

REI 25402/03.2000

Replaces : 01.98



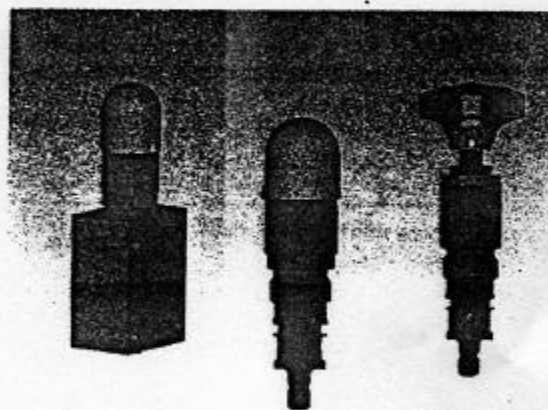
**Pressure relief valve,  
Direct operated,  
Type DBD**

Nominal sizes 6 to 20

Series 1X

Maximum operating pressure 400 bar

Maximum flow 250 L/min



DBD....1X..-IN001

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### Features

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- As cartridge valve (cartridge)
- For threaded connection
- For manifold mounting
- 2 pressure adjustment elements, optional:
  - # Grub screw with hexagon and protective cap
  - # Rotary knob

**Ordering details**

DBD      1X/      -IN001      *				
Pressure relief valve, direct operated				
<b>Adjustment element</b>	Nominal size			
	6	10	20	
Grub screw with hexagon and protective cap	●	●	●	=S
Rotary knob	●	●	●	=H
<b>Nominal size (connection)</b>	=6 G1/4	=10 G1/2	=20 G1	e.g. =10
<b>Type of connection</b> as cartridge valve (cartridge)      =K for threaded connection      =G for manifold mounting      =P				
Series 10 to 19      =1X (10 to 19: unchanged installation & connection dimensions)				
<b>Pressure stages</b> 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				
NBR-seals      =no code FPM-seals      =V (other seals on request)				
⚠ <b>ATTENTION !</b> The compatibility of the seals and pressure fluid has to be taken into account !				
Modification number				
Further details in clear text				

● = available

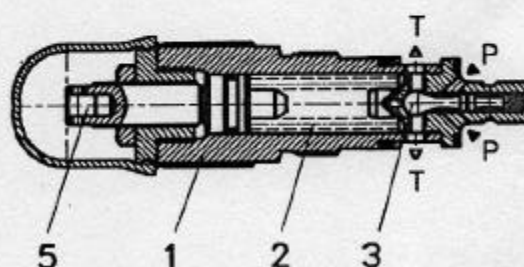
## Function, section, symbol

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), and setting element (5). The setting of the system pressure is infinitely done via the setting 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.

If the pressure in channel P rises above the value set at the spring (2) the poppet (3) opens against the spring (2). Now pressure fluid flows from channel P into channel T.

In order to maintain a good pressure setting over the complete pressure range the complete pressure range is split into 5 pressure stages. One pressure stage corresponds to a certain spring for a maximum operating pressure which may be set with it.



DBDS.K 1X/..-IN001

### Symbol



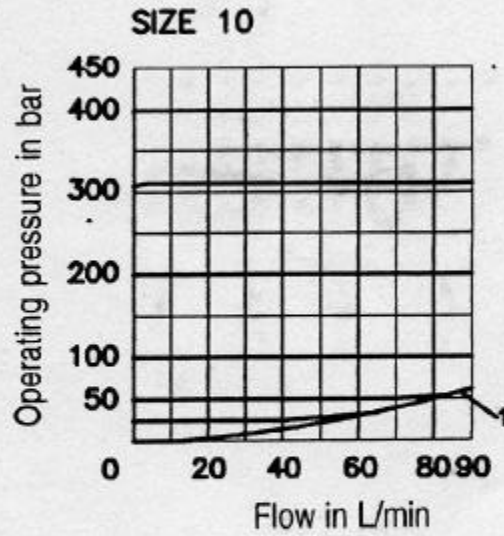
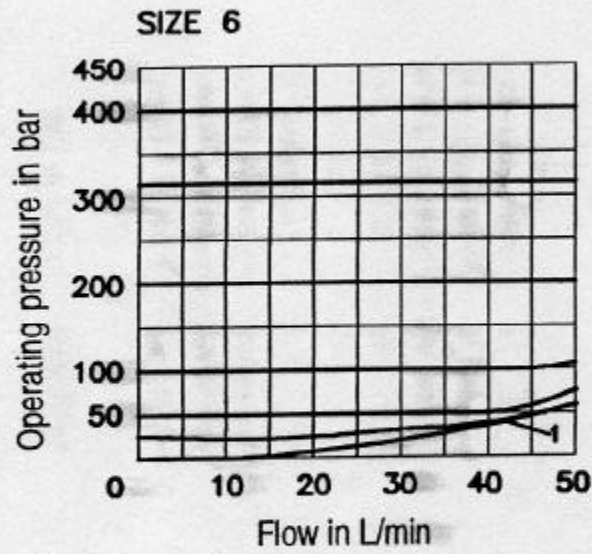
### Technical data (For application outside these parameters, please consult us!)

