Modular Pressure Reducing Valve

Model: ZDR6D...4X

- Size 6
- Maximum working pressure 210 bar
- Maximum working flow 50 L/min

Contents

Features

- Sandwich plate valve
- 2 kinds of pressure ranges
- 2 kinds of adjusting elements:
  Rotary knob
  Hexagon screw with sleeve and protective cap
- Pressure reducing in port A, B or P
- Check valve, optional

Function description, sectional drawing

The ZDR6D... reducing valve is a three-way direct operated pressure reducing valve with sandwich plate construction and reducing in the the secondary circuit. It is used for system pressure reducing.

The valve is composed of valve body (1), control spool (2), compression spring (3), adjusting element (4) and an optional check valve. The secondary pressure is set by the adjusting element (4).

Model DA

At rest, the valve is normally open, the fluid is flow freely from port A1 to port A2. The pressure in port A2 acts on the piston area opposite to the compression through the control channel (5). When the pressure at port A2 exceeds the set value of spring (3), the control spool (2) is moved to the control position, the pressure at port A2 remains stable. The signal and control oil are supplied internal from port A2 through the control channel (5).

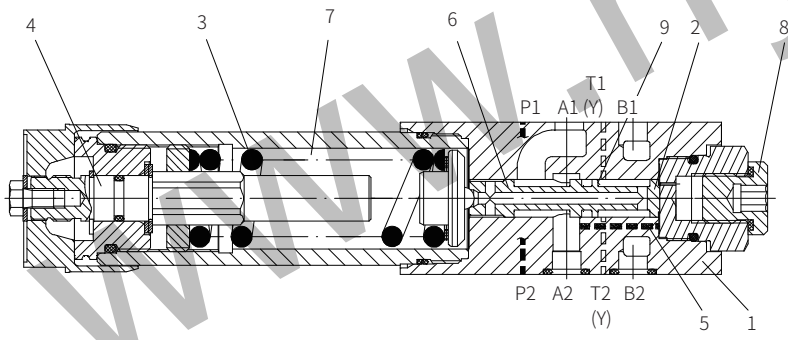
If the pressure at port A2 continues to increase due to external force acts on the actuator, the valve spool will still move towards the compression spring (3), then the port A2 is connected to the oil tank through the shoulder (9) on the control piston (2). The sufficient oil flows back to the tank to prevent further pressure increase. The oil in the spring chamber (7) is drained external to the oil tank through the orifice (6) to the port T.

The pressure gauge connection (8) is used for secondary pressure monitoring of the valve. In the version DA, the check valve can only be added to the oil port from A2 to A1 to ensure flow passage smoothly.

Model DP and DB

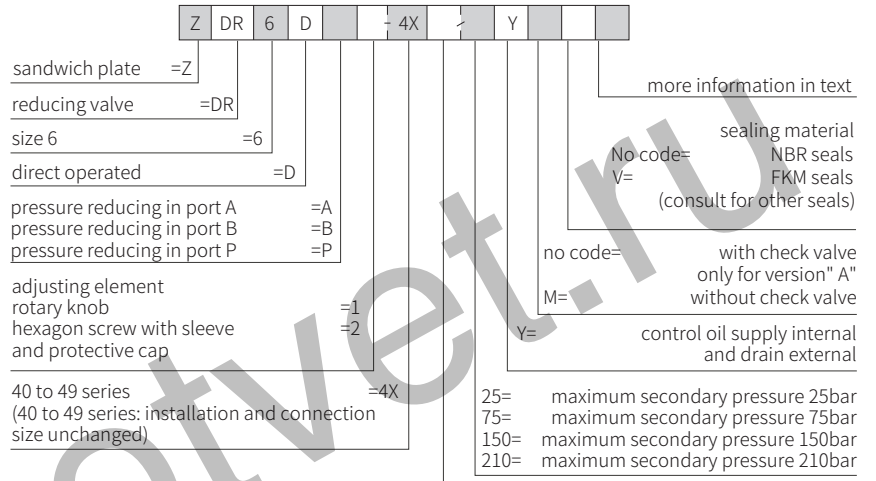
In model DP, the pressure is reduced in port P1, the signal and control oil are supplied internal from port P1.

