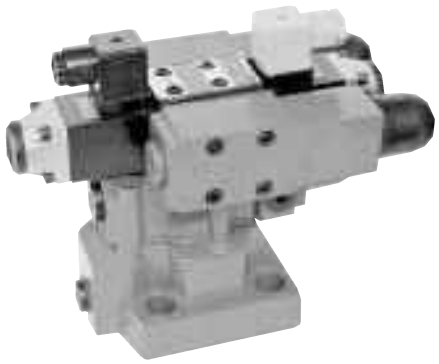
BEIJING HUADE HYDRAULIC INDUSTRIAL GROUP CO.,LTD.	Pressure relief valves,type DB3U			RE 25825/12.2004
	Size 10 to 30	up to 31.5 MPa	up to 600 L/min	Replaces：RE25825/05.2001

Features:

- Subplate mounting
- Threaded connection
- Installation in manifolds
- 3 adjustment elements:
  - · Rotary knob
  - · Screw with internal hexagon and protective cap
  - · Rotary knob with scale
- Solenoid operated control via mounted directional valve



Functional description, section

Types DB3U pressure valves are pilot operated pressure relief valves.

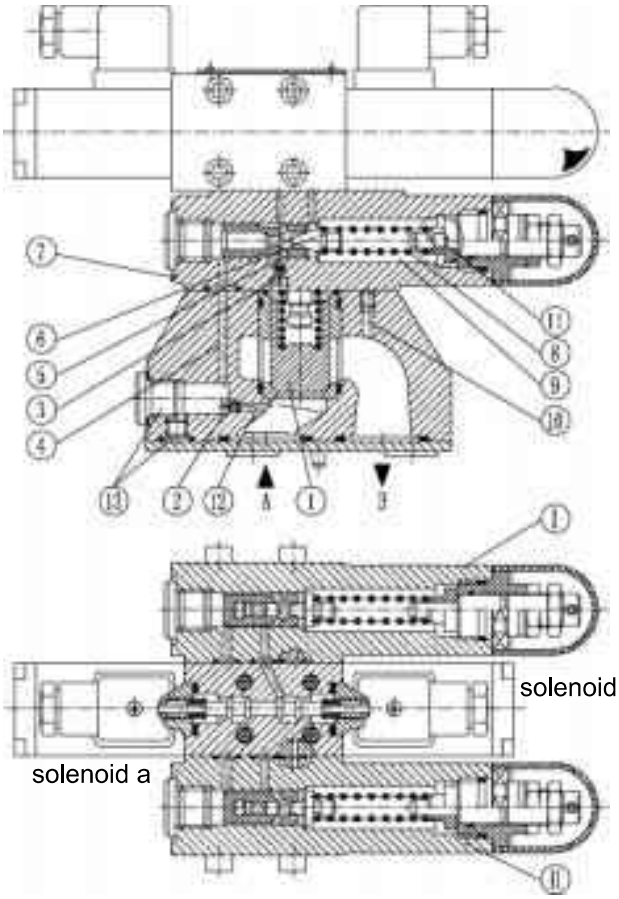
They are used for the limitation of the operating pressure, and they may be switched over to different(2 or 3 pressure stage)by solenoids actuated.

The pressure relief valves consist mainly of the main valve、4/3,4/1-Directional control valve(Type WE5...)and three pilot valves.

In the de-energised condition the pressure in port A is set by pilot valve(7).

The pressure present in port A acts on the main spool(1). At the same time pressure is applied via the control lines (12) and (4),which are fitted with orifices (2) and (3),on the spring loaded side of the main spool(1) and at the poppet(6) in the pilot control valve (7).If the pressure in port A exceeds the value set at the spring (8),the poppet (6) opens against the spring (8).

The signal for this comes internally via the control lines (12) and (4) from port A.The pressure fluid on the spring loaded side of the main spool(1) now flows via the control line (3),poppet (6) into the spring chamber(9).In type DB3U...30/...it flows internally via the control line (10) to tank,or in type DB3U..30/..Y..externally via the port Y. Due to the orifices (2) and (3) a pressure drop occurs at the main spool(1),the connection from port A to port B is open. Now the pressure fluid flows from port A to port B while maintainning the valve set operating pressure.



When solenoid "a" is energised:

The pressure in port A is set by pilot valve Ⅱ.

When solenoid " b" is energised:

The pressure in port A is set by pilot valve Ⅰ.

The setting pressure of pilot valve(7) should be higher than the setting pressure of the pilot Ⅰ and Ⅱ.

