

Pressure relief valve direct operated

Type DBD...10

Sizes 6 to 30
up to 400 bar
up to 330 L/min



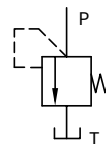
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Features

- 3 connected versions
- Inserted cartridge
- Threaded connection
- Sub-plate mounting
- 6 pressure ratings
- 25, 50, 100, 200, 315, 400 bar
- 2 adjustment versions
- Adjusting bolt with protective cap
- Regulating handle

Symbol



Function and configuration

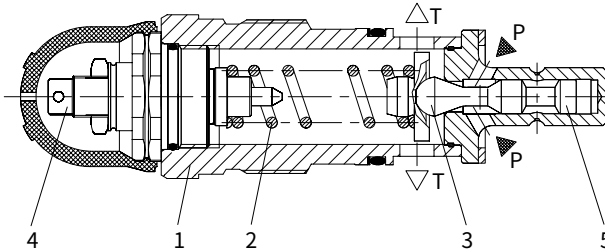
The DBD pressure relief valves are direct operated, used to limit the pressure of hydraulic system. It comprises the sleeve (1), spring (2), poppet spool with damping (3) and pressure adjustment element (4). The system pressure may be set infinitely by the adjustment element. The spring (2) presses poppet spool (3) onto the valve seat. The channel P is connected to the system and the system pressure affect on the area of poppet spool.

If the pressure in channel P rises in excess of the value set at the spring (2), the poppet spool (3) will opens against the spring (2). The pressure oil flows from channel P to channel T. The stroke of the spool is limited by spin shaft (5).

To gain accurate setting value within the whole pressure range, the pressure scope is divided into 6 pressure ratings, and every rating has a corresponding spring which may be set maximum pressure.

03

Type DBDS...K. 10/...
pressure stages 25 to 400bar



Notes:

Pressure relief valves, direct operated, type DBD has low internal leakage, and higher pressures at flow, and are suitable as a safety valve. Choose pilot operated pressure relief valves if lower adjustable pressure with low internal leakage is needed.

Ordering code

Pressure relief valve,
Direct operated

Adjusting bolt
with protective cap =S
Regulating handle =H

Connection	G	K	P	
	6= 6	6 6	6 6	
	8= 8	- -	- -	
	10= 10	10 10	10 10	
	15= 15	- -	- -	
	20= 20	20 20	20 20	
	25= 25	- -	- -	
	30= 30	30 30	30 30	Size

Connection version
Inserted cartridge =K
Threaded connection =G
Sub-plate mounting =P

10 / / *

Further details
in clear text

No code = NBR seals
V = FKM seals

For threaded connection valve
No code = Inch
2 = Metric

Size	10	6, 8, 15 and 20	25 and 30
Pressure ratings (up to...)	2.5=25bar	2.5=25bar	2.5=25bar
	5=50bar	5=50bar	5=50bar
	10=100bar	10=100bar	10=100bar
	20=200bar	20=200bar	20=200bar
	31.5=315bar	31.5=315bar	31.5=315bar
	40=400bar	40=400bar	

