| BEIJING HUADE HYDRAULIC INDUSTRIAL GROUP CO.,LTD. | **Pilot operated pressure reducing valve, type DR... 30B/** | | | RE 26891/12.2004 |
|---|---|---|---|---|
| | Size10,20,30 | up to 31.5MPa | up to 320L/min | Replaces：RE26891/05.2001 |

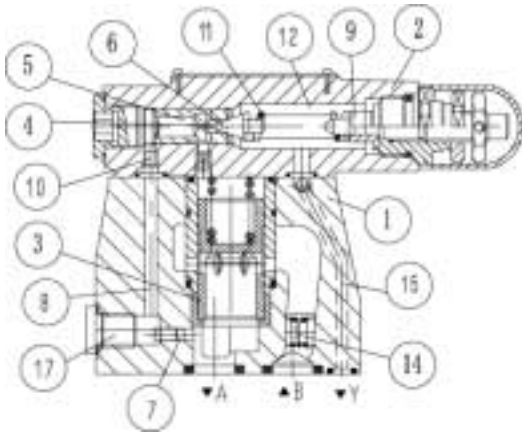
**Features:**

- For subplate mounting
- For threaded connections
- For cartridge connection
- 4 adjustment elements:
  - · Rotary knob,
  - · Sleeve with hexagon and protective cap,
  - · Lockable rotary knob with scale,
  - · Rotary knob with scale
- 4 pressure settings
- Optional check valve (only for valve for subplate mounting)
- Mounting pattern to DIN 24 340, form D,ISO 5781 and CETOP-RP 121H

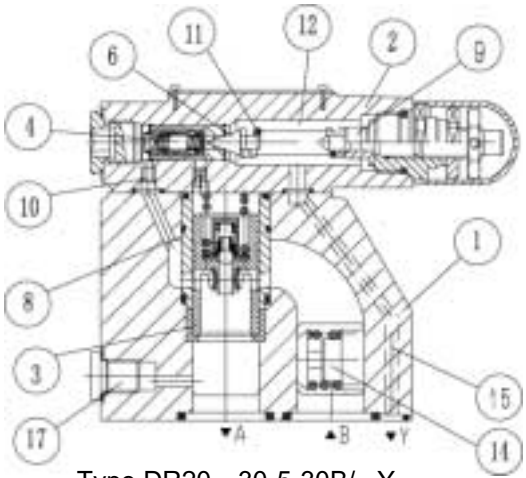


## Functional, section

Pressure valves type DR are pilot operated pressure reducing valves, which are controlled from the secondary circuit.
They basically consist of main valve (1) with main spool insert (3) and pilot valve (2) with pressure adjustment element (9).
At rest, the valves are open, fluid can freely pass from port B to port A via the main spool (3).
Pressure present in port A acts upon the bottom side of the main spool(3). At the same time there is pressure acting on the poppet (6) in the pilot valve (2) via the orifice (4) on the spring-loaded side of the main piston (3) and via the port (5). Same it is acting on the poppet (6) via the orifice (7), control line (8), and orifice (10). According to setting of spring (11), pressure builds up in front of the poppet (6), in port (5) and in spring chamber (12), holding the control spool (3) in the open position. Fluid can freely flow from port B to port A via main spool (3), until the pressure in port A exceeds the value set at spring (11) and opens the poppet (6). The control piston (3) moves to closing position.
The desired reduced pressure is achieved, when a balance between the pressure in port A and the pressure set at spring (11) is reached.
Pilot oil drain from spring chamber (12) to tank takes place externally via line (15).
Free return flow from port A to B can be achieved by installing an optional check valve (14).
A pressure gauge connection (17) allows the reduced pressure in port A to be monitored.

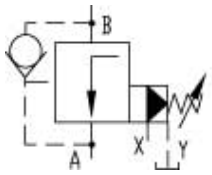
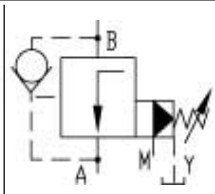
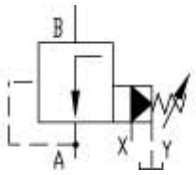
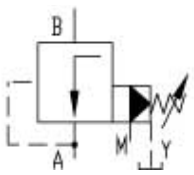
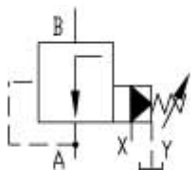
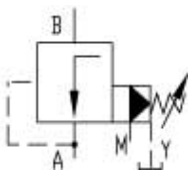



DR10-5-30B/...Y...




