



3.15

# Pressure Reducing Valve Direct Operated

## Type ZDR6D...L4X

Size 6  
Up to 210 bar  
Up to 50L/min



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### Features

- Sandwich plate design
- Mounting face meeting requirements for DIN24340 A and ISO4401
- 4 pressure ranges
- 2 adjustment forms
- Rotary Knob
- Adjusting screw with protective cover
- Connector with pressure gauge
- Selectable one-way valve

## Function and configuration

Pressure reducing valves type ZDR6D.. are 3-way direct operated, sandwich plate design with a pressure reducing function on the secondary side. It is used to reduce the system pressure. The pressure reducing valve basically consists of the housing (1), the control spool (2), two compression springs (3) and the adjustment element (4) as well as with an optional check valve.

### Model DA:

At static state, the valve is normally open, and fluid can flow freely from port P2 to port P1 (version "DP") or from port A1 to port A2 (version "DA"). Pressure in port P1 acts at the spool area via control line (5) and is balanced with the setting value of the compression spring (3). When the pressure in port P1 exceeds the setting value of the spring (3), the control spool (2) moves further towards the compression spring (3), the

opening aperture at port P is getting smaller until fluid at port P1 flows back to the tank through the orifice (6) of the control spool (2) to prevent any further rise in pressure. The leakage oil in spring chamber (7) is always drained to tank through port T (Y).

A check valve can be fitted optionally in version "DA" for free flow from ports A2 to ports A1 .

A pressure gauge connection (8) permits the secondary pressure to be monitored.

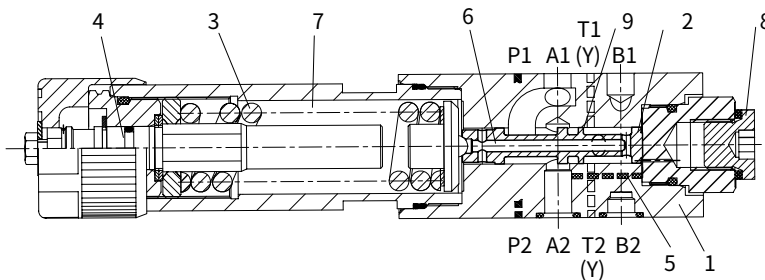
In model DA, one-way valve can only be mounted with the oil port from A2 to A1 to make the flow passage smooth.

### Model DP and DB:

In model DP, oil port P1 is pressure reduced; signal and control oil is provided from the inside of oil port P1.

In model DB, oil port P1 is pressure reduced; but control oil is from oil port B.

### Type: ZDR6DA1-L4X/...YM...

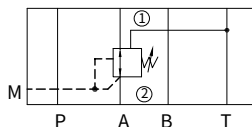


### Note:

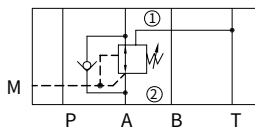
1. In model DB, when directional valve is in position from P to A, please make sure the pressure of oil port B is no more than the set value, otherwise, the pressure of oil port A is reduced.
2. For internal leakage, superposition relief valve for in pair with superposition (hydraulic control) one-way valve shall be installed between the superposition (hydraulic control) one-way valve and the directional change valve.

## Symbols

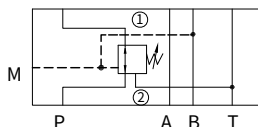
Type: ZDR6DA...L4X/..YM



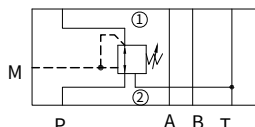
Type: ZDR6DA...L4X/..Y



Type: ZDR6DB...L4X/..YM



Type: ZDR6DP...L4X/..YM



① = valve side;

② = bottom plate side

## Ordering code

Z	DR	6	D		-L4X/	Y			*
Further details in clear text									
Superposition structure = Z									
Relief valve = DR									
Diameter 6 = 6									
Direct-acting type = D									
Oil port A2 pressure relieved = A									
Oil port B2 pressure relieved = B									
Oil port P1 pressure relieved = P									
Knob = 1									
Adjusting bolt with protective cover = 2									
Series L40 to L49 (L40 to L49: unchanged installation and connection dimensions) = L4X									
No code = NBR seals									
V = FKM seals									
Pressure tapping thread									
No code = Inch G1/4									
2 = Metric M14 × 1.5									
No mark = With one-way valve (just for model DA)									
M = Without one-way valve									
Y = Control oil supplied from inside and drained to the outside									
2.5 = Max. secondary pressure 25bar									
7.5 = Max. secondary pressure 75bar									
15 = Max. secondary pressure 150bar									
21 = Max. secondary pressure 210bar									

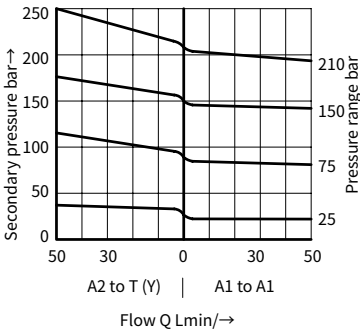
## Technical data

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 secondary pressure (inlet)	bar	315
Max secondary pressure (outlet)	bar	25; 75; 150; 210
Backpressure oil port T (Y)	bar	160
Max flow	L/min	50
Weight	kg	About 1.2

