BEIJING HUADE HYDRAULIC INDUSTRIAL GROUP CO.,LTD.	Pressure relief valve, type DB/DBW...50B/ (New Series)			RE25805 /12.2004
	Size 10 to 32	up to 35 MPa	up to 650 L/min	Replaces: RE25805/05.2001

Features:

- Subplate mounting
- Porting pattern to DIN 24 340, form E,ISO 6264 and CETOP-RP 121H
- Pipe connection
- Insert connection
- Three adjustment elements:
  · Rotary knob
  · Hex. head screw with protective cap
  · Lockable rotary knob with scale
- Solenoid operated unloading via built-in dirctional spool valve



Function, section: type DB···

General

Types DB and DBW pressure valves are pilot operated pressure relief valves.

They are used for the limitation (DB) or limitation and solenoid actuated unloading (DBW) of the control pressure.

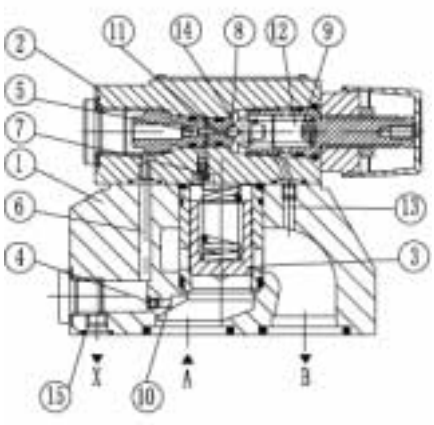
The pressure relief valves (DB) consist mainly of the main valve (1) with main spool assembly (3) and pilot operated valve (2) with pressure adjustment element.

Pressure relief valve type DB:

The pressure present in port A acts on the main spool (3). At the same time pressure is applied via the control lines (6) and (7), which are fitted with orifices (4) and (5), on the spring loaded side of the main spool (3) and at the ball (8) in the pilot control valve (2). If the pressure in port A exceeds the valve set at the spring (9), the ball (8) opens against the spring (9).

The signal for this comes internally via the control lines (10) and (6) from port A. The pressure fluid on the spring loaded side of the main spool (3) now flows via the control line (7), orifice bore (11) and ball (8) into the spring chamber (12). In type DB...50B/... it flows internally via the control line (13) to tank, or in type DB..50/..Y.. externally via the control line (14). Due to the orifices (4) and (5) a pressure drop occurs at the main spool (3), the connection from port A to port B is open,Now the pressure fluid flows from port A to port B whilst maintaining the set operating pressure.

The pressure relief valve may be unloaded or switched over to a different pressure (second pressure stage) via port ″X″ (15).

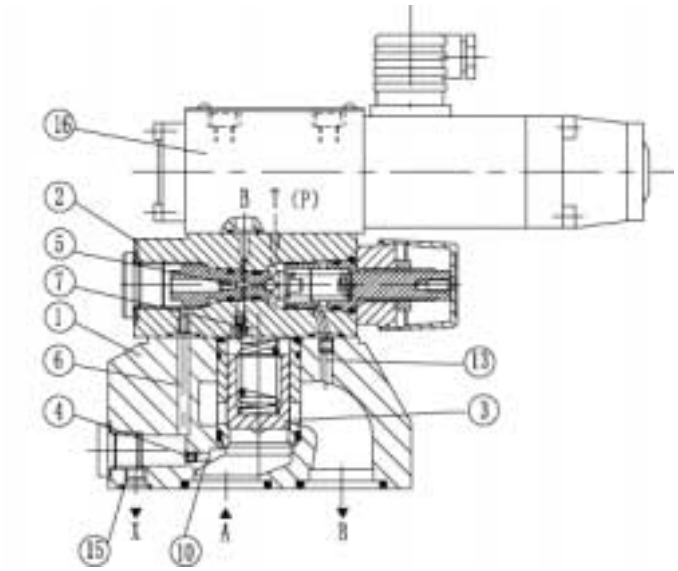


Type DBW...50B/...

