



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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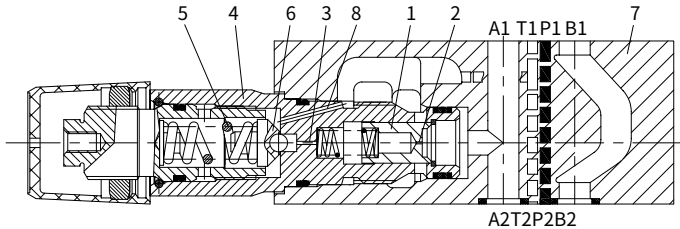
### Features

- 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.

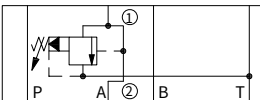


### Notes:

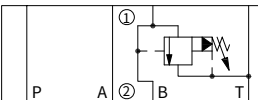
The pilot relief valves have more internal leakage, If lower leakage is demanded, such as safety valve, it is recommended to choose direct operated pressure relief valves, ZDBD type.

## Symbols

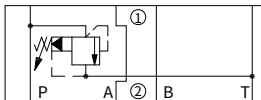
Type ZDB6VA...



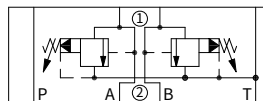
Type ZDB6VB...



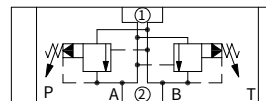
Type ZDB6VP...



Type ZDB6VC...



Type ZDB6VD...



① = valve side

② = sub-plate side

## Ordering code

	Z		DB	6		- L4X /		★
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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

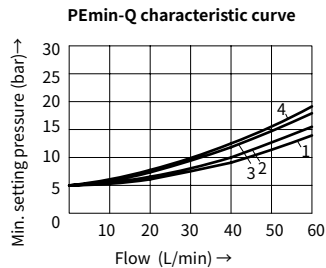
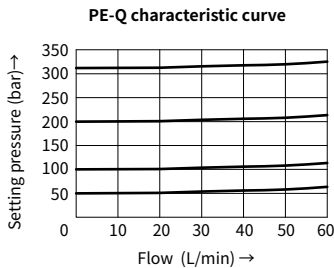
L4X = Series L40 to L49  
(L40 to L49: unchanged installation and connection dimensions)

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 <sup>2</sup> /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)



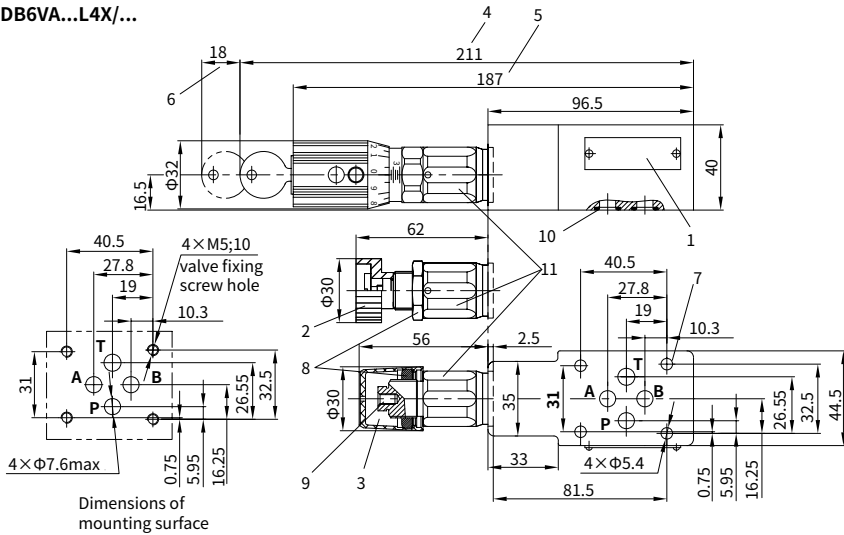
The curves are measured at zero back pressure.

