

## Modular Pressure Relief Valve

Model: ZDB/Z2DB16(22)...-3X



- ◆ Size 16 and 22
- ◆ Maximum working pressure 315 bar
- ◆ Maximum working flow 200 L/min  
400 L/min

### Contents

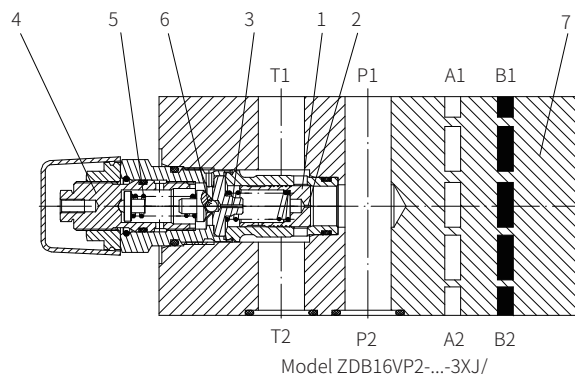
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### Features

- Sandwich plate type
- The installation surface according to DIN24340A and ISO4401
- Threaded connection and subplate mounting
- 4 pressure ratings
- 5 circuit options
- With one or two cartridge relief valves
- 1 adjustment element  
Adjusting screw with protective cap

## Function description, sectional drawing

Relief valve model ZDB and Z2DB are pilot operated relief valve and of sandwich plate design. It's used to limit the pressure within hydraulic system. The valve is composed of valve body (7), 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 valve spool (1), at the same time pressure pass through orifice (2) acts on spring, and pass through orifice (3) acts 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 spring loaded side of the valve spool (1) and orifice (3) into port T. The pressure drop moves valve 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.



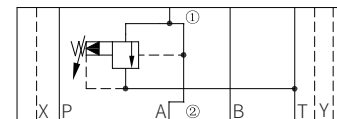
## Models and specifications

Z	DB			3X		*
sandwich plate =Z						more information in text
only for "VC" and "VD" 2 cartridge relief valves =2						sealing material No code = NBR seals V= FKM seals (consult for other seals)
pilot operated pressure relief valve =DB						
size 16 =16						50= pressure adjustable up to 50bar
size 22 =22						100= pressure adjustable up to 100bar
						200= pressure adjustable up to 200bar
						315= pressure adjustable up to 315bar
Relief function from - to:						
A—T =VA						
B—T =VB						
P—T =VP						
A—T and B—T =VC						
A—B and B—A =VD						
				3X=		30 to 39 series (30 to 39 series installation and connection size unchanged)
				2=		adjustment element adjusting screw with protective cap

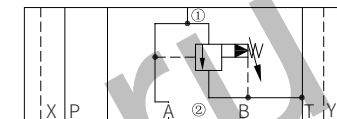
## Functional symbols

(① = Valve side ② = Subplate side)

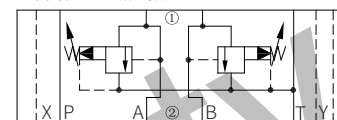
Model ZDB...VA...



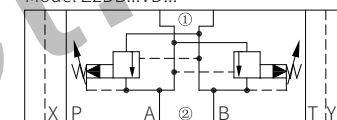
Model ZDB...VB...



Model Z2DB...VC...



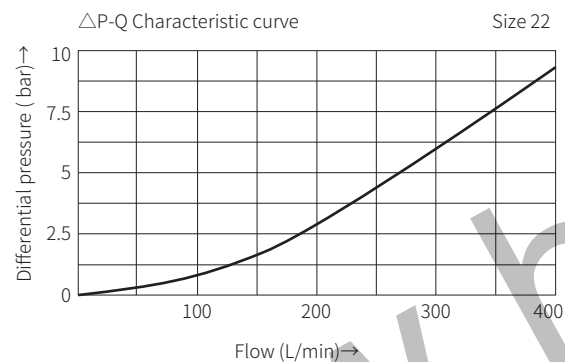
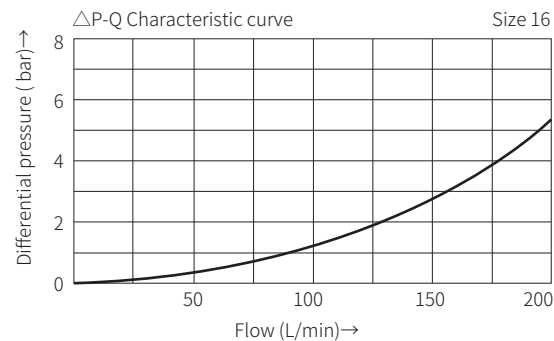
Model Z2DB...VD...



