RE 25 402/03.98

Replaces: 08.97

Pressure relief valve, direct operated, Type DBD

Nominal sizes 6 to 30
Series 1X
Maximum operating pressure 630 bar
Maximum flow 330 L/min



H/A 5585/96•

Type DBD…1X/…

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Features

- As cartridge valve (cartridge)
- For threaded connections
- for manifold mounting
- 3 pressure adjustment elements, optional:
  - Grub screw with hexagon and protective cap
  - Rotary knob / hand lever
  - Lockable rotary knob

Note:

Design tested pressure relief valve Type DBD../..B, series 1X (characteristic curves, ordering details) see page 8.

Ordering details

DBD				1X/		*

Pressure relief valve, direct operated

Adjustment element	Nominal size							
	6	**8**	**10**	**15**	**20**	**25**	**30**	
Grub screw with hexagon and protective cap	●	●	●	●	●	●	●	**= S**
Rotary knob [1]	●	●	●	●	●	–	–	**= H**
Hand wheel [2]	–	–	–	–	–	●	●	**= H**
Lockable rotary knob [1, 3]	●	●	●	●	●	–	–	**= A**

[1] With sizes 15 and 20 only available for pressure stages 25, 50 or 100 bar.

[2] Only available for pressure stages 25, 50 or 100 bar.

[3] Key with Material no. 00008158 is included within the scope of supply.

Nominal size	**= 6**	**= 8**	**= 10**	**= 15**	**= 20**	**= 25**	**= 30**	e. g.
(connection)	G1/4	G3/8	G1/2	G3/4	G1	G1 1/4	G1 1/2	**= 10**

Type of connection								
As cartridge valve (cartridge)	●	–	●	–	●	–	●	**= K**
For threaded connections	●	●	●	●	●	●	●	**= G**
For manifold mounting	●	–	●	–	●	–	●	**= P**

Series 10 to 19 **= 1X**
(10 to 19: unchanged installation and connection dimensions)

Pressure stage								
Pressure setting up to 25 bar	●	●	●	●	●	●	●	**= 25**
Pressure setting up to 50 bar	●	●	●	●	●	●	●	**= 50**
Pressure setting up to 100 bar	●	●	●	●	●	●	●	**= 100**
Pressure setting up to 200 bar	●	●	●	●	●	●	●	**= 200**
Pressure setting up to 315 bar	●	●	●	●	●	●	●	**= 315**
Pressure setting up to 400 bar	●	●	●	●	●	–	–	**= 400**
Pressure setting up to 630 bar	–	–	●	–	–	–	–	**= 630**

NBR seals **= No code**

FPM seals **= V**

(other seals on request)

⚠ Attention!
The compatibility of the seals and pressure fluid has to be taken into account!

Further details in clear text

● = available

Preferred types and standard components are highlighted in the RPS (Rexroth Price list Standard).

Function, section, symbol

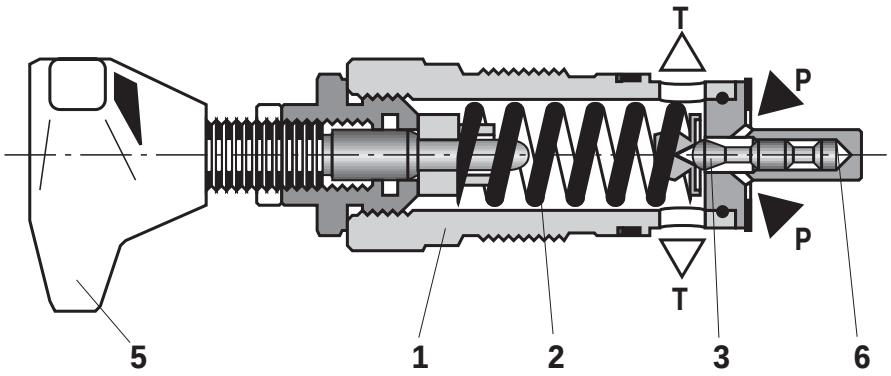
The DBD pressure relief valves are direct operated poppet valves.

They are used to limit the pressure in a hydraulic system.

