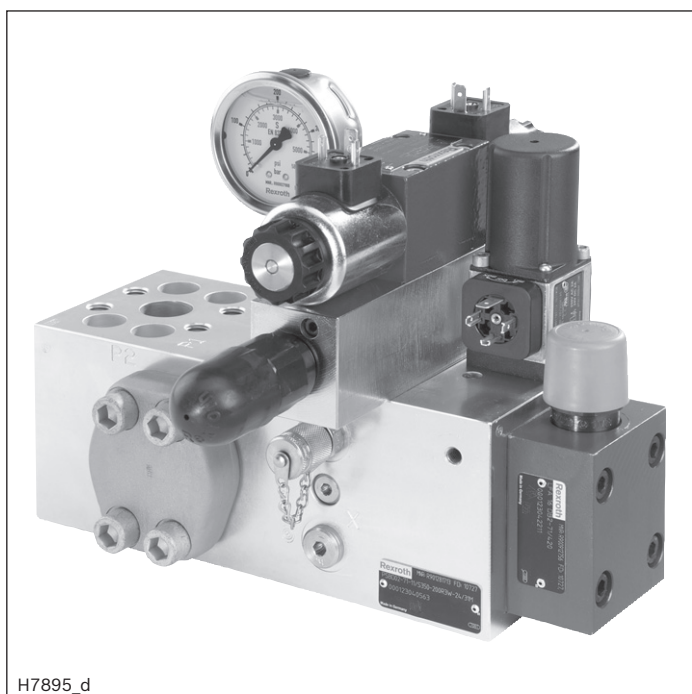


Pump manifold block

RE 62300

Edition: 04.12

Type PSBD02



- ▶ Sizes 40, 71, 180, 355
- ▶ Component series 1X
- ▶ Maximum operating pressure 350 bar
- ▶ Maximum flow 600 l/min

H7895_d

Features

- ▶ Combination of maximum pressure limitation, 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 size 40 to 355
- ▶ Max. operating pressure 350 bar
- ▶ Sizes 40, 71, 180 and 355
- ▶ Maximum flow 600 liters/minute

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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	L
	Hexagon with protective cap	S

Pressure rating 1 (maximum pressure limitation)

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 (second pressure rating)

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
PSB	D	02	-		-	1X	/			-					-		/	31		&

