

3.6

Pilot operated pressure relief valve

Type ZDB/ Z2DB 6V..L4X

Size 6
up to 315bar
up to 60 L/min



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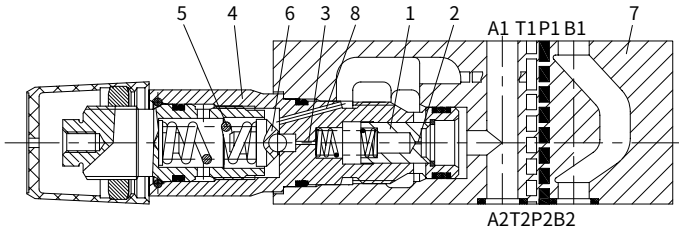
Features

- Sandwich plate valve
- Porting pattern to DIN 24 340 form A and ISO 4401
- For threaded connection and sub-plate mounting
- 4 pressure ranges
- 5 circuit options
- 4 adjustment elements:
 - Rotary knob
 - Adjustable bolt with protective cap
 - Lockable rotary knob with scale
 - Rotary knob with scale

Function and configuration

Pressure relief valve types ZDB and Z2DB are pilot operated and sandwich structure. They are used to limit the pressure in a hydraulic system. They consist of the housing (7), together with one or two pressure relief valve cartridges (4). The system pressure is set by the inserted relief valve (4).

At static position, the valves are closed. Pressure in port A acts on the spool (1). Pressure fluid flows through orifice (2) to the spring loaded side of the spool (1) and through orifice (3) to the pilot poppet (6). If the pressure in port A rises beyond the value setting at spring (5), the pilot poppet (6) opens. Fluid can flow from the spring loaded side of spool (1), orifice (3), and channel (8) into port T. The pressure drop moves spool (1) to open the connection from A to T, while the setting pressure at spring (5) is maintained. Pilot oil returns from the two spring chambers via port T externally.

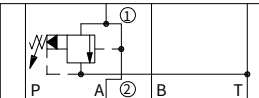


Notes:

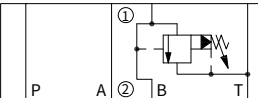
The pilot relief valves have more internal leakage, If lower leakage is demanded, such as safety valve, it is recommended to choose direct operated pressure relief valves, ZDBD type.

Symbols

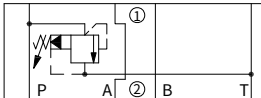
Type ZDB6VA...



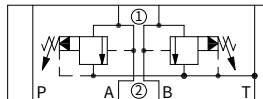
Type ZDB6VB...



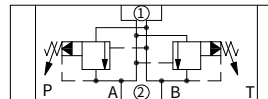
Type ZDB6VP...



Type ZDB6VC...



Type ZDB6VD...



① = valve side

② = sub-plate side

Ordering code

	Z		DB	6		- L4X /		★
--	---	--	----	---	--	---------	--	---

Sandwich plate = Z
Only applies to versions VC and VD:
With 2 pressure relief valve cartridges = 2

Pressure relief valve = DB

Nominal size 6 = 6

Relief function from → to:

A → T	=VA
P → T	=VP
B → T	=VB
A → T and B → T	=VC
A → B and B → A	=VD

Further details in clear text

No code = NBR seals
V = FKM seals

5 = Pressure adjustable up to 50bar
10 = Pressure adjustable up to 100bar
20 = Pressure adjustable up to 200bar
31.5 = Pressure adjustable up to 315bar

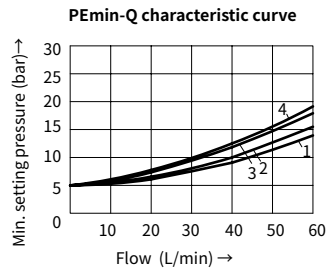
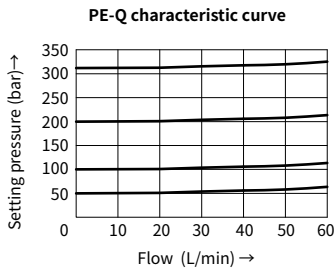
L4X = Series L40 to L49
(L40 to L49: unchanged installation and connection dimensions)

1 = Rotary knob
2 = Adjustable bolt with protective cap
3 = Lockable rotary knob with scale
7 = Rotary knob with scale

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
Max. operating pressure	bar	to 315
Max. adjustable pressure	bar	50;100;200;315
Max. flow-rate	L/min	60
Weight	Type ZDB6	kg
	Type Z2DB6	kg
		Approx.1.2
		Approx.1.9

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



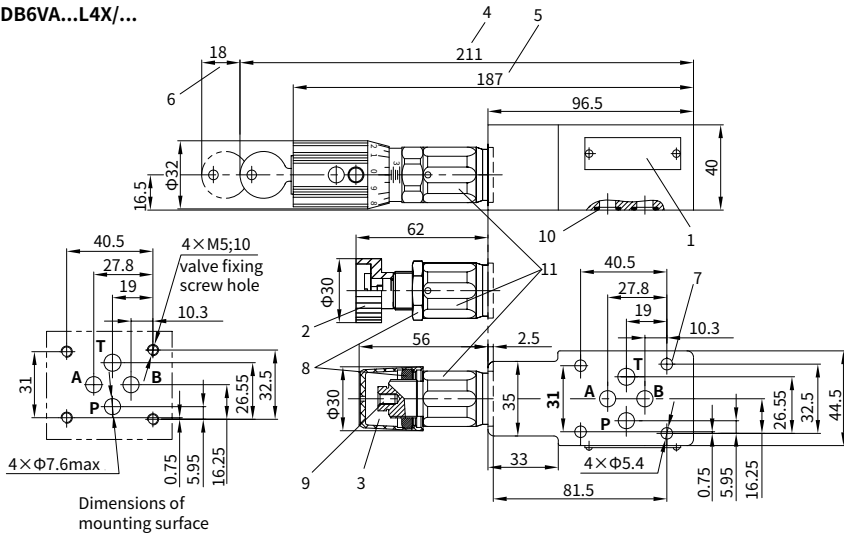
The curves are measured at zero back pressure.

- | | |
|---------------|----------------------|
| 1. VD(A to B) | 3. VB and VC |
| 2. VA | 4. VP and VD(B to A) |

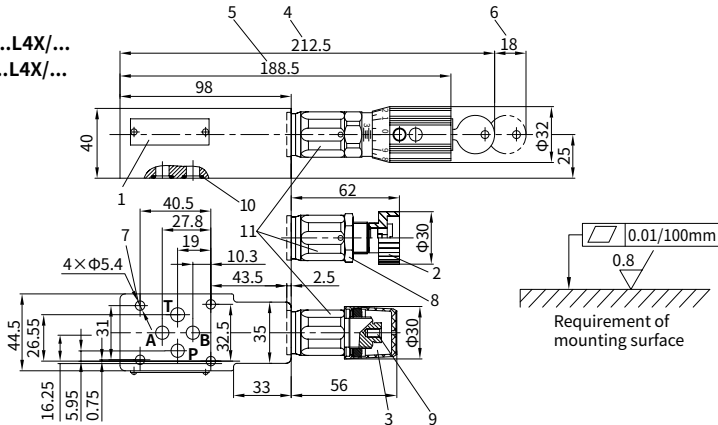
Unit dimensions

(Dimensions in mm)

Type ZDB6VA...L4X/...



Type ZDB6VB...L4X/... Type ZDB6VP...L4X/...