In model DB, the pressure is reduced in port P1, but control oil is taken from port B. When the directional valve in position P to A, the pressure of port B must not exceed the set pressure. Otherwise, the pressure at port A will be decrease.



Model ZDR6DA1...4XJ/...YM

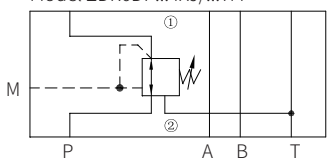
Models and specifications



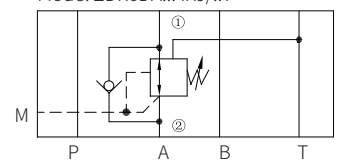
Functional symbols

(①= Valve side, ②= Subplate side)

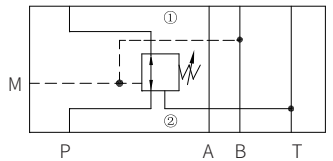
Model ZDR6DP...4XJ/...YM



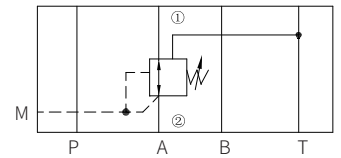
Model ZDR6DA...4XJ/..Y



Model ZDR6DB...4XJ/...YM



Model ZDR6DA...4XJ/...YM



Technical parameters

Installation position		optional
Environment temperature range		-30 to +80(NBR seal)
		-20 to +80 (FKM seal)
Weight	kg	1.2KG
Hydraulic		
Maximum working pressure	bar	315
Maximum secondary pressure	bar	25；75；150；210
Back pressure port T(Y)	bar	160
maximum flow	L/min	50
Pressure medium		Mineral oil (HL, HLP)[1] in accordance with DIN 51524; Fast living organisms degraded oil according to VDMA 24568; HETG (Rapeseed oil)[1]; HEPG(Polyethyleneglycol)[2] ; HEES (Synthetic Fats)[2]
Pressure medium temperature range	°C	-30 to +80(NBR seal)
		-20 to +80 (FKM seal)
Viscosity range	mm^2/s	10 to 800
Cleanliness of oil[3]		The maximum allowable pollution level of oil is ISO4406 Class 20/18/15

1) For NBR seal and FKM seal.

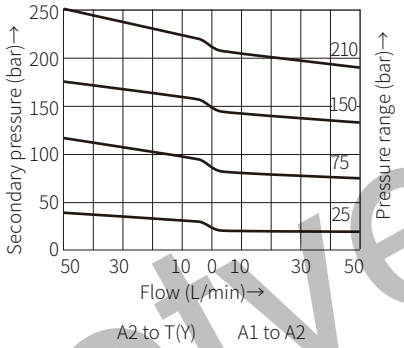
2) Only for FKM seal.

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

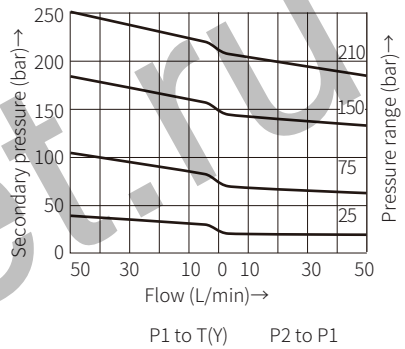
(Measured when using HLP46, ϑ_{oil}=40°C ± 5°C)

