Modular Pressure Relief Valve

Model: ZDB/Z2DB6...4X

- Size 6
- Maximum working pressure 315 bar
- Maximum working flow 60L/min

Contents

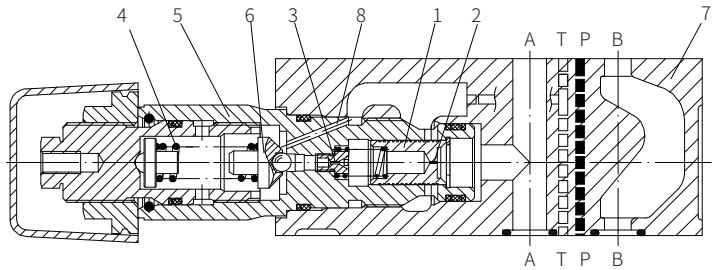
Features

- 4 pressure ranges
- 5 circuit options
- With one or two cartridge relief valves
- 4 adjustment elements
  - -Rotary knob
  - -Hexagon screw with sleeve and protective cap
  - -Lockable rotary knob with scale
  - -Rotary knob with scale

Function description, sectional drawing

The ZDB and Z2DB type relief valve is pilot operated relief valve with sandwich plate design. It's used to limit the pressure within hydraulic system.
The valve is mainly composed of valve body (7), and together with one or two cartridge relief valves. The system pressure is set by adjustment element (4).
At rest, the valve is closed. Pressure in port A acts on the spool (1), at the same time the pressure passes through orifice (2) to act on the spring loaded side of spool (1), and through orifice (3) to act on pilot valve spool (6). If pressure of port A rises above the value set on spring (5), then the pilot valve spool (6) opens.
Hydraulic oil flow from the spring loaded side of the spool (1), orifice (3) and channel (8) into port T. The resulting pressure drop moves the spool (1)thereby opening the connection A to T, while maintaining the pressure set at spring (5). Pilot oil return from two spring chambers via port T externally.

Model ZDB6VA2-...-4XJ/



Models and specifications

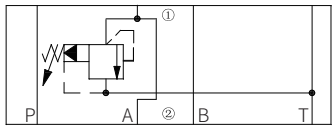
Z | | DB | 6 | | - 4X | / | | *

- sandwich plate =Z
- 1 cartridge relief valve =No code (only for "VA", "VB" and "VP")
- 2 cartridge relief valves =2 (only for "VC" and "VD")
- pressure relief valve =DB
- 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
- adjustment element
  - rotary knob =1
  - hexagon screw with sleeve and protective cap =2
  - lockable rotary knob with scale =3
  - rotary knob with scale =7
- 4X= 40 to 49 series (40 to 49 series installation and connection size unchanged)
- pressure range
  - 50= pressure adjustable up to 50bar
  - 100= pressure adjustable up to 100 bar
  - 200= pressure adjustable up to 200 bar
  - 315= pressure adjustable up to 315 bar
- sealing material
  - No code= NBR seals
  - V= FKM seals (consult for other seals)
- more information in text

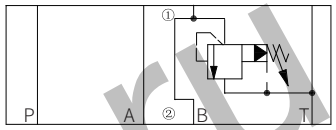
Functional symbols

(①=Valve side ②=Subplate side)

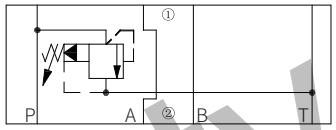
Model ZDB6VA...



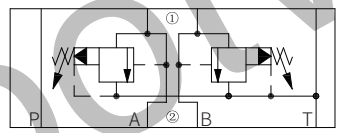
Model ZDB6VB...



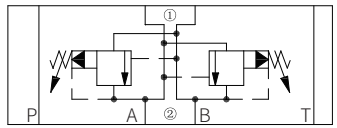
Model ZDB6VP...



Model Z2DB6VC...



Model Z2DB6VD...



Technical parameters

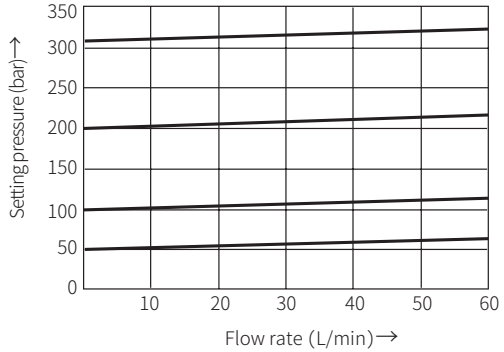
Weight	Model ZDB6	kg	About 1
	Model Z2DB6	kg	About 1.2
Installation position			Optional
Environment temperature range		°C	-20 to +80
Hydraulic			
Maximum working pressure		bar	315
Maximum setting pressure		bar	50; 100; 200;315
Maximum back pressure (port Y)		bar	315 (take the maximum tank pressure of the built-on valve/directional valve into account!)
Maximum flow		L/min	60
Oil fluid			Mineral oil (HL, HLP)[1] in accordance with DIN 51524; Fast living organisms Degraded oil according to VDMA 24568; HETG (Rapeseed oil)[1] HEPG(Polyethylene glycol)[2] HEES (synthetic ester)[2]
Oil temperature range		°C	-30 to +80 (NBR seal), -20 to +80 (FKM seal)
Viscosity range		mm^2/s	10 to 800
Cleanliness of oil			The maximum allowable pollution level of oil is ISO4406 Class 20 / 18 / 15[3]