- 1 Nameplate
- 2 Adjustment element "1"
- 3 Adjustment element "2"
- 4 Adjustment element "3"
- 5 Adjustment element "7"
- 6 Space required to remove the key
- 7 Valve fixing holes
- 8 Nut for locking S=24
- 9 External hexagon screw S=10

- 10 O-ring 9.25×1.78(A2,B2,P2,T2)
 - 11 External hexagon S=24
- Tightening torque $M_A = 50 \text{ Nm}$

Valve fixing screws:

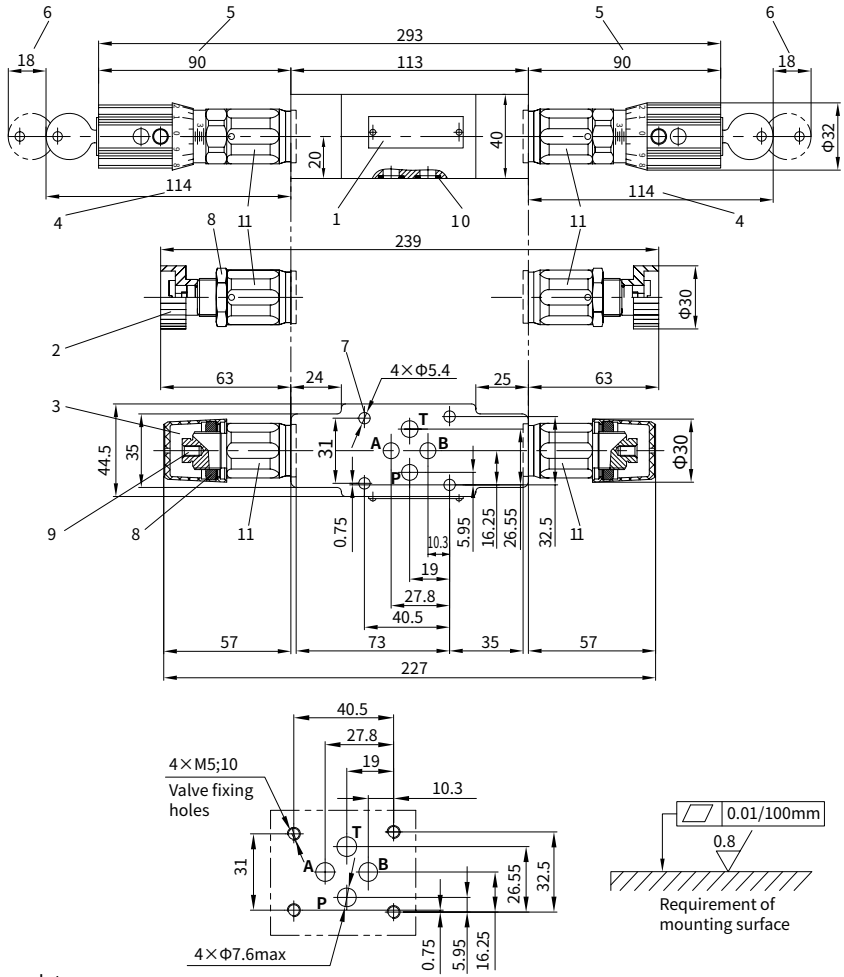
M5 internal hexagon screw or LT 30.02
double-screw bolt with LT 30.01 nut GB/T 70.1-10.9,
the length according to sandwich,
tightening torque $M_A = 8.9 \text{ Nm}$, must be ordered separately.

Unit dimensions

(Dimensions in mm)

Type Z2DB6VC...L4X/...

Type Z2DB6VD...L4X/...



- 1 Nameplate
- 2 Adjustment element "1"
- 3 Adjustment element "2"
- 4 Adjustment element "3"
- 5 Adjustment element "7"
- 6 Space required to remove the key
- 7 Valve fixing holes
- 8 Lockable nut S=24
- 9 External hexagon screw S=10
- 10 O-ring 9.25 \times 1.78 (A2, B2, P2, T2)

Dimensions of mounting surface

11 External hexagon S=24, Tightening torque $M_A=50$ Nm

Valve fixing screws:

M5 internal hexagon screw or LT 30.02 double-screw bolt GB/T 70.1-10.9, the length according to sandwich, tightening torque $M_A=8.9$ Nm, must be ordered separately.

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3.7

Pilot operated pressure relief valve

Type ZDB / Z2DB 10V..L4X

Size 10
up to 315bar
up to 100 L/min



Contents

Function and configuration	02
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Features

- Sandwich plate valve
- Porting pattern to DIN 24 340 form A and ISO 4401
- For threaded connection, and sub-plate mounting
- 4 pressure ratings
- 6 circuit options
- With one or two pressure relief cartridges
- 4 adjustment elements:
 - Rotary knob
 - Adjustable bolt with protective cap
 - Lockable rotary knob with scale
 - Rotary knob with scale

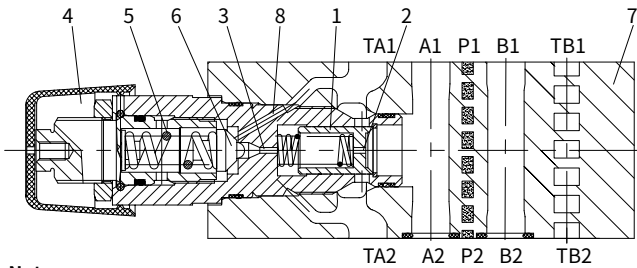
Function and configuration

Pressure relief valve types ZDB and Z2DB are pilot operated and sandwich structure. They are used to limit the pressure in a hydraulic system.

They basically consist of the housing (7), together with one or two pressure relief valves cartridges. And the system pressure is set by means of relief valve(4).

At static position, the valves are closed. Pressure in port A acts on the spool (1). Pressure fluid flows through orifice (2) to the spring loaded side of the spool (1) and through orifice (3) to the pilot poppet (6). If the pressure in port A rises beyond the value setting at spring (5), the pilot poppet (6) opens. Fluid can flow from the spring loaded side of spool (1), orifice (3), and channel (8) into port T. The pressure drop moves spool (1) to open the connection from A to T, while the setting pressure at spring (5) is maintained. Pilot oil returns from the two spring chambers via port T externally.

Type ZDB10VA2-L4X/...

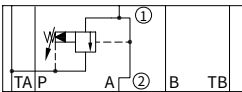


Notes:

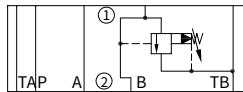
The pilot relief valves have more internal leakage,
If lower leakage is demanded, such as safety valve,
it is recommended to choose direct operated pressure relief valves, ZDBD type.

Symbols

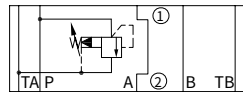
Type ZDB10VA..



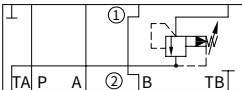
Type ZDB10VB..



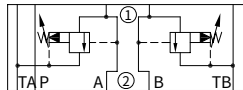
Type ZDB10VP..



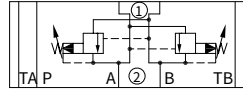
Type ZDB10VT..



Type Z2DB10VC..



Type Z2DB10VD..



① = valve side ② = sub-plate side

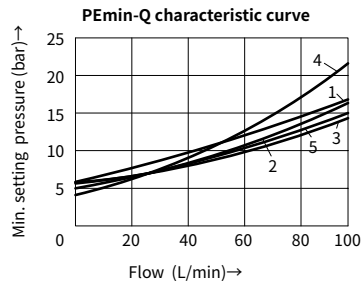
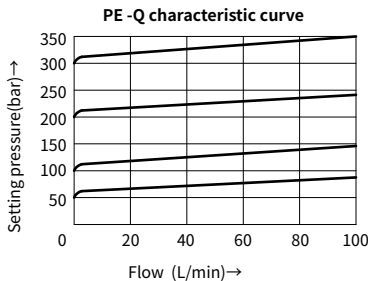
Ordering code

	Z		DB	10		- L4X /		★	
Sandwich plate	= Z								Further details in clear text
Only applies to models VC and VD: With 2 pressure relief valve cartridges	= 2								No code = NBR seals V = FKM seals
Pressure relief valve	= DB								5 = Pressure adjustable up to 50bar 10 = Pressure adjustable up to 100bar 20 = Pressure adjustable up to 200bar 31.5 = Pressure adjustable up to 315bar
Nominal size 10	= 10								L4X = Series L40 to L49 (L40 to L49: unchanged installation and connection dimensions)
Relief function from → to:									1 = Rotary knob 2 = Adjustable bolt with protective cap 3 = Lockable rotary knob with scale 7 = Rotary knob with scale
A → TA								=VA	
P → TA								=VP	
TB1 → TA2								=VT	
B → TB								=VB	
A → TA and B → TB								=VC	
A → B and B → A								=VD	

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	
Max. operating pressure	bar	to 315	
Max. adjustable pressure	bar	50;100;200;315	
Max. flow-rate	L/min	100	
Weight	Type ZDB10	kg	Approx.2.7
	Type Z2DB10	kg	Approx.3.1

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



The curves were measured at zero back pressure.

