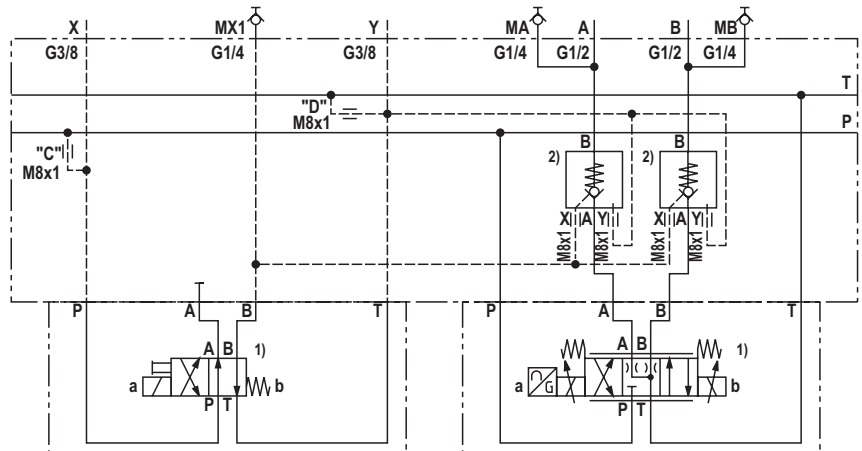
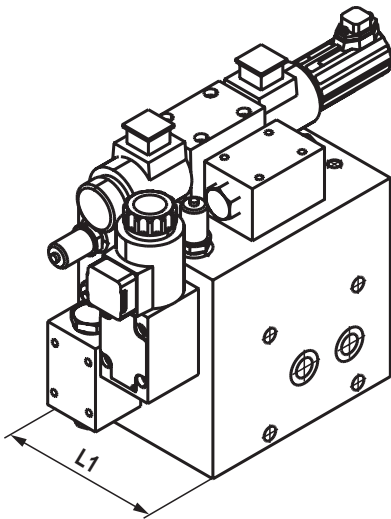


#### Notice:

External control for port X required

**Directional function:** with blocking function, electrically switchable in channels A und B (dimensions in mm)

► Valve segment size 6 with porting pattern type 06A "VS"



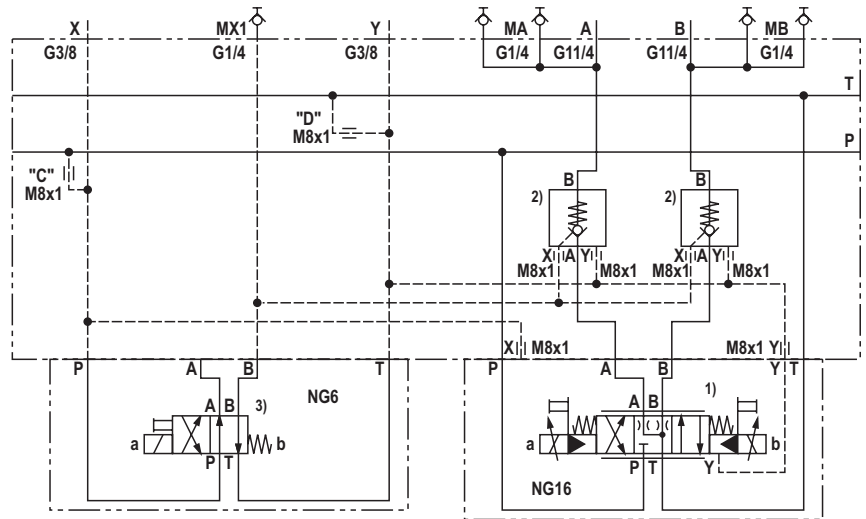
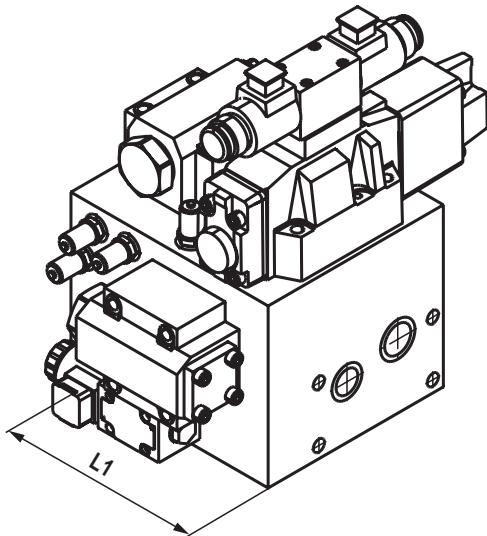
Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	6	G1/2	G1/2	125	IH20M2A-VS06A08-1X/	R901074901	-	R901074905

#### Sample assembly

- Type WE 6 ...-6X/... (data sheet 23178) <sup>1)</sup>
- Type SL 6 P...-6X/... (data sheet 21460) <sup>2)</sup>
- Y internal depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)

**Directional function:** with blocking function, electrically switchable in channels A and B (dimensions in mm)

- Valve segment size 16 with porting pattern types 16B, 6A and 20D "VS"



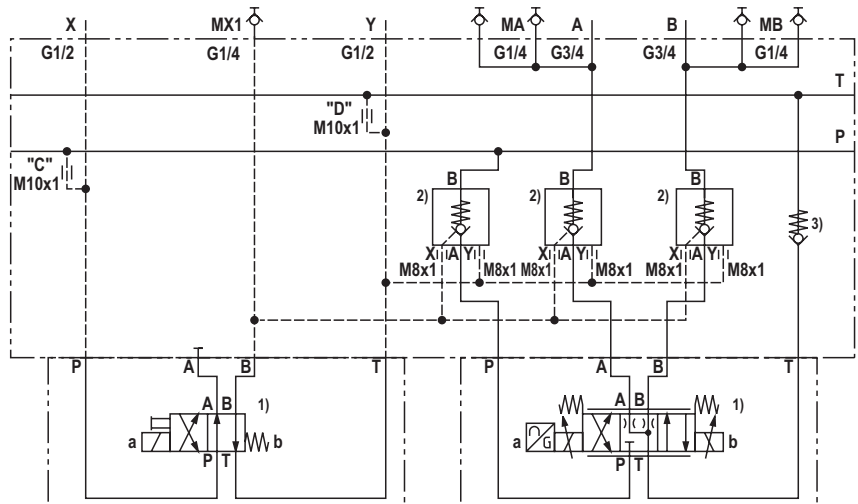
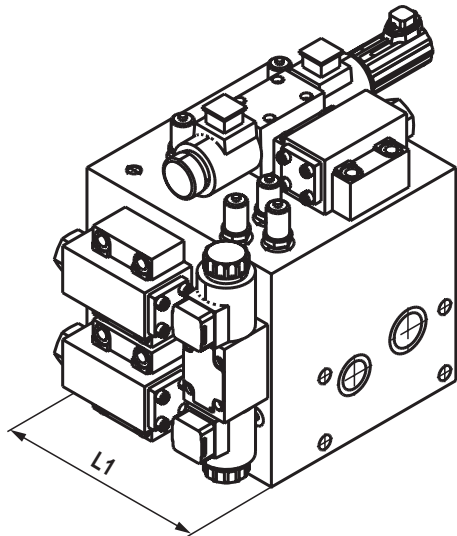
Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	16	G1/4	G1/4	225	IH20M2B-VS16B08-1X/	R901161047	-	R901161054

#### Sample assembly

- Type WEH 16 ...-7X/... (data sheet 24751) <sup>1)</sup>
- Type SL 20 P...-4X/... (data sheet 21468) <sup>2)</sup>
- Type WE 6 ...-6X/... (data sheet 23178) <sup>3)</sup>
- X, Y depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)

**Directional function:** with blocking function, electrically switchable in channels P, A und B (dimensions in mm)

- Valve segment size 6 with 2 x porting pattern types 06A and 10D "VS"



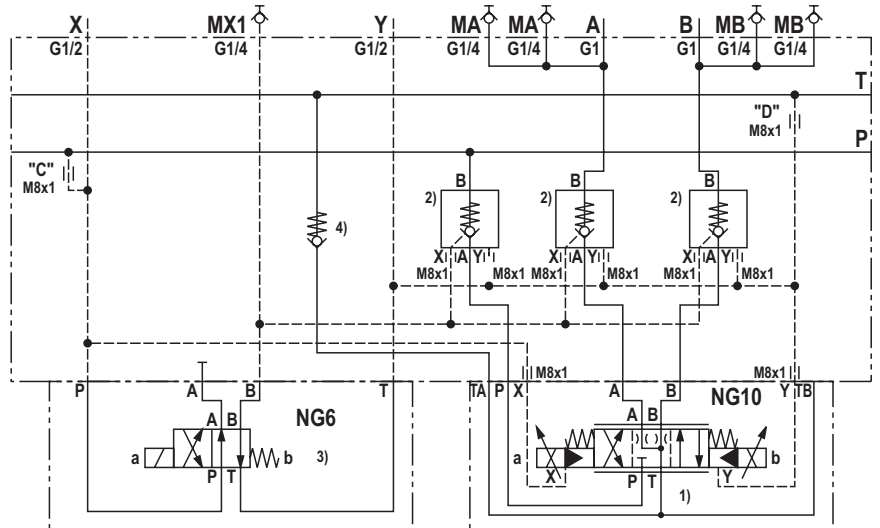
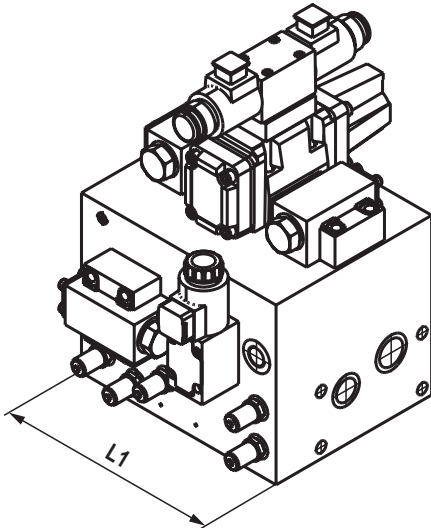
Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	6, 10	G3/4	G3/4	225	IH20M2B-VS06A09-1X/	R901072206	R901173161	R901072215

#### Sample assembly

- Type WE 6 ...-6X/... (data sheet 23178) <sup>1)</sup>
- Type SL 10 P...-4X/... (data sheet 21468) <sup>2)</sup>
- Type M-SR 15 KE...-1X/... (data sheet 20380) <sup>3)</sup>
- X, Y depending on built-on valve; if applicable, closed with plug screw ZN10027-M10x1-SV (material no. R913019130) and/or plug screw ZN10027-M8x1-SV (material no. R913019129)

**Directional function:** with blocking function, electrically switchable in channels P, A und B (dimensions in mm)

- Valve segment size 10 with porting pattern types 10B, 6A and 10D "VS"



Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	6, 10	G1	G1	250	IH20M2B-VS10B09-1X	R901174327	R901296799	R901174331

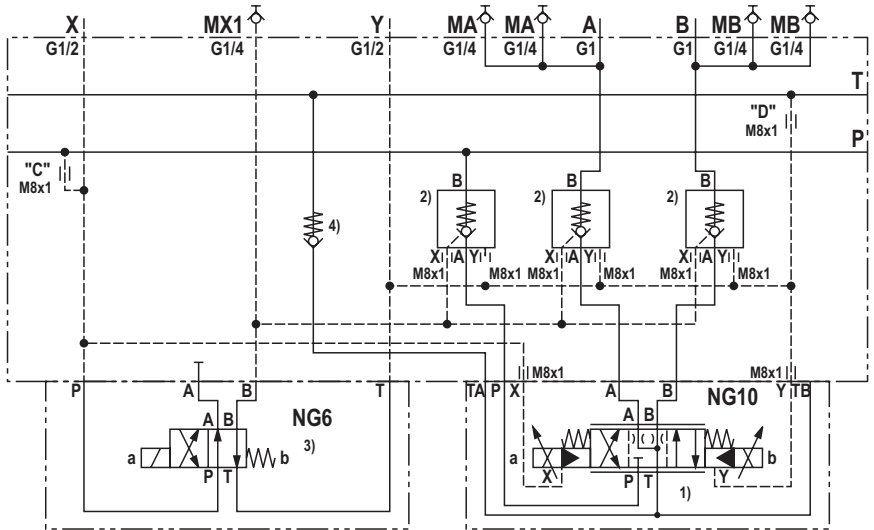
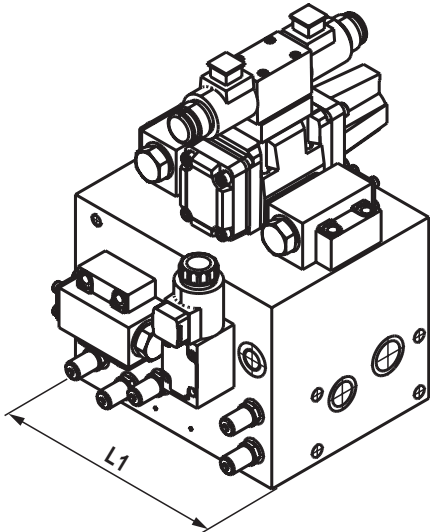
#### Sample assembly

- Type WEH 10 ...-4X/... (data sheet 24751) <sup>1)</sup>
- Type SL 10 P...-4X/... (data sheet 21468) <sup>2)</sup>
- Type WE 6 ...-6X/... (data sheet 23178) <sup>3)</sup>
- Type M-SR 20 KE...-1X/... (data sheet 20380) <sup>4)</sup>
- X, Y depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)

**Directional function:** with blocking function, electrically switchable in channels P, A und B (dimensions in mm)



- ▶ Valve segment size 10 with porting pattern types 06A, 10B and 10D "VS"



Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	6, 10	G1	G1	250	IH20M2B-VS10B09-1X	R901174327	R901296799	R901174331

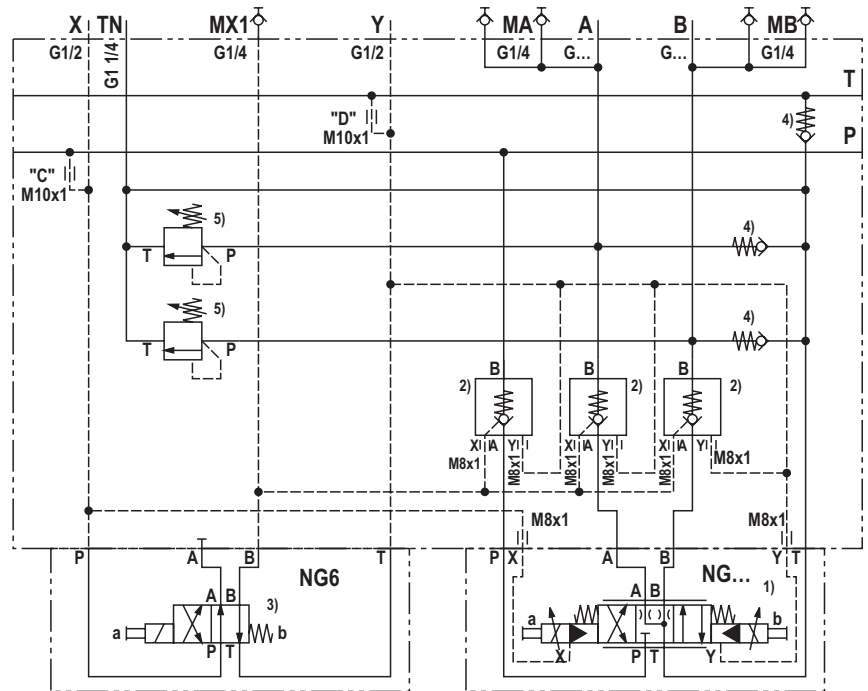
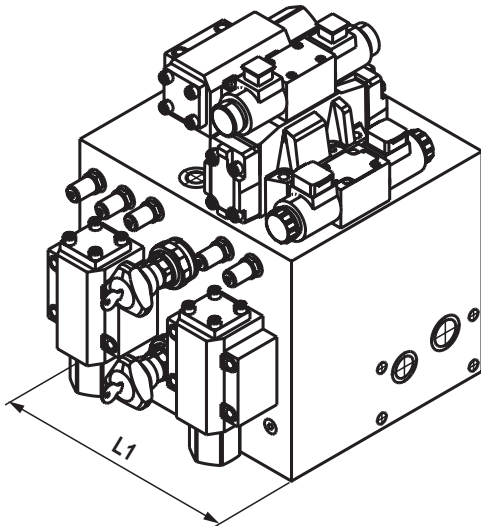
**Sample assembly**

- ▶ Type WEH 10 ...-4X/... (data sheet 24751) <sup>1)</sup>
- ▶ Type SL 10 P...-4X/... (data sheet 21468) <sup>2)</sup>
- ▶ Type WE 6 ...-6X/... (data sheet 23178) <sup>3)</sup>
- ▶ Type M-SR 20 KE...-1X/... (data sheet 20380) <sup>4)</sup>
- ▶ X, Y depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)



**Directional function:** with blocking and pressure function  
(dimensions in mm)

- Valve segment size 16 with porting pattern types 16B, 6A and 20D "VS"

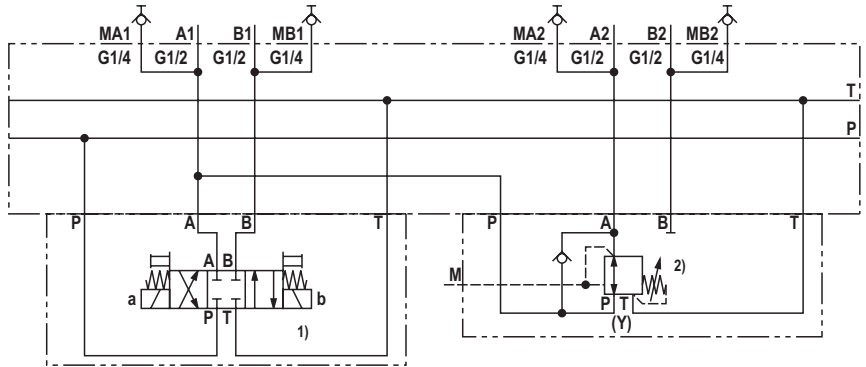
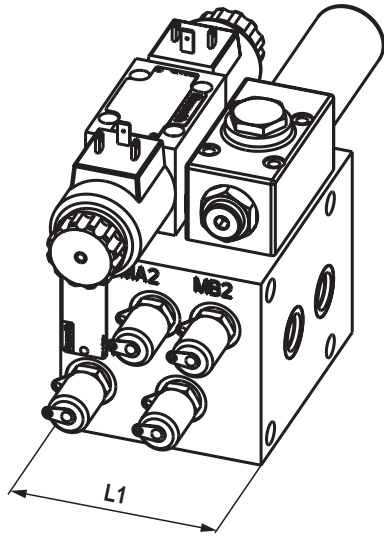


	Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	B	10	G1	G1	250	IH20M2B-VS10B10-1X/	R901192533	–	R901192537
b	B	16	G1 1/4	G1 1/4	300	IH20M2B-VS16B10-1X/	R901224030	–	R901224034

Sample assembly	
a	<ul style="list-style-type: none"> <li>► Type WEH 10 ...-4X/... (data sheet 24751) <sup>1)</sup></li> <li>► Type SL 10 P...-4X/... (data sheet 21468) <sup>2)</sup></li> <li>► Type WE 6 ...-6X/... (data sheet 23178) <sup>3)</sup></li> <li>► Type M-SR 20 KE...-1X/... (data sheet 20380) <sup>4)</sup></li> <li>► Type DBDS 10 K1X/... (data sheet 25402) <sup>5)</sup></li> <li>► X, Y depending on built-on valve; if applicable, closed with plug screw ZN10027-M10x1-SV (material no. R913019130) and/or plug screw ZN10027-M8x1-SV (material no. R913019129)</li> </ul>
b	<ul style="list-style-type: none"> <li>► Type WEH 16 ...-4X/... (data sheet 24751) <sup>1)</sup></li> <li>► Type SL 20 P...-4X/... (data sheet 21468) <sup>2)</sup></li> <li>► Type WE 6 ...-6X/... (data sheet 23178) <sup>3)</sup></li> <li>► Type M-SR 25 KE...-1X/... (data sheet 20380) <sup>4)</sup></li> <li>► Type DBDS 20 K1X/... (data sheet 25402) <sup>5)</sup></li> <li>► X, Y depending on built-on valve; if applicable, closed with plug screw ZN10027-M10x1-SV (material no. R913019130) and/or plug screw ZN10027-M8x1-SV (material no. R913019129)</li> </ul>

**Directional function:** with pressure function  
(dimensions in mm)

► Valve segment size 6 with 2 x porting pattern type 06A "VS"



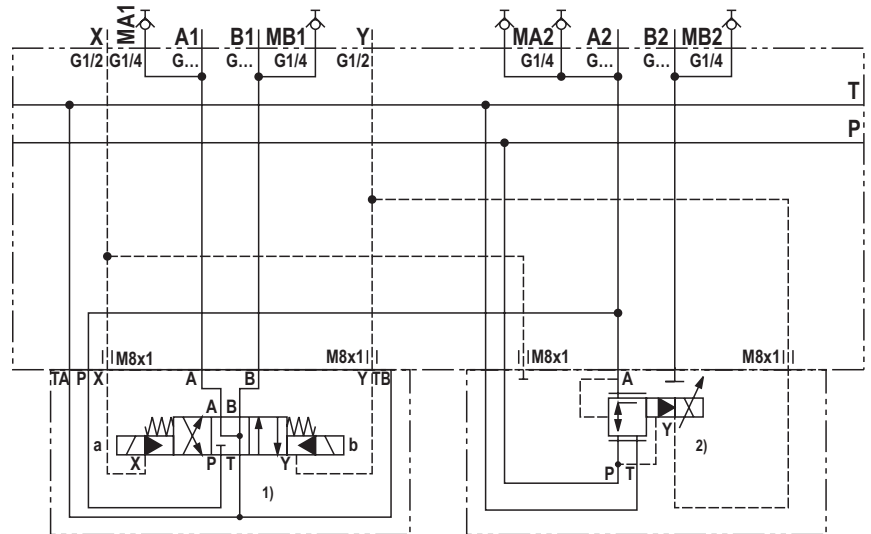
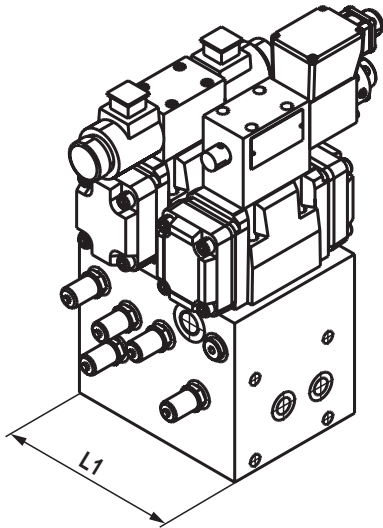
Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
A	6	G1/2	G1/2	100	IH20M2A-VS06A02-1X/	R900773159	R901296713	R900773164

#### Sample assembly

- Type WE 6 ...-6X/... (data sheet 23178) <sup>1)</sup>
- Type DR 6 DP...-5X/... (data sheet 26564) <sup>2)</sup>

**Directional function:** with pressure function in channel P  
(dimensions in mm)

- ▶ Valve segment size 10 with 2 x porting pattern type 10B "VE"
- ▶ Valve segment size 16 with 2 x porting pattern type 16B "VE"

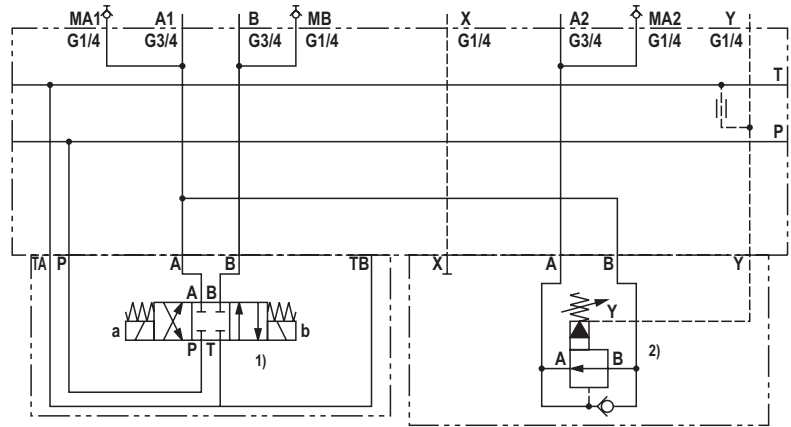
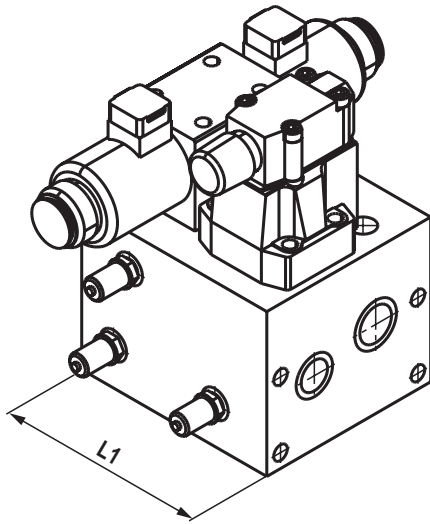


	Frame size	Size	A1, A2	B1, B2	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	10	G3/4	G3/4	175	IH20M2A-VE10B01-1X/	R901068122	-	R901068875
b	B	10	G1	G1	175	IH20M2B-VE10B01-1X/	R900750784	R901003915	R900750789
c	B	16	G1 1/4	G1 1/4	250	IH20M2B-VE16B01-1X/	R901047159	-	R901047170

Sample assembly	
a	<ul style="list-style-type: none"> <li>▶ Type WEH 10 ...-4X/... (data sheet 24751) <sup>1)</sup></li> <li>▶ Type 3DR 10 P...-6X/... (data sheet 26915) <sup>2)</sup></li> <li>▶ X, Y depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)</li> </ul>
b	<ul style="list-style-type: none"> <li>▶ Type WEH 10 ...-4X/... (data sheet 24751) <sup>1)</sup></li> <li>▶ Type 3DR 10 P...-6X/... (data sheet 26915) <sup>2)</sup></li> <li>▶ X, Y depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)</li> </ul>
c	<ul style="list-style-type: none"> <li>▶ Type WEH 16 ...-7X/... (data sheet 24751) <sup>1)</sup></li> <li>▶ Type 3DR 16 P...-5X/... (data sheet 26928) <sup>2)</sup></li> <li>▶ X, Y depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)</li> </ul>

**Directional function:** with pressure function in channel A  
(dimensions in mm)

- ▶ Valve segment size 10 with porting pattern types 10A and 10D "VE"

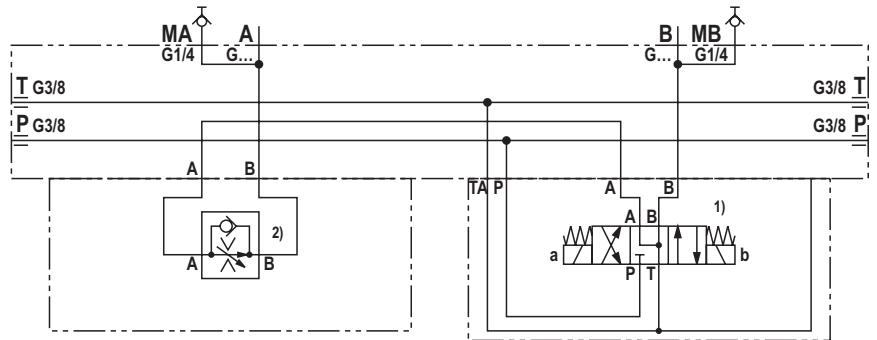
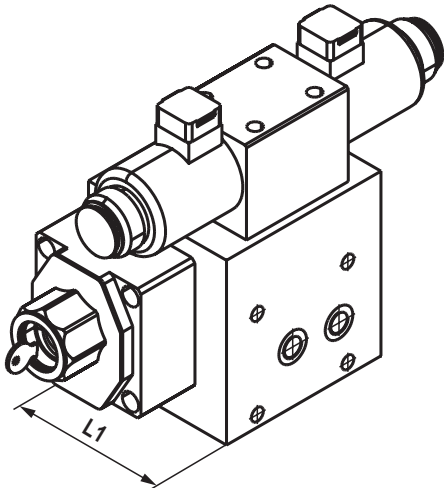


	Frame size	Size	A1, A2	B	X, Y	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	10	G3/4	G3/4	G1/4	175	IH20M2A-VE10A05-1X/	R901066036	-	R901066818
b	B	10	G3/4	G3/4	G1/4	175	IH20M2B-VE10A05-1X/	R901005288	R901005289	R901005310

Sample assembly	
a	<ul style="list-style-type: none"> <li>▶ Type WE 10 ...-5X/... (data sheet 23340) <sup>1)</sup></li> <li>▶ Type DR 10 ...-5X/... (data sheet 26892) <sup>2)</sup></li> <li>▶ Y internal depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)</li> </ul>
b	<ul style="list-style-type: none"> <li>▶ Type WE 10 ...-5X/... (data sheet 23340) <sup>1)</sup></li> <li>▶ Type DR 10 ...-5X/... (data sheet 26892) <sup>2)</sup></li> </ul>

**Directional function:** with flow control function in channel A  
(dimensions in mm)

- Valve segment size 10 with porting pattern types 10A and 10D "VE"

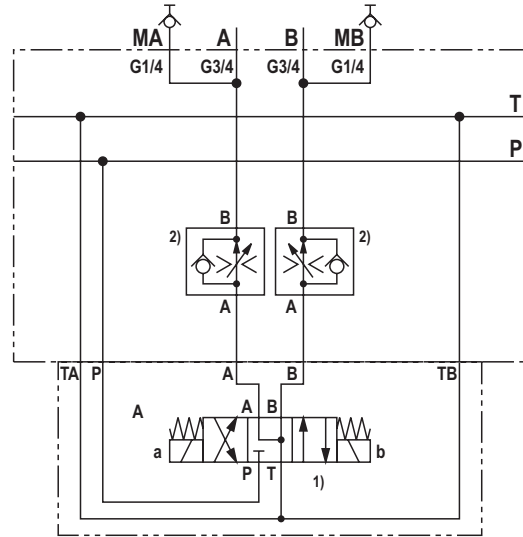
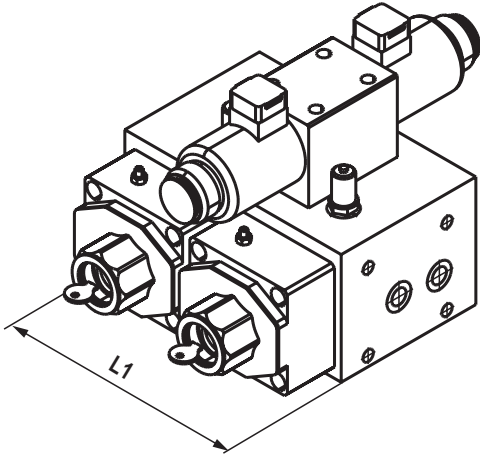


	Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	10	G3/4	G3/4	125	IH20M2A-VE10A01-1X/	R901027180	R901169761	R901027207
b	B	10	G1 1/4	G1 1/4	175	IH20M2B-VE16B12-1X/	R901161055	R901415205	R901161058

Sample assembly	
a	<ul style="list-style-type: none"> <li>► Type WE 10 ...-5X/... (data sheet 23340) <sup>1)</sup></li> <li>► Type 2FRM 10 ...-3X/... (data sheet 28389) <sup>2)</sup></li> </ul>
b	<ul style="list-style-type: none"> <li>► Type WEH 16 ...-7X/... (data sheet 24751) <sup>1)</sup></li> <li>► Type 2FRM 16 ...-3X/... with Z4S 16 ...-3X/... (data sheet 28389) <sup>2)</sup></li> </ul>

**Directional function:** with flow control function in channels A and B  
(dimensions in mm)

- Valve segment size 10 with porting pattern types 10A and 2 x 10G "VE"



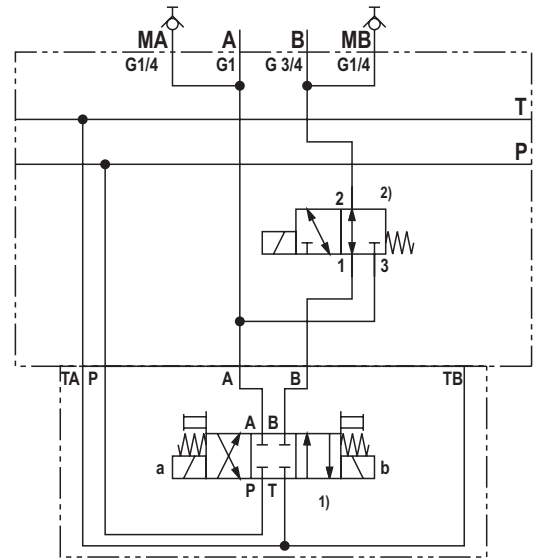
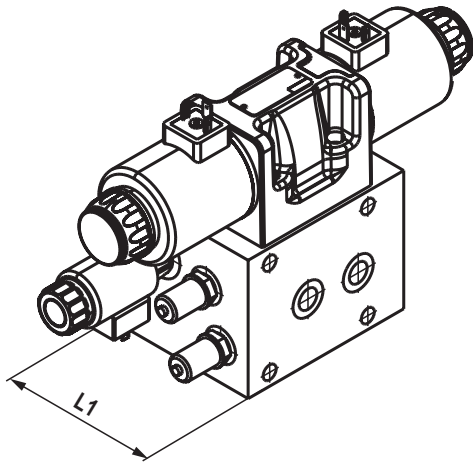
Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
A	10	G3/4	G3/4	225	IH20M2A-VE10A10-1X/	R901088480	R901295938	R901088483

**Sample assembly**

- Type WE 10 ...-5X/... (data sheet 23340) <sup>1)</sup>
- Type 2FRM 10 ...-3X/... (data sheet 28389) <sup>2)</sup>

**Directional function:** switchable differential circuit  
(dimensions in mm)

► Valve segment size 10 with porting pattern type 10A "VE"



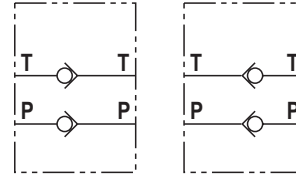
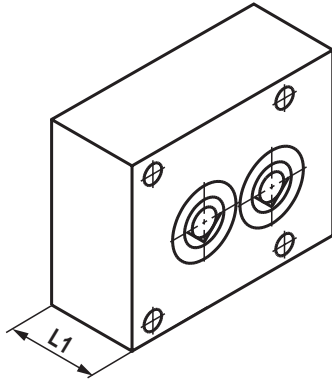
Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
A	10	G1	G3/4	100	IH20M2A-VE10A02-1X/	R901329735	-	R901329745

#### Sample assembly

- Type WE 10 ...-5X/... (data sheet 23340) <sup>1)</sup> and
- Type KKDER1UA/HN9V (material no. R901070105), installation bore T-11A with solenoid coil 37-K4 -22G24 00 (material no. R900991121), (data sheet 18136-04) <sup>2)</sup>

**Blocking function:** check function  
(dimensions in mm)

► Valve segment for check valve in channel P and/or T "PT"



Frame size	Size	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
A	16	50	IH20M4A-PT16X01-1X/	R901017780	R901131914	R901017783

#### Sample assembly

- Check valve insert type RKVC-16-0,2 bar, material no. R900031396 (NBR), material no. R901103578 (FKM)
- O-ring in channels P and T: 32,92x3,53-N-..., material no. R900008290 (NBR90), material no. R900008951 (FKM80)

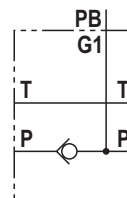
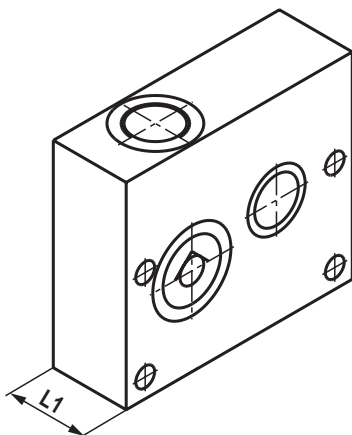
#### Notice:

- Valve reversible → symbol inverted



**Blocking function:** check function  
(dimensions in mm)

► Valve segment for check valve in channel P "VP"



Frame size	Size	PB	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	32	G1	50	IH20M4B-VP32X01-1X/	R900709727	R901003364	R900718663

#### Sample assembly

- Check valve insert type RKVC-32-0,2BAR, material no. R900015439 (NBR), material no. R901103579 (FKM).
- O-ring in channel P: 47,22x3,53-N-NBR90 (material no. R900008592)

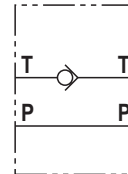
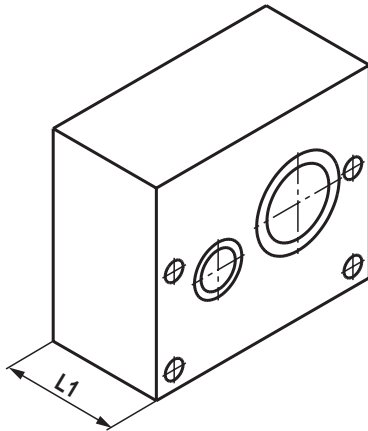


#### Notice:

- Port PB is always on the back of the check valve
- Valve reversible → symbol inverted

**Blocking function:** check function  
(dimensions in mm)

► **Valve segment for check valve in channel T "VT"**



Frame size	Size	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	40	75	IH20M4B-VT40X01-1X/	R900734205	R900786563	R900734208

#### Sample assembly

- Check valve insert type RKVC-40-0,2BAR, material no. R900734700 (NBR), material no. R901103580 (FKM).
- O-ring in channel T: 53,57x3,53-N-NBR90 (material no. R900008850)

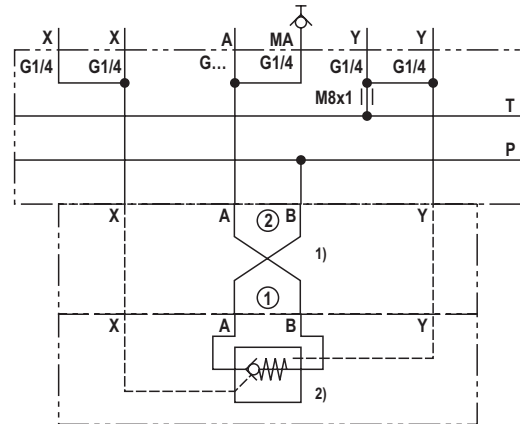
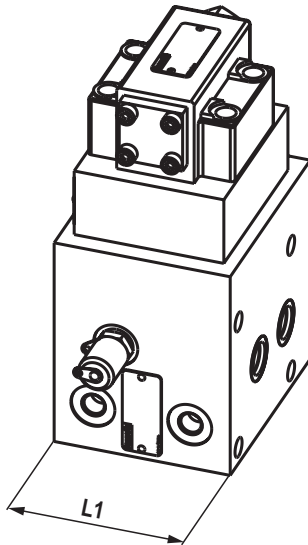


#### Notice:

- Valve reversible → symbol inverted

**Blocking function:** releasable check function  
(dimensions in mm)

- ▶ Valve segment size 10 with porting pattern type 10D "VP"
- ▶ Valve segment size 20 with porting pattern type 20D "VP"

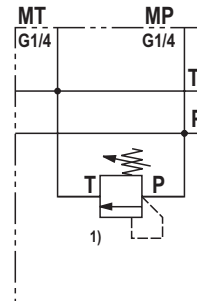
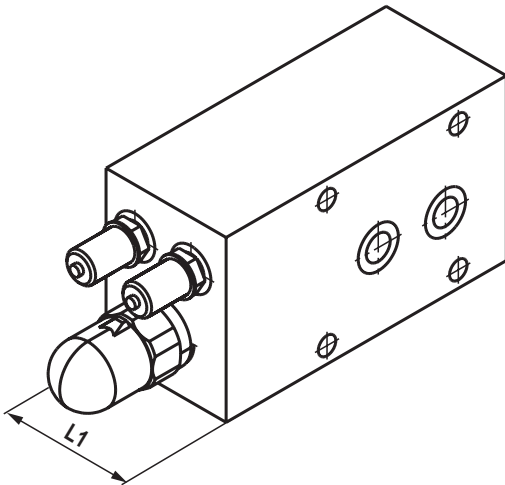


	Frame size	Size	A	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	10	G3/4	100	IH20M4A-VP10D02-1X/	R901201846	R901066035	R901066275
b	B	20	G1	125	IH20M4B-VP20D02-1X/	R900720736	R900786572	R900720738

Sample assembly	
a	<ul style="list-style-type: none"> <li>▶ Type HSZ 10 D261-3X/V00 (material no. R901132069) <sup>1)</sup></li> <li>▶ Type SV/SL 20 ...-4X/... (data sheet 21468) <sup>2)</sup></li> <li>▶ Y internal depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)</li> </ul>
b	▶ Type SV/SL 20 ...-4X/... (data sheet 21468) <sup>1)</sup> , sandwich plate not required

**Pressure function:** pressure limiting function  
(dimensions in mm)

► **Valve segment for pressure limitation "VP"**



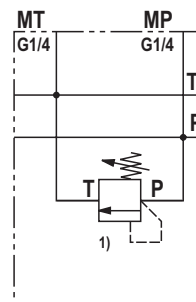
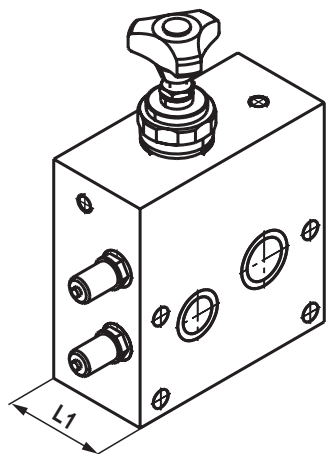
Frame size	Size	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
A	10	75	IH20M4A-VP10R01-1X/	R900781110	-	R900781120

**Sample assembly**

► Type DBD... 10 K1X/... (data sheet 25402) <sup>1)</sup>

**Pressure function:** pressure limiting function  
(dimensions in mm)

► **Valve segment for pressure limitation "VP"**



Frame size	Size	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	20	75	IH20M4B-VP20R03-1X/	R901059228	-	R901059981

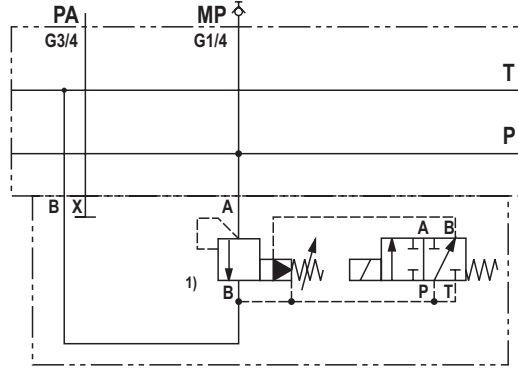
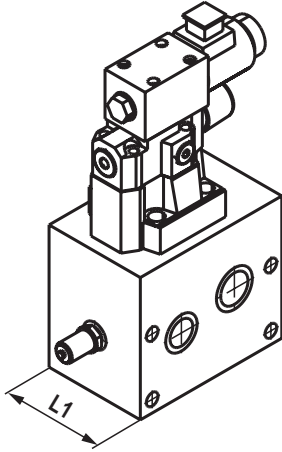
**Sample assembly**

► Type DBD. 20 K1X/... (data sheet 25402) <sup>1)</sup>

**Pressure function:** pressure limiting function  
(dimensions in mm)



► Valve segment size 10 with porting pattern type 10E "VP"



Frame size	Size	PA	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	10	G3/4	100	IH20M4B-VP10E01-1X/	R900723358	-	R900723360

**Sample assembly**

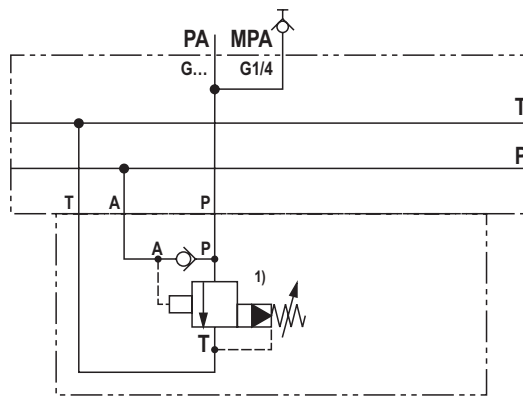
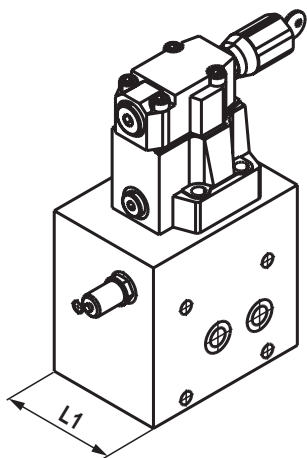
► Type DB 10 ...-5X/... (data sheet 25802) <sup>1)</sup>

**Notice:**

Pressure limitation from channel P to T.

**Pressure function:** pressure shut-off function  
(dimensions in mm)

► Valve segment size 10 with porting pattern type 10R "VP"



	Frame size	Size	PA	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	10	G3/4	100	IH20M4A-VP10R02-1X	R901071097	-	R901071100
b	B	20	G1 1/4	125	IH20M4B-VP10R01-1X	R900751485	R900751485	R900751496

Sample assembly	
a	► Type DA 10...-5X/... (data sheet 26411) <sup>1)</sup>
b	► Type DA 20...-5X/... (data sheet 26411) <sup>1)</sup>

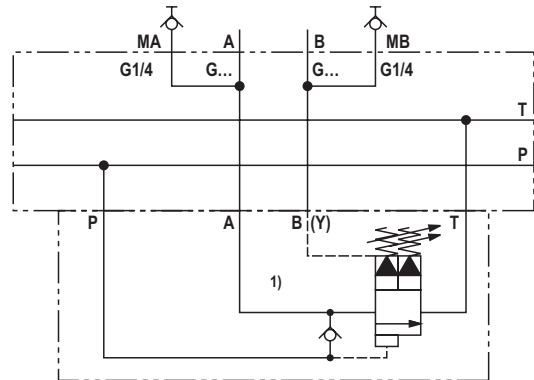
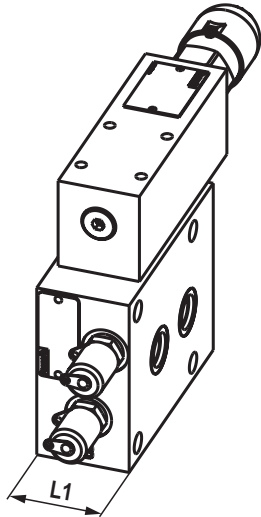


**Notice:**

Accumulator charging function

**Pressure function:** pressure shut-off function  
(dimensions in mm)

► Valve segment size 6 with porting pattern type 6A "VS"



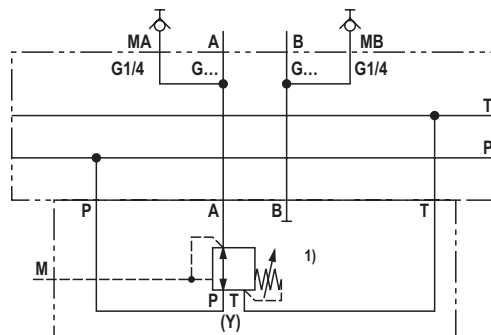
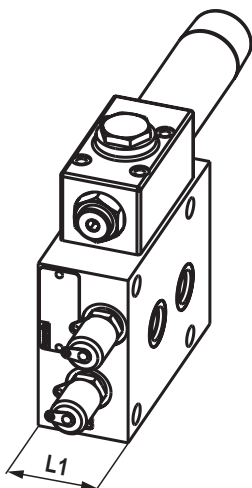
	Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
<b>a</b>	<b>A</b>	<b>6</b>	G1/2	G1/2	50	IH20M2A-VS06A01-1X/M01	R900977155	R901028782	R900619291
<b>b</b>	<b>B</b>	<b>6</b>	G1/2	G1/2	50	IH20M2B-VS06A01-1X/	R900977156	R900786558	R900245791
<b>c</b>	<b>B</b>	<b>6</b>	G3/4	G3/4	75	IH20M2B-VS06A02-1X	R900753099	–	R900754365

Sample assembly	
<b>a</b>	► Type DA 6...-5X/...VP (data sheet 26405) <sup>1)</sup>
<b>b</b>	► Type DA 6...-5X/...VP (data sheet 26405) <sup>1)</sup>
<b>c</b>	► Type DA 6...-5X/...VP (data sheet 26405) <sup>1)</sup>



**Pressure function:** pressure reducing function  
(dimensions in mm)

► Valve segment size 6 with porting pattern type 6A "VS"

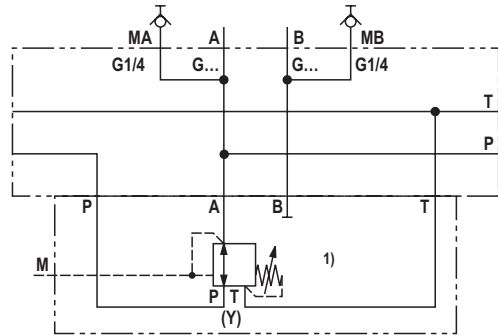
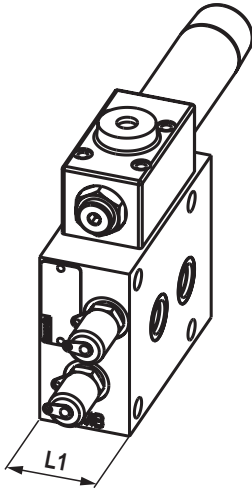


	Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	6	G1/2	G1/2	50	IH20M2A-VS06A01-1X/M01	R900977155	R901028782	R900619291
b	B	6	G1/2	G1/2	50	IH20M2B-VS06A01-1X/	R900977156	R900786558	R900245791
c	B	6	G3/4	G3/4	75	IH20M2B-VS06A02-1X	R900753099	-	R900754365

Sample assembly	
a	► Type DR 6 DP...-5X/... (data sheet 26564) <sup>1)</sup>
b	► Type DR 6 DP...-5X/... (data sheet 26564) <sup>1)</sup>
c	► Type DR 6 DP...-5X/... (data sheet 26564) <sup>1)</sup>

**Pressure function:** pressure reducing function  
(dimensions in mm)

► Valve segment size 6 with porting pattern type 6A "VP"

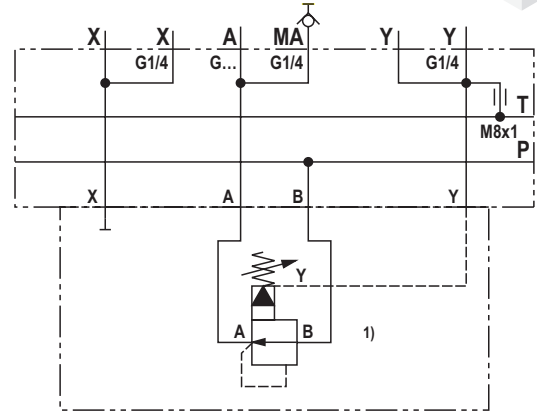
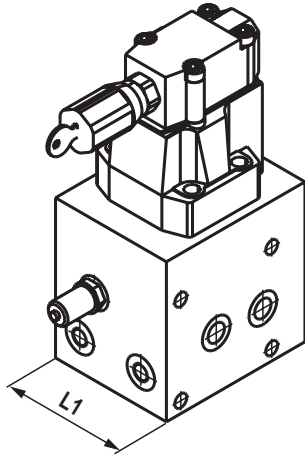


	Frame size	Size	A	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
<b>a</b>	<b>A</b>	<b>6</b>	G1/2	G1/2	50	IH20M4A-VP06A02-1X/	R901009817	R901028784	R901009825
<b>b</b>	<b>B</b>	<b>6</b>	G1/2	G1/2	50	IH20M4B-VP06A02-1X/	R900755445	R901003106	R900755774

Sample assembly	
<b>a</b>	<ul style="list-style-type: none"> <li>► Type DR 6 DP...-5X/... (data sheet 26564) <sup>1)</sup></li> <li>► Valve, reversible with type HSZ (material no. R900735049)</li> </ul>
<b>b</b>	<ul style="list-style-type: none"> <li>► Type DR 6 DP...-5X/... (data sheet 26564) <sup>1)</sup></li> <li>► Valve, reversible with type HSZ (material no. R900735049)</li> </ul>

**Pressure function:** pressure reducing function  
(dimensions in mm)

- ▶ Valve segment size 10 with porting pattern type 10D "VP"
- ▶ Valve segment size 20 with porting pattern type 20D "VP"



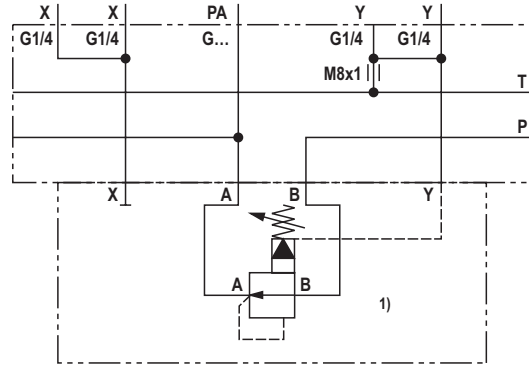
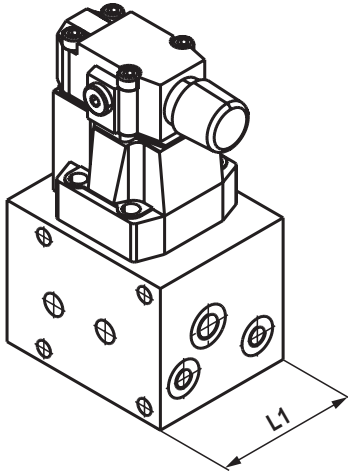
	Frame size	Size	A	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	10	G3/4	100	IH20M4A-VP10D02-1X/	R901066035	R901297722	R901066275
b	B	20	G1	125	IH20M4B-VP20D02-1X/	R900720736	R900786572	R900720738

#### Sample assembly

a	<ul style="list-style-type: none"> <li>▶ Type DR 10 ...-5X/... (data sheet 26892) <sup>1)</sup></li> <li>▶ Y internal depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)</li> </ul>
b	<ul style="list-style-type: none"> <li>▶ Type DR 20 ...-5X/... (data sheet 26892) <sup>1)</sup></li> <li>▶ Y internal depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)</li> </ul>

**Pressure function:** pressure reducing function  
(dimensions in mm)

- ▶ Valve segment size 10 with porting pattern type 10D "VP"
- ▶ Valve segment size 20 with porting pattern type 20D "VP"