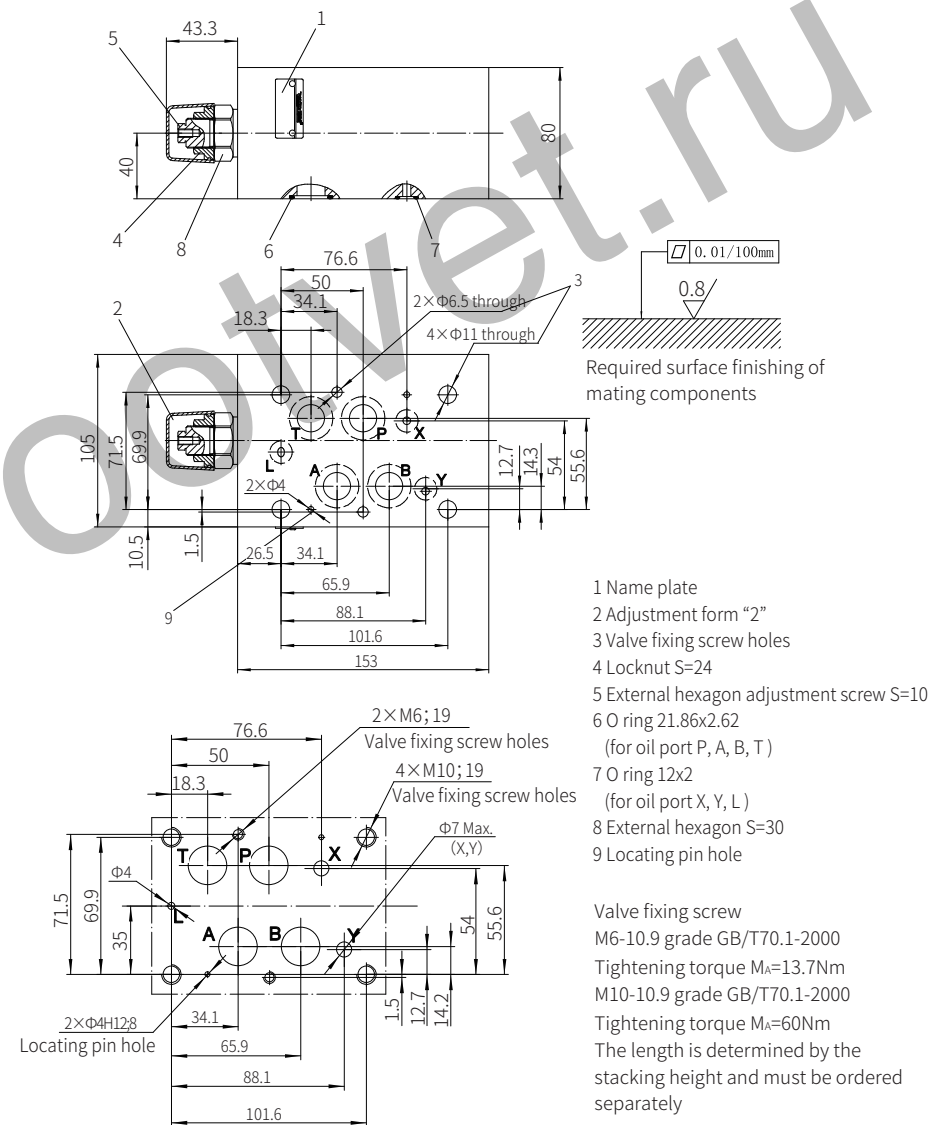
## Technical parameters

Oil fluid		Mineral oil - for NBR seal and FKM seal	
		Phosphate oil - for FKM seal	
Working medium temperature range	°C	-30 to +80 (NBR seals)	
		-20 to +80 (FKM seals)	
Viscosity range	mm²/s	10 to 800	
Cleanliness of oil		The maximum allowable pollution level of oil is ISO4406 Class 20/18/15	
Maximum working pressure	bar	to 315	
Maximum setting pressure	bar	50, 100, 200, 315	
Size		16	22
Maximum flow	L/min	200	400
Weight	ZDB kg	about 9.4	about 9.2
	Z2DB kg	about 11.8	about 10.3