- 1. VD(A to B) 3. VB and VC
- 2. VA 4. VP and VD(B to A)

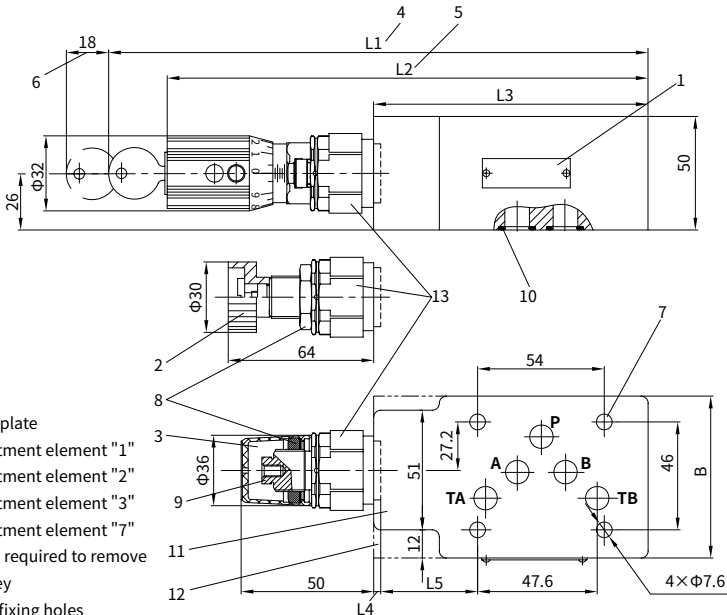
Unit dimensions

(Dimensions in mm)

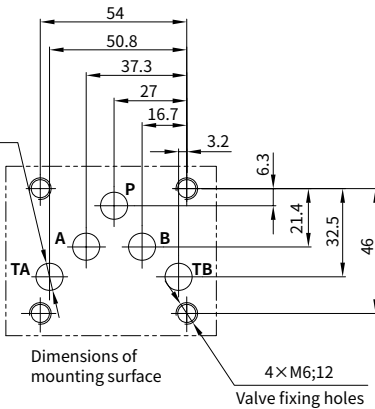
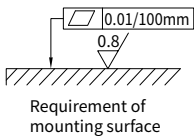
Type ZDB10VA...L4X/..

Type ZDB10VP...L4X/..

Type ZDB10VT...L4X/..



- 1 Nameplate
 - 2 Adjustment element "1"
 - 3 Adjustment element "2"
 - 4 Adjustment element "3"
 - 5 Adjustment element "7"
 - 6 Space required to remove the key
 - 7 Valve fixing holes
 - 8 Lockable nut S=24
 - 9 External hexagon screw S=10
 - 10 O-ring 12×2 (A2,B2,P2,TA2,TB2)
 - 11 Type ZDB10 VA and VP version
 - 12 Type ZDB10 VT version
 - 13 External hexagon S=30
- Tightening torque $M_A=50\text{Nm}$



Valve fixing screws:

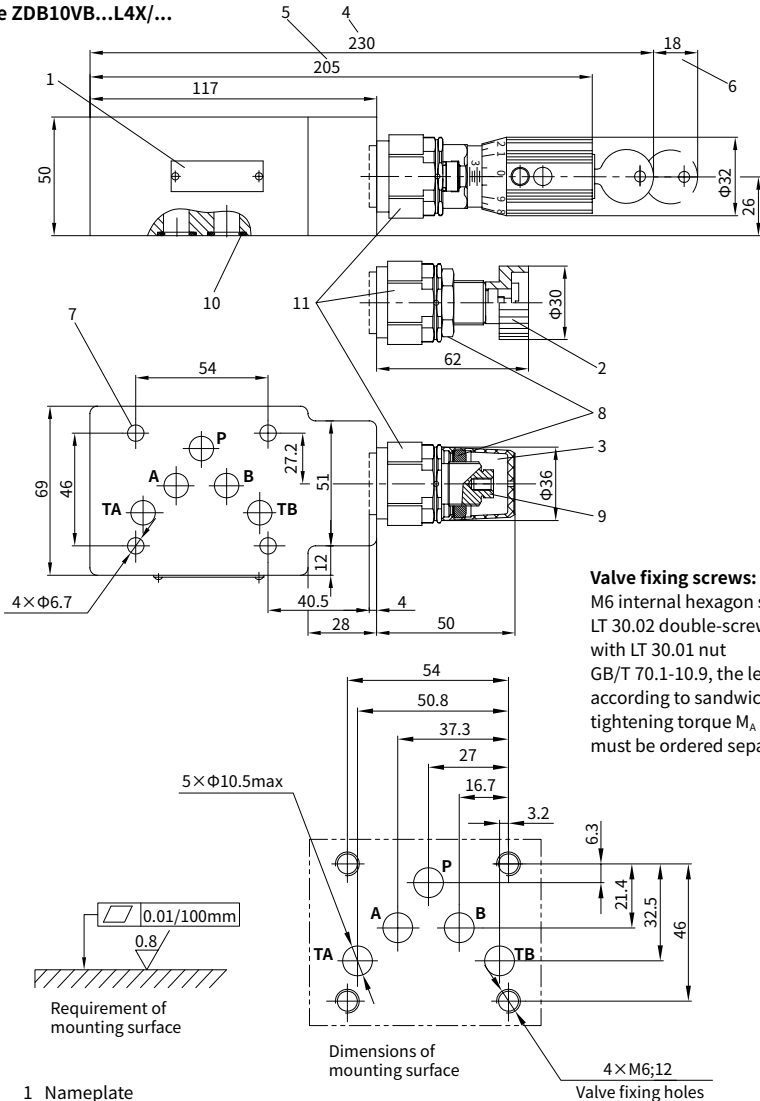
M6 internal hexagon screw or LT 30.02 double-screw bolt with LT 30.01 nut GB/T 70.1-10.9, the length according to sandwich, tightening torque $M_A=15.5\text{ Nm}$, must be ordered separately.

Type	B	L1	L2	L3	L4	L5
VA and VP	69	230	205	117	4	40.5
VT	70	218	193	105	2	27.8

Unit dimensions

(Dimensions in mm)

Type ZDB10VB...L4X/...



Valve fixing screws:

M6 internal hexagon screw or LT 30.02 double-screw bolt with LT 30.01 nut GB/T 70.1-10.9, the length according to sandwich, tightening torque $M_A = 15.5 \text{ Nm}$, must be ordered separately.

- 1 Nameplate
- 2 Adjustment element "1"
- 3 Adjustment element "2"
- 4 Adjustment element "3"
- 5 Adjustment element "7"
- 6 Space required to remove the key
- 7 Valve fixing holes

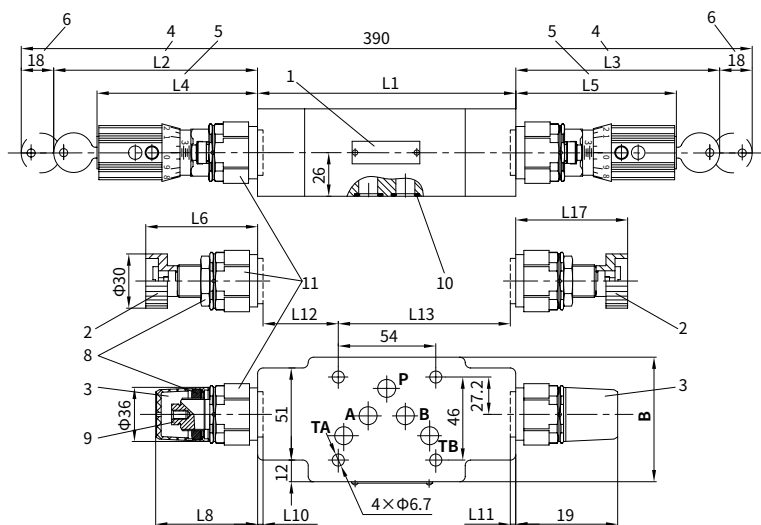
- 8 Lockable nut S=24
 - 9 External hexagon screw S=10
 - 10 O-ring 12 \times 2 (A2,B2,P2,TA2,TB2)
 - 11 External hexagon S=30
- Tightening torque $M_A = 50 \text{ Nm}$

Unit dimensions

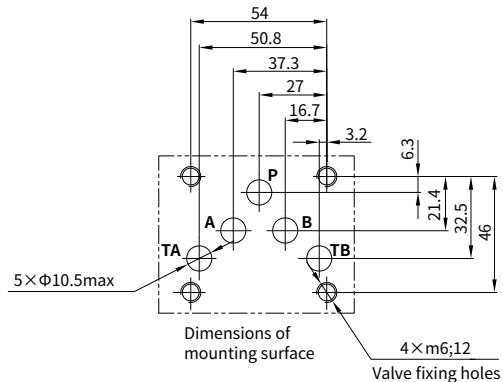
(Dimensions in mm)

Type Z2DB10VC...L4X/..

Type Z2DB10VD...L4X/..