The valves mainly consist of sleeve (1), spring (2), poppet with damping spool (3) (pressure stages 25 to 400 bar) or ball (4) (pressure stage 630 bar) and adjustment element (5). The setting of the system pressure is infinitely variable via the adjustment element (5). The spring (2) pushes the poppet (3) onto the seat. The P channel is connected to the system. The pressure present in the system is applied to the poppet area (or ball).

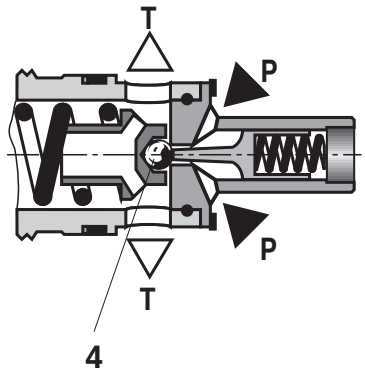
If the pressure in channel P rises above the value set at the spring (2), the poppet (3) or ball (4) opens against the spring (2). Now pressure fluid flows form channel P into channel T. The stroke of the poppet (3) is limited by a pin (6).

In order to maintain a good pressure settings over the entire pressure range the pressure range is split into 7 pressure stages. One pressure stage corresponds to a certain spring for a maximum operating pressure which may be set with it.



Type DBDH..K 1X/…

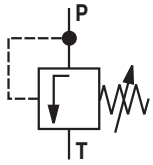
Pressure stage 25 to 400 bar (poppet seat valve)



Type DBDH 10 K1X/…

Pressure stage 630 bar
(ball seat valve, only size 10)

Symbol



Technical data (for applications outside these parameters, please consult us!)

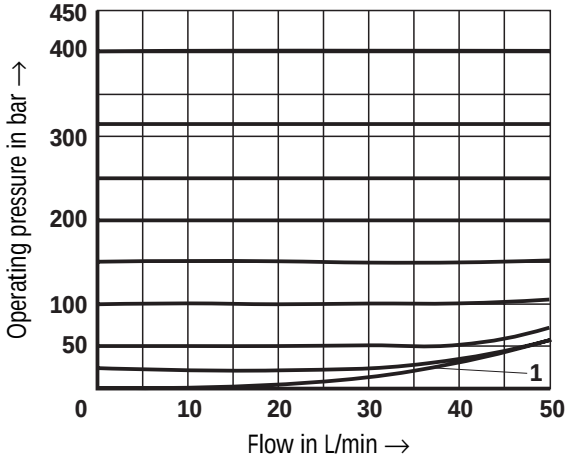
Pressure fluid			Mineral oil (HL, HLP) to DIN 51 524 [1]; Fast bio-degradable pressure fluids to VDMA 24 568 (also see RE 90 221); HETG (rape seed oil) [1]; HEPG (Polyglycol) [2]; HEES (synthetic ester) [2]; other fluids on request			
Pressure fluid temperature range		°C	– 30 to + 80 (for NBR seals)			
			– 20 bis + 80 (for FPM seals)			
Degree of contamination			Maximum permissible degree of contamination of the fluid is to NAS 1638 class 9. We, therefore, recommend a filter with a rentention rate of $\beta_{10} \geq 75$			
Viscosity range:		mm^2/s	10 to 800			
Operating pressure range:			Sizes 6 and 8	Size 10	Sizes15 and 20	Sizes 25 and 30
	Input	bar	up to 400	up to 630	up to 400	up to 315
	Output	bar	315	315	315	315

[1] Suitable for NBR **and** FPM seals

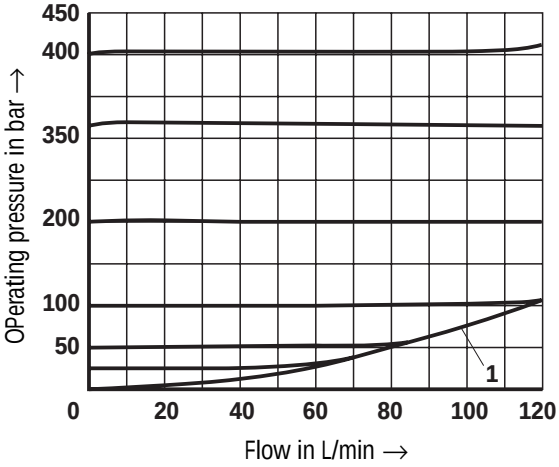
[2] **Only** suitable for FPM seals

Characteristic curves (measured at ν = 41 mm²/s and ϑ = 50 °C)

