# DR...type
# Pilot Operated
# Reducing Valve

## DR...5XJ...type

Sizes 10, 16, 20,25, 32
Max. Working Pressure: 315 bar
Max. Flow: 400 L/min

### Contents



### Features

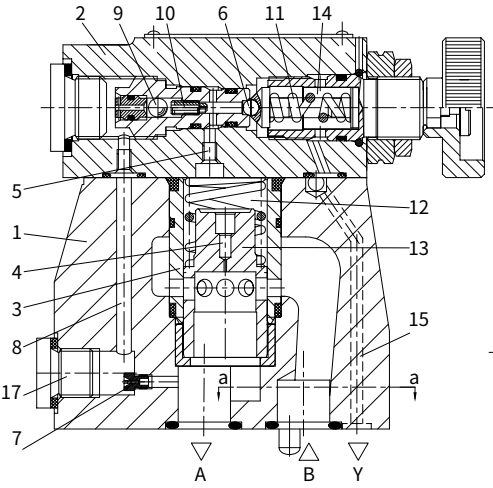
- Sub-plate mounting
- Porting pattern conforms to DIN 24 340, form D and ISO 5781
- Threaded connections
- Installation in manifolds
- 5 pressure ratings
- 4 adjustment elements
  · Rotary knob
  · Adjustable bolt with protective cap
  · Lockable rotary knob with scale
  · Rotary knob with scale
- Check valve ,optional
  (only for sub-plate mounting)

## Function and configurations

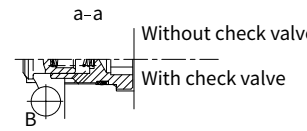
DR type valve is a pilot operated pressure reducing valves. It is used to control secondary circuit in a system. It consists of the main valve (1) with main spool assembly(3) and pilot valve(2) with pressure adjustment element.

In rest position, the valves are open, fluid flows free from port B to port A via the main spool (3). Pressure at port A acts on the underside of main spool(3) and its spring-loaded side via throttle orifice(4). Fluid also acts on the ball valve(6) of the pilot valve(2) via the channel (5). At the same time, pressure fluid flows via throttle orifice (7), control line (8),check valve (9) and throttle orifice (10) to the ball valve(6). Based on the setting value of the spring (11), control piston(13) keeps open, then fluid can flow free from port B to port A, until pressure at port A exceed the setting value of spring(11), and then ball valve (6) is opened. Control piston (13) moves to close position. When pressure at port A is balanced with setting value at spring, pressure reducing is achieved as expected. Control oil returns from spring chamber(14) to tank via channel (15). A check valve(16) can be fitted optionally to give free return flow from line A to B. Pressure gauge connection(17) used for monitoring the reduced pressure at port A.