Pressure fluid	Mineral oil (HL, HLP) to DIN 51524 <sup>1)</sup> Fast bio-degradable pressure fluids to VDMA 24568 (also see RE 90221); HETG (rape seed oil) <sup>1)</sup> ; HEPG (polyglycol) <sup>2)</sup> ; HEES (synthetic ester) <sup>2)</sup> ; other fluids on request			
Pressure fluid temperature range	°C	-30 to +80 (for NBR seals) -20 to +80 (for FPM seals)		
Degree of contamination	Max. permissible degree of contamination of the fluid is to NAS 1638 class 9. We, therefore, recommend a filter with a retention rate of $\beta_{10} \geq 75$			
Viscosity range	mm <sup>2</sup> /s	10 to 800		
Operating pressure range		Size 6	Size 10	Size 20
	Input bar	up to 400	up to 400	up to 400
	Output bar	315	315	315

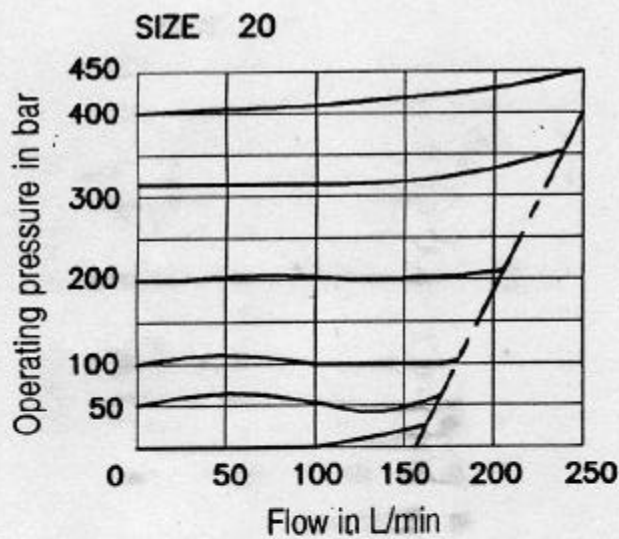
1) Suitable for NBR and FPM seals

2) Only suitable for FPM seals

Characteristic curves: ( measured at  $v = 41 \text{ mm}^2/\text{s}$  and  $\nu = 50^\circ\text{C}$  temp. )