10= 10 series

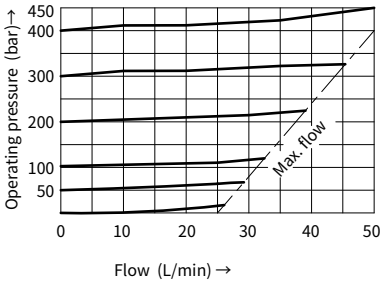
03

Technical data

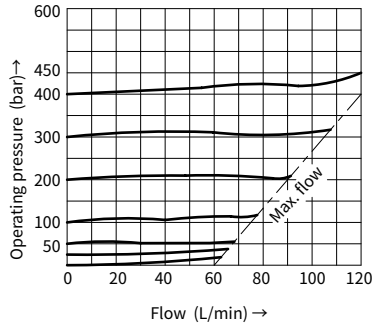
Fluid		Mineral oil suitable for NBR and FKM seal			
		Phosphate ester for FKM seal			
Fluid temperature range		°C	-30 to +80 (NBR seal)		
			-20 to +80 (FKM seal)		
Viscosity range		mm ² /s	10 to 800		
Degree of contamination		Maximum permissible degree of fluid contamination: Class 9. NAS 1638 or 20/18/15, ISO4406			
Nominal size		6 and 8	10	15 and 20	25 and 30
Operating pressure range	Inlet	bar	Up to 400	up to 400	up to 400
	Outlet	bar	315		
Max. flow-rate		L/min	See the Characteristic curve		

Performance curves (Measured at $\vartheta_{oil} = 40^{\circ}\text{C} \pm 5^{\circ}\text{C}$, using HLP46)

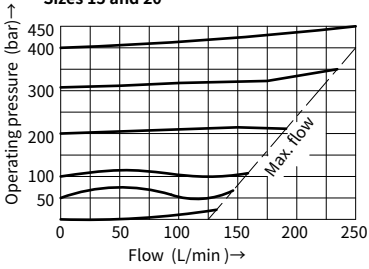
Size 6



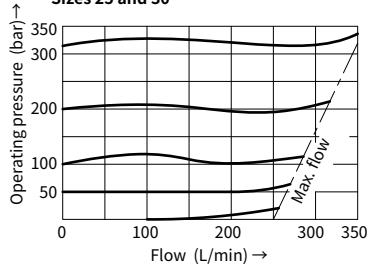
Sizes 8 and 10



Sizes 15 and 20



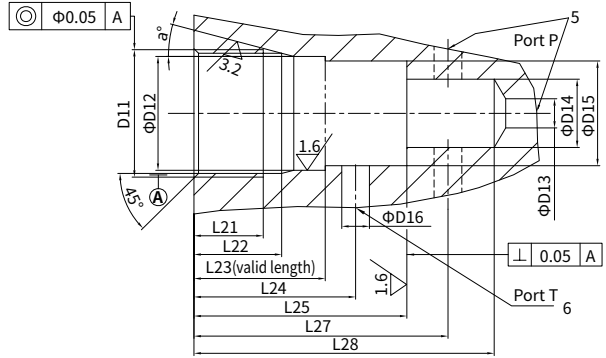
Sizes 25 and 30



Unit dimensions

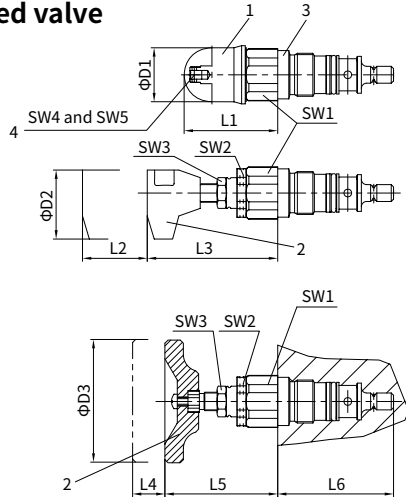
(Dimensions in mm)

• Cartridge cavity



• Inserted valve

- 1 Adjustment element "S"
- 2 Adjustment element "H"
(use pressure adjustment handwheel for sizes 25 and 30)
- 3 Steel seal (type, size)
- 4 Internal hexagon screw S=6 for under size 20 (SW4) and external hexagon S=13 for above size 25 (Sw5)
- 5 Port P, arranged optionally around periphery or bottom
- 6 Port T, arranged optionally around periphery