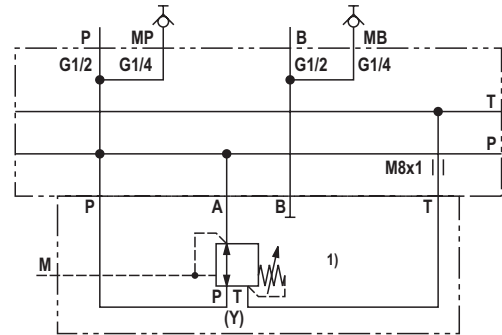
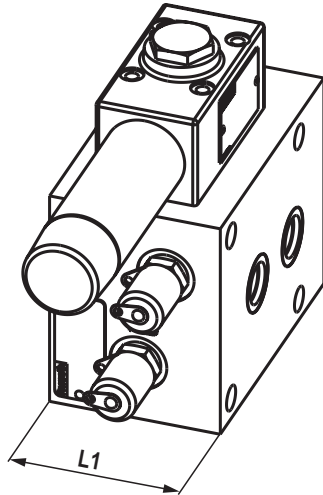


	Frame size	Size	PA	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	10	G3/8	100	IH20M4A-VP10D01-1X/	R901030700	R901154890	R901030703
b	B	20	G3/4	125	IH20M4B-VP20D01-1X/	R900709724	R901003366	R900718657

Sample assembly	
a	<ul style="list-style-type: none"> <li>▶ Type DR 10 ...-5X/... (data sheet 26892) <sup>1)</sup></li> <li>▶ Y internal depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)</li> <li>▶ Function rotatable by sandwich plate type HSZ 10 D261-3X/M00 (material no. R900921406)</li> </ul>
b	<ul style="list-style-type: none"> <li>▶ Type DR 20 ...-5X/... (data sheet 26892) <sup>1)</sup></li> <li>▶ Y internal depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)</li> <li>▶ Function rotatable by sandwich plate type HSZ 20 D261-3X/M00 (material no. R900921406)</li> </ul>

**Pressure function:** pressure reducing function  
(dimensions in mm)

► Valve segment size 6 with porting pattern type 06A "VP"



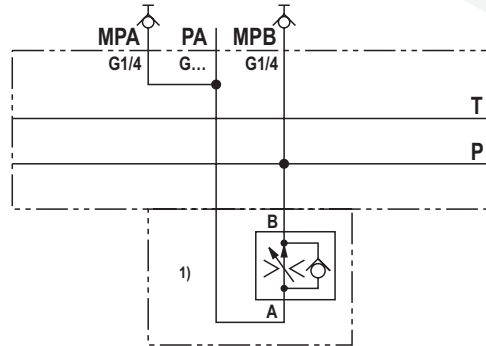
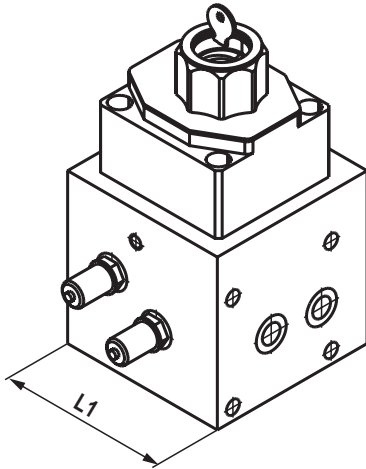
Frame size	Size	P	B	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
A	10	G1/2	G1/2	75	IH20M4A-VP06A01-1X/	R901071088	-	R901071091

#### Sample assembly

► Type DR 6 DP...-5X DR 6 DP...-5X/... (acc. to RE 26564) <sup>1)</sup>

**Flow control function**  
(dimensions in mm)

- ▶ Valve segment size 10 with porting pattern type 10G "VP"
- ▶ Valve segment size 16 with porting pattern type 16G "VP"



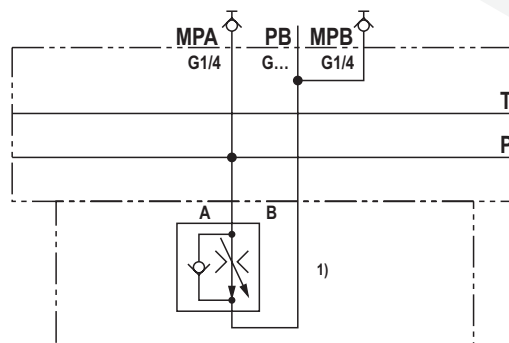
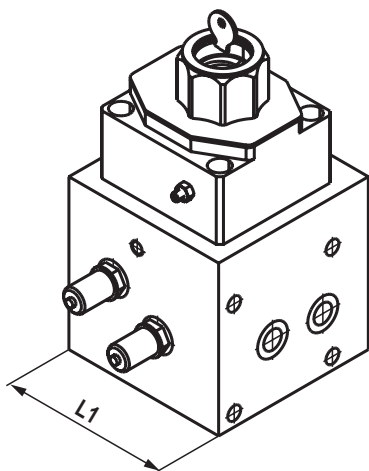
	Frame size	Size	PA	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	10	G3/4	225	IH20M4A-VP10G01-1X/	R901072342	-	R901072346
b	B	16	G1 1/4	200	IH20M4B-VP16G01-1X/	R900741957	R901364582	R900742938

Sample assembly	
a	▶ Type 2FRM 10 ...-3X/... (data sheet 28389) <sup>1)</sup>
b	▶ Type 2FRM 16 ...-3X/... (data sheet 28389) <sup>1)</sup>
	▶ Type 2FRM 10 ...-3X/... (data sheet 28389) with type HSE 16 G10G001-3X/ (material no. R900534949) <sup>1)</sup>

**Notice:**  
Flow control function from channel PA to P

**Flow control function**  
(dimensions in mm)

- ▶ Valve segment size 6 with porting pattern type 06A "VP"
- ▶ Valve segment size 10 with porting pattern type 10G "VP"



	Frame size	Size	PB	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	6	G1/2	125	IH20M4A-VP06A01-1X/	R901071088	-	R901071091
b	A	10	G3/4	125	IH20M4A-VP10G02-1X	R901182956	-	R901182961

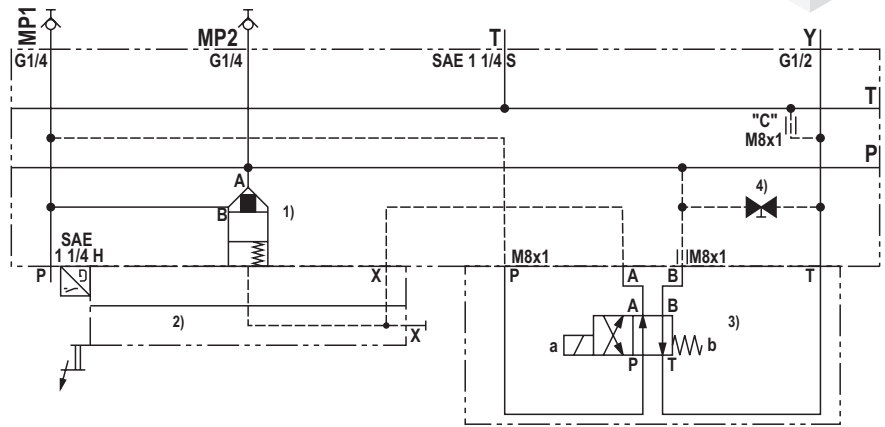
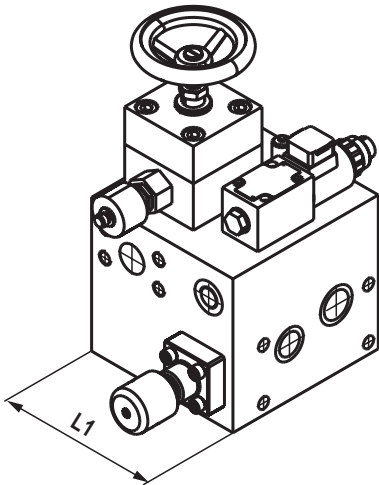
Sample assembly	
a	▶ Type 2FRM 6 ...-3X/... (data sheet 28163) <sup>1)</sup>
b	▶ Type 2FRM 10 ...-3X/... (data sheet 28389) <sup>1)</sup>

**Notice:**

Flow control function from channel P to PB (B)

**Logic function:** directional function  
(dimensions in mm)

► Valve segment for logic size 25 "VP"



Frame size	Size	P	T	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	25	SAE 1 1/4H	SAE 1 1/4S	175	IH20M4B-VP25R04-1X/	R901140197	R901246864	R901140207

#### Sample assembly

- Type LC 25 ...-7X/... (data sheet 21010) <sup>1)</sup>
- LFA 25 ...-7X/... (data sheet 21010) <sup>2)</sup>
- WE 6 ...-6X/... (data sheet 23178) <sup>3)</sup>
- Shut-off valve 094-010-013/DN10PN350, material no. R901233686 (NBR) 094-010-014/DN10PN350, material no. R901233695 (FKM) or type M-S 10 KX00-3X/..., material no. R901237682 (NBR), material no. R901252425 (FKM) (data sheet 20385) with blind flange type S10-3X/... E/M/, material no. R900304796 (NBR), material no. R901248070 (FKM) <sup>4)</sup>
- Thread M8x1, Y, T for Y external, closed with plug screw. Thread in channels P and B for plug screw M8x1 or nozzle plug screw ZN10027-M8x1-SV (material no. R913019129)
- Nozzle: Nozzle ZN10028-1-B-M8x1X8-SV (material no. R913018600)



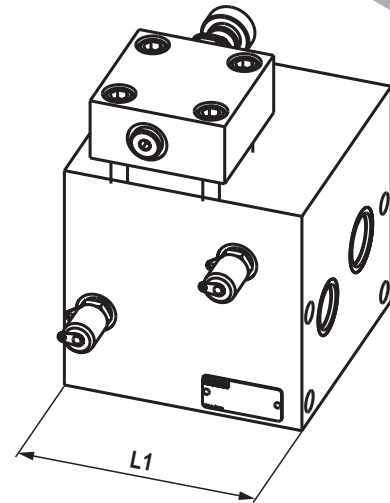
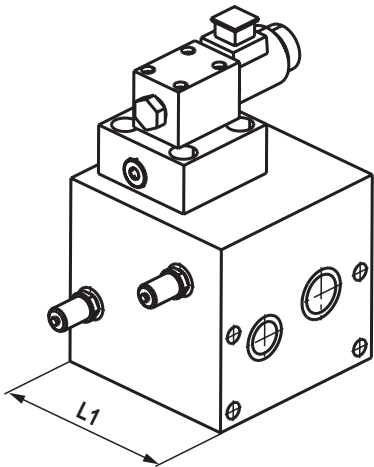
#### Notice:

Leakage-free blocking port P with unloading from channel P to T.

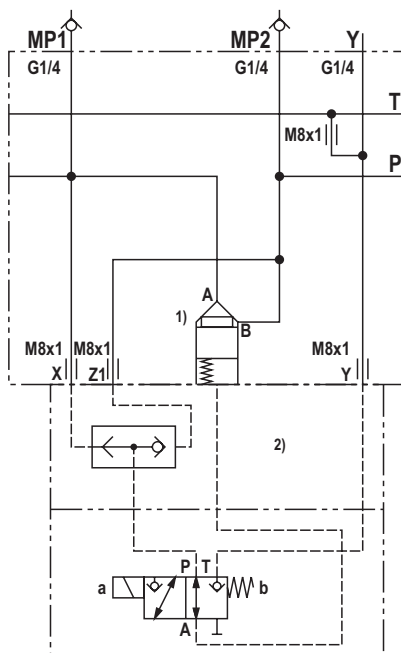


**Logic function:** directional or pressure function  
(dimensions in mm)

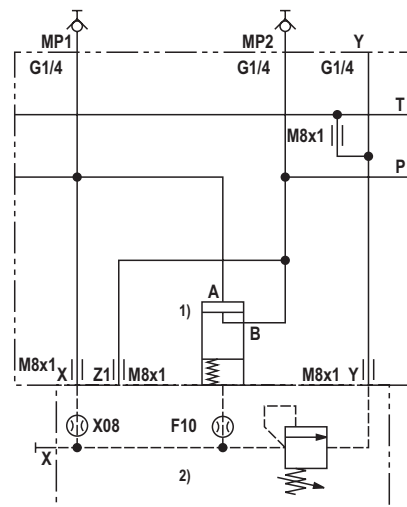
► Valve segment for logic size 25 in channel P "VP"



**Directional function (shut-off)**



**Pressure function (pressure reduction)**



Frame size	Size	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	25	150	IH20M4B-VP25R01-1X/	R900722155	R901065095	R900722156

#### Sample assembly

- Type LC 25 ...-7X/... (data sheet 21010) <sup>1)</sup>
- Type LFA 25 ...-7X/... (data sheet 21010) <sup>2)</sup>
- Port X, Y, Z1, Y and T depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no.: R913019129)

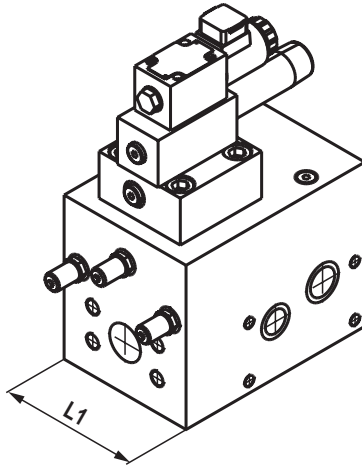
#### Notice:

- Leakage-free blocking from channel B to A.
- The function is determined by the cartridge valve and the logic cover.

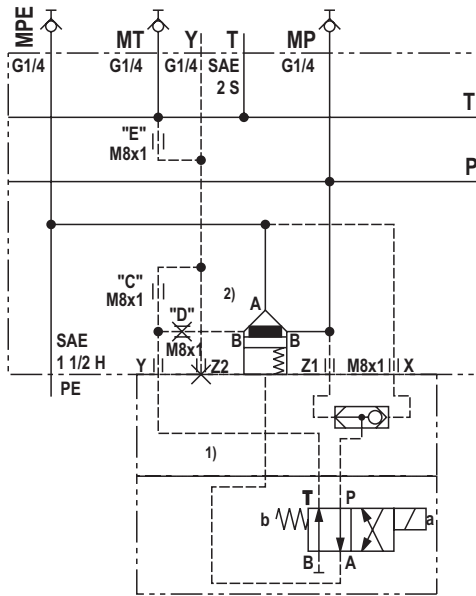
**Logic function:** directional and pressure function  
(dimensions in mm)



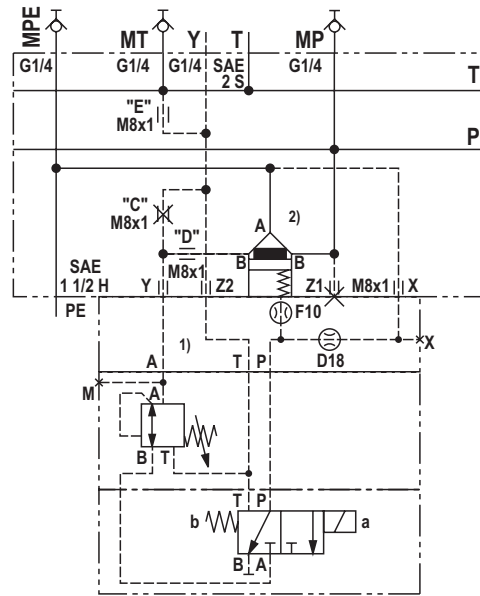
► Valve segment for logic size 32 "VP"



**Directional function (shut-off)**



**Pressure function (pressure reduction)**



Frame size	Size	PE	T	Y	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	32	SAE 1 1/2H	SAE 2S	G1/4	150	IH20M6B-VP32R01-1X/	R901153672	-	R901153675

**Sample assembly**

- Type LC 32 ...-7X/...<sup>1)</sup>; Type LFA 32 ...-7X/...<sup>2)</sup> (data sheets 21010 and 21050)
- Thread M8x1 depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129)

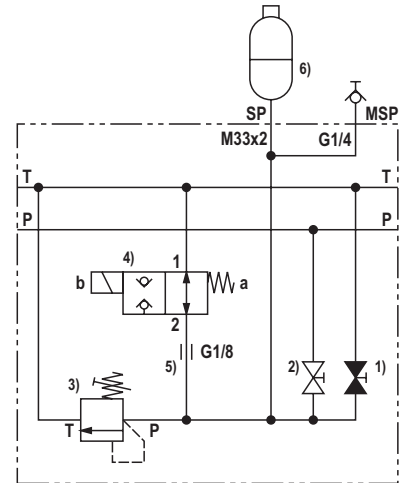
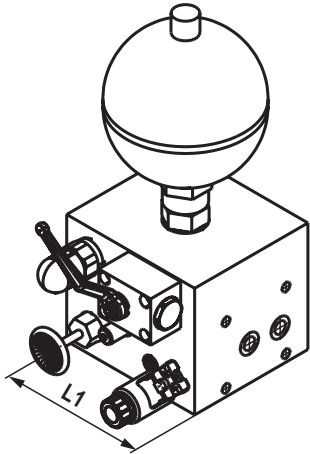
**Notice:**

- With threads on both sides – no through holes for threaded bolts.
- Use only once per stacking assembly, for the assembly of controls with excessive length.
- Module is threaded segment

## Accumulator function

(dimensions in mm)

### ► Accumulator segment for accumulator safety circuit



	Frame size	Size	SP	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
a	A	10	M33 x 2	175	IH20M4A-SP10R01-1X/	R900781825	R901126073	R900781830
b	B	10	M33 x 2	175	IH20M4B-SP10R03-1X/	R900761088	R901003361	R900762437

#### Sample assembly

a	<ul style="list-style-type: none"> <li>► Ball valve type BKHU-DN10..., material no. R901236098 (NBR), material no. R901259687 (FKM) <sup>1)</sup></li> <li>► Shut-off valve type ABZSS 10..., material no. R900210324 (NBR), material no. R900089468 (FKM) <sup>2)</sup></li> <li>► Type DBD... 10 K1X/E... (data sheet 25402) <sup>3)</sup></li> <li>► Type KSDER1PB/HN9V, material no. R901151294 (FKM) with solenoid coil 37-K4 -22G24 00 (material no. R900991121) or plug screw M20x1,5x35,5SW10V*BG, material no. R900617084 (FKM) <sup>4)</sup></li> <li>► Thread G1/8 e.g. for nozzle ZN10028-1,2-B-R1/8X8&amp; (material no. R913023889) <sup>5)</sup></li> <li>► Accumulator ... accumulator adapter S ... - M33x2,0 - port SP: M33 x 2 <sup>6)</sup></li> </ul>
b	<ul style="list-style-type: none"> <li>► Ball valve BKHU-DN10-11231 &amp;, material no. R901236098 (NBR) <sup>1)</sup></li> <li>► Shut-off valve ABZSS 10-M-2X/M, material no. R900210324 (NBR) <sup>2)</sup></li> <li>► DBD. 10 K1X/E... (data sheet 25402) <sup>3)</sup></li> <li>► KSDER1PB/HN9V, material no. R901151294 (FKM) with solenoid coil 37-K4 -22G24 00 (material no. R900991121) or plug screw M20x1,5x 35,5SW10V*BG, material no. R900617084 (FKM) <sup>4)</sup></li> <li>► Thread G1/8, e.g. for nozzle ZN10028-1,2-B-R1/8X8-SV (material no. R913023889) <sup>5)</sup></li> <li>► Accumulator ... accumulator adapter S ... - M33x2,0 - port SP: M33 x 2 <sup>6)</sup></li> </ul>

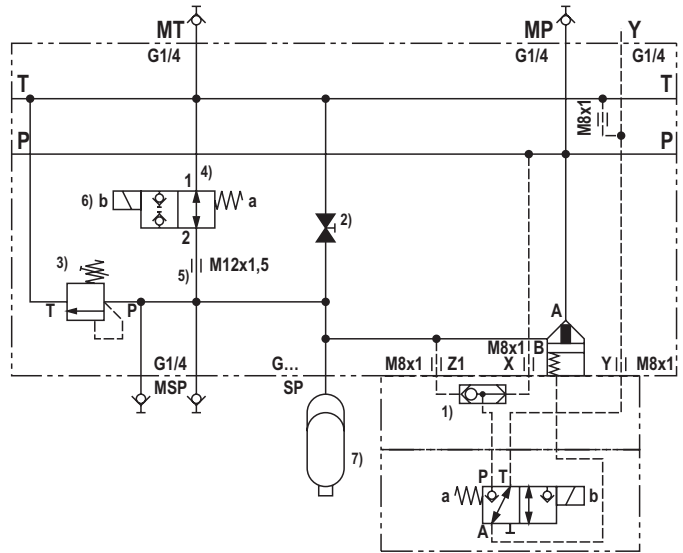
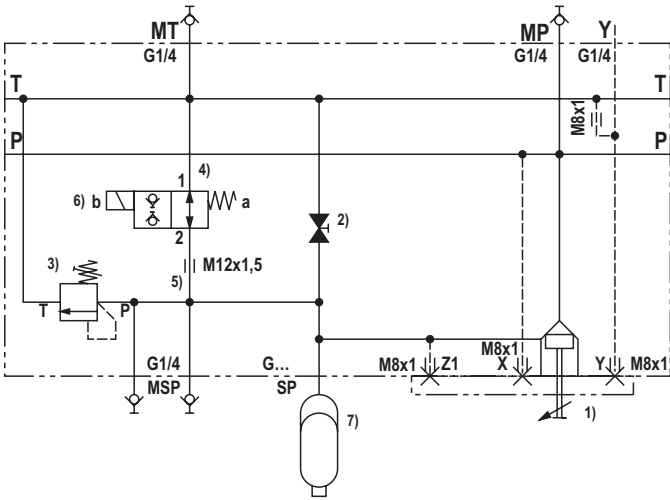
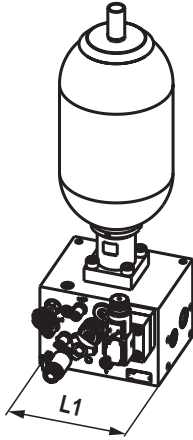
#### Notice:

A depressurized connection of port T to the tank must be ensured.

**Accumulator function**  
(dimensions in mm)



► **Accumulator segment for accumulator safety circuit**



Frame size	Size	SP	L1	Ordering codes	Material no. NBR	Material no. FKM	Drawing no.
B	25	G1 1/4; G2	250	IH20M4B-SP25R01-1X	R901065080	R901065092	R901065090

**Sample assembly**

- Shut-off valve 094-025-005/DN25PN350, material no. R901233690 (NBR), 094-025-006/DN25PN350, material no. R901233699 (FKM) or type LC/LFA 25 (data sheet 21010) <sup>1)</sup>
- Shut-off valve type ABZSS 10-M-2X/M, material no. R900210324 (NBR) <sup>2)</sup>
- Type DBD. 20 K1X/E... (data sheet 25402) <sup>3)</sup>
- Type KSDER1PB/HN9V, material no. R901151294 (FKM) <sup>4)</sup>
- Thread M12x1,5, e.g. for nozzle ZN10028-1,2-B-M12X1,5X10- SV (material no. R913023890) <sup>5)</sup>
- Solenoid coil 37-K4 -22G24 00 (material no. R900991121) or plug screw M20x1,5x 35,5SW10V\*BG (material no. R900617084)(FKM) <sup>6)</sup>
- Accumulator ... accumulator flange S307 (G1 1/4) / S309 (G2) thread M8x1 depending on built-on valve; if applicable, closed with plug screw ZN10027-M8x1-SV (material no. R913019129) <sup>7)</sup>



**Notice:**

A depressurized connection of port T to the tank must be ensured.

## Accessories (separate order)

### Mounting elements and tightening torques

Frame size	Denomination		Material no.	Thread	Tightening torque in Nm $\pm 10\%$
A	Threaded bolt	DIN 976-M10-B-10.9	R913000279	M10	45
	Hexagon nut	ISO 4032-M10-10-&	R913015547	M10	
	Disc	ISO 7089-10-200HV &	R913001898	M10	
B	Threaded bolt <sup>1)</sup>	DIN 976-M12x1,25-B-10.9	R913000239	M12 x 1.25	90
	Hexagon nut <sup>1)</sup>	ISO 8673-M12x1,25-10-&	R913016703	M12 x 1.25	
	Threaded bolt	DIN 976-M12-B-10.9	R913000595	M12	90 <sup>2)</sup>
	Hexagon nut	ISO 4032-M12-10-&	R913015548	M12	
	Disc	ISO 7089-12-200HV &	R913007600	M12	

<sup>1)</sup> Can only be used in stacking assemblies without module of functional group 6 "supplementary segments" (threaded segments), as these modules have M12x1.25 threads on both sides for accepting the threaded bolts.

<sup>2)</sup> Setting of nominal tightening torque ( $M_A$  in Nm) at the assembly tool. Selection of the assembly tool according to the specified tolerance class. The required friction coefficient ( $\mu_{total} = 0.09 \dots 0.14$ ) is to be ensured through the use of a suitable lubricant or by means of mounting elements with sliding coating.

#### Notice:

Reliable connection of the massive segments in order to form an IH20 stacking assembly is ensured by threaded bolts. Only threaded bolts according to DIN 976 and of property class 10.9 may be used. The correct tightening torque prevents loosening of the connection in case of increasing loads. The threaded bolts are stocked by the meter and are shortened to the required length during installation.

### Seals (standard)

Frame size	Denomination	Dimension/material no.	
		Channel P	Channel T
A	R-ring	18.64 x 3.53 x 3.53	18.64 x 3.53 x 3.53
	Material no. NBR	R900017462	R900017462
	Material no. FKM	R900017628	R900017628
B	R-ring	28.43 x 3.40 x 3.53	33.34 x 3.53 x 3.53
	Material no. NBR	R900017469	R900017471
	Material no. FKM	R900017631	R900017632

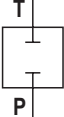
#### Notice:

In between the massive segments pre-tensioned with threaded bolts according to DIN 976, the channels are usually sealed with rectangular rings. Formation of gaps is excluded due to the high forces. The large, flat contact surfaces prevent stress.

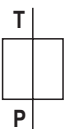
**Accessories** (separate order)**Plug screws for plugging of unused threaded ports**

$p_N$ in bar	Thread <sup>1)</sup>	Material short text	Material no. (NBR) "N"	Material no. (FKM) "F"
400	G1/8 A	VERSCHLUSSSCHRAUBE ZN10001-G1/8A- x <sup>2</sup> -ST	R913011600	R913011608
	G1/4 A	VERSCHLUSSSCHRAUBE ZN10001-G1/4A- x <sup>2</sup> -ST	R913011601	R913011609
	G3/8 A	VERSCHLUSSSCHRAUBE ZN10001-G3/8A- x <sup>2</sup> -ST	R913011602	R913011610
	G1/2 A	VERSCHLUSSSCHRAUBE ZN10001-G1/2A- x <sup>2</sup> -ST	R913011603	R913011611
	G3/4 A	VERSCHLUSSSCHRAUBE ZN10001-G3/4A- x <sup>2</sup> -ST	R913011604	R913011612
	G1 A	VERSCHLUSSSCHRAUBE ZN10001-G1A- x <sup>2</sup> -ST	R913011605	R913011613
250	G1 1/4 A	VERSCHLUSSSCHRAUBE ZN10001-G1 1/4A- x <sup>2</sup> -ST	R913011606	R913011614
	G1 1/2 A	VERSCHLUSSSCHRAUBE ZN10001-G1 1/2A- x <sup>2</sup> -ST	R913011607	R913011615
320	G1 1/4 A	VERSCHLUSSSCHRAUBE G1 1/4- x <sup>2</sup> *B	R900838090	R901117528
	G1 1/2 A	VERSCHLUSSSCHRAUBE G1 1/2- x <sup>2</sup> *B	R900838095	R901117530

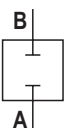
► **Cap elements for type DBD... and type M-SR...KE****Plug screw DBD., function P → T separated**

Symbol according to ISO 1219	Mounting cavity, size	Material short text	Material no. (NBR)	Material no. (FKM)
	6	VERSCHLUSSSCHRAUBE DBD. 6 K10/x <sup>1</sup> *BG	R900305874	R900830785
	10	VERSCHLUSSSCHRAUBE M35X1.5X 52.0 x <sup>1</sup> *BG	R900305875	R901253278
	20	VERSCHLUSSSCHRAUBE M45X1.5X 70.0 x <sup>1</sup> *BG	R900305876	R900827264
	30	VERSCHLUSSSCHRAUBE M60X2.0X 84.0 x <sup>1</sup> *BG	R900305877	R901253281

**Plug screw DBD., function P → T open**

Symbol according to ISO 1219	Mounting cavity, size	Material short text	Material no. (NBR)	Material no. (FKM)
	6	VERSCHLUSSSCHRAUBE DBD. 6 K10/x <sup>1</sup> P-T*BG	R900320590	R901031626
	10	VERSCHLUSSSCHRAUBE M35X1.5X 52.0 x <sup>1</sup> *BG	R900320591	-
	20	VERSCHLUSSSCHRAUBE M45X1.5X 70.0 x <sup>1</sup> *BG	R900320592	-

**Plug type M-SR...KE, function A → B separated**

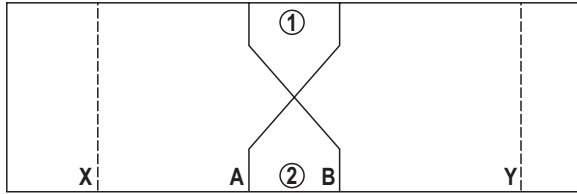
Symbol according to ISO 1219	Mounting cavity, size	Material short text	Material no. (NBR)	Material no. (FKM)
	8	STOPFEN M-SR 8 KE-1X/x <sup>2</sup> *BG	R900542329	R901299231
	10	STOPFEN M-SR 10 KE-1X/x <sup>2</sup> *BG	R900542330	R901299232
	15	STOPFEN M-SR 15 KE-1X/x <sup>2</sup> BG	R900542331	R901299229
	20	STOPFEN M-SR 20 KE-1X/x <sup>2</sup> *BG	R900542332	R900827247
	25	STOPFEN M-SR 25 KE-1X/x <sup>2</sup> *BG	R900542333	R901117940

1) Designation NBR or FKM

2) = "Without designation" for NBR, "V" for FKM

## Accessories (separate order)

### ► Sandwich plates



#### Notice:

Valves of types DR..., SL... or DZ have identical porting pattern types. The indicated sandwich plates can be used to reverse the direction of flow. The valves are rotated by 180°.

### Sandwich plates for rotation of a pressure reduction (DR), pressure activation (DZ) or check valve function (SL)

Size/porting pattern type	Material short text	Material no. (NBR) "N"	Material no. (FKM) "F"
10D	HSZ 10 D261-3X/x <sup>1</sup> 00	R900947716	R901132069
20D	HSZ 20 D261-3X/x <sup>1</sup> 00	R900921406	R901130835
30D	HSZ 30 D261-4X/x <sup>1</sup> 00	R901155108	R901155086

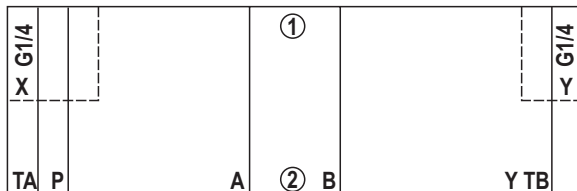
<sup>1)</sup> = "M" for NBR, "V" for FKM



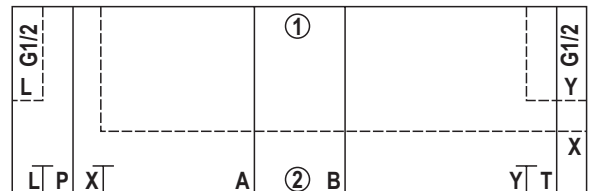
#### Notice:

In order to build directional valves size 10 and size 16 with external control lines on IH20 segments of frame sizes A and B, without ports X and Y, the following sandwich plates are needed:

Size 10



Size 16




### Sandwich plates with external ports X and Y

Size/porting pattern type	Material short text	Material no. (NBR) "N"	Material no. (FKM) "F"
10B	HSZ 10 B097-3X/x <sup>1</sup> 01	R900320785	R900321347
16B	HSZ 16 B095-3X/x <sup>1</sup> 01	R900568516	R901297536

<sup>1)</sup> = "M" for NBR, "V" for FKM

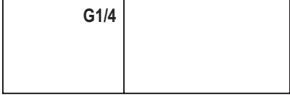
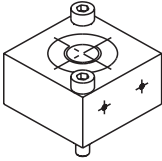
## Accessories (separate order)

### ► Adapter plates

 **Notice:**

In order to replace a pressure switch of of type HED 8 OH by another type with threaded port G1/4, the following adapter plate is needed:

#### Adapter plate type HED 8 OH on port G1/4

Porting pattern type 04J	Material short text	Material no. (NBR) "N"	Material no. (FKM) "F"
 	HSA 04 J021-3X/x <sup>1</sup> 01	R900548703	R901232508

1) = "M" for NBR, "V" for FKM

## Devices and associated porting pattern types

Type	Data sheet	ISO / DIN / Rexroth specific hole pattern	Porting pattern type
2 FRE 6..2X/..	29188	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A
2 FRM 6...3X/...	28163		
3 DREP(E) 6..2X/...	29184		
3 WE 6.6X/...	23178		
3 WE 6.73.6X/...A12	23183		
3 WH.6..5X/...	22282		
3 WM 6.5X/...	22280		
3 WMR.6-5X/...	22284		
4 WRA 6..-2X/...	29055		
4 WRE 6..-2X/...	29061		
4 WRPDH6...-2X/...	29391		
4 WRPE6...-2X/...	29025		
4 WRPE6...EA-2X/...	29024		
4 WRPEH6...-3X/...	29121		
4 WRPNH 6...-2X/...	29191		
4 WRREH 6...-1X/...	29041		
4 WRSE 6..-3X/...	29067		
4 WRSEH 6...-3X/...	29069		
4 WS(E)2EM 6-2X/...	29564		
DA 6 V.2.5X/..FS..	26405		
DBE 6..-1X/...	29158		
DBE(E)6-2X/...	29258		
DBEBE 6-1X/...	29159		
DBEP 6.06-1X/...	29164		
DBET(E).-6X/...	29162		
DBETA-6X/...	29262		
DBETB(E)X-1X/...	29151		
DR 6 DP.-5X/...	26564		
DRE(E) . 6...-1X/..	29175		



## Devices and associated porting pattern types

DREB 6 X-1X/...	29182	ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03	06A		
DREBE 6 X-1X/...	29195				
DRS 6-1X/...	29173				
DZ 6 DP-5X/...	26076				
M-2SED 6..1X/350..	22049				
M-2SEW 6..3X/420..	22058				
SL 6 PB-6X/...	21460				
3 WE 10 ..5X/...	23340	ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05	10A		
3 WE 10..3X/...	23327				
3 WEH 10..4X/...	24751				
3 WHH 10..4X/...	24851				
3 WMM 10..5X/...	22334				
4 WRDE 10...-5X/...	29093				
4 WRGE 10...-1X/...	29070				
4 WRKE 10..-3X/...	29075				
4 WRLD10-3X/...	29288				
4 WRLE10...E/W-3X/...	29089				
4 WRLE10...V-3X/...	29088				
4 WRPEH10...-2X/...	29037				
4 WRTE 10..-4X/...	29083				
4 WRVE 10...-2X/...	29077				
4 WRZ(E) 10..-7X/...	29115				
4 WRZ(E)(M) 10..-7X/...	29117				
4 WS(E)2E.10-5X/...	29583				
5-3WE 10..5X/...	23352				
M-2SED 10..1X/350...	22045				
M-3SEW 10.1X/420...	22075				
DA(W) 10-.-5X/...	26411	Rexroth specific hole pattern 10R	10D (10R)		
DBEBE 10-1X/...	29163	ISO 5781-06-07-0-00	10D		
DR 10 DP-4X/...	26580				
DR 10-.-4X/...	26893				
DR 10-.-5X/...	26892				
DRE(M) 10-.-6X/...	29276				
DREB10 Z-1X/...	29198				
DREBE10 Z-1X/...	29199				
DRG 10-1X/...	29145				
DZ 10 DP-4X/...	26099				
DZ 10-.-5X/...	26391				
FD 12 PA2X/...	27551				
SL 10 P.-4X/...	21468				
DB(W) 10..-4X/...	25818			ISO 6264-06-09-*97	10E
DB(W) 10..-5X/...	25802			ISO 6264-06-09-*97	
DB3U 10..5X/...	25826	ISO 6264-06-09-*97			
DBD . 10 P 1X/...	25402	Rexroth specific hole pattern			
DBG 10-1X/...	29139	ISO 6264-06-09-*97			
2 FRE 10-4X/...	29190	ISO 6263-06-05-0-97	10G		
2 FRH 10-3X/...	28389	ISO 6263-06-05-0-97			
3 FRM 10-2X/...	28862	similar to ISO 6263-06-05-0-97, observe position of actuator ports			
3 DRE(M)(E) 16 P-7X/...	29286	ISO 4401-07-07-0-05 and NFPA T3.5.1 R2-D07	16A		
4 WS(E)2E.16-2X/...	29591				
4 WSE3E.16-2X/...	29620				
H-4WMM 16.7X/...	22371				

## **Additional information**

- ▶ Hydraulic fluids on mineral oil basis Data sheet 90220
- ▶ Environmentally compatible hydraulic fluids Data sheet 90221
- ▶ Flame-resistant, water-free hydraulic fluids Data sheet 90222
- ▶ Flame-resistant hydraulic fluids - containing water (HFAE, HFAS, HFB, HFC) Data sheet 90223
- ▶ Reliability characteristics according to EN ISO 13849 Data sheet 08012
- ▶ Hexagon socket head cap screws, metric/UNC Data sheet 08936
- ▶ Hydraulic valves for industrial applications Operating instructions 07600-B
- ▶ General product information on hydraulic products Data sheet 07008
- ▶ Assembly, commissioning and maintenance of industrial valves Data sheet 07300
- ▶ Assembly, commissioning and maintenance of hydraulic systems Data sheet 07900
- ▶ Selection of filters
- ▶ Information on available spare parts

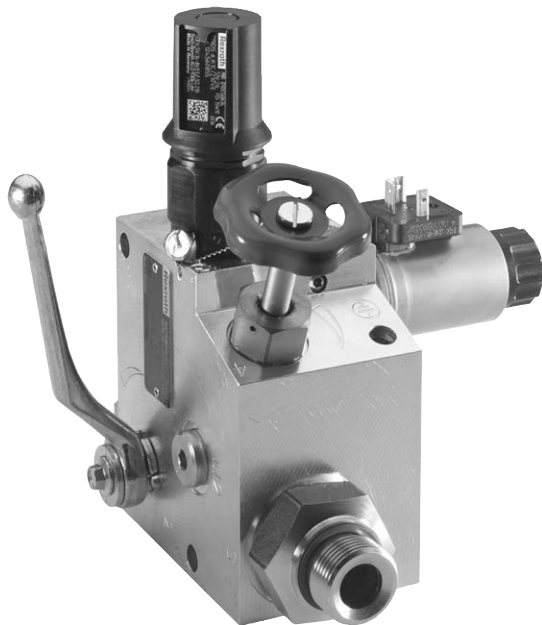
RE 50131

Ausgabe: 2021-10

Ersetzt: 2020-10

## Accumulator shut-off block

### Type ABZSS



HAD8066

- ▶ Nominal diameter DN08; DN10; DN20; DN30
- ▶ Component series 3X
- ▶ Maximum operating pressure 350 bar [5075 psi]

### Contents

Features	1
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Preferred types	5, 6
Technical data	7
Characteristic curves	8
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Mating connectors	16
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**Type-examination tested safety valves type DBD...E according to Pressure Equipment Directive 2014/68/EU (in the following shortly PED)**

Safety instructions	20
Characteristic curves	21 ... 25
Further information	26

**Ordering code**

01	02	03	04	05	06	07	08	09	10	11	12	13	14
<b>ABZSS</b>				<b>- 3X</b>	<b>/</b>	<b>E</b>	<b>/</b>					<b>-</b>	<b>*</b>

01	Accumulator shut-off block	<b>ABZSS</b>
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**Type of connection**

02	Piping connection	<b>no code</b>
	Subplate mounting	<b>-P</b> <sup>1)</sup>

**Nominal diameter**

03	DN08	<b>08</b>
	DN10	<b>10</b>
	DN20	<b>20</b>
	DN30	<b>30</b>

**Unloading**

04	Manual	<b>M</b>
	Manual and electro-magnetic (without manual override), normally open	<b>E</b> <sup>2)</sup>
	Manual and electro-magnetic, normally closed	<b>C</b> <sup>2)</sup>

**Component series**

05	Component series 30 ... 39 (30 ... 39: unchanged installation and connection dimensions)	<b>3X</b>
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**Pressure adjustment** (others upon request)


06	50 bar [730 psi]	<b>50</b>
	100 bar [1450 psi]	<b>100</b>
	140 bar [2030 psi]	<b>140</b>
	210 bar [3050 psi]	<b>210</b>
	350 bar [5075 psi]	<b>350</b> <sup>3)</sup>

**Pressure relief valve**

07	Pressure relief valve, type-examination tested (with CE mark) <sup>4)</sup>	<b>E</b>
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**Accumulator adapter**

08	<b>Without accumulator adapter</b>	<b>no code</b>
	<b>- With BSP thread G1/2</b>	
	DN08	<b>S104</b>
	DN10; DN20	<b>S30</b>
	<b>- With BSP thread G3/4</b>	
	DN08	<b>S108</b>
	DN10; DN20	<b>S31</b>
	DN08	<b>S105</b>
	DN10; DN20	<b>S10</b>
	<b>- With BSP thread G1 1/4</b>	
	DN08	<b>S107</b>
	DN10; DN20	<b>S12</b>
	DN30	<b>S307</b>
	<b>- With BSP thread G2</b>	
	DN08	<b>S109</b>
	DN10; DN20	<b>S13</b>
	DN30	<b>S309</b>

 **Notice:** Preferred types and standard units are contained in the EPS (standard price list).

## Ordering code

01	02	03	04	05	06	07	08	09	10	11	12	13	14
ABZSS			-	3X	/		E	/				-	*

### Accumulator adapter

08	- With SAE thread 3/4 - 16 UNF	
	DN10; DN20	S64
	- With SAE thread 1 1/16 - 12 UN	
	DN10; DN20	S60
	- With SAE thread 1 5/8 - 12 UN	
	DN10; DN20	S62
	DN30	S620
	- With SAE thread 1 7/8 - 12 UN	
	DN10; DN20	S63
DN30	S630	

### Voltage type <sup>5)</sup>

09	Direct voltage 24 V	G24
	Alternating voltage 110 V	G96 <sup>8)</sup>
	Alternating voltage 230 V	G205 <sup>8)</sup>

### Electrical connection <sup>5)</sup>

10	Without mating connector with protective cap	K4 <sup>6)</sup>
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### Seal material

11	FKM seals	V
	NBR seals	W <sup>7)</sup>

### Connection thread

12	BSP thread (ISO 228 Part 1)	no code
	SAE thread (ANSI B1.1)	12 <sup>2)</sup>

### Special versions

13	- DN30 with DBDS valve NG30	SO30
	- Shut-off device (2 positions) DN10 ... DN30	103
	- Shut-off device (1 position) DN10 ... DN30	104
	- Prepared for use in mining and explosion protection applications	869 <sup>9)</sup>

### Connection thread

14	Further details in the plain text	
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<sup>1)</sup> "DN30" only

<sup>2)</sup> Not with "DN08"

<sup>3)</sup> Type SO30 is supplied with a pressure rating of 315 bar [4570 psi]

<sup>4)</sup> According to the Pressure Equipment Directive 2014/68/EU

<sup>5)</sup> Only with electro-magnetic unloading design "E" or electro-magnetic pressure holding design "C"


<sup>6)</sup> Mating connectors, separate order, see page 16 and data sheet 08006.

<sup>7)</sup> Special version

<sup>8)</sup> For the connection to the AC voltage mains, a DC solenoid which is controlled by a rectifier is to be used (see table on the right). For individual connection, a large mating connector with integrated rectifier can be used (separate order, see page 16).

<sup>9)</sup> Manual accumulator discharge only, seal material "V" only. Assembly free from aluminum, without electrically operated components, housing electroplated FE//Zn8//Cn//T0 according to ISO 19598

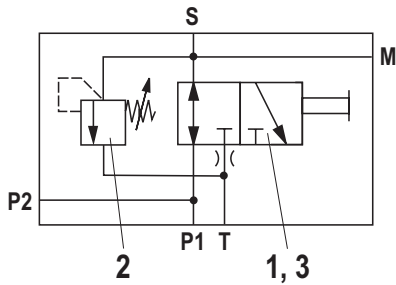
AC voltage mains (admissible voltage tolerance $\pm 10\%$ )	Nominal voltage of the DC solenoid in case of operation with alternating voltage	Ordering code
110 V - 50/60 Hz 120 V - 60 Hz	96 V	G96
230 V - 50/60Hz	205 V	G205

 **Notice:** Unlike the ABZSS30 standard accumulator safety block, the ABZSS30 ...SO30 is equipped with a direct operated pressure relief valve NG30. Version ABZSS-P30 for subplate mounting.

## Symbols

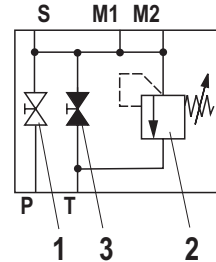
### DN08

Version "M" (manual unloading)



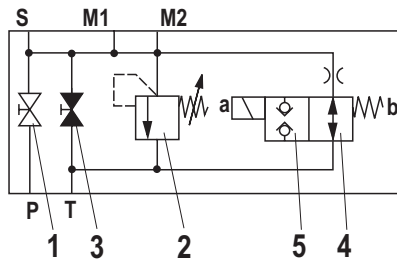
### DN10, 20 and 30

Version "M" (manual unloading)



### Version "E"

(manual and electro-magnetic unloading), normally open



#### Connection designation

<b>M; M1; M2</b>	Measuring port
<b>P; P1; P2</b>	Pump port
<b>S</b>	Accumulator port
<b>T</b>	Tank port
<b>1</b>	System shut-off cock
<b>2</b>	Pressure relief valve
<b>3</b>	Manual unloading
<b>4</b>	Electro-magnetic unloading, normally open, optional
<b>5</b>	Electro-magnetic unloading, normally closed, optional

## Function


The accumulator shut-off block serves for the protection, isolation and unloading of hydraulic accumulators. It is classified based on its use according to the Pressure Equipment Directive 2014/68/EU article 4, section 3. The connection between the accumulator shut-off block and the accumulator is realized by means of an accumula-

tor adapter.

The accumulator is protected from inadmissible overpressure by means of the pressure relief valve. The **pressure relief valve** must **not be used for any control tasks**. Sufficient difference between the maximum operating pressure and the working pressure must be ensured. Response of the pressure relief valve should be prevented, if possible.


**Preferred types**

Accumulator type	Data sheet	Accumulator NG in l [gal]	Pressure set at the pressure relief valve in bar [psi]	Accumulator shut-off block DN	Denomination	Material no.		
Diaphragm type accumulator	50150	0.5 [0.13]	160 [2320]	08	ABZSS 08 M-3X/160E/S104V	R901263004		
				10	ABZSS 10 M-3X/160E/S30V	R900711145		
		0.7 [0.18]	180 [2610]	08	ABZSS 08 M-3X/180E/S104V	R901263013		
				10	ABZSS 10 M-3X/180E/S30V	R904100876		
			250 [3625]	08	ABZSS 08 M-3X/260E/S104V	R901263011		
				10	ABZSS 10 M-3X/260E/S30V	R901147802		
		1.0 [0.26]	200 [2900]	08	ABZSS 08 M-3X/200E/S104V	R901263012		
				10	ABZSS 10 M-3X/200E/S30V	R904100849		
		1.4 [0.37]	140 [2030]	08	ABZSS 08 M-3X/140E/S104V	R901263020		
				10	ABZSS 10 M-3X/140E/S30V	R900711138		
			250 [3625]	08	ABZSS 08 M-3X/260E/S104V	R901263011		
				10	ABZSS 10 M-3X/260E/S30V	R901147802		
		2.0 [0.53]	100 [1450]	08	ABZSS 08 M-3X/100E/S108V	R901263014		
				10	ABZSS 10 M-3X/100E/S31V	R900711131		
			250 [3625]	08	ABZSS 08 M-3X/260E/S108V	R901263015		
				10	ABZSS 10 M-3X/260E/S31V	R901147799		
		2.8 [0.74]	70 [1015]	08	ABZSS 08 M-3X/070E/S108V	R901263016		
				10	ABZSS 10 M-3X/070E/S31V	R901259516		
			250 [3625]	08	ABZSS 08 M-3X/260E/S108V	R901263015		
				10	ABZSS 10 M-3X/260E/S31V	R901147799		
		3.5 [0.91]	250 [3625]	08	ABZSS 08 M-3X/260E/S108V	R901263015		
				10	ABZSS 10 M-3X/260E/S31V	R901147799		
		Bladder-type accumulator	50170	1.0 [0.26]	350 [5075]	08	ABZSS 08 M-3X/350E/S105V	R901263022
						10	ABZSS 10 M-3X/350E/S10V	R901259519
2.5 [0.66]	08					ABZSS 08 M-3X/350E/S107V	R901272573	
	10					ABZSS 10 M-3X/350E/S12V	R901272576	
4.0 [1.06]	08					ABZSS 08 M-3X/350E/S107V	R901272573	
	10					ABZSS 10 M-3X/350E/S12V	R901272576	
6.0 [1.56]	08			ABZSS 08 M-3X/350E/S107V		R901272573		
	10			ABZSS 10 M-3X/350E/S12V		R901272576		
10 [2.64]	330 [4785]			20		ABZSS 20 M-3X/330E/S13V	R900711415	
20 [5.28]						30	ABZSS 30 M-3X/330E/S 309V	R900713383
32 [8.45]				ABZSS-P 30 M-3X/330E/S309V			R901146459	
				50 [13.2]			ABZSS 30 M-3X/330E/S 309V	R900713383
ABZSS-P 30 M-3X/330E/S309V							R901146459	

 **Notice:** Preferred types and standard units are contained in the EPS (standard price list).

**Preferred types**

Accumulator type	Data sheet	Accumulator NG in l [gal]	Pressure set at the pressure relief valve in bar [psi]	Accumulator shut-off block DN	Denomination	Material no.
Diaphragm type accumulator	50150	0.5 [0.13]	160 [2320]	10	ABZSS 10 E-3X/160E/S30G 24K4V	R901263026
		0.7 [0.18]	180 [2610]	10	ABZSS 10 E-3X/180E/S30G 24K4V	R901263028
			250 [3625]	10	ABZSS 10 E-3X/260E/S30G 24K4V	R901147797
		1.0 [0.26]	200 [2900]	10	ABZSS 10 E-3X/200E/S30G 24K4V	R900709591
		1.4 [0.37]	140 [2020]	10	ABZSS 10 E-3X/140E/S30G 24K4V	R900709589
			250 [3625]	10	ABZSS 10 E-3X/260E/S30G 24K4V	R901147797
		2.0 [0.53]	100 [1450]	10	ABZSS 10 E-3X/100E/S31G 24K4V	R900709586
			250 [3625]	10	ABZSS 10 E-3X/260E/S31G 24K4V	R900709604
		2.8 [0.74]	70 [1015]	10	ABZSS 10 E-3X/070E/S31G 24K4V	R901263029
			3.5 [0.91]	250 [3625]	10	ABZSS 10 E-3X/260E/S31G 24K4V
10	ABZSS 10 E-3X/260E/S31G 24K4V	R900709604				
Bladder-type accumulator	50170	1.0 [0.26]	350 [5075]	10	ABZSS 10 E-3X/350E/S10G 24K4V	R901263027
		2.5 [0.66]		10	ABZSS 10 E-3X/350E/S12G 24K4V	R901272591
		4.0 [1.06]		10	ABZSS 10 E-3X/350E/S12G 24K4V	R901272591
		6.0 [1.56]		10	ABZSS 10 E-3X/350E/S12G 24K4V	R901272591
		10 [2.64]	330 [4785]	20	ABZSS 20 E-3X/330E/S13G 24K4V	R900709636
		20 [5.28]			30	ABZSS 30 E-3X/330E/S 309G 24K4V
		32 [8.45]		ABZSS-P 30 E-3X/330E/S 309G 24K4V		R901147879
				ABZSS 30 E-3X/330E/S 309G 24K4V		R900709657
		50 [13.2]		ABZSS-P 30 E-3X/330E/S 309G 24K4V		R901147879

 **Notice:** Preferred types and standard units are contained in the EPS (standard price list).



## Technical data

(For application outside these values, please consult us!)

general							
Nominal diameter	DN	08	10	20	30	30S030	P30...
Weight	► Version "M"	kg [lbs]	4.0 [8.8]	5.2 [11.5]	8.5 [18.7]	20.5 [45.2]	33.1 [72.8]
	► Version "C" and "E"	kg [lbs]	- -	5.5 [12.1]	8.8 [19.4]	20.8 [45.8]	33.4 [73.5]
Ambient temperature range	°C [°F]	-15 ... +80 [+5... +176]					

hydraulic	
Maximum operating pressure	bar [psi] 350 [5076]
Seal material	FKM seals or NBR seals <sup>1)</sup>
Block material	Steel
Hydraulic fluid	See table below
Maximum admissible degree of contamination of the hydraulic fluid Cleanliness class according to ISO 4406 (c)	Class 20/18/15 <sup>2)</sup>
Hydraulic fluid temperature range	°C [°F] -10 ... +60 [+14... +140]
Viscosity range	mm <sup>2</sup> /s [SUS] 12 ... 230 [55... 1066]

Hydraulic fluid	Classification	Suitable sealing materials	Standards	Data sheet
Mineral oils	HL, HLP	NBR, FKM	DIN 51524	90220

### Important notices on hydraulic fluids:

- For more information and data on the use of other hydraulic fluids, please refer to the data sheets above or contact us.
- There may be limitations regarding the technical valve data

(temperature, pressure range, life cycle, maintenance intervals, etc.).

- The ignition temperature of the hydraulic fluid used must be 40 K higher than the maximum solenoid surface temperature.

