3.20

Pressure reducing valve direct operated

Type ZDR10D...L5X

Size 10
up to 210 bar
up to 80 L/min

Contents

Features

- Sandwich plate structure
- Porting pattern to DIN 24 340, form A and ISO 4401
- 4 pressure ratings
- 4 adjustment elements:
  - Rotary knob
  - Adjustable bolt with protective cap
  - Lockable rotary knob
  - Rotary knob with scale
- Pressure reduction in ports A, B or P
- Check valve, optional

Function and configuration

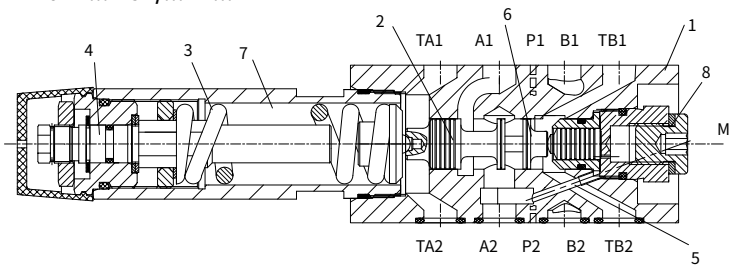
The pressure reducing valve type ZDR 10 D.. is a 3-way direct operated valve of sandwich plate design with a pressure relief function on the secondary side. It is used to reduce the system pressure.
The pressure reducing valve basically consists of the housing (1), the control spool (2), a compression spring (3),and the adjustment (4) as well as an optional check valve.
The secondary pressure is set by the pressure adjustment element (4).

Model "DA"
At rest, the valve is normally open, and fluid can flow unhindered from port A1 to port A2. The pressure in port A2 is at the same time via the control line (5) present at the spool area opposite to the compression spring (3). When the pressure in port A2 exceeds the pressure level set at the compression spring (3), the control spool (2) moves into the control position against the compression spring (3) and holds the set pressure in port A2 constant. The control pressure and pilot oil are taken from port A2 via control line (5).
If the pressure in port A2 rises still further due to external forces, the control spool (2) is moved still further towards the compression spring (3). This causes a flow path to be opened at port A2 via control land (6) on the control spool (2) and housing (1) to tank (port TB). Sufficient fluid then flows to tank to prevent any further rise inpressure.
The spring chamber (7) is always drained to tank externally via port TA .
A pressure gauge connection (8) permitts the secondary pressure at the valve to be monitored.
It is only possible to fit a check valve for free flow in ports A2 to A1 in version "DA".

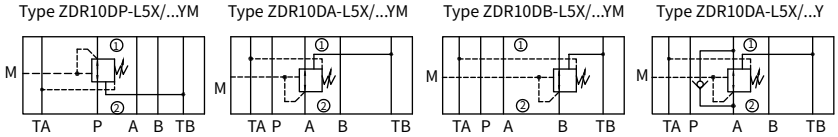
Models "DP" and "DB"
In model "DP", the pressure is reduced in port P1. The control pressure and the pilot oil is taken internally from port P1. In model "DB", the pressure in port P1 is reduced, and the pilot oil taken from port B.

Attention!
When the directional valve is in the switched position P to A, pressure in port B must not exceed the set secondary pressure. Otherwise, pressure in port A will be reduced.
If used without a directional valve, TA and TB must be interconnected (e.g. in the cover plate).