1) For NBR seal and FKM seal.
2) Only for FKM seal.
3) The oil must meet the cleanliness degree requested by the components in the hydraulic system. Effective oil filtration can prevent failure and increase the service life of the components.

Characteristic curve

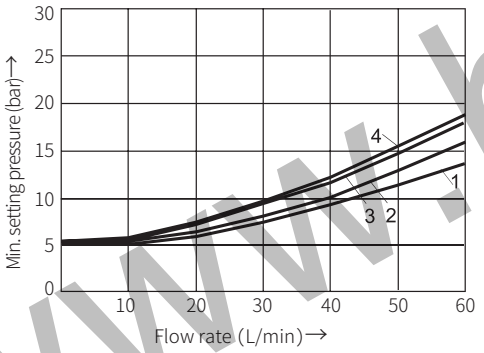
(Measured when using HLP 46, ϑ_{oil}= 40°C ± 5°C)

P_E-q_V -Characteristic curve



1 VD(A to B)
2 VA
3 VB, VC
4 VP, VD(B to A)

P_{Emin} -q_V -Characteristic curve

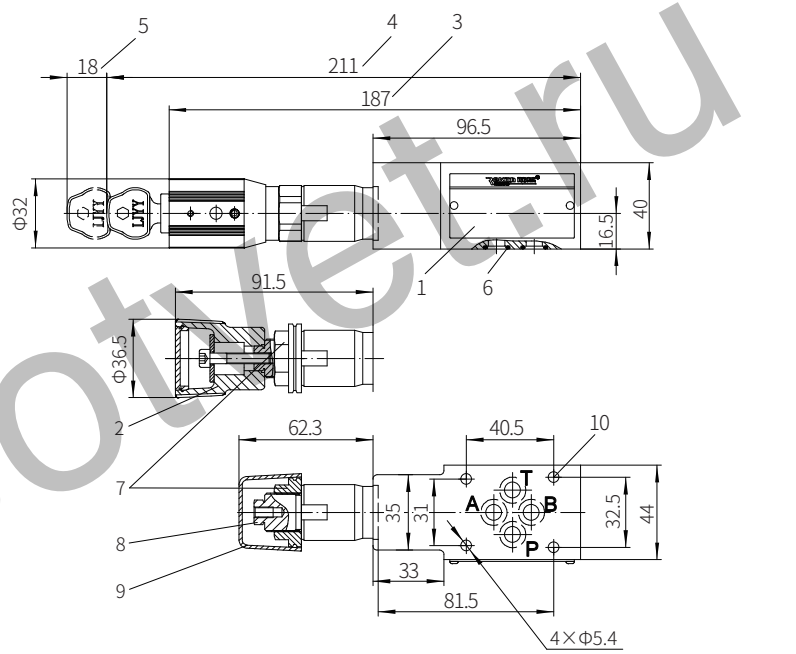


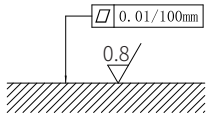
The characteristic curves are valid for an outlet pressure = zero over the entire flow range!

Component size

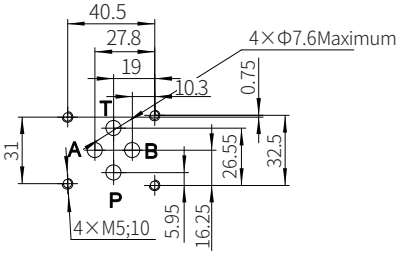
Size unit: mm

Model ZDB6VA...-4XJ/...