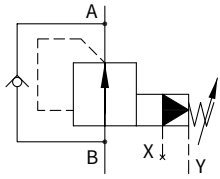



**Type DR...-4-5XJ/...Y**

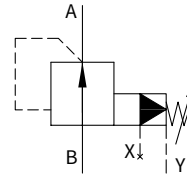



## Symbols

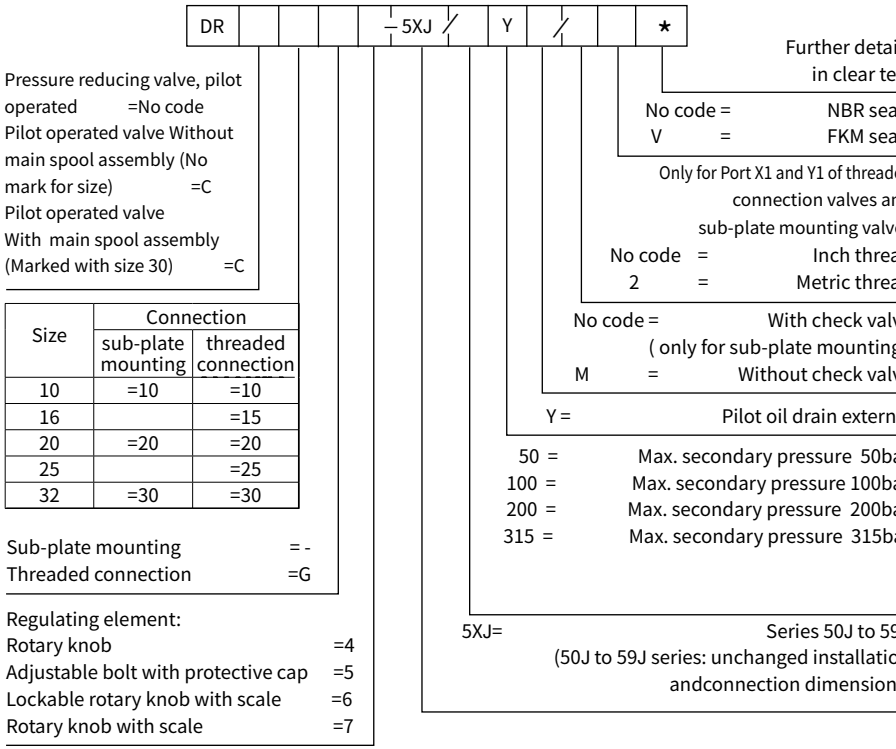
**DR...5XJ/...Y**




**DR...5XJ/...YM**



## Specifications

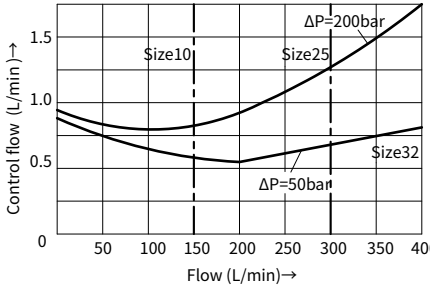


## Technical data

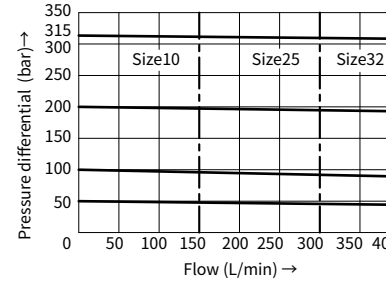
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Fluid | | | | Mineral oil suitable for NBR and FKM seal | | | | |
| | | | | Phosphate ester for FKM seal | | | | |
| Fluid temperature range | | | ℃ | -30 to +80 (NBR seal) | | | | |
| | | | | -20 to +80 (FKM seal) | | | | |
| Viscosity range | | | $mm^2/s$ | 10 to 800 | | | | |
| Degree of contamination | | | | Maximum permissible degree of fluid contamination: Class 9. NAS 1638 or 20/18/15 , ISO4406 | | | | |
| Max.operating pressure | | Port B | bar | 350 | | | | |
| Operating pressure range | | Port A | bar | 10 to 350 | | | | |
| Max.backing pressure | | Port Y | bar | 350(only for without check valve); 315(with check valve) | | | | |
| Adjustable pressure | | Max. | bar | 50;100;200;315;350 | | | | |
| | | Min. | bar | Related with flow-rate ( refer to the curves) | | | | |
| Size | | | | DR10 | DR15 | DR20 | DR25 | DR30 |
| Max. flow-rate | | Sub-plate mounting | L/min | 150 | - | 300 | - | 400 |
| | | Threaded connection | L/min | 150 | 300 | 300 | 400 | 400 |
| Fixing position | | | | Optional | | | | |
| Size | | | | DR10 | DR15 | DR20 | DR25 | DR30 |
| Weight | Sub-plate mounting | DR | kg | Approx.3.6 | - | Approx.5.3 | - | Approx.8.2 |
| | Threaded connection | DR...G | kg | Approx.5.3 | Approx.5.5 | Approx.5.1 | Approx.5.0 | Approx.5.0 |
| | | DRC | kg | Approx.1.2 | | | | |
| | | DRC30 | kg | Approx.1.5 | | | | |

## Characteristic curves (Measured at t=40°C ±5°C , using HLP46)

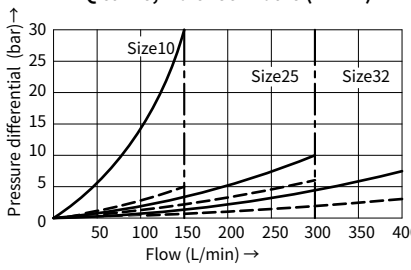
**Control oil flow related with flow (B → A) and pressure differential**