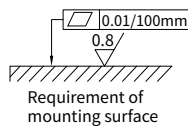


- 1 Nameplate
- 2 Adjustment element "1"
- 3 Adjustment element "2"
- 4 Adjustment element "3"
- 5 Adjustment element "7"
- 6 Space required to remove the key
- 7 Valve fixing holes
- 8 Lockable nut S=24
- 9 External hexagon bolt S=10
- 10 O-ring 12×2 (A2,B2,P2,TA2,TB2)
- 11 External hexagon S=30
Tightening torque $M_A=50$ Nm



Valve fixing screws:

M6 internal hexagon screw or LT 30.02 double-screw bolt with LT 30.03 nut GB/T 70.1-10.9, the length according to sandwich, tightening torque $M_A=15.5$ Nm, must be ordered separately.



Type	B	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13
VC	69	123	115	116	90	91	64	65	52	53	2	1	32.5	87.5
VD	70	132	111	111	86	86	60	60	48	48	6	6	33	87



3.8

Pilot operated pressure relief valve

Type ZDB /Z2DB..V...L3X

Sizes 16 and 22
up to 315bar
up to 200 /400L/min



Contents

Function and configuration	02
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Characteristic curves	03
Unit dimensions	04-09

Features

- Sandwich plate valve
- Porting pattern to DIN 24 340 form A and ISO4401
- For threaded connection, and sub-plate mounting
- 4 pressure ratings
- 5 circuit options
- With one or two pressure relief cartridges
- 1 adjustment elements:
 - Adjustable bolt with protective cap

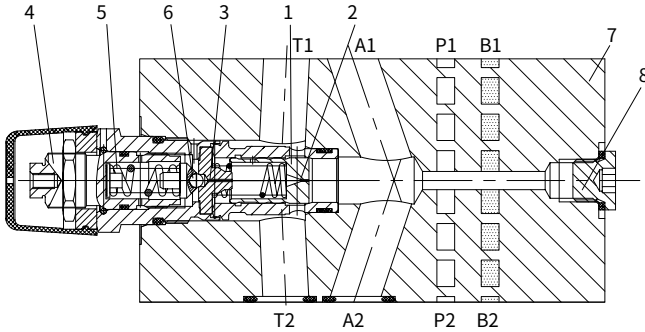
Function and configuration

Pressure relief valve types ZDB and Z2DB are pilot operated and sandwich structure. They are used to limit the pressure in a hydraulic system.

They basically consist of the housing (7), together with one or two pressure relief valve cartridges. The system pressure is set by means of adjustment element (4).

At static position, the valves are closed. Pressure in port A acts on the spool (1). Pressure fluid flows through orifice (2) to the spring loaded side of the spool (1) and through orifice (3) to the pilot poppet (6). If the pressure in port A rises beyond the value setting at spring (5), the pilot poppet (6) opens. Fluid can flow from the spring loaded side of spool (1), orifice (3), and channel (8) into port T. The pressure drop moves spool (1) to open the connection from A to T, while the setting pressure at spring (5) is maintained. Pilot oil returns from the two spring chambers via port T externally. Pressure tapping (8) can measure the pressure.

Type ZDB16VA2-L3X/...

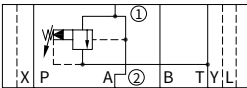


Notes:

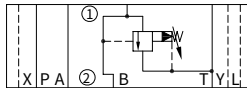
The pilot relief valves have more internal leakage, if lower leakage is demanded, such as safety valve, it is recommended to choose direct operated pressure relief valves, Z2DB type.

Symbols

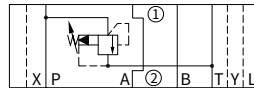
Type ZDB..VA..



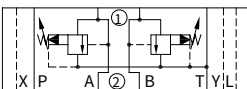
Type ZDB..VB..



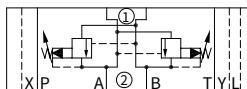
Type ZDB..VP..



Type Z2DB..VC..



Type Z2DB..VD..



Notes: only size 16 has port L

① = valve side ② = sub-plate side

Ordering code

Z		DB				L3X		*
---	--	----	--	--	--	-----	--	---

Sandwich plate = Z

Only applies to versions VC and VD:
With 2 pressure relief valve cartridges = 2

Pressure relief valve = DB

Nominal size 16 = 16
Nominal size 22 = 22

Relief function from - to:
A → T =VA
P → T =VP
B → T =VB
A → T and B → T =VC
A → B and B → A =VD

Further details in clear text

No code = NBR seals
V = FKM seals

5 = Pressure adjustable up to 50bar
10 = Pressure adjustable up to 100bar
20 = Pressure adjustable up to 200bar
31.5 = Pressure adjustable up to 315bar

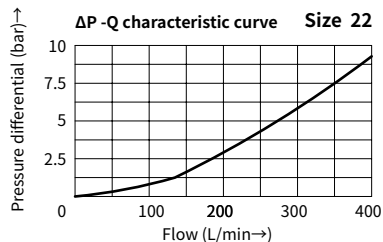
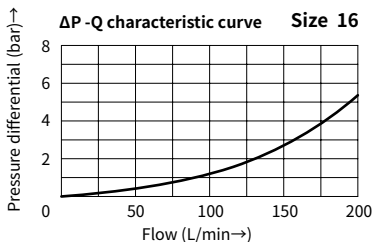
L3X = Series L30 to L39
(L30 to L39: unchanged installation and connection dimensions)

Regulation form: 2= Adjustable bolt with protective cap

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		
Max. operating pressure	bar	to 315	
Max. adjustable pressure	bar	50; 100; 200; 315	
Size		16	22
Max. flow-rate	L/min	200	400
Weight	Type ZDB	kg	Approx.9.4
	Type Z2DB	kg	Approx.11.8
			Approx.10.3

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

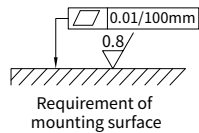
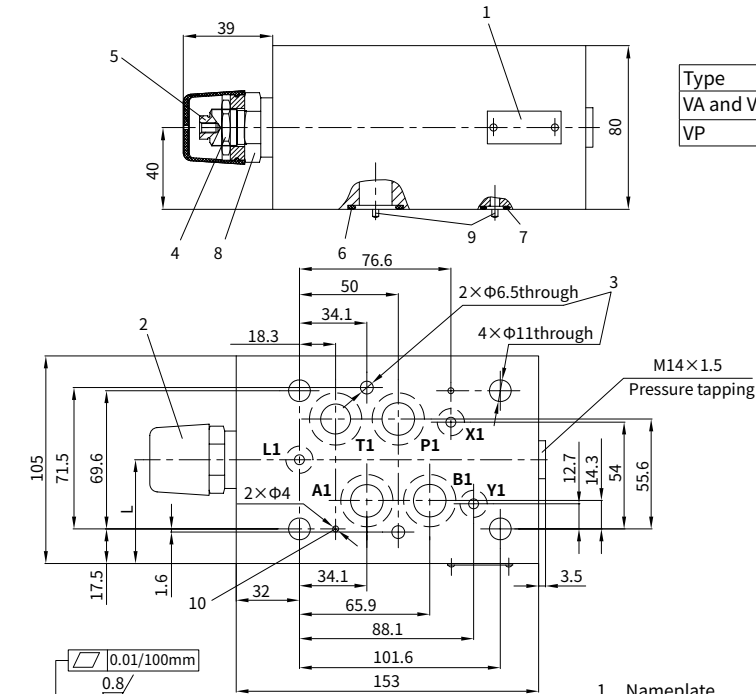


Unit dimensions

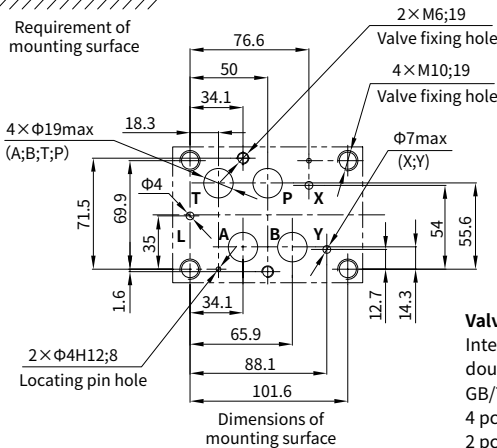
(Dimensions in mm)

Type ZDB16VA...L3X/.. Type ZDB16VB...L3X/.. Type ZDB16VP...L3X/..