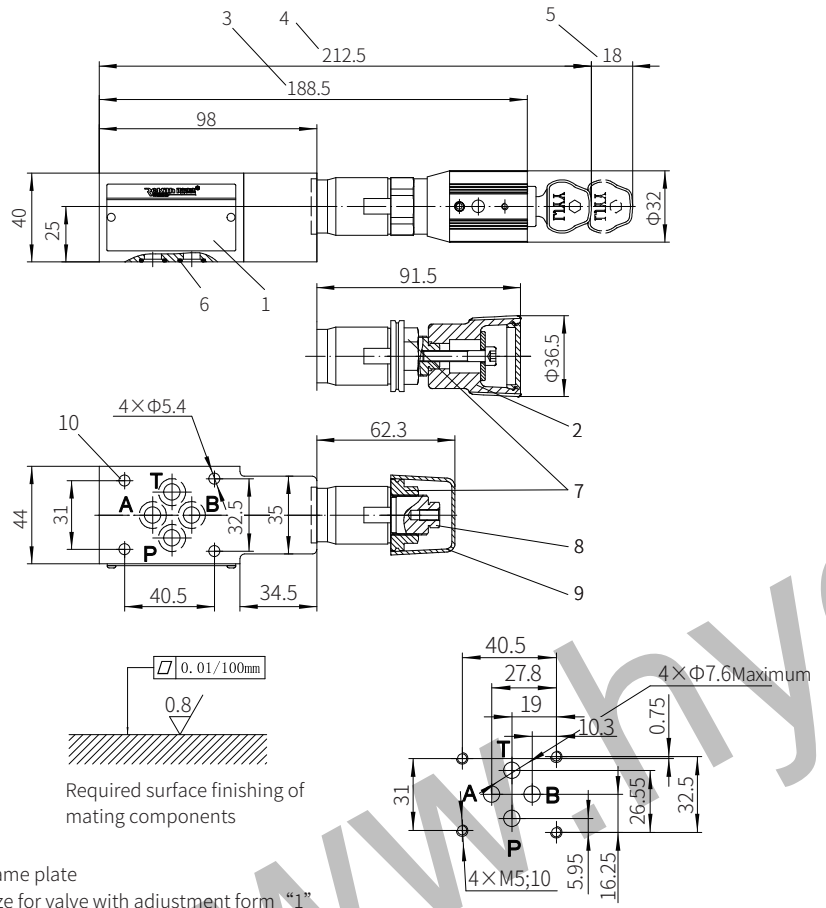
Required surface finishing of mating components



1 Name plate
2 Adjustment form “1”
3 Size for valve with adjustment form “7”
4 Size for valve with adjustment form “3”
5 Space required to remove the key
6 O-ring 9.25x1.78 (for oil port P, A, B, T)
7 Locknut 24A/F
8 Hexagon 10A/F
9 Adjustment form “2”
10 Valve fixing screw holes

Valve fixing screw
M5-10.9 grade GB/T70.1-2000
Tightening torque M_A=7.8Nm

Model ZDB6VB...-4XJ/...and ZDB6VP...-4XJ/...



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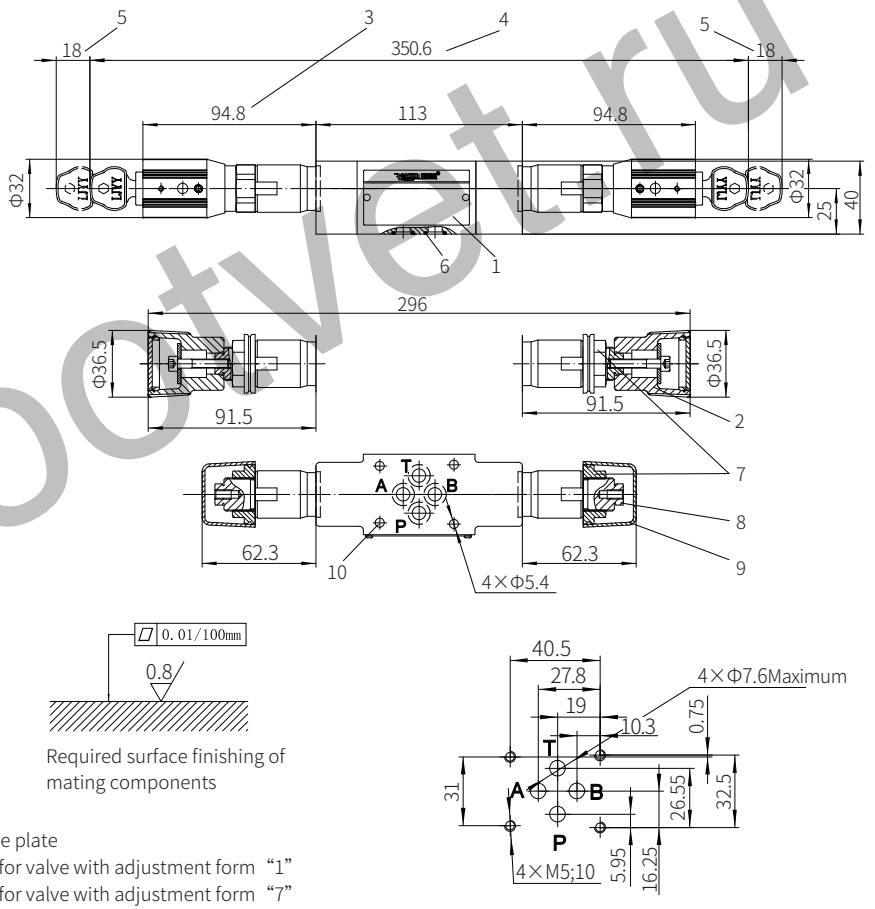
Model Z2DB6VC...-4XJ/...and Z2DB6VD...-4XJ/...



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