Type DB2U:

Type DB2U pressure valves consise mainly of a directional control valve (Type WE5...)and three pilot valves the function of this valve is bascically the same as the valve type DB3U.

Ordering code

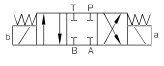
DB | | | | | | – | – | 30 | B | | / | | | | | | *

Pilot operated valve (complete) = No Code
Pilot operated valve:
with main spool assembly = C
(Size is stated 10 or 32)
remote control valve = T

apply to DB and DBC = 3U
apply to DBT = 2U

Size	Ordering Code	
	Subplate mounting	Threaded connection
8	–	8(M18 × 1.5 or G3/8")
10	10	10(M22 ×2 or G1/2")
15	–	15(M27 ×2 or G3/4")
20	20	20(M33 × 2 or G1")
25	–	25(M42 × 2 or G11/4")
32	30	30(M48 × 2 or G11/2")

Subplate mounting = No code
Threaded connection = G


= E


= H


= N

Rotary knob = 1
Screw with internal hexagon and protective cap = 2
Rotary knob with scale = 3

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

B = Technology of Beijing Huade Hydraulic

100 = Pressure setting up to 10 MPa
315 = Pressure setting up to 31.5 MPa

No code = Poilt flutd feed internal ,return internal
X = Poilt fluid feed external,return internal
Y = Poilt fluid feed internal,return external
XY = Poilt fluid feed external,return external

W220-50 = 220V 50Hz AC
G24 = 24 V DC
W220R = Solinoid commuting automatically 220V AC

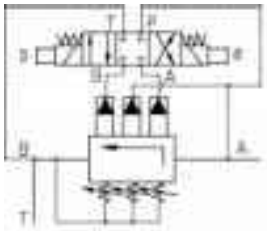
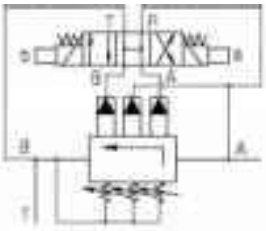
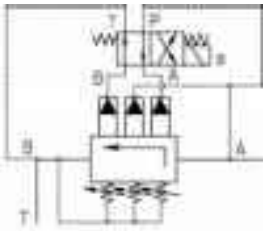
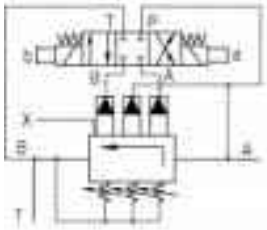
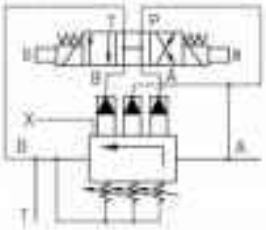
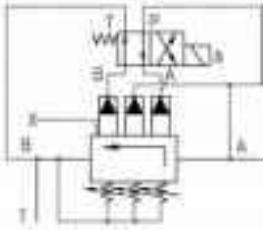
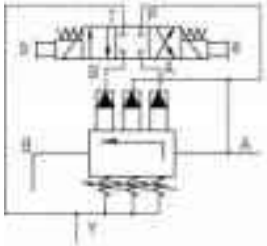
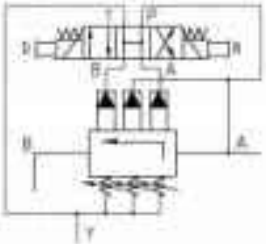
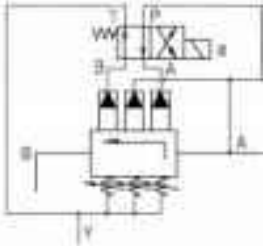
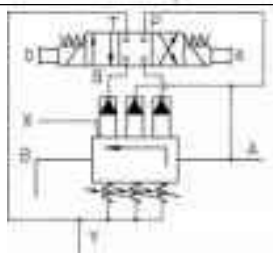
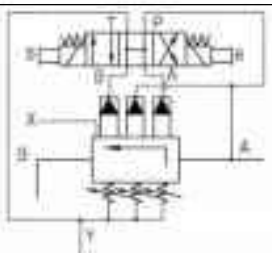
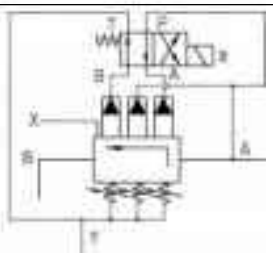
No Code = Without hand override
N = With hand override

Z4 = Plug-in connector
Z5 = Large plug-in connector
Z5L = Large plug-in connector with light