**Outlet pressure PA and in relation to (B → A)**



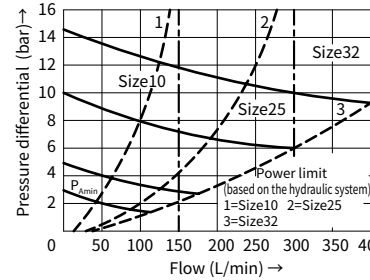

**ΔP-Q curve, via check valve (A → B)**



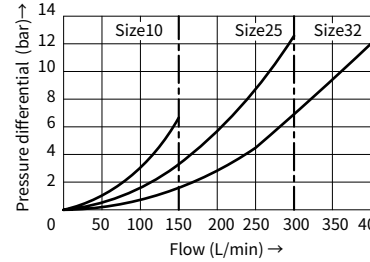

——— Main valve close

– – – Main valve open

**Min. setting pressure PA min in relation to flow (B → A)**



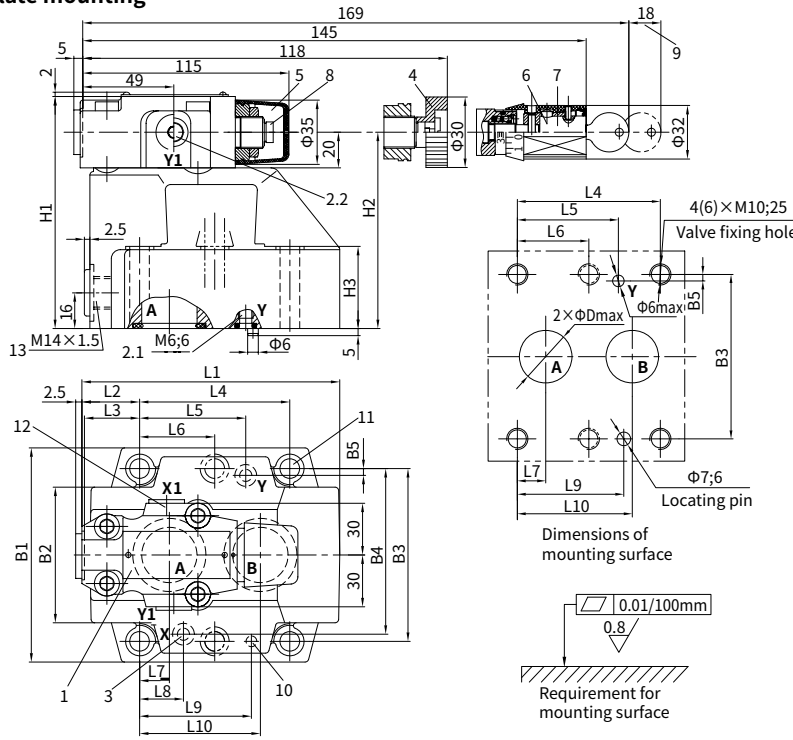

**P-Q curve(B → A)**
**(Min. setting pressure differential )**



## Unit dimensions

(Dimensions in mm)