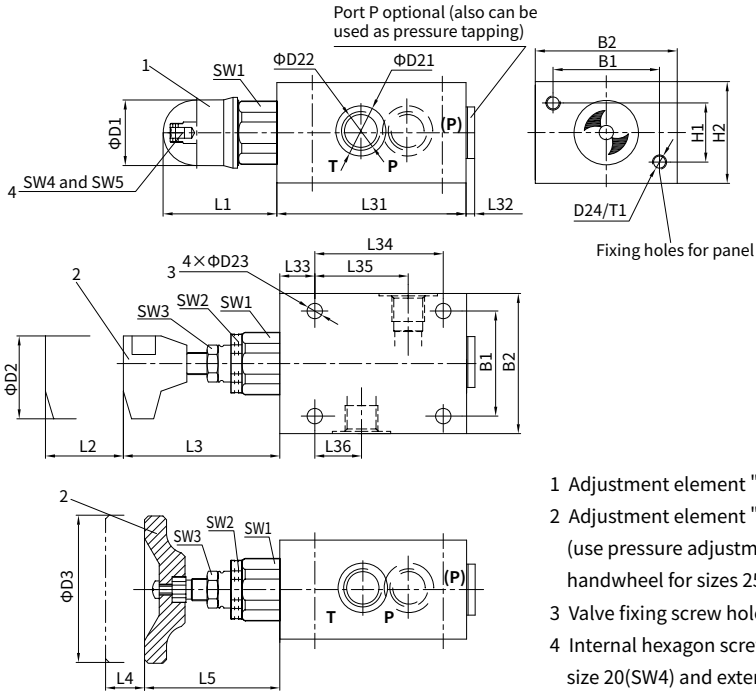


Size	Weight (kg)	D1	D2	D3	L1	L2	L3	L4	L5	L6	SW1	Torque(Nm)	SW3	SW4	SW5
6	Approx. 0.4	34			72		88	-	-	64	32	80	19	6	-
10	Approx. 0.5	38	60	-	68	11	79			75	36	150			
20	Approx. 1	48			65		77			106	46	250			
30	Approx. 2.3	63	-	80	83	-	-	11	56	131	60	450			13
Size	D11	D12	D13	D14	D15	D16	L21	L22	L23	L24	L25	L27	L28	α	
6	M28×1.5	25H9	6	15	24.9	6	15	19	39	35	45	56.5±5.5	65	15	
10	M35×1.5	32H9	10	18.5	31.9	10	18	23	35	41	52	67.5±7.5	80		
20	M45×1.5	40H9	20	24	39.9	20	21	27	45	54	70	91.5±8.5	110	20	
30	M60×2	55H9	30	38.75	54.9	30	23	29		60	84	113.5±11.5	140		

Unit dimensions

(Dimensions in mm)

• Threaded connection valve



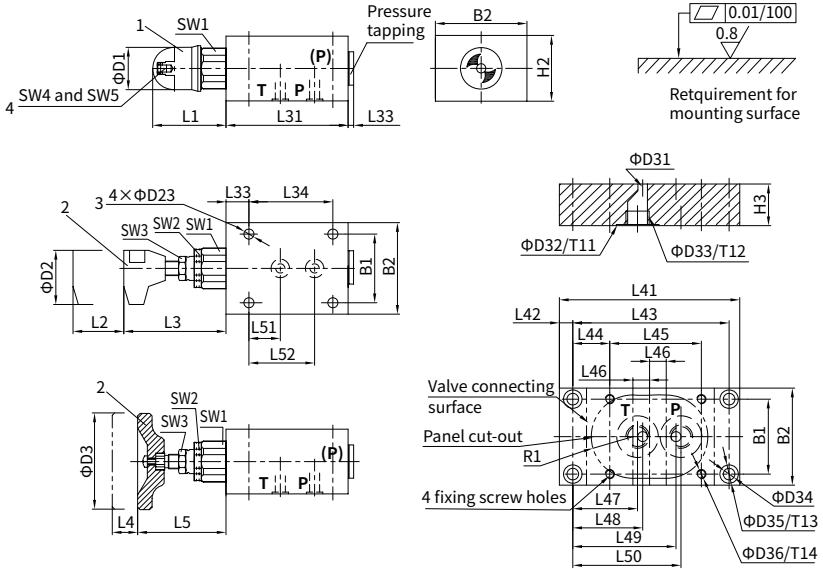
- 1 Adjustment element "S"
- 2 Adjustment element "H"
(use pressure adjustment handwheel for sizes 25 and 30)
- 3 Valve fixing screw hole
- 4 Internal hexagon screw S=6 for under size 20(SW4) and external hexagon S=13 for above size 25 (SW5)