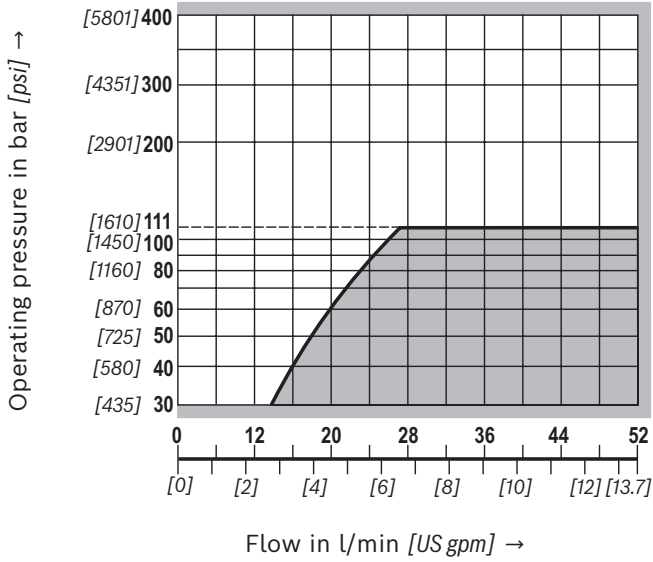
electrical	
Protection class according to DIN EN 60529	IP 65 (with mating connector mounted and locked)

<sup>1)</sup> Special version

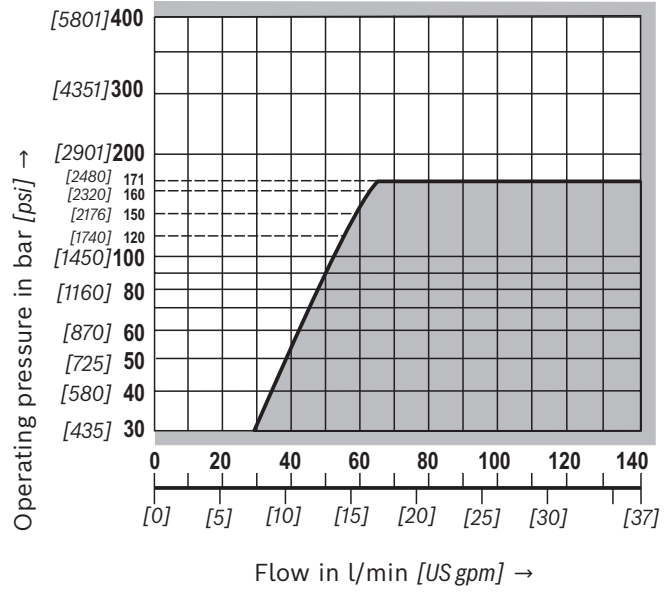
<sup>2)</sup> The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and simultaneously increases the life cycle of the components.

**Characteristic curves:** Type-examination tested safety valves type DBD <sup>1)</sup>

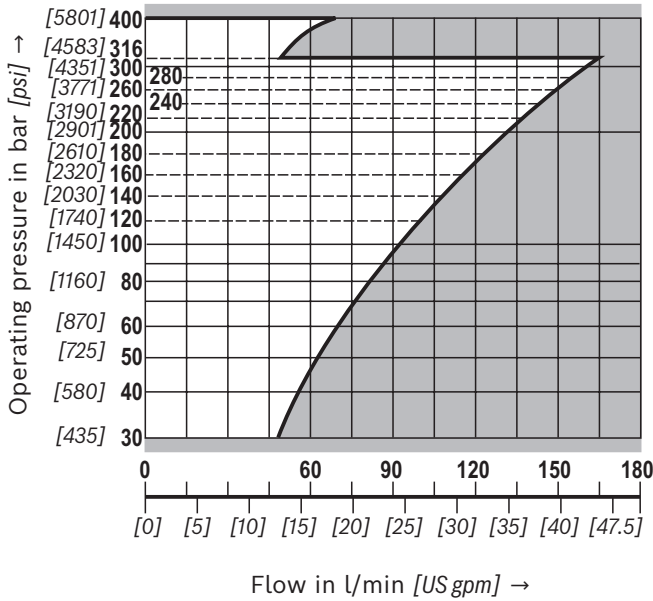
**Size 6** (ABZSS 08, 10)



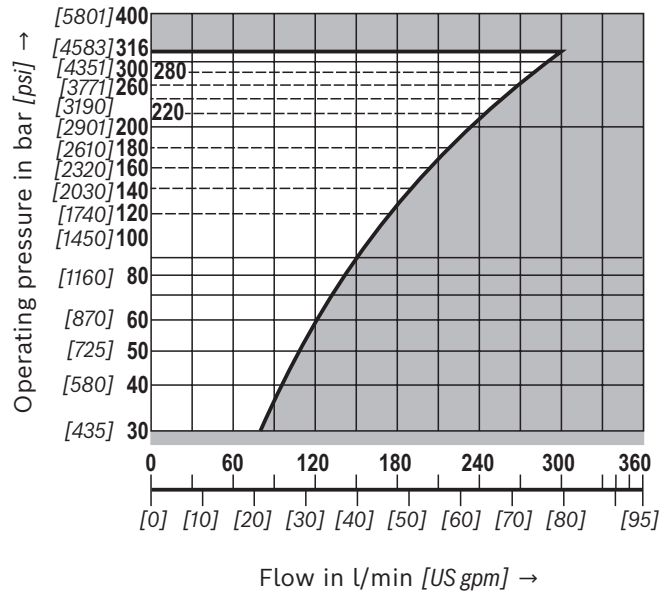
**Size 10** (ABZSS 20)



**Size 20** (ABZSS 30, -P30)



**Size 30** (ABZSS 30...SO30)

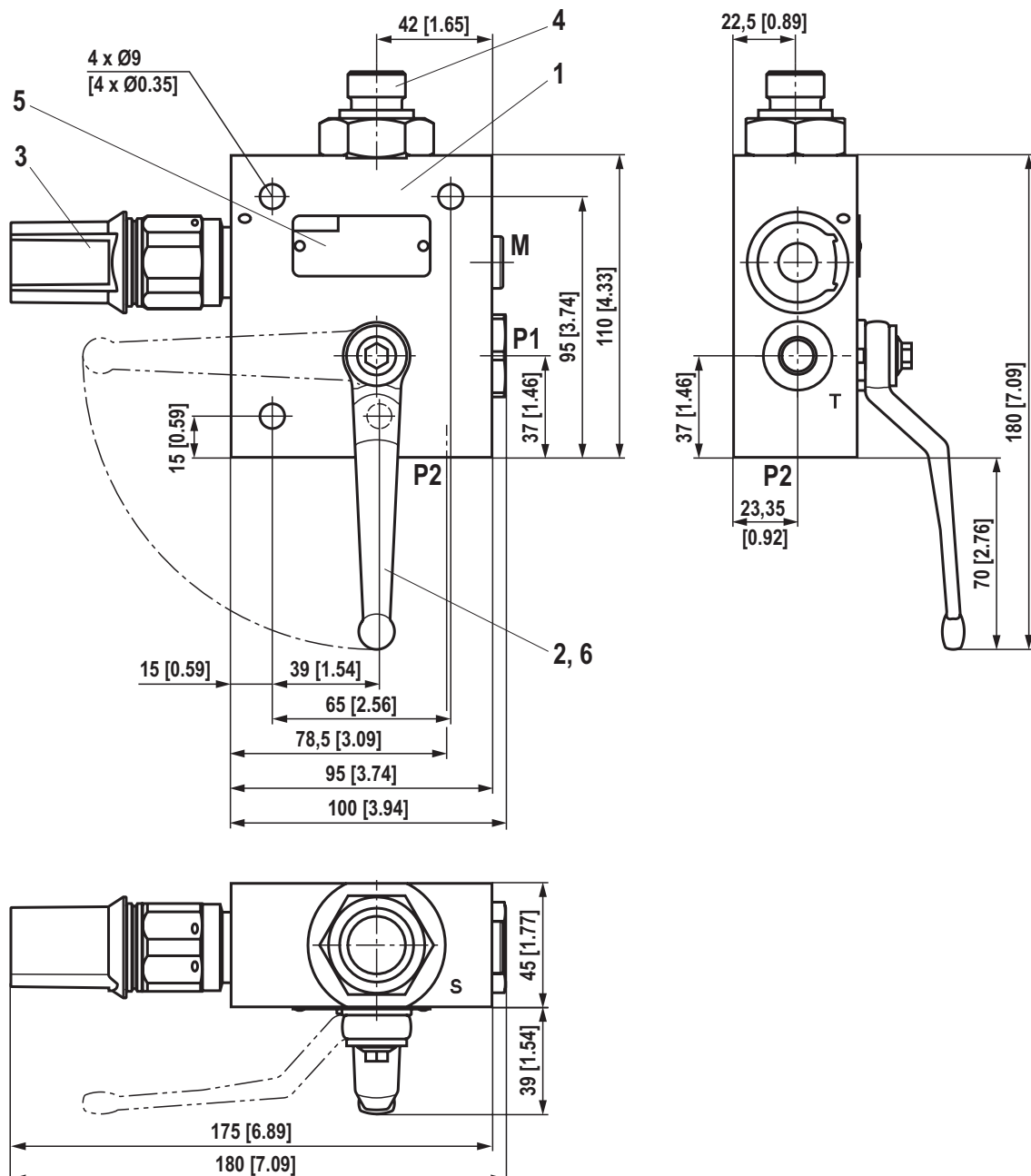


**Notice:**

Value pairs located in the areas of the characteristic curves with gray background can not be realized with the safety valve. The characteristic curves shown here are only valid for a counter pressure of 0 bar in the discharge line.

<sup>1)</sup> Component series 1X according to the Pressure Equipment Directive 2014/68/EU

**Dimensions: Version "08..." (DN08)**  
(dimensions in mm [inch])



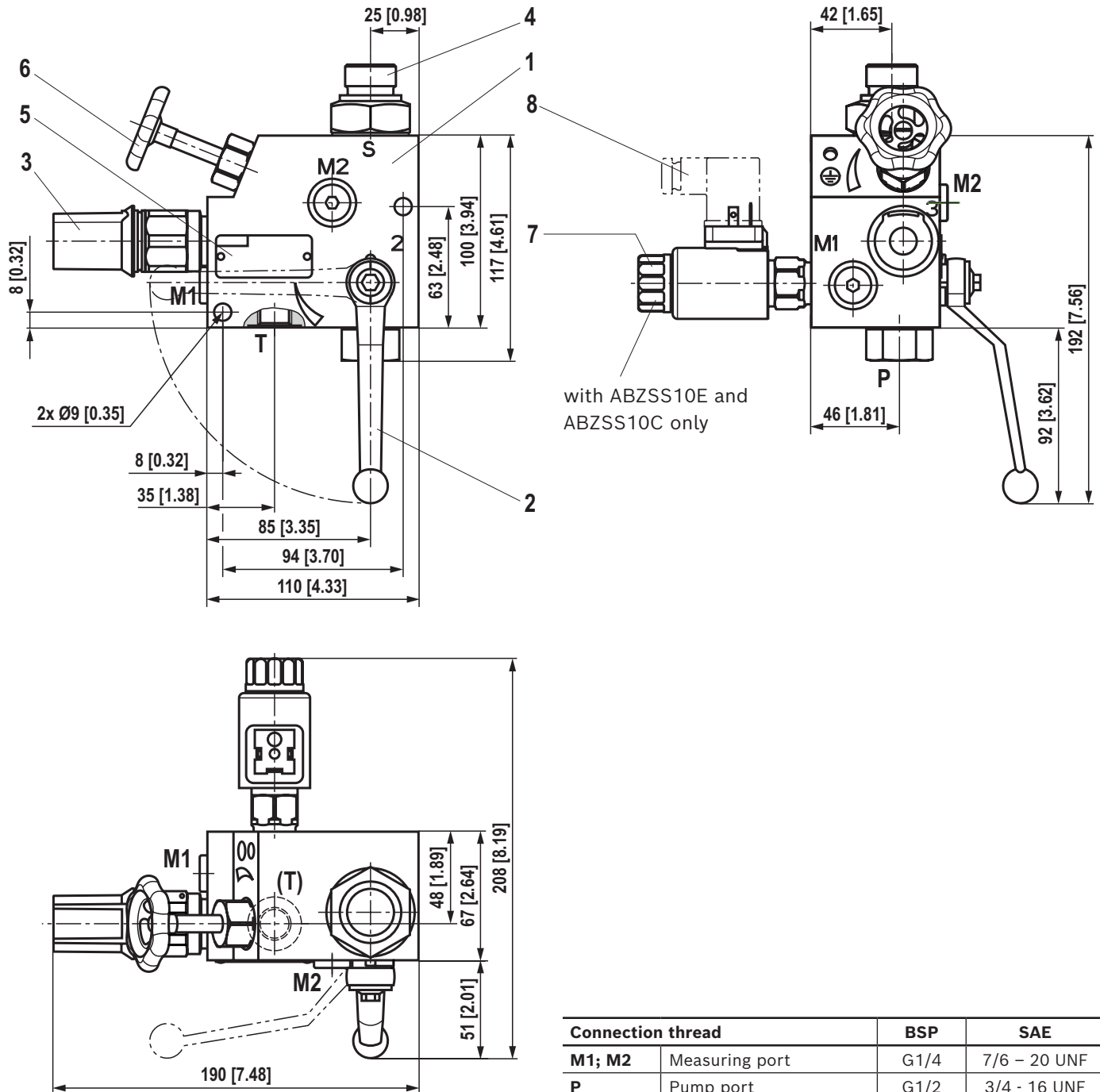
Connection thread		BSP
M1; M2	Measuring port	G1/4
P1	Pump port	G3/8
P2	Pump port	G1/2
T	Tank port	G1/4
S	Accumulator port	M20 x 1.5 <sup>1)</sup>

<sup>1)</sup> Mounting cavity according to DIN EN 9974-1

Item explanations see page 16

Characteristic curves for type-examination tested safety valves type DBDS can be found on page 8

**Dimensions: Version "10..." (DN10)**  
(dimensions in mm [inch])

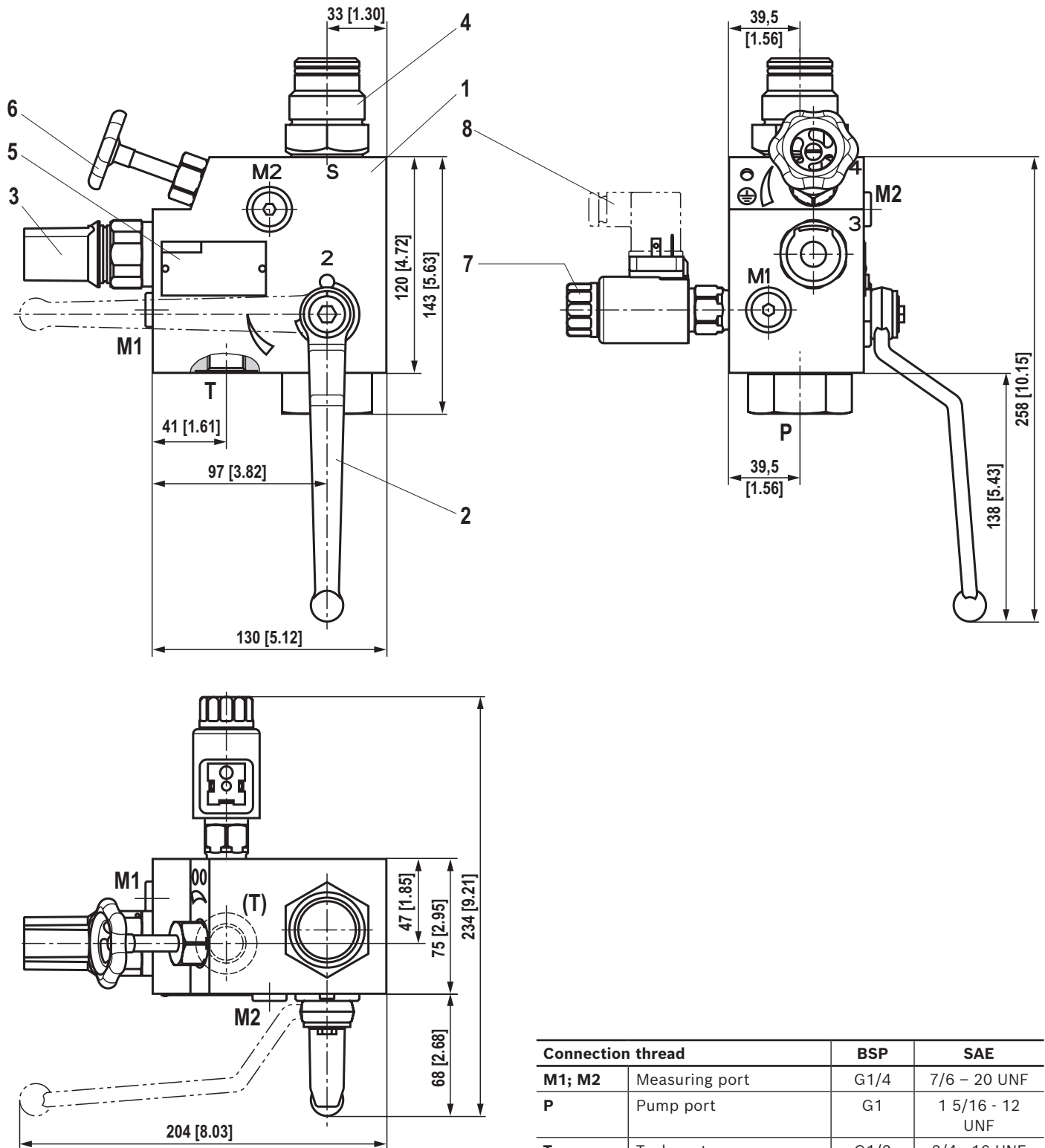


Connection thread	BSP	SAE	
M1; M2	Measuring port	G1/4	7/6 - 20 UNF
P	Pump port	G1/2	3/4 - 16 UNF
T	Tank port	G3/8	9/16 - 18 UNF
S	Accumulator port	M33 x 2	M33 x 2

Item explanations see page 16

Characteristic curves for type-examination tested safety valves type DBDS can be found on page 8

**Dimensions: Version "20..." (DN20)**  
(dimensions in mm [inch])

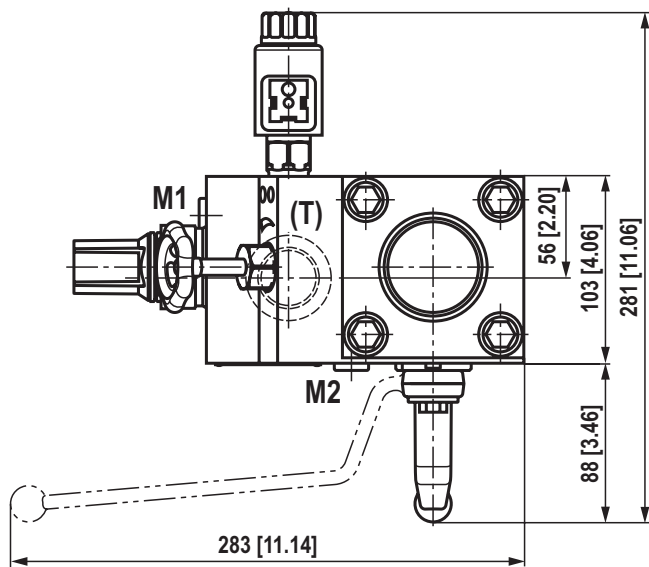
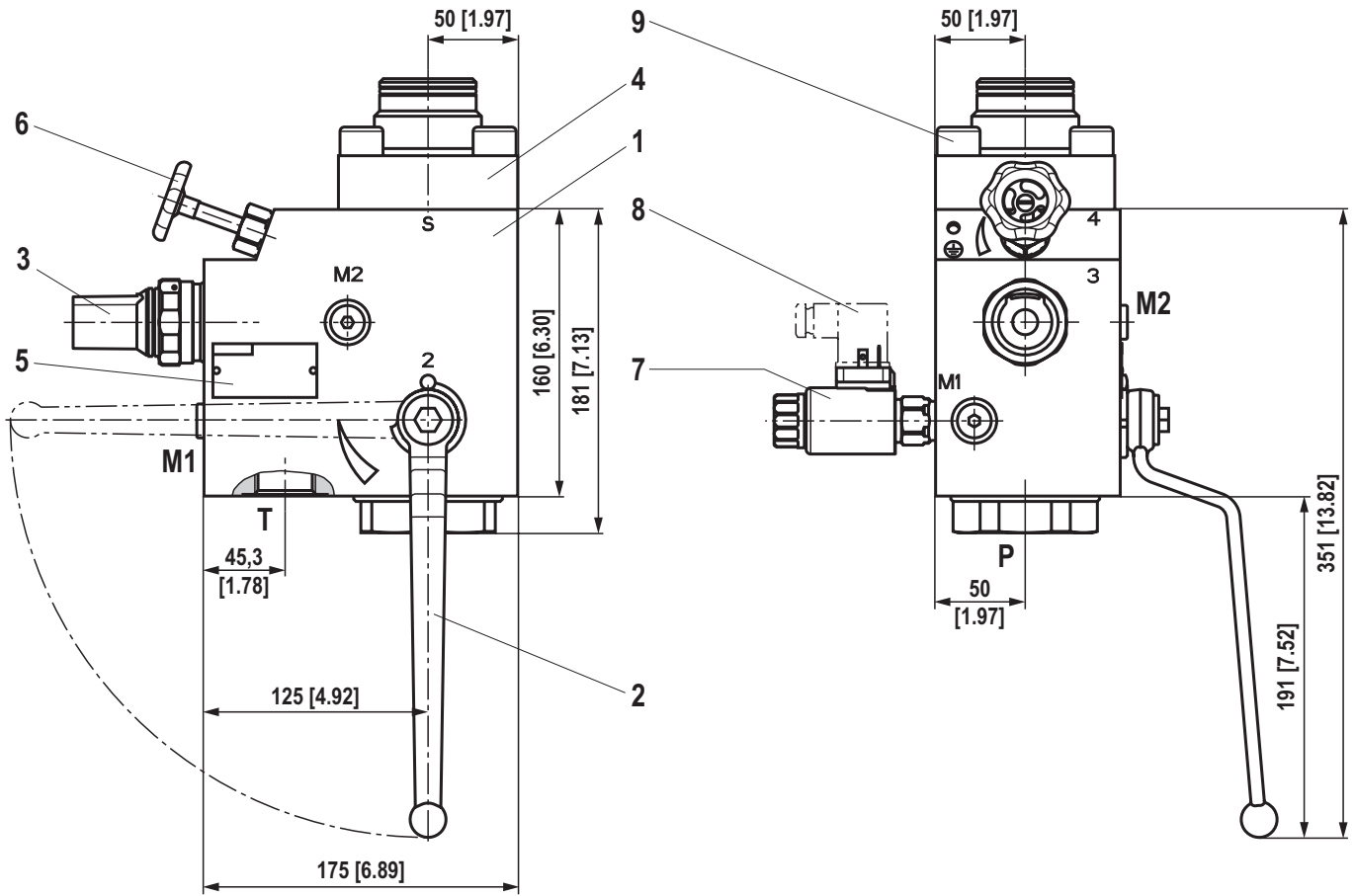


Connection thread	BSP	SAE
M1; M2	Measuring port	G1/4
P	Pump port	7/6 - 20 UNF
T	Tank port	1 5/16 - 12 UNF
S	Accumulator port	3/4 - 16 UNF
		M33 x 2

Item explanations see page 16

Characteristic curves for type-examination tested safety valves type DBDS can be found on page 8

**Dimensions: Version "30..." (DN30)**  
(dimensions in mm [inch])

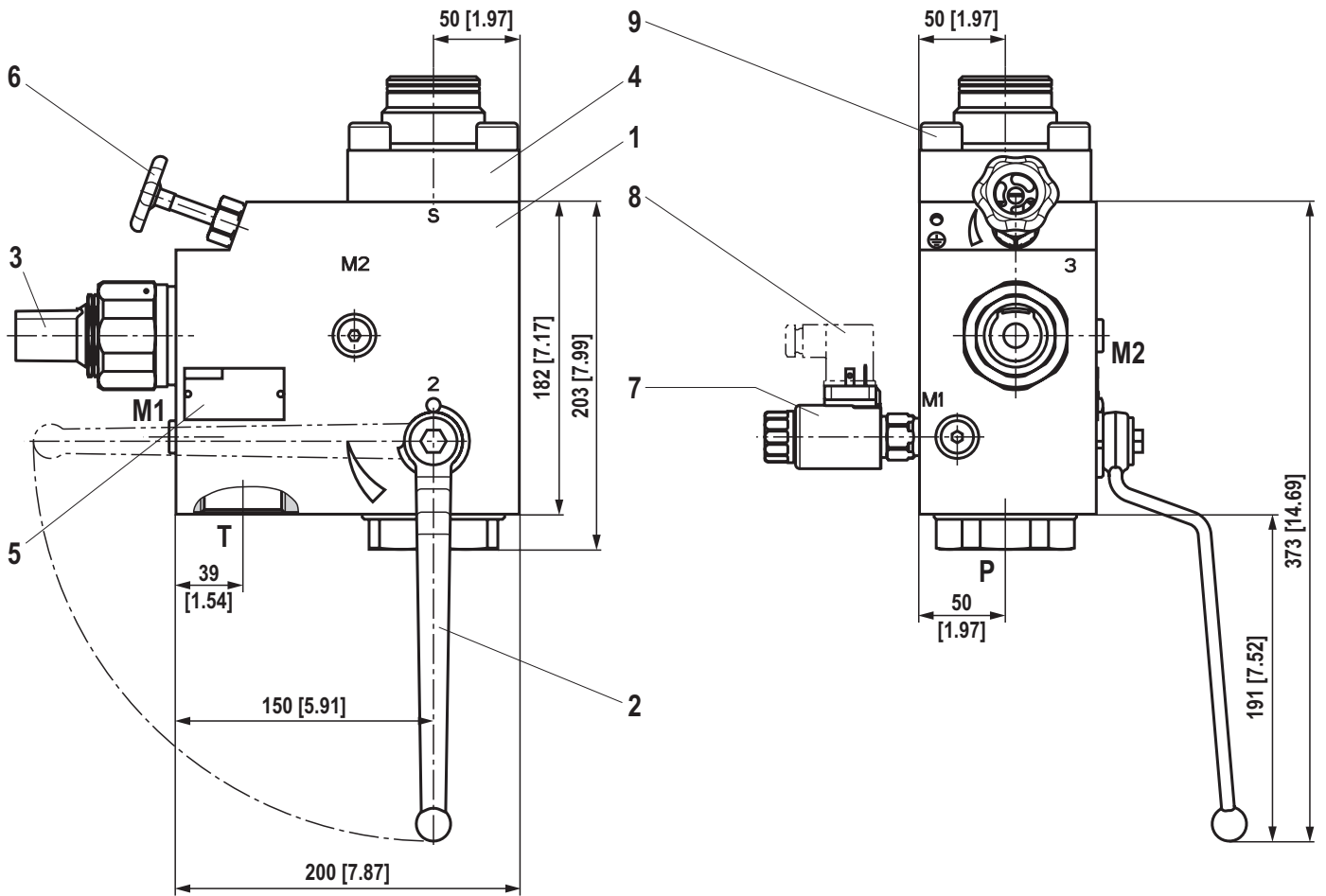


Connection thread		BSP	SAE
M1; M2	Measuring port	G1/4	7/6 - 20 UNF
P	Pump port	G1 1/2	1 7/8 - 12 UNF
T	Tank port	G1	1 5/16 - 12 UNF
S	Accumulator port (flange)	Page 16	Page 19

Item explanations see page 16

Characteristic curves for type-examination tested safety valves type DBDS can be found on page 8

**Dimensions: Version "30...SO30" (DN30)**  
(dimensions in mm [inch])

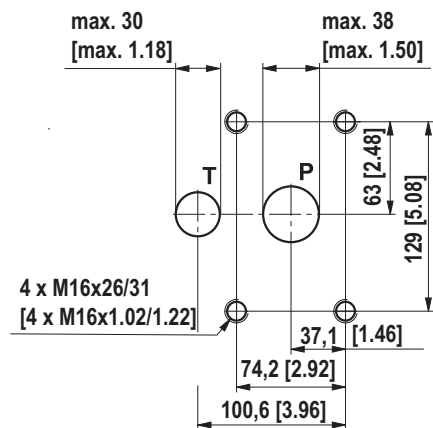
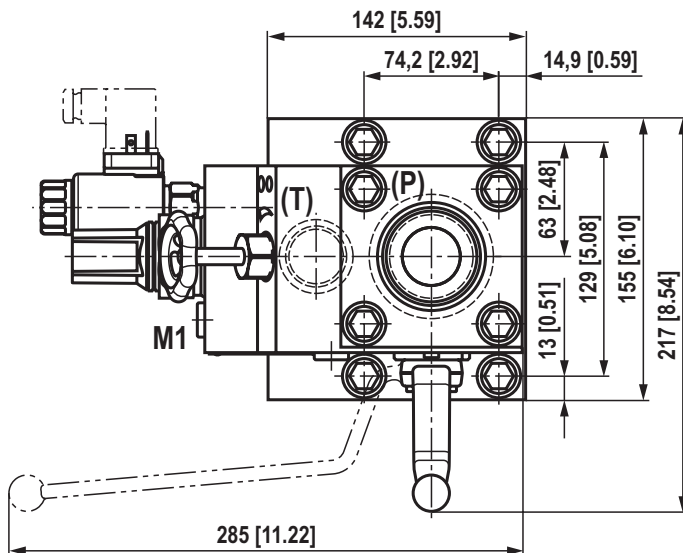
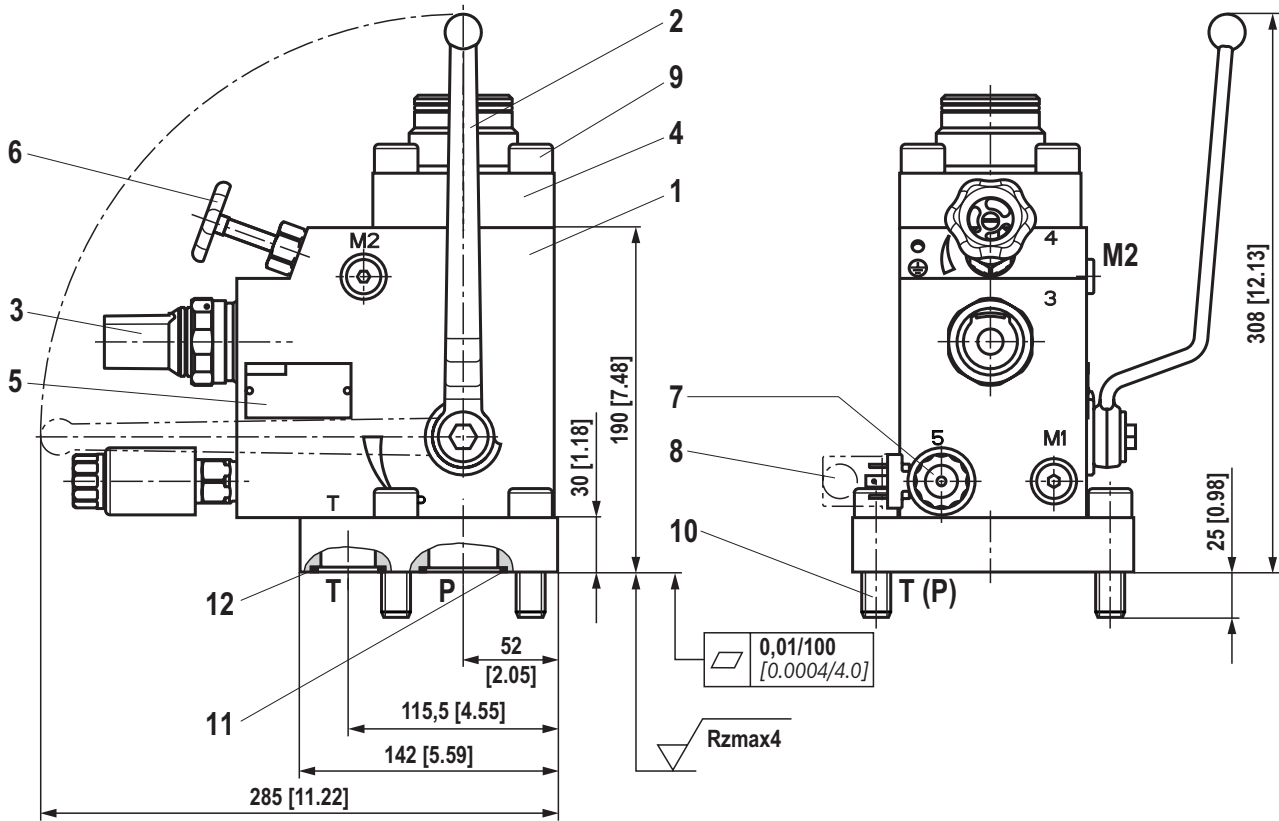


Connection thread		BSP	SAE
M1; M2	Measuring port	G1/4	7/6 - 20 UNF
P	Pump port	G1 1/2	1 7/8 - 12 UNF
T	Tank port	G1 1/2	1 7/8 - 12 UNF
S	Accumulator port (flange)	Page 16	Page 19

Item explanations see page 16

Characteristic curves for type-examination tested safety valves type DBDS can be found on page 8

**Dimensions: Version "P30..."** subplate mounting (DN30)  
(dimension in mm [inch])



Connection thread	BSP	SAE
M1; M2	Measuring port	G1/4
S	Accumulator port (flange)	Page 16
		Page 19

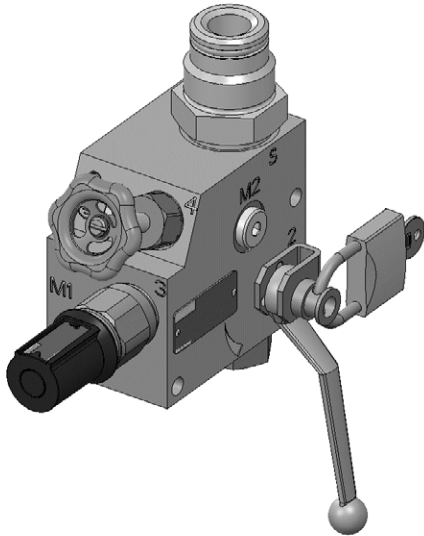
Item explanations see page 16

Characteristic curves for type-examination tested safety valves type DBDS can be found on page 8

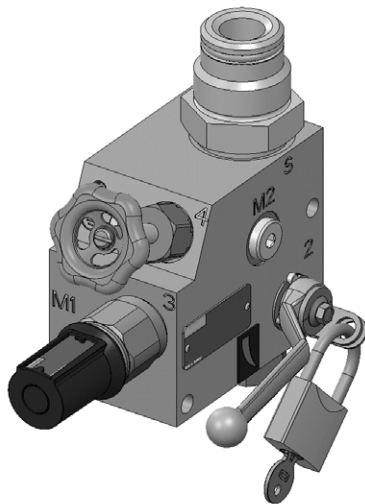


**Dimensions: Special versions "SO103" and "SO104"** (for NG10 to NG30 only)

"SO103" shut-off device with two shut-off positions  
(open or closed)



"SO104" shut-off device with one shut-off position  
(closed)



(padlock not included in the scope of delivery)

## Dimensions

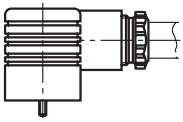
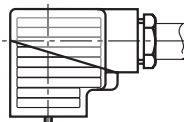
- 1 Block
- 2 System shut-off cock
- 3 Pressure relief valve, tightening torque see page 16
- 4 Accumulator adapter, see Accessories on page 17 ... 20
- 5 Name plate
- 6 Manual unloading
- 7 Electro-magnetic unloading, optional (only with design "E")
- 8 Mating connector, separate order, see page 16
- 9 Hexagon socket head cap screws  
**4 pieces ISO 4762 - M16 x 50 - 10.9**  
 Tightening torque  $M_A = 250^{+10}$  Nm [184.07.4 ft-lbs]
- 10 Hexagon socket head cap screws  
**4 pieces ISO 4762 - M16 x 55 - 10.9**  
 Tightening torque  $M_A = 250^{+10}$  Nm [184.07.4 ft-lbs]
- 11 R-ring 42.5 x 3.00 x 3.00 Shore 90
- 12 R-ring 34.52 x 3.53 x 3.53 Shore 90

## Tightening torque: Pressure relief valve DBD

NG	Tightening torques $M_A$ in Nm [ft-lbs] for screw-in cartridge valves <sup>1)</sup>	
	Pressure rating in bar [psi]	
	up to 200 [2900]	up to 400 [5800]
6	50±5 [37±3.7]	80±5 [59±4]
10	100±5 [74±3.5]	150±10 [110±3.5]
20	150±10 [111±7.5]	300±15 [221±11]
30	350±20 [258±19.5]	500±30 [369±22]

<sup>1)</sup> The tightening torques are guidelines with a friction coefficient  $\mu_{total} = 0.12$  and when using a manual torque wrench.

## Mating connectors according to DIN EN 175301-803

For details and more mating connectors see data sheet 08006					
Valve side	Color	Material number			
		Without circuitry	With indicator light 12 ... 240 V	With rectifier 12 ... 240 V	With indicator light and Zener diode suppression circuit 24 V
a	gray	<b>R901017010</b>	-	-	-
b	black	<b>R901017011</b>	-	-	-
a/b	black	-	<b>R901017022</b>	<b>R901017025</b>	<b>R901017026</b>

**Accessories:** Accumulator adapter BSP thread, maximum operating pressure 350 bar [5075 psi] (dimensions in mm [inch])

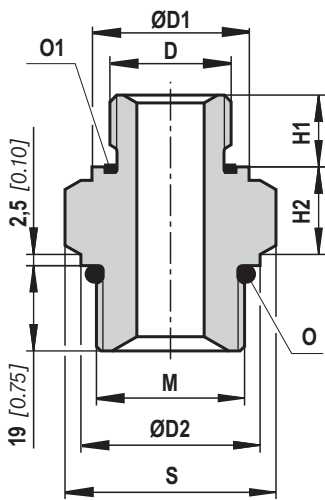


Fig. 1

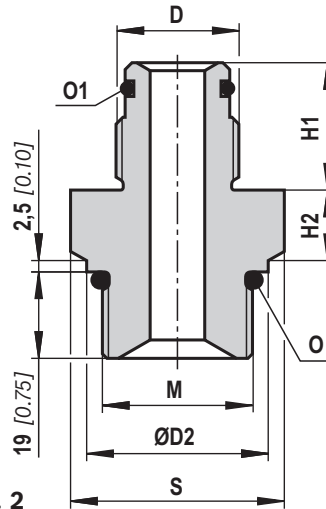


Fig. 2

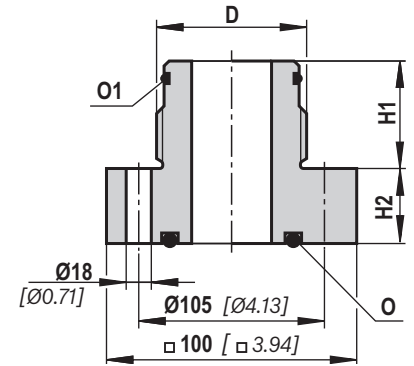


Fig. 3

Nominal Ø version	Accumulator type	Accumulator DN	Accumulator adapter	Fig.	D	ØD1	ØD2	H1	H2	M	O	O1	S										
<b>ABZSS</b> 08 10 20	Diaphragm type accumulator data sheet 50150	0.075	S30 <sup>1)</sup> S104 <sup>2)</sup>	1	G1/2A	26.9 [1.06]		14 [0.55]	19.5 [0.76] <sup>1)</sup> 17.5 [0.68] <sup>2)</sup>			Profile seal ring G1/2A according to DIN 3869	S30 <sup>1)</sup> , S31 <sup>1)</sup> , S108 <sup>2)</sup> , Wrench size 41 [1.61A/F], S104 <sup>2)</sup> Wrench size 36 [1.41A/F]										
		0.16						19.5 [0.76] <sup>1)</sup> 18 [0.70] <sup>2)</sup>															
		0.32																					
		0.5																					
		0.7																					
		1.0																					
	1.4																						
	2.0	S31 <sup>1)</sup> S108 <sup>2)</sup>	G3/4A	32 [1.26]	16 [0.63]																		
	<b>ABZSS</b> 30 P30	Bladder-type accumulator data sheet 50171	1.0	S10 <sup>1)</sup> S105 <sup>2)</sup>	2	G3/4A	-	39.9 [1.57] <sup>1)</sup> 35.0 [1.37] <sup>2)</sup>	28 [1.10]	15.5 [0.61]	33x2 <sup>1)</sup> ; 20x1.5 <sup>2)</sup>	29.7x2.8 <sup>1)</sup> ; 24x2.0 <sup>2)</sup>	18x2.5 [0.71x0.10]	wrench size 41 [1.61A/F] <sup>1)</sup> Wrench size 36 [1.41A/F] <sup>2)</sup>									
			2.5	S12 <sup>1)</sup> S107 <sup>2)</sup>					37 [1.46]	16.5 [0.65] <sup>1)</sup> 17.5 [0.68] <sup>2)</sup>					30x3 [1.18x0.12]	wrench size 46 [1.81A/F]							
4.0																							
6.0																							
10.0			S13 <sup>1)</sup> S109 <sup>2)</sup>	43 [1.69]					20.5 [0.81] <sup>1)</sup> 18.5 [0.73] <sup>2)</sup>	48x3 [1.89x0.12]							Wrench size 65 [2.55A/F]						
20.0																							
35.0																							
50.0																							
2.5			S307	G1 1/4A					-									-	37 [1.46]	30 [1.18]	56.52 x 5.33	48x3 [1.18x0.12]	-
4.0																							
6.0																							
10.0	S309	G2A	-	-	43 [1.69]																		
20.0																							
35.0																							
50.0																							

► <sup>1)</sup> applies to ABZSS10 and ABZSS20 only

<sup>2)</sup> applies to ABZSS08 only

**Accessories:** ordering code accumulator adapter BSP thread

Version	ACCUMULATOR ADAPTER	Material no. FKM	ACCUMULATOR ADAPTER	Material no. NBR <sup>2)</sup>
S10	S10V/G3/4-M33X2 *BG	<b>R900545254</b>	S10M/G3/4-M33X2 *BG	<b>R900862699</b>
S12	S12V/G1 1/4-M33X2 *BG	<b>R900545255</b>	S12M/G1 1/4-M33X2 *BG	<b>R900862700</b>
S13	S13V/G2-M33X2 *BG	<b>R900545256</b>	S13M/G2-M33X2 *BG	<b>R900862701</b>
S30	S30V/G1/2-M33X2 *BG	<b>R900545252</b>	S30M/G1/2-M33X2 *BG	<b>R900862695</b>
S31	S31V/G3/4-M33X2 *BG	<b>R900545253</b>	S31M/G3/4-M33X2 *BG	<b>R900862697</b>
S104	S104V/G1/2-M20X1.5* &	<b>R901265402</b>	S104M/G1/2-M20X1.5* &	<b>R901265401</b>
S105	S105V/G3/4-M20X1.5* &	<b>R901265411</b>	S105M/G3/4-M20X1.5* &	<b>R901265407</b>
S107	S107V/G11/4-M20X1.5*&	<b>R901265412</b>	S107M/G11/4-M20X1.5*&	<b>R901265422</b>
S108	S108V/G3/4-M20X1.5* &	<b>R901265434</b>	S108M/G3/4-M20X1.5* &	<b>R901265425</b>
S109	S109V/G2-M20X1,5* &	<b>R901265408</b>	S109M/G2-M20X1,5* &	<b>R901265404</b>
S307 <sup>1)</sup>	S307V/G 11/4-DN32 *BG	<b>R900085303</b>	S307M/G 11/4-DN32 *BG	<b>R900067050</b>
S309 <sup>1)</sup>	S309V/G2-DN32 *BG	<b>R900545858</b>	S309M/G2-DN32 *BG	<b>R900862702</b>

<sup>1)</sup> Scope of delivery includes 4 hexagon socket head cap screws ISO 4762-M16 x 50 - 10.9

<sup>2)</sup> Special version

**Accessories:** Accumulator adapter SAE thread, maximum operating pressure 350 bar [5075 psi] (dimensions in mm [inch])

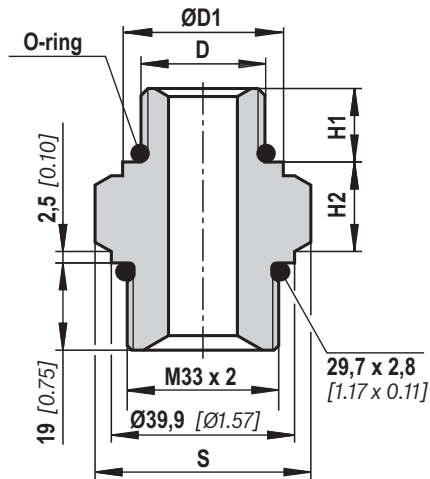


Fig. 1

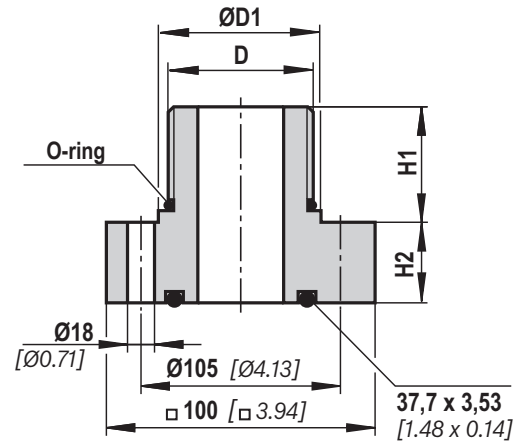


Fig. 2

Nominal Ø version	Accumulator type	Accumulator DN	Accumulator adapter	Fig.	S	H1	H2	D	ØD1	O-ring							
<b>ABZSS</b> 10 20	Diaphragm type accumulator data sheet 50150	0.075	S64	1	Wrench size 41 [1.61A/F]	11.4 [0.45]	18.1 [0.71]	3/4-16UNF-2A	23 [0.91]	16.36 x 2.21 [0.64 x 0.87]							
		0.16															
		0.32															
		0.5															
		0.7															
		1.0															
	1.4	S60	1	Wrench size 41 [1.61A/F]	15.2 [0.60]	18.3 [0.72]	1 1/16-12UN-2A	32 [1.26]	23.0 x 3.0 [0.91 x 0.12]								
	2.0																
	2.8																
	3.5																
Bladder-type accumulator data sheet 50171	1.0	S60	1	Wrench size 41 [1.61A/F]	15.2 [0.60]	18.3 [0.72]	1 1/16-12UN-2A	32 [1.26]	23.0 x 3.0 [0.91 x 0.12]								
										2.5 4.0 6.0	S62	Wrench size 65 [2.55A/F]	15.2 [0.60]	20.3 [0.80]	1 5/8-12UN-2A	48 [1.89]	38.0 x 3.0 [1.50 x 0.12]
	1.0 4.0 6.0	S620	2	-	15.2 [0.60]	32 [1.33]	1 5/8-12UN-2A	48 [1.89]	38.0 x 3.0 [1.50 x 0.12]								
										10.0 20.0 35.0 50.0	S630	Wrench size 65 [2.55A/F]	15.2 [0.60]	32 [1.33]	1 7/8-12UN-2A	54 [2.13]	44.0 x 3.0 [1.73 x 0.12]


**Accessories:** ordering code accumulator adapter SAE thread


Version	ACCUMULATOR ADAPTER	Material no. FKM	ACCUMULATOR ADAPTER	Material no. NBR <sup>2)</sup>
S60	S60V/ 1 1/16-12UN-M33x2	<b>R900618788</b>	S60M/ 1 1/16-12UN-M33x2	<b>R900618799</b>
S62	S62V/ 1 5/8-12UN-M33x2	<b>R900618800</b>	S62M/ 1 5/8-12UN-M33x2	<b>R900618801</b>
S63	S63V/ 1 7/8-12UN-M33x2	<b>R900618803</b>	S63M/ 1 7/8-12UN-M33x2	<b>R900618804</b>
S64	S64V/ 3/4-16UNF-M33x2	<b>R900618805</b>	S64M/ 3/4-16UNF-M33x2	<b>R900618806</b>
S620 <sup>1)</sup>	S620V/ 1 5/8-12UN-DN32	<b>R900618813</b>	S620M/ 1 5/8-12UN-DN32	<b>R900618814</b>
S630 <sup>1)</sup>	S630V/ 1 7/8-12UN-DN32	<b>R900618817</b>	S630M/ 1 7/8-12UN-DN32	<b>R900618815</b>

<sup>1)</sup> Scope of delivery includes 4 hexagon socket head cap screws ISO 4762-M16 x 50 - 10.9

<sup>2)</sup> Special version

**Safety instructions:** Type-examination tested safety valves type DBDS <sup>1)</sup>

- ▶ Before ordering a type-examination tested safety valve, ensure that for the desired **response pressure  $p$** , the maximum admissible **flow  $q_{Vmax}$**  of the safety valve is larger than the maximum possible flow of the system/accumulator to be secured.  
According to the Pressure Equipment Directive **2014/68/EU**, the increase in the system pressure due to the flow must not exceed 10% of the set response pressure (see component marking).
  - ▶ The maximum admissible flow  $q_{Vmax}$  stated in the component marking must not be exceeded.
  - ▶ Discharge lines of safety valves must end in a risk-free manner. An accumulation of fluids in the discharge system must **not** be possible (see data sheet AD2000 A2).
-  **It is imperative to observe the application notes!**
- ▶ In the plant, the response pressure specified in the component marking is set at a flow of 2 l/min [0.53 US gpm].
  - ▶ The maximum flow stated in the component marking applies for applications without counter pressure in the discharge line (port T).
  - ▶ By removing the lead seal at the safety valve, the approval according to the Pressure Equipment Directive becomes void!
  - ▶ Basically, the requirements of the Pressure Equipment Directive and of data sheet AD 2000 A2 have to be observed!
  - ▶ It is recommended to secure type-examination tested safety valves against inadmissible disassembly by wiring and sealing them with the housing/block (bore available in the adjustment type).

 **Notice:**

The system pressure increases by the counter pressure in the discharge line (port T) due to the increasing flow. (Observe the data sheet AD 2000 A 2, point 6.3!)

To ensure that this increase in system pressure caused by the flow does not exceed 10% of the set response pressure, the admissible flow has to be reduced dependent on the counter pressure in the discharge line (port T) (see diagrams on page 22 ... 25).

<sup>1)</sup> Component series 1X according to the Pressure Equipment Directive 2014/68/EU

### **Characteristic curves:** Counter pressure in the discharge line

In principle, the valve should be operated without counter pressure in the discharge line, if possible. In case of counter pressure in the discharge line, the maximum possible flow is reduced. There is a relationship between maximum counter pressure  $p_T$  in the discharge line and flow  $q_V$ , which can be seen from the following characteristic curve. Characteristic curves for intermediate values of the response pressure which are not listed must be determined by means of interpolation.

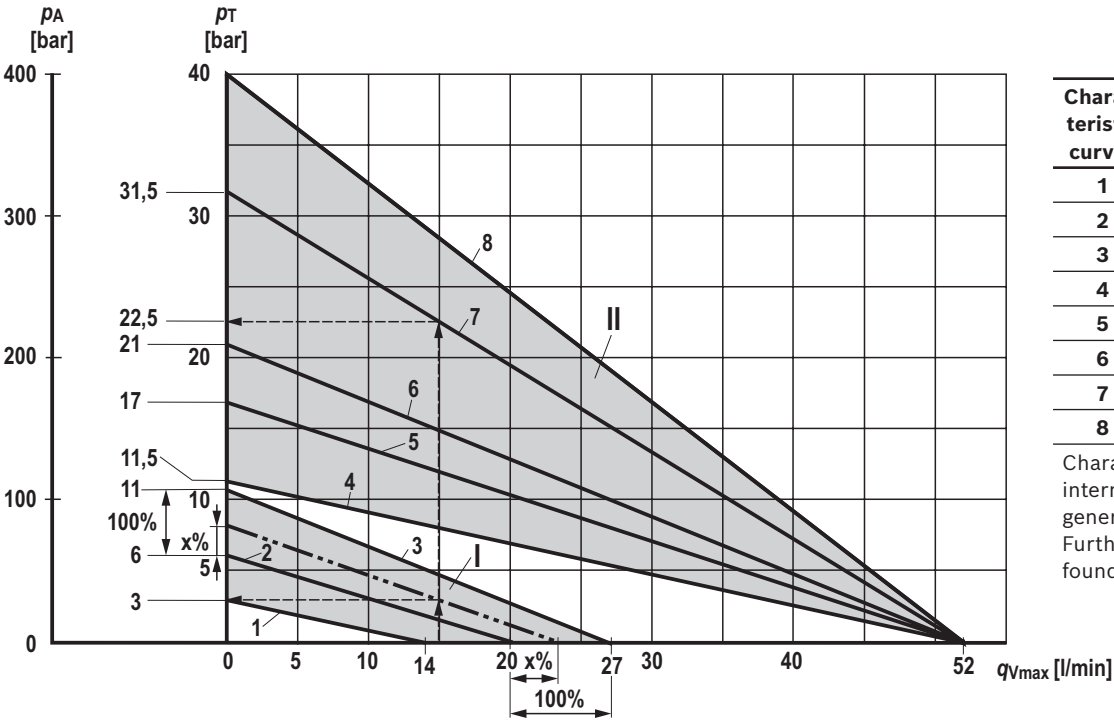
When the flow approaches zero, the maximum counter pressure  $p_T$  is in each case 10% of the response pressure. With increasing flow, the maximum counter pressure  $p_T$  decreases.

#### **Interpolation of intermediate values from the diagram**

1. At the axis  $p_T$ , mark 1/10 of the value of  $p_A$ .
2. Determine the next lower and the next higher characteristic curve for this point. The point marked at  $p_T$  divides the section between lower and higher characteristic curve on the  $p_T$  axis with a certain percentage.
3. At the  $q_{Vmax}$  axis, divide the section between next lower and next higher characteristic curve in the same percentage as the section at the  $p_T$  axis. From the zero position flow on the  $q_{Vmax}$  axis determined in that way, draw a straight line to the value on the  $p_T$  axis marked before.
4. Mark the system flow to be secured at the  $q_{Vmax}$  axis.
5. Read off the maximum counter pressure for this value using the line at the  $p_T$  axis drawn before.

### Characteristic curves: Counter pressure in the discharge line – size 6

Diagram for determining the maximum counter pressure  $p_T$  in the discharge line at port T of the valve dependent on the flow  $q_{Vmax}$  for valves DBDS 6...1X/...E with different response pressures  $p_A$ .



Characteristic curves	Response pressure $p_A$ in bar [psi]
1	30 [435]
2	60 [870]
3	110 [1595]
4	115 [1668]
5	170 [2465]
6	210 [3046]
7	315 [4568]
8	400 [5800]

Characteristic curves for intermediate values can be generated by interpolation. Further explanations can be found on page 21.