Size 6

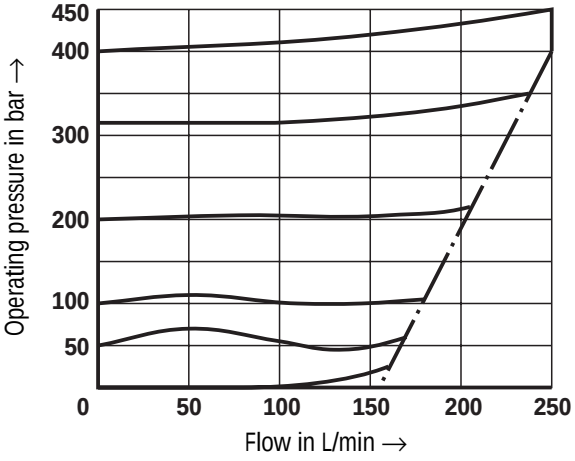


Sizes 8 and 10

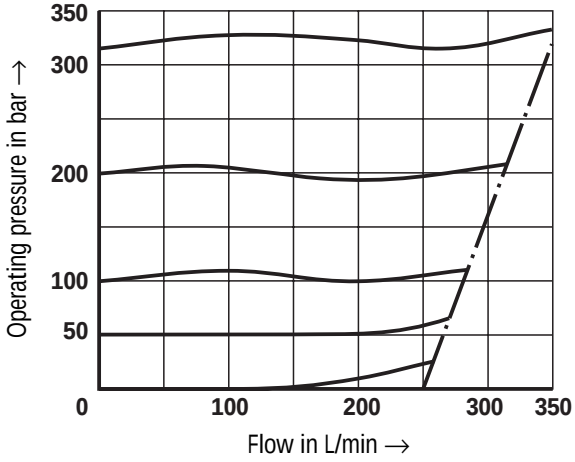


1 lowest settable pressure

Sizes 15 and 20



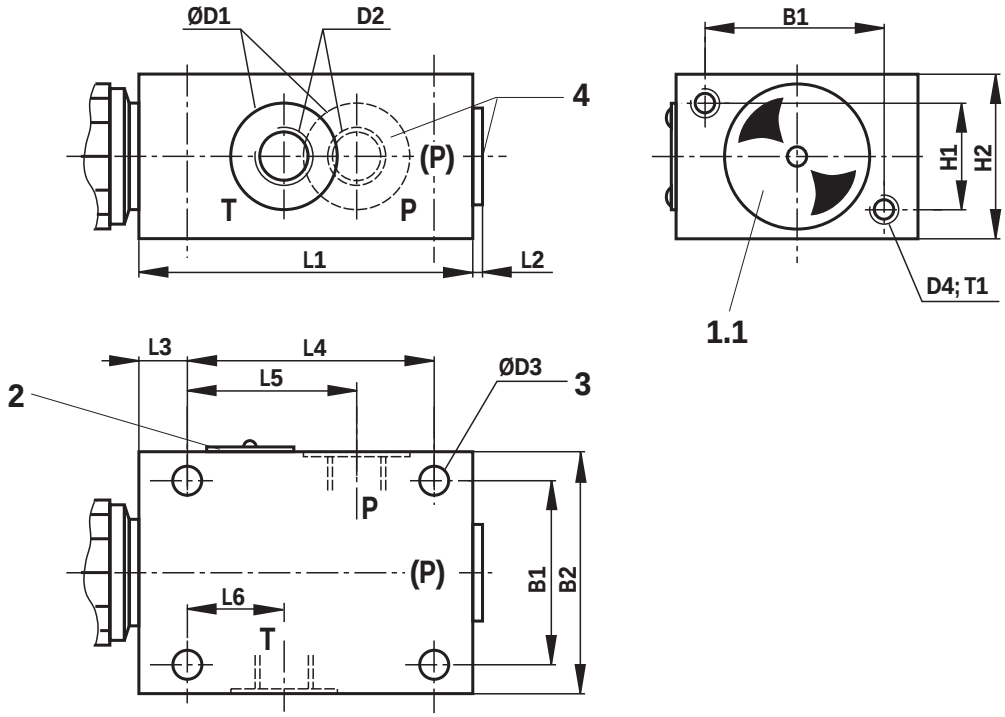
Sizes 25 and 30



⚠ Attention!
The characteristic curves are valid for the output pressure = zero in the complete flow range and are measured without consideration of the housing pressure drop!

⚠ Attention!
The characteristic curves refer to the given pressure stages (e. g. 200 bar). The further the pressure setting value exceeds the nominal presure stage (e. g. < 200 bar), the greater the pressure increase with the flow.

Unit dimensions: for threaded connections (Dimensions in mm)



Size	B1	B2	ØD1	D2	ØD3	D4	H1	H2	L1	L2	L3	L4	L5	L6	T1	Weight
6	45	60	25	G 1/4	6.6	M6	25	40	80	4	15	55	40	20	10	approx. 1.5 kg
(8) + 10	60	80	(28) 34	(G 3/8) G 1/2	9	M8	40	60	100	4	20	70	49	21	20	approx. 3.7 kg
(15) + 20	70	100	(42) 47	(G 3/4) G1	9	M8	50	70	135	(4) 5.5	20	100	65	34	20	approx. 6.4 kg
(25) + 30	100	130	(56) 61	(G 1 1/4) G 1 1/2	11	M10	60	90	180	5.5	25	130	85	35	25	approx. 13.9 kg

1.1 Adjustment element „S“
grub screw for pressure setting and protective cap
internal hexagon (up to size 20)
external hexagon (sizes 25, 30)