Supply voltage

12	Without directional valve	no code
	Direct voltage DC 24 V	24

Port sizes

13	SAE connection	31
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Seal material

14	NBR seals	M
	FKM seals	V
15	Further details in the plain text	&

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

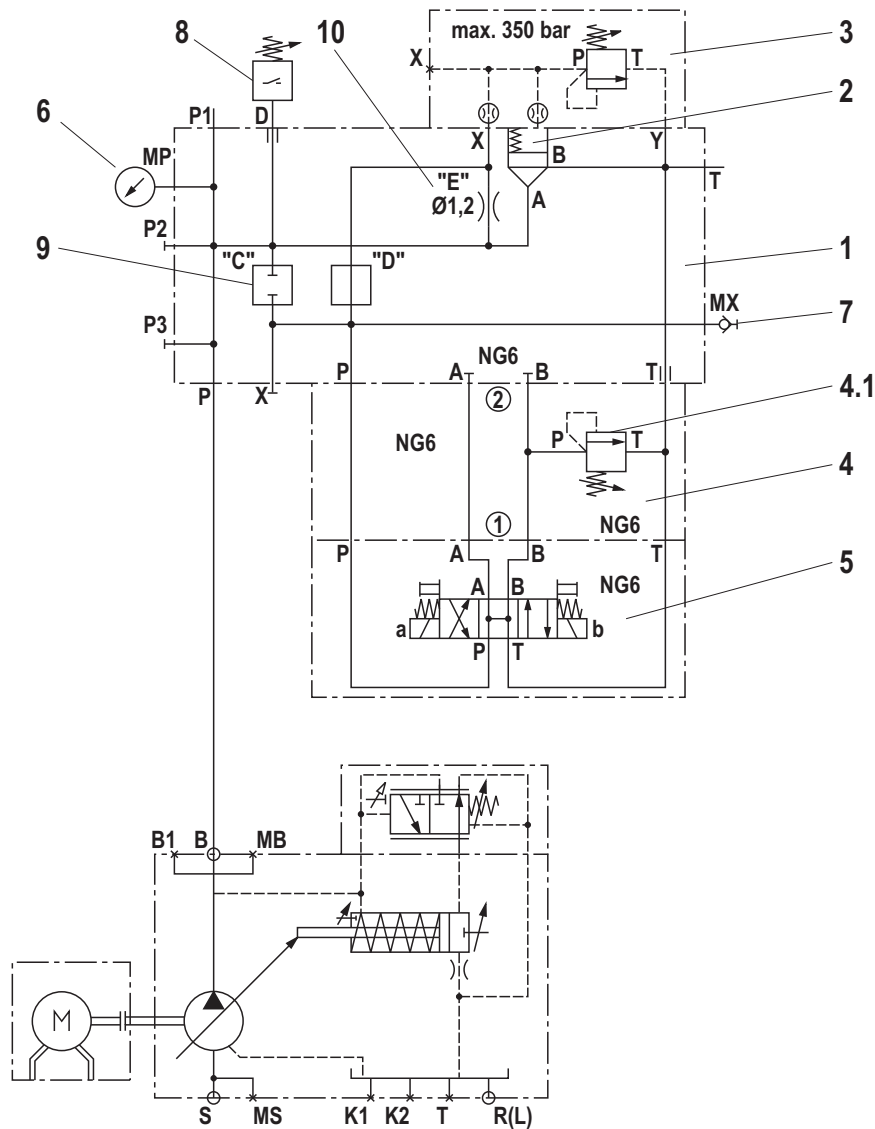
Circuit diagrams

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, start-up circuit and optional second pressure rating with pressure switch and pressure gauge



- | | |
|--|---|
| 1 Plate PSBD02-...-1X/31 | 6 Pressure gauge (optional - otherwise threaded coupling) according to data sheet 50205 |
| 2 Pressure relief valve cartridge valve according to data sheet 21050 | 7 Threaded coupling according to AB 20-11 |
| 3 Pressure relief valve control cover (pressure value 1 - maximum pressure) according to data sheet 21050 | 8 Pressure switch (optional) according to data sheet 50061 |
| 4 Sandwich plate (optional) according to data sheet 48050 | 9 Plug screw ZN10027-M8X1-SV; material no. R913019129 |
| 4.1 Pressure relief valve (pressure value 2 - second pressure rating - optional) according to data sheet 25402 | 10 Orifice ZN10028-1,2-B-M8X1X8-SV; material no. R913018601 |
| 5 Directional valve size 6 according to data sheet 23178 | Attached valve types can be seen from the parts list |