- $p_A$  Response pressure in bar
- $p_T$  Maximum counter pressure in the discharge line (port T) in bar
- $q_{Vmax}$  Maximum flow in l/min
- I Interpolation area I, for valves with  $p_A = 30 \dots 110$  bar and  $q_{Vmax} = 14 \dots 27$  l/min
- II Interpolation area II, for valves with  $p_A = 115 \dots 400$  bar and  $q_{Vmax} = 52$  l/min

#### Determination of the maximum counter pressure

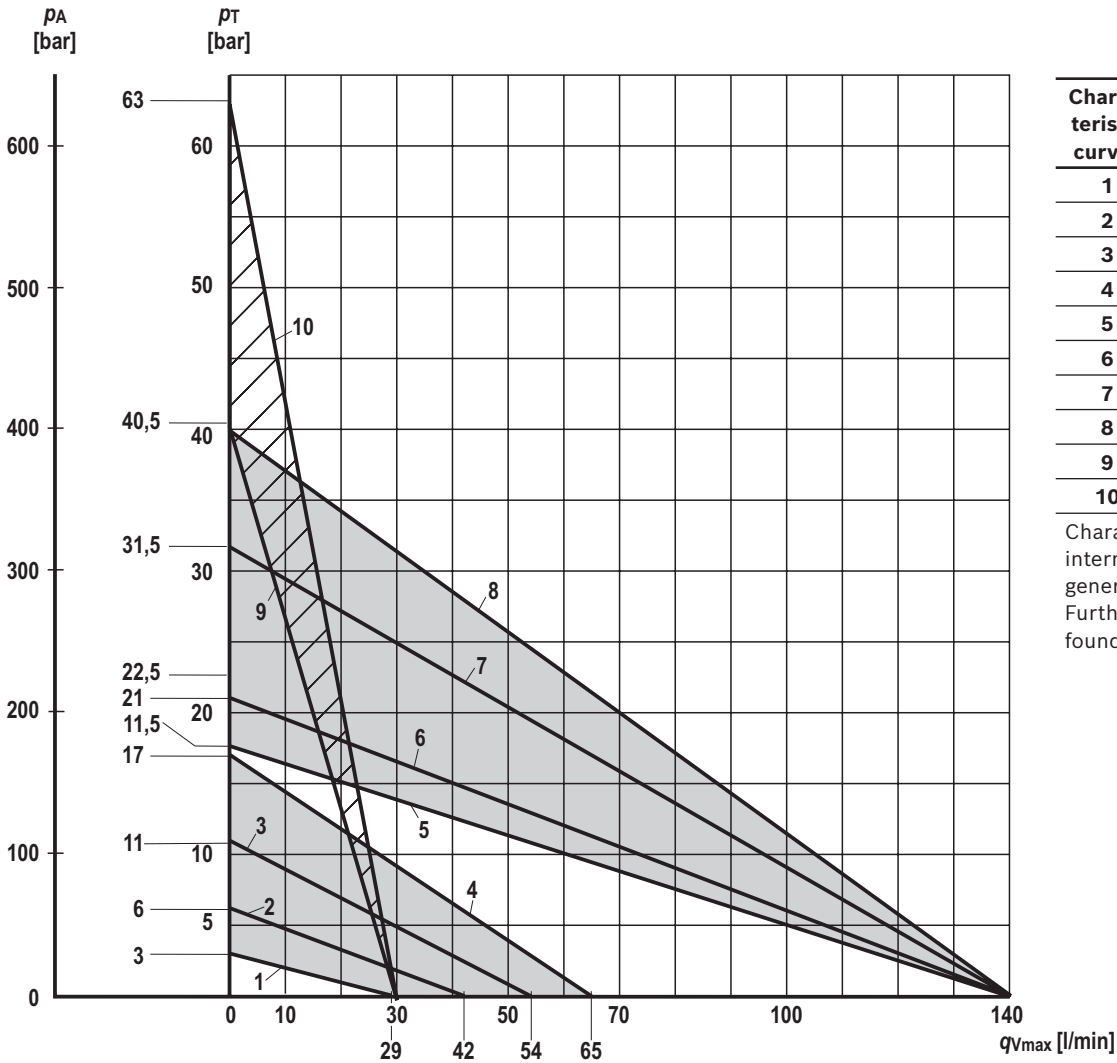
**Example 1** (with already existing characteristic curve):  
 Flow of the system / accumulator to be secured:  $q_{Vmax} = 15$  l/min  
 Safety valve set to:  $p_A = 315$  bar.  
 Read off the maximum counter pressure  $p_T$  of approx. 22.5 bar from the diagram (see arrows, characteristic curve 7).

**Example 2** (with interpolated characteristic curve):  
 Flow of the system / accumulator to be secured:  $q_{Vmax} = 15$  l/min  
 Safety valve set to:  $p_A = 80$  bar.  
 Value to be marked at the axis referred to as  $p_T$ :  
 $1/10 \times 80$  bar = 8 bar.  
 Read off the maximum counter pressure  $p_T$  of approx. 3 bar from the diagram (see arrows, dashed characteristic curve).





## Characteristic curves: Counter pressure in the discharge line – size 10

Diagram for determining the maximum counter pressure  $p_T$  in the discharge line at port T of the valve dependent on the flow  $q_{Vmax}$  for valves DBDS 10...1X/...E with different response pressures  $p_A$ .

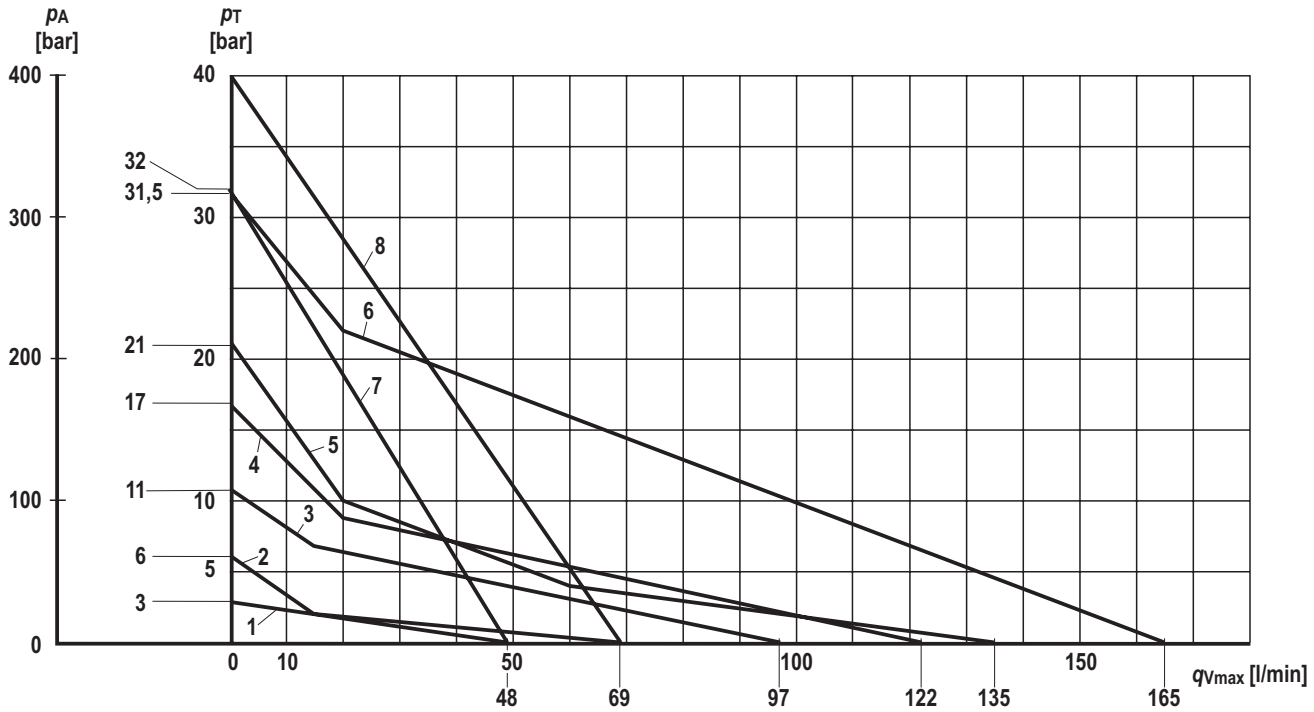


Characteristic curves for intermediate values can be generated by interpolation. Further explanations can be found on page 21.

- $p_A$  Response pressure in bar
- $p_T$  Maximum counter pressure in the discharge line (port T) in bar
- $q_{Vmax}$  Maximum flow in l/min
-  Interpolation areas
- 

### Characteristic curves: Counter pressure in the discharge line – size 20

Diagram for determining the maximum admissible counter pressure  $p_T$  in the discharge line at port T of the valve dependent on the flow  $q_{Vmax}$  for valves DBDS 20...1X/...E with different response pressures  $p_A$ .



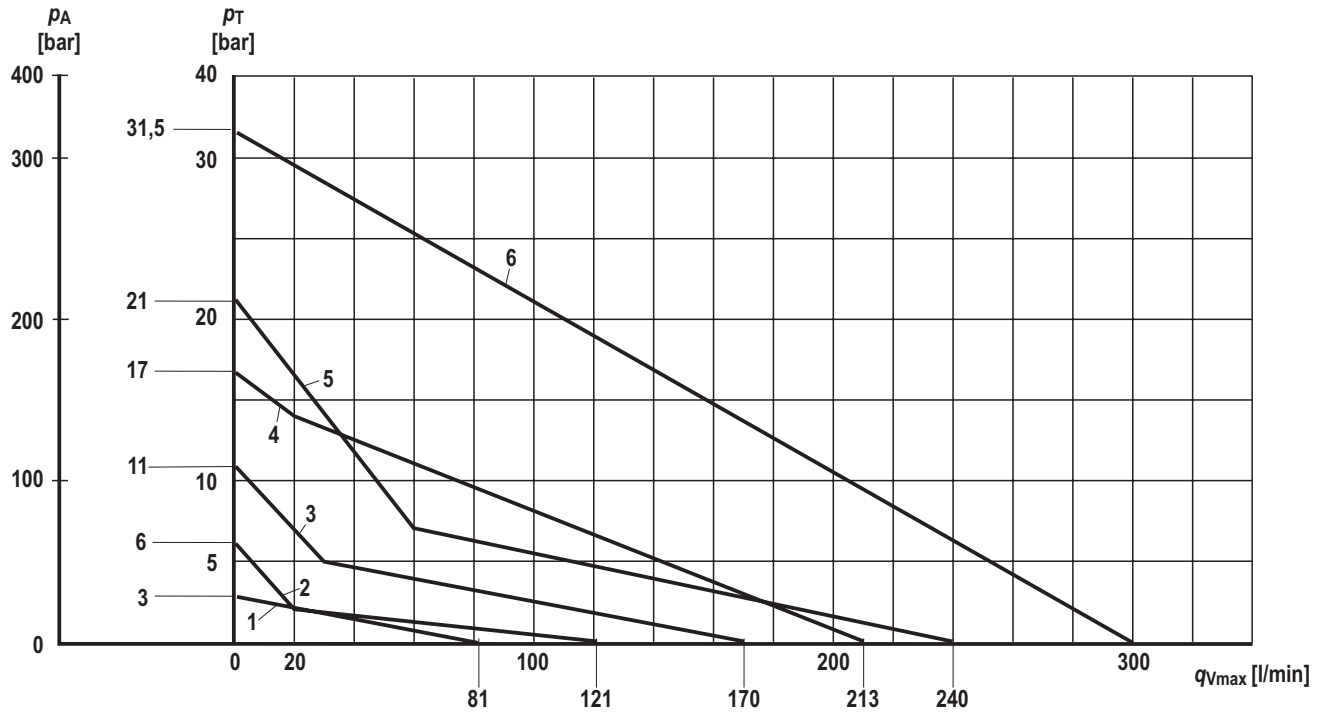
- $p_A$  Response pressure in bar
- $p_T$  Maximum counter pressure in the discharge line (port T) in bar
- $q_{Vmax}$  Maximum flow in l/min

Characteristic curves	Response pressure $p_A$ in bar [psi]
1	30 [435]
2	60 [870]
3	110 [1595]
4	170 [2465]
5	210 [3046]
6	315 [4568]
7	320 [4641]
8	400 [5800]

Characteristic curves for intermediate values can be generated by interpolation. Further explanations can be found on page 21.

## Characteristic curves: Counter pressure in the discharge line – size 30

Diagram for determining the maximum counter pressure  $p_T$  in the discharge line at port T of the valve dependent on the flow  $q_{Vmax}$  for valves DBDS 30...1X/...E with different response pressures  $p_A$ .



$p_A$  Response pressure in bar  
 $p_T$  Maximum counter pressure in the discharge line (port T) in bar  
 $q_{Vmax}$  Maximum flow in l/min

Characteristic curves	Response pressure $p_A$ in bar [psi]
1	30 [435]
2	60 [870]
3	110 [1595]
4	170 [2465]
5	210 [3046]
6	315 [4568]

Characteristic curves for intermediate values can be generated by interpolation. Further explanations can be found on page 21.

## Further information

- ▶ Accumulator shut-off block
  - ▶ 2/2 directional seat valve, direct operated with solenoid actuation
  - ▶ Pressure relief valve, direct operated
  - ▶ Hydraulic fluids on mineral oil basis
  - ▶ Environmentally compatible hydraulic fluids
  - ▶ Hexagon socket head cap screw, metric/UNC
  - ▶ Hydraulic valves for industrial applications
  - ▶ General product information on hydraulic products
  - ▶ Selection of the filters
  - ▶ Information on available spare parts
- Operating instructions 50129-B  
Data sheet 18136-20  
Data sheet 25402  
Data sheet 90220  
Data sheet 90221  
Data sheet 08936  
Operating instructions 07600-B  
Data sheet 07008

RD 50128

Ausgabe: 2021-06

Ersetzt: 2017-06

## Accumulator safety block

### Type 0532VAW



H7559

- ▶ Nominal diameter DN20, DN32
- ▶ Component series A1
- ▶ Maximum operating pressure 330 bar [4800 psi]

#### Features

- ▶ Ready for connection
- ▶ Manual or electro-magnetic unloading
- ▶ Large number of variants
- ▶ Compact design
- ▶ Direct operated pressure relief valve according to data sheet 50153

#### Contents

Features	1
Ordering code	2, 3
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Technical data	7, 8
Characteristic curves	8
Dimensions	10 ... 21
Accessories	21, 22
Safety instructions	23
Further information	23

**Ordering code**

01	02	03	04	05	06	07	08	09	10
<b>0532VAW</b>	/	/	/	/	/	/	/	/	/

01	Accumulator shut-off block	<b>0532VAW</b>
----	----------------------------	----------------

**Nominal diameter**

02	DN20	<b>20</b>
	DN32	<b>32</b>

**Symbol** (see preferred types on pages 4 and 5)

03	Symbol 1	<b>1</b>
	Symbol 2	<b>2</b>
	Symbol 3	<b>3</b>
	Symbol 4	<b>4</b>
	Symbol 5	<b>5</b> <sup>1)</sup>
	Symbol 6	<b>6</b> <sup>1)</sup>
	Symbol 7	<b>7</b> <sup>1)</sup>
	Symbol 8	<b>8</b>
	Symbol 9	<b>9</b> <sup>1)</sup>
	Symbol 10	<b>10</b>

**Seal material**

04	FKM seal	<b>FKM</b>
	Observe compatibility of seals with hydraulic fluid used! (Other seals upon request)	

**Pressure adjustment**

05	40 bar [585 psi]	<b>40</b>
	50 bar [730 psi]	<b>50</b>
	70 bar [1015 psi]	<b>70</b>
	100 bar [1450 psi]	<b>100</b>
	140 bar [2030 psi]	<b>140</b>
	160 bar [2320 psi]	<b>160</b>
	211 bar [3060 psi]	<b>211</b>
	250 bar [3625 psi]	<b>250</b>
	280 bar [4060 psi]	<b>280</b>
	330 bar [4800 psi]	<b>330</b>
	Without pressure relief valve	– <sup>2)</sup>

**Adjustment type at the pressure relief valve**

06	With hand wheel	<b>D</b>
	Spindle with protective cap	<b>K</b>
	Without pressure relief valve	– <sup>2)</sup>

Order example:

**0532VAW20/1/FKM/-/-/Z/00/-/-/A1****Notice:** Preferred types and standard units are contained in the EPS (standard price list).

## Ordering code

01	02	03	04	05	06	07	08	09	10
<b>0532VAW</b>	/	/	/	/	/	/	/	/	/

### Connection thread P

07	Inch	<b>Z</b>
	Flange	<b>F</b> <sup>1)</sup>

### Unloading

08	<b>Without</b> directional valve	<b>00</b> <sup>3)</sup>
	2/2 directional valve, <b>manual</b> operation	<b>01</b> <sup>4)</sup>
	2/2 directional valve, <b>electrical</b> operation, normally open	<b>03</b> <sup>5)</sup>

### Voltage type

09	Direct voltage 24 V / Frequency	<b>G24/00</b> <sup>5)</sup>
	<b>Without</b> directional valve	<b>-/-</b> <sup>6)</sup>

### Component series

10	Component series A with standard version 1	<b>A1</b>
	Component series A with special version S	<b>AS</b>

<sup>1)</sup> Not possible with version "20"

<sup>2)</sup> Only for symbols 1, 2, 5, 8 and 9

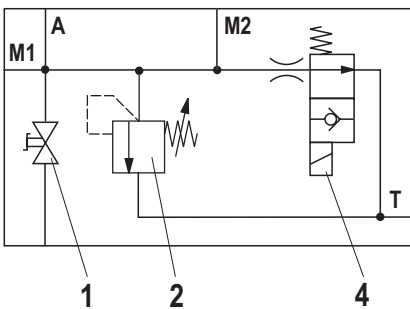
<sup>3)</sup> Only for symbols 1, 3 and 6

<sup>4)</sup> Only for symbols 8, 9 and 10

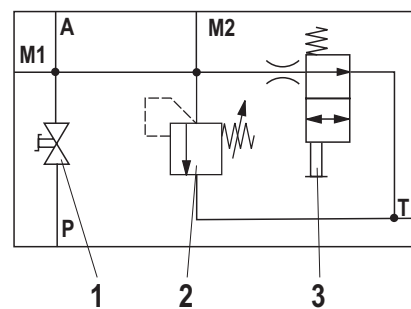
<sup>5)</sup> Only for symbols 2, 4, 5 and 7

<sup>6)</sup> Only for symbols 1, 3, 6, 8, 9 and 10

## Symbols



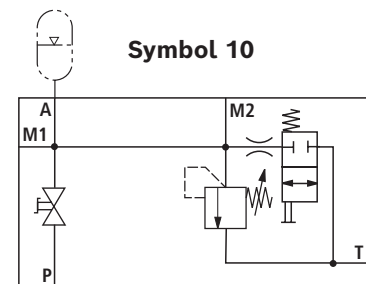
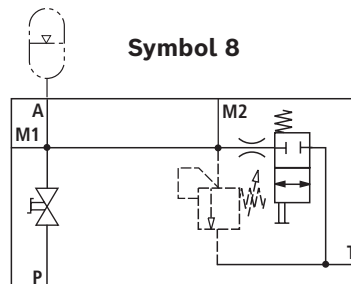
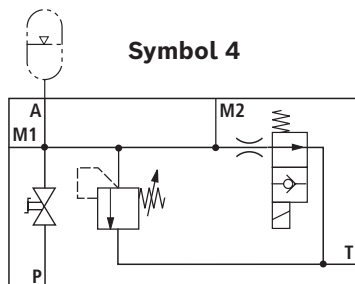
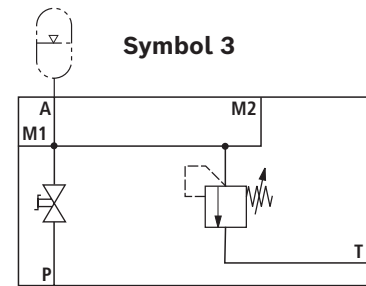
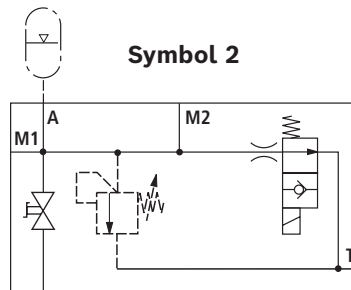
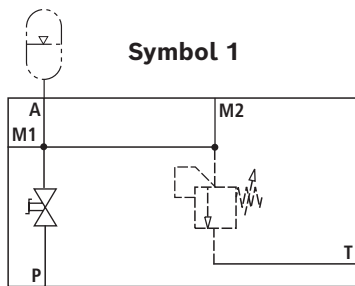
- 1** System shut-off cock
- 2** Pressure relief valve
- 3** Manual unloading
- 4** Electro-magnetic unloading



### Connection designation:

- M1, M2** Measuring port
- P** Pump port
- A** Accumulator port
- T** Tank port

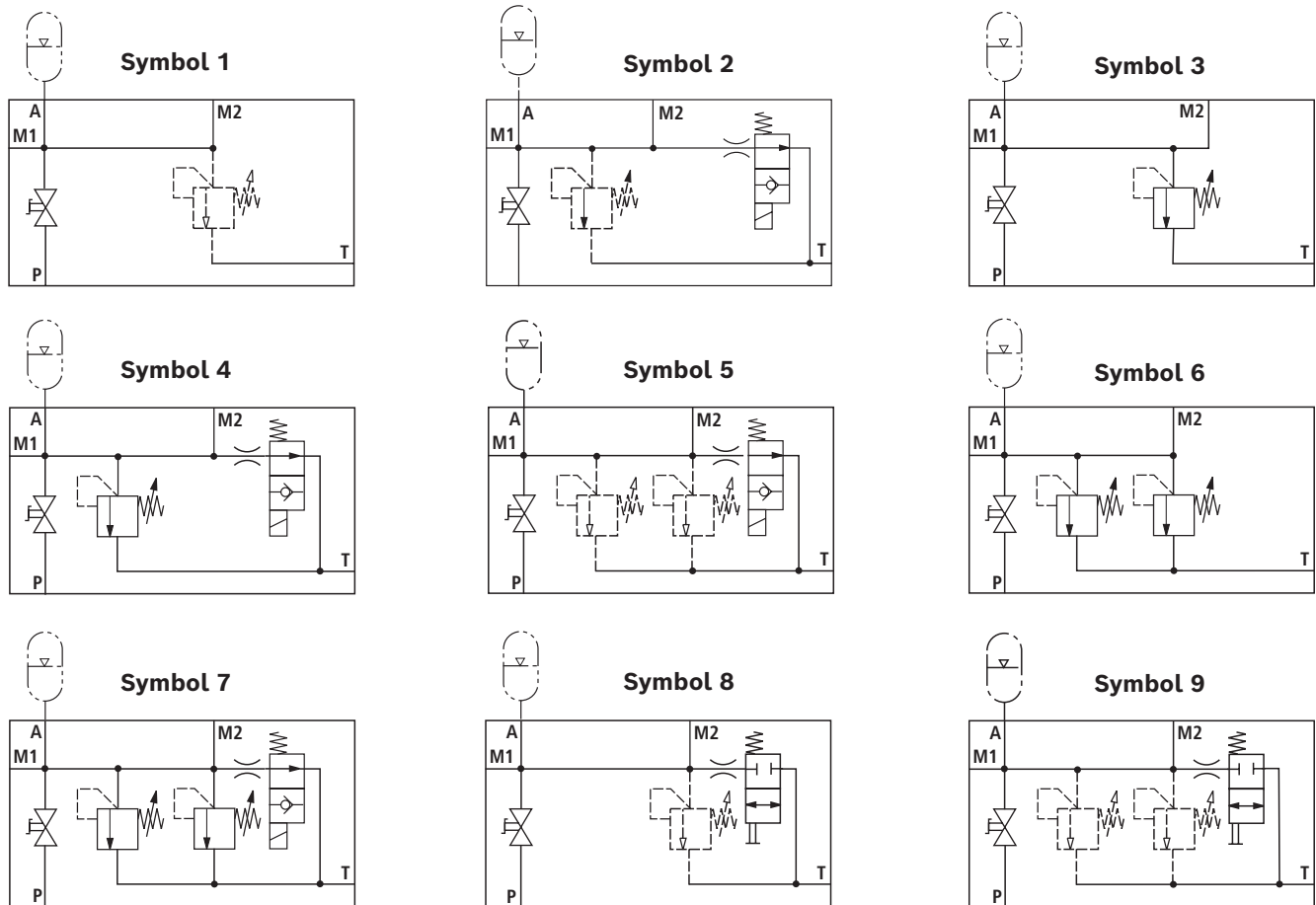
## Preferred types DN20



Symbol	Pressure set at the pressure relief valve in bar [psi]	Maximum securable flow l/min [gpm]	Denomination	Material no.
1	–	–	0532VAW20/1/FKM/-/-/Z/00/-/-/A1	0532015120
2	–	–	0532VAW20/2/FKM/-/-/Z/03/G/24/00/A1	0532015121
3	50 [730]	40 [10.56]	0532VAW20/3/FKM/050/D/Z/00/-/-/A1	R901192665
3	70 [1015]	50 [13.20]	0532VAW20/3/FKM/070/D/Z/00/-/-/A1	0532015123
3	100 [1450]	100 [26.40]	0532VAW20/3/FKM/100/D/Z/00/-/-/A1	0532015125
3	140 [2030]	100 [26.40]	0532VAW20/3/FKM/140/D/Z/00/-/-/A1	0532015127
3	160 [2320]	100 [26.40]	0532VAW20/3/FKM/160/D/Z/00/-/-/A1	0532015129
3	211 [3060]	100 [26.40]	0532VAW20/3/FKM/211/D/Z/00/-/-/A1	0532015131
3	250 [3625]	130 [34.32]	0532VAW20/3/FKM/250/D/Z/00/-/-/A1	0532015133
3	280 [4060]	130 [34.32]	0532VAW20/3/FKM/280/D/Z/00/-/-/A1	0532015137
3	330 [4800]	150 [39.60]	0532VAW20/3/FKM/330/D/Z/00/-/-/A1	0532015135
4	70 [1015]	50 [13.20]	0532VAW20/4/FKM/070/D/Z/03/G/24/00/A1	0532015122
4	100 [1450]	100 [26.40]	0532VAW20/4/FKM/100/D/Z/03/G/24/00/A1	0532015124
4	160 [2320]	100 [26.40]	0532VAW20/4/FKM/160/D/Z/03/G/24/00/A1	0532015126
4	211 [3060]	100 [26.40]	0532VAW20/4/FKM/211/D/Z/03/G/24/00/A1	0532015128
4	250 [3625]	130 [34.32]	0532VAW20/4/FKM/250/D/Z/03/G/24/00/A1	0532015130
4	280 [4060]	130 [34.32]	0532VAW20/4/FKM/280/D/Z/03/G/24/00/A1	0532015134
4	330 [4800]	150 [39.60]	0532VAW20/4/FKM/330/D/Z/03/G/24/00/A1	0532015132
8	–	–	0532VAW20/8/FKM/-/-/Z/01/-/-/A1	0532015139
10	211 [3060]	100 [26.40]	0532VAW20/10/FKM/211/K/Z/01/-/-/A1	R901131132
10	330 [4800]	150 [39.60]	0532VAW20/10/FKM/330/K/Z/01/-/-/A1	R901174602



## Preferred types DN32



Symbol	Pressure set at the pressure relief valve in bar [psi]	Maximum securable flow l/min [gpm]	Denomination	Material no.
1	–	–	0532VAW32/1/FKM/-/Z/00/-/A1	0532016051
2	–	–	0532VAW32/2/FKM/-/Z/03/G/24/00/A1	0532016050
3	211 [3060]	100 [26.40]	0532VAW32/3/FKM/211/D/Z/00/-/A1	0532016053
3	330 [4800]	150 [39.60]	0532VAW32/3/FKM/330/D/Z/00/-/A1	0532016055
4	160 [2320]	100 [26.40]	0532VAW32/4/FKM/160/D/Z/03/G/24/00/A1	0532016054
4	211 [3060]	100 [26.40]	0532VAW32/4/FKM/211/D/Z/03/G/24/00/A1	0532016056
4	330 [4800]	150 [39.60]	0532VAW32/4/FKM/330/D/F/03/G/24/00/A1	0532016060
4	330 [4800]	150 [39.60]	0532VAW32/4/FKM/330/D/Z/03/G/24/00/A1	0532016058
5	–	–	0532VAW32/5/FKM/-/Z/03/G/24/00/A1	0532016052
7	211 [3060]	200 [52.80]	0532VAW32/7/FKM/211/DK/F/03/G/24/00/A1	0532016070
7	250 [3625]	260 [68.63]	0532VAW32/7/FKM/250/DK/F/03/G/24/00/A1	0532016072
7	330 [4800]	300 [79.20]	0532VAW32/7/FKM/330/DK/F/03/G/24/00/A1	R901166828
8	–	–	0532VAW32/8/FKM/-/Z/01/-/A1	0532016061
9	–	–	0532VAW32/9/FKM/-/F/01/-/A1	R901115110
9	–	–	0532VAW32/9/FKM/-/Z/01/-/A1	0532016063

## Function

The accumulator shut-off block serves for protection, isolation and unloading of hydraulic accumulators. It is classified according to its use according to Pressure Equipment Directive 2014/68/EU article 4, section 3.

The connection between the accumulator shut-off block and the accumulator is realized by means of an accumulator adapter. An optional additional 2-way valve with electrical operation (normally open) enables automatic unloading of the accumulator in case of shutdown or "emergency off function".

The accumulator is protected from inadmissible overpressure by means of the pressure relief valve.

The **pressure relief valve must not be applied for any control tasks!**

Sufficient difference between the pressure set at the pressure relief valve and the operating pressure must be ensured. Response of the pressure relief valve should be prevented.

## Technical data

(For applications outside these parameters, please consult us.)

general		
Weight		See table below
Installation position		Any
Ambient temperature range	°C [°F]	-10 ... +80 [+14... +176]
hydraulic		
Maximum operating pressure	bar [psi]	330 [4800]
Maximum securable flow	l/min [US gpm]	See pages 4 and 5
$\Delta p$ - $q_V$ characteristic curve		See page 8 and 9
Hydraulic fluid		See table below
Hydraulic fluid temperature range	°C [°F]	-15 ... +80 [+14... +176]
Seal material		FKM seals
Viscosity range	mm <sup>2</sup> /s [SUS]	12 ... 380 [56 ... 1761]
Maximum admissible degree of contamination of the hydraulic fluid Cleanliness class according to ISO 4406 (c)		Class 20/18/15 <sup>1)</sup>

Hydraulic fluid	Classification	Suitable sealing materials	Standards	Data sheet
Mineral oils	HL, HLP	FKM	DIN 51524	90220
Other hydraulic fluids on request				

<sup>1)</sup> The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and simultaneously increases the life cycle of the components.

## Weight

Symbol	Nominal diameter	
	DN20 kg [lbs]	DN32 kg [lbs]
1	4.4 [9.7]	13.8 [30.3]
2	4.7 [10.3]	14.3 [31.4]
3	4.8 [10.5]	15.2 [33.4]
4	5.6 [12.3]	14.7 [32.3]
5	–	14.2 [31.2]
7	–	14.4 [31.6]
8	4.6 [10.1]	14.4 [31.6]
9	–	14.3 [31.4]
10	4.5 [9.9]	–

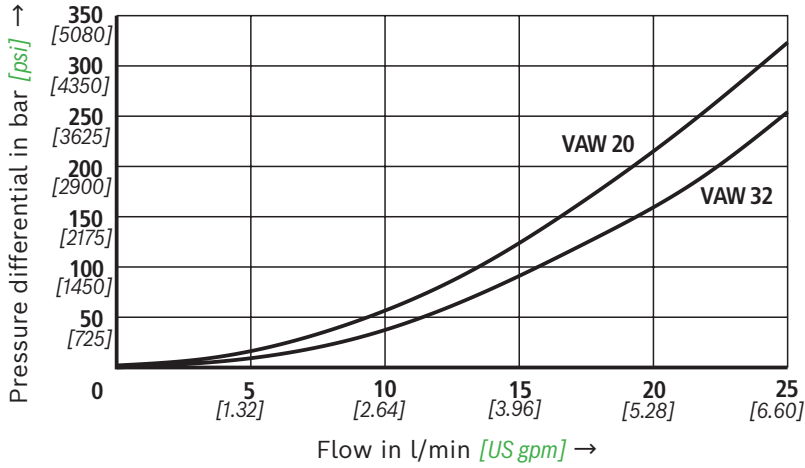
electrical		
Voltage type		Direct voltage
Available voltages	V	24
Protection class according to DIN EN 60529	► With connector "K4"	IP 65 (with mating connector mounted and locked)

### Characteristic curves

(measured at  $v = 35 \text{ mm}^2/\text{s}$ ,  $\vartheta_{\text{oil}} = 50 \text{ }^\circ\text{C}$  [122 °F])

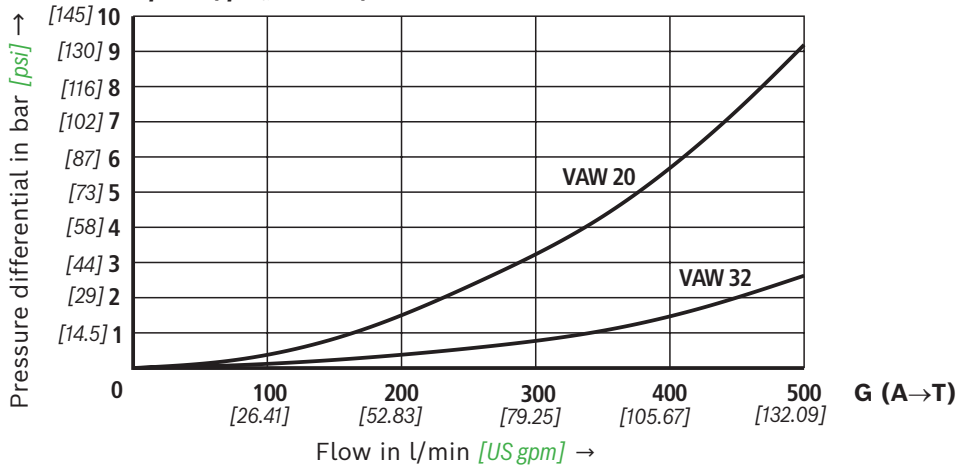
#### Flow accumulator via unloading valve to the tank

$$\Delta p = f(q_{V\text{max}} \text{ A} \rightarrow \text{T})$$



#### Flow from pump to accumulator

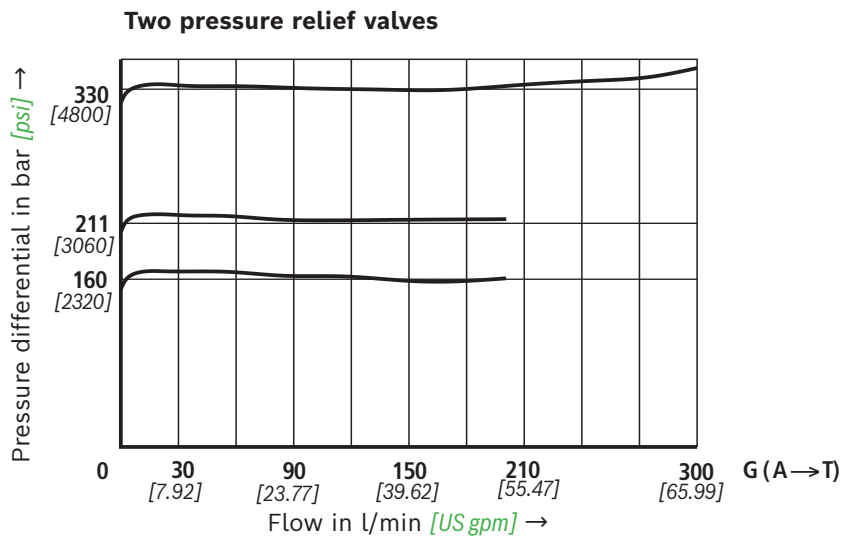
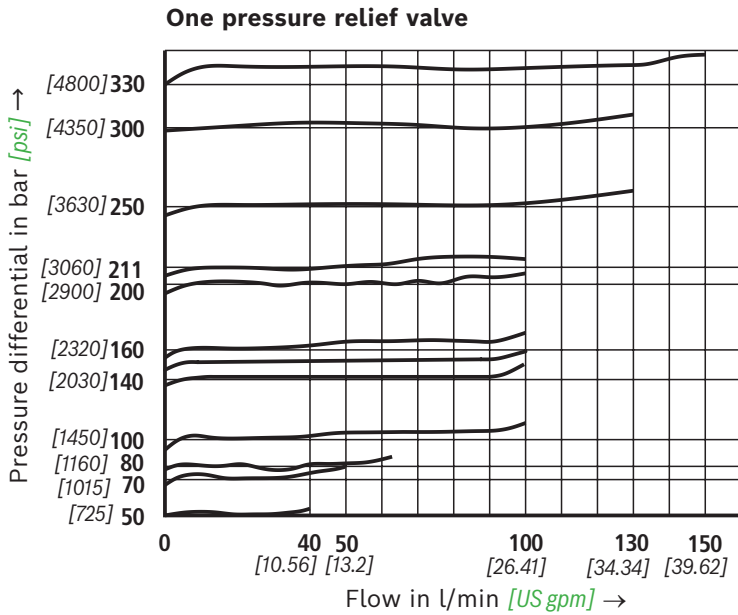
$$\Delta p = f(q_{V\text{max}} \text{ P} \rightarrow \text{A})$$



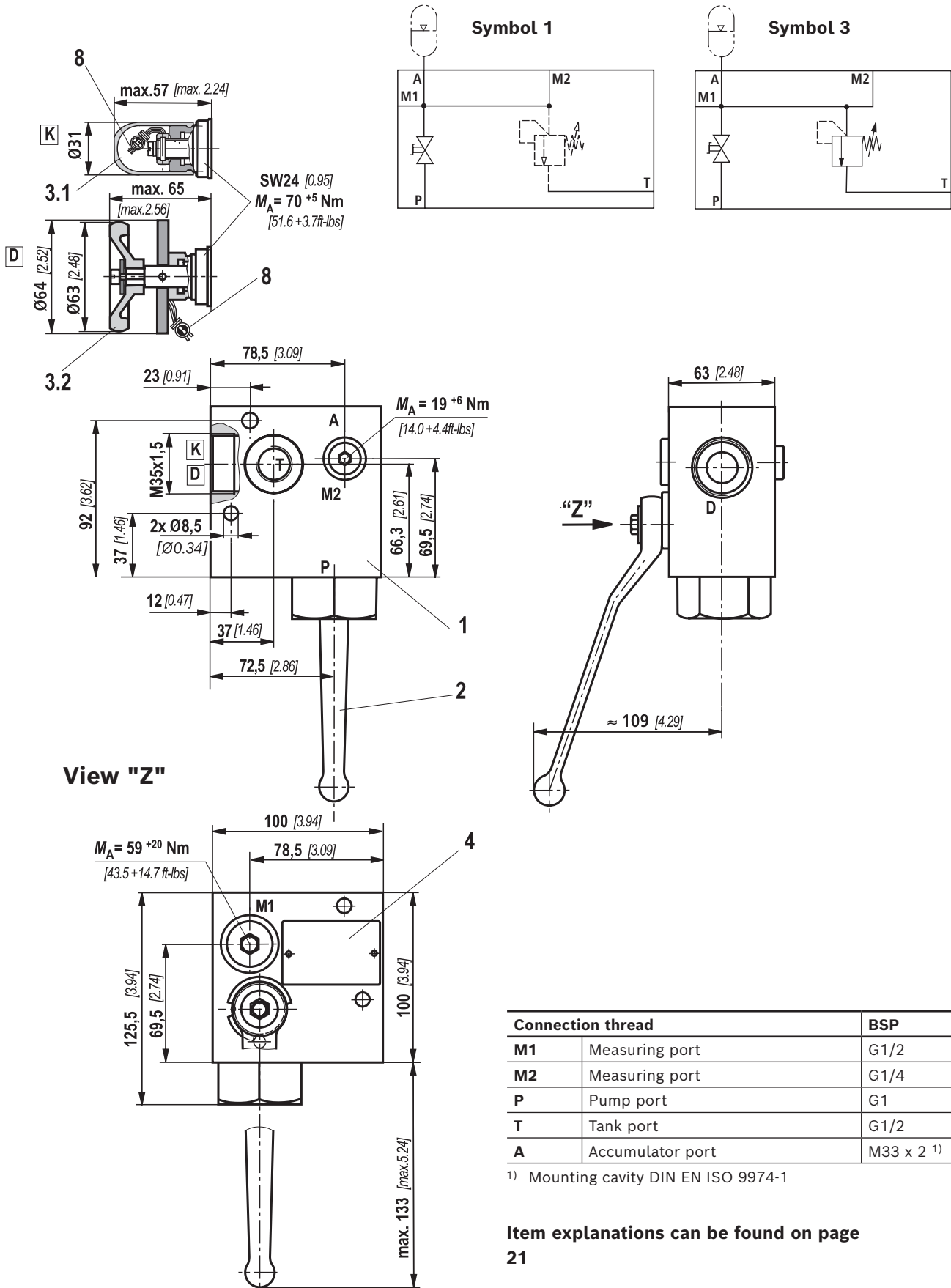
### Characteristic curves

(measured at  $v = 35 \text{ mm}^2/\text{s}$ ,  $\vartheta_{\text{oil}} = 50 \text{ }^\circ\text{C}$  [122 °F])

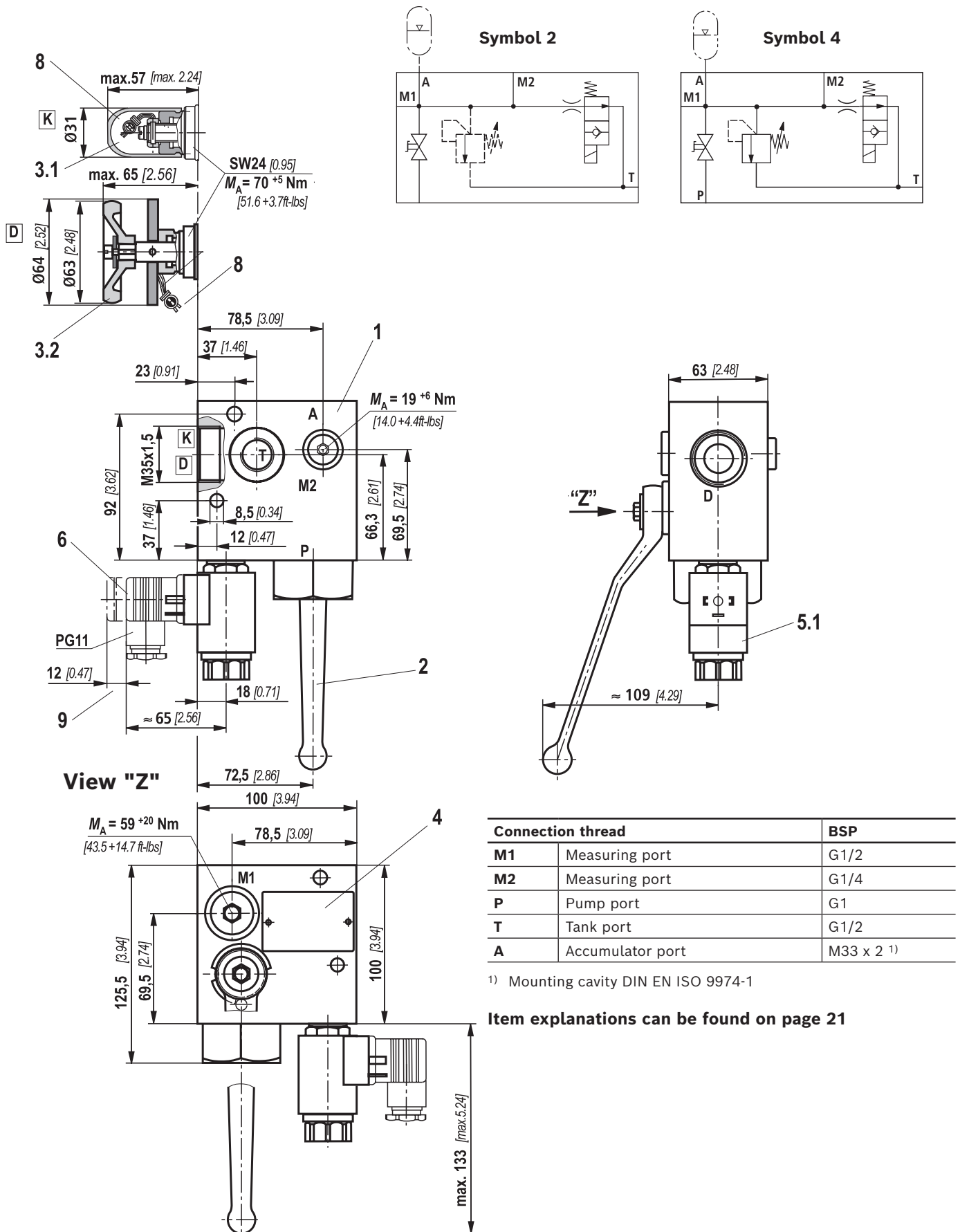
#### Maximum securable flow of the pressure relief valve



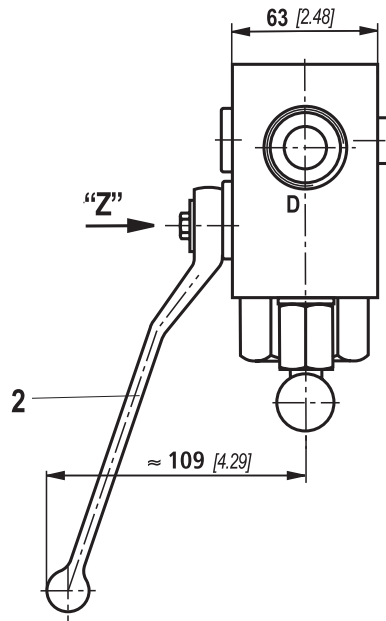
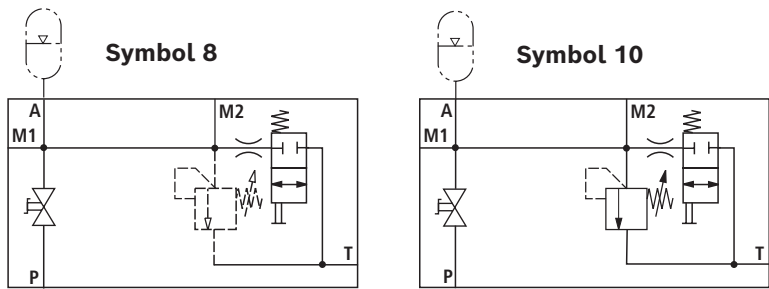
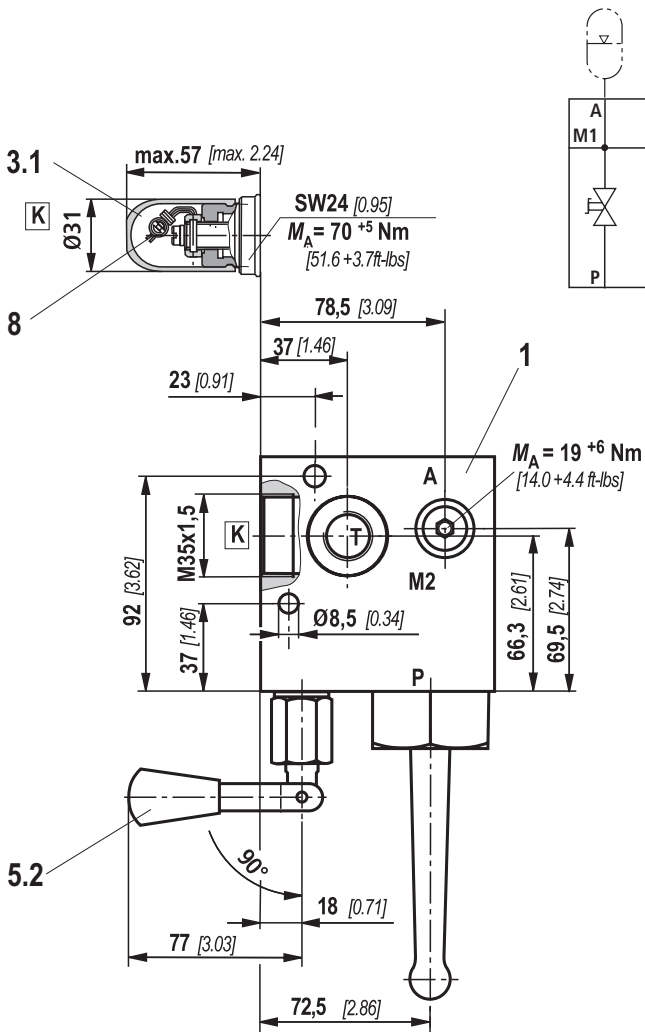
**Dimensions:** Version "20", symbol 1 and 3  
(dimensions in mm [*inch*])



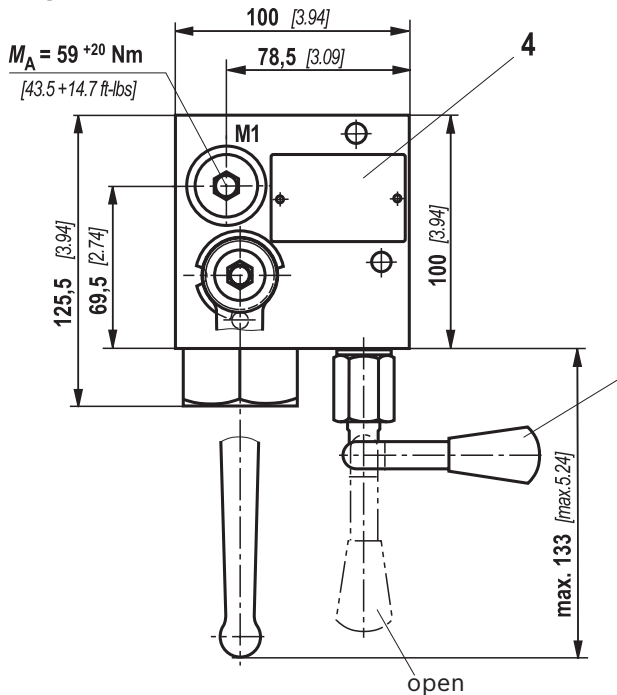
**Dimensions:** Version "20", symbol 2 and 4  
(dimensions in mm [inch])



**Dimensions:** 0532VAW20...DN20, symbol 8 and 10  
(dimensions in mm [inch])



**View "Z"**



Connection thread		BSP
M1	Measuring port	G1/2
M2	Measuring port	G1/4
P	Pump port	G1
T	Tank port	G1/2
A	Accumulator port	M33 x 2 <sup>1)</sup>

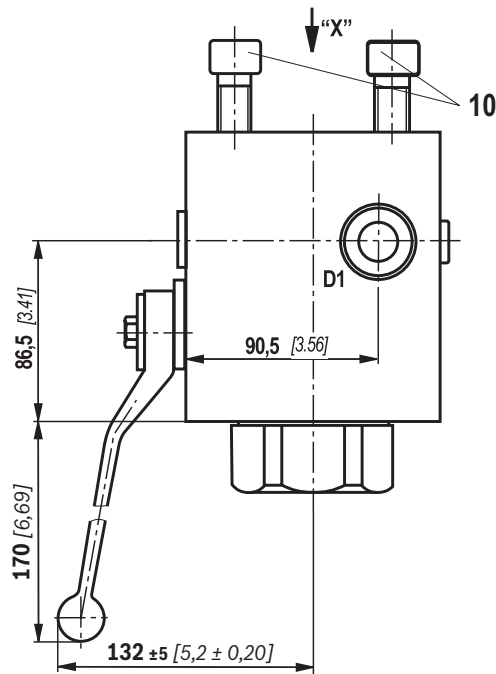
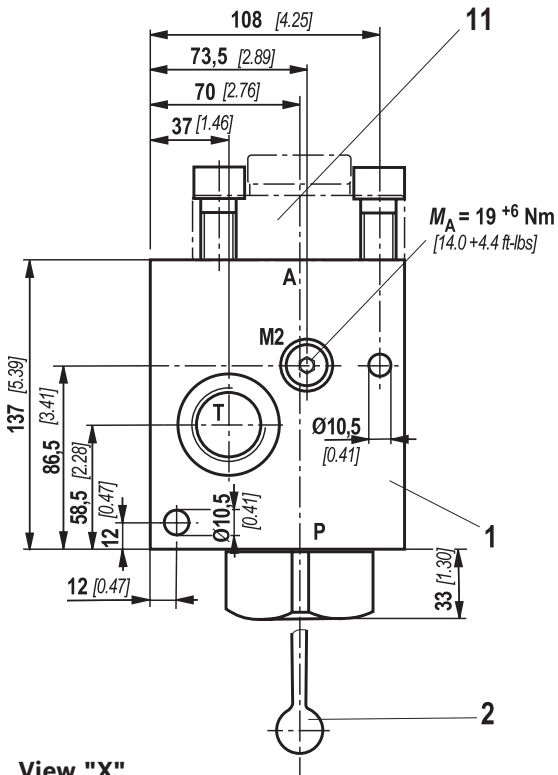
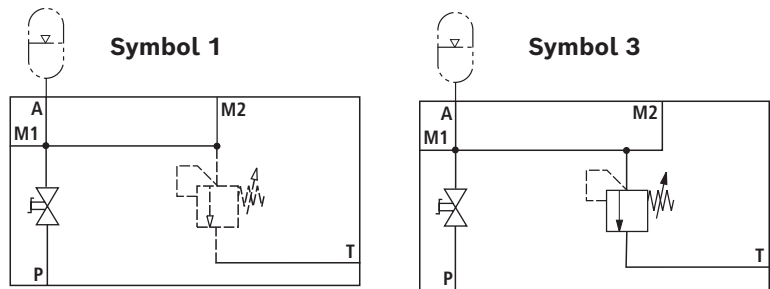
<sup>1)</sup> Mounting cavity DIN EN ISO 9974-1

closed

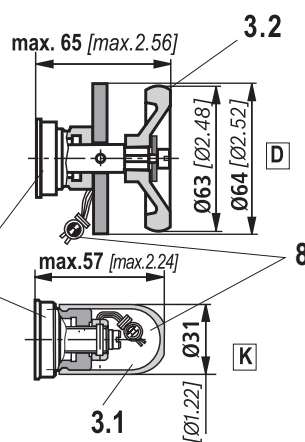
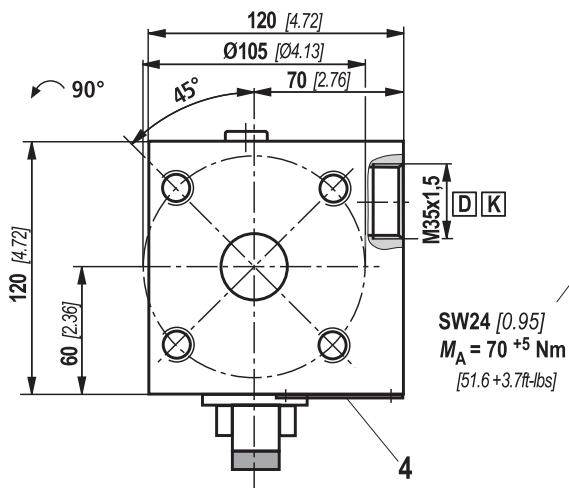
Item explanations can be found on page 21



**Dimensions:** Version "32", symbol 1 and 3  
(dimensions in mm [inch])



View "X"