1 - Lowest settable pressure

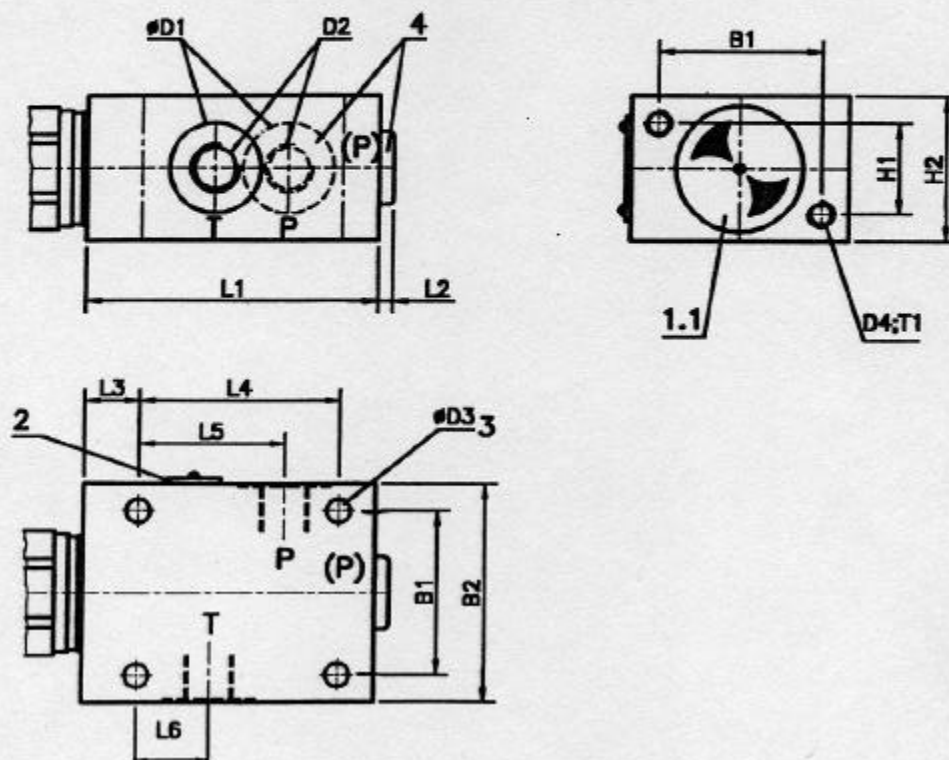


**Attention!**  
The characteristic curves are valid for the output pressure=zero in the complete flow range and are measured without consideration of the housing pressure drop!

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

Unit dimensions : for threaded connection

(Dimensions in mm)

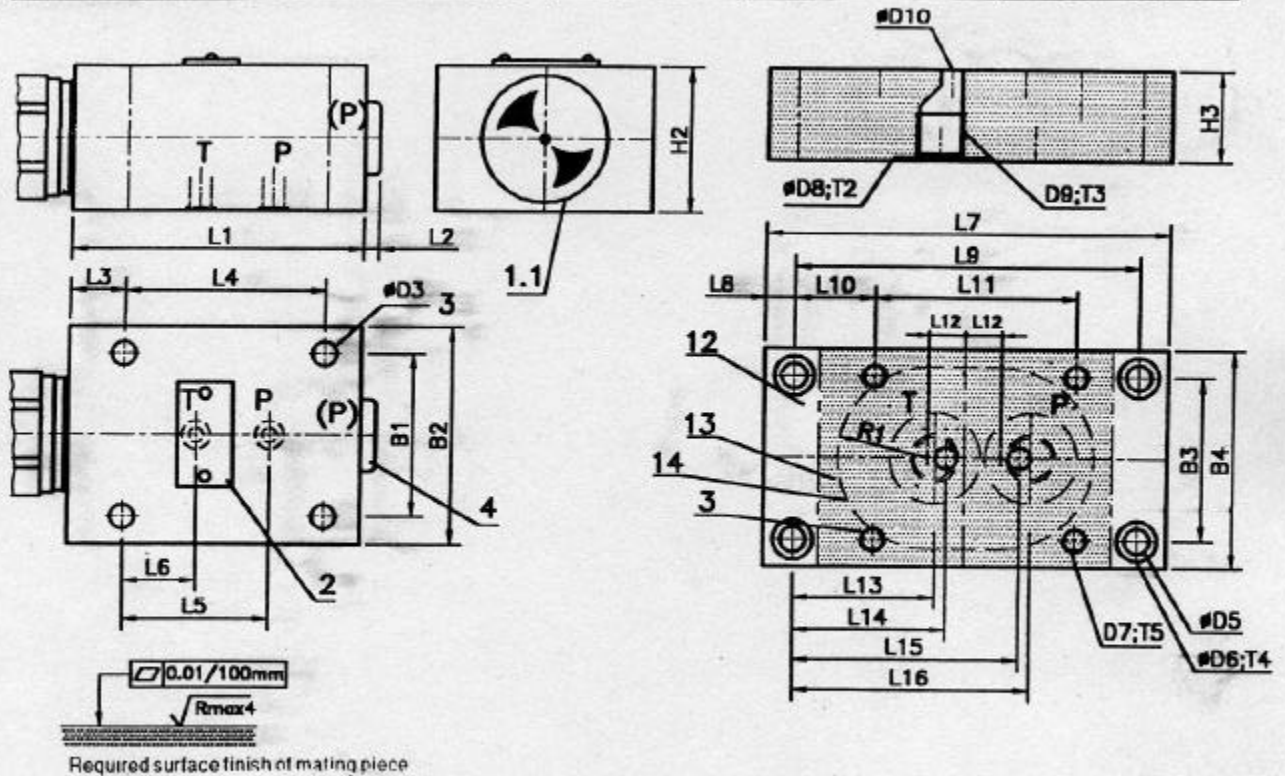


Size	B1	B2	ØD1	D2	ØD3	D4	H1	H2	L1	L2	L3	L4	L5	L6	T1	Weight
6	45	60	25	G1/4	6.6	M6	25	40	80	4	15	55	40	20	10	approx. 1.5 kg
10	60	80	34	G1/2	9	M8	40	60	100	4	20	70	49	21	20	approx. 3.7 kg
20	70	100	47	G 1	9	M8	50	70	135	5.5	20	100	65	34	20	approx. 6.4 kg