Model ZDR6DA



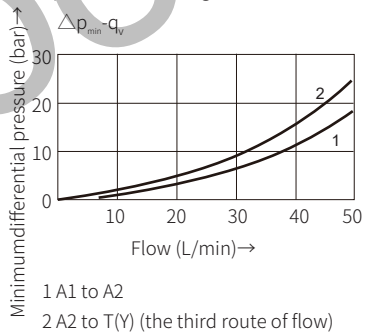
A2 to T(Y) A1 to A2

Model ZDR6DP and ZDR6DB

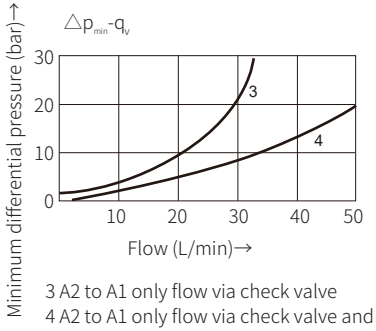


P1 to T(Y) P2 to P1

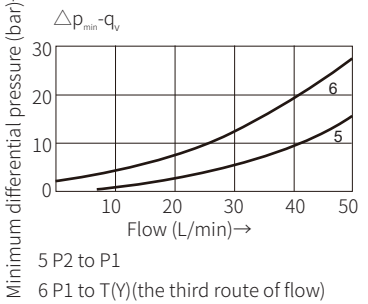
Note: When the set pressure is low, the characteristic curve remains within the corresponding pressure level range.



1 A1 to A2
2 A2 to T(Y) (the third route of flow)



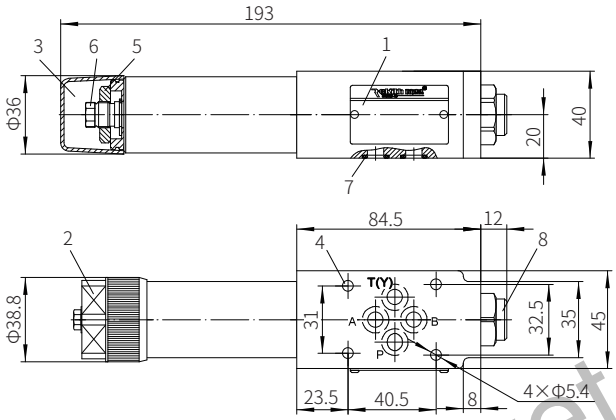
3 A2 to A1 only flow via check valve
4 A2 to A1 only flow via check valve and completely opened control cross-section.



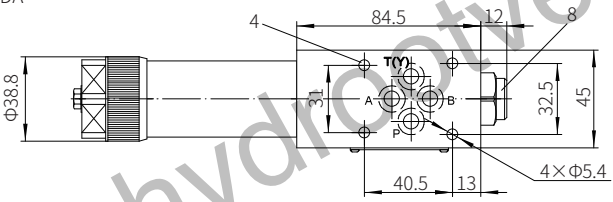
5 P2 to P1
6 P1 to T(Y)(the third route of flow)

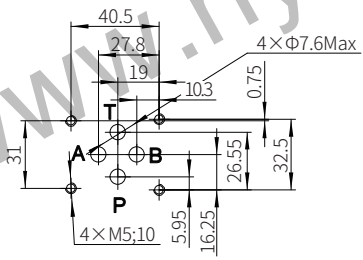
The characteristic curves apply to the pressure at the valve output pressure = 0 bar across the entire flow range.

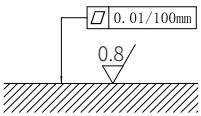
Model ZDR6DP and ZDR6DB



Model ZDR6DA







Required surface finishing of mating components

1 Name plate
2 Adjustment unit "1"
3 Adjustment unit "2"
4 Valve fixing hole
5 Locknut S=24
6 Internal hexagon adjusting screw S=10
7 O ring 9.25X1.78(for port P, A, B, T)
8 Pressure gauge connection:
G1/4 or M14x1.5, 12 deep

Valve fixing screw
M5-10.9 grade GB/T70.1-2000

Tightening torque M_A=7.8Nm

It must be ordered separately if connection subplate is needed
Subplate model:
G341/01 (G1/4"); G341/02(M14x1.5)
G342/01 (G3/8"); G342/02(M18x1.5)
G502/01 (G1/2"); G502/02(M22x1.5)