### Sub-plate mounting



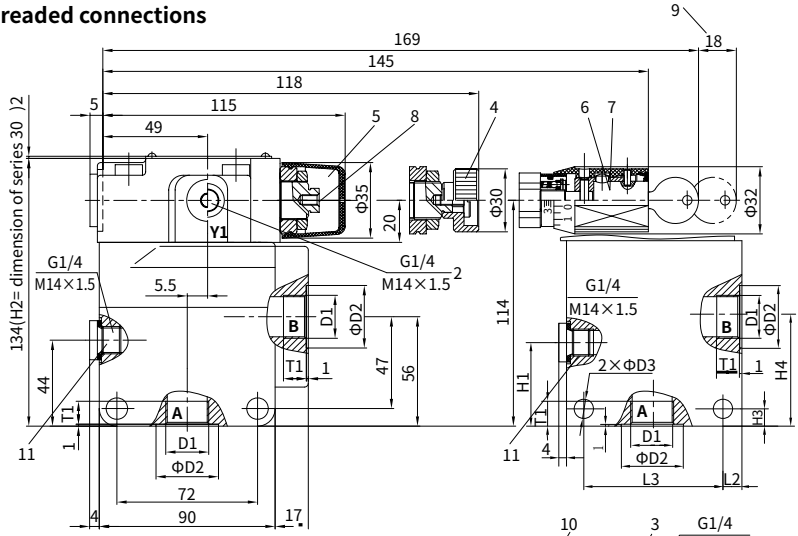

1 Nameplate
2.1 Port Y used for control oil external drain
2.2 Port Y1 optional for control oil external drain (G1/4 orM14×1.5)
3 Port X no function
4 Adjustment element "4"
5 Adjustment element "5"
6 Adjustment element "6"
7 Adjustment element" 7"
8 Internal hexagon screw S=10
9 Space required to remove the key
10 Locating pin
11 Valve fixing holes 4pcs(DR10,DR20) , 6pcs(DR30)
12 Port X1 for control external(G1/4or M14×1.5)
13 Pressure gauge connection

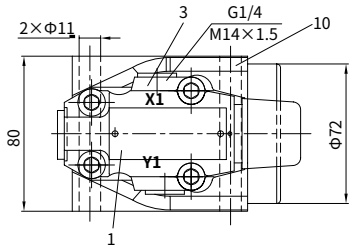
| Type | B1 | B2 | B3 | B4 | B5 | O -ring (PortA,B) | | | | O -ring (PortX,Y) | | | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DR10 | 85 | 50 | 66.7 | 58.8 | 7.9 | 17.12×2.62 | | | | 9.25×1.78 | | | 13 |
| DR20 | 102 | 59.5 | 79.4 | 73 | 6.4 | 28.17×3.53 | | | | 9.25×1.78 | | | 22 |
| DR30 | 120 | 76 | 96.8 | 92.8 | 3.8 | 34.52×3.53 | | | | 9.25×1.78 | | | 30 |
| Type | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | H1 | H2 | H3 |
| DR10 | 96 | 35.5 | 33 | 42.9 | 21.5 | - | 7.2 | 21.5 | 31.8 | 35.8 | 112 | 92 | 28 |
| DR20 | 116 | 37.5 | 35.4 | 60.3 | 39.7 | - | 11.1 | 20.6 | 44.5 | 49.2 | 122 | 102 | 38 |
| DR30 | 145 | 33 | 29.8 | 84.2 | 59.5 | 42.1 | 16.7 | 24.6 | 62.7 | 67.5 | 130 | 110 | 46 |

## Unit dimensions

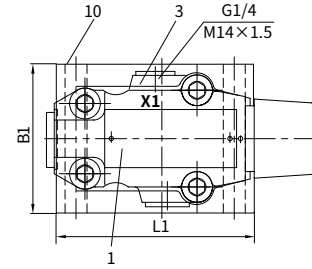
(Dimensions in mm)