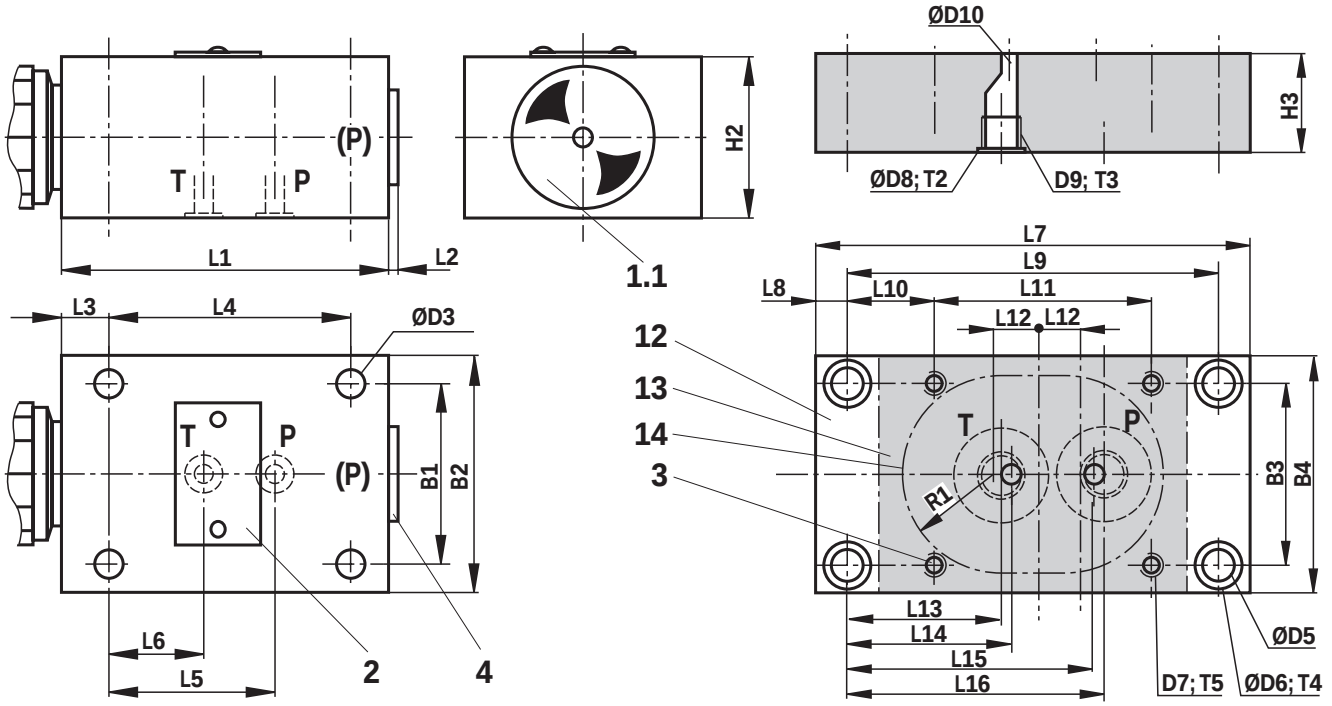
2 Name plete

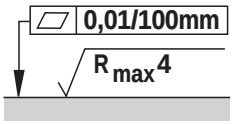
3 4 valve fixing holes

4 Connection port P, optional (e.g. for pressure measuring)
for dimensions see dimension D2

Types and dimensions of setting elements see page 7.

Unit dimensions: for manifold mounting (Dimensions in mm)





Required surface finish of mating piece

Valve fixing screws (must be ordered separately)			M_A in Nm
Size 6	M6 x 50	DIN 912–10.9	approx. 15.5
Size 10	M8 x 70	DIN 912–10.9	approx. 37
Size 20	M8 x 90	DIN 912–10.9	approx. 37
Size 30	M10 x 110	DIN 912–10.9	approx. 75

Types and dimensions of adjustment elements see page 7.

1.1 Adjustment element „S“ grub screw for pressure setting and protective cap
internal hexagon (up to size 20)
external hexagon (size 25, 30)