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

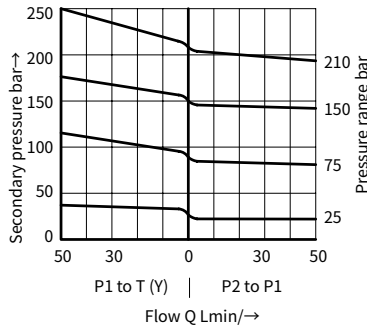
**Type ZDR6DA**

$p_A$ - $q_v$  Characteristic curves

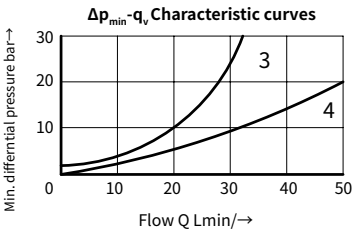
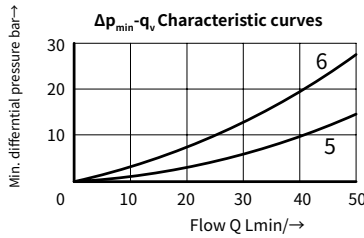
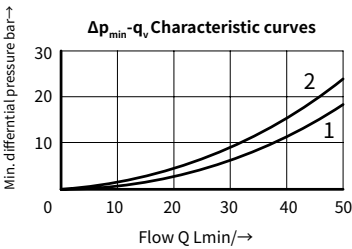


**Type ZDR6DP and ZDR6DB**

$p_A$ - $q_v$  Characteristic curves



**Note:** if the set pressure is low, the performance curve is within the corresponding pressure level range.

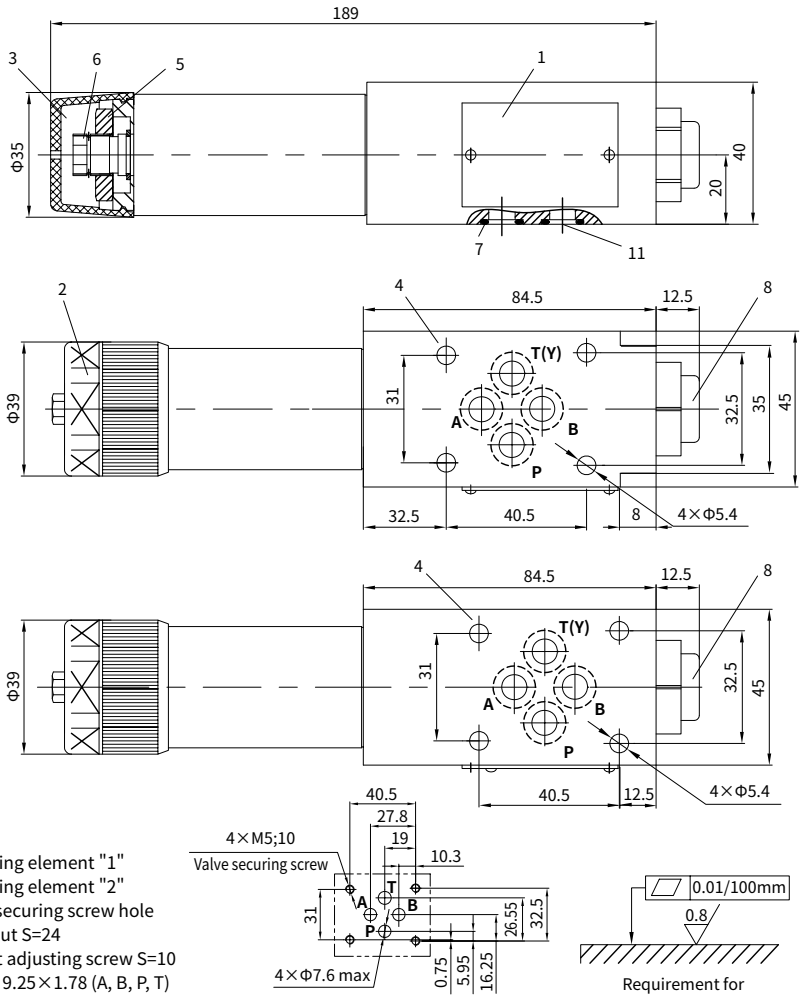


- 1 A1 to A2
- 2 A2 to T(Y) (the third flow route)
- 3 Flow from A2 to A1 just goes through one-way valve.
- 4 Flow from A2 to A1 just goes through one-way valve and fully-open main valve.
- 5 P2 to P1
- 6 P1 to T(Y) (the third flow route)

This work curve is effective to the relief function in case of outlet pressure = 0 within the overall range.

# Unit dimensions

(Dimensions in mm)



- 1 Plate
- 2 Adjusting element "1"
- 3 Adjusting element "2"
- 4 Valve securing screw hole
- 5 Lock nut S=24
- 6 Socket adjusting screw S=10
- 7 O-ring 9.25×1.78 (A, B, P, T)
- 8 Pressure gauge interface G1/4 or M14×1.5; in depth 12, Hex wrench S=6

Size of the installed base

**For connection of bottom plate, order shall be made separately**

**Type:**

- G341/01(G1/4), G341/02 (M14×1.5)
- G342/01(G3/8), G342/02 (M18×1.5)
- G 502/01(G1/2), G502/02 (M22×1.5)

**Valve fixing screws:**

M5 internal hexagon screw or LT 30.02 double-screw bolt added 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.

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