Type	L
VA and VB	52.5
VP	61.5



- 1 Nameplate
- 2 Adjustment element "2"
- 3 Valve fixing holes
- 4 Lockable nut S=24
- 5 External hexagon screw S=10
- 6 O-ring 22x2.5 (A2, B2, P2, T2)
- 7 O-ring 10x2 (X2, Y2, L2)
- 8 External hexagon S=30
Tightening torque $M_A=50 \text{ Nm}$
- 9 Locating pin
- 10 Locating pin hole



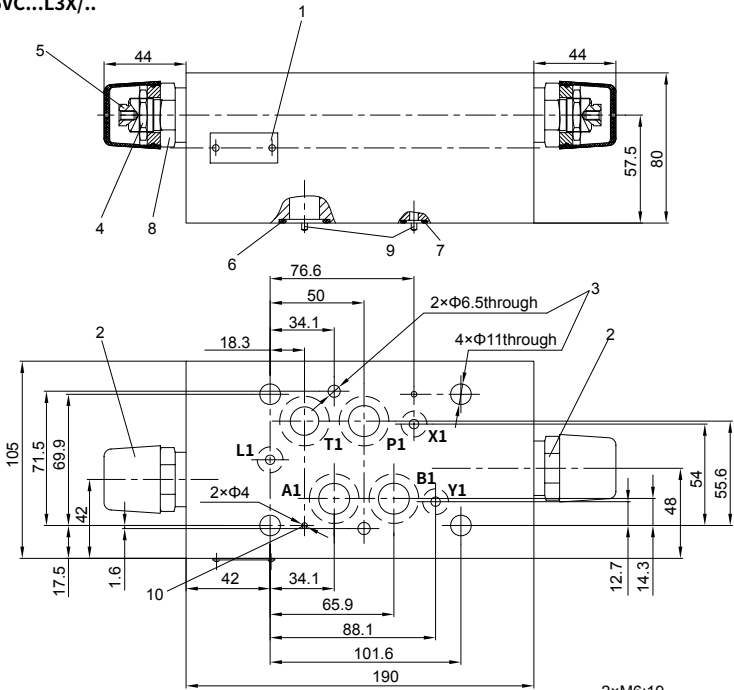
Valve fixing screws:

Internal hexagon screw or LT 30.02 double-screw screw with LT 30.01 nut, GB/T 70.1-10.9, the length according to sandwich, 4 pcs M10 tightening torque $M_A=75 \text{ Nm}$ 2 pcs M6 tightening torque $M_A=15.5 \text{ Nm}$ must be ordered separately.

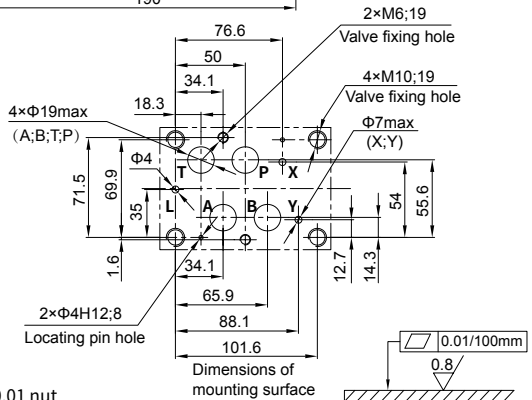
Unit dimensions

(Dimensions in mm)

Type Z2DB16VC...L3X/..



- 1 Nameplate
- 2 Adjustment element "2"
- 3 Valve fixing holes
- 4 Lockable nut S=24
- 5 External hexagon bolt S=10
- 6 O-ring 22×2.5 (A2, B2, P2, T2)
- 7 O-ring 10×2 (X2, Y2, L2)
- 8 External hexagon S=30
Tightening torque $M_A=50$ Nm
- 9 Locating pin
- 10 Locating pin hole



Valve fixing screws:

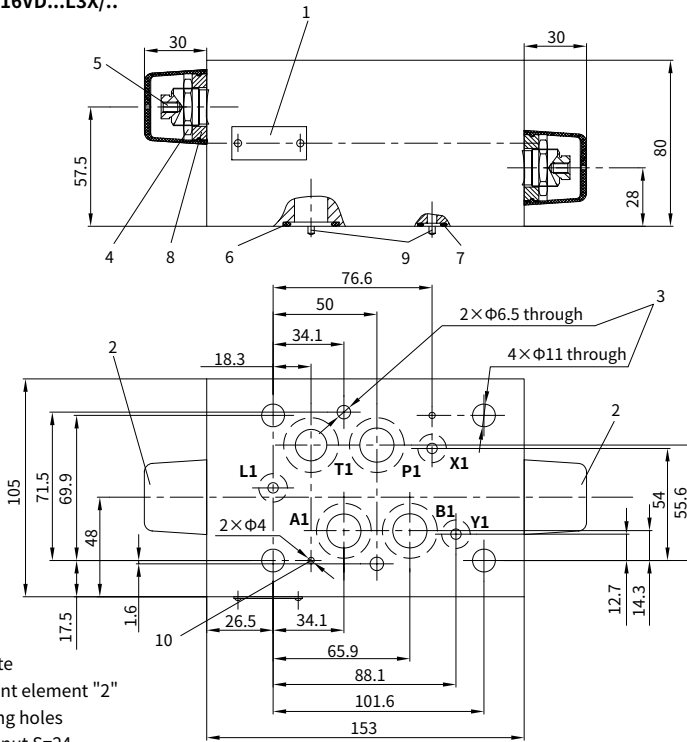
Internal hexagon screw or
 LT 30.02 double-screw bolt with LT 30.01 nut
 GB/T 70.1-10.9, the length according to sandwich,
 4 pcs M10 tightening torque $M_A=75$ Nm
 2 pcs M6 tightening torque $M_A=15.5$ Nm,
 must be ordered separately.

03

Unit dimensions

(Dimensions in mm)

Type Z2DB16VD...L3X/..



- 1 Nameplate
- 2 Adjustment element "2"
- 3 Valve fixing holes
- 4 Lockable nut S=24
- 5 External hexagon screw S=10
- 6 O-ring 22×2.5 (A2,B2,P2,T2)
- 7 O-ring 10×2 (X2,Y2,L2)
- 8 External hexagon S=30
Tightening torque $M_A=50$ Nm
- 9 Locating pin
- 10 Space locating pin hole

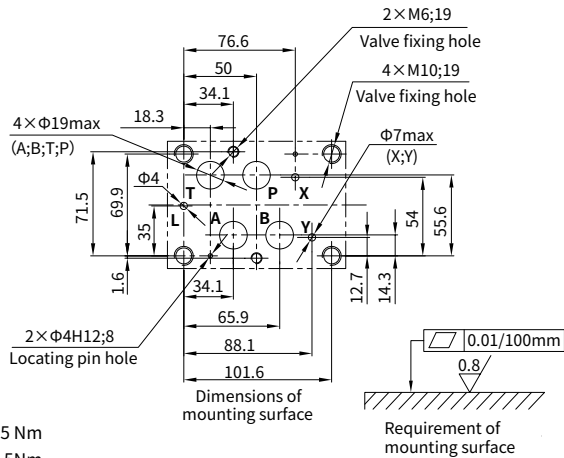
Valve fixing screws:

Internal hexagon screw or
LT 30.02 double-screw bolt
with LT 30.01 nut

GB/T 70.1-10.9, the length
according to sandwich,

4 pcs M10 tightening torque $M_A=7.5$ Nm

2 pcs M6 tightening torque $M_A=15.5$ Nm,
must be ordered separately.



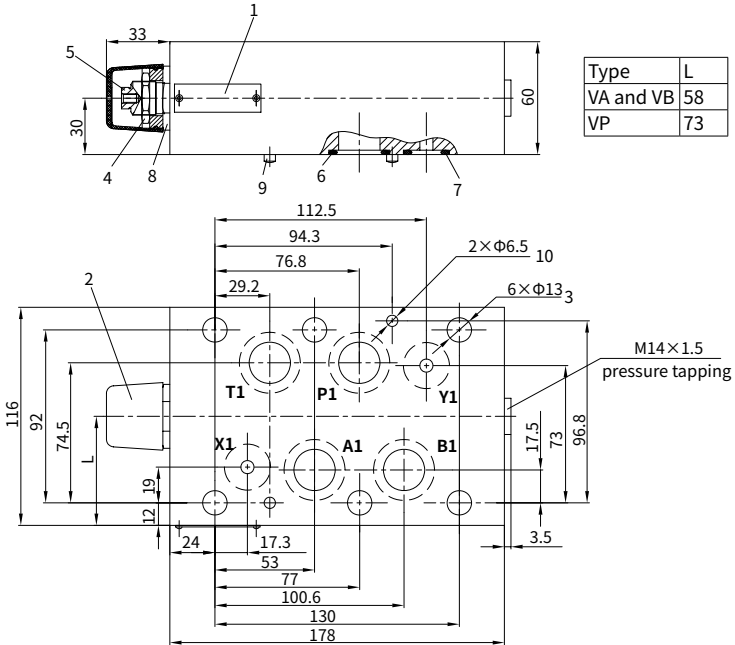
Unit dimensions

(Dimensions in mm)

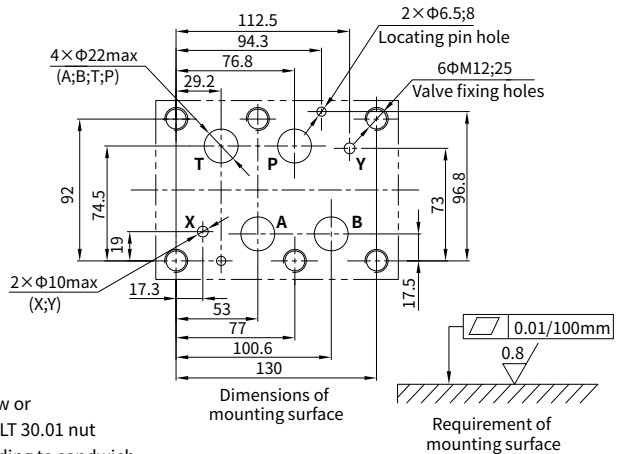
Type ZDB22VA...L3X/..