Size	Weight(kg)	B1	B2	D1	D2	D3	D21	D22								D23	D24		
6	Approx. 1.6	45	60	34			25	G1/4; M14×1.5								6.6	M6		
(8)+10	Approx. 3.7	60	80	38	60	-	(28) 34	G3/8 M18×1.5; G1/2 M22×1.5								9	M8		
(15)+20	Approx. 6.9	70	100	48			(42) 47	G3/4 M27×2; G1 M33×2											
(25)+30	Approx. 15.2	100	130	63	-	80	(56) 61	G1 1/4 M42×2; G1 1/2 48×2								11	M10		
Size	L1	L2	L3	L4	L5	L31	L32	L33	L34	L35	L36	SW1	SW2	SW3	SW4	SW5	H1	H2	T1
6	72		83			80	2	15	55	40	20	32					25	40	10
(8)+10	68	11	79			100	(2) 3	20	70	49	21	36	30	19	6	-	40	60	20
(15)+20	65		77			135	(3) 4		100	65	34	46	36				50	70	
(25)+30	83	-	-	11	56	180	4	25	130	85	35	60	46		-	13	60	90	25

Unit dimensions

(Dimensions in mm)

• Sub-plate mounting valve



Size	O-ring (P and T)	Dimension of pressure tapping	Valve fixing hole (GB/T70.1-10.9)	Torque(Nm)
6	8.75×1.8	G1/4	M6×50	Approx.10
10	12.3×2.4	G1/2	M8×70	Approx.25
20	22×3	M27×2	M8×90	
30	34×3	M42×2	M10×110	Approx.50

- 1 Adjustment element "S"
- 2 Adjustment element "H" (Sizes 25 and 30 use pressure adjustment handwheel)
- 3 Valve fixing screw hole
- 4 Internal hexagon screw S=6 for under size 20(SW4) and external hexagon S=13 for above size 25 (SW5)

Size	Weight (kg)	B1	B2	D1	D2	D3	D23	H2	L1	L2	L3	L4	L5	L31	L32	L33	L34	SW1	SW2	SW3	SW4	SW5
6	Approx.1.6	45	60	34	60	-	6.6	40	72	11	83	-	-	80	2	15	55	32	30	19	6	-
10	Approx. 3.7	60	80	38			9	60	68		79			100	3	20	70	36				
20	Approx.7.1	70	100	48			77	70	65		135			4	100	46	36					
30	Approx. 15.7	100	130	63	-	80	11	90	83	-	-	11	56	180	4	25	130	60	46	-	-	13
Size	Sub-plate type						Weight (kg)		D31		D32		D33		D34		D35		H3		L41	
6	G300/1						约 1.5		6		25		G1/4		7		11		25		110	
10	(G301/1) G302/1						约 2		10		(28) 34		(G3/8) G		-		-		-		135	
20	(G303/1) G304/1						约 5.5		(15) 20		(42) 47		(G3/4) G1		11.5		17.5		40		170	
30	(G305/1) G306/1						约 8		30		(56) 61		(G1 1/4) G11/2		11.5		17.5		40		190	
D36	L42	L43	L44	L45	L46	L47	L48	L49	L50	L51	L52	T11	T12	T13	T14	R1						
M6	8	94	22	55	10	39	42	62	65	20	40	1	15	9	15	25+2						
M8	10	115	27.5	70	12.5	40.5	48.5	72.5	80.5	21	45		(15) 16			20	13	(12) 22	40+3			
	15	140	20	100	20	(45)42	54	85	(94)97	34	65		24						11.5	22	55+4	
M10	12.5	165	17.5	130	22.5	42	52.5	102.5	(113)117	35	85	24	11.5	22	55+4							