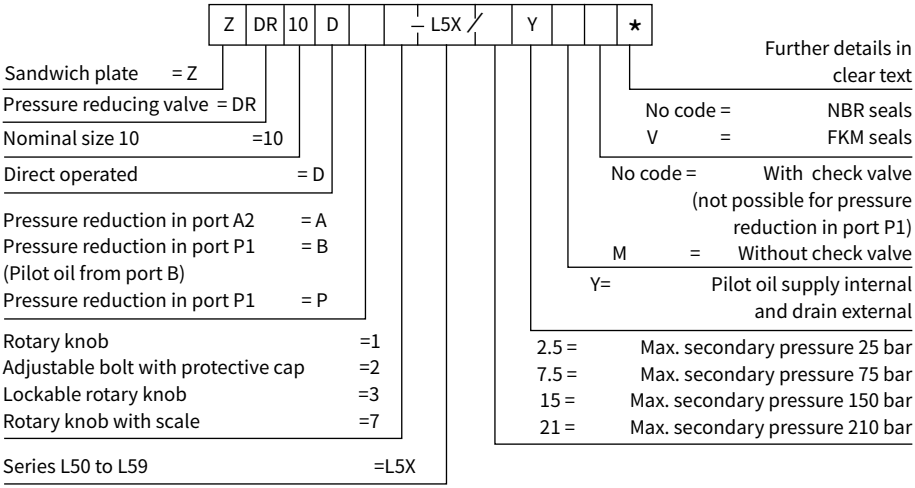
Type ZDR10DA...-L5X/...YM...



Symbols



Ordering code



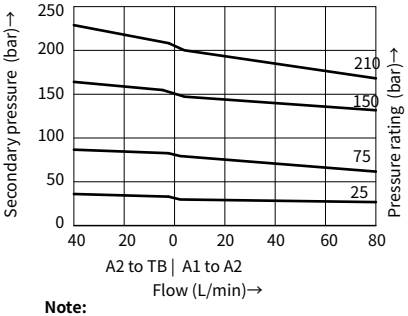
Technical data

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^2/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 (inlet)	bar	up to 315
Max.secondary pressure (output)	bar	up to 25; up to 75; up to 150; up to 210
Back pressure	bar	150
Max. flow-rate	L/min	80
Weight	Kg	Approx. 2.8

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

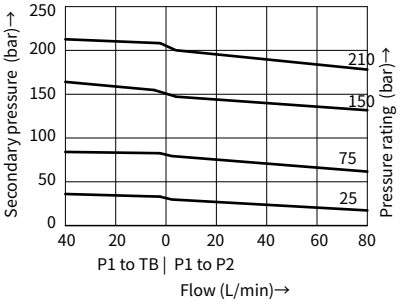
Type ZDR 10 DA..–L5X/...

p_A-q_V characteristic curves



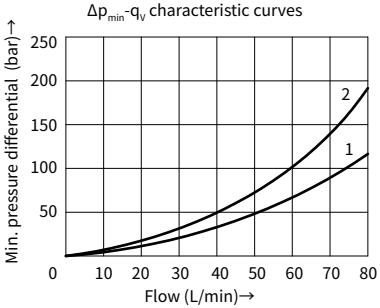
Type ZDR 10 DP..–L5X/... and
Type ZDR 10 DB..–L5X/...

p_A-q_V characteristic curves

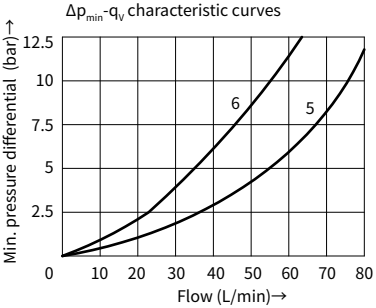


Note:
The curve characteristics remain, with low set pressures, the same in relation to the pressure rating.