Type ZDB22VB...L3X/..

Type ZDB22VP...L3X/..



- 1 Nameplate
- 2 Adjustment element "2"
- 3 Valve fixing holes
- 4 Lockable nut S=24
- 5 External hexagon screw S=10
- 6 O-ring 27×3 (A2,B2,P2,T2)
- 7 O-ring 19×3 (X2,Y2,L2)
- 8 External hexagon S=30
Tightening torque $M_A = 50Nm$
- 9 Locating pin
- 10 Locating pin hole



Valve fixing screws:

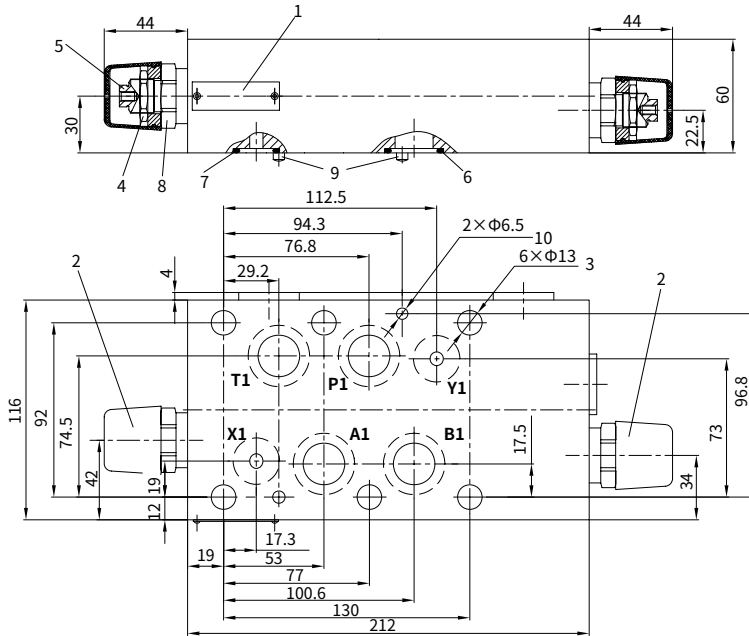
6 pcs M12 internal hexagon screw or
 LT 30.02 double-screw bolt with LT 30.01 nut
 GB/T 70.1-10.9, the length according to sandwich,
 Tightening torque $M_A = 130Nm$,
 must be ordered separately.

03

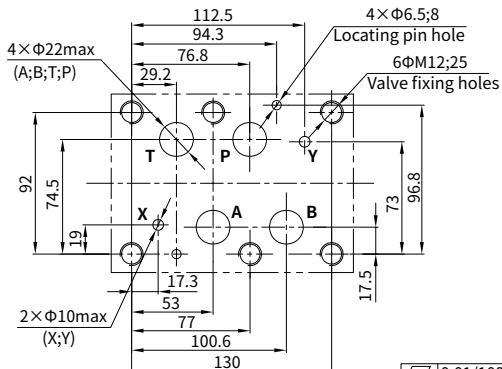
Unit dimensions

(Dimensions in mm)

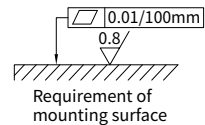
Type Z2DB22VC...L3X/..



- 1 Nameplate
- 2 Adjustment element "2"
- 3 Valve fixing holes
- 4 Lockable nut S=24
- 5 External hexagon screw S=10
- 6 O-ring 27×3 (A2,B2,P2,T2)
- 7 O-ring 19×3 (X2,Y2,L2)
- 8 External hexagon S=30
Tightening torque $M_A = 50$ Nm
- 9 Locating pin
- 10 Locating pin hole



Dimensions of mounting surface



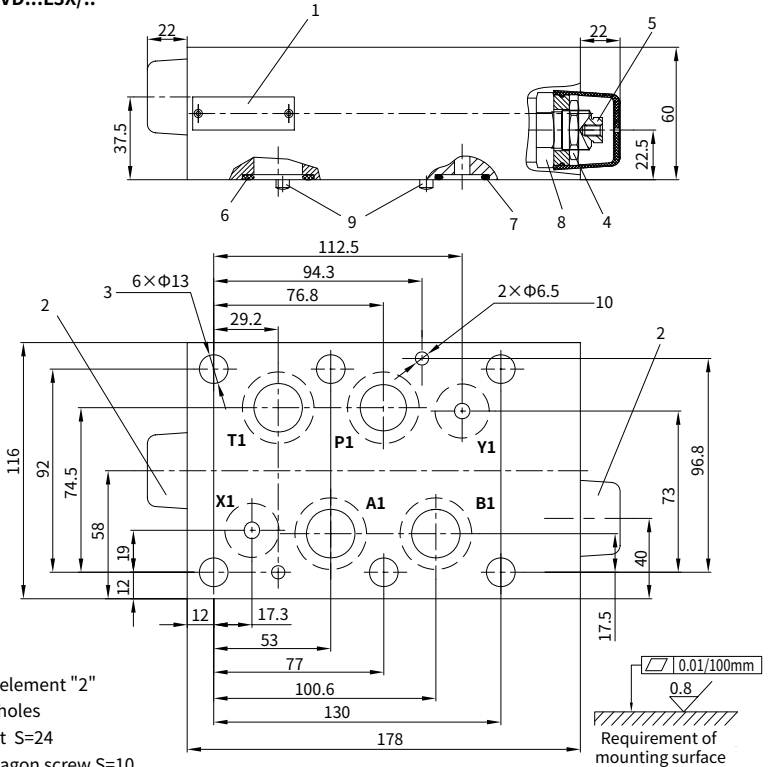
Valve fixing screws:

6 pcs M12 internal hexagon screw or LT 30.02 double-screw bolt with LT 30.01 nut GB/T 70.1-10.9, the length according to sandwich, Tightening torque $M_A = 130$ Nm, must be ordered separately.

Unit dimensions

(Dimensions in mm)

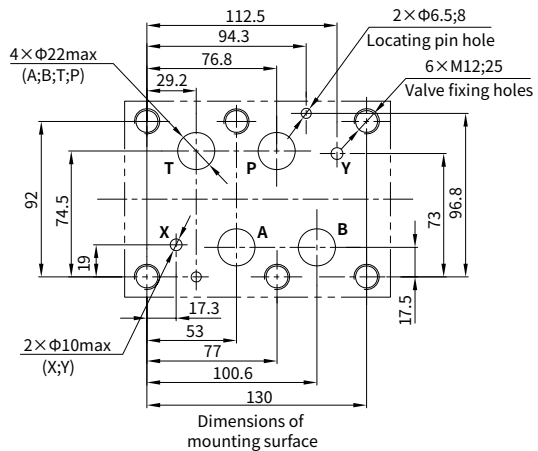
Type Z2DB22VD...L3X/..



- 1 Nameplate
- 2 Adjustment element "2"
- 3 Valve fixing holes
- 4 Lockable nut S=24
- 5 External hexagon screw S=10
- 6 O-ring 27×3 (A2,B2,P2,T2)
- 7 O-ring 19×3(X2,Y2,L2)
- 8 External hexagon S=30
Tightening torque $M_A=50Nm$
- 9 Locating pin
- 10 Space locating pin hole

Valve fixing screws:

6 pcs M12 internal hexagon screw or
 LT 30.02 double-screw bolt
 LT 30.01 nut GB/T 70.1-10.9,
 the length according to sandwich,
 Tightening torque $M_A=130Nm$,
 must be ordered separately.