- 1.1 Adjustment element 'S' grub screw for pressure setting and protective cap **For types and dimensions of adjustment elements, see page 7**
- 2 Name plate
- 3 4 valve fixing holes
- 4 Connection port P, optional (e.g. for pressure measuring) for dimensions see dimension D2

Unit dimensions : for manifold mounting

(Dimensions in mm)



Valve fixing screws (must be ordered separately)			M <sub>A</sub> in Nm
Size 6	M6x50	DIN 912-10.9	approx. 15.5
Size 10	M8x70	DIN 912-10.9	approx. 37
Size 20	M8x90	DIN 912-10.9	approx. 37

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 30)
- 2 Name plate 14 Panel cut-out
- 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

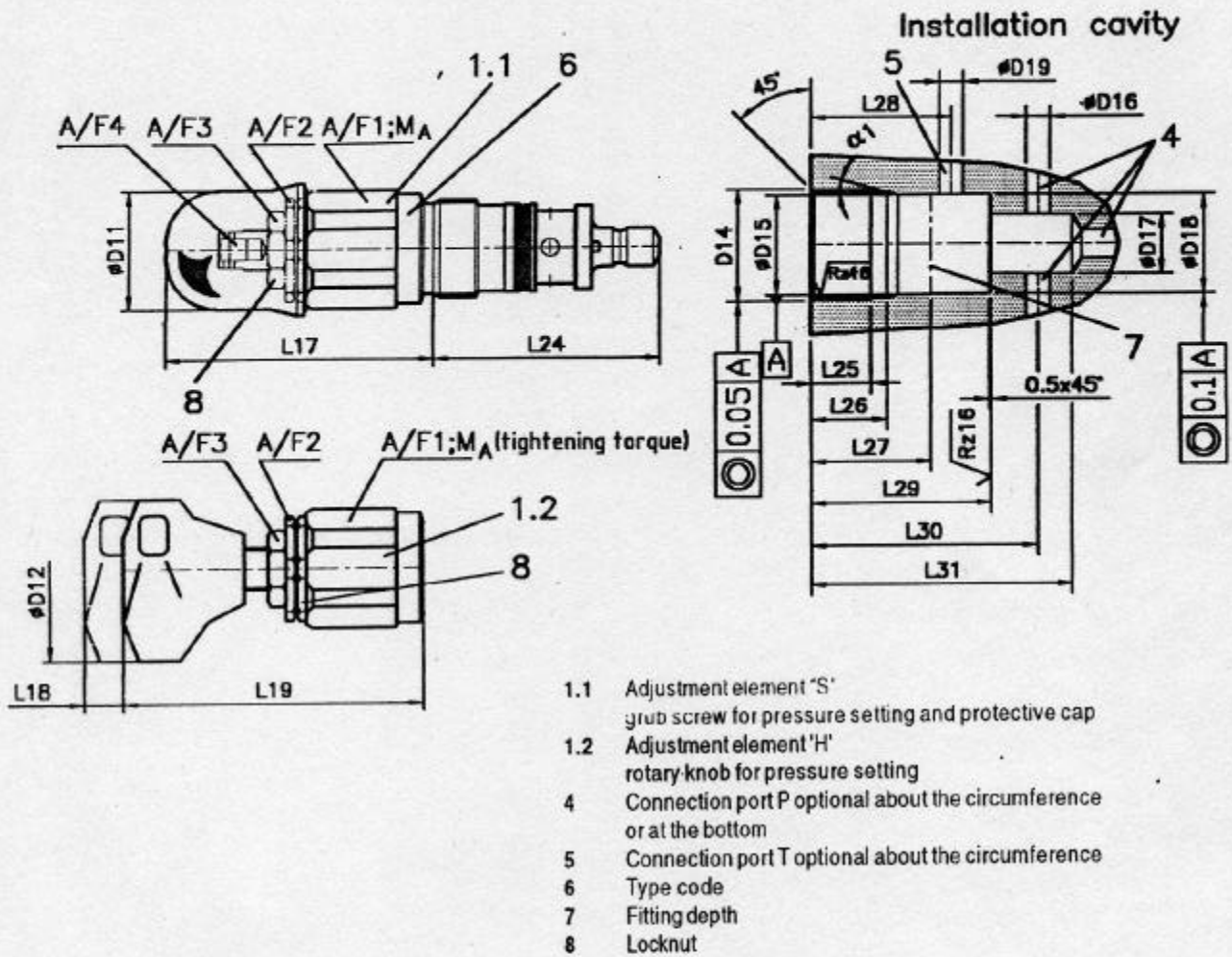
Size	Pressure relief valve										Port (P)	O-ring (ports P,T)	Weight
	B1	B2	ØD3	H2	L1	L2	L3	L4	L5	L6			
6	45	60	6.6	40	80	4	15	55	40	20	G 1/4	7.00x1.50	approx. 1.5 kg
10	60	80	9	60	100	4	20	70	45	21	G 1/2	12.30x2.40	approx. 3.7 kg
20	70	100	9	70	135	5.5	20	100	65	34	G 3/4	22.00x3.00	approx. 6.4 kg