2 Name plate

3 4 valve fixing holes

4 Connection port P, optional (e.g. for pressure measuring)

12 Sub-plate type code see below

13 Valve contact area

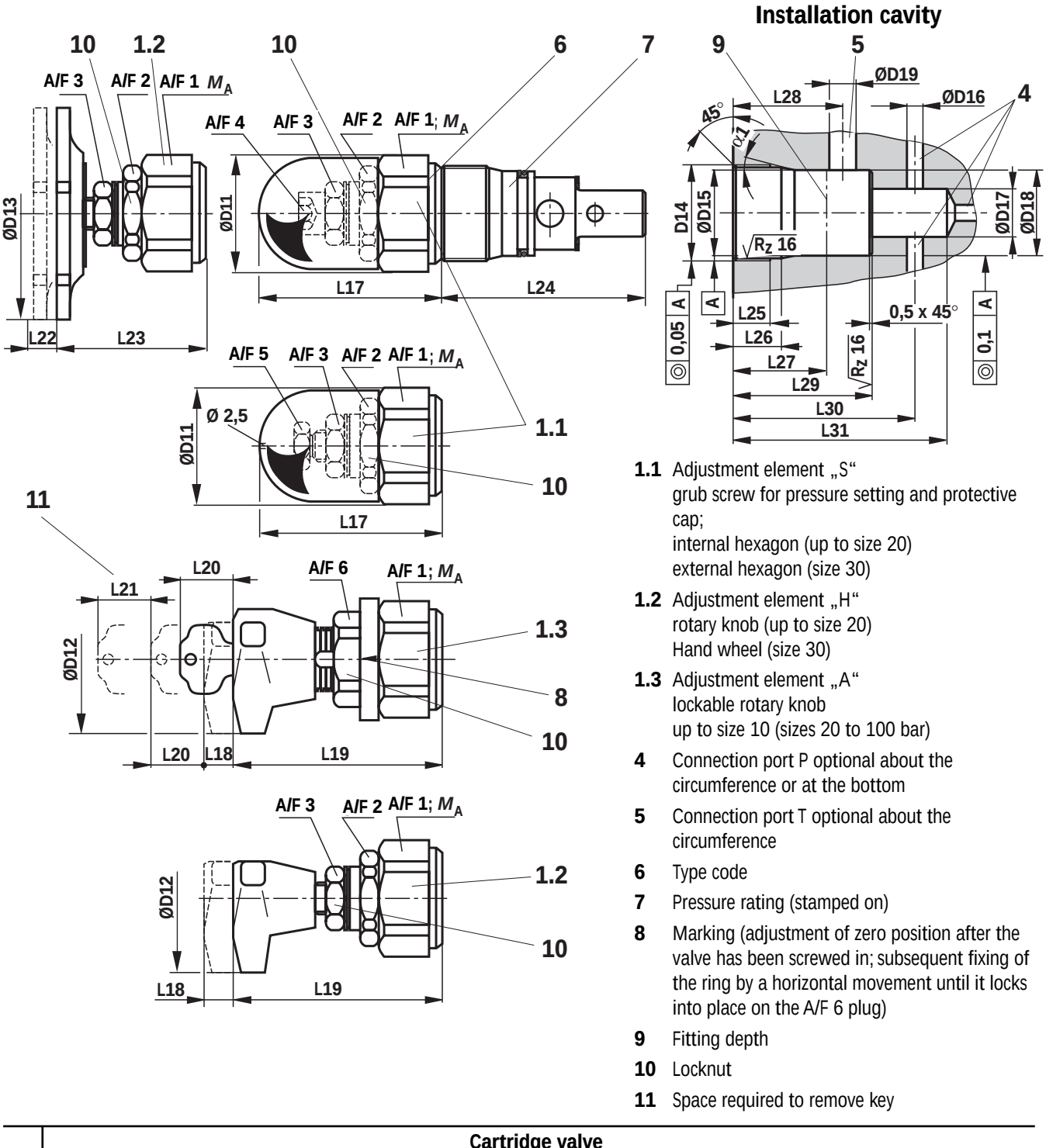
14 Panel cut-out

	Pressure relief valve												
Size	B1	B2	ØD3	H2	L1	L2	L3	L4	L5	L6	Port (P)	R-ring (ports P, T)	Weight
6	45	60	6.6	40	80	4	15	55	40	20	G 1/4	8.01 x 1.6 x 1.78	approx. 1.5 kg
10	60	80	9	60	100	4	20	70	45	21	G 1/2	12.81 x 2.4 x 2.62	approx. 3.7 kg
20	70	100	9	70	135	5,5	20	100	65	34	G 3/4	23.47 x 2.62 x 2.62	approx. 6.4 kg
30	100	130	11	90	180	5.5	25	130	85	35	G 1 1/4	34.59 x 2.62 x 2.62	approx. 13.9 kg

	Sub-plate									
Size	Type	B3	B4	ØD5	ØD6	D7	ØD8	D9	ØD10	H3
6	G 300/01	45	60	7	11	M6	25	G 1/4	6	25
10	(G 301/01) G 302/01	60	80	7	11	M8	(28) 34	(G 3/8) G 1/2	10	25
20	(G 303/01) G 304/01	70	100	11.5	17.5	M8	(42) 47	(G 3/4) G 1	(15) 20	40
30	(G 305/01) G 306/01	100	130	11.5	17.5	M10	(56) 61	(G 1 1/4) G 1 1/2	30	40

	Sub-plate														
Size	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16	T2	T3	T4	T5	R1	Weight
6	110	8	94	22	55	10	39	42	62	65	1	15	9	15	25^{+2}	1.5 kg
10	135	10	115	27.5	70	12.5	40.5	48.5	72.5	80.5	1	(15) 16	9	15	30^{+5}	2 kg
20	170	15	140	20	100	20	(45) 42	54	85	(94) 97	1	20	13	(12) 22	40^{+3}	5.5 kg
30	190	12.5	165	17.5	130	22.5	42	52.5	102.5	(113) 117	1	24	11.5	22	55^{+4}	8 kg

Unit dimensions: cartridge valve (cartridge) (Dimensions in mm)



1.1 Adjustment element „S“
grub screw for pressure setting and protective cap;
internal hexagon (up to size 20)
external hexagon (size 30)