No Code = mineral oils
V = phosphate ester

Further details in clear text

Symbols

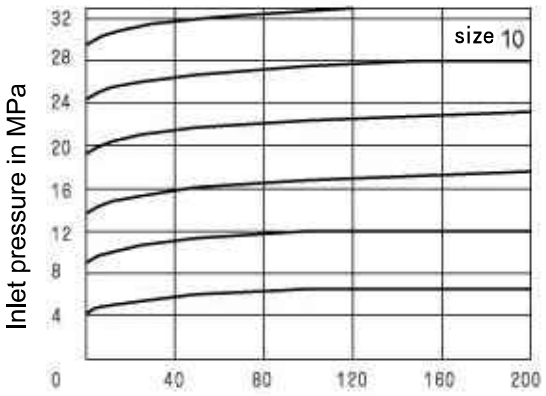
No Code	 DB3U...E.../...	 DB3U...H.../...	 DB3U...N.../...
Model "X"	 DB3U...E.../...X	 DB3U...H.../...X	 DB3U...N.../...X
Model "Y"	 DB3U...E.../...Y	 DB3U...H.../...Y	 DB3U...N.../...Y
Model "XY"	 DB3U...E.../...XY	 DB3U...H.../...XY	 DB3U...N.../...XY

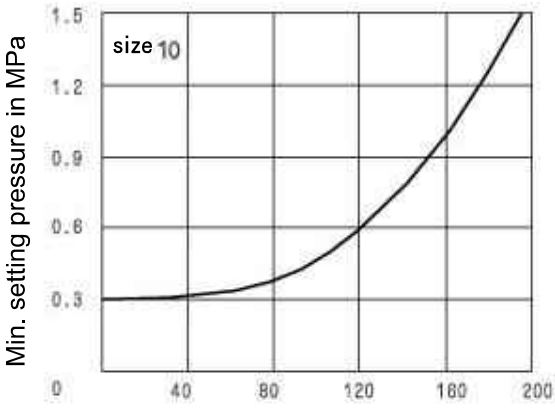
Technical data

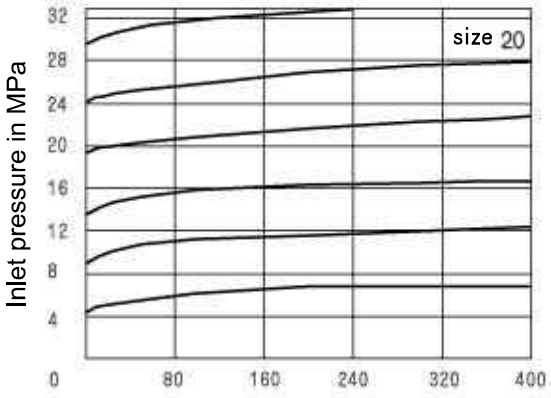
Size		8	10	15	20	25	30
Flow (L/min)	Threaded connection	100	200		400		600
	Subplate mounting	-	200	-	400	-	600
Operating pressure (MPa)		ports A, B, X, up to 31.5					
Back pressure (port Y) (MPa)		up to 31.5					
Min. Setting pressure (MPa)		see operating curves					
Max. Setting pressure (MPa)		up to10 or 31.5					
Pressure fluid		Mineral oil (for NBR seal)or phosphate ester(for FPM seal)					
Viscosity range (mm^2/s)		10 to 800					
Temperature range (°C)		-30 to +80					
Size of directional valve		see directional valve 4WE5					

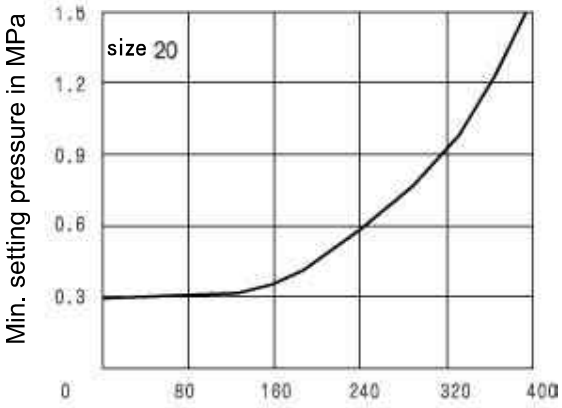
Operating Curves (measured at v = 41 mm²/s and t = 50 ℃)