Type DR20、30-5-30B/...Y...

## Symbols

| For subplate mounting | | | | For pipe mounting | |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| DR10...-30B/...Y... | DR$^{20}_{30}$...-30B/...Y... | DR10...-30B/...YM... | DR$^{20}_{30}$...-30B/...YM... | DR$^{8}_{10}$...-30B/...Y... | DR$^{15}_{30}$...-30B/...Y... |

## Ordering Code

| | | | - | - | 30 | B | / | | Y | | / | / | | * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Pilot operated valve = DR
Pilot valve = DRC
without main spool insert
(do not state size)
Pilot valve = DRC
with main spool insert
(state valve size 30)

| Size | Valve | |
|---|---|---|
| | Subplate mounting | Threaded connections |
| | Ordering Code | |
| 10 | 10 | 10（M22x1.5 or G1/2 〃） |
| 15 | - | 15（M27x2 or G3/4 〃） |
| 20 | 20 | 20（M33x2 or G1 〃） |
| 25 | - | 25（M42x2 or G11/2 〃） |
| 32 | 30 | 30（M48x2 or G11/2 〃） |

For subplate mounting = No code
For threaded connections = G

**Adjustment element**
4= Rotary knob
5= Sleeve with hexagon and protective cap
6= Lockable rotary knob with scale
7= Rotary knob with scale

30 = Series 30 to39
(30 to 39: unchanged installation and connection dimensions)

B = Technology of Beijing Huade Hydraulic

50= pressure setting up to 5.0 MPa
100= pressure setting up to 10.0 MPa
200= pressure setting up to 20.0 MPa
315= pressure setting up to 31.5 MPa

No code = with check valve
M = without check valve
(Without check valve ,but no code)

No code = external connect port : British
2= external connect port : metric
(A pressure gauge connection port G1/4")

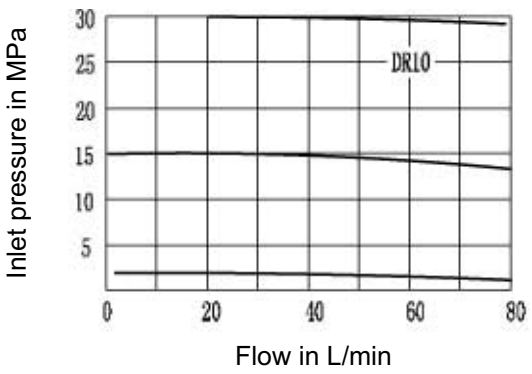
No code = mineral oils
V = phosphate ester