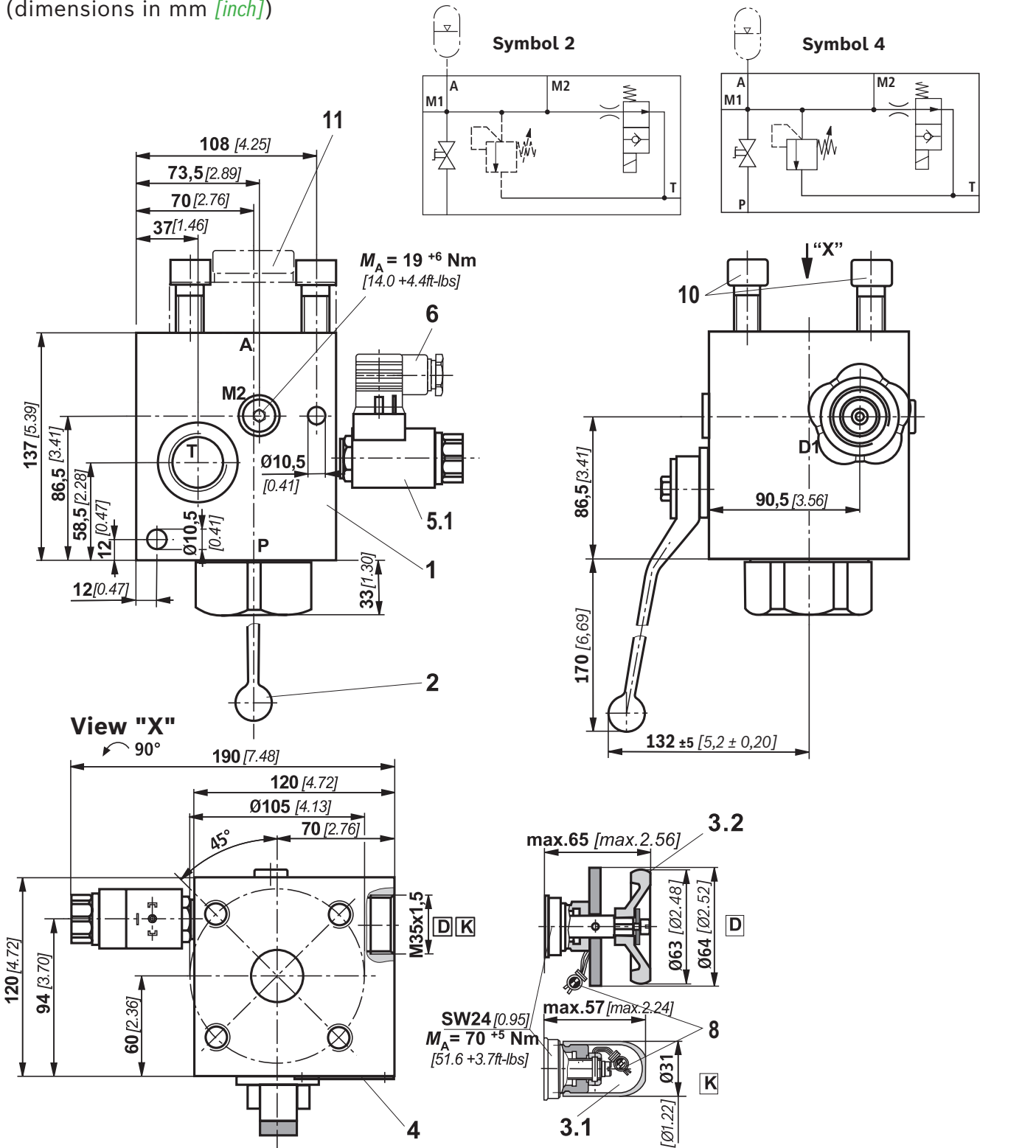


Connection thread		BSP
M1	Measuring port	G1/2
M2	Measuring port	G1/4
P	Pump port	G1 1/2
T	Tank port	G1
A	Accumulator port	Page 21

Accumulator adapter separate order, see page 21

Item explanations can be found on page 21

**Dimensions:** Version "32", symbol 2 and 4  
(dimensions in mm [inch])

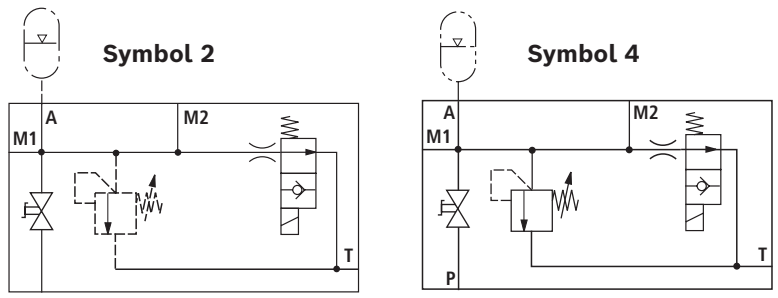
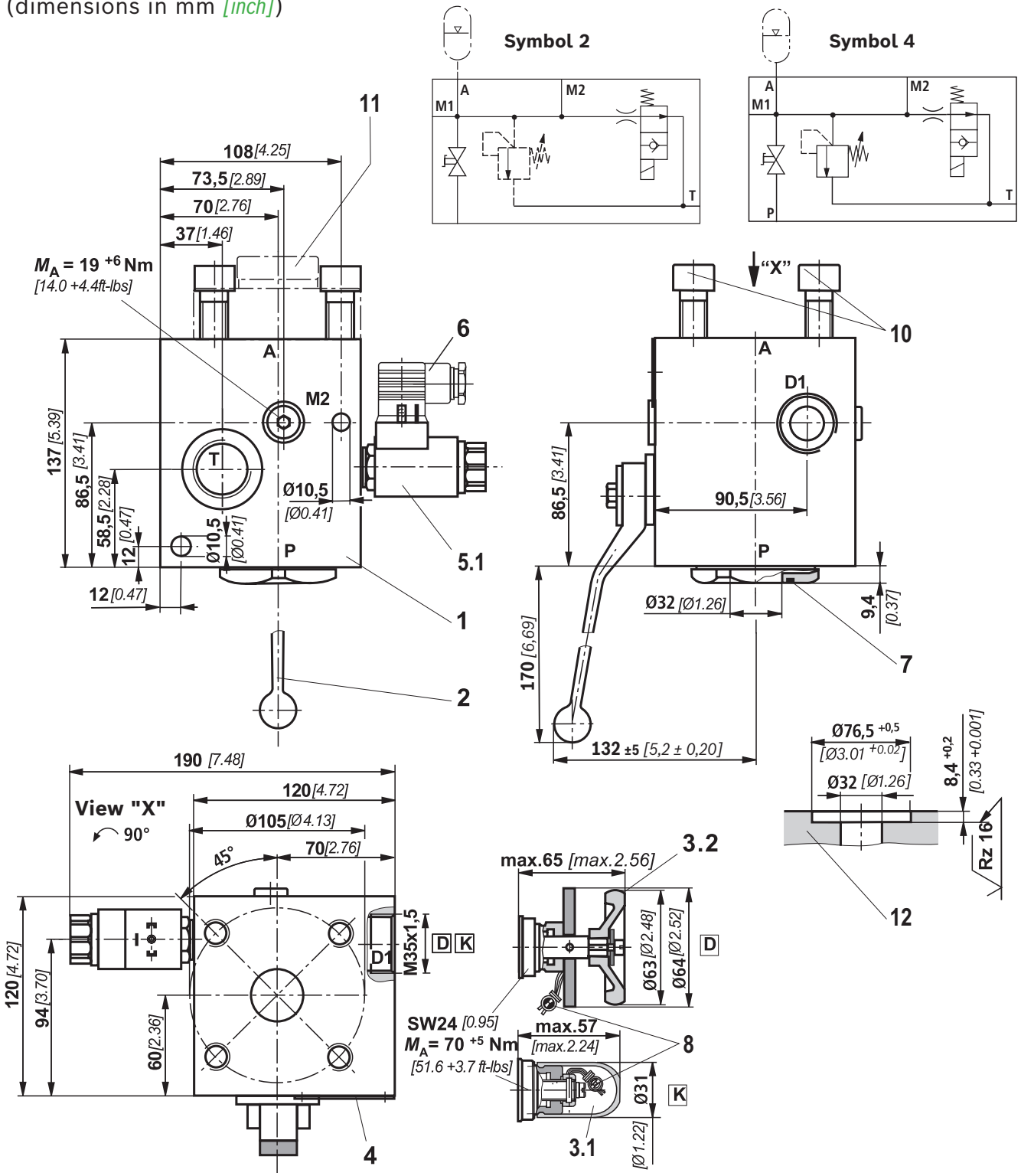


Accumulator adapter separate order, see page 21

Connection thread		BSP
M1	Measuring port	G1/2
M2	Measuring port	G1/4
P	Pump port	G1 1/2
T	Tank port	G1
A	Accumulator port	Page 21

Item explanations can be found on page 21

**Dimensions:** Version "32", switching symbol 2 and 4  
(dimensions in mm [inch])

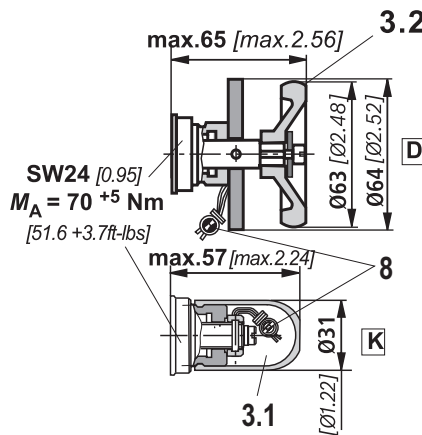
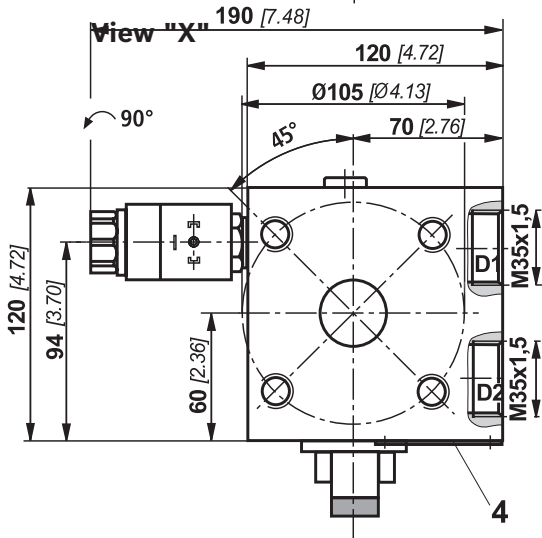
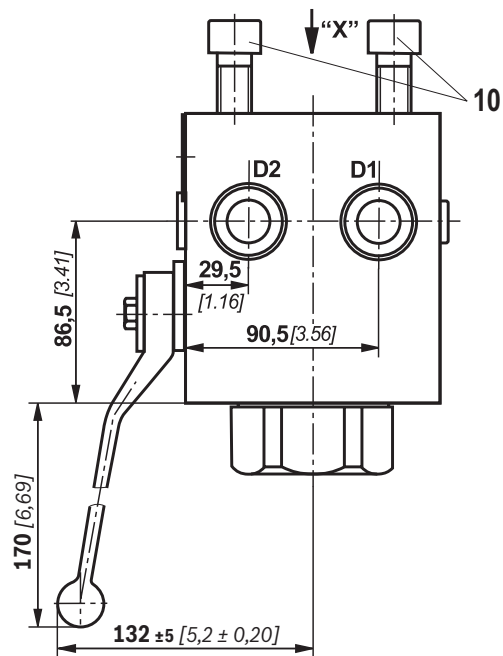
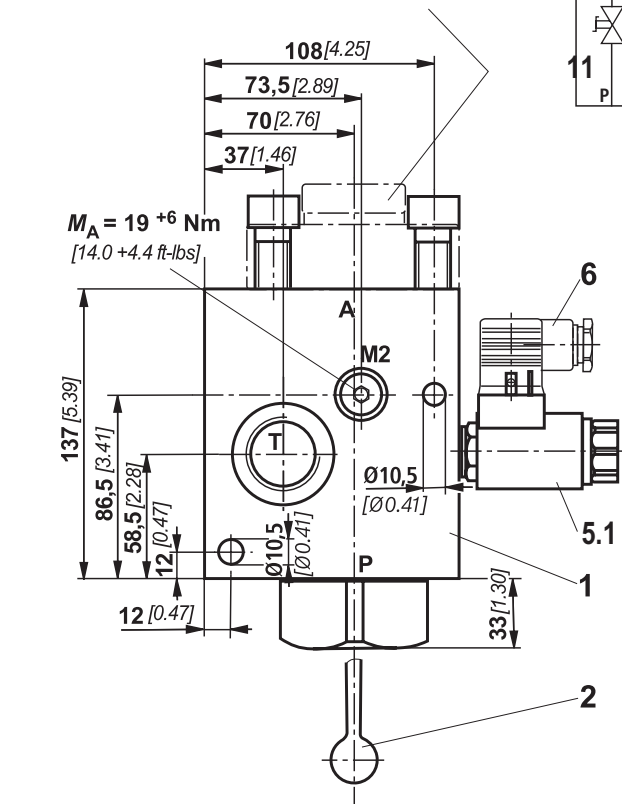
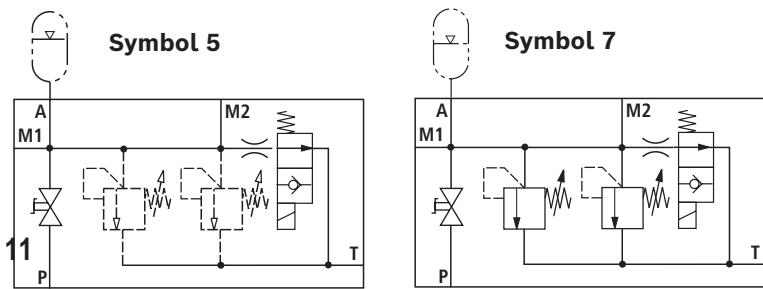


Accumulator adapter separate order, see page 21

Connection thread		BSP
M1	Measuring port	G1/2
M2	Measuring port	G1/4
P	Pump port (flange)	TK = $\varnothing 98$ ; 4 x M16
T	Tank port	G1
A	Accumulator port	Page 21

Item explanations can be found on page 21

**Dimensions:** Version "32", symbol 5 and 7  
(dimensions in mm [*inch*])



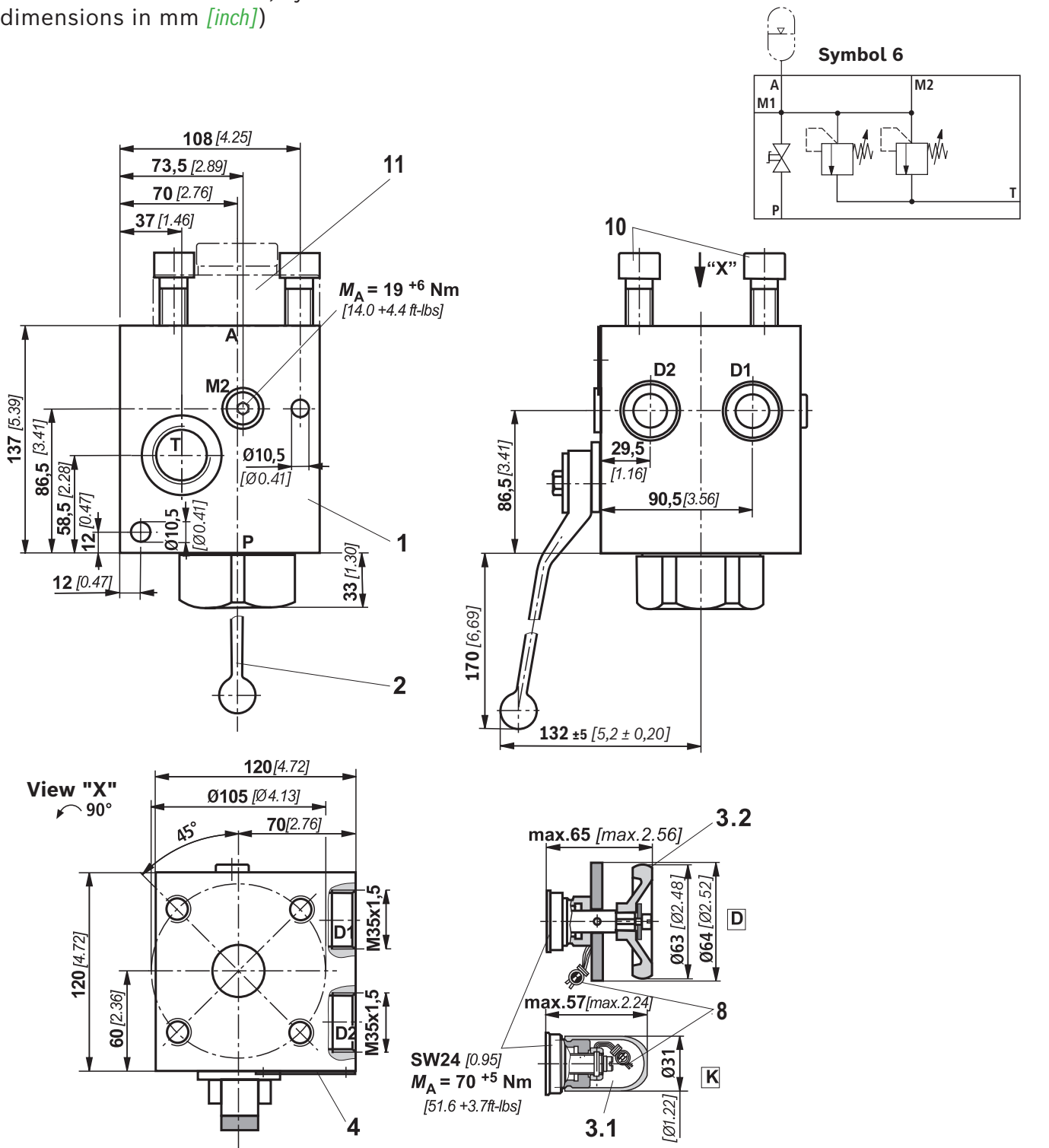
Connection thread		BSP
M1	Measuring port	G1/2
M2	Measuring port	G1/4
P	Pump port	G1 1/2
T	Tank port	G1
A	Accumulator port	Page 21

**Accumulator adapter** separate order, see page 21

**Item explanations can be found on page 21**



**Dimensions:** Version "32", symbol 6  
(dimensions in mm [inch])

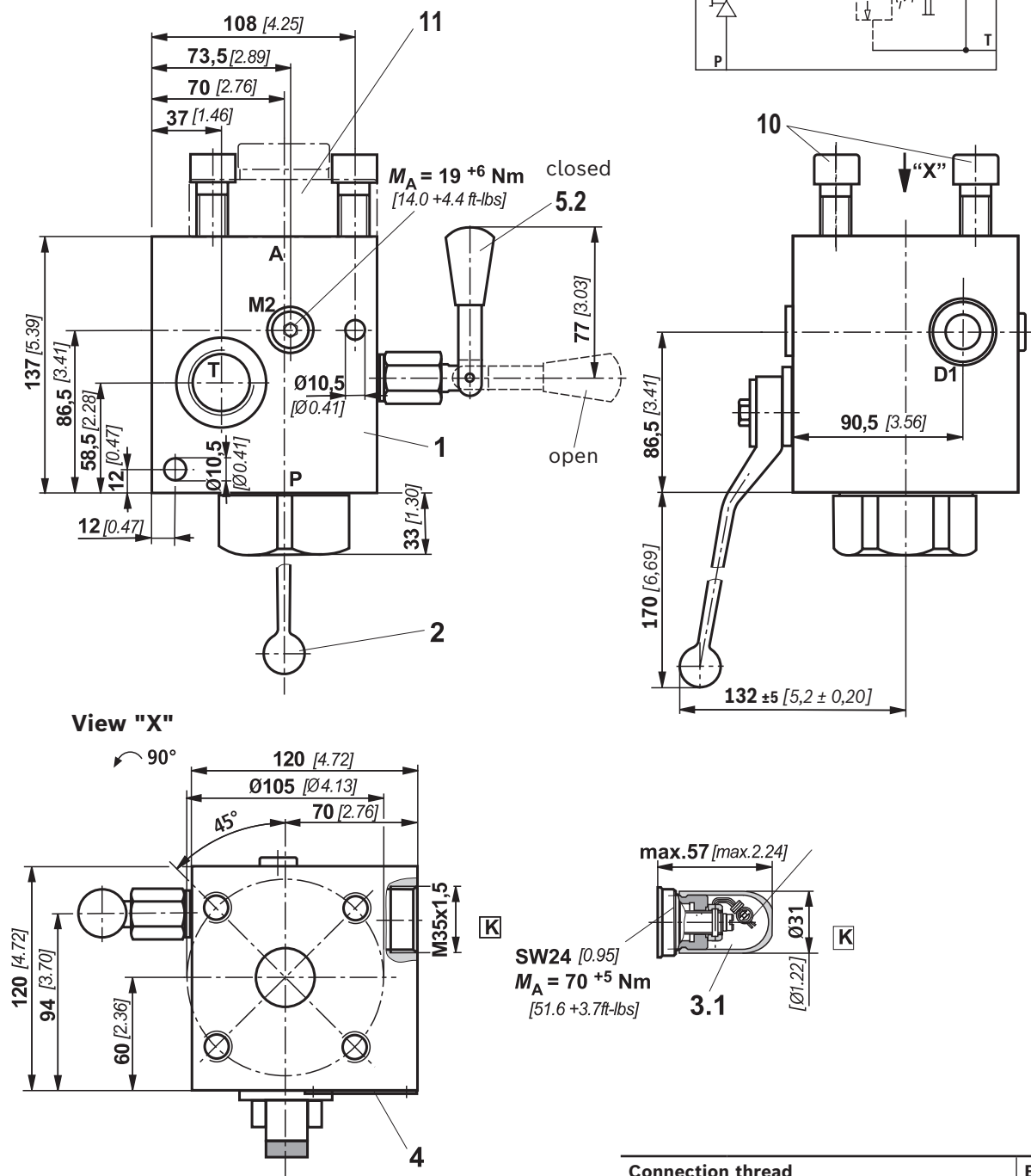


Connection thread		BSP
M1	Measuring port	G1/2
M2	Measuring port	G1/4
P	Pump port	G1 1/2
T	Tank port	G1
A	Accumulator port	Page 21

**Accumulator adapter** separate order, see page 21

**Item explanations can be found on page 21**

**Dimensions:** Version "32", symbol 8  
(dimensions in mm [inch])

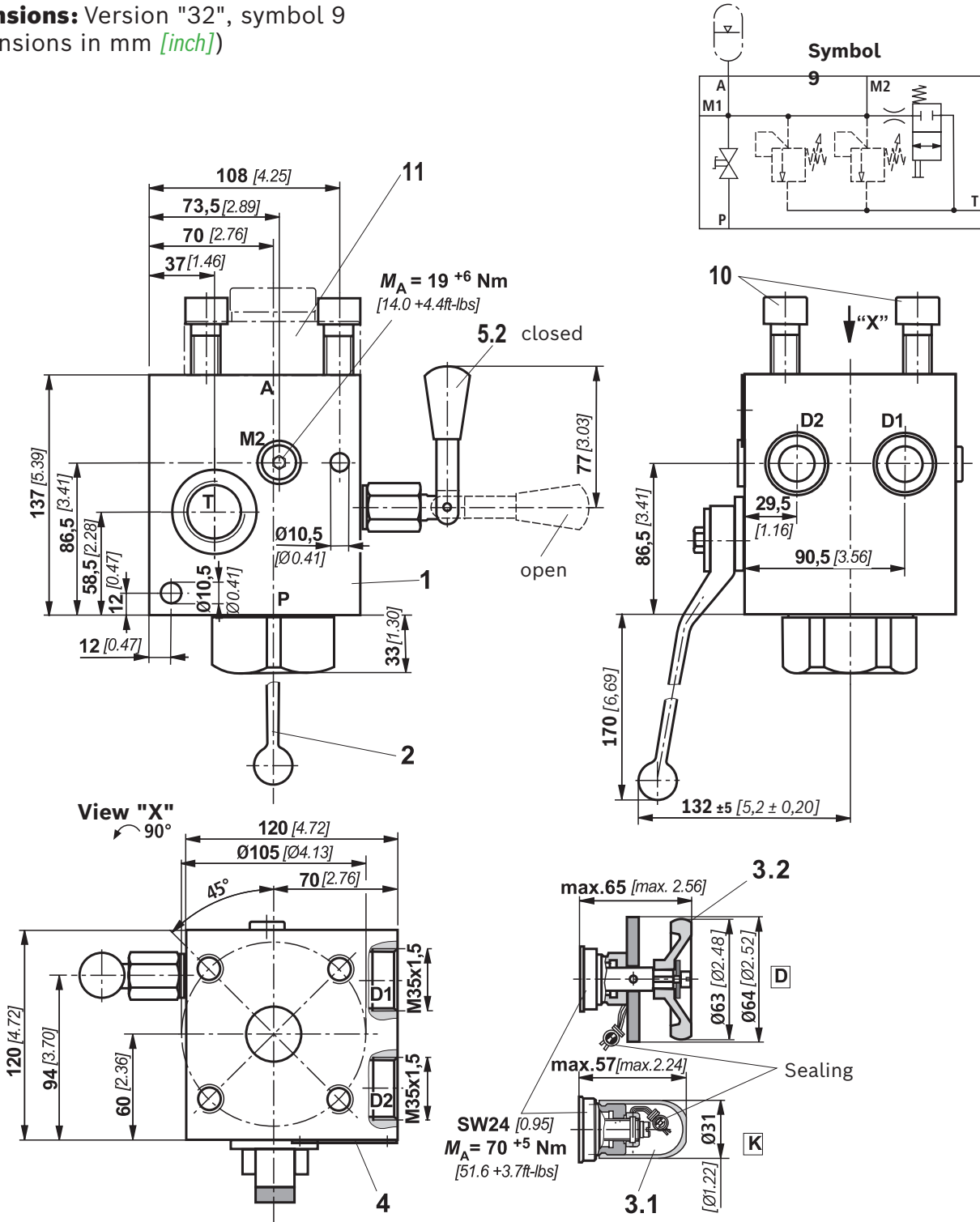


Accumulator adapter separate order, see page 21

Connection thread		BSP
M1	Measuring port	G1/2
M2	Measuring port	G1/4
P	Pump port	G1 1/2
T	Tank port	G1
A	Accumulator port	Page 18

Item explanations can be found on page 21

**Dimensions:** Version "32", symbol 9  
(dimensions in mm [inch])



**Accumulator adapter** separate order, see page 21

Connection thread		BSP
M1	Measuring port	G1/2
M2	Measuring port	G1/4
P	Pump port	G1 1/2
T	Tank port	G1
A	Accumulator port	Page 21

Item explanations can be found on page 21



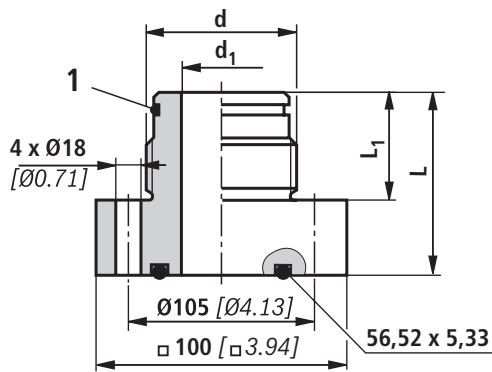
**Dimensions:** Item explanations

- 1 Block
- 2 System shut-off cock
- 3.1 Pressure relief valve, adjustment type "K" with spindle and protective cap; sealed
- 3.2 Pressure relief valve, adjustment type "D" with hand wheel and manual unloading; sealed
- 4 Name plate
- 5.1 Electro-magnetic unloading
- 5.2 Manual unloading, closed
- 6 Mating connector included in the scope of delivery
- 7 Seal ring Ø40 x 3
- 8 Sealing
- 9 Space required to remove the connector
- 10 Hexagon socket head cap screw **4 x ISO 4762- M16 x 45-10**  
Tightening torque  $M_A = 250 + 10 \text{ Nm}$   
*[184.0 + 7.4 ft-lbs]*
- 11 Accumulator adapter, separate order, see page 21
- 12 Counterflange for port P (separate order)

**Accessories:** Accumulator adapter BSP thread  
(dimensions in mm *[inch]*)

**Accumulator adapter for version "32", maximum operating pressure 330 bar *[4800 psi]***

Type: S307V/G1 1/4-DN32 and  
S309V/G2-DN32





4 x hexagon socket head cap screw,  
**ISO 4762 - M16 x 45 - 10.9**  
included in the scope of delivery

1 Seal ring, see table

Short designation	Accumulator adapter	Material no.	d	d1	L	L1	Seal ring
S307	S307V/G1 1/4-DN32	<b>R900085303</b>	G1 1/4	20	67	37	Ø30.00 x 3.00
S309	S309V/G2-DN32	<b>R900545858</b>	G 2	32	73	43	Ø48.00 x 3.00

**Accessories:** Pressure relief valve

Pressure set at the pressure relief valve in bar [psi]	Adjustment type at the pressure relief valve		Maximum securable flow l/min [gpm]	Material no. (FKM seal material)		
	Hand wheel	Spindle with protective cap				
50 [730]		/	40 [10.56]	0532004200		
70 [1015]			50 [13.20]	0532004201		
100 [1450]			100 [26.40]	0532004202		
120 [1740]			100 [26.40]	0532004211		
140 [2030]			100 [26.40]	0532004203		
160 [2320]			100 [26.40]	0532004204		
200 [3480]			100 [26.40]	0532004209		
211 [3060]			100 [26.40]	0532004205		
250 [3625]			130 [34.32]	0532004206		
280 [4060]			130 [34.32]	0532004210		
300 [4350]			130 [34.32]	0532004207		
330 [4800]			150 [39.60]	0532004208		
50 [730]			/		40 [10.56]	0532004102
70 [1015]					50 [13.20]	0532004103
80 [1160]	60 [15.84]	0532004111				
100 [1450]	100 [26.40]	0532004104				
120 [1740]	100 [26.40]	0532004114				
140 [2030]	100 [26.40]	0532004107				
160 [2320]	100 [26.40]	0532004105				
180 [2610]	100 [26.40]	0532004113				
200 [3480]	100 [26.40]	0532004110				
211 [3060]	100 [26.40]	0532004100				
250 [3625]	130 [34.32]	0532004106				
260 [3770]	130 [34.32]	0532004115				
280 [4060]	130 [34.32]	0532004112				
300 [4350]	130 [34.32]	0532004101				
330 [4800]	150 [39.60]	0532004108				

## Safety instructions: Type-examination tested safety valves type 0532VA according to Pressure Equipment Directive 2014/68/EU

- ▶ Before ordering a type-examination tested safety valve, it must be observed that for the desired **response pressure  $p$** , the maximum admissible **flow  $q_{Vmax}$**  of the safety valve must be larger than the maximum possible flow of the system/accumulator to be secured. In this respect, the applicable regulations must be observed!
- ▶ According to the **Pressure Equipment Directive 2014/68/EU**, the increase in the system pressure due to the flow must not exceed 10% of the set response pressure (see component marking).
- ▶ The maximum admissible flow  **$q_{Vmax}$**  stated in the component marking must not be exceeded.
- ▶ Discharge lines of safety valves must end in a risk-free manner. Accumulation of fluids in the discharge system must **not** be possible (see AD2000 - data sheet A2).



### Application notes must always be observed!

- ▶ The response pressure specified in the component marking is set at the plant.
- ▶ The maximum admissible flow stated in the component marking applies for applications without counter pressure in the discharge line (port T).
- ▶ By removing the lead seal at the safety valve, the approval according to the Pressure Equipment Directive becomes void!
- ▶ The requirements of the Pressure Equipment Directive and of data sheet AD2000 A2 must be generally observed!
- ▶ It is recommended to secure type-examination tested safety valves against inadmissible removal from the screw-in housing/block by means of wiring and sealing with the housing/block (bore available in the adjustment element).



### Notice:

The system pressure increases by the counter pressure in the discharge line (port T) due to the increasing flow. (Observe the data sheet AD2000 A2, point 6.3!)

To ensure that this increase in system pressure caused by the flow does not exceed the value of 10% of the set response pressure, the admissible flow has to be reduced depending on the counter pressure in the discharge line (port T) (see diagram on pages 8 and 9).

## Further information

- |  |                    |
|--|--------------------|
| ▶ Accumulator shut-off block operating instructions; type ABZSS, 0532VAW | Data sheet 50129-B |
| ▶ Pressure relief valve, direct operated; type DBD                       | Data sheet 25402   |
| ▶ Type-examination tested safety valves                                  | Data sheet 50153   |
| ▶ Operating instructions for safety valves                               | Data sheet 50153-B |
| ▶ Hydraulic fluids on mineral oil basis                                  | Data sheet 90220   |
| ▶ Selection of the filters   |                    |
| ▶ Information on available spare parts                                   |                    |

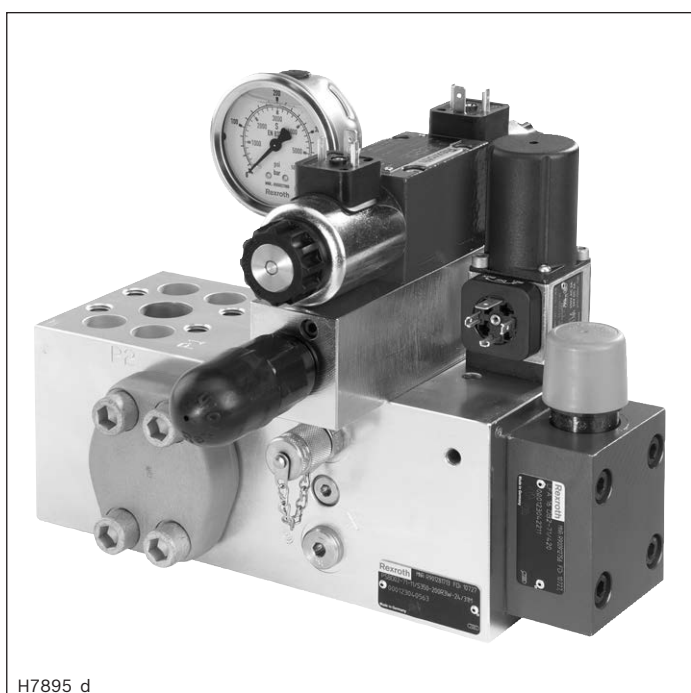
## Pump manifold block

Type PSBD02

**RE 62300**

Edition: 2016-08

Replaces: 2012-04



H7895\_d

- ▶ Sizes 40, 71, 180, 355 for axial piston pump A4VSO
- ▶ Component series 1X
- ▶ Maximum operating pressure 350 bar
- ▶ Maximum flow 600 l/min

### Features

- ▶ Combination of maximum pressure limitation, depressurized start-up and/or circulation at zero pressure and pressure measurement
- ▶ Attachment of a pressure switch, a second pressure rating and a proportional servo valve possible
- ▶ Influencing of the pump controller
- ▶ Direct attachment to axial piston pumps A4VSO NG40 to 355
- ▶ max. operating pressure 350 bar
- ▶ Sizes 40, 71, 180 and 355
- ▶ Maximum flow 600 liters/minute

### Contents

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Technical data	9, 10
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Connections	12
Pump selection	12
Commissioning, maintenance and operating instructions	13

**Ordering code****of the pump manifold block**

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
PSB	D	02	-	-	1X	/					-	/	31	&

**Device type**

01	Pump manifold block	PSB
----	---------------------	-----

**Design principle**

02	Direct attachment on pump	D
----	---------------------------	---

**Circuit variation**

03	Variant 02	02
----	------------	----

**(Block) size**

04	for A4VSO 40	40
	for A4VSO 71	71
	for A4VSO 125, 180	180
	for A4VSO 250, 355	355

**Component series**

05	10 to 19 (10 to 19: unchanged installation and connection dimensions)	1X
----	---	----

**Adjustment type of the pressure valve**

06	Lockable rotary knob	A
	Rotary knob	H
	Hexagon with protective cap	S

**Pressure rating 1**

07	Set pressure up to 200 bar	200
	Set pressure up to 315 bar	315
	Set pressure up to 350 bar	350

**Pressure rating 2**

08	without pressure rating 2	no code
	Set pressure up to 200 bar	200
	Set pressure up to 315 bar	315
	Set pressure up to 350 bar	350

**Controller option for control pump**

09	with DFR1 controller	F
	with DRG, LR2G power controller	G
	with DR, LR2, LR3 controller, MA, EM, HM	R

**Accessories/additional equipment**

10	without accessories	no code
	Pressure gauge	1
	Pressure switch	2
	Pressure gauge and pressure switch	3

**Valve mounting**

11	without valve mounting	no code
	with attached proportional pressure relief valve DBET	E
	with attached directional valve	W

**Ordering code****of the pump manifold block**

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
<b>PSB</b>	<b>D</b>	<b>02</b>	-	-	<b>1X</b>	/	-				-	/	<b>31</b>	<b>&amp;</b>

**Supply voltage**

12	without directional valve	<b>no code</b>
	Direct voltage DC 24 V	<b>24</b>

**Port sizes**

13	SAE connection	<b>31</b>
----	----------------	-----------

**Seal material**

14	NBR seals	<b>M</b>
	FKM seals	<b>V</b>
15	Further details in the plain text	<b>&amp;</b>

**Example of supplementary information:**

with DBETE-6X/315G24K31A1V (material no. R901029969)

**Order example/search term:**

Pump manifold block for direct attachment on pump A4VSO 250 or 355, with circuit variation 02, adjustment type of the pressure valve with hexagon and protective cap, pressure rating 1 = 315 bar, for DRG controller, with pressure gauge, with attached directional valve, direct voltage DC 24 V, SAE connection and NBR seal:

**Material short text:**

**PSBD02-355-1X/S315-G1W-24/31M**

**Material no.:**

**R901118871**

## Standard program

### Selection table controller option "R" (DR, LR2, LR3 controller, MA, EM, HM)

Without accessories

Pressure rating 1	Denomination	Material no.	Installation drawing material no.
315 bar	PSBD02- 40-1X/S315-RW-24/31M	R901180397	R901180720
350 bar	PSBD02- 40-1X/S350-RW-24/31M	R901180401	
315 bar	PSBD02- 71-1X/S315-RW-24/31M	R901180653	R901180722
350 bar	PSBD02- 71-1X/S350-RW-24/31M	R901180655	
315 bar	PSBD02-180-1X/S315-RW-24/31M	R901180676	R901180724
350 bar	PSBD02-180-1X/S350-RW-24/31M	R901180679	
315 bar	PSBD02-355-1X/S315-RW-24/31M	R901118881	R901118252
350 bar	PSBD02-355-1X/S350-RW-24/31M	R901118883	

For more versions see ordering code

### Selection table controller option "F" (DFR controller)

Without accessories

Pressure rating 1	Denomination	Material no.	Installation drawing material no.
315 bar	PSBD02- 40-1X/S315-FW-24/31M	R901180633	R901180718
350 bar	PSBD02- 40-1X/S350-FW-24/31M	R901180634	
315 bar	PSBD02- 71-1X/S315-FW-24/31M	R901180658	R901180721
350 bar	PSBD02- 71-1X/S350-FW-24/31M	R901180659	
315 bar	PSBD02-180-1X/S315-FW-24/31M	R901180688	R901180723
350 bar	PSBD02-180-1X/S350-FW-24/31M	R901180689	
315 bar	PSBD02-355-1X/S315-FW-24/31M	R901118876	R901118254
350 bar	PSBD02-355-1X/S350-FW-24/31M	R901118878	

For more versions see ordering code

### Selection table controller option "G" (DRG, LR2G controller)

Without accessories

Pressure rating 1	Denomination	Material no.	Installation drawing material no.
315 bar	PSBD02-40-1X/S315-GW-24/31M	R901180643	R901178294
350 bar	PSBD02-40-1X/S350-GW-24/31M	R901180645	
315 bar	PSBD02-71-1X/S315-GW-24/31M	R901180663	R901178295
350 bar	PSBD02-71-1X/S350-GW-24/31M	R901180664	
315 bar	PSBD02-180-1X/S315-GW-24/31M	R901180712	R901178296
350 bar	PSBD02-180-1X/S350-GW-24/31M	R901180713	
315 bar	PSBD02-355-1X/S315-GW-24/31M	R901105562	R901118101
350 bar	PSBD02-355-1X/S350-GW-24/31M	R901118873	

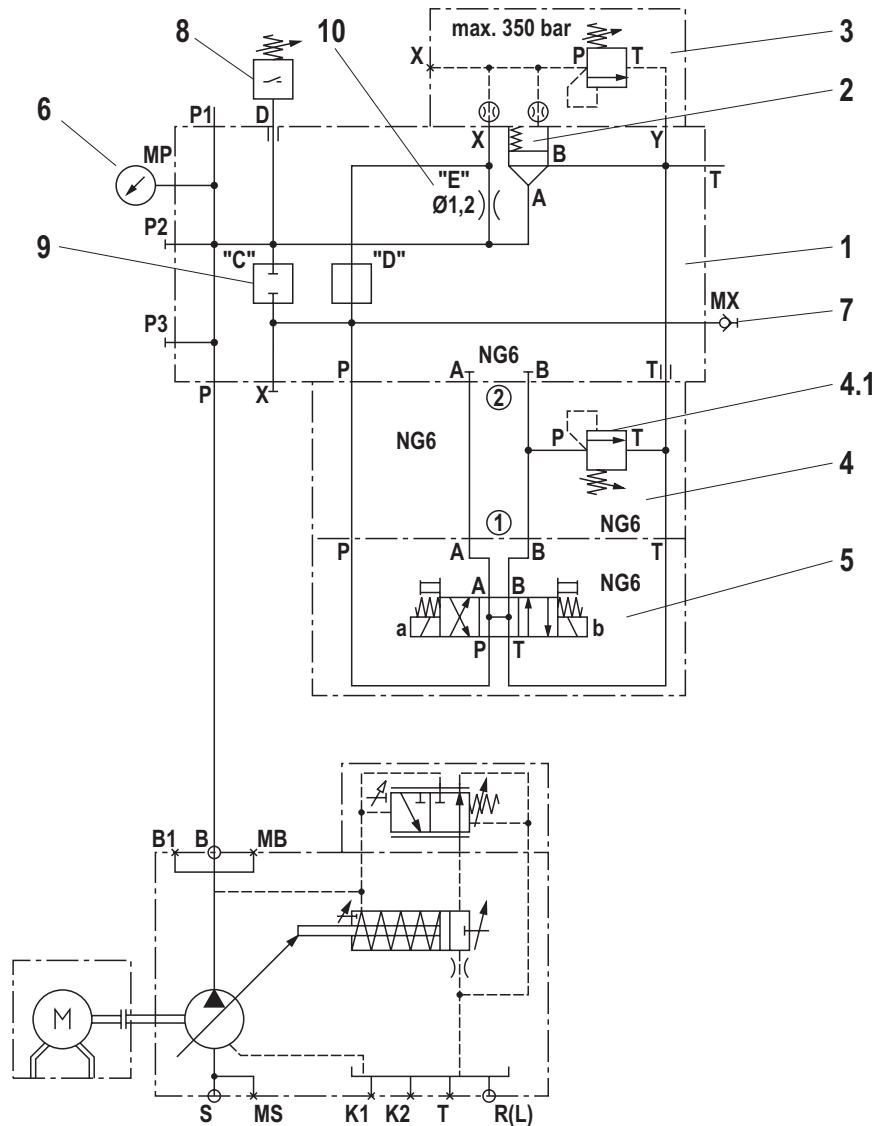
For more versions see ordering code

## Circuit diagrams

- 1. Controller option "R" (DR, LR2, LR3 controller, MA, EM, HM)**  
for fixed displacement pump and variable displacement pump A4VSO with DR controller or LR2 controller, LR3 controller, MA, EM, HM

### Example:

Maximum pressure limitation (first pressure rating), start-up circuit and optional second pressure rating with pressure switch and pressure gauge



- |   |  |
|---|--|
| <p><b>1</b> Plate PSBD02-...-1X/31</p> <p><b>2</b> Pressure relief valve cartridge valve according to data sheet 21050</p> <p><b>3</b> Pressure relief valve control cover (pressure value 1 - maximum pressure) according to data sheet 21050</p> <p><b>4</b> Sandwich plate (optional) according to data sheet 48050</p> <p><b>4.1</b> Pressure relief valve (pressure value 2 - second pressure rating - optional) according to data sheet 25402</p> | <p><b>5</b> Directional valve NG6 according to data sheet 23178</p> <p><b>6</b> Pressure gauge (optional - otherwise threaded coupling) according to data sheet 50205</p> <p><b>7</b> Measuring coupling according to DCCS 11005-11</p> <p><b>8</b> Pressure switch (optional) according to data sheet 50061</p> <p><b>9</b> Plug screw ZN10027-M8X1-SV; material no. <b>R913019129</b></p> <p><b>10</b> Orifice ZN10028-1,2-B-M8X1X8-ST; material no. <b>R913017627</b></p> |
|---|--|

Attached valve types can be seen from the parts list



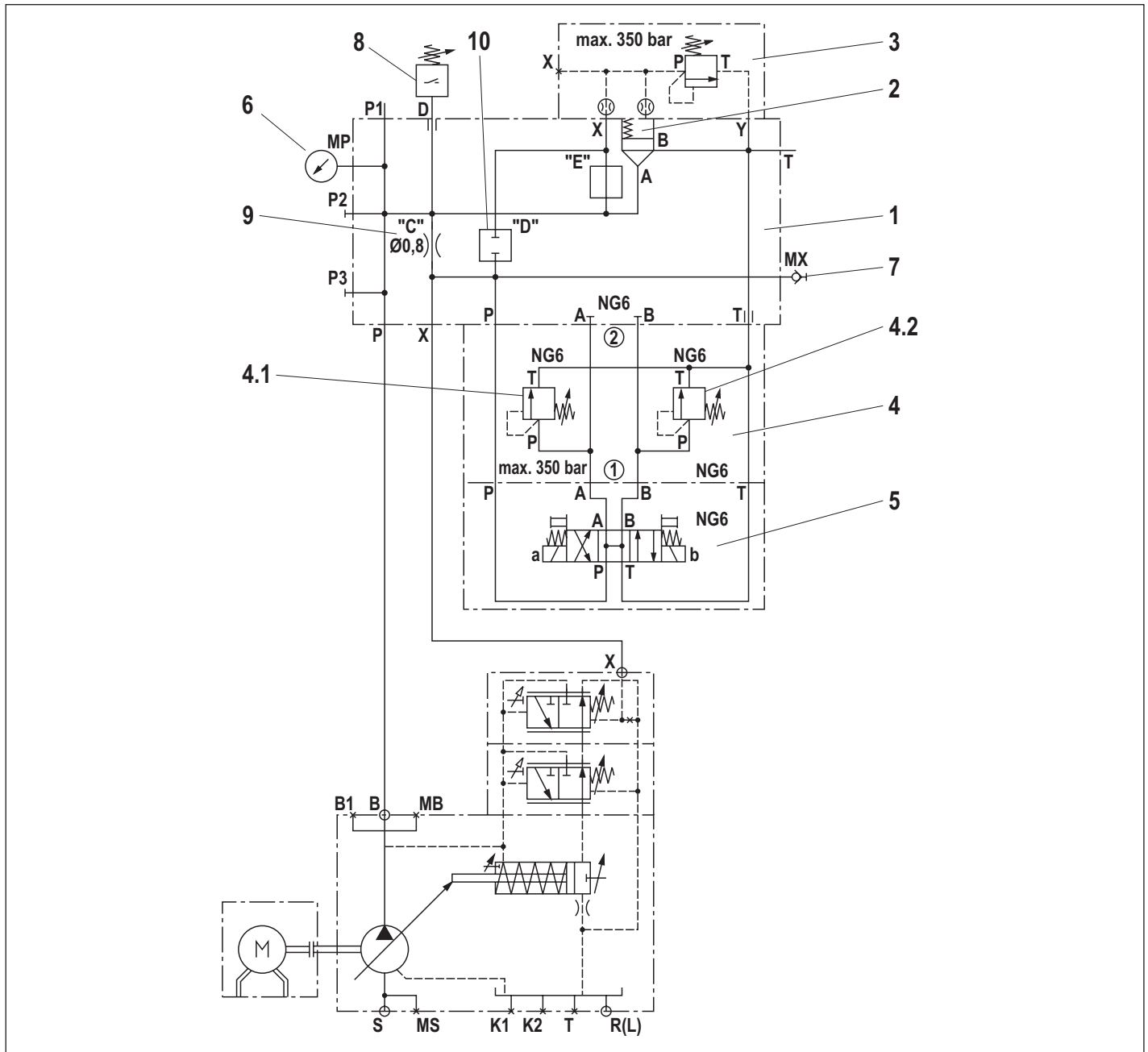
## Circuit diagrams

### 2. Controller option "F" (DFR controller)

for variable displacement pumps A4VSO with DFR1 controller

### Example:

Maximum pressure limitation, start-up circuit, first and optional second pressure rating with pressure switch and pressure gauge.



- |  |   |
|--|---|
| 1 Plate PSBD02-...-1X/31   | 5 Directional valve NG6 according to data sheet 23178                                   |
| 2 Pressure relief valve cartridge valve according to data sheet 21050                  | 6 Pressure gauge (optional - otherwise threaded coupling) according to data sheet 50205 |
| 3 Pressure relief valve control cover (maximum pressure) according to data sheet 21050 | 7 Measuring coupling according to DCCS 11005-11   |
| 4 Sandwich plate according to data sheet 48050   | 8 Pressure switch (optional) according to data sheet 50061                              |
| 4.1 Pressure relief valve (pressure value 1) according to data sheet 25402             | 9 Orifice ZN10028-0,8-B-M8X1X8-ST; material no. <b>R913017614</b>                       |
| 4.2 Pressure relief valve (pressure value 2 optional) according to data sheet 25402    | 10 Plug screw ZN10027-M8X1-SV; material no. <b>R913019129</b>                           |
- Attached valve types can be seen from the parts list

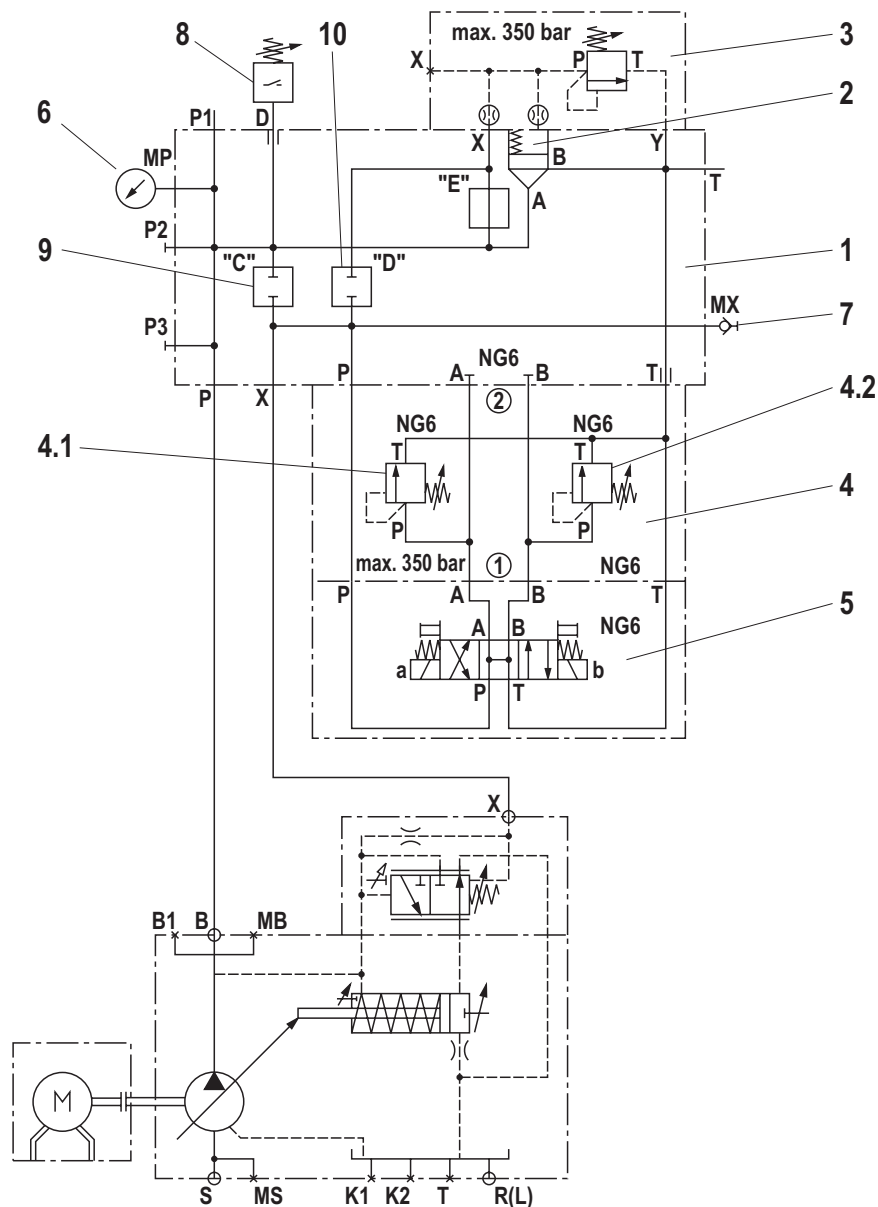
## Circuit diagrams

### 3. Controller option "G" (DRG, LR2G controller)

for variable displacement pumps A4VSO with DRG,  
LR2G power controller with remote controlled pressure  
controller

### Example:

Maximum pressure limitation, start-up circuit, first and  
optional second pressure rating with pressure switch and  
pressure gauge.



- |  |   |
|--|---|
| 1 Plate PSBD02-...-1X/31   | 5 Directional valve NG6 according to data sheet 23178                                   |
| 2 Pressure relief valve cartridge valve according to data sheet 21050  | 6 Pressure gauge (optional - otherwise threaded coupling) according to data sheet 50205 |
| 3 Pressure relief valve control cover (pressure value 1 - maximum pressure) according to data sheet 21050      | 7 Measuring coupling according to DCCS 11005-11   |
| 4 Sandwich plate according to data sheet 48050   | 8 Pressure switch (optional) according to data sheet 50061                              |
| 4.1 Pressure relief valve (pressure value 1 - maximum pressure) according to data sheet 25402                  | 9 Plug screw ZN10027-M8X1-SV; material no. <b>R913019129</b>                            |
| 4.2 Pressure relief valve (pressure value 2 - second pressure rating - optional) according to data sheet 25402 | 10 Plug screw ZN10027-M8X1-SV; material no. <b>R913019129</b>                           |
- Attached valve types can be seen from the parts list

## Function, exploded drawing

The pump manifold blocks basically consist of the valve block (1), the cartridge valve (2) with pilot control valve (3) (according to data sheet 21050) of the pressure relief function and the control valve (5) 4WE6... (according to data sheet 23178). Optionally, a pressure switch (8) type HED 8 (according to data sheet 50061) and a pressure gauge (6) can be attached.

At the block bottom side, the valve block has a P connection (SAE high-pressure series) for the input and a total of 3 connections (SAE high-pressure series) P1, P2 and P3 for the output of the hydraulic fluid as well as one tank port T (SAE standard pressure series).