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

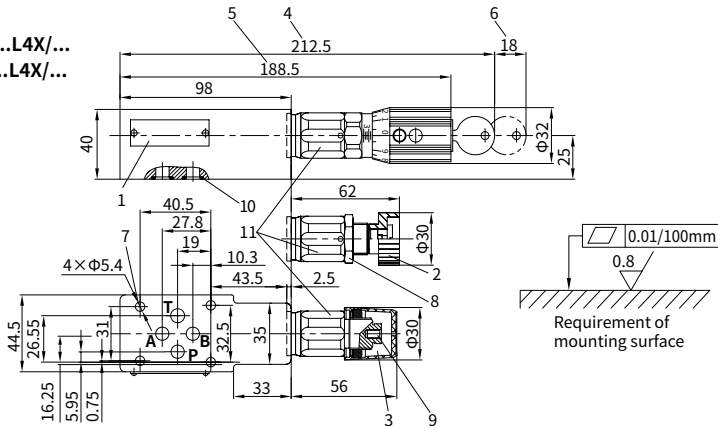
## Unit dimensions

(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  $M_A = 50$  Nm

#### Valve fixing screws:

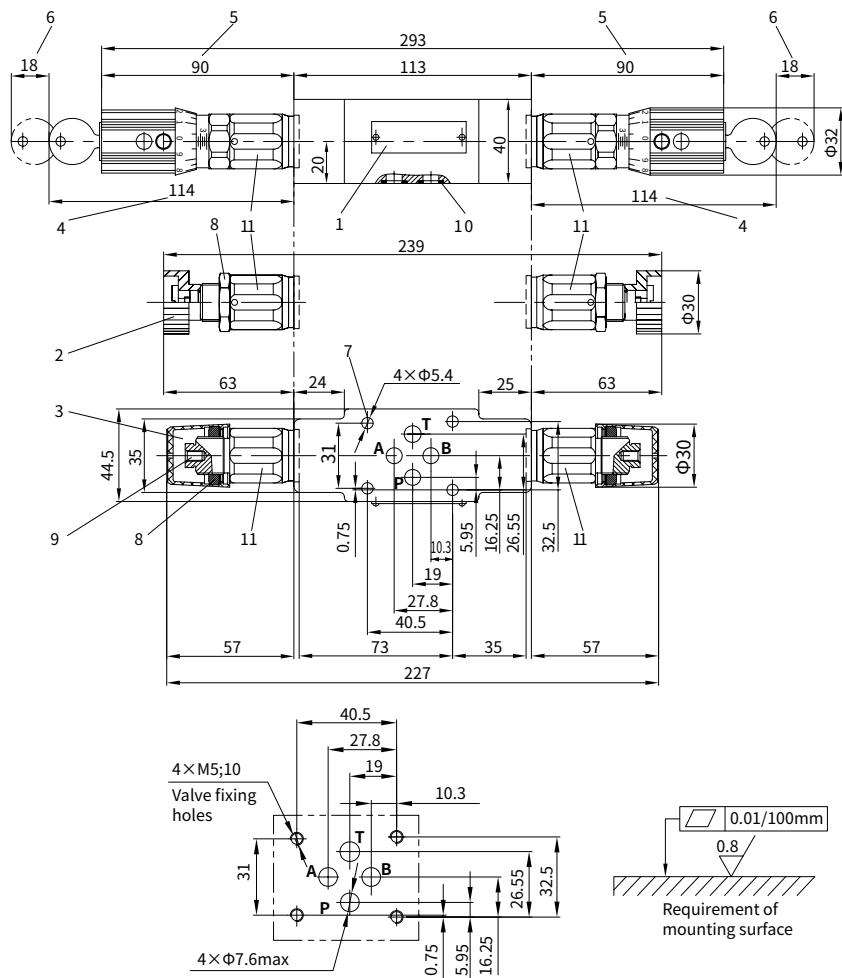
M5 internal hexagon screw or LT 30.02  
double-screw bolt with LT 30.01 nut GB/T 70.1-10.9,  
the length according to sandwich,  
tightening torque  $M_A = 8.9$  Nm, must be ordered separately.

# Unit dimensions

(Dimensions in mm)

Type Z2DB6VC...L4X/...

Type Z2DB6VD...L4X/...



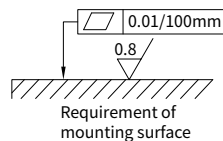
- 1 Nameplate
- 2 Adjustment element "1"
- 3 Adjustment element "2"
- 4 Adjustment element "3"
- 5 Adjustment element "7"
- 6 Space required to remove the key
- 7 Valve fixing holes
- 8 Lockable nut S=24
- 9 External hexagon screw S=10
- 10 O-ring 9.25 × 1.78 (A2, B2, P2, T2)

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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