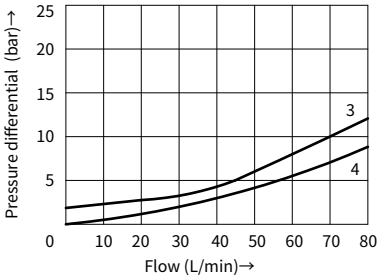
Δp_{min}-q_V characteristic curves



Δp_{min}-q_V characteristic curves



Δp-q_V characteristic curves

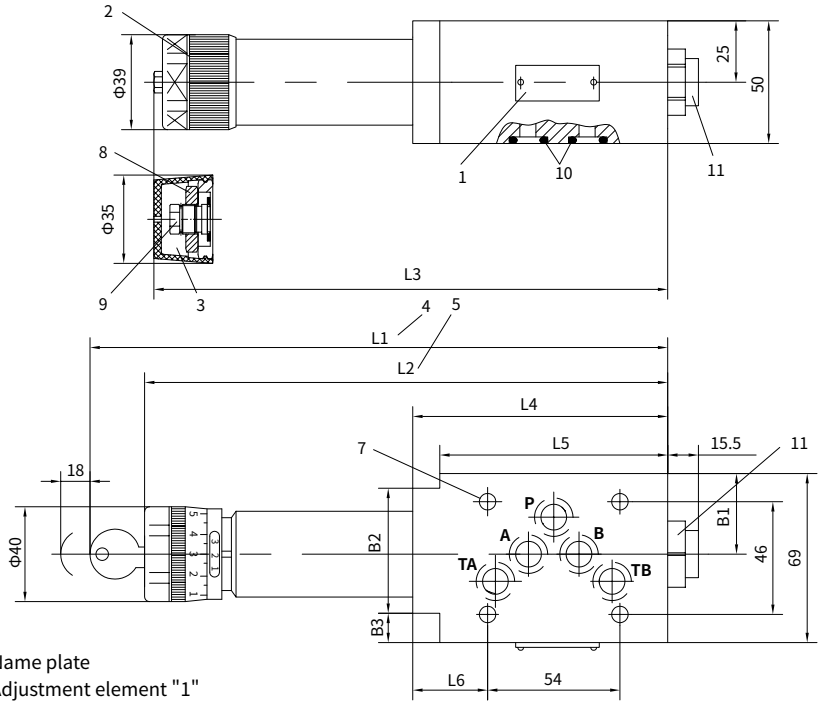


1 A1 to A2
2 A2 to TB (3rd. flow path)
3 A2 to A1 flow via check valve only
4 A2 to A1 flow via check valveand fully open controlcross section
5 P2 to P1
6 P1 to TB (3rd. flow path)

The characteristic curves for the pressure relief function are valid for the outlet pressure = zero over the entireflow range!

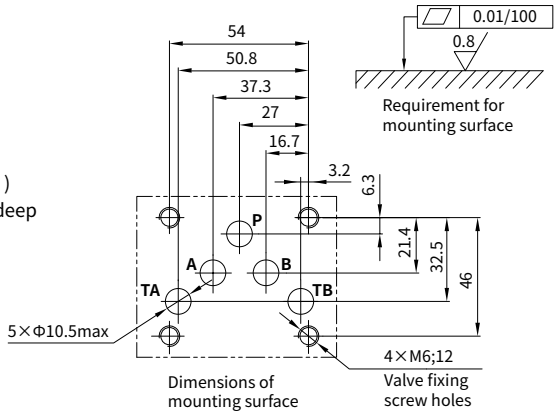
Unit dimensions

(Dimensions in mm)



1 Name plate
2 Adjustment element "1"
3 Adjustment element "2"
4 Adjustment element "3"
5 Adjustment element "7"
6 Space required to remove key
7 Valve mounting screw holes
8 Lock nut 24 A/F
9 Hexagon 10 A/F
10 O-rings 12×2 (Port A,B,P,TA,TB)
11 Pressure gauge port G 1/4; 12 deep internal hexagon 6 A/F

Valve mounting screws:
M6 internal hexagon bolt or LT 30.02 double-screw bolt with LT 30.03 nut GB/T 70.1-10.9, the length according to sandwich, tightening torque M_A = 15.5 Nm must be ordered separately.



Model	L1	L2	L3	L4	L5	L6	B1	B2	B3
"DA"	254	230	210	104	93	31.5	32.9	51	12
"DB" and "DP"	242	218	198	91	-	18.5	35	-	-