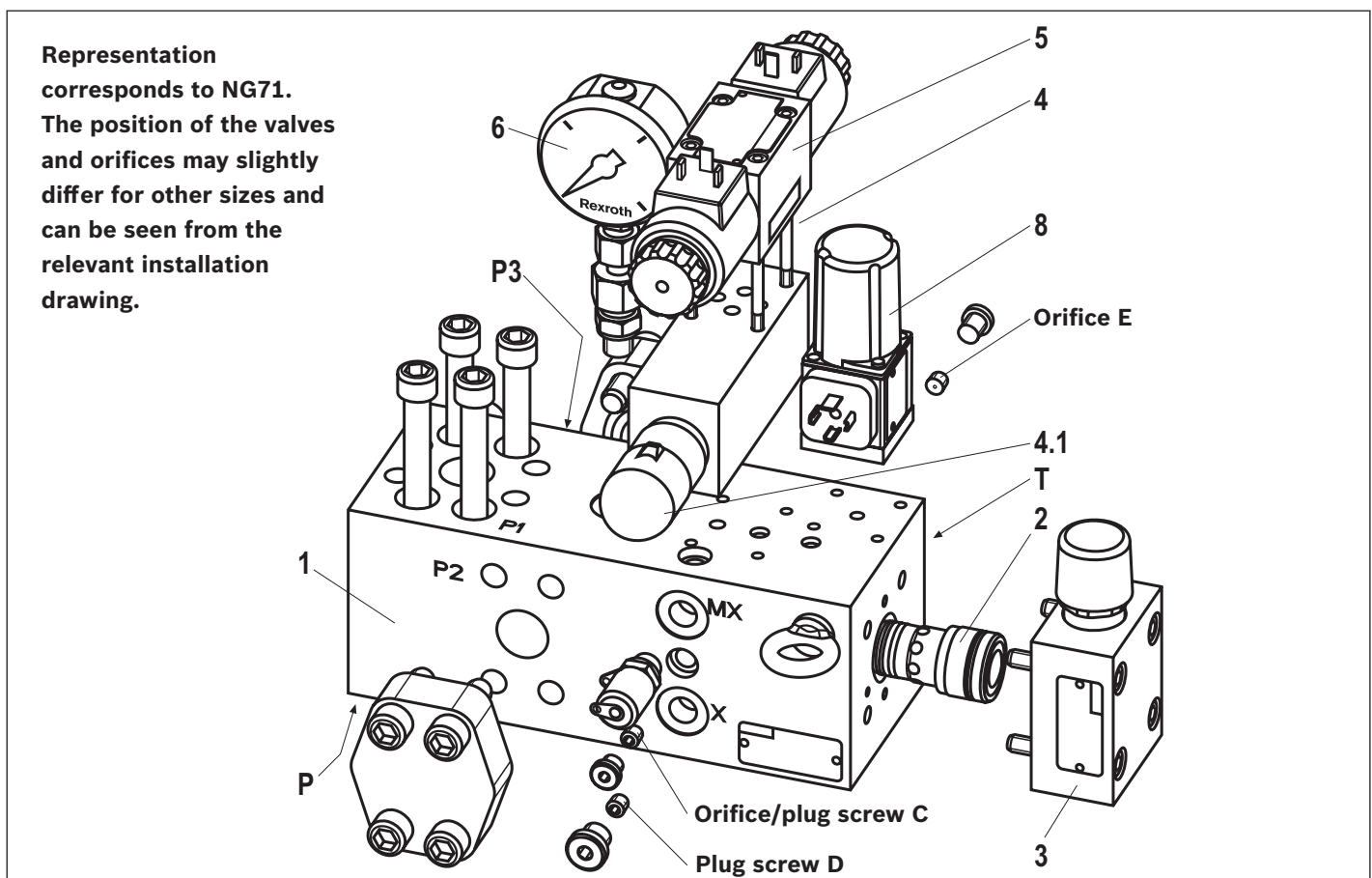
In an internally bored branch, there is the cartridge valve (2) and the pilot control valve (3). Via the open function of the valve, there is a connection to the T port (SAE standard pressure series).

By means of orifice/plug fitting in threads "C", "D", and "E", the pump manifold block can be adjusted to different pump types and controller variants.

In the basic version, the control line of the cartridge valve (2) and the pilot control valve (3) is unloaded to the tank

via the 4WE6HB... (5) control valve (cartridge valve is open, P-T connection is established). If solenoid b of the control valve (5) is connected, the control line of the cartridge valve (2) and the pilot control valve (3) is closed, the pending pressure P-P1-P2-P3 acts on the main spool of the cartridge valve (2); at the same time, the pressure is applied to the pilot control valve (3) via an auxiliary bore. If the pressure in P reaches the set pressure of the pilot control valve (3), the latter is opened. The spring chamber of the cartridge valve (2) is unloaded and due to the hydraulic state of equilibrium, hydraulic fluid flows from P, P1, P2, P3 to channel T, maintaining the set operating pressure. With controller option "F" and "G", this operating pressure must also be set at the controller-influenced pressure relief valve (4.1) of the sandwich plate (4).

Optionally, a second pressure rating can be selected electrically via the sandwich plate (4), via solenoid a of the control valve 4WE6H... (5). However, the set pressure **must** be less than the pressure set at the pilot control valve (3).



**Technical data**

(For applications outside these parameters, please consult us.)

general					
Weight with maximum fitting	NG	40	71	180	355
	kg	23	27	30	40
Installation position	Any				
Ambient temperature range in case of use with the following devices and seals				NBR seal	FKM seal
	°C	HED according to data sheet 50061		-25 ... +50	-20 ... +50
	°C	WE according to data sheet 23178		-30 ... +50	-20 ... +50
If different components are used at the same time, the corresponding limited temperature range applies.	°C	DBET according to data sheet 29162			-20 ... +70
	°C	DBETE according to data sheet 29162			-20 ... +50
Maintenance information: For assembly, commissioning and maintenance of oil hydraulic systems please observe the data sheet 07900!					

hydraulic					
Maximum operating pressure	bar	The maximum operating pressure is determined after selection of the pressure rating. The maximum admissible operating pressure is 350 bar For special versions of the controller option "G" with remote controlled pressure controller, a maximum operating pressure of 400 bar is admissible. This is accordingly documented on the name plate. In these special versions, a cover plate is attached at position 4 or 5 (data sheet 48042) and port X is closed.			
Maximum counter pressure	- with DBET or DBETE	bar	Return flow pressure (port T or Y): separately depressurized to the tank		
Maximum set pressure	- with DBET or DBETE	bar	with pressure rating 200 bar: 200 bar with pressure rating 315 bar: 315 bar with pressure rating 350 bar: 350 bar		
	- with 2-way cartridge valve	bar	with pressure rating 200 bar: 200 bar with pressure rating 315 bar: 315 bar with pressure rating 420 bar: 350 bar		
	- with HED8	bar	with pressure rating 200 bar: 200 bar with pressure rating 350 bar: 350 bar		
Maximum flow	NG	40	71	180	355
	l/min	150	200	400	600
Hydraulic fluid	Mineral oil HLP according to DIN 51524-2, for further information, see data sheet 90220 For other hydraulic fluids, please contact us.				
Hydraulic fluid temperature range	°C	+10 ... +80 The optimum operating temperature of the power unit for operation with mineral oil HLP according to DIN 51524-2 lies between +40 °C and +50 °C. In continuous operation, the operating temperature is not to exceed +70 °C!			
Hydraulic fluid temperature range			for NBR seals		for FKM seals
	- with directional valve	°C	-30 ... +80		-20 ... +50
	- with 2-way cartridge valve	°C	-30 ... +80		-20 ... +80
	- with DBET or DBETE	°C			-20 ... +80
	- with HED8	°C	-25 ... +80		-20 ... +80
If different components are used at the same time, the corresponding limited temperature range applies.					
Viscosity range	- with directional valve	mm <sup>2</sup> /s	2.8 ... 500		
	- with 2-way cartridge valve	mm <sup>2</sup> /s	2.8 ... 380		
	- with DBET or DBETE	mm <sup>2</sup> /s	20 ... 380 (preferably 30 ... 46)		
	- with HED8	mm <sup>2</sup> /s	10 ... 800		
If different components are used at the same time, the corresponding limited viscosity range applies.					

**Technical data**

(For applications outside these parameters, please consult us.)

<b>hydraulic</b> (continued)		
Maximum admissible degree of contamination of the hydraulic fluid; Cleanliness class according to ISO 4406 (c)	Class 20/18/15 <sup>1)</sup>	
For more technical data refer to the data sheets	- Directional valve	Data sheet 23178
	- 2-way cartridge valve	Data sheet 21050
	- PropDB: DBET and DBETE	Data sheet 29162
	- Pressure switch HED8	Data sheet 50061

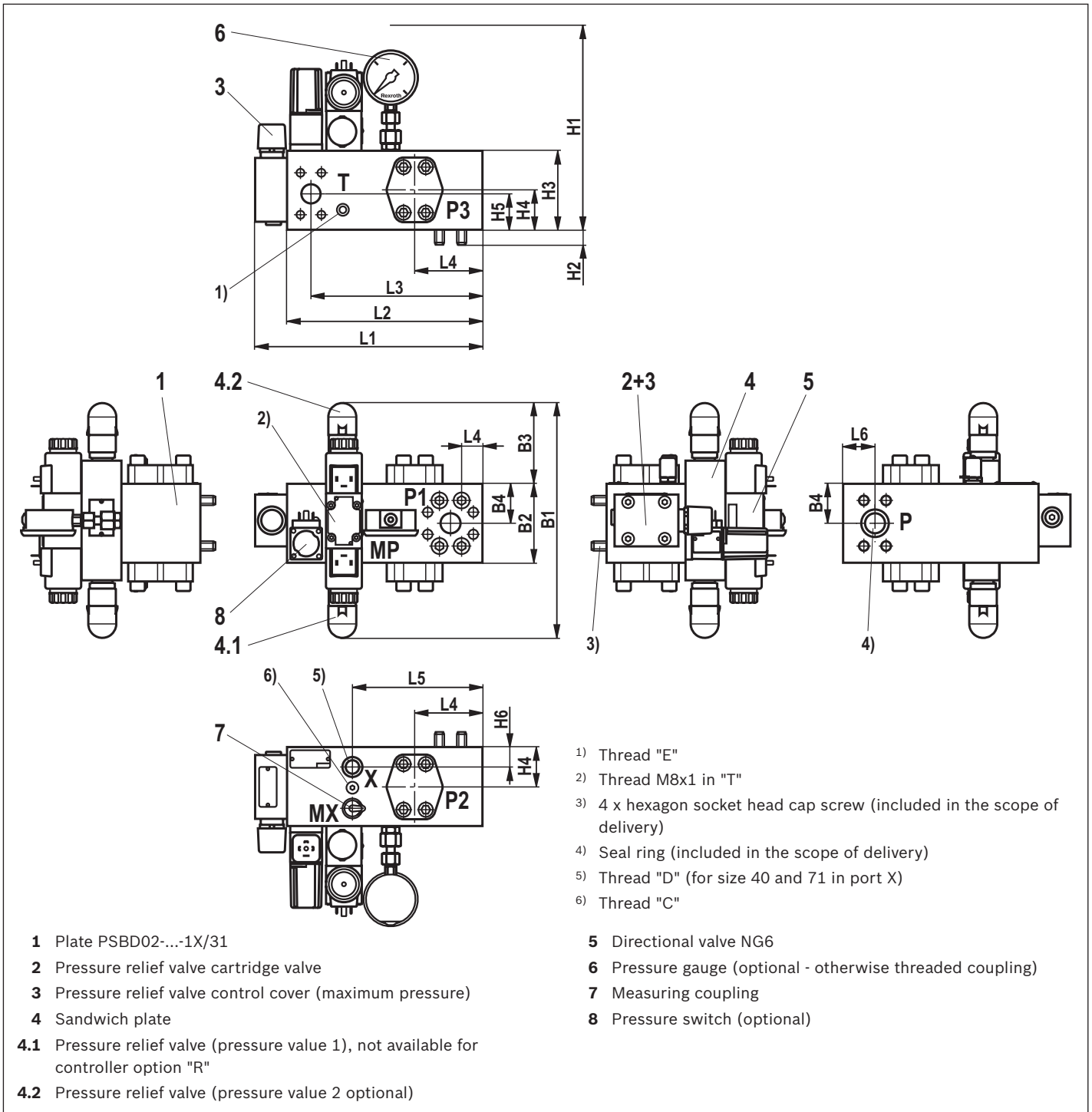
<b>electric</b>	
Mating connectors	<p>Mating connectors are not included in the scope of delivery and must be ordered separately.</p> <p>In the set-up of the following devices, please use the corresponding data sheets:</p> <ul style="list-style-type: none"> <li>▶ 4/3, 4/2 and 3/2 directional valves with wet-pin DC or AC solenoids data sheet 23178</li> <li>▶ Pressure switch HED8 data sheet 50061</li> <li>▶ Proportional pressure relief valves direct operated, without/with integrated electronics (OBE) data sheet 29162</li> <li>▶ 2-way cartridge valve pressure functions data sheet 21050</li> </ul>

<sup>1)</sup> The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and simultaneously increases the life cycle of the components. For selecting the filters, see technical data sheet 51501.

**Unit dimensions** (dimensions in mm)

Representation corresponds to NG71.

The position of the valves and orifices may slightly differ for other sizes and can be seen from the relevant installation drawing.



Size	B1 max.	B2	B3 max.	B4	H1 max.	H2	H3	H4	H5	H6	L1 approx.	L2	L3	L4	L5	L6
40	310	99	115	49.5	260	17	99	50	45	25	280	230	200	85	148	35
71	310	99	115	49.5	260	19	99	50	45	25	295	245	215	85	163	40
180	310	112	110	56.0	260	18	112	55	50	45	300	250	210	100	175	45
355	310	126	110	63.0	260	21	126	63	54	45	315	260	211	109	177	51

## Connections

Connections	(Block) size			
	40	71	180	355
<b>P</b> (for direct attachment on the pump)	SAE 3/4 H	SAE 1 H	SAE 1 1/4 H	SAE 1 1/2 H
<b>P1</b>	SAE 3/4 H	SAE 1 H	SAE 1 1/4 H	SAE 1 1/2 H
<b>P2, P3 closed</b>	SAE 3/4 H	SAE 1 H	SAE 1 1/4 H	SAE 1 1/2 H
<b>T</b>	SAE 3/4 S	SAE 1 S	SAE 1 1/4 S	SAE 1 1/2 S
<b>X</b>	G 1/4	G 1/4	G 1/4	G 1/4
<b>MP, MX</b>	G 1/4	G 1/4	G 1/4	G 1/4
<b>Y only with DBET.. directly at the valve</b>	G 1/4	G 1/4	G 1/4	G 1/4

Line connection 1: Threaded hole DIN 3852-2 a), imperial pipe thread DIN EN ISO 228, line connection 2: SAE flange DIN ISO 6162-2, enlarged connection, flange mounting: metrical ISO thread DIN 13, valve mounting: metrical ISO thread DIN 13

## Pump selection

Pump manifold block		NG40	NG71	NG180	NG355
Port P	Data sheet	SAE 3/4" H	SAE 1" H	SAE 1 1/4" H	SAE 1 1/2" H
Pump type: - Variable displacement pump type A4VSO	92050	A4VSO 40	A4VSO 71	A4VSO 125 A4VSO 180	A4VSO 250 A4VSO 355

Considering the size of the connection flange and the dimensions, this block may also be attached to other pumps. Here, special attention must be paid to possible interfering edges of the pump. This must be structurally checked in the individual case.

## **Commissioning, maintenance and operating instructions**

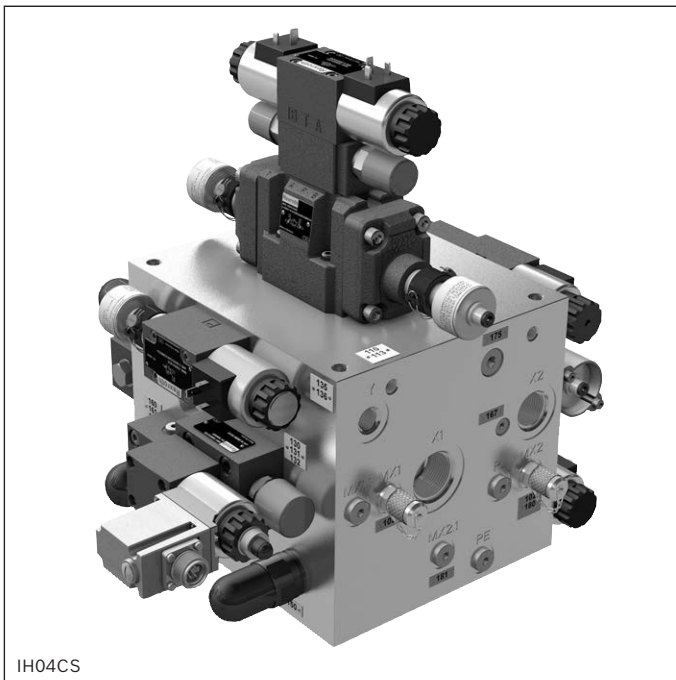
### **General information**

- ▶ Observe the documentation for the machinery.
- ▶ Also observe the documentation pertaining to the other components, assemblies and partly completed machinery, which form part of the complete machinery.
- ▶ Observe the generally applicable, legal or otherwise binding European and national regulations as well as the relevant legislation for your country pertaining to the prevention of accidents and protection of the environment.
- ▶ Keep documents included in the delivery carefully; they will be required by the expert in recurring tests.
- ▶ The machine end-user will have sole responsibility for complying with existing provisions.
- ▶ Repairs may only be carried out by the manufacturer or their authorized dealers and agencies. Repairs performed by third parties invalidate the approval and release the manufacturer from all claims resulting from an unauthorized intervention.
- ▶ Assembly and maintenance must be implemented by authorized, instructed persons only.



## Press module for hydraulic presses

### Type IH04C



IH04CS

- ▶ Size 10, 16, 25, 32, 35
- ▶ Component series 7X
- ▶ Maximum operating pressure 350 bar
- ▶ Maximum flow 2,000 l/min
- ▶ Hydraulic control for downstroke piston

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### Features

- ▶ Hydraulic control for machine types according to ISO 16092-3 and EN 289
- ▶ EC type examination certificate HSM15009
- ▶ The base module 100 includes all safety-related functions according to category 4 of DIN EN ISO 13849-1.
- ▶ The extension modules 200 include all common circuits for hydraulic presses.
- ▶ Suitable for
  - pressure/position controls
  - open circuit
- ▶ Modular design
- ▶ Supply connections on the side and at the bottom
- ▶ Thick film passivated (free from chromium(VI))

**Ordering code**

	01	02		03		04	05	06		07	08	09	10		11		12		13		14
<b>IH04</b>	<b>C</b>		-	<b>7X</b>	/				-					-		-		-		-	

**Machine function**

01	Downstroke piston	<b>C</b>
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**Safety category**

02	According to ISO 13849, category 4, with type-examination certificate	<b>S</b>
	According to ISO 13849, category 1	<b>N</b>

**Component series**

03	Component series 70 ... 79 (unchanged installation and connection dimensions)	<b>7X</b>
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**Size**

04	10, 16, 25, 32, 35	<b>10 ... 35</b>
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**Operating pressure**

05	315 bar	<b>G</b>
	350 bar	<b>S</b>

**Number of mounted modules (version-dependent)**

06	Base module 100	<b>1</b>
	Base module 100 with one extension module 200	<b>2</b>
	Base module 100 with two extension modules 200	<b>3</b>

**Pump pressure limitation – Item 120**

07	With manual pressure adjustment <sup>1)</sup>	<b>B</b>
	With proportional pressure adjustment	<b>E</b>
	With manual pressure adjustment and depressurized circulation	<b>W</b>

**Press force adjustment in the piston chamber – Item 130**

08	With manual pressure adjustment	<b>B</b>
	With proportional pressure adjustment	<b>E</b>
	With manual pressure adjustment and piston chamber preloading	<b>U</b>

**Load holding – Item 160**

09	In the T channel of item 110 and with manual pressure adjustment	<b>0</b>
	In the T channel of item 110 and with manual pressure adjustment and switchable rapid traverse by own weight with prefill valve	<b>1</b>
	In the B channel of item 110 and with manual pressure adjustment <sup>2)</sup>	<b>2</b>
	In the B channel of item 110 and with manual pressure adjustment and switchable rapid traverse by own weight with prefill valve <sup>2)</sup>	<b>3</b>

**Safe reduced velocity (< 10 mm/s) according to ISO 16092-3, section 5.3.2.16 - Item 170**

10	Without	<b>N</b>
	Safe reduced velocity	<b>D</b>
	Safe reduced velocity and testing of the restraint device	<b>P</b>

<sup>1)</sup> With load-sensing

<sup>2)</sup> Upon request. Suitable for powder presses, synchronization control, set-up with two-hand operation, closing velocities below 10% of the maximum closing velocity, presses with small annulus areas.

## Ordering code

	01	02	03	04	05	06	07	08	09	10	11	12	13	14
<b>IH04</b>	<b>C</b>		<b>-</b>	<b>7X</b>	<b>/</b>						<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

### Directional valve – Item 110

11	5-4WE10E7X/EG24K4QS0G24W/M	IH04C-7X/10	<b>WE-000E</b>
	H-4WEH10E4X/6EG24SK4QM0G24		<b>WEH000E</b>
	4WREEM10E75-2X/G24K34/B6V <sup>1)</sup>		<b>EEM075E</b>
	4WREE10V75-2X/G24K31/A1V <sup>1)</sup>		<b>REE075V</b>
H-4WEH16E7X/6EG24SK4QM0G24	4WRTEM16E220L-4X/6EG24K31/A1M	IH04C-7X/16	<b>WEH000E</b>
	4WRDE16V220L-6X/MXY/24A1		<b>TEM220E</b>
			<b>RDE220V</b>
H-4WEH25E6X/6EG24SK4QM0G24	4WRTEM25E350L-4X/6EG24K31/A1M	IH04C-7X/25	<b>WEH000E</b>
	4WRDE25V350L-6X/MXY/24A1		<b>TEM350E</b>
			<b>RDE350V</b>
H-4WEH32E6X/6EG24SK4QM0G24	4WRTEM32E600L-4X/6EG24K31/A1M	IH04C-7X/32	<b>WEH000E</b>
	4WRDE32V600L-5X/6L24K9/MR		<b>TEM600E</b>
			<b>RDE600V</b>
4WRTEM35E1300L-4X/6EG24K31/A1M	4WRDE35V1000L-5X/6L24K9/MR	IH04C-7X/35	<b>TEM1K3E</b>
			<b>RDE1K0V</b>
Other valves upon request			

### Extension modules – Item 200

12	None	<b>NN</b>
	With rapid traverse cylinder	<b>EN</b>
	With rapid traverse cylinder and load-sensing	<b>EL</b>
	With rapid traverse cylinder and high-response valve with zero overlap	<b>ER</b>
	With rapid traverse cylinder and pressure holding on the piston chamber side	<b>EX</b>
	With rapid traverse cylinder and accumulator operation	<b>ES</b>
	With differential circuit <sup>2)</sup>	<b>DN</b>
	With differential circuit and pressure holding on the piston chamber side <sup>2)</sup>	<b>DX</b>
	With high-pressure and low-pressure pumps	<b>HN</b>
	With high-pressure and low-pressure pumps and pressure holding on the piston chamber side	<b>HX</b>
	With load-sensing	<b>LN</b>
	With load-sensing and pressure holding on the piston chamber side	<b>LX</b>
	With high-response valve with zero overlap	<b>RN</b>
	With high-response valve with zero overlap and pressure holding on the piston chamber side	<b>RX</b>
	With pressure holding on the piston chamber side	<b>XN</b>
	With pressure holding on the piston chamber side and accumulator operation	<b>XS</b>
	With accumulator operation	<b>SN</b>
	With slide cushion	<b>ZN</b>

### Voltage

13	DC voltage 24V	<b>G24</b>
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### Additional version

14	Directional valve item 110 with asymmetric spool P→A: q <sub>v</sub> ; P→B: q <sub>v</sub> /2	<b>001</b>
	Set-up by own weight (> 10 mm/s)	<b>002</b>

<sup>1)</sup> Up to 315 bar only, otherwise on request

<sup>2)</sup> Up to NG 25 only

## Function

The press module type C is a hydraulic control for the installation in hydraulic presses according to EN ISO 16092-3 or plastic and rubber machines according to DIN EN 289 and is - according to DIN EN ISO 13849-1 - regarded as "safety-related part of control systems". The industrial area of application is extended to all machine types which require the safety requirements of the above-specified standards.

The press module type C allows the user to design, construct, and/or modify their downstroke piston functions such as press slide, blank pressure pad and slide cushion according to the general safety requirements. In connection with a suitable electric control, category 4, PLe according to DIN EN ISO 13849-1 can be reached for the following safety measures:

Safety measures for the hazard type	Extract from standard	Performance level (PL)	Safety category
Avoiding the unintended lowering under own weight	ISO 16092-3 section 5.3.7.2	e	4
Avoiding the unintended start-up from the rest position	ISO 16092-1 section 5.4.1.1.4a)	e	4
Stopping of the dangerous closing movement	ISO 16092-1 section 5.4.1.1.4c)	e	4
Safe reduced velocity below 10 mm/s with hold-to-run device	ISO 16092-3 section 5.3.2	d	3

The EC type examination certificate HSM15009 has been granted. The tested type complies with the relevant provisions of Directive 2006/42/EC (Machinery). Additionally to ISO 16092-3, section 5.3.7.3, unintended lowering under own weight during the retraction of the

hydraulic upholding equipment item 140 is safely prevented. During muting, errors can be recognized in time by analysis of the end-switch signal S14.

### Base module 100

A complete press module type C consists at least of the base module item 100 and the directional valve item 110. The safety-related functions (cat. 1 or 4) are part of the basic design and do not influence the attachment of the additional extension modules item 200<sup>1)</sup>.

The pump and tank connections are arranged on the side and at the bottom and allow for perfect installation into the press. All other actuator ports are arranged on the side<sup>2)</sup>. All measuring points are provided with two connections.

<b>Safety-related hydraulic control according to category 4 of ISO 13849</b>	Directional valve with position monitoring (channel 1)	Item 110
	Pump pressure limitation	Items 120 ... 122
	Protection against unwanted pressure build-up on the piston chamber side (channel 2)	Items 130/131/135
	Restraint device on the annulus area side (channel 2)	Items 140/145
	Pressure limitation on the annulus area side against pressure intensification	Items 150/151
	Safe reduced velocity below 10 mm/s according to ISO 16092-3, section 5.3.2	Items 170 ... 175
<b>Basic functions</b>	Press force adjustment	Items 130 ... 132
	Load holding	Items 160 ... 165
<b>Additional function</b>	Rapid traverse due to own weight with prefill valve	Item 166

<sup>1)</sup> With exception, high-response valves with zero overlap RN and slide cushion ZN.

<sup>2)</sup> From NG 35, only the tank port T1.1 arranged at the bottom is available

## Function

### Extension module 200

With the extension modules item 200, further common variants are available for selection. The extension modules item 200 are installed between the base module item 100 and the directional valve item 110 and their port pattern corresponds to the port pattern of the directional valve

item 110. When the extension modules item 200 are used, the safety of the hydraulic control is maintained. All actuator ports are arranged on the side. All measuring points are provided with two connections.

Variants		
	Rapid traverse with rapid traverse cylinder	Item 210
	Operation with high-pressure and low-pressure pumps	Item 220
	Rapid traverse with differential circuit	Item 230
	Accumulator operation	Item 240
	Slide cushion	Item 250
	Set-up by own weight (> 10 mm/s)	Item 260
	Load-sensing	Item 270
	Pressure holding on the piston chamber side	Item 280
	High-response valve with zero overlap without detection of direction	Item 290
	– Energy separation on the piston chamber side (channel 1)	
	– Energy separation on the annulus area side (channel 1)	

### Installation

The pipelines must permanently withstand the maximum operating pressures and comply with the safety requirements according to ISO 16092-1, section 5.2.1 and section 5.2.3 as well as ISO 16092-3, section 5.2.3. Additionally it must be ensured that the pipeline between

the press module type "C" (port X2) and the annulus area is designed for the max. set pressure of the pressure relief valves (items 150/151). The pipeline design should be as short as possible.

## Technical data

(For applications outside these values, please consult us!)

General	
Installation position	Vertical with directional valve item 110 on top
Safety-relevant on/off valves	Without manual override
Coating	Galvanic coating DIN EN ISO 19598 – Fe/Zn8//Cn/T0
Labelling	<ul style="list-style-type: none"> <li>▶ Technical items</li> <li>▶ Outputs</li> </ul>
Ambient temperature range	°C –20 ... +50
Storage temperature range	°C +10 ... +40
Storage time more than 6 months	Specify in plain text when ordering

Hydraulic										
Maximum operating pressure	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Cast iron version</th> <th>Steel version</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> <li>▶ Ports<sup>1)</sup> P1.1 ... P1.7, X1, X11, X12, PL, PE, HD, S, LS1, MX12.1</li> <li>▶ Connection<sup>1)</sup> X2</li> </ul> </td> <td style="text-align: center;">315</td> <td style="text-align: center;">350</td> </tr> <tr> <td></td> <td style="text-align: center;">350</td> <td style="text-align: center;">400</td> </tr> </tbody> </table>		Cast iron version	Steel version	<ul style="list-style-type: none"> <li>▶ Ports<sup>1)</sup> P1.1 ... P1.7, X1, X11, X12, PL, PE, HD, S, LS1, MX12.1</li> <li>▶ Connection<sup>1)</sup> X2</li> </ul>	315	350		350	400
	Cast iron version	Steel version								
<ul style="list-style-type: none"> <li>▶ Ports<sup>1)</sup> P1.1 ... P1.7, X1, X11, X12, PL, PE, HD, S, LS1, MX12.1</li> <li>▶ Connection<sup>1)</sup> X2</li> </ul>	315	350								
	350	400								
Maximum return flow pressure	<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td> <ul style="list-style-type: none"> <li>▶ Port<sup>1)</sup> T1.1, T1.2</li> <li>▶ Connection Y</li> </ul> </td> <td style="text-align: center;">16</td> <td style="text-align: center;">Separately at zero pressure to the tank</td> </tr> </tbody> </table>	<ul style="list-style-type: none"> <li>▶ Port<sup>1)</sup> T1.1, T1.2</li> <li>▶ Connection Y</li> </ul>	16	Separately at zero pressure to the tank						
<ul style="list-style-type: none"> <li>▶ Port<sup>1)</sup> T1.1, T1.2</li> <li>▶ Connection Y</li> </ul>	16	Separately at zero pressure to the tank								
Recommended pilot pressure	30 ... 200									
Recommended load pressure	bar 20 ... 115 (other load pressures upon request)									
Measuring ports	Including measuring couplings									
Operating medium <sup>2)</sup>	Mineral oil (HL, HLP) according to DIN 51524-1, other hydraulic fluids upon request									
Temperature range of the hydraulic fluid	°C –20 ... +80, preferably +40 ... +50									
Viscosity range of the hydraulic fluid	mm <sup>2</sup> /s 10 ... 500, preferably 30 ... 46									
Maximum admissible degree of contamination of the hydraulic fluid	Cleanliness class 18/16/13 according to ISO 4406 (c) <sup>3)</sup> Cleanliness class 17/15/12 according to ISO 4406 (c) for the pilot valve <sup>4)</sup> of 4WRDE									
Seal material	NBR, others upon request									

Sizes		10	16	25	32	35
Nominal flow <sup>5)</sup>	▶ P1	l/min 140	300	600	1000	2000
	▶ HD	l/min 70	130	260	–	–
	▶ X1→T	l/min 250	500	700	1200	2100
	▶ X2→T1 <sup>6)</sup>	l/min 140	300	600	1000	2000
Recommended pump equipment <sup>7)</sup>	cm <sup>3</sup>	100	210	355	2 x 355	4 x 355

- 1) Order connection flanges separately, see page 42.
- 2) The ignition temperature of the operating medium used must be higher than the maximum coil temperature of the valves. See data sheets of the components used.
- 3) Effective filtration is to be provided separately. This prevents faults and simultaneously increases the service life of the components. See data sheets of the components used.
- 4) Flushing element to be ordered separately, HSA06A012-4X/V00 (R901092348) or 4WE6J6X/EG24N9K4 (R900561288).
- 5) The directional valve item 110 determines the maximum flow and maximum hydraulic performance of press module.
- 6) Design the rapid traverse due to own weight with prefill valve with at least 25 bar load holding pressure. Below 25 bar upon request.
- 7) For recommended pump versions, see pages 43 and 44.

### Notice:

In the as-delivered state, the mechanical adjusters of the pressure relief valves (items 121, 131, 150/151, 165) and the stroke limitations (items 140 and 161) are completely screwed-out.

In the as-delivered state, the type-tested safety valve item 246 (only available with accumulator operation) is set and sealed according to the Pressure Equipment Directive 2014/68/EU.

## Technical data

(For applications outside these values, please consult us!)

Electric		
Voltage type		Direct voltage
Duty cycle	%	100
Protection class according to DIN EN 60529		IP65 with mating connector mounted and locked <sup>1)</sup>
Maximum surface temperature of the coil <sup>2)</sup>	°C	150
Voltage	V	24 +/- 10%



### Notice:

With the electrical connection "K4", the protective grounding conductor (PE) must be connected properly.

High-response valves <sup>3)</sup>		
Voltage	V	24 +/- 10%
Command value input	V	+/- 10%
Control electronics		On Board Electronic (OBE)

- 1) Mating connectors are not included in the scope of delivery and must be ordered separately. See data sheet 08006.
- 2) Due to the temperatures occurring at the surfaces of the solenoid coils, the standards ISO 13732-1 and EN ISO 4413 must be observed.
- 3) For function, technical data, integrated control electronics, performance limits, characteristic curves and general information refer to the data sheet of the component used.



### Notice:

For the environment simulation testing for EMC (electro-magnetic compatibility), climate and mechanical load, see data sheet of the component used.

## Safety-relevant components

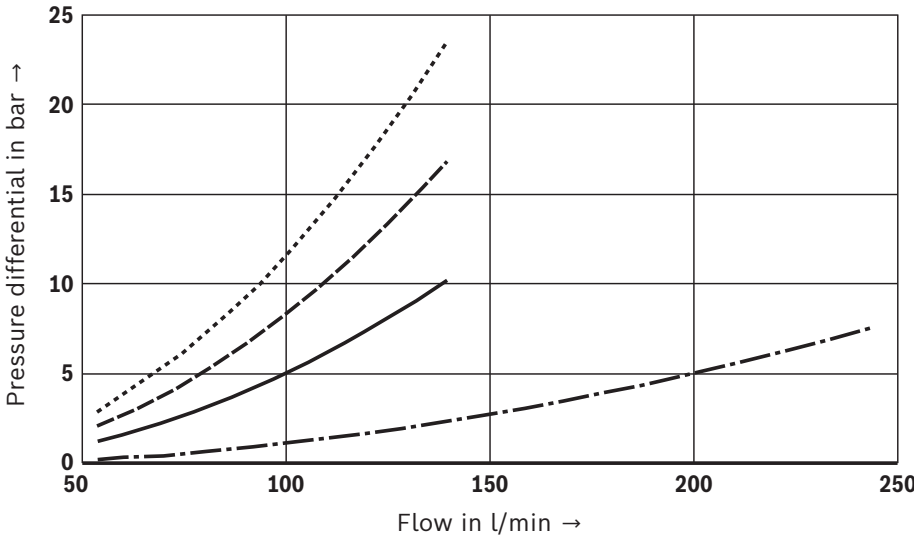
For information on the electrical characteristics of the inductive position switches such as connection voltage, load capacity, admissible residual ripple, switching

outputs and pin connections please refer to the data sheets listed in the following table:

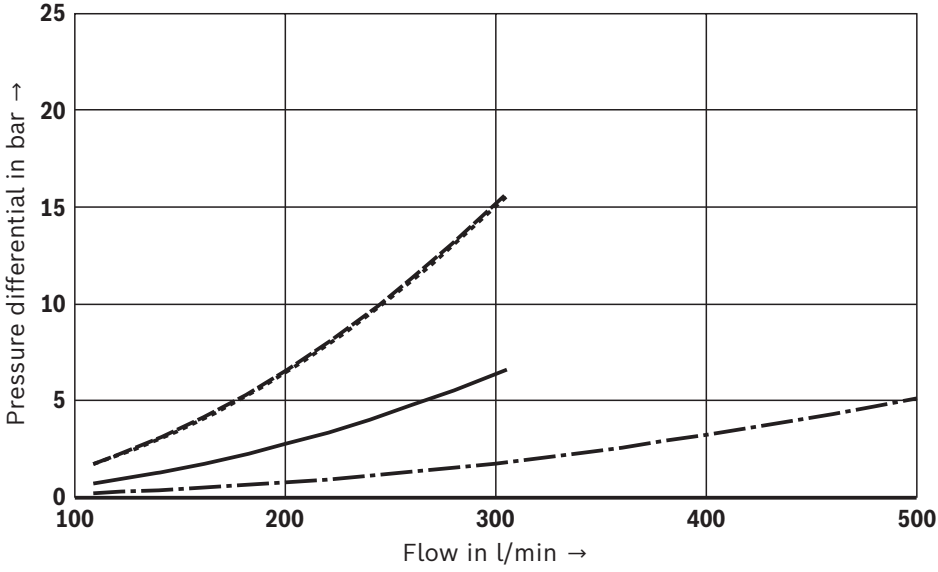
Technical item	Type designation	IH04C-6X	Limit switch designation	Data sheet
Item 110	5-4WE10...QS0	NG10	S11a, S11b, S12, S23	24830
	H-4WEH...QM0	NG10-32		
	4WREEM	NG10		
	4WRTEM	NG10-35	S11	29083
Items 135, 260, 292, 297	4WE6...QMB	NG10-32	S13, S26, S29.2, S29.7	24830
	5-4WE10...QMB	NG35		
Item 140	LFA...E...QM	NG10-35	S14	21015
Item 250	H-3WEH...QMB	NG10-35	S25	24830
Items 290, 295	LC2A...B...Q7	NG10-35	S29.0, S29.5	21040

**Characteristic curves**

**IH04CS-7X/10G1-WE1D-WEH000E-NN-G24**

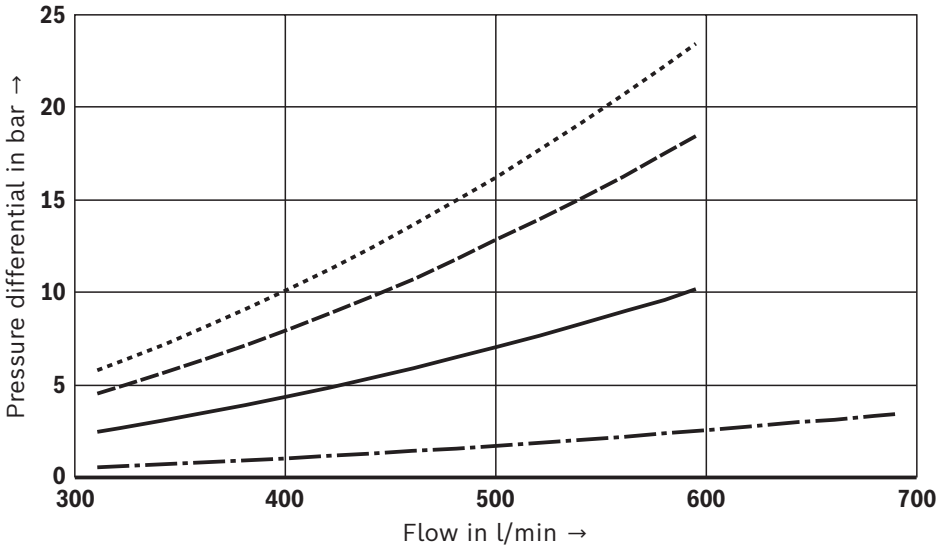


**IH04CS-7X/16G1-WE1D-WEH000E-NN-G24**



- P1 → X1
- - - P2 → X2
- · - X1 → T1.1
- · · X2 → T1.1

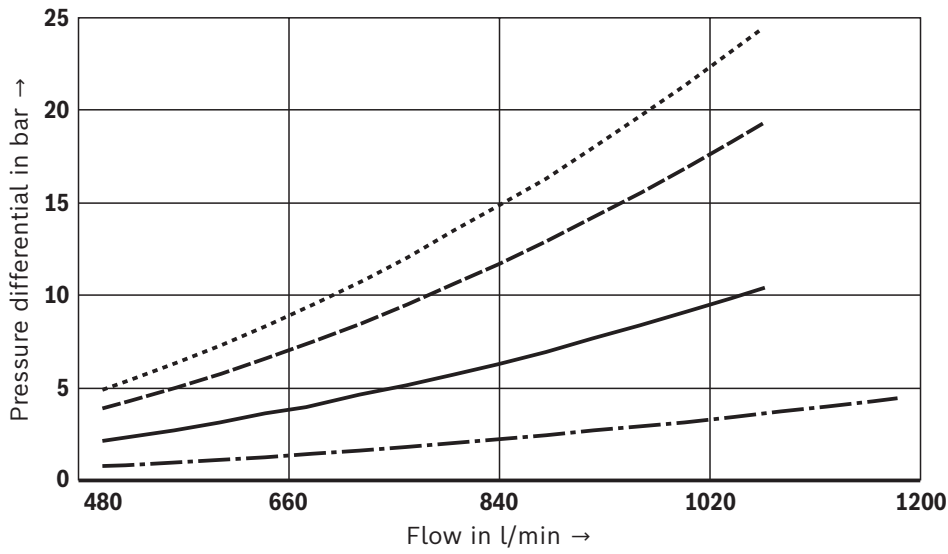
**IH04CS-7X/25G1-WE1D-WEH000E-NN-G24**



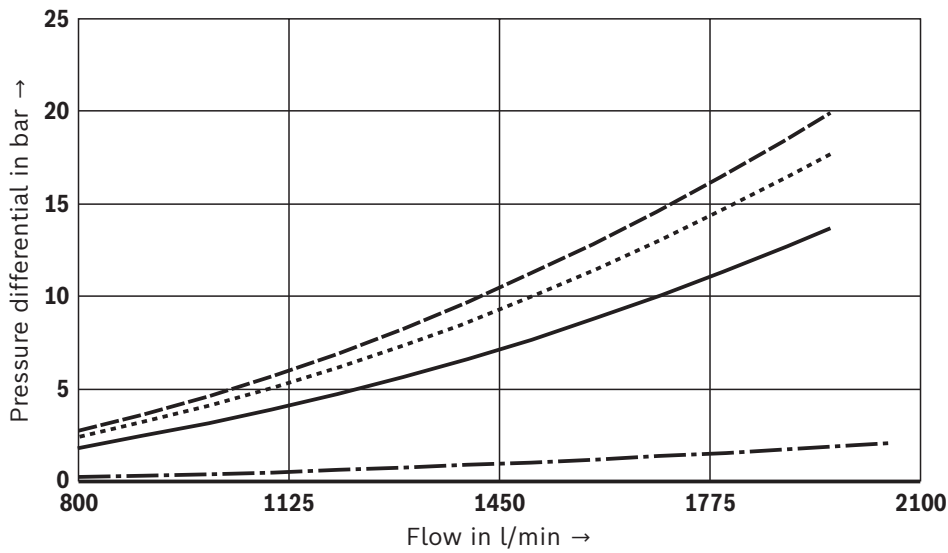


### Characteristic curves

IH04CS-7X/32G1-WE1D-WEH000E-NN-G24



IH04CS-7X/35G1-WE1D-TEM1K3E-NN-G24



- P1 → X1
- - - P2 → X2
- · - · X1 → T1.1
- · · X2 → T1.1

**Basic functions according to safety category 4 (ISO 13849-Pl e):**

IH04CS-7X/...1-WE0N-WEH000E-NN-G24

The following description is based on a cyclic control and position monitoring of the valves.

- ▶ Failure of any of the position-monitored valves must be detected by an external safety PLC and the start of the next dangerous movement after an error has to be prevented. Direction error immediate stop.
- ▶ The load holding pressure is the total of slide weight and weight of the top tool part acting on the effective annulus area.
- ▶ During muting (e.g. during retraction), the solenoids Y13 (S13) and Y14 (S14) must be switched-off.

**Option W – Item 120**

The pressure relief valve item 120/121 limits the pressure of the motor pump station. At the pressure relief valve item 121, the maximum operating pressure is set. The on/off valve item 122 provides pilot control of the pressure relief valve item 120/121. In its basic position, the pressure relief valve item 120/121 is switched to depressurized circulation. Energization of the solenoid Y12 causes the pressure set at the pressure relief valve item 120 to become effective..

**Option WEH000E – Item 110**

The movement direction of the cylinder piston is determined by the directional valve item 110:

- ▶ The cylinder piston is extended with the control signal Y11b.
- ▶ The cylinder piston is retracted with the control signal Y11a.

By means of the position monitoring S11a and S11b, it is monitored whether

- ▶ the closed central position is reached in every pressing cycle.
- ▶ the movement direction is correct.

**Option E – Item 130**

The pressure relief valve item 130/131 serves for pressure limitation on the piston chamber side of the cylinder.

At the pressure relief valve item 131, the maximum press pressure is set. The proportional pressure relief valve item 132 provides pilot control of the pressure relief valve item 130/131 and determines the press pressure by means of the control signal Y13.1 (e.g. press force, decompression, preload during retraction):

- ▶ When the set pressure is exceeded, the pressure relief valve item 130 will open to the tank.
- ▶ When the set pressure is no longer reached, the pressure relief valve item 130 will close.

**Functional safety item 135**

Protection against unwanted pressure build-up on the piston chamber side is realized by the directional valve item 135. In its basic position, the pressure relief valve item 130/131 is switched to depressurized circulation. By means of the electrical position monitoring S13 it can be monitored whether the basic position is reached in every pressing cycle. Energization of the solenoid Y13 causes the pressure set at the pressure relief valve item 132 to become effective.

**Functional safety item 140**

The 2-way cartridge valve in item 140 holds the cylinder piston in position (EN ISO 16092-3 section 5.3.7.2). During load holding/retraction, the valve item 140 acts as a check valve and during extension as a switchable isolator valve. By means of the position monitoring S14 it is monitored whether the basic position is reached in every pressing cycle. The seat valve item 145 unlocks the 2-way cartridge valve item 140 during extension.

**Functional safety item 150**

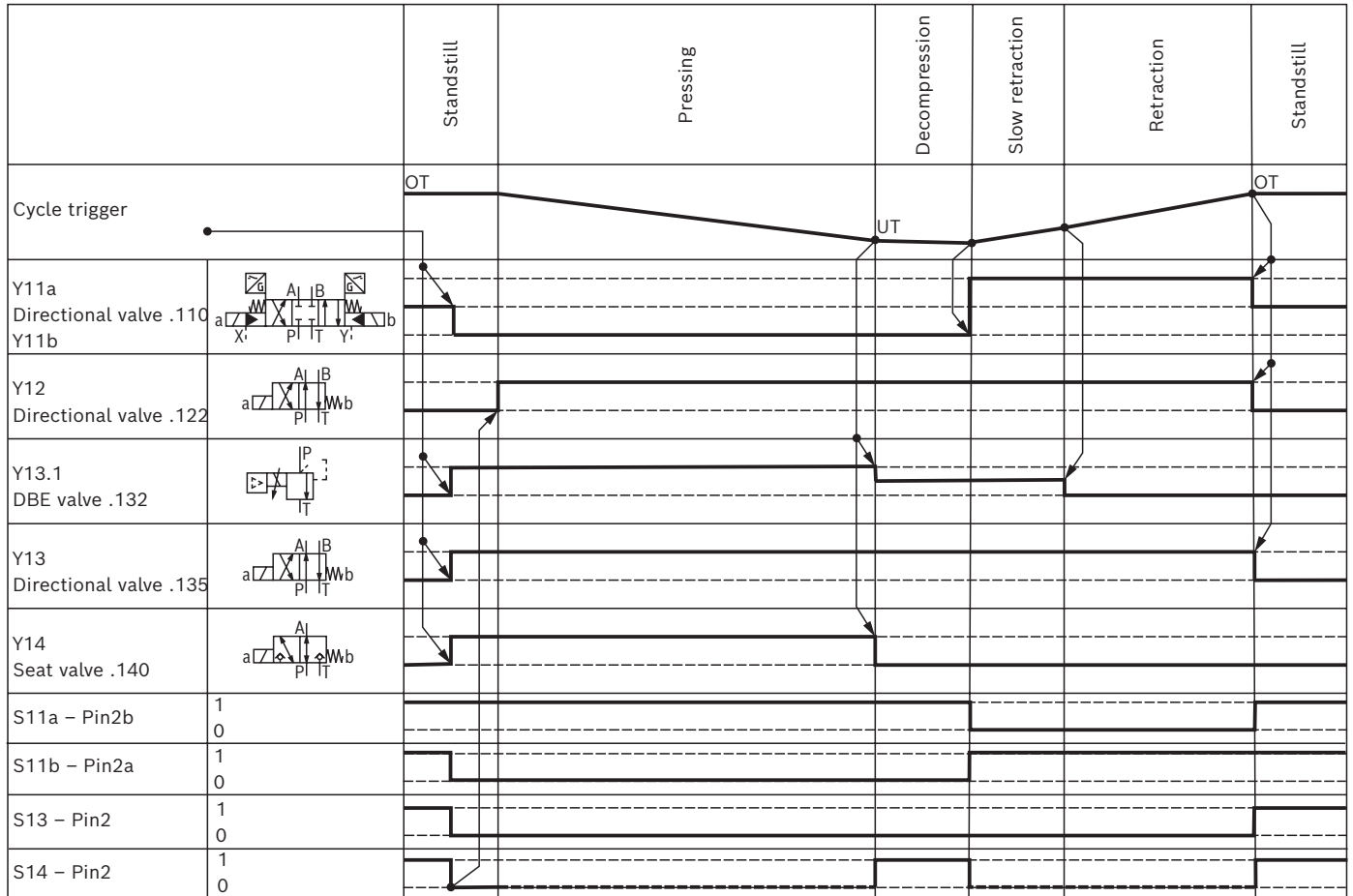
The pressure relief valves items 150/151 serve as protection against pressure intensification in the annulus area of the cylinder. According to DIN ISO 16092-3 section 5.2.3.3, they must be set to at least 10% above the maximum operating pressure item 120 and sealed.

**Option 0 – Item 160**

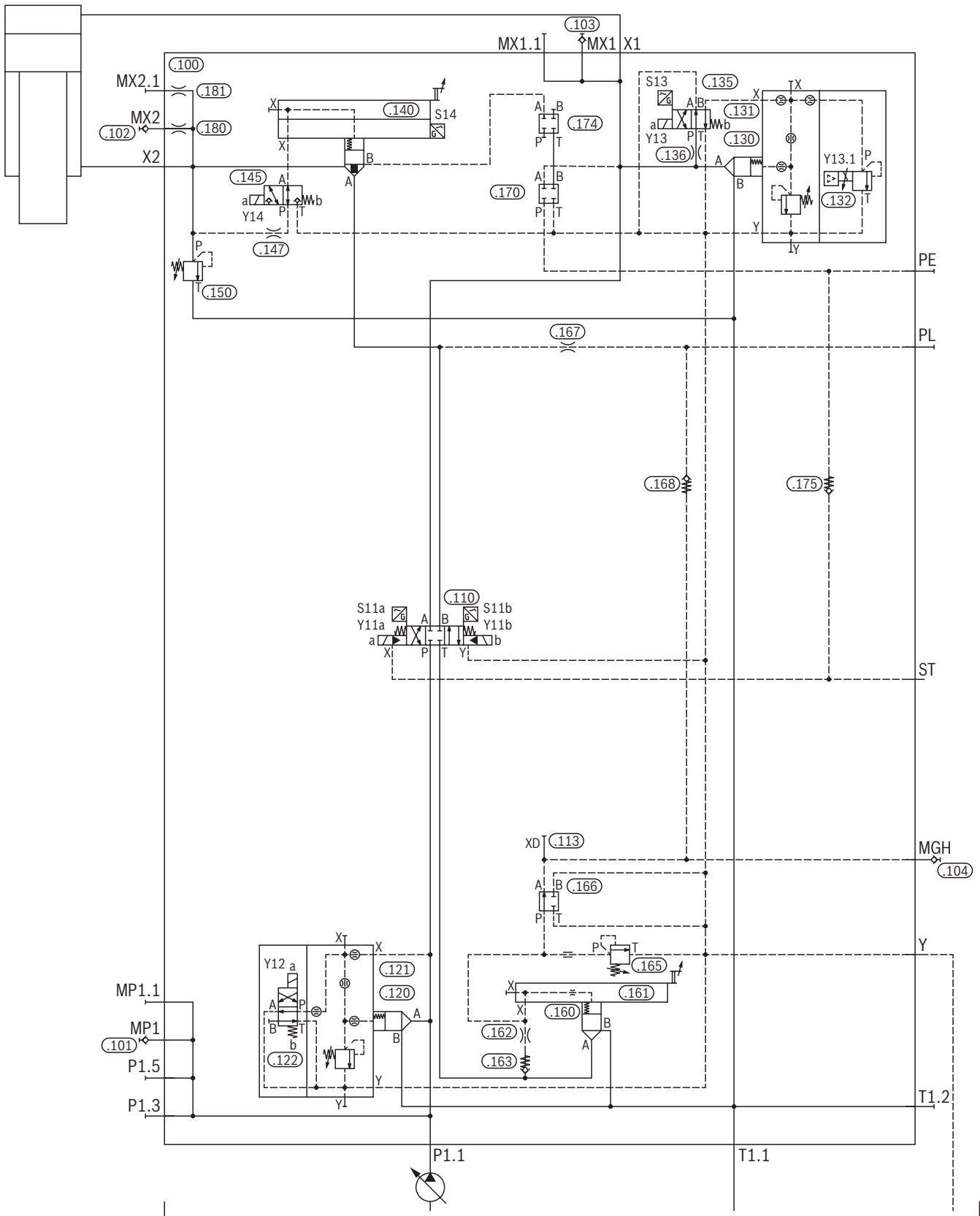
During the pressing process, the pressure relief valve consisting of items 160/161/165 compensates the load holding pressure on the annulus area side. The pressure relief valve item 165 is to be set so that the cylinder piston does not drop during standstill:

- ▶ When the set pressure is exceeded, the pressure relief valve item 160 will open to the tank.
- ▶ When the set pressure is no longer reached, the pressure relief valve item 160 will close.