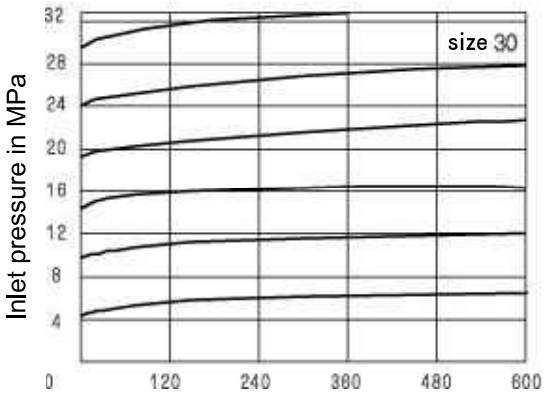
The operating curves were measured with an external pilot oil, zero pressure return.
With internal pilot oil return the input pressure is increased by the output pressure present at port B.

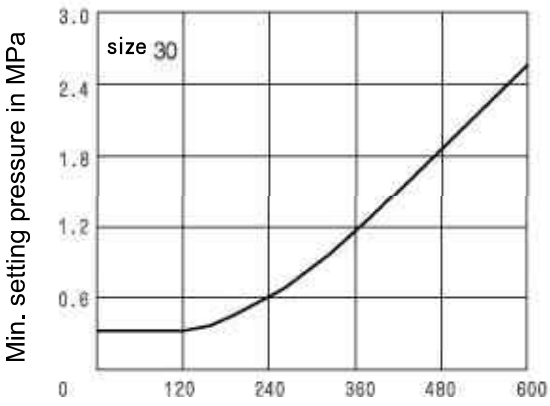


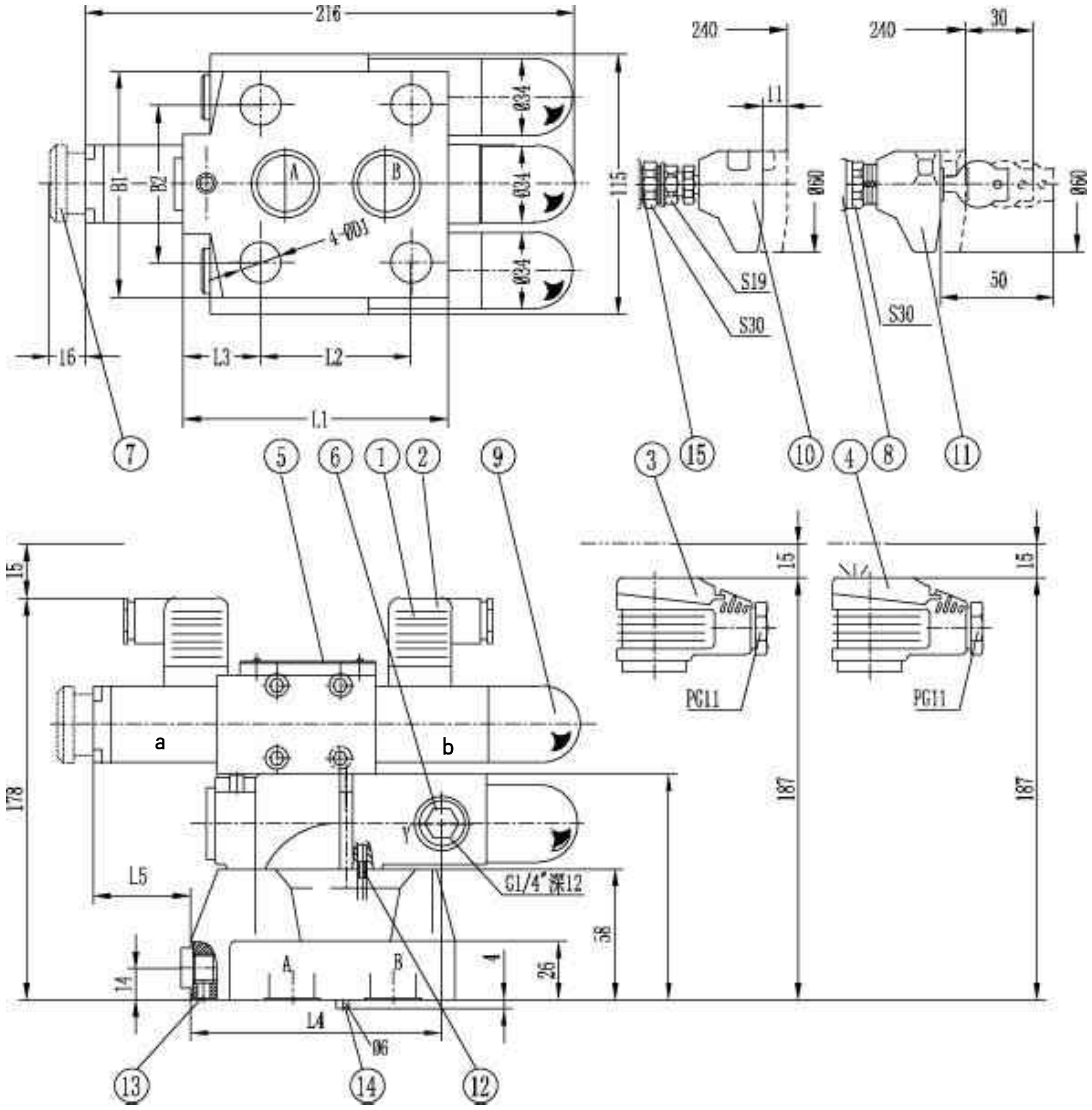












Subplate: see page149

G545/01 G545/02
G546/01 G546/02(NG10)

G408/01 G408/02
G409/01 G409/02(NG20)

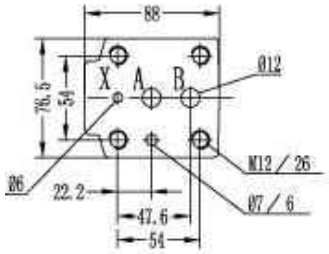
G410/01 (G1/4 ″)G410/02
G411/01 (M14X1.5)G411/02

1 Plug-in connector ″ Z4 ″
2 Plug-in connector: color gray
3 Large plug-in connector ″ Z5 ″