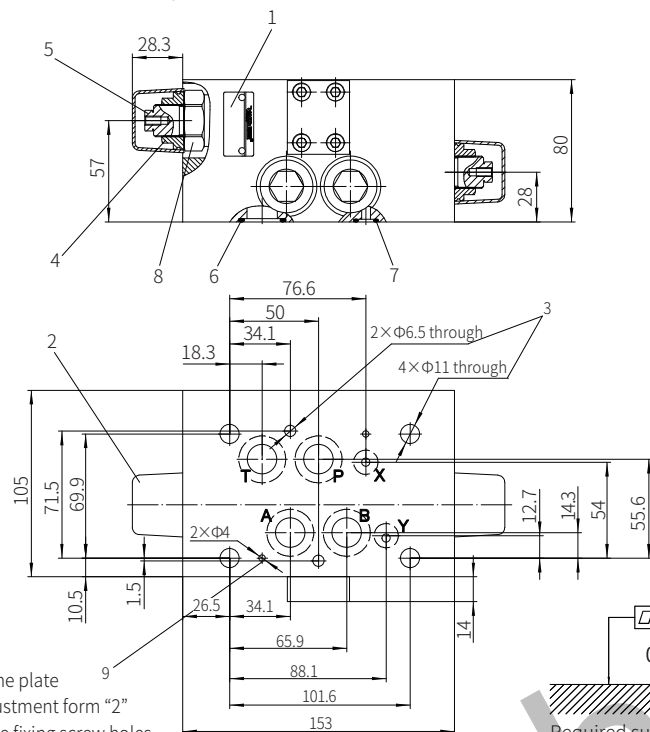
(Measured when using HLP 46,  $\vartheta_{oil} = 40^{\circ}\text{C} \pm 5^{\circ}\text{C}$ )



Model ZDB16VA...-3XJ/... and ZDB16VP...-3XJ/...

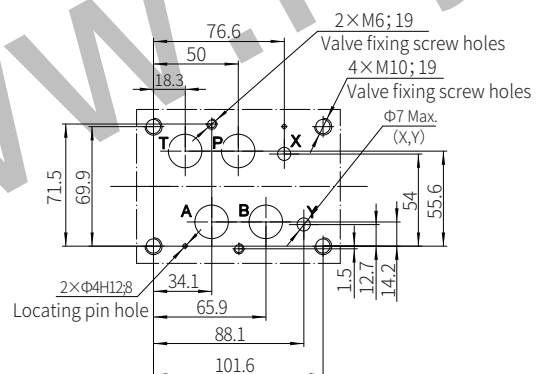


Model Z2DB16VD...-3XJ/...



- 1 Name plate
- 2 Adjustment form "2"
- 3 Valve fixing screw holes
- 4 Locknut S=24
- 5 External hexagon adjustment screw S=10
- 6 O ring 21.86x2.62  
(for oil port P, A, B, T)
- 7 O ring 12x2  
(for oil port X, Y, L)
- 8 External hexagon S=30
- 9 Locating pin hole

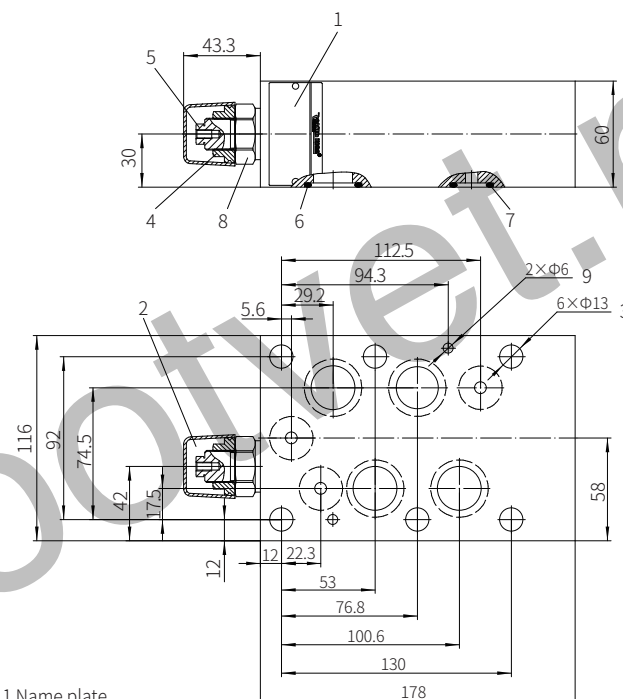
Valve fixing screw  
M6-10.9 grade GB/T70.1-2000  
Tightening torque  $M_A=13.7\text{Nm}$   
M10-10.9 grade GB/T70.1-2000  
Tightening torque  $M_A=60\text{Nm}$   
The length is determined by the  
stacking height and must be ordered  
separately