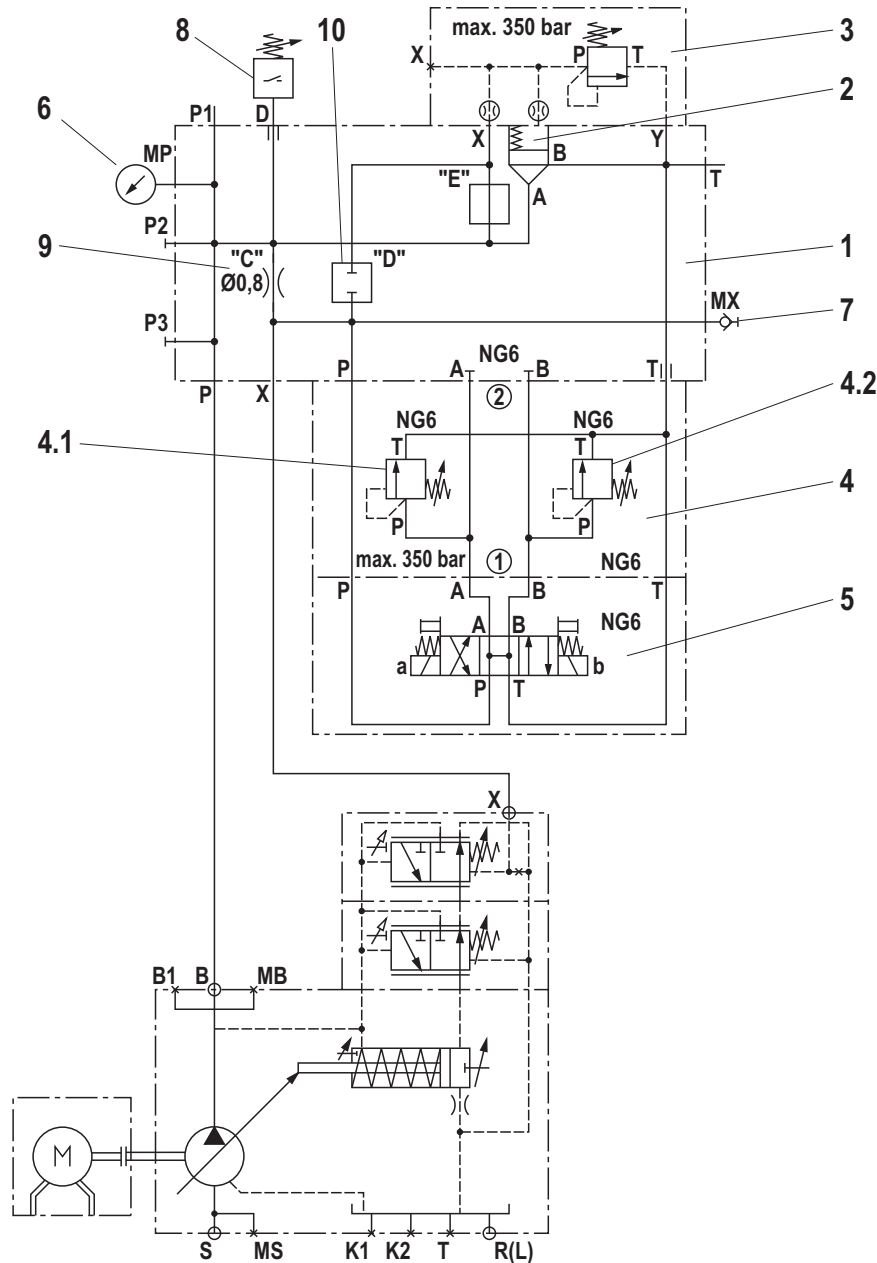
Circuit diagrams

2. Control option "F" (DFR controller)

For variable displacement pumps A4VSO with DFR1 controller

Example:

Maximum pressure limitation, start-up circuit and optional second pressure rating with pressure switch and pressure gauge



- | | |
|--|---|
| 1 Plate PSBD02-...-1X/31 | 5 Directional valve size 6 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 Threaded coupling according to AB 20-11 |
| 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 Orifice ZN10028-0.8-B-M8X1X8-SV; material no. R913018599 |
| 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. R913019129 |

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.

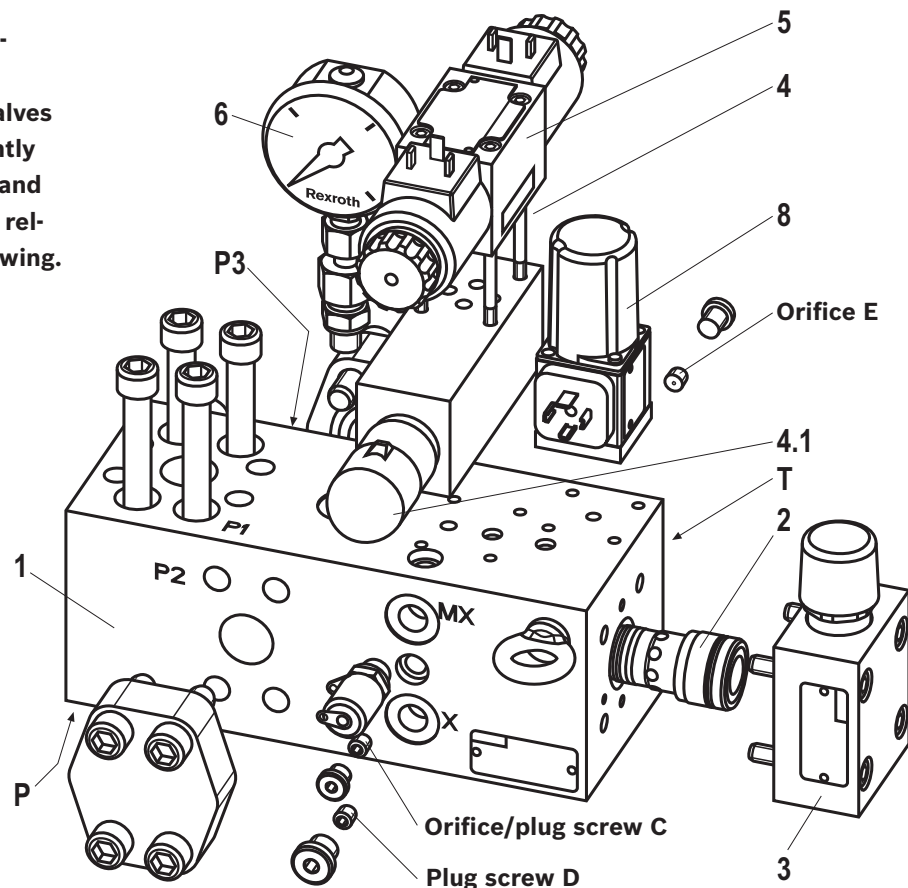
In the basic version, the control line of the cartridge valve (2) and the pilot control valve (3) is unloaded to the