03

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3.9

Direct operated pressure relief valve

Type ZDBD...L1X

Sizes 6 to 32
up to 315bar
up to 250 L/min



Contents

Function and configuration	02
Symbols	02
Ordering code	03
Technical data	03
Unit dimensions	04-10

Features

- Sandwich plate valve
- Porting pattern to DIN 24 340 form A and ISO 4401
- Threaded connection, sub-plate mounting
- 3 pressure ratings
- 4 circuit options
- With one or two pressure relief cartridges
- 1 adjustment element:
- Adjustable bolt with protective cap

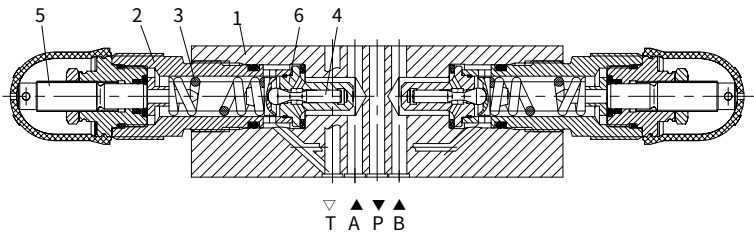
Function and configuration

The type ZDBD pressure relief valves are direct operated poppet valve, and they are sandwich structure, used to limit the pressure in a hydraulic system.

The pressure relief valves consist mainly of the housing (1), together with one or two pressure relief valve cartridges. And the pressure relief valve cartridges mainly include the sleeve (2), spring (3), poppet (4), adjustment elements (5) and valve seat (6).

If the pressure in lines rises excess the value setting at the spring (3), the poppet spool(4) opens. While lower the value, the poppet spool(4) are pushed onto the valve seat(6) by the spring(3). When the difference between the setting value and the actual pressure in the lines get one quite value, the poppet(4) and the valve seat(6) can realize seal up without any leakage, then it can work together with hydraulic lock to make the cylinder conquers its descent because of gravity and maintain on its "stop" position.

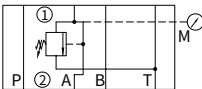
They are especially suitable to be used as sandwich plate safety valves for actuators which are strictly in demand for internal leakage.



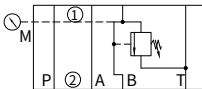
Notes: The ZDBD pressure relief valves are direct operated, have less internal leakage, but higher starting pressure and little flow, If lower starting pressure is not demanded, they can be used as safety valves.

Symbols

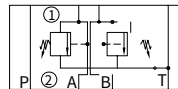
Type ZDBD... A-L1X...



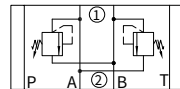
Type ZDBD... B-L1X...



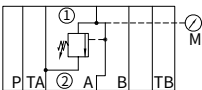
Type ZDBD... C-L1X...



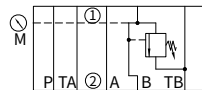
Type ZDBD... D-L1X...



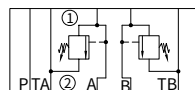
Type ZDBD 10A-L1X...



Type ZDBD 10B-L1X...



Type ZDBD 10C-L1X...



① = valve side
② = sub-plate side

Ordering code

	ZDBD		-	L1X	/		*
Sandwich pressure relief valve	=ZDBD						Further details in clear text
Nominal size 6	= 6						No code = NBR seals
Nominal size10	=10						V = FKM seals
Nominal size16	=16						
Nominal size22	=22						10 = Pressure adjustable up to 100bar
Nominal size32	=32						20 = Pressure adjustable up to 200bar
							31.5 = Pressure adjustable up to 315bar
Relief function from → to:							L1X= Series L10 to L19
A → T	=A						(L10 to L19: unchanged installation and connection dimensions)
B → T	=B						
A → T and B → T	=C						
A → B and B → A	=D						

Technical data

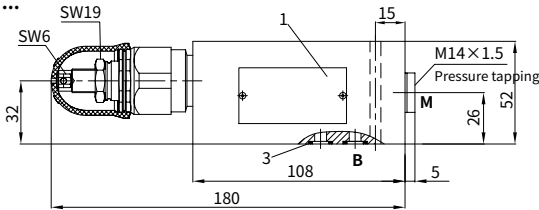
Fluid		Mineral oil suitable for NBR and FKM seal Phosphate ester for FKM seal																			
Fluid temperature range	°C	-30 to +80 (NBR seal) -20 to +80 (FKM seal)																			
Viscosity range	mm ² /s	10 to 800																			
Degree of contamination		Maximum permissible degree of fluid contamination: Class 9. NAS 1638 or 20/18/15, ISO4406																			
Max.operating pressure	bar	To 315																			
Max.adjustable pressure	bar	50; 100; 200; 315																			
Size		6				10				16				22				32			
Max. flow-rate	L/min	30				80				160				250				250			
Weight	Relief function	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
	kg	2	3	4	4	6	9	13	16	12	25	32	29	47	55	57	53				

Unit dimensions (A,B and C)

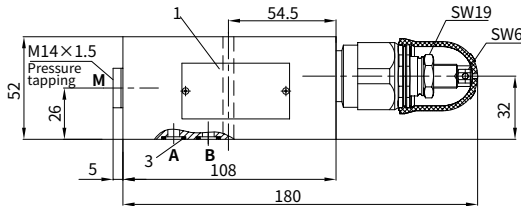
(Dimensions in mm)

Size 6

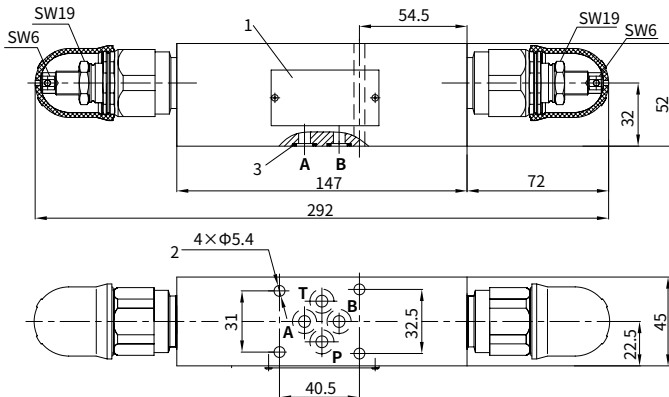
·Type ZDBD6A-L1X/...



·Type ZDBD6B-L1X/...



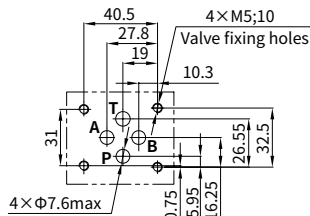
·Type ZDBD6C-L1X/...



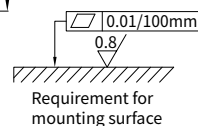
- 1 Nameplate
- 2 Valve fixing holes
- 3 O-ring 9.25×1.78(A,B,P,T)

Valve fixing screws:

M5 internal hexagon screw or LT 30.02 double-screw bolt with LT 30.01 nut GB/T 70.1-10.9, the length according to sandwich, Tightening torque $M_A = 8.9 \text{ Nm}$, must be ordered separately.



Dimensions of mounting surface



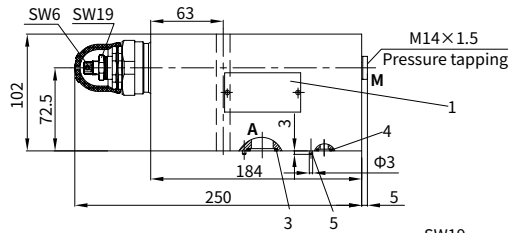
Requirement for mounting surface

Unit dimensions (A, B and C)

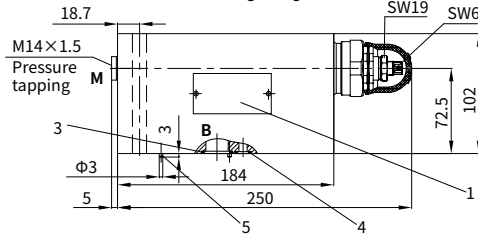
(Dimensions in mm)

Size 16

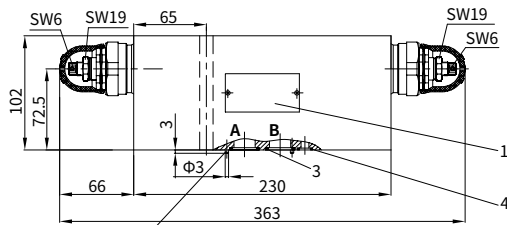
•Type ZDBD16A-L1X/...