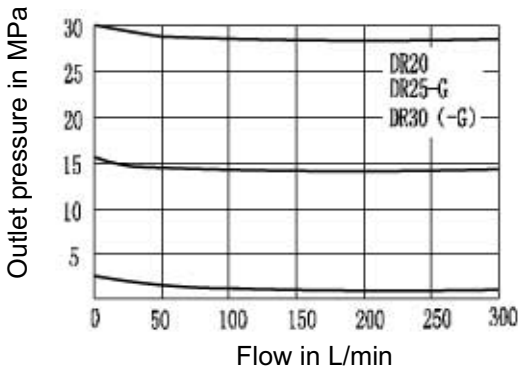
Further details in clear text

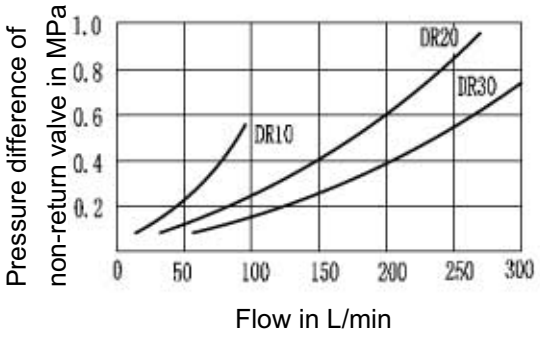
## Technical Date

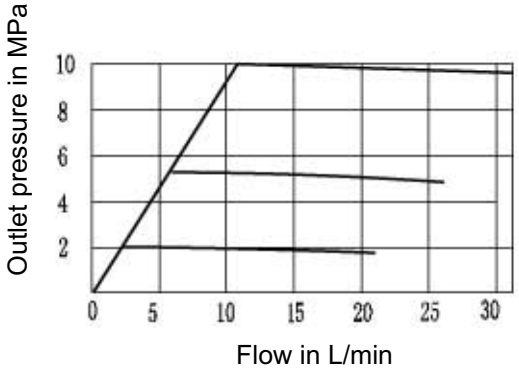
| Size | | 8 | 10 | 15 | 20 | 25 | 30 |
|---|---|---|---|---|---|---|---|
| Flow (L/min) | Threaded connections | - | 80 | - | 200 | - | 300 |
| | Subplate mounting | 80 | 80 | 200 | 200 | 300 | 300 |
| Operating pressure (MPa) | | up to 10 or 31.5 | | | | | |
| Inter pressure ,port B (MPa) | | up to 31.5 | | | | | |
| Outlet pressure ,port A (MPa) | | 0.3～31.5 | | 1～31.5 | | | |
| Back pressure ,port Y (MPa) | | up to 31.5 | | | | | |
| Fluid | | Mineral oil (for NBR seal)or phosphate ester(for FPM seal) | | | | | |
| Viscosity range (mm²/s) | | 10～800 | | | | | |
| Fluid temperature range (℃) | | -30～+80 | | | | | |

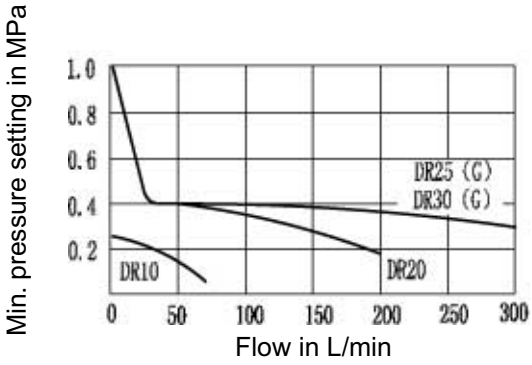
**Characteristic Curves** (measured at v = 41 mm² /s and t = 50 ℃)