### Threaded connections




**DR..G..5XJ outline and installation dimension**




**DR..G..30J outline and installation dimension**

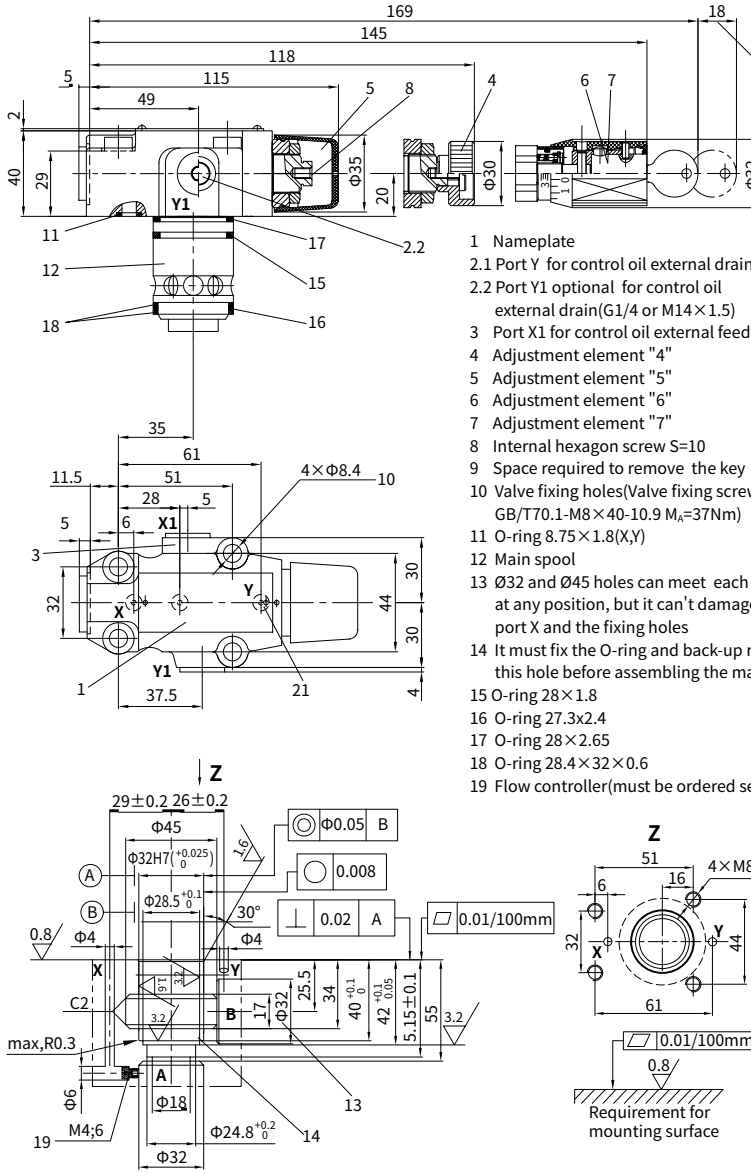
1 Nameplate
2 Port Y1 for control oil external drain
3 Port X1 for control oil external supply
4 Adjustment element "4"
5 Adjustment element "5"
6 Adjustment element "6"
7 Adjustment element "7"
8 Internal hexagon screw S=10
9 Space required to remove the key
10 Valve mounting holes
11 Pressure gauge connection

| Type | B1 | D3 | H1 | H2 | H3 | H4 | L1 | L2 | L3 | D1 | D2 | T1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DR10G | 63 | 9 | 27 | 125 | 10 | 62 | 85 | 11.5 | 62 | G1/2;M22×1.5 | 34 | 14 |
| DR15G | | | | | | | | | | G3/4;M27×2 | 42 | 16 |
| DR20G | | | | | | 57 | | | | G1 ;M33×2 | 47 | 18 |
| DR25G | 70 | 11 | 42 | 138 | 13 | 64 | 100 | 14 | 72 | G1 1/4;M42×2 | 58 | 20 |
| DR30G | | | | | | | | | | G1 1/2;M48×2 | 65 | 22 |

## Unit dimensions

(Dimensions in mm)

### (DRC30) pilot valve with or (DRC30) without main spool assembly




1 Nameplate
2.1 Port Y for control oil external drain
2.2 Port Y1 optional for control oil external drain(G1/4 or M14×1.5)
3 Port X1 for control oil external feed(G1/4 or M14×1.5 )
4 Adjustment element "4"
5 Adjustment element "5"
6 Adjustment element "6"
7 Adjustment element "7"
8 Internal hexagon screw S=10
9 Space required to remove the key
10 Valve fixing holes(Valve fixing screw GB/T70.1-M8×40-10.9 $M_A$=37Nm)
11 O-ring 8.75×1.8(X,Y)
12 Main spool
13 Ø32 and Ø45 holes can meet each other at any position, but it can't damage the port X and the fixing holes
14 It must fix the O-ring and back-up ring into this hole before assembling the main spool
15 O-ring 28×1.8
16 O-ring 27.3x2.4
17 O-ring 28×2.65
18 O-ring 28.4×32×0.6
19 Flow controller(must be ordered separately)