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).

Representation corresponds to size 71.

The position of the valves and orifices may slightly differ for other sizes and can be seen from the relevant installation drawing.



Technical data

(For applications outside these parameters, please consult us!)

general					
Weight with maximum fitting	Size	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 back 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 50 bar: 50 bar With pressure rating 100 bar: 100 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 50 bar: 50 bar With pressure rating 100 bar: 100 bar With pressure rating 200 bar: 200 bar With pressure rating 350 bar: 350 bar		
Maximum flow		l/min	600		
Hydraulic fluid			Mineral oil HLP according to DIN 51524-2, for more 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	mm²/s	2.8 ... 500		
	– with 2-way cartridge valve	mm²/s	2.8 ... 380		
	– with DBET or DBETE	mm²/s	20 ... 380 (preferably 30 ... 46)		
	– with HED8	mm²/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!)

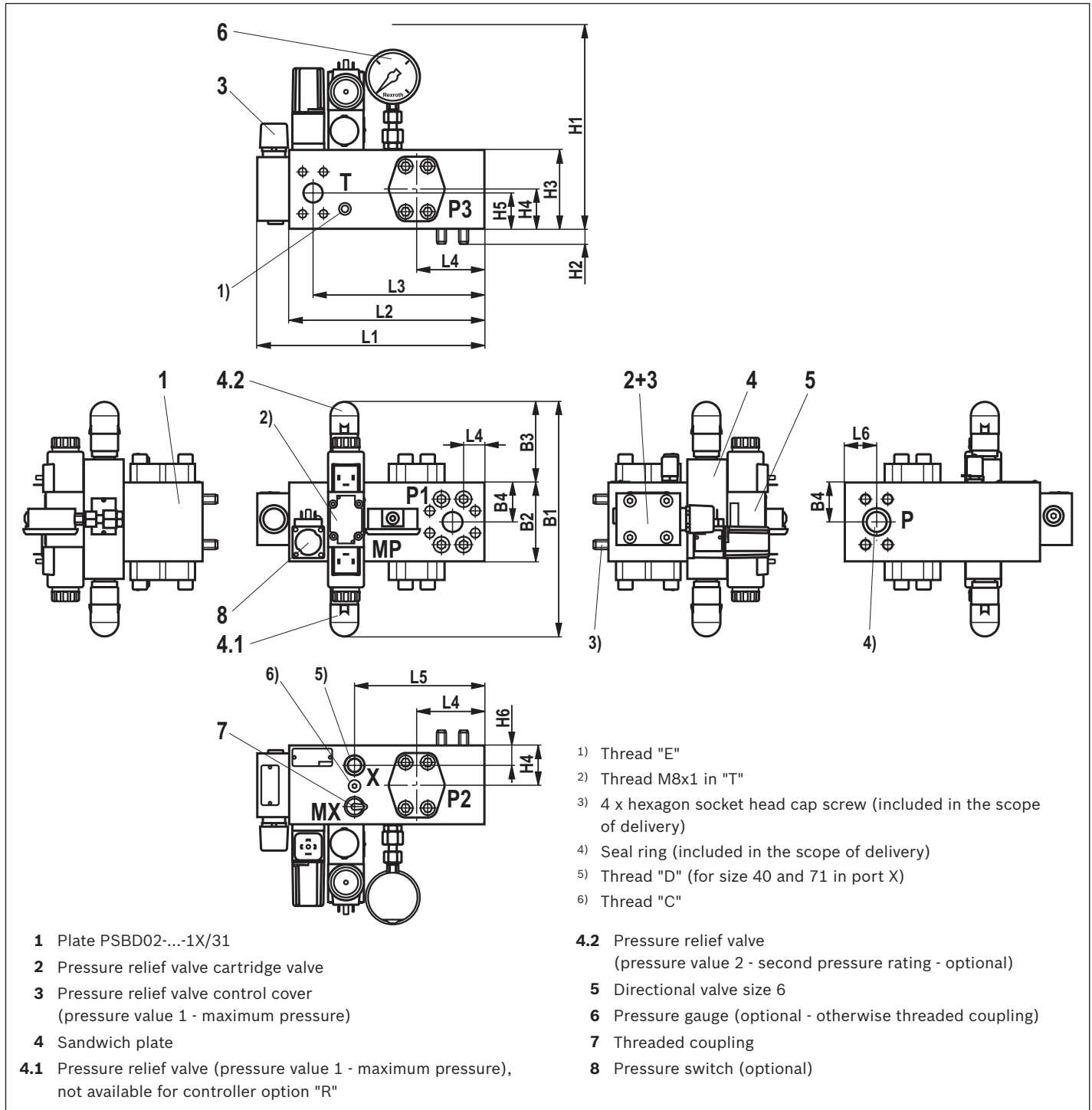
hydraulic (continued)		
Maximum admissible degree of contamination of the hydraulic fluid cleanliness class according to ISO 4406 (c)		Class 20/18/15 ¹⁾
For more technical data refer to the data sheets	– Directional valve	Data sheet 23178
	– 2-way cartridge valve	Data sheet 21050
	– PropDB: DBET and DBETE	Data sheet 29162
	– Pressure switch HED8	Data sheet 50061
electric		
Mating connectors		Mating connectors are not included in the scope of delivery and must be ordered separately. In the set-up of the following devices, please use the corresponding data sheets: ► 4/3, 4/2 and 3/2 directional valves with wet-pin DC or AC solenoids data sheet 23178 ► Pressure switch HED8 data sheet 50061 ► Proportional pressure relief valves direct operated, without/with integrated electronics (OBE) data sheet 29162 ► 2-way cartridge valve pressure functions data sheet 21050