4 Large plug-in connector with light ″ Z5L ″
5 Nameplate
6 Port Y for external pilot oil drain
7 Hand override, optional
8 repeat adjusting scale
9 Adjustment element 1
10 Adjustment element 2
11 Adjustment element 3
12 inside pilot oil drain is not need
13 Port X for pilot oil drain
14 Locating pin
15 only apply to up to 31.5MPa

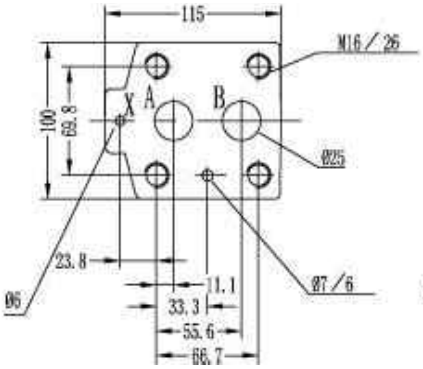
NG	D1	B1	B2	L1	L2	L3	L4	L5	Weight	Port X, O-ring	Ports A, B, O-ring
10	14	78	54	90	54	23.5	97.5	59.5	7.8kg	9.25 × 1.78	17.12 × 2.62
20	18	100	69.8	117	66.7	34	111	46	8.5Kg	9.25 × 1.78	28.17 × 3.53
30	20	115	82.5	148	89	41.5	121	36	9.8Kg	9.25 × 1.78	34.52 × 3.53