Required surface finishing of mating components

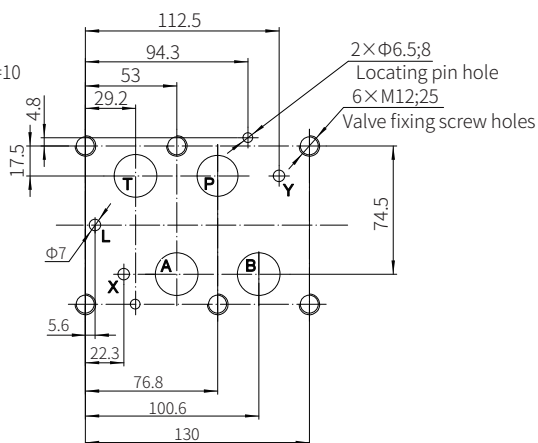
0370

Model ZDB22VP...-3XJ/...



- 1 Name plate
- 2 Adjustment form "2"
- 3 Valve fixing screw holes
- 4 Locknut S=24
- 5 External hexagon adjustment screw S=10
- 6 O ring 27x3  
(for oil port P, A, B, T)
- 7 O ring 19x3  
(for oil port X, Y, L)
- 8 External hexagon S=30
- 9 Locating pin hole

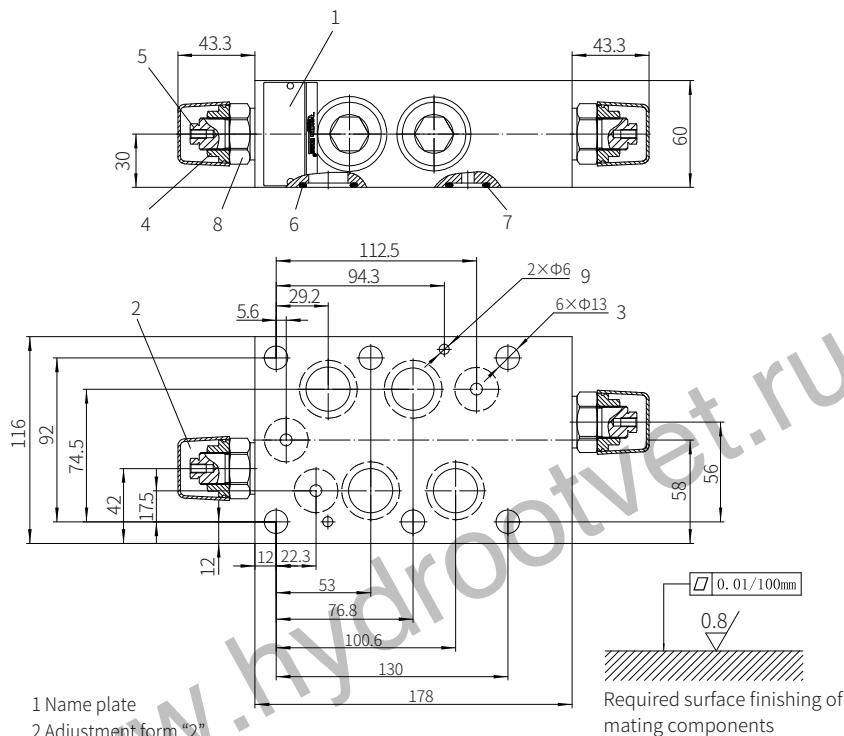
Valve fixing screw  
M12-10.9 grade GB/T70.1-2000  
Tightening torque  $M_A=60\text{Nm}$   
The length is determined by the  
stacking height and must be ordered  
separately



Required surface finishing of mating components

0371

Model Z2DB22VD...-3XJ/...



Valve fixing screw  
 M12-10.9 grade GB/T70.1-2000  
 Tightening torque  $M_A=95\text{Nm}$   
 The length is determined by the  
 stacking height and must be ordered  
 separately