**Basic functions according to safety category 4 (ISO 13849-Pl e):**  
 IH04CS-7X/...1-WE0N-WEH000E-NN-G24



**Basic functions according to safety category 4 (ISO 13849-Pl e):**  
 IH04CS-7X/...1-WE0N-WEH000E-NN-G24



### Rapid traverse due to own weight with prefill valve: IH04CS-7X/...1-WE1N-WEH000E-NN-G24

#### Option 1 – Item 160

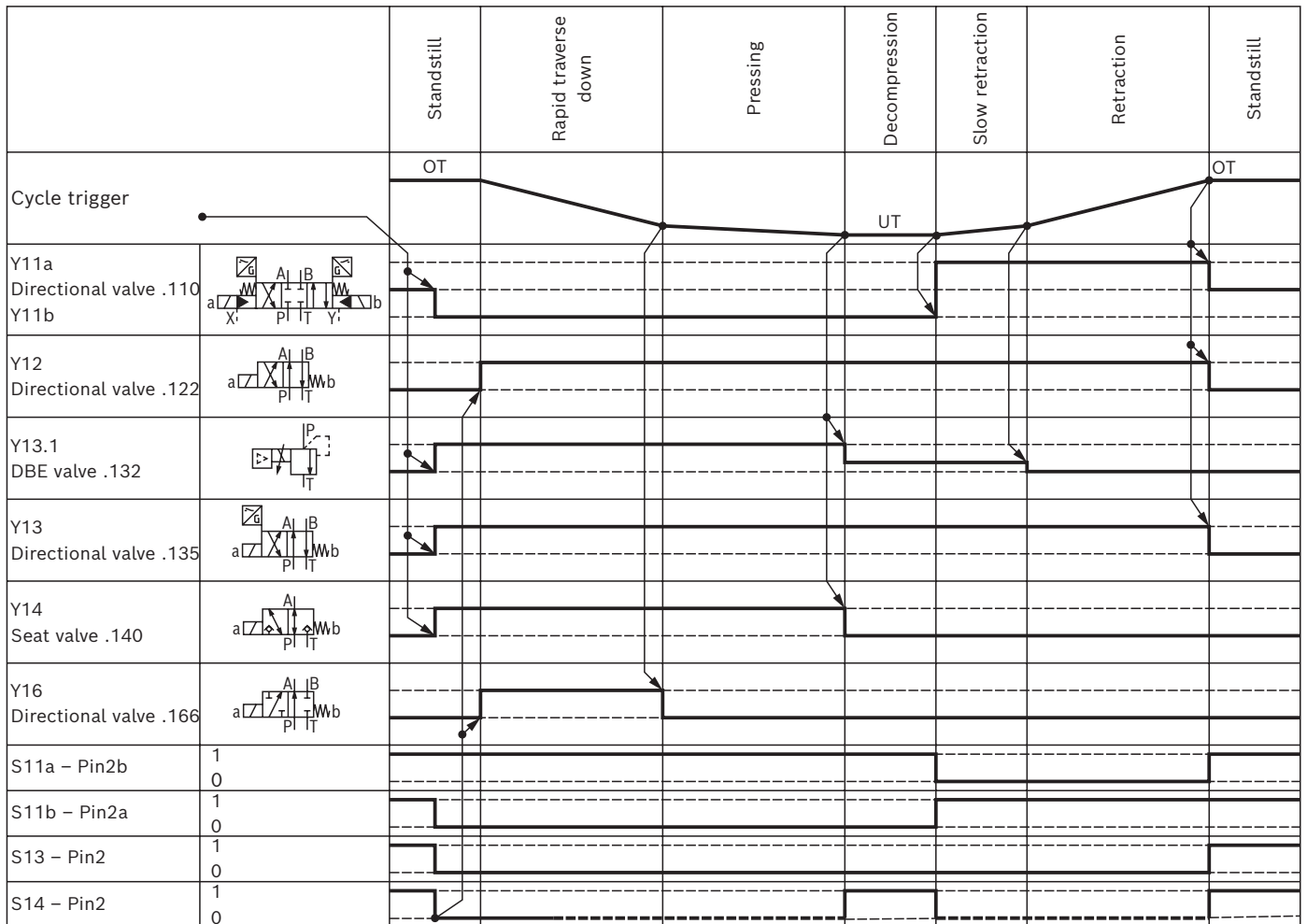
During the pressing process, the pressure relief valve consisting of items 160/161/165 compensates the load holding pressure on the annulus area side. The pressure relief valve item 165 is to be set so that the cylinder piston does not drop during standstill:

- ▶ When the set pressure is exceeded, the pressure relief valve item 160/161 will open to the tank.
- ▶ When the set pressure is no longer reached, the pressure relief valve item 160/161 will close.

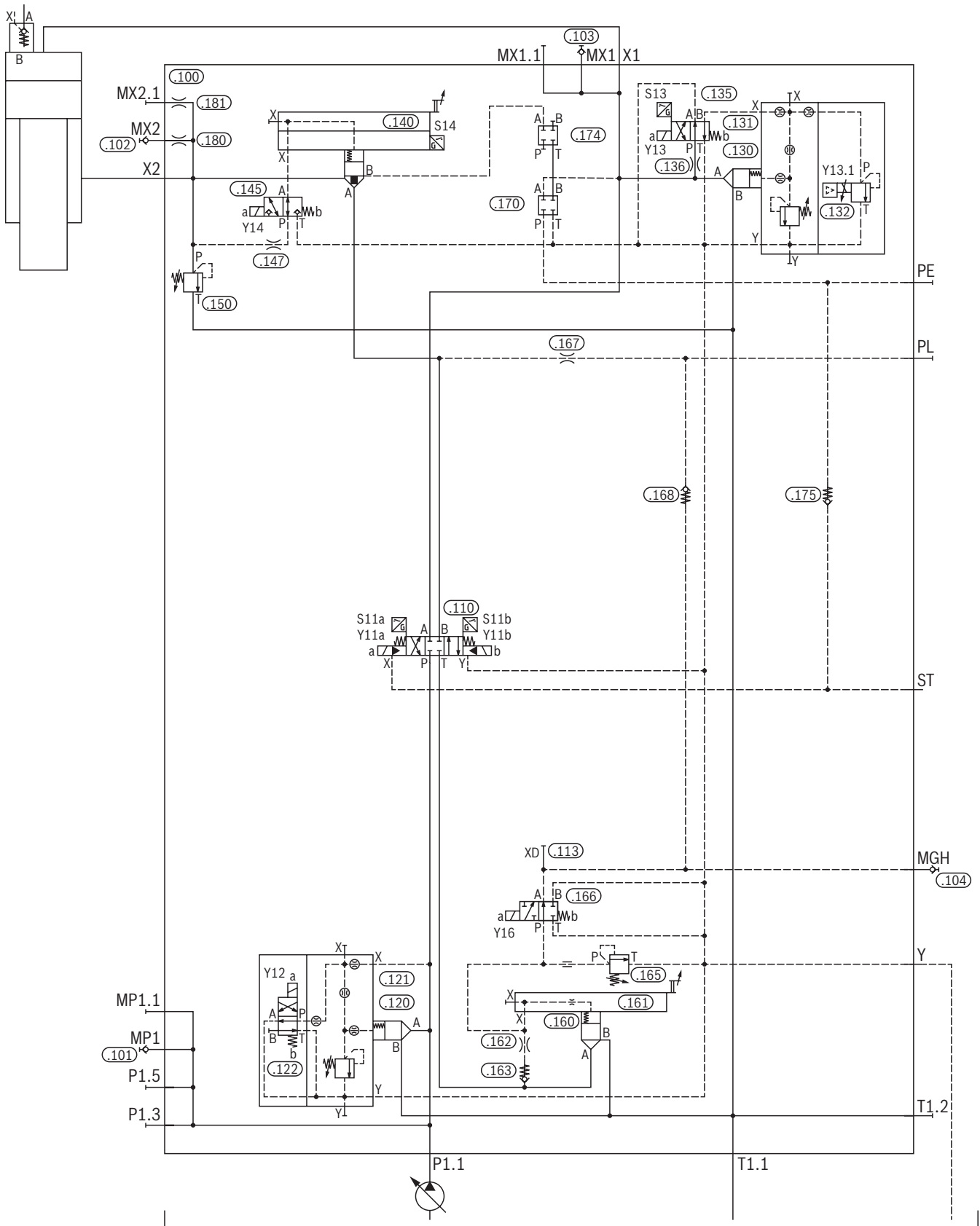
The valve item 166 provides pilot control for the rapid traverse phase and the load-holding pressure compensation:

- ▶ In basic position (Y16 – OFF) the load holding pressure compensation takes effect
- ▶ With energization of the solenoid (Y16 – ON), the rapid traverse phase without load holding pressure compensation takes effect.

Using the stroke limitation at the logic cover item 161, the maximum rapid traverse velocity is set.



**Rapid traverse due to own weight with prefill valve: IH04CS-7X/...1-WE1N-WEH000E-NN-G24**

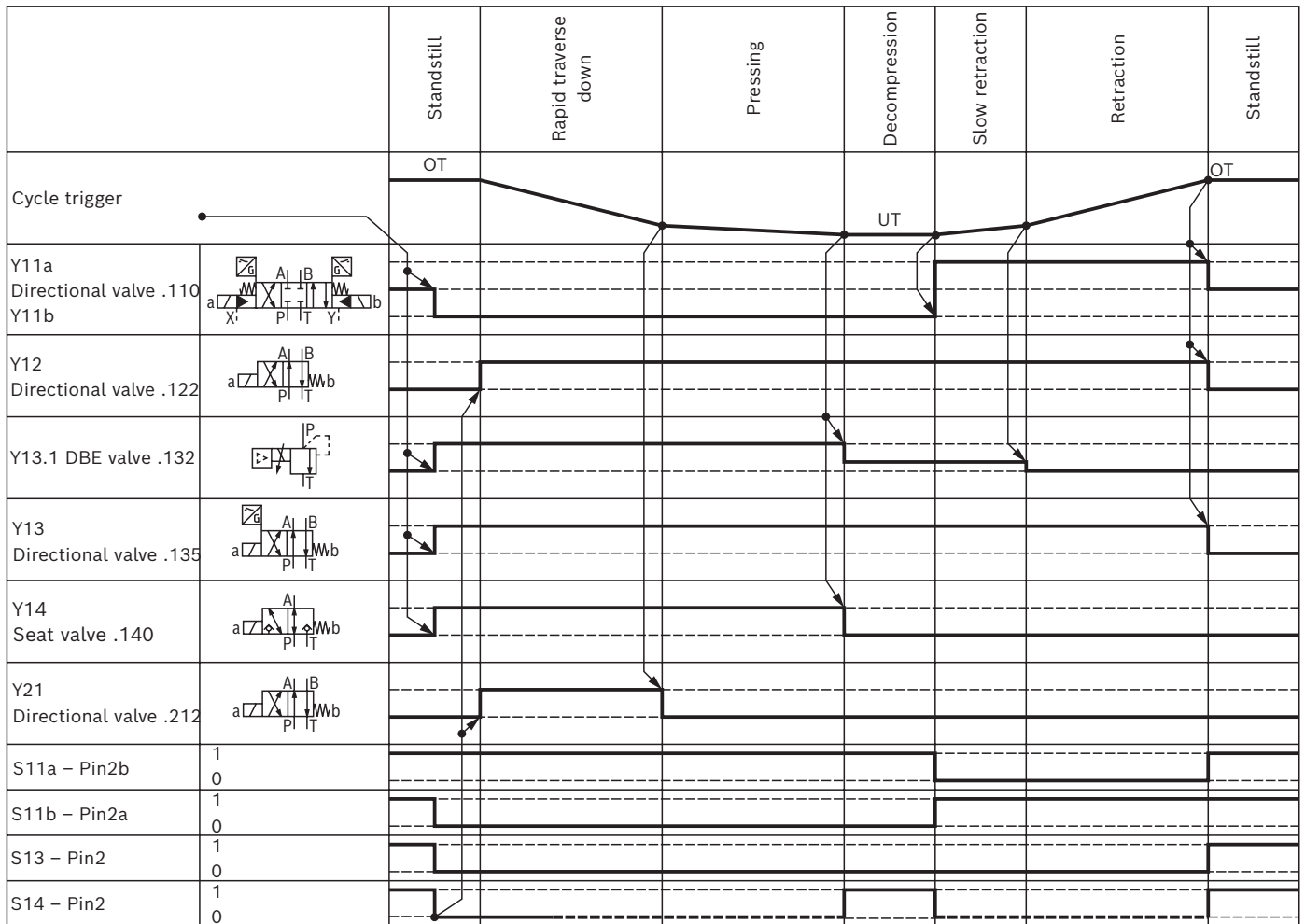


### Rapid traverse with rapid traverse cylinder: IH04CS-7X/...2-WE0N-WEH000E-EN-G24

#### Option 1 – Item 210

The 2-way cartridge valve consisting of item 210/211 separates the rapid traverse piston chamber from the pressing piston chamber. With energization of the solenoid (Y21 – ON), the cartridge valve item 210/211 closes. The rapid traverse phase takes effect. At the end of rapid traverse, valve item 212 is de-energized, the 2-way cartridge valve item 210/211 opens.

The hydraulic pressure is applied to both piston areas. The end of the pressing process is followed by joint decompression. During retraction, the oil volume flows from the rapid traverse piston chamber via the 2-way cartridge valve item 210/211 to the pressing piston chamber and via the prefill valve to the tank.







### Rapid traverse with differential circuit: H04CS-7X/...2-WE0N-WEH000E-DN-G24

#### Option 0 – Item 165

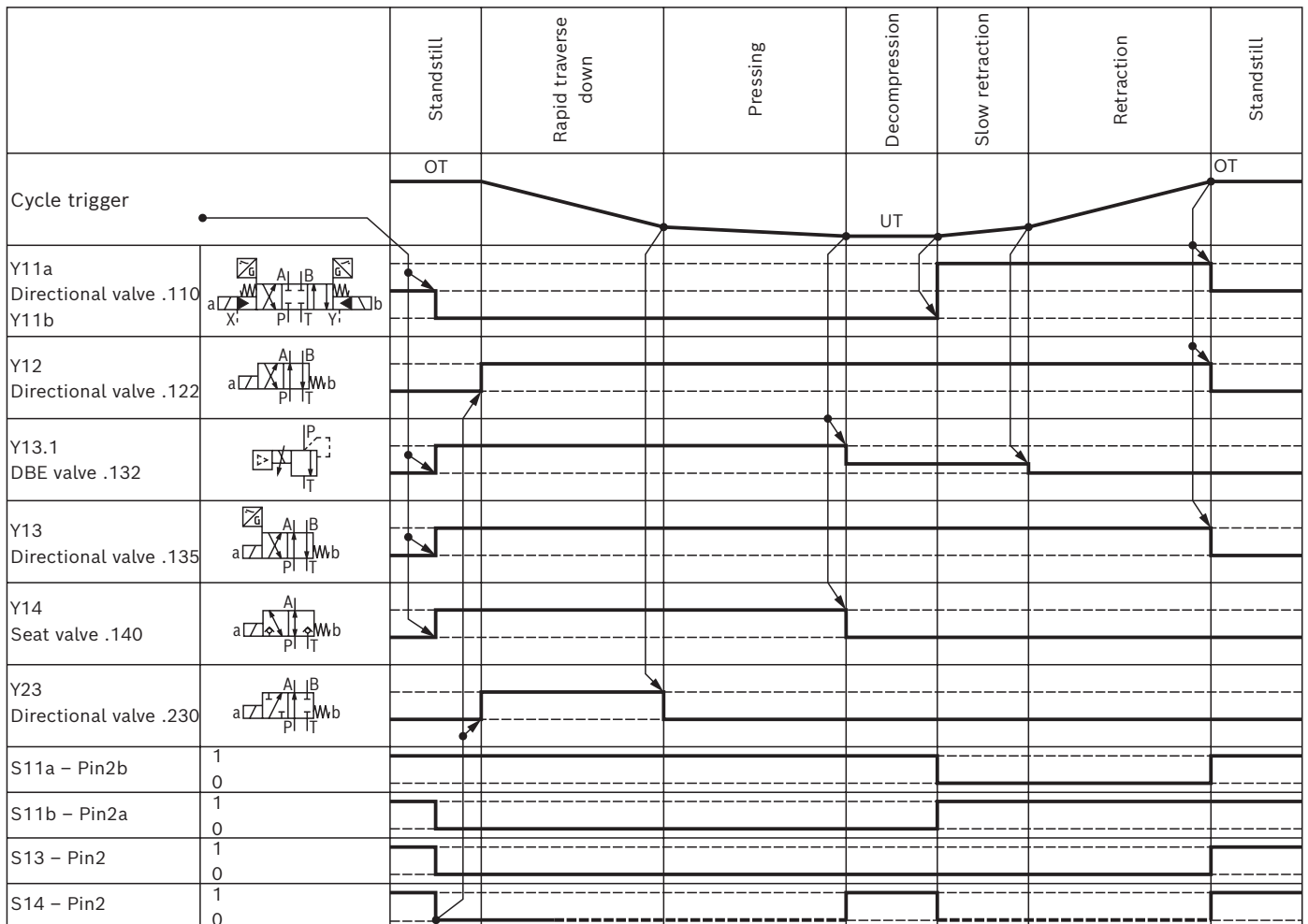
The pressure relief valve item 165 limits the pressure of the tank line item 110 and is to be set to the maximum pressure rating.

#### Option DN – Item 230

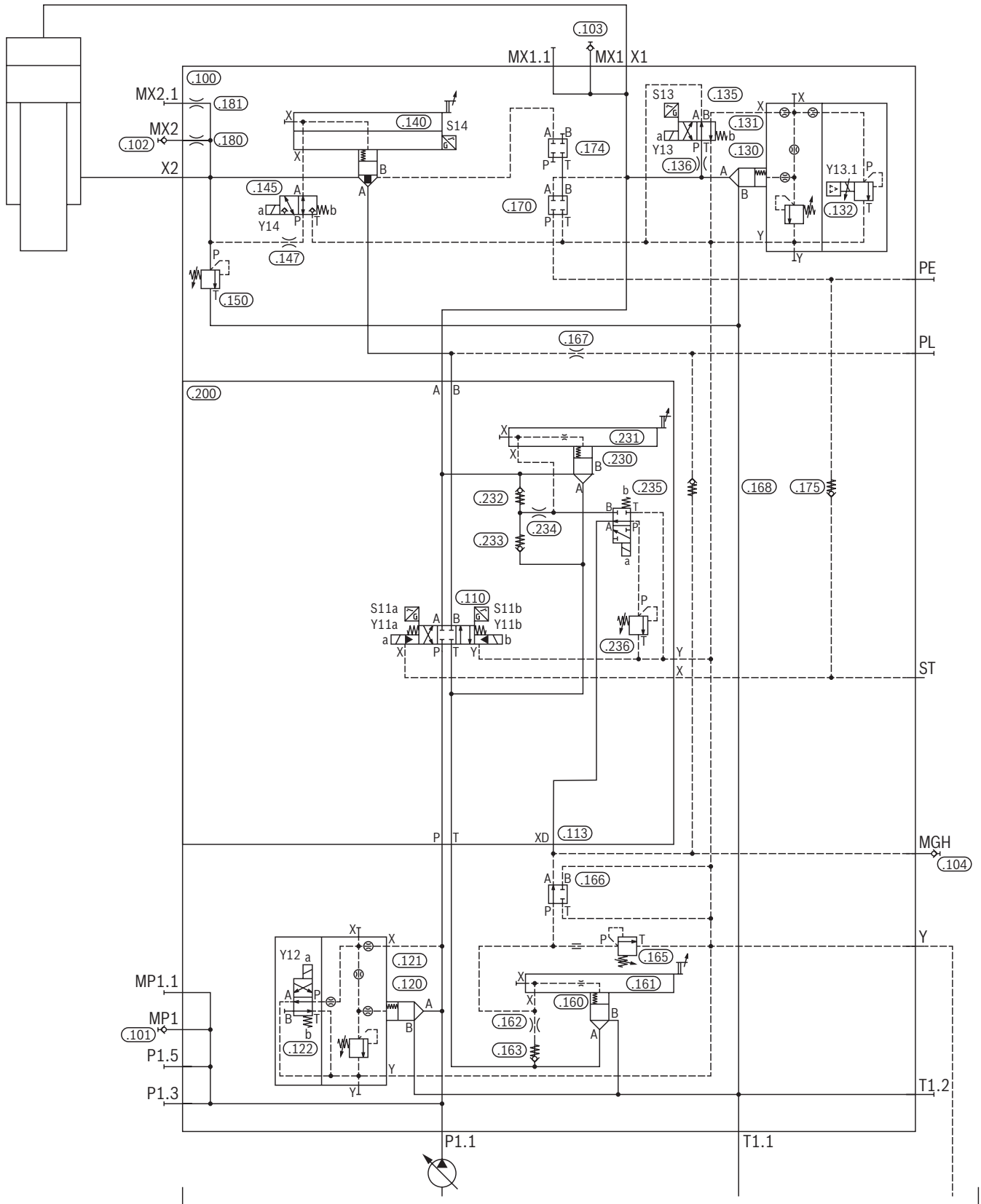
During the rapid traverse phase, the 2-way cartridge valve consisting of the items 230/231 compensates the load holding pressure. The pressure relief valve item 236 is to be set so that the cylinder piston does not drop during standstill.

The valve item 235 provides pilot control for the rapid traverse and the pressing process:

- ▶ With energization of the solenoid (Y23 – ON), the load holding pressure compensation takes effect during the rapid traverse via the pressure relief valve item 230/231/236 from the annulus area to the piston chamber.
- ▶ In basic position (Y23 – OFF), the load holding pressure compensation takes effect during the pressing process via the pressure relief valve item 160/161/236 from the annulus area to the tank.



**Rapid traverse with differential circuit: H04CS-7X/...2-WE0N-WEH000E-DN-G24**



### Operation with high- and low-pressure pumps: IH04CS-7X/...2-WE0N-WEH000E-HN-G24

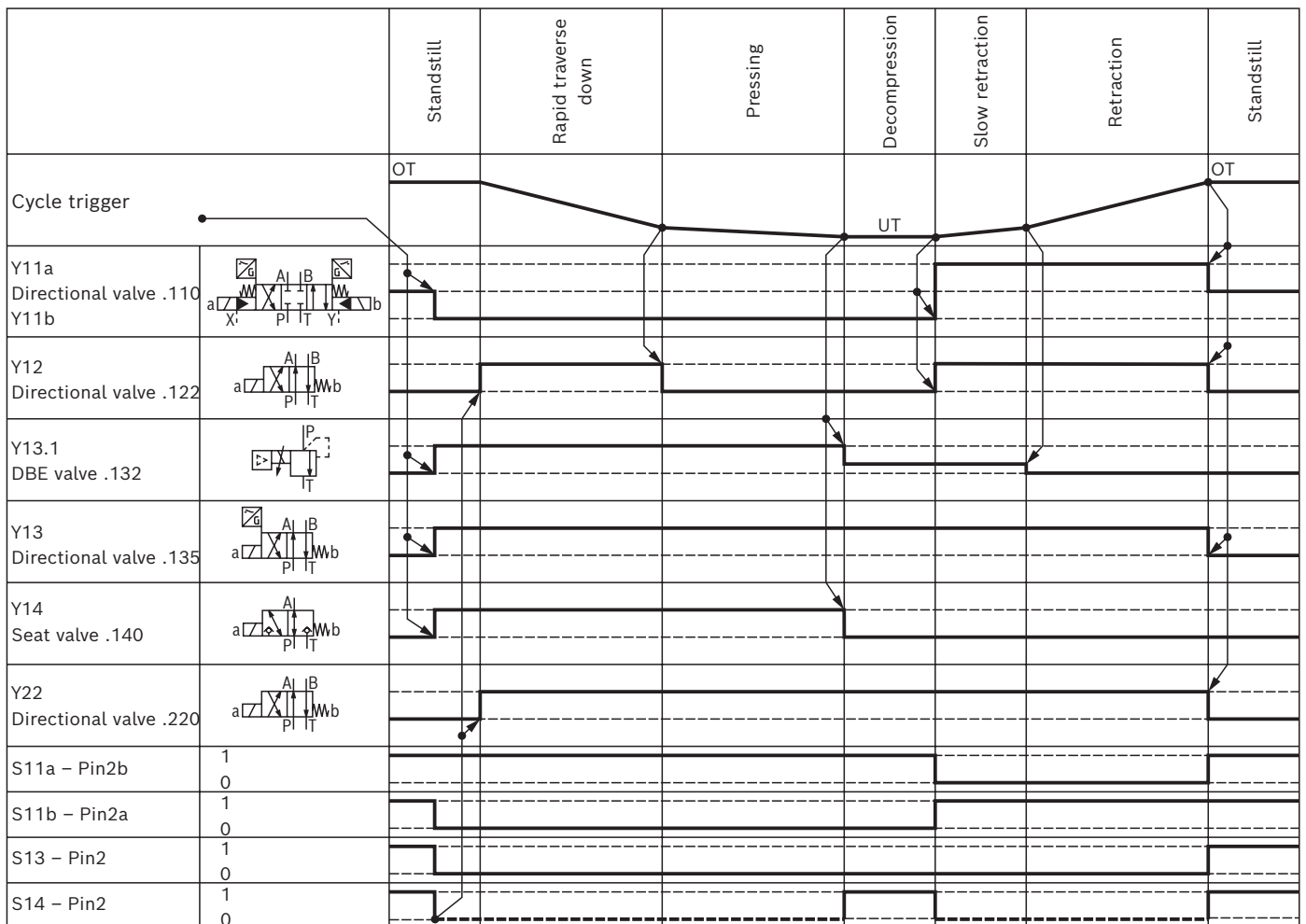
#### Option W – Item 120

The pressure relief valve item 120/121 limits the pressure of the low-pressure motor pump station (hydraulic energy supply). At the pressure relief valve item 121, the maximum operating low-pressure is set. The on/off valve item 122 provides pilot control of the pressure relief valve item 120/121. In its basic position, the pressure relief valve item 120/121 is switched to depressurized circulation. Energization of the solenoid Y12 causes the pressure set at the pressure relief valve item 121 to become effective.

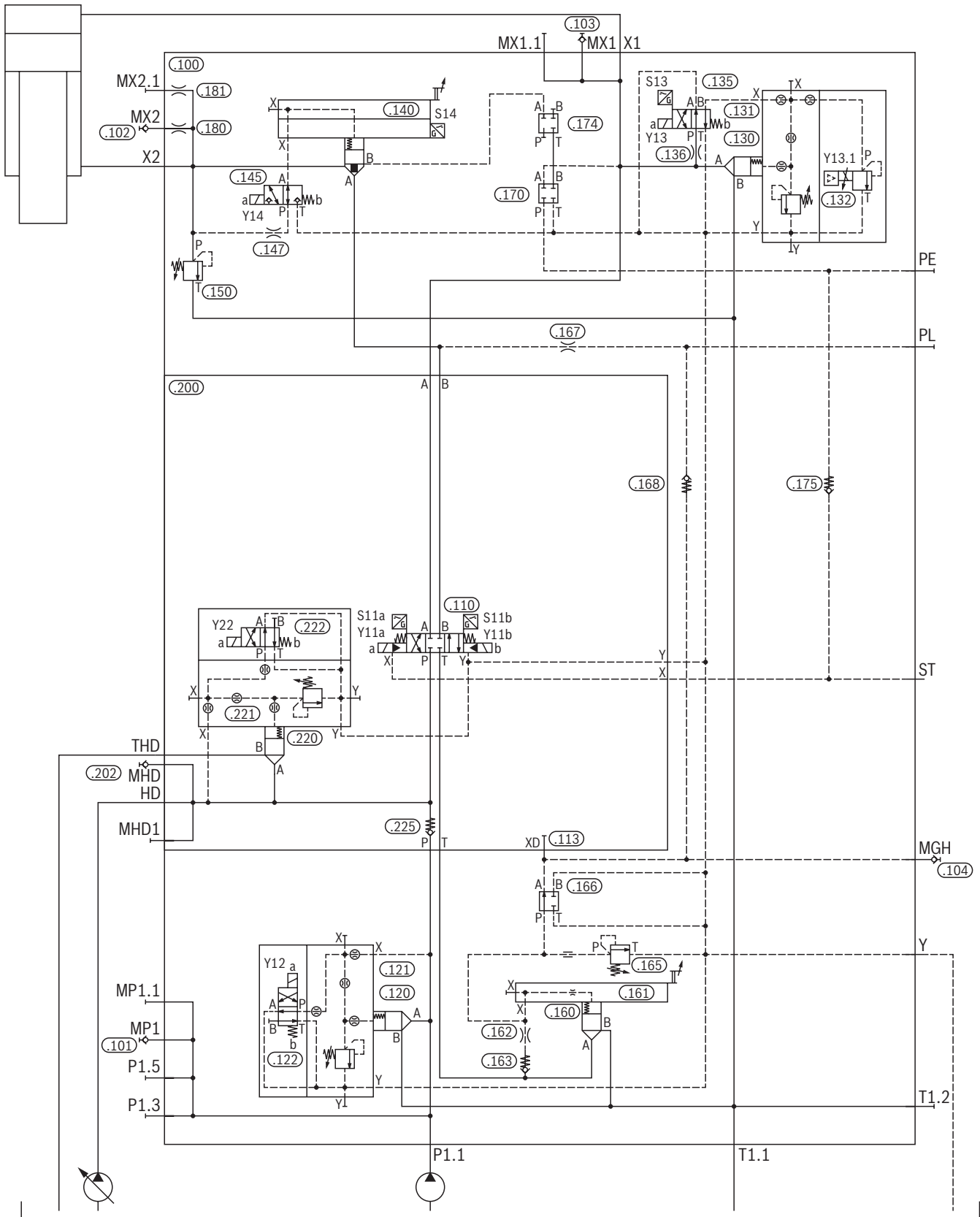
#### Option HN – Item 220

The pressure relief valve consisting of the items 220/221 limits the pressure of the high-pressure motor pump station (hydraulic energy supply). At the pressure relief valve item 221, the maximum operating high-pressure is set. The on/off valve item 222 provides pilot control of the pressure relief valve item 220/221. In its basic position, the pressure relief valve item 220/221 is switched to depressurized circulation. Energization of the solenoid Y22 causes the pressure set at the pressure relief valve item 122 to become effective.

The check valve item 225 separates the high-pressure and low-pressure circuits



**Operation with high- and low-pressure pumps: IH04CS-7X/...2-WE0N-WEH000E-HN-G24**



**Load-sensing: IH04CS-7X/...2-BE0N-TEM...E-LN-G24**

The load-sensing function is achieved together with the flow controller of the pump.

**Option B – Item 120**

The pressure relief valve consisting of the items 120/121 limits the pressure of the motor pump station (hydraulic energy supply). At the pressure relief valve in item 121, the maximum operating pressure is set.

**Option TEM...E – Item 110**

The stepless flow adjustment of the pump and the movement direction of the cylinder piston are determined by the proportional directional valve item 110.

**Option LN – Item 270**

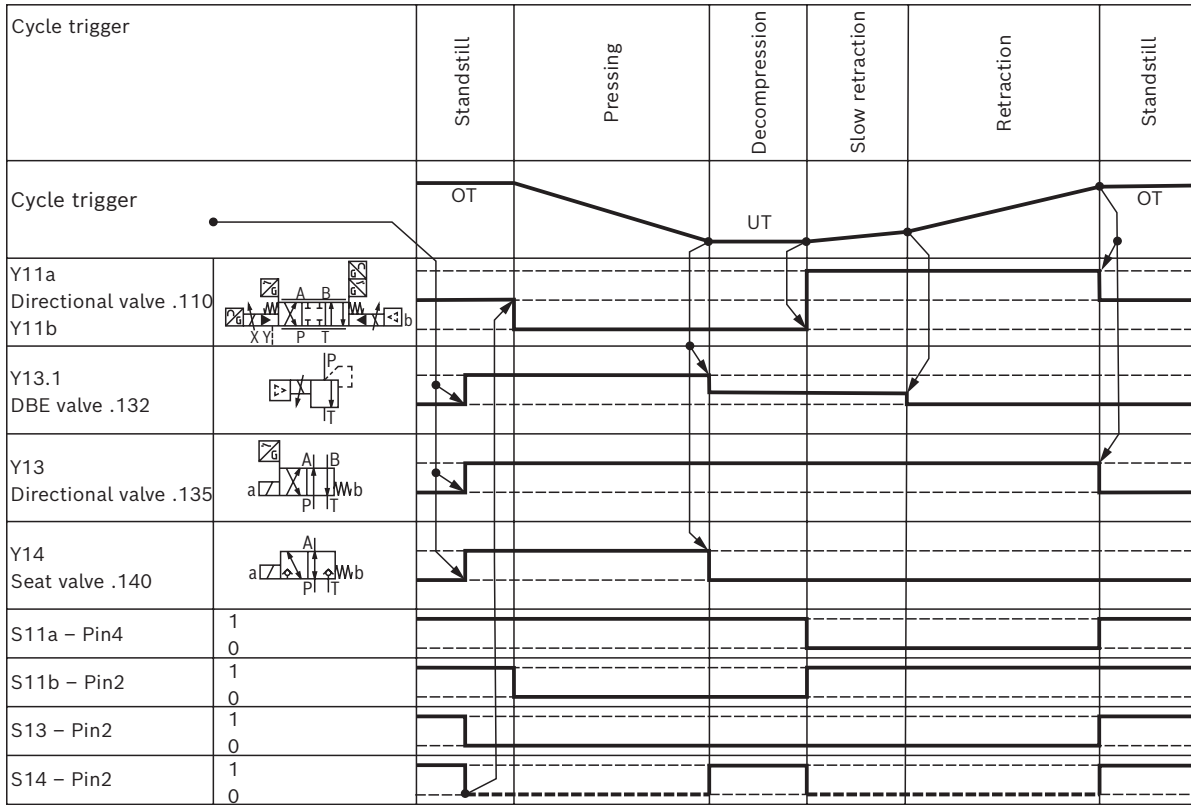
The valve item 276 determines the operating mode of the pump:

- ▶ In the de-energized standby position, the flow controller pressure is effective and can be set. Also the pump is swiveled in. A pressure up to 22-25 bar improves the control quality at lower velocities and avoids the need for a pilot oil pump.
- ▶ By energization of the solenoid (Y27.1–ON), the pilot oil circuit is supplied with oil at the set flow controller pressure.

Valve item 275 determines load-sensing:

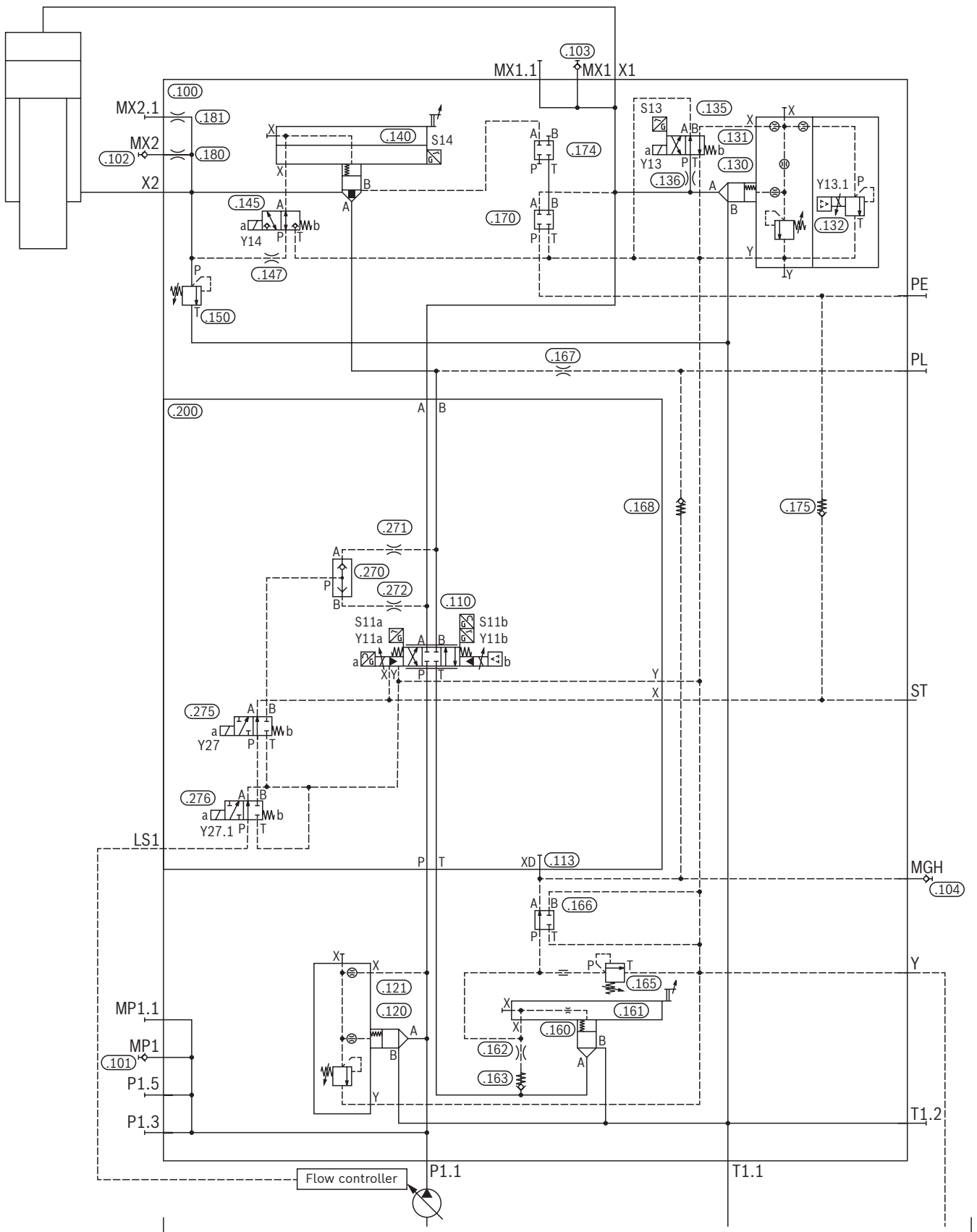
- ▶ In the de-energized position, the pilot oil circuit is supplied with oil up to the set flow controller pressure.
- ▶ With energization of the solenoid (Y27–AN), the load-sensing takes effect. The highest pressure effective at port A or B of the proportional directional valve item 110 is connected via the shuttle valve item 270 to the flow controller of the pump.

**Load-sensing:** IH04CS-7X/...2-BE0N-TEM...E-LN-G24



The solenoids Y27.1, Y27.2 are permanently switched.

**Load-sensing: IH04CS-7X/...2-BE0N-TEM...E-LN-G24**



**High-response valve with zero overlap: IH04CS-7X/...3-WE3N-RDE...V-RN-G24****Option RDE...V – Item 110**

The stepless flow adjustment and the movement direction of the cylinder piston are determined by the high-response valve item 110. The highly dynamic high-response valve item 110 is recommended for alternating pressure, force, position and velocity controls and has a control spool with zero overlap.

**Option 3 – Item 105**

During the pressing process, the pressure relief valve item 195 compensates the load holding pressure on the annulus area side. The pressure relief valve item 195 is to be set so that the cylinder piston does not drop during standstill. The valve item 196 provides pilot control for the rapid traverse phase and the load-holding pressure compensation:

- ▶ In basic position (Y19-OFF), the load holding pressure compensation takes effect via the pressure relief valve item 195
- ▶ With energization of the solenoid (Y19-ON), the rapid traverse phase via the 2-way cartridge valve item 190/192 without load holding pressure compensation takes effect. Using the stroke limitation at the logic cover item 191, the maximum rapid traverse velocity is set. Retraction is realized via the check valve item 198.

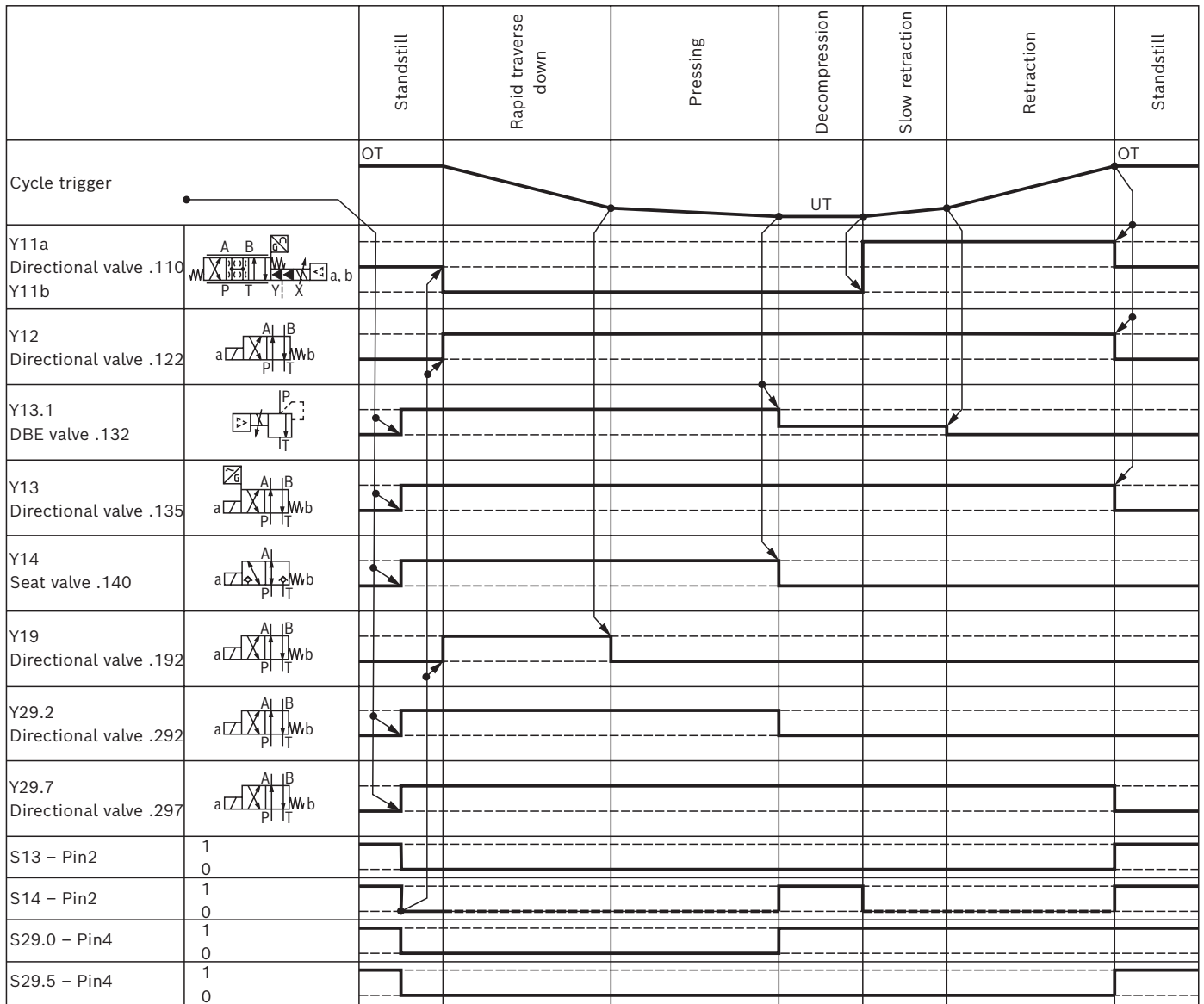
**Option RN – Item 290**

The energy separation against unwanted pressure build-up on the piston chamber side is realized by the 2-way cartridge valve item 290. By means of the position monitoring S29.0 it is monitored whether the basic position is reached in every pressing cycle. The directional valve item 292 (Y29.2-ON) unlocks the 2-way cartridge valve item 290. In basic position, the directional cartridge valve item 290 is closed.

The 2-way cartridge valve item 295 holds the cylinder piston in position (see EN ISO 16092-3 section 5.3.7.2). By means of the position monitoring S29.5 it is monitored whether the basic position is reached in every pressing cycle. The directional valve item 297 (Y29.7-ON) unlocks the 2-way cartridge valve item 295. In basic position, the 2-way cartridge valve item 295 is closed.

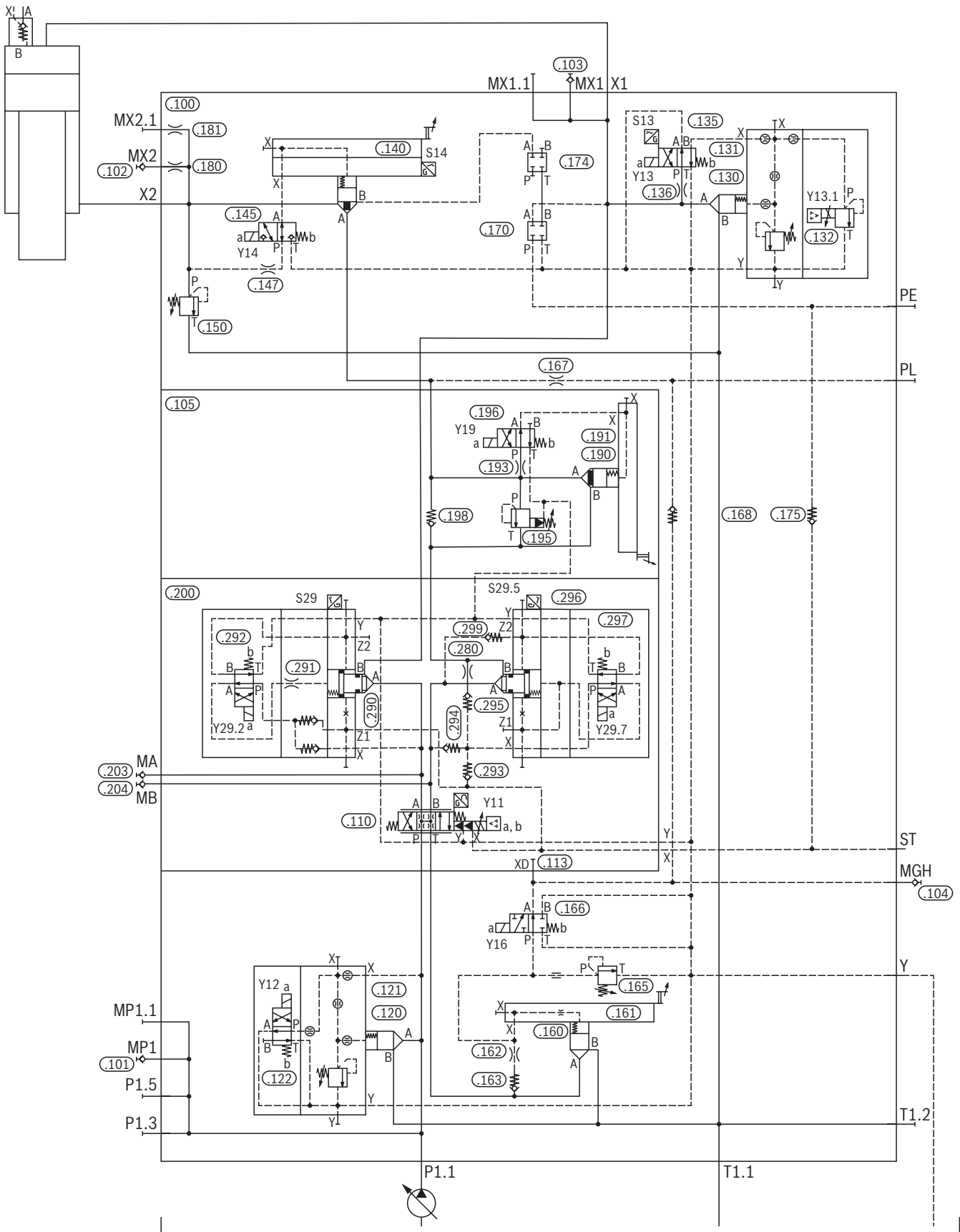


### High-response valve with zero overlap: IH04CS-7X/...3-WE3D-RDE...V-RN-G24



The solenoid Y16 is switched permanently

### High-response valve with zero overlap: IH04CS-7X/...3-WE3N-RDE...V-RN-G24



**Pressure holding on the piston chamber side: IH04CS-7X/...3-WE2N-WEH000E-XN-G24**

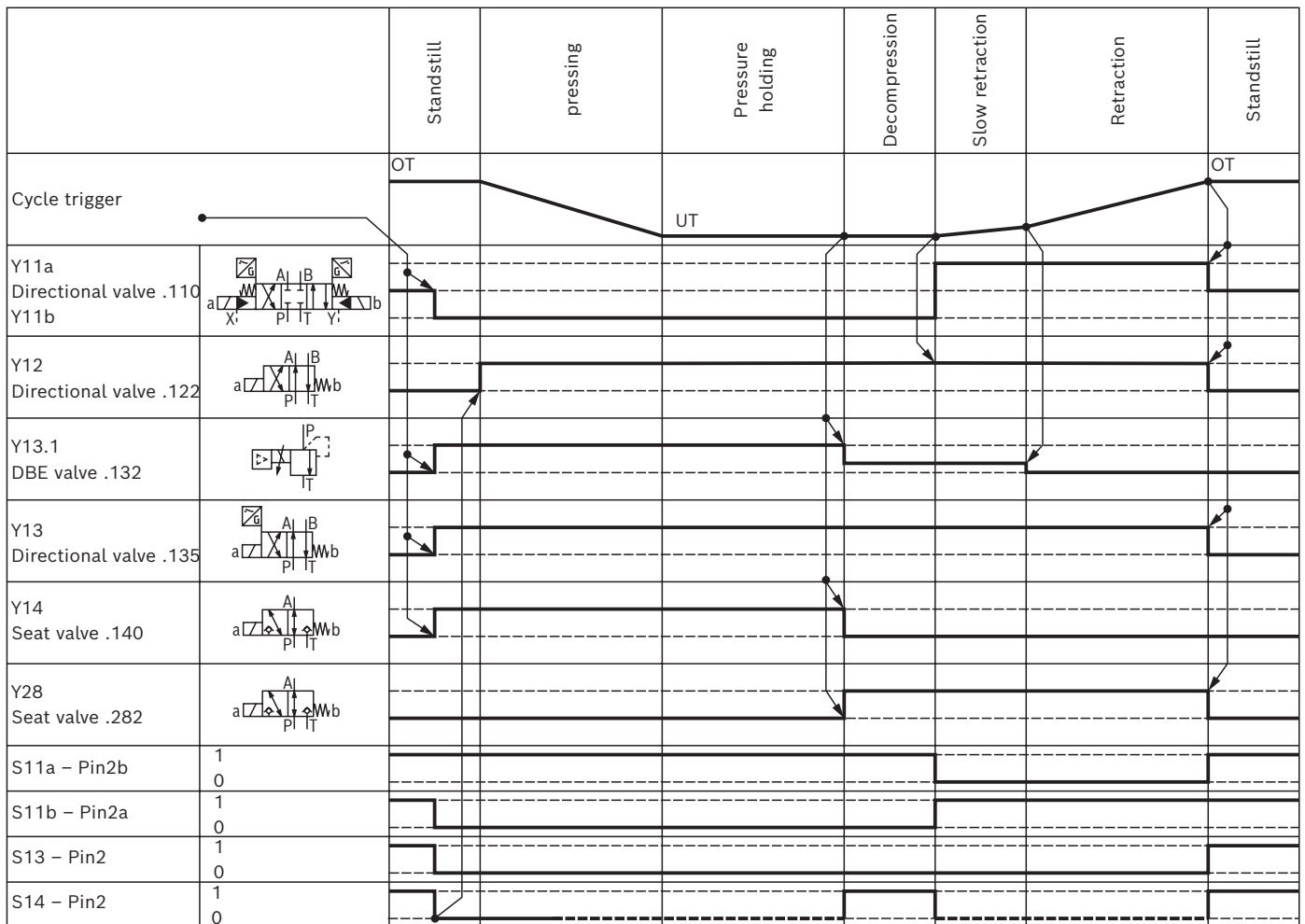
**Option 2 – Item 105**

During the pressing process, the pressure relief valve item 195 compensates the load holding pressure on the annulus area side. The valve item 195 is to be set so that the cylinder piston does not drop during standstill. Retraction is realized via the check valve item 198.

**Option XN – Item 280**

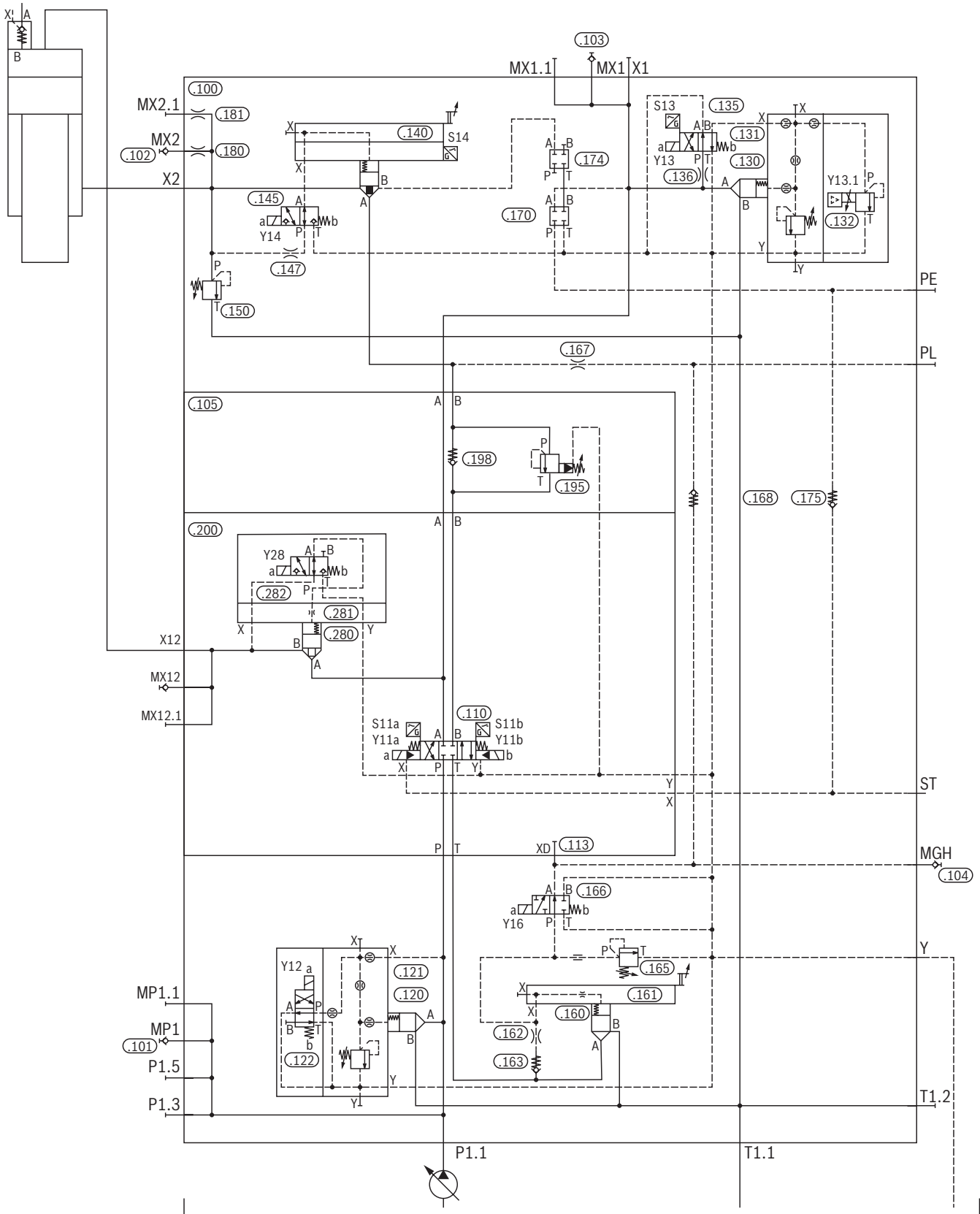
In the basic position, the 2-way cartridge valve consisting of the items 280/281 acts as a check valve. The pressure is built up on the piston chamber side by the cylinder up to the system pressure and then maintained in a leakage-free manner.