DB3U unit dimensions of ports

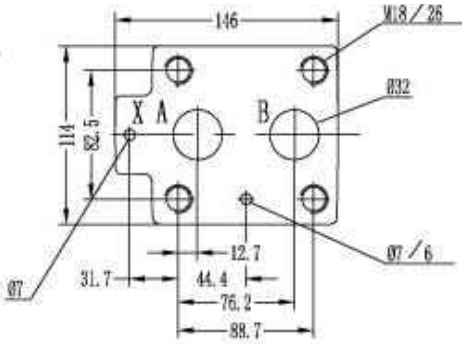
Size 10



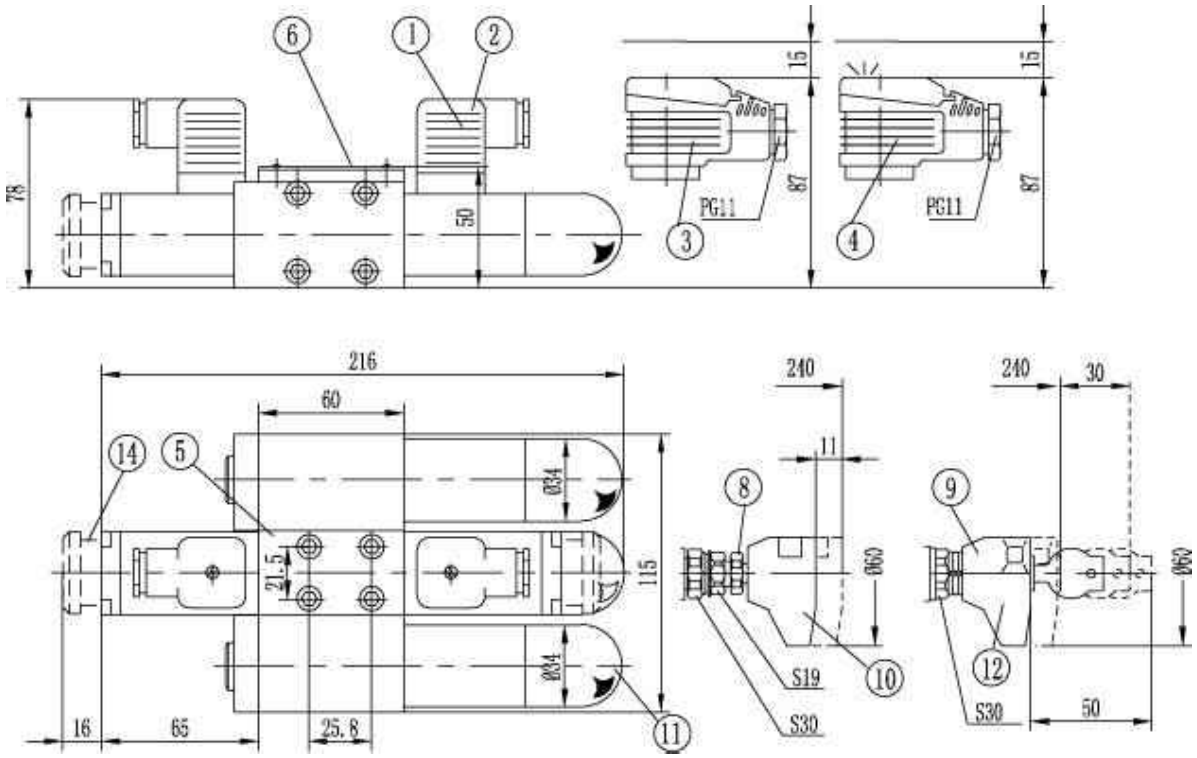
Size 20



Size 30



Remote control valve DBT2U,unit dimensions:

