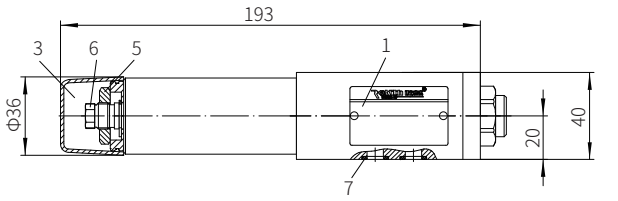
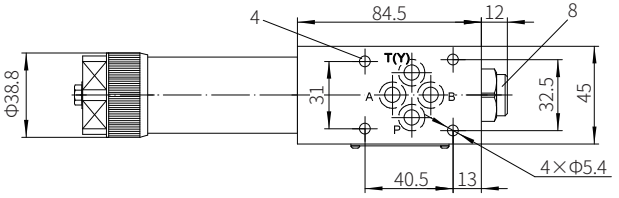
## Component size

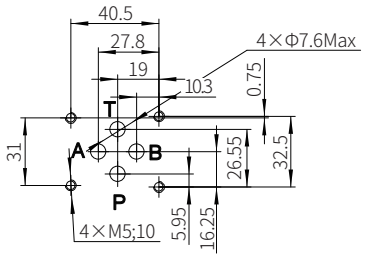
Size unit: mm

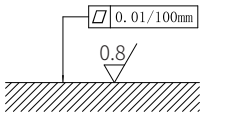
Model ZDR6DP and ZDR6DB




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)





# Modular Pressure Reducing Valve

**Model: ZDR10D...5XJ**

- Size 10
- Maximum working pressure 210 bar
- Maximum working flow 80 L/min

## Contents



## Features

- Sandwich plate valve
- 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
- 4 pressure ratings

## Function description, sectional drawing

The ZDR10D...5XJ/... reducing valve is direct operated pressure reducing valve with sandwich plate construction, 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.

**Model ZDR10DA**

At rest, the valve is normally open, the fluid flows freely from port A1 to A2. The pressure in port A2 acts on the spool face(2) opposite the compression spring (3) 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 working pressure and control oil are supplied internal from port A2 through the channel channel (5). If the pressure at port A2 continues to increase due to external force acts on the actuator, the control spool (2) 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 spool (2) and valve body (1). 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 port TA.

The pressure gauge connection (8) is used for secondary pressure monitoring of the valve.

Only in version "A", a check valve can be used for free flow back from port A2 to A1.

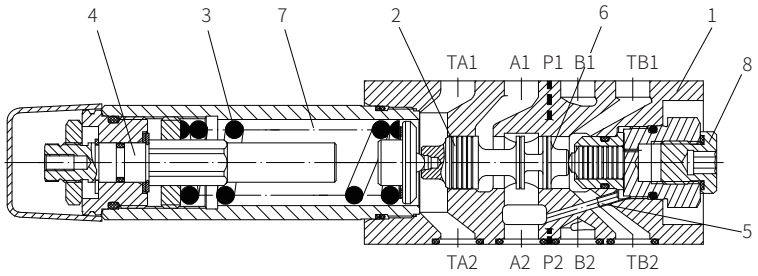
**Model ZDR10DP and ZDR10DB**

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

In model DB, the pressure is reduced in port P1, but the control oil is taken from port B.

Attention:

In model DB, 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. The check valve is only installed in version DA and allow oil flows freely from A2 to A1.




Model ZDR10DA1...5XJ/...YM





## Models and specifications

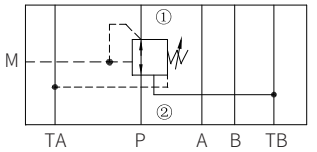
| Z | DR | 10 | D | | | -5X | J | | Y | | | * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

- sandwich plate =Z
- reducing valve =DR
- size 10 =10
- direct operated =D
- pressure reducing in port A =A
  pressure reducing in port B =B
  pressure reducing in port P =P
- adjusting element
  rotary knob =1
  hexagon screw with sleeve and protective cap =2
  Lockable rotary knob with scale =3
- 50 to 59 series =5X
  (50 to 59 series: installation and connection size unchanged)
- J= Rekith
- 25= maximum secondary pressure 25bar
  75= maximum secondary pressure 75bar
  150= maximum secondary pressure 150bar
  210= maximum secondary pressure 210bar
- Y= control oil supply internal and drain external
- M= with check valve (only with version "A")
  No code= without check valve
- sealing material
  No code= NBR seals
  V= FKM seals
  (consult for other seals)
- more information in text

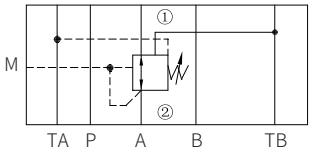
## Functional symbols

( ①= Valve side ②= Subplate side)

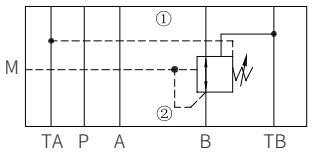
Model ZDR10DP...-5XJ/...YM



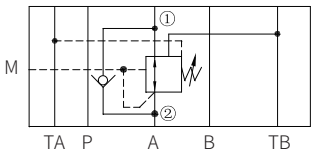

Model ZDR10DA...-5XJ/...YM




Model ZDR10DB...-5XJ/...YM




Model ZDR10DA...-5XJ/...Y



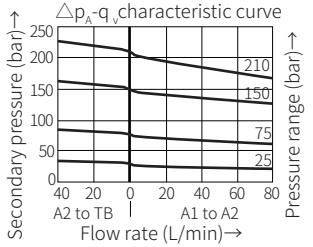
## Technical parameters

| | | |
|---|---|---|
| Weight | Kg | about 2.8 |
| Medium | | Mineral hydraulic oil or phosphate hydraulic 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 |
| Maximum working pressure (inlet) | bar | 315 |
| Secondary pressure (outlet) | bar | to 25, to 75, to 150, to 210 |
| Oil port back pressure T(Y) | bar | to 160 |
| Maximum flow | L/min | 80 |