¹⁾ 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 service life of the components. For selecting the filters, see technical data sheet 51501.

Unit dimensions (dimensions in mm)

Representation corresponds to size 71.

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
P (for direct attachment on the pump)	SAE 3/4 H	SAE 1 H	SAE 1 1/4 H	SAE 1 1/2 H
P1	SAE 3/4 H	SAE 1 H	SAE 1 1/4 H	SAE 1 1/2 H
P2, P3 closed	SAE 3/4 H	SAE 1 H	SAE 1 1/4 H	SAE 1 1/2 H
T	SAE 3/4 S	SAE 1 S	SAE 1 1/4 S	SAE 1 1/2 S
X	G 1/4	G 1/4	G 1/4	G 1/4
MP, MX	G 1/4	G 1/4	G 1/4	G 1/4
Y only with DBET.. directly at the valve	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		Size 40	Size 71	Size 180	Size 355
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

- ▶ You should observe the documentation for the machinery.
- ▶ You should also observe the documentation pertaining to the other components, assemblies and partly completed machinery, which form part of the machinery.
- ▶ You should observe the generally applicable, legal or otherwise binding European and national regulations as well as the relevant stipulations for your country (e.g. pertaining to the prevention of accidents, to environmental protection and to product liability).
- ▶ Keep documents included in the delivery carefully; they will be required by the expert in recurring tests.
- ▶ The operator will have sole responsibility for complying with existing provisions.
- ▶ Repairs may only be carried out by the manufacturer or their authorized dealers and agencies. Independently performed repairs invalidate the approval and release the manufacturer from all demands and claims resulting from an unauthorized intervention.
- ▶ Assembly and commissioning must be implemented by authorized, instructed persons only.

Notes

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