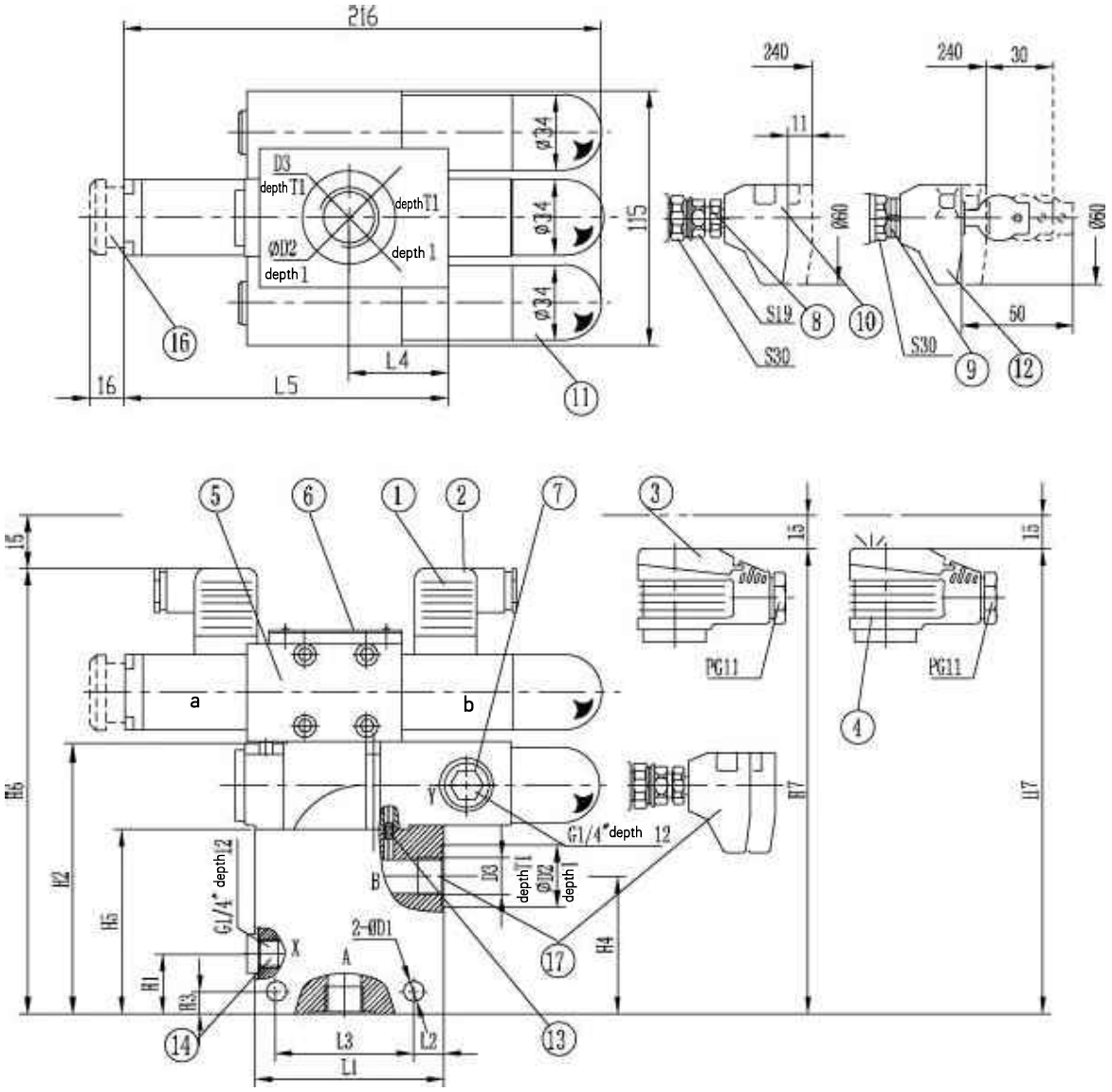


1. Plu-in connector "Z4"
2. Plug-in connector:colour gray
3. Large plug-in connector "Z5"
4. Large plug-in connector with light "Z5L"

5 Directional valves, type WE5

6. Nameplate
8. Only apply to up to 31.5MPa
9. Repeat adjusting scale
10. Adjustment element 1
11. Adjustment element 2
12. Adjustment element 3
14. Hand override optional