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 302/01	60	80	7	11	M8	34	G 1/2	10	25	
20	G 304/01	70	100	11.5	17.5	M8	47	G 1	20	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 <sup>+2</sup>	1.5
10	135	10	115	27.5	70	12.5	40.5	48.5	72.5	80.5	1	16	9	15	30 <sup>+5</sup>	2 kg
20	170	15	140	20	100	20	42	54	85	97	1	20	13	22	40 <sup>+3</sup>	5.5 kg

Unit dimensions : cartridge valve (cartridge)

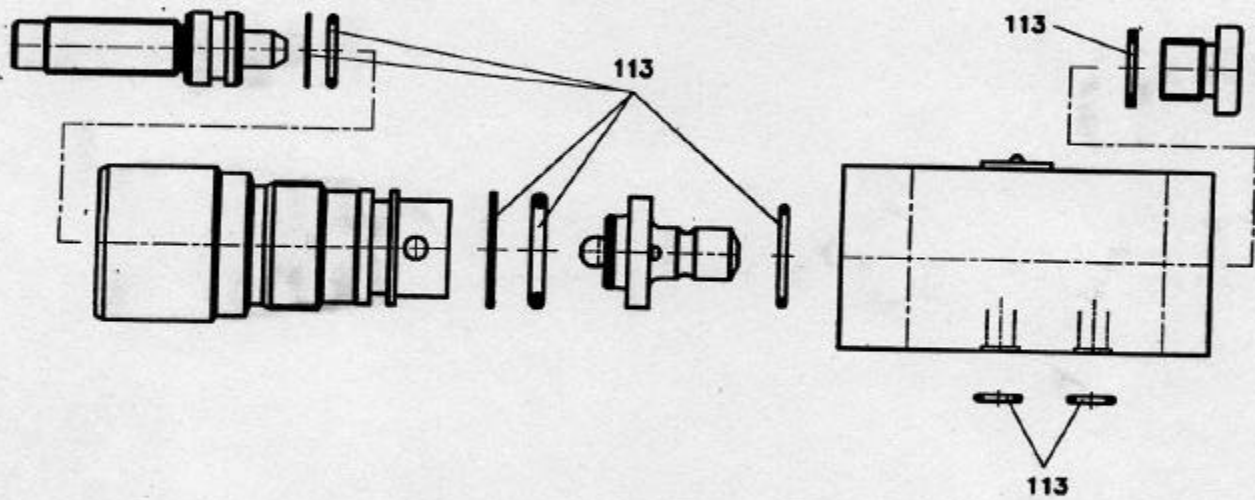
(Dimensions in mm)



Cartridge valve													
Size	øD11	øD12	L17	L18	L19	L24	A/F1	M <sub>A</sub> approx.	A/F2	A/F3	A/F4	A/F5	Weight
6	34	60	76	11	87	64.5	32	80 Nm	30	19	6	-	approx. 0.4kg
10	38	60	73	11	84	77	36	140 Nm	30	19	6	-	approx. 0.5kg
20	48	60	70	11	82	106	46	170 Nm	36	19	6	-	approx. 1kg

Installation cavity														
Size	D14	øD15	øD16	øD17	øD18	øD19	L25	L26	L27	L28	L29	L30	L31	α1
6	M28x1.5	25 <sup>H9</sup>	6	15	24.9	6	15	19	30	35	45	56.5±5.5	65	15
10	M35x1.5	32 <sup>H9</sup>	10	18.5	31.9	10	18	23	35	41	52	67.5±7.5	80	15
20	M45x1.5	40 <sup>H9</sup>	20	24	39.9	20	21	27	45	54	70	91.5±8.5	110	20

**Ordering code** : available seals



Type	Order no.: seal kit, Pos. no.113	
	NBR seals	FPM seals
DBD 6 K	01581373	01581378
DBD 6 G/P	01581348	01581347
DBD10 K	01581374	01581379
DBD10 G/P	01581375	01581380
DBD20 K	01581376	01581381
DBD20 G/P	01581377	01581382

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