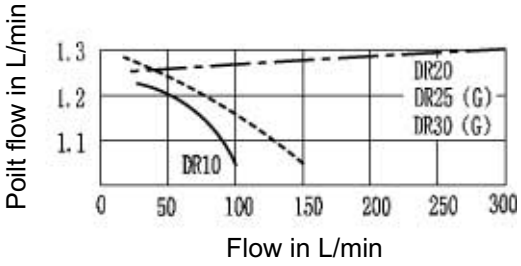


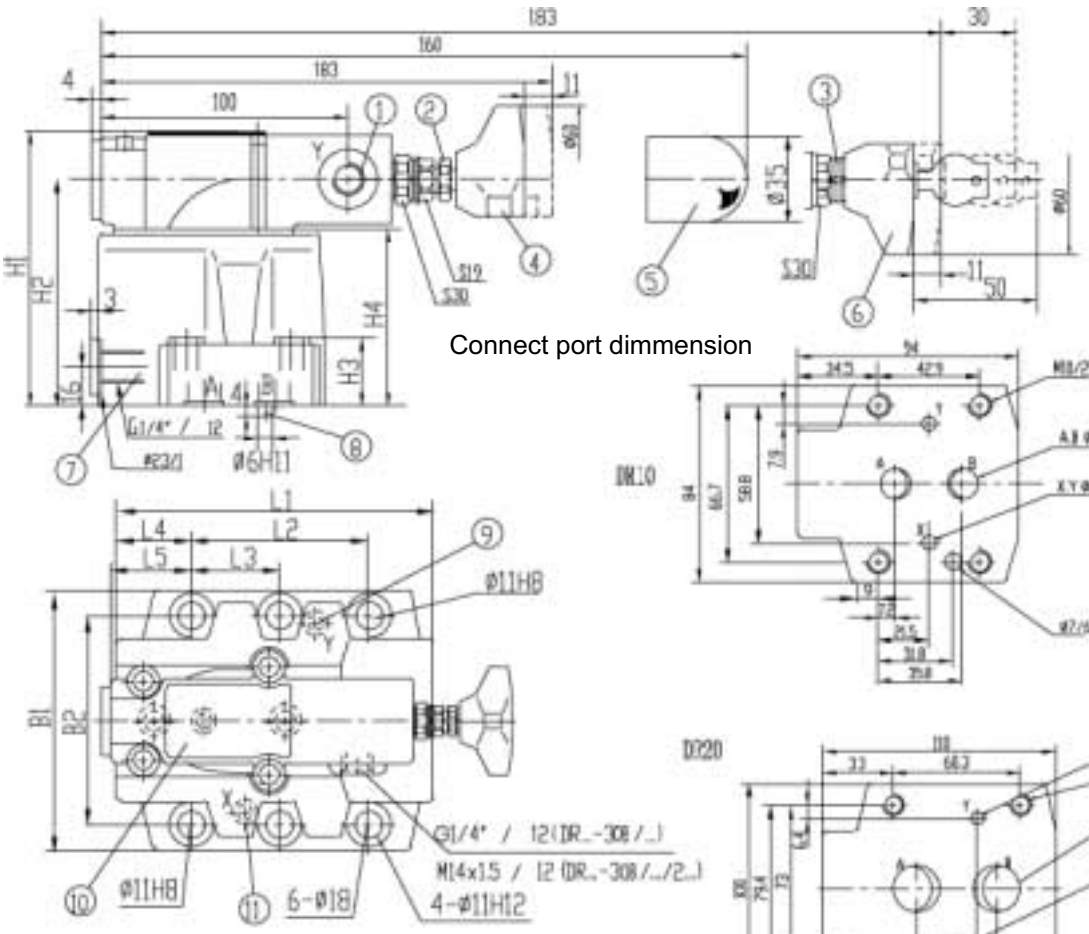




— — — =2MPa △ PDR10

———— =10MPa △ PDR10

—-—-— =2MPa and 10MP △ P DR20 and DR30

## Unit Dimensions: Valve for subplate mounting (Dimensions in mm)




1 Port Y optional
2 Only for 31.5MPa
3 Repeat adjustment scale
4 Adjustment element 1
Adjustment element 2
Adjustment element 3
7 Pressure gauge connection
8 Locating pin
9 Port Y for external pilot oil drain
10 Nameplate
11 Port X without function (blind bore)