1.2 Adjustment element „H“
rotary knob (up to size 20)
Hand wheel (size 30)

1.3 Adjustment element „A“
lockable rotary knob
up to size 10 (sizes 20 to 100 bar)

4 Connection port P optional about the circumference or at the bottom

5 Connection port T optional about the circumference

6 Type code

7 Pressure rating (stamped on)

8 Marking (adjustment of zero position after the valve has been screwed in; subsequent fixing of the ring by a horizontal movement until it locks into place on the A/F 6 plug)

9 Fitting depth

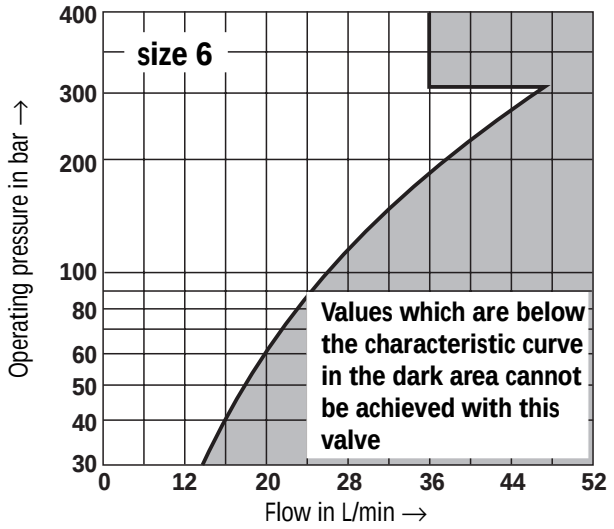
10 Locknut

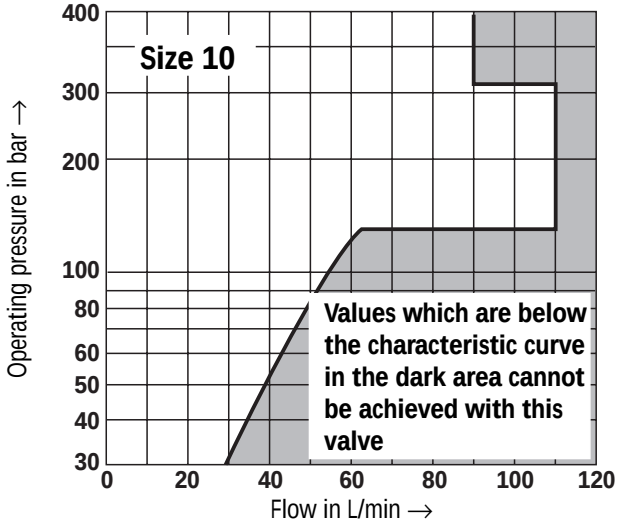
11 Space required to remove key

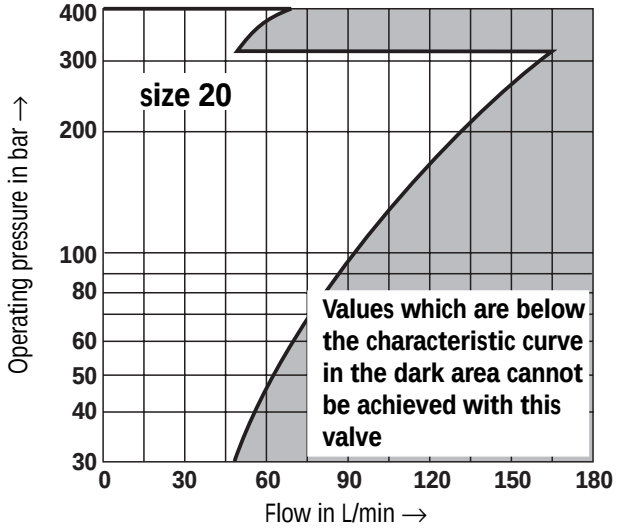
	Cartridge valve																		
Size	**ØD11**	**ØD12**	**ØD13**	**L17**	**L18**	**L19**	**L20**	**L21**	**L22**	**L23**	**L24**	**A/F1**	**M_A, approx.**	**A/F2**	**A/F3**	**A/F4**	**A/F5**	**A/F6**	**Weight**
6	34	60	–	72	11	83	28	20	–	–	64.5	32	80 Nm	30	19	6	–	30	approx.0.4 kg
10	38	60	–	68	11	79	28	20	–	–	77	36	140 Nm	30	19	6	–	30	approx. 0.5 kg
20	48	60	–	65	11	77	28	20	–	–	106	46	170 Nm	36	19	6	–	30	approx. 1 kg
30	63	–	80	83	–	–	–	–	11	56	131	60	200 Nm	46	19	–	13	–	approx. 2.2 kg