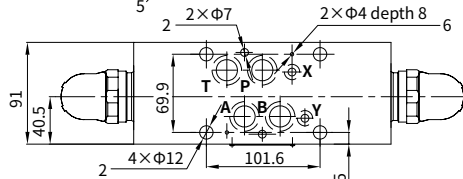
•Type ZDBD16B-L1X/...



•Type ZDBD16C-L1X/...

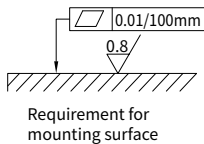
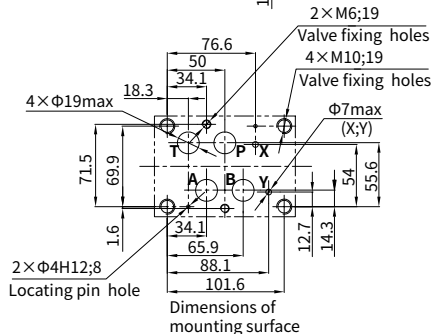


- 1 Nameplate
- 2 Valve fixing holes
- 3 O-ring 22×2.5(A, B, P, T)
- 4 O-ring 10×2(X, Y)
- 5 Locating pin 3×8
- 6 Locating pin hole



Valve fixing screws:

M6 internal hexagon screw or LT 30.02 double-screw bolt with LT 30.01 nut GB/T 70.1-10.9, the length according to sandwich, 4 pcs M10 tightening torque $M_A=75$ Nm, 2 pcs M6 tightening torque $M_A=15.5$ Nm, must be ordered separately.

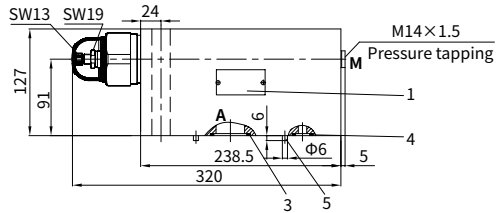


Unit dimensions (A,B and C)

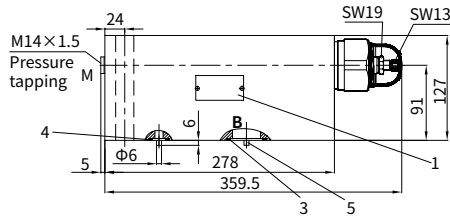
(Dimensions in mm)

Size 32

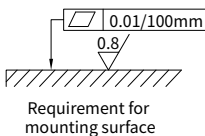
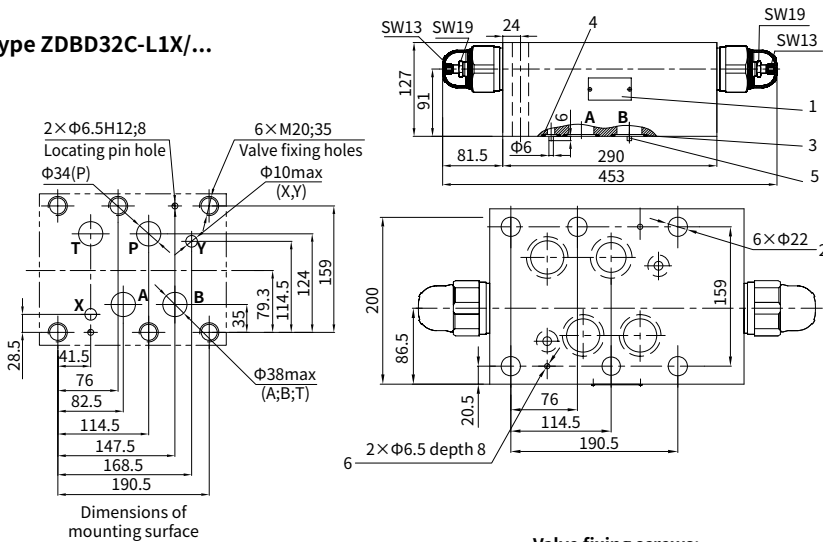
•Type ZDBD32A-L1X/...



•Type ZDBD32B-L1X/...



•Type ZDBD32C-L1X/...



- 1 Nameplate
- 2 Valve fixing holes
- 3 O-ring 42x3(A, B, P and T)
- 4 O-ring 19x3(X,Y)
- 5 Locating pin 6x12
- 6 Locating pin hole

Valve fixing screws:

6 pcs M20 internal hexagon screw or LT 30.02 double-screw bolt with LT 30.01 nut GB/T 70.1-10.9, the length according to sandwich, Tightening torque $M_n=580\text{Nm}$, must be ordered separately.

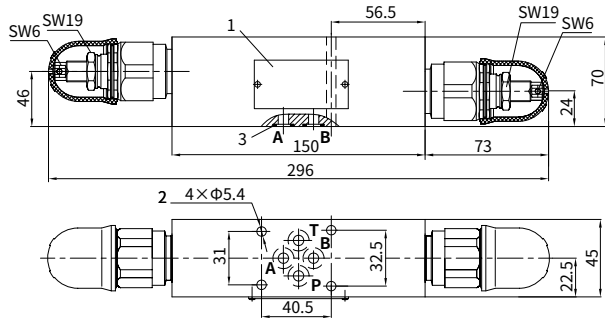
Unit dimensions (D)

(Dimensions in mm)

• Size 6

Type ZDBD6D-L1X/...

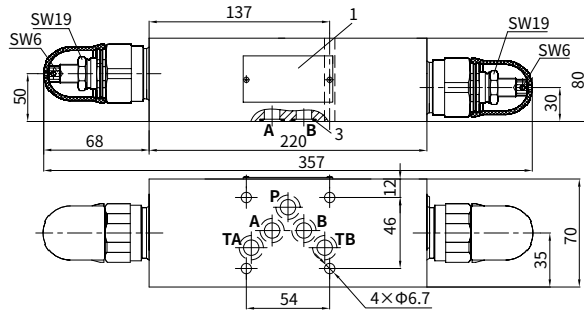
Illustration of sequence number, valve fixing screw, and the dimensions of mounting surface, please see the page 04/10.



• Size 10

Type ZDBD10D-L1X/...

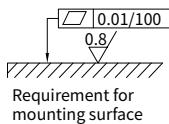
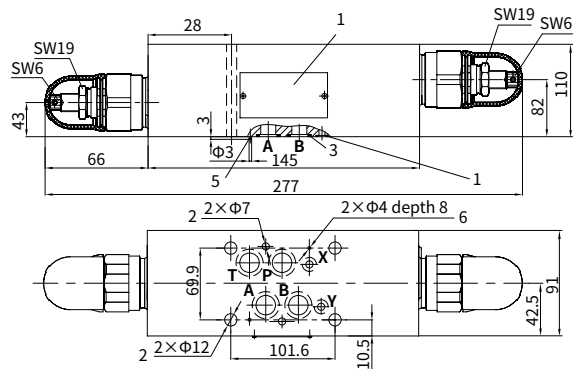
Illustration of sequence number, valve fixing screw, and the dimensions of mounting surface, please see the page 05/10



• Size 16

Type ZDBD16D-L1X/...

Illustration of sequence number, valve fixing screw, and the dimensions of mounting surface, please see the page 06/10.



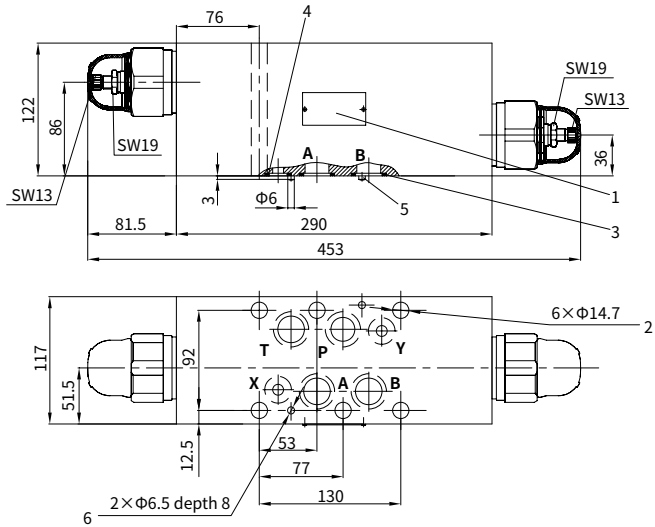
Unit dimensions (D)

(Dimensions in mm)

• Size 22

Type ZDBD22D-L1X/...

Illustration of sequence number, valve fixing screw, and the dimensions of mounting surface, please see the page 7/10.



• Size 32

Type ZDBD32D-L1X/...

Illustration of sequence number, valve fixing screw, and the dimensions of mounting surface, please see the page 8/10.