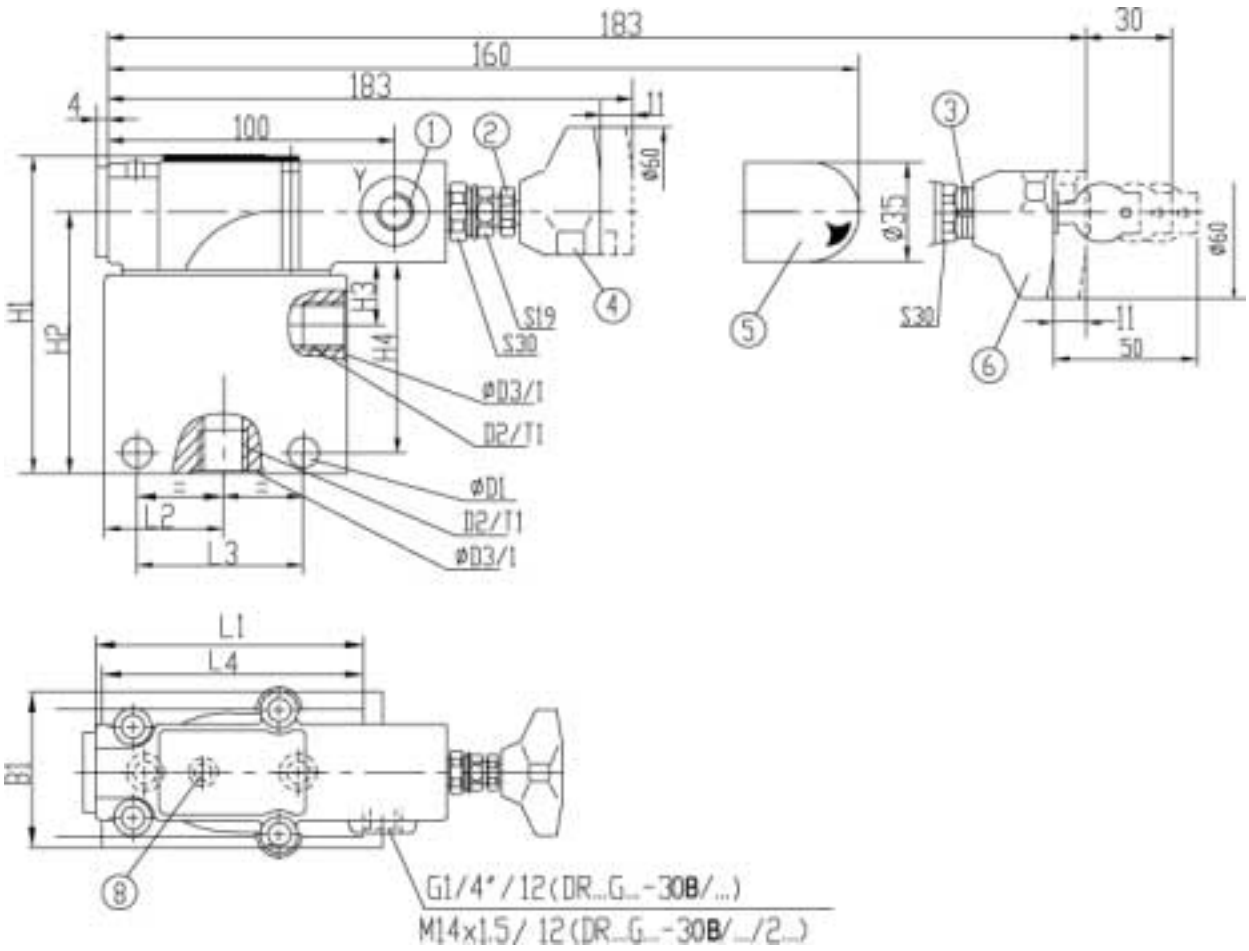
Subplates for :see page 150

G460/01 G460/02 G412/01 G412/02 G414/01 G414/02
G461/01 G461/02 G413/01 G413/02 G415/01 G415/02

| Size | Fixing screw（GB/T70.1-2000） |
|---|---|
| 10 | 4-M10x50-10.9 |
| 20 | 4-M10x60-10.9 |
| 30 | 4-M10x70-10.9 |

| Size | B1 | B2 | H1 | H2 | H3 | H4 | L1 | L2 | L3 | L4 | L5 | O-ring | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | for ports X、Y | for ports A、B |
| 10 | 85 | 66.7 | 112 | 92 | 28 | 72 | 90 | 42.9 | - | 35.5 | 34.5 | 9.25 × 1.78 | 17.12 × 2.62 |
| 20 | 102 | 79.4 | 122 | 102 | 38 | 82 | 112 | 60.3 | - | 33.5 | 37 | 9.25 × 1.78 | 28.17 × 3.53 |
| 30 | 120 | 96.8 | 130 | 110 | 46 | 90 | 140 | 84.2 | 42.1 | 28 | 31.3 | 9.25 × 1.78 | 34.52 × 3.53 |