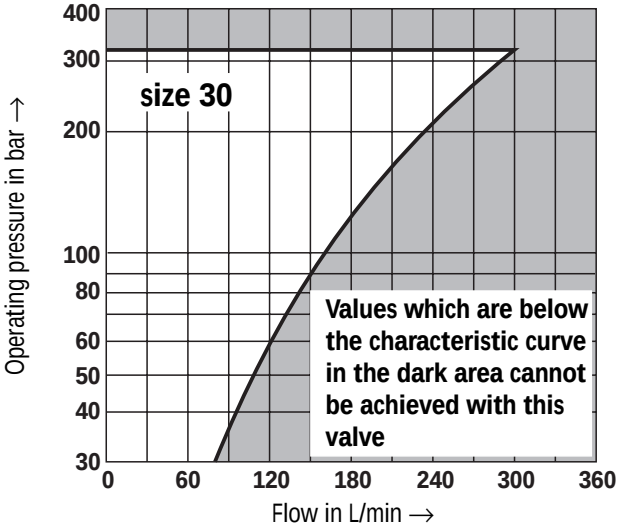
	Installation cavity													
Size	**D14**	**ØD15**	**ØD16**	**ØD17**	**ØD18**	**ØD19**	**L25**	**L26**	**L27**	**L28**	**L29**	**L30**	**L31**	**α1**
6	M28 x 1.5	25^{H9}	6	15	24.9	6	15	19	30	35	45	56.5±5.5	65	15°
10	M35 x 1.5	32^{H9}	10	18.5	31.9	10	18	23	35	41	52	67.5±7.5	80	15°
20	M45 x 1.5	40^{H9}	20	24	39.9	20	21	27	45	54	70	91.5±8.5	110	20°
30	M60 x 2	55^{H9}	30	38.75	54.9	30	23	29	45	60	84	113.5±11.5	140	20°

Design tested pressure relief valves type DBD ../..B









The ordering code of a design tested pressure relief valve consists of description and component code.

Size	Description	Component code
6	DBDS 6K1X/ ☐ B DBDH 6K1X/ ☐ B DBDS 6G1X/ ☐ B DBDH 6G1X/ ☐ B DBDS 6P1X/ ☐ B DBDH 6P1X/ ☐ B	TÜV.SV.94-849.5.F.α_w.p.
10	DBDS 8G1X/ ☐ B DBDH 8G1X/ ☐ B DBDS 10K1X/ ☐ B DBDH 10K1X/ ☐ B DBDS 10G1X/ ☐ B DBDH 10G1X/ ☐ B DBDS 10P1X/ ☐ B DBDH 10P1X/ ☐ B	TÜV.SV.94-850.6.F.α_w.p.

Size	Description	Component code
20	DBDS 15G1X/ ☐ B DBDH 15G1X/ ☐ B DBDS 20K1X/ ☐ B DBDH 20K1X/ ☐ B DBDS 20G1X/ ☐ B DBDH 20G1X/ ☐ B DBDS 20P1X/ ☐ B DBDH 20P1X/ ☐ B	TÜV.SV.96-361.10.F.α_w.p.
30	DBDS 25G1X/ ☐ B DBDH 25G1X/ ☐ B DBDS 30K1X/ ☐ B DBDH 30K1X/ ☐ B DBDS 30G1X/ ☐ B DBDH 30G1X/ ☐ B DBDS 30P1X/ ☐ B DBDH 30P1X/ ☐ B	TÜV.SV.96-362.15.F.α_w.p.

☐ Pressure in the type code must be entered by customer

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