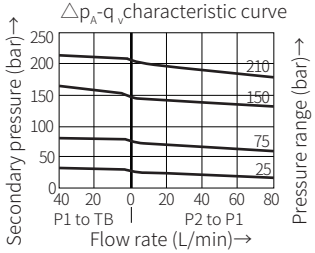
## Characteristic curve

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

Model ZDR 10 DA...-5X...
$\triangle p_A$-$q_v$characteristic curve

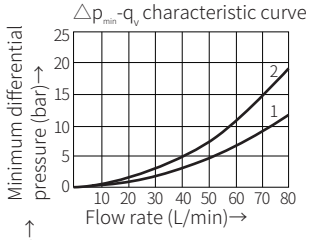



Model ZDR 10 DP...-5X/...and
ZDR 10 DB...-5X/...
$\triangle p_A$-$q_v$characteristic curve

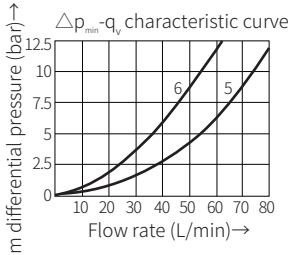



Note: When the set pressure is low, the characteristic curve remains within the corresponding pressure level range.

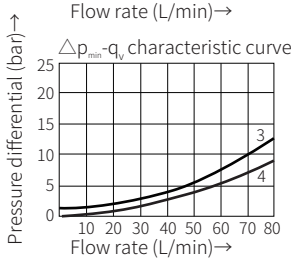
$\triangle p_{min}$-$q_v$ characteristic curve




$\triangle p_{min}$-$q_v$ characteristic curve




$\triangle p_{min}$-$q_v$ characteristic curve




1 A1 to A2
2 A2 to TB (the third route of flow)
3 A2 to A1 only flow via check valve
4 A3 to A1 flow via check valve and completely opened control cross-section
5 P2 to P1
6 P1 to TB (the third route of flow)

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

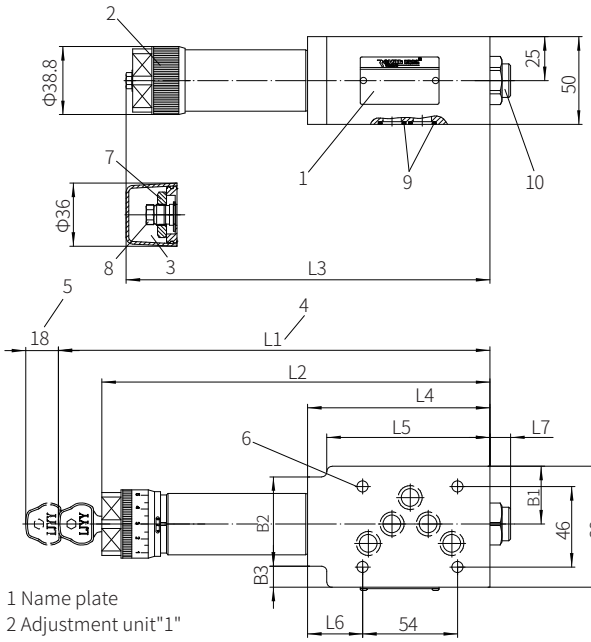


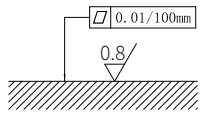


## Component size

Size unit: mm

Model ZDR10...-5XJ/...

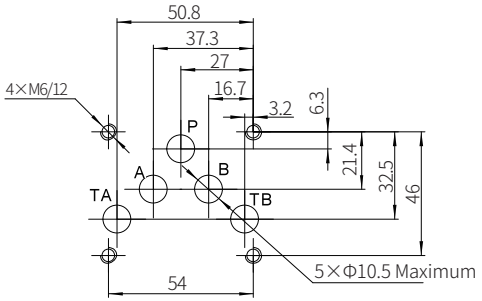



Required surface finishing of mating components

1 Name plate
2 Adjustment unit"1"
3 Adjustment unit"2"
4 Adjustment unit"3"
5 Space required to remove the key
6 Valve installation hole
7 Locknut S=24
8 Internal hexagon adjusting screw S=10
9 O ring 12x2 (for port P, A, B,T)
10 Pressure gauge connection:
G1/4 or M14x1.5; 12 deep

Valve fixing screw
M6-10.9 grade GB/T70.1-2000
Tightening torque $M_A$=13.7Nm




| Version | L1 | L2 | L3 | L4 | L5 | L6 | L7 | B1 | B2 | B3 |
|---|---|---|---|---|---|---|---|---|---|---|
| "DA" | 254 | 230 | 210 | 104 | 93 | 31.5 | 4 | 32.9 | 51 | 12 |
| "DB" and "DP" | 242 | 218 | 198 | 91 | – | 18.5 | 15 | 35 | – | – |