**Unit Dimensions:insert mounting** **(Dimensions in mm)**

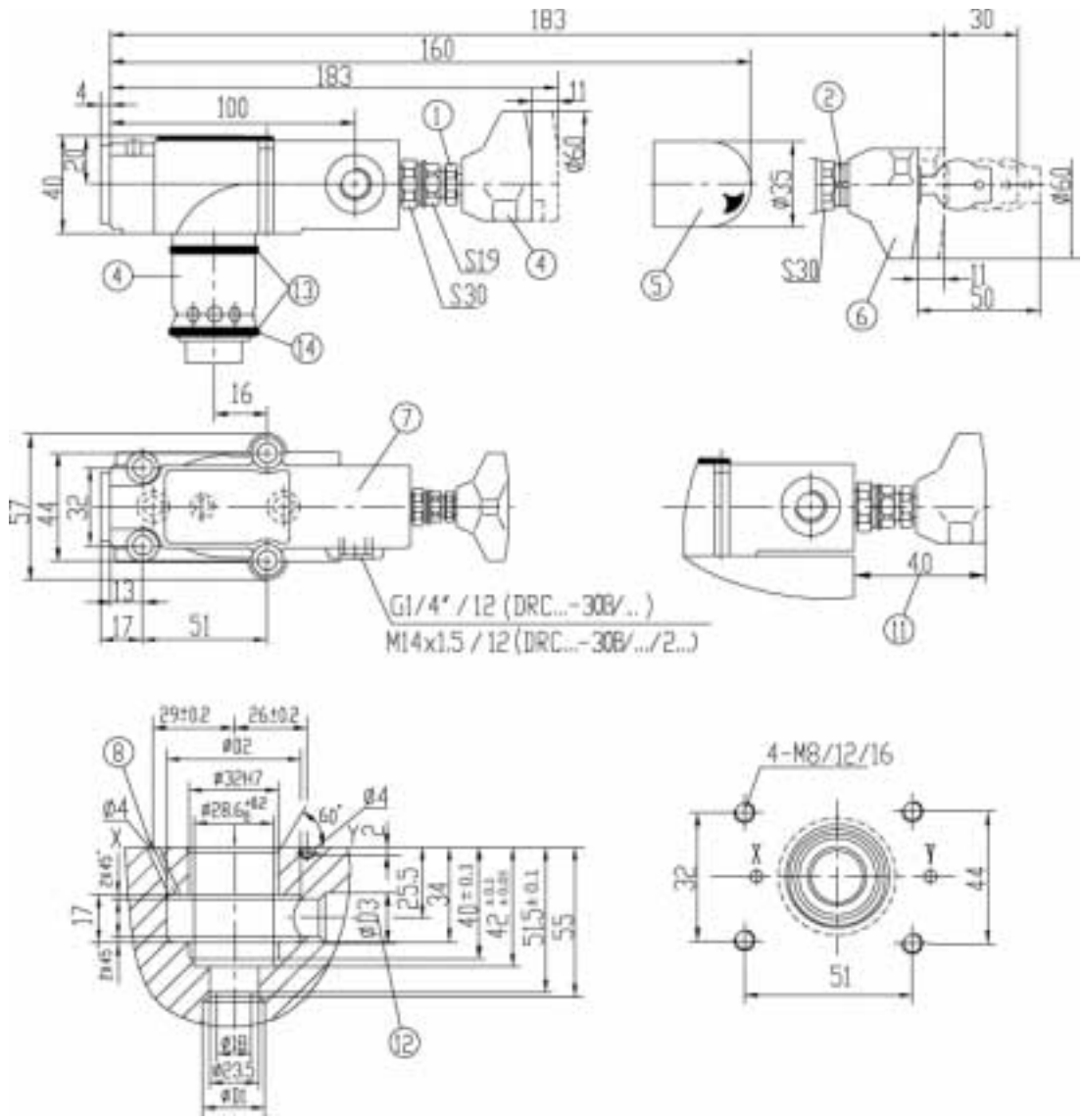



1. Port Y optional
2. Only for 31.5MPa
3. Repeat adjustment scale
4. Adjustment element 1
5. Adjustment element 2
6. Adjustment element 3
7. Pressure gauge connection port

Warnning: pipe mounting without non-return valve,can not flow reverse

| Size | B1 | ϕ D1 | D2 | | ϕ D3 | H1 | H2 | H3 | H4 | L1 | L2 | L3 | L4 | T1 | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | British | | | | | | | | | | | |
| 10 | 63 | 9 | M22 × 1.5 | G1/2″ | 34 | 125 | 105 | 28 | 75 | 90 | 40 | 62 | 85 | 14 | 4.3 |
| 15 | | | M27 × 2 | G3/4″ | 42 | | | | | | | | | 16 | 6.8 |
| 20 | | | M33 × 2 | G1″ | 47 | | | | | | | | | 18 | |
| 25 | 70 | 11 | M42 × 2 | G11/4″ | 58 | 138 | 118 | 34 | 85 | 100 | 46 | 72 | 99 | 20 | 10.2 |
| 30 | | | M48 × 2 | G11/2″ | 65 | | | | | | | | | 22 | |

**Unit Dimensions:insert mounting** **(Dimensions in mm)**




1. Only for 31.5MPa
2. Repeat adjustment scale
3. Main spool assembly
4. Adjustment element 1
5. Adjustment element 2
6. Adjustment element 3
7. Nameplate

8.Pilot control oil supply

11.Min.distance when adjustment element "1" or "3"insert integration block

12.Hole D3 can meet hole D2 at any location, but can't meet port 'X'and fixed screw.

13 O-ring 27.3X2.4

14 Retainer ring 32X28.4X0.8

| Size | ϕ D1 | ϕ D2 | ϕ D3 | locating screw (GBT70.1-2000) | Weight (kg) |
|---|---|---|---|---|---|
| 10 | 10 | 40 | 10 | 4-M8 × 40-10.9 | 1.4 |
| 20 | 25 | 40 | 25 | | |
| 30 | 32 | 45 | 32 | | |

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