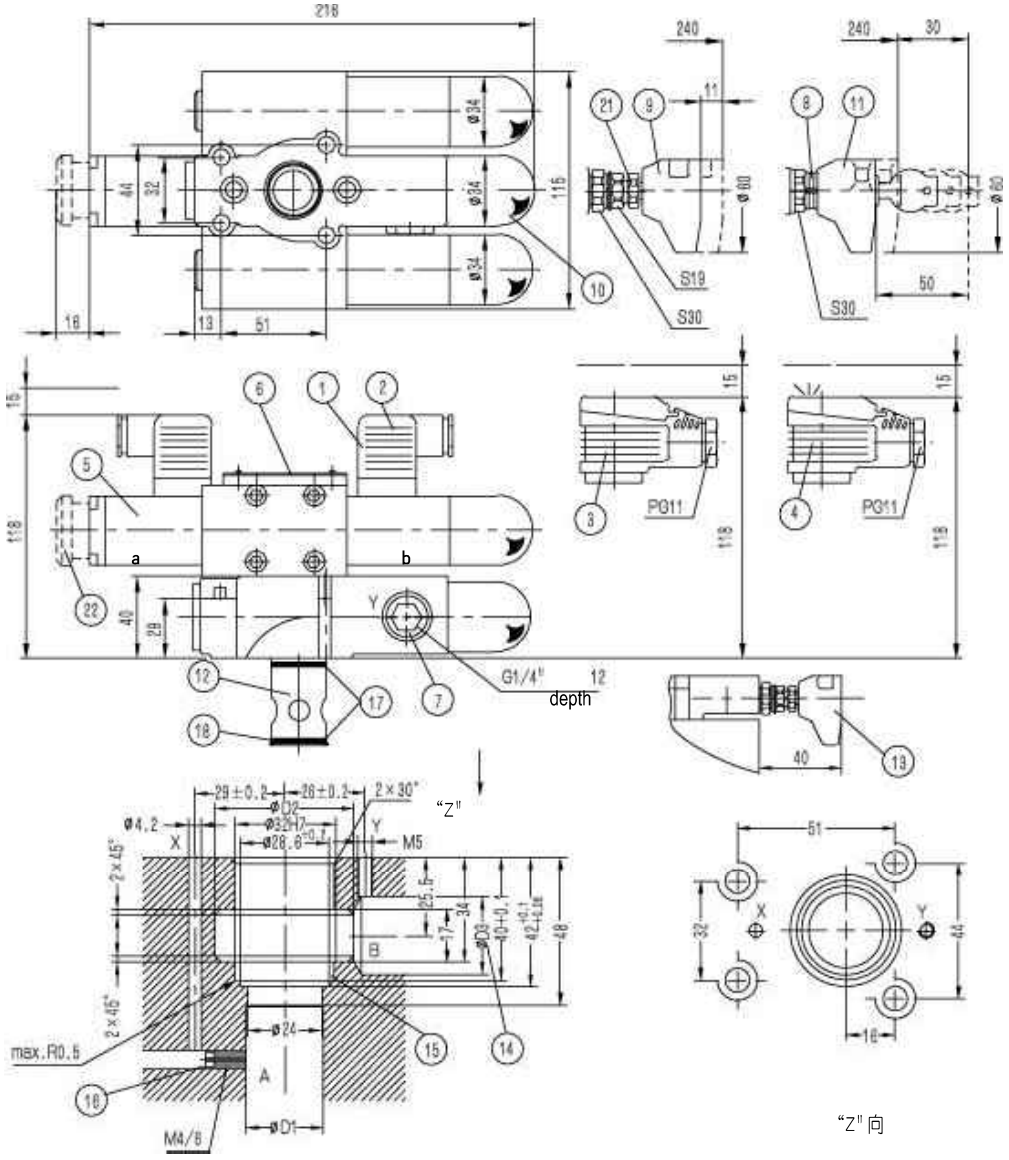
Subplate:
G51/01
G51/02
see page 148



1. Plug-in connector without circuitry
2. Plug-in connector: colour gray
3. Large plug-in connector
4. Large plug-in connector with light
5. Directional valves, type WE5
6. Nameplate
7. Port Y for external pilot oil drain
8. Only apply to up to 31.5MPa
9. Repeat adjusting scale
10. Adjustment element 1
11. Adjustment element 2
12. Adjustment element 3
13. When internal pilot oil drain, is not need
14. Pilot oil drain X
16. Hand override, optional
17. When use adjustment element 1 or 3, connect with B,must need right angle elbow

NC	B1	Φ D1	Φ D2	D3	H1	H2	H3	H4	H5	H6	H7	L1	L2	L3	L4	L5	L6	T1	Weight(Kg)
8	63	9	28	G3/8"(M18 × 1.5)	27	125	10	62	85	203	212	85	14	62	45	146	10	12	8.5
10			34	G1/2"(M22 × 1.5)														14	8.5
15			42	G3/4"(M27 × 2)														16	8.7
20			47	G1"(M33 × 2)				57										18	8.7
25	70	11	56	G11/4"(M42 × 2)	42	138	13	66	98	216	225	100	18	72	54	155	1	20	9.4
30			61	G11/2"(M48 × 2)														22	9.4

Unit dimensions: for cartridge connection **(Dimensions in mm)**



1. Plug-in connector "Z4"
2. Plug-in connector: colour gray
3. Large plug-in connector " Z5"
4. Large plug-in connector with light "Z5L"
5. Directional valves, type WE5
6. Nameplate
7. Port Y for external pilot oil drain
8. Repeat adjusting scale
9. Adjustment element 1
10. Adjustment element 2
11. Adjustment element 3
12. Main spool assembly
13. Min. distance when use adjustment element 1 or 3 fixing the integration block
14. The D3 bore may enter the D2 bore at any position.However, care must be taken that X port and the fixing screw holes do not intersect.
15. Back-up ring and O-ring must be fitted into the main bore before assembling the main spool.
16. Orifice
17. O-ring 27.3X2.4
18. Retainer ring 32x28.4x0.8
21. Only apply to 31.5 MPa
22. Hand override, optional

NC	Φ D1	Φ D2	Φ D3	Weight DB3UC	Fixing screw (GB/T70.1-2000)	Torque
10	10	40	10	6 Kg	4-M8 × 40 -10.9	31
20	25	50	25			
30	32		32			

Notice

1. **The fluid must be filtered. Minimum filter fineness is 20 μm.**
2. **The tank must be sealed up and an air breather/filter must be installed on air suction/entrance.**
3. **Subplate are not supplied, if required, please ordering separetly.**
4. **Valve fixing bolts/screws must be high tensilel (class 10.9). Please select and consult manufacturer. according to the parameter listed in the datasheet.**
5. **Roughness of surface mating with the valve is required to** 

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6. **Surface straightness of mating piece is required to 0.01/100mm.**

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