Energization of the solenoid (Y28-ON) unlocks the 2-way cartridge valve item 280/281 at the valve item 282 and triggers the decompression.



Except for during decompression and slow retraction, the solenoid Y16 is switched permanently

**Pressure holding on the piston chamber side: IH04CS-7X/...3-WE2N-WEH000E-XN-G24**



### Accumulator operation: IH04CS-7X/...2-WE0N-TEM...E-SN-G24

#### Option SN – Item 240

The on/off valve item 240 selects between pump operation (Y24 - OFF) and accumulator operation (Y24 - ON).

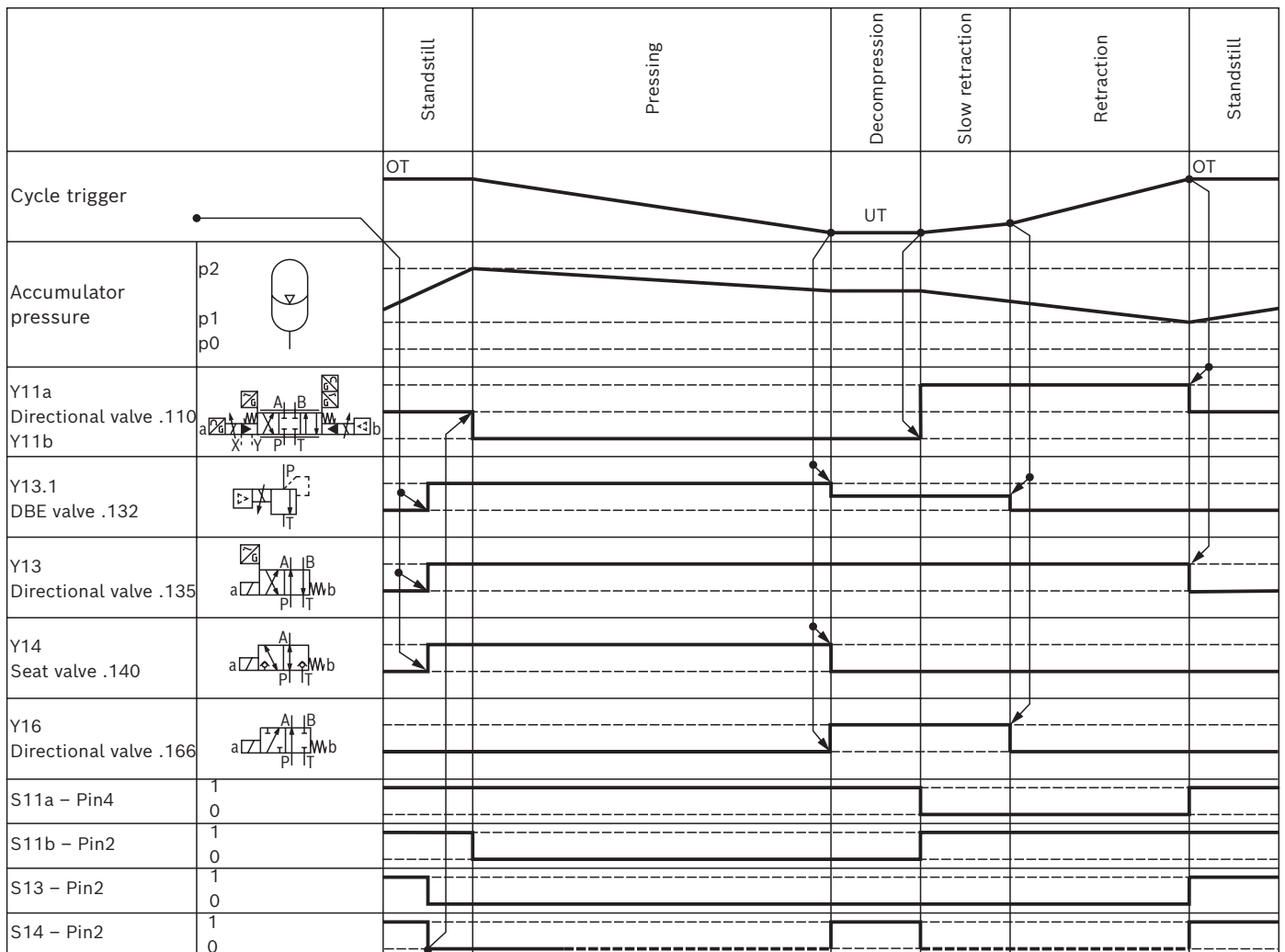
The 2-way cartridge valve consisting of item 243/244 shuts off the accumulator circuit. The seat valve item 245 provides pilot control of the 2-way directional valve item 243/244:

- ▶ In basic position (Y24.1 - OFF), the blocking is effective in both directions;
- ▶ With energization of the solenoid (Y24.1 – ON), the accumulator circuit takes effect.

The stroke limitation at the logic cover item 242 limits the flow at the accumulator. The continuous flow adjustment is achieved via the proportional valve item 110.

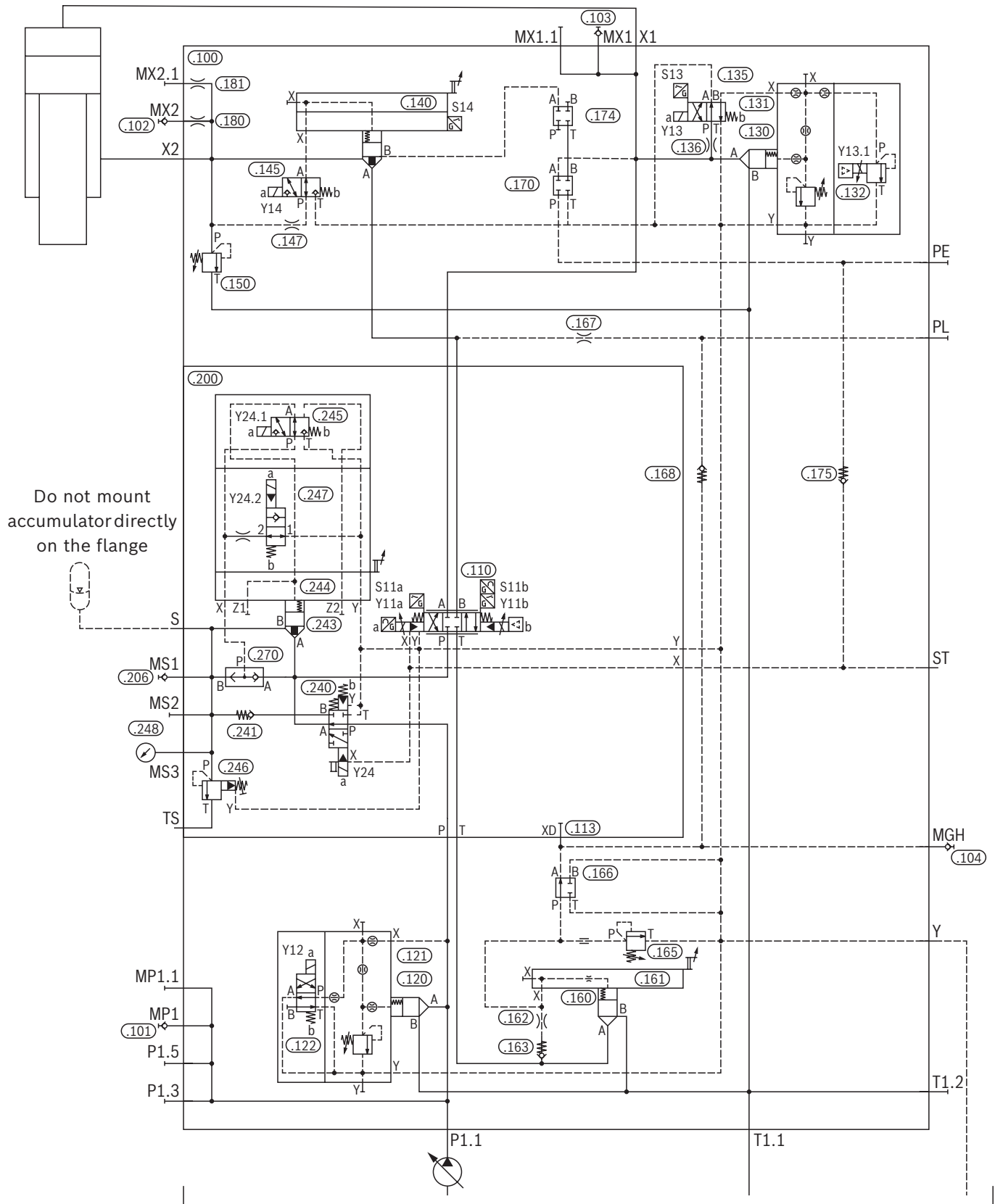
The assembly item 246 to item 248 comprises all the equipment that is required according to EN 14359 for safety of accumulators:

- ▶ The maximum pressure limitation is achieved by the type-tested pressure relief valve item 246
- ▶ The manual unloading is achieved using the rotary knob at the pressure relief valve item 246.
- ▶ The electrical unloading is achieved using the orifice and the seat valve item 247. In energized condition (Y24.2 - ON), the pressure set at the pressure relief valve item 121 takes effect.
- ▶ The charge state of the accumulator is visually indicated by the pressure gauge item 248 with red marking of the limit pressure.



The solenoids Y12, Y24, Y24.1 and Y24.2 are permanently switched.

**Accumulator operation:** IH04CS-7X/...2-WEON-TEM...E-SN-G24



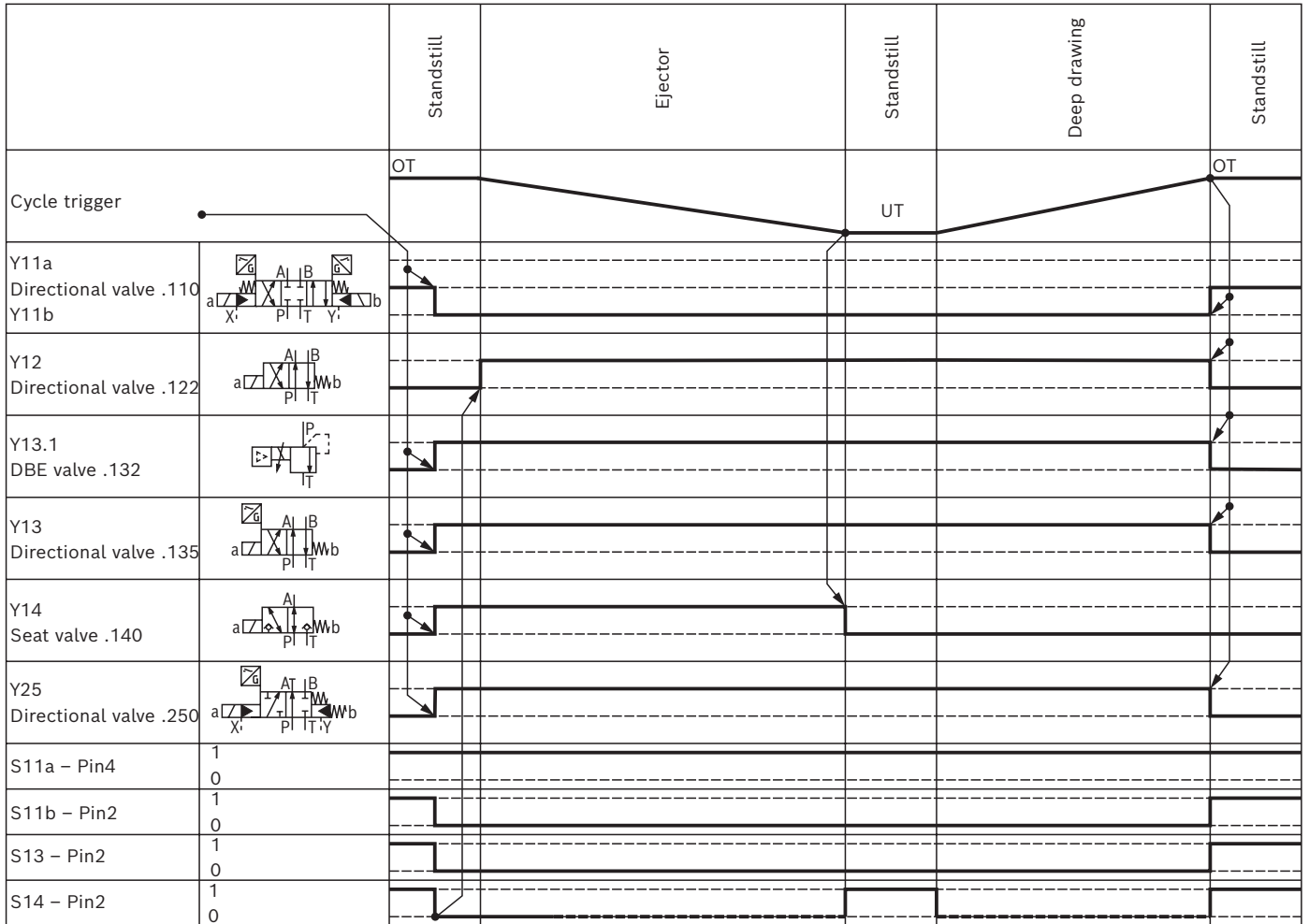
**Slide cushion: IH04CS-7X/...2-WE0N-WEH000E-ZN-G24**

**Option ZN – Item 250**

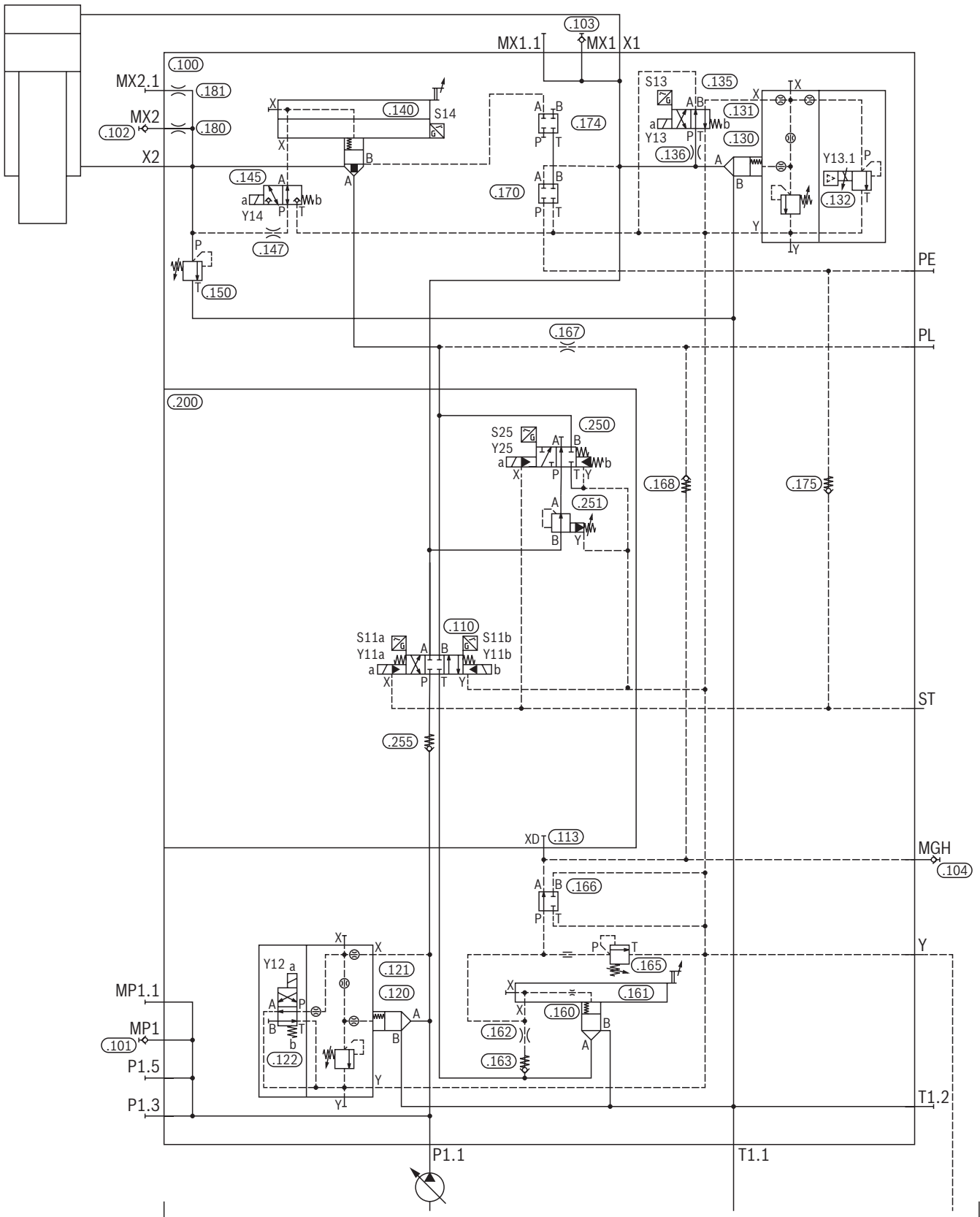
The slide cushion function is always performed when the directional valve item 110 is switched in parallel. The on/off valve item 250 (Y25-ON) controls the connection between piston chamber and annulus chamber continuously during the drawing process and refills the annulus chamber.

This way, cavitation of the annulus chamber is actively prevented. By means of the electric position monitoring S25 it can be monitored whether the basic position is reached.

The pressure reducing valve item 251 serves as maximum pressure adjustment for refilling of the annulus chamber (e.g. 10 bar).



**Slide cushion:** IH04CS-7X/...2-WEON-WEH000E-ZN-G24





**Set-up by own weight with prefill valve (> 10 mm/s): IH04CS-7X/...2-EB1N -WEH000E-NN-G24-002****Option E – Item 120**

The pressure relief valve consisting of the items 120/121 limits the pressure of the motor pump station (hydraulic energy supply). At the pressure relief valve item 121, the maximum operating pressure is set. The proportional pressure relief valve item 122 provides pilot control of the pressure relief valve item 120/121 and determines the system pressure (e.g. press force, decompression):

- ▶ When the set pressure is exceeded, the pressure relief valve item 120/121 will open to the tank.
- ▶ When the set pressure is no longer reached, the pressure relief valve item 120/121 will close.

With a control signal (Y12) of 0V at the proportional pressure relief valve item 122, the pressure relief valve item 120/121 will switch to depressurized circulation.

**Option B – Item 130**

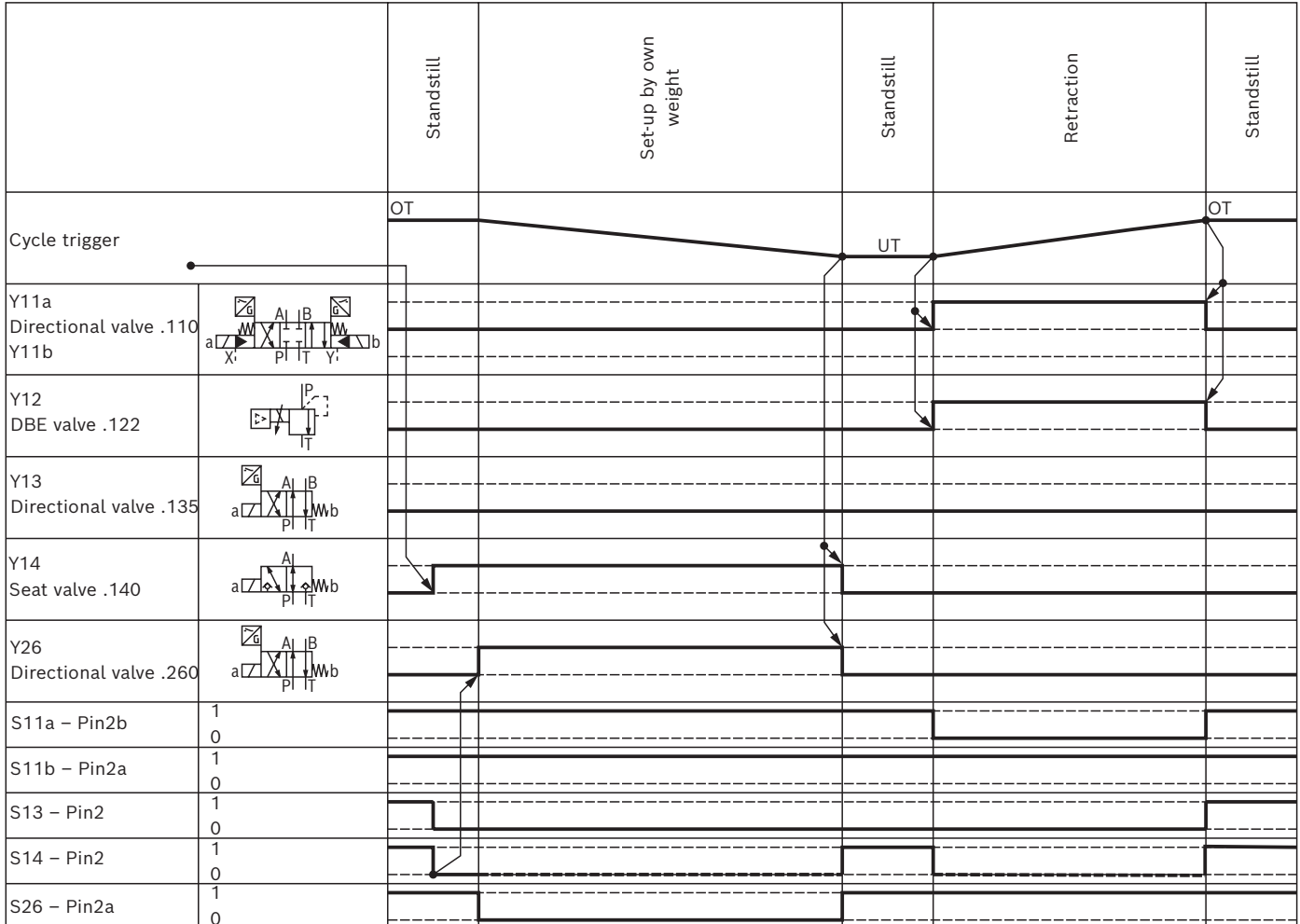
The pressure relief valve consisting of the items 130/131 limits the pressure on the piston chamber side of the cylinder. At the pressure relief valve item 131, the maximum system pressure is set.

**Option 002 – Item 260**

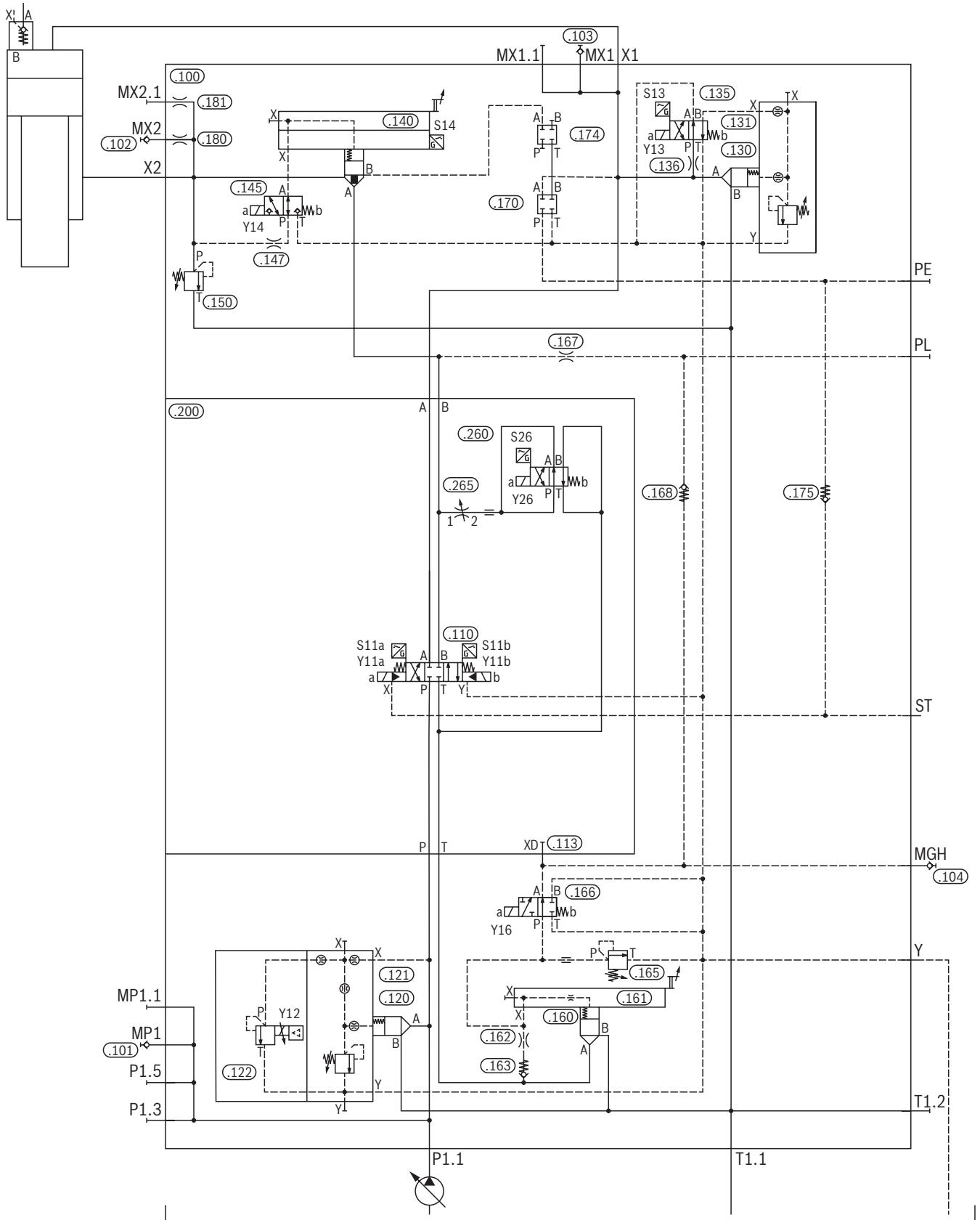
The on/off valve item 260 initiates the closing movement by own weight. Set-up is achieved by means of a hold-to-run control device and in creep speed by own weight. Thereby, the oil is sucked in via the prefill valve from the tank into the piston chamber. By means of the position monitoring S26 it is monitored whether the basic position is reached at the end of the closing movement.

The manually adjustable throttle valve item 265 determines the closing speed.

**Set-up by own weight with prefill valve (> 10 mm/s): IH04CS-7X/...2-EB1N-WEH000E-NN-G24-002**



**Set-up by own weight with prefill valve (> 10 mm/s): IH04CS-6X/...2-EB1N-WEH000E-NN-G24-002**



**Basic functions according to safety category 1 (ISO 13849 – Pl c):**

IH04CN-7X/...1-WU0N-WEH000E-NN-G24

**Option WEH000E – Item 110**

The movement direction of the cylinder piston is determined by the directional valve item 110:

- ▶ The cylinder piston is extended with the control signal Y11b.
- ▶ The cylinder piston is retracted with the control signal Y11a.

**Option U – Item 130**

The pressure relief valve consisting of the items 130/131 limits the pressure on the piston chamber side of the cylinder. The on/off valve item 132 with the control signal Y13.1 provides pilot control of the pressure relief valve item 130/131:

- ▶ In basic position, the piston chamber preload DB2 set at the pressure relief valve item 131 takes effect (e.g. during slow retraction with spring tool or decompression).
- ▶ Energization of the solenoid Y13.1 causes the pressure DB1 set at the pressure relief valve item 131 to become effective.

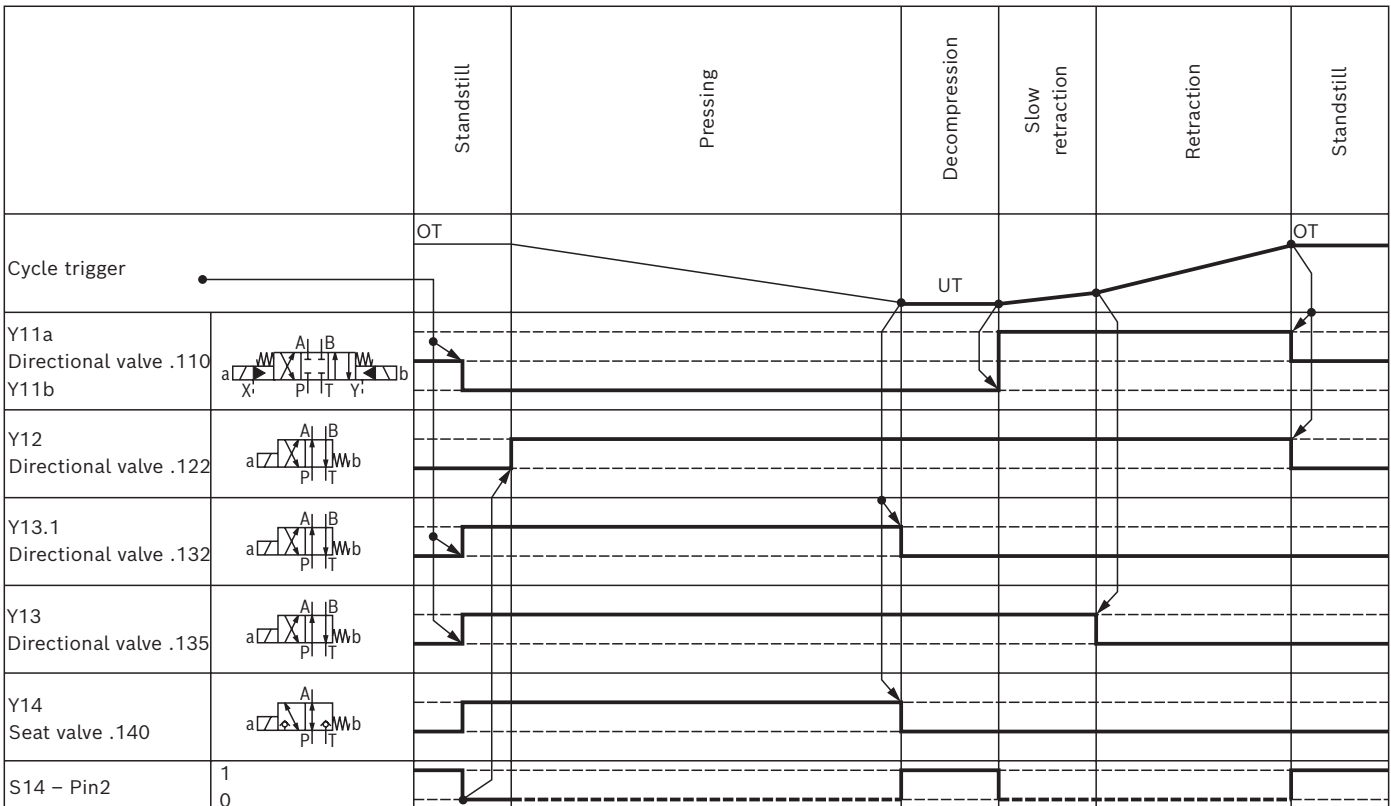
**Depressurized circulation in the piston chamber – Item 135**

In its basic position, the pressure relief valve item 130/131 switches to depressurized circulation. Energization of the solenoid Y13 causes the pressure stage selected at the on/off valve item 132 to become effective.

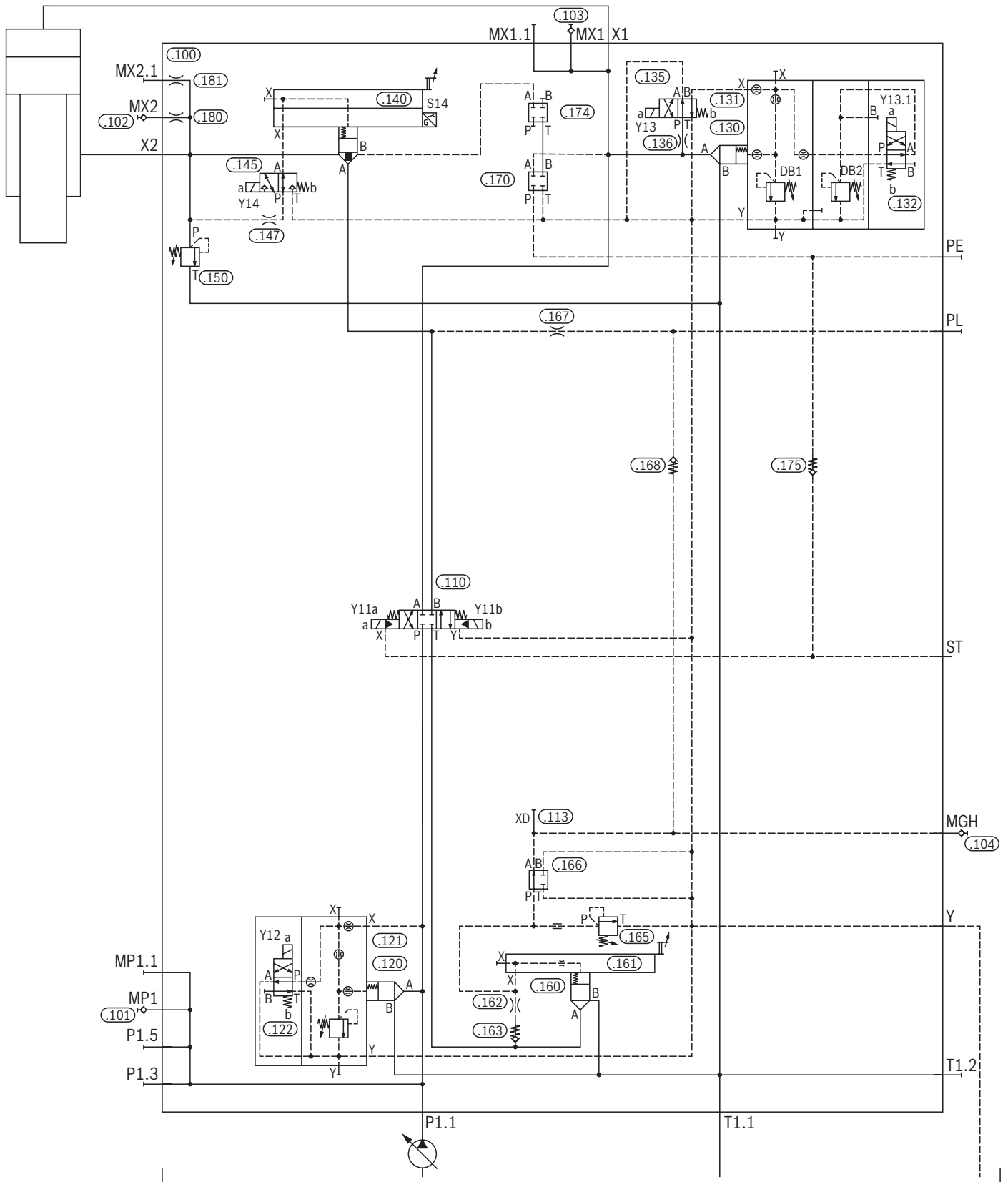
**Restraint valve in the annulus area – Item 140**

The 2-way cartridge valve item 140 holds the cylinder piston in position (see EN ISO 16092-3 section 5.3.7.2). During load holding/retraction, the valve item 140 acts as a check valve and during extension as a switchable isolator valve. By means of the position monitoring S14 it is monitored whether the basic position is reached in every pressing cycle. Item 145 unlocks the 2-way cartridge valve item 140 during extension.

By means of the electric position monitoring S14, opening of the 2-way cartridge valve item 140 at the beginning of rapid traverse is monitored to prevent pressure intensification in the annulus area.



**Basic functions according to safety category 1 (ISO 13849-PL c):**  
 IH04CN-7X/...1-WU0N-WEH000E-NN-G24



## **Safe reduced velocity < 10 mm/s (ISO 13849-PL d): IH04CS-7X/...1-WE0D-WEH000E-NN-G24**

- ▶ NG10 ... NG35
- ▶ Set-up with reduced velocity (< 10 mm/s) is achieved by means of a hold-to-run control device (ISO 6092-1 section 5.3.2.1 h, ISO 16092-3, section 5.3.2) and fixed orifice (item 172) (factory fitted 0.8 mm).

### **Option D – Item 170**

The seat valve item 174 (Y17) ensures safe opening from the annulus area to the tank. By means of the electric position monitoring S17 it can be monitored whether the basic position is reached.

The movement direction of the cylinder piston is determined by the directional valve item 170. The cylinder piston is extended with the control signal Y17b. Lowering is effected by own weight via a fixed orifice item 172.

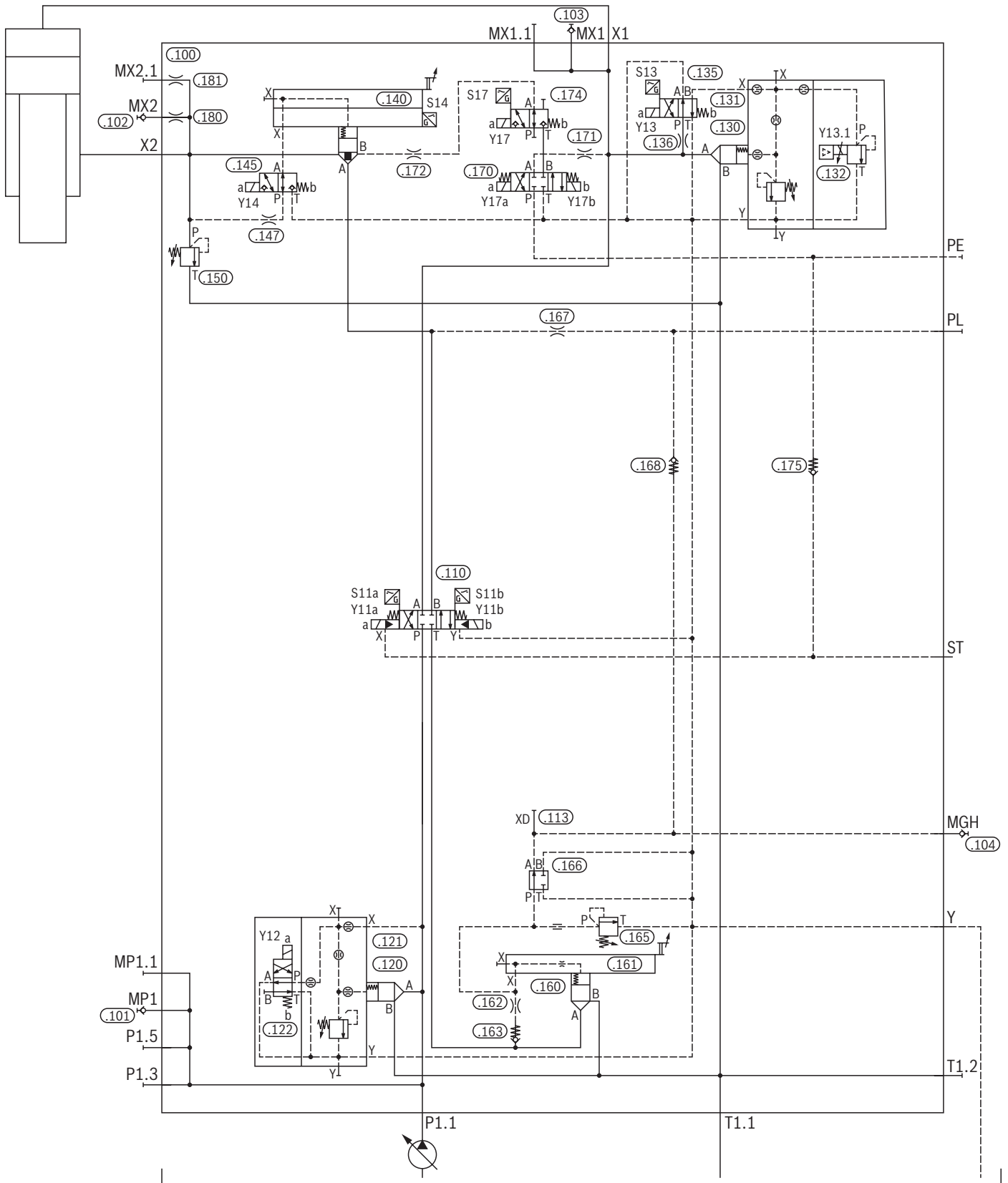
The orifice item 172 has to be adjusted to the load holding pressure and the closing spring (at the factory 2 bar) of the slip-in cartridge item 130 so that the closing velocity is limited to a maximum of 10 mm/s. Simultaneously, the piston chamber is filled with oil by the pilot oil circuit or externally, via port PE.

The closing spring of the pressure relief valve item 130/131 limits the pressure on the piston chamber side. Set-up under pressure without velocity limitation is only allowed after contact with the workpiece.

The pressure relief valve consisting of the items 130/131 limits the pressure on the piston chamber side. The proportional pressure relief valve item 132 provides pilot control of the pressure relief valve item 130/131.

The cylinder piston is retracted with the control signal Y17a. The oil supply is always available and is provided by the pilot oil circuit or externally, via port PE.

**Safe reduced velocity < 10 mm/s (ISO 13849-PL d): IH04CS-7X/...1-WE0D-WEH000E-NN-G24**



**Safe reduced velocity < 10 mm/s (ISO13849-Pl d) and testing of the braking force of the restraint device: IH04CS-7X/...1-WE0P-WEH000E-NN-G24**

- ▶ NG10 ... NG35
- ▶ The safe reduced velocity (< 10 mm/s) is achieved by means of a hold-to-run control device (ISO 16092-1 section 5.3.2.1 h, ISO 16092-3, section 5.3.2) and fixed orifice (item 172) (factory fitted 0.8 mm).
- ▶ The braking force of the restraint device is tested in a separate operating mode (with active guarding) and with active restraint device. The pressure in the piston chamber must be checked during testing.

**Option P – Item 173**

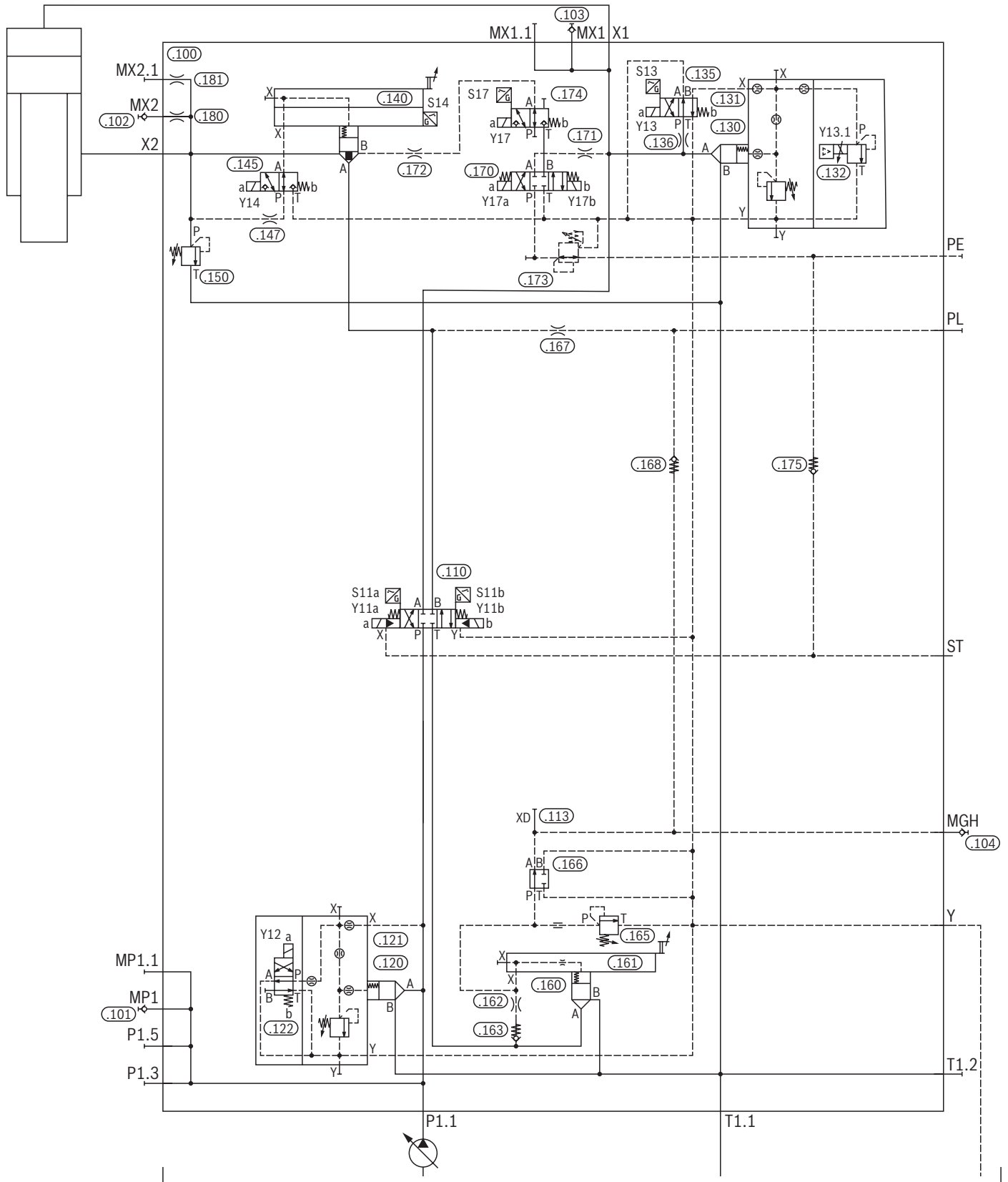
See option D.

The pressure reducing valve item 173, with mechanically fixed setting, is installed in the P-channel and reduces the pressure of the cylinder piston chamber when the restraint device is active.

The resulting force serves as reference braking force.  
As standard, a pressure rating of 75 bar is supplied.



**Safe reduced velocity < 10 mm/s (ISO 13849-PL d) and testing of the braking force of the restraint device: IH04CS-7X/...1-WE0P-WEH000E-NN-G24**



## General information

### Port sizes

Port	IH04C-7X/10	IH04C-7X/16	H04C-7X/25	IH04C-7X/32	IH04C-6X/35
P1.1 ... P1.4	G1	2 x SAE 1 ¼-6000	2 x SAE 1 ½-6000	4 x SAE 1 ½-6000	4 x SAE 1 ½-6000
P1.5, ST	G¾	G½	G½	G¾	G¾
P1.6, P1.7	-	-	-	-	2 x DN80
T1.1, T1.2	2 x G1 ½	2 x SAE 2-3000	2 x SAE 2 ½-3000	2 x SAE 3-3000	SAE 5-3000
X1, X11, X12	G1 ¼	SAE 1 ½-6000	SAE 2-6000	DN50	DN80
X2	G1	SAE 1 ¼-6000	SAE 1 ½-6000	DN50	DN80
Y	G½	G½	G½	G1	G1
PE	G¼	G¼	G¼	G¼	G¾
PL	G¼	G¼	G¼	G¼	G¾
HD	G¾	G1	G1 ½	-	-
THD	G1	G1 ¼	G1 ½	-	-
S	G1	SAE 1 ¼-6000	SAE 1 ½-6000	DN50	DN80
TS	G1 ½	SAE 2-3000	SAE 2 ½-3000	SAE 3-3000	SAE 4-3000
LS1	G¼	G¼	G¼	G¼	G¼
MX12	G¾	G¾	G¾	G¾	G½

### Connection flanges

Port size	Material no.	Designation	Notice
SAE1 ¼ – 6000 psi	R900012346	FLANSCH SAE11/4 H-38,0 X 6,0	AB02215
SAE1 ½ – 6000 psi	R900015663	FLANSCH SAE11/2 H-48,3 X 8,0	AB02215
SAE2 – 6000 psi	R900012944	FLANSCH SAE2 H-60,3 X 10,0	AB02215
SAE2 – 3000 psi	R900012939	FLANSCH SAE2 S-60,3 X 3,6	AB02215
SAE2 ½ – 3000 psi	R900012336	FLANSCH SAE21/2 S-76,1 X 3,6	AB02215
SAE3 – 3000 psi	R900012940	FLANSCH SAE3 S-88,9 X 3,6	AB02215
SAE5 – 3000 psi	R900012338	FLANSCH SAE5 S-139,7 X 4,0	AB02215
DN50 – PN320	R900049122	FLANSCH FA 50-4 / 76,1 X 12,5	IH04C-7X/32G
DN50 – PN400	R900224176	FLANSCH FA 50-5 / 76,1 X 14,2	IH04C-7X/32S
DN80 – PN320	R900211240	FLANSCH FA 80-4 / 114,3 X 17,5	IH04C-7X/35G
DN80 – PN400	R900761506	FLANSCH FA 80-5 / 133,0 X 25,0	IH04C-7X/35S

## Recommended pump versions

### IH04CS-6X/...-NN, EN, DN, HN, RN, XN up to IH04CS-6X/35

Pump version	Data sheet	Features
A4VSO...LR2	92050	With mechanical power limitation
A4VSO...LR2G	92064	With mechanical power limitation and remote-controlled pressure cut off <sup>1)</sup>
A4VSO...LR2D		With mechanical power limitation and manual pressure cut off
A4VSO...LR2N	Up to 350 bar	With mechanical power limitation and hydraulic stroke adjustment, proportional <sup>2)</sup>
A4VSO...LR2NT	up to 355 ccm	With mechanical power limitation and hydraulic stroke adjustment with integrated proportional valve <sup>3)</sup>
A4VSO...HS5(P) <sup>4)</sup>	92050	Power, pressure and flow control with servo valve
A4VSO...HS5(P)V <sup>5)</sup>	92076	Power, pressure and flow control with servo valve and with internal set pressure supply
A4VSO...HS5(P)M		Power, pressure and flow control with servo valve and for use under liquid
A4VSO...HS5E(P) <sup>4)</sup>	Up to 350 bar	Power, pressure and flow control with servo valve and digital on-board electronics
A4VSO...HS5E(P)V <sup>5)</sup>	up to 355 ccm	Power, pressure and flow control with servo valve, digital on-board electronics and internal set pressure supply
A15VSO...LR	92800	With mechanical power limitation
A15VSO...LRDRE2...A <sup>6)</sup>	92801	With mechanical power limitation and manual pressure cut off
A15VSO...LRDRE2...B <sup>7)</sup>		With mechanical power limitation and manual pressure cut off
A15VSO...LRGRE2...A <sup>6)</sup>	Up to 350 bar	With mechanical power limitation and remote-controlled pressure cut off <sup>1)</sup>
A15VSO...LRGRE2...B <sup>7)</sup>	up to 280 ccm	With mechanical power limitation and remote-controlled pressure cut off <sup>1)</sup>
SYHDFED <sup>5)</sup>	30030 Up to 280 bar up to 140 ccm	Power, pressure and flow control with field bus interface and speed variability <sup>8)</sup>
SY(H)DFEF <sup>5)</sup>	30035 up to 350 bar up to 355 ccm	Power, pressure and flow control with field bus interface
HS5E(n) <sup>5)</sup>	92050 up to 350(450) bar up to 1000 ccm	Power, pressure and flow control with field bus interface and speed variability <sup>8)</sup>
PGH	10227	Fixed displacement with speed variability <sup>8)</sup> Up to 350 bar and up to 250 ccm

1) Separate order DBETE (data sheet 29162)

2) Separate order 3DREPE6A-2X/45...A1

3) Only suitable for motor design B35

4) External pilot oil supply required

5) Internal pilot oil supply for pressure control above 20 bar, with preload block below 20 bar

6) Electric stroke adjustment via integrated oil-resistant proportional valve. Internal pilot oil supply for an operating pressure of more than 20 bar.

7) Electric stroke adjustment via integrated oil-resistant proportional valve. External pilot oil supply from 30 to 50 bar required for an operating pressure of less than 20 bar.

8) Asynchronous motor MOT-FC - DCCS10601-2 and frequency converter EFC5610 - DCCS-41044-11

## Recommended pump versions

### Pump versions for IH04CS-7X/...TEM...E-LN

Pump version	Data sheet	Features
A4VSO...LR2S	92064	350 bar / up to 355 ccm
A15VSO...LRDRS0/10 A15VSO...LRDRS0/11	92800/ 92801	350 bar / up to 280 ccm
A10VSO...DFLR/31 <sup>1)</sup>	92711	280 bar / up to 140 ccm
A10VSO...LA...DS/32 <sup>1)</sup>	92714	280 bar / up to 180 ccm

The pumps are equipped with mechanical power limitation, load-sensing and remote-controlled pressure cut off.

<sup>1)</sup> With DFLR and LADS controllers, remove the orifice in the X adapter at the pump (flow controller).

### Pump versions for IH04CS-7X/...SN – up to IH04CS-6X/35

Pump version	Data sheet	Features
A4VSO...DFR1 A4VSO...DP	92050/ 92060	350 bar / up to 355 ccm
A15VSO...DP/10 A15VSO...DP/11	92800/ 92801	350 bar / up to 280 ccm
A10VSO...DFR1/31	92711	280 bar / up to 140 ccm
A10VSO...DRS/32	92714	280 bar / up to 180 ccm

For the pressure remote control, separate order DBETE (data sheet 29162).



#### Notice:

These pump versions can be used for pressure holding on the piston chamber side without extension module **XN**.

## Further information

- ▶ Mating connectors and cable sets for valves and sensors Data sheet 08006
- ▶ On/off valves with spool position monitoring Data sheet 24830
- ▶ 4/3 proportional directional valves, direct operated, with integrated control electronics, electrical position feedback and spool position monitoring, with test certificate type 4WREEM Data sheet 29064
- ▶ 4/2-, 4/3-proportional directional valve, pilot-operated, without electr. position feedback, without/with integr. electronics (OBE), with spool position indicator Data sheet 29117
- ▶ 2-way cartridge valves with spool position monitoring Data sheet 21015
- ▶ Proportional pressure relief valve Data sheet 29166
- ▶ Pressure relief valve, direct operated Data sheet 25402
- ▶ Power regulators LR2, LR3 and LR2N for variable displacement pump A4VSO Data sheet 92064
- ▶ Axial piston variable displacement pumps A15VSO, A15VLO, series 10 Data sheet 92800
- ▶ Axial piston variable displacement pump A10VO, series 52 and 53 Data sheet 92703
- ▶ Axial piston variable displacement pump A10VSO Data sheet 92714
- ▶ Control and adjustment systems HM, HS, HS5 and EO Data sheet 92076
- ▶ Digital control electronics for axial piston pumps Data sheet 30237
- ▶ Controllers DR, DP, FR and DFR Data sheet 92060

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