Pressure relief valve type DBW

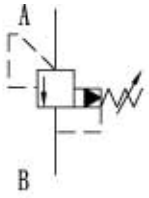
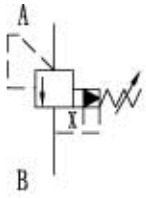
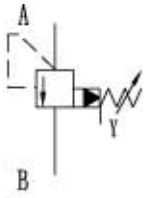
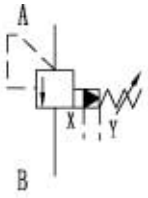
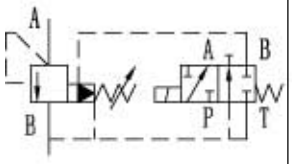
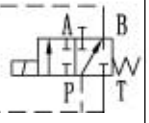
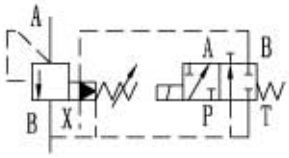
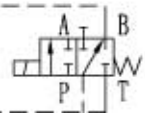
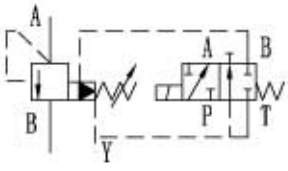
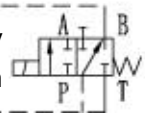
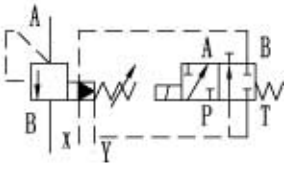
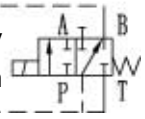
The function of this valve is basically same as the valve type DB.

The unloading at the main spool(3),however,is achieved by actuating the built-in directional valve(16).



Type DBW...50B/...

symbols

DB ..-50B/..	DB ..-50B/..X.	DB ..-50B/..Y..	DB ..-50B/..XY..
			
DBW ..-50B/..	DBW ..-50B/..X..	DBW ..-50B/..Y..	DBW ..-50B/..XY..
Normally closed  Normally open 	Normally closed  Normally open 	Normally closed  Normally open 	Normally closed  Normally open 

Ordering details



Without directional valve = No code
With built-in directional spool valve = W

Pilot operated valve (complete) = No code
Pilot operated valve without main spool assembly (do not enter nom. size) = C
Pilot operated valve with main spool assembly (enter valve size 10 or 30) = C
* C without main valve

Nomina Size	Ordering details		
	Threaded connection	Subplate mounting	
10	10	10	G1/2" or M22 × 1.5
15		15	G3/4" or M27 × 2
20	20	20	G1" or M33 × 2
25		25	G11/4" or M42 × 2
32	30	30	G11/2" or M48 × 2

Normally closed = A
Normally open = B

For subplate mounting = No code
For threaded connection =G

Adjustment elements
Rotary knob = 1
Sleeve with hexagon and protective cap = 2
Lockable rotary knob with scale = 3
2)

Series 50 to 59 (50 to 59: unchanged installation and connection dimensions) =50

Technology of Beijing Huade Hydraulic =B

Settable pressure up to 5.0 MPa = 50
Settable pressure up to 10.0 MPa = 100
Settable pressure up to 20.0 MPa = 200
Settable pressure up to 31.5 MPa = 315
Settable pressure up to 35.0 MPa = 350
3)

No code = Poilt flutd feed internal ,neturn internal
X= Ordering details Poilt fluid feed external,return internal
Y= to symbols Poilt fluid feed internal,return external
XY= on page 5 Poilt fluid feed external,return external

No code = Standard version
U = Minimum cracking pressure see characteristic curves

No code = Without directional valve
6A = With directional spool valve
6B = With directional spool valve(high capability solenoid)

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

No code = Without hand override
N 2) = With hand override

1.4)
Z4 = Plug-in connector
Z5 = Large Plug-in connector
Z5L = Large Plug-in connector with light

5)
R10 = oriftce ϕ 1.0mm in port B of the directional valve

No code = British
2 = metric

No code = mineral oils
V = phospate ester

Further details in clear text

1) Ordering details only required for the version with built-in directional valve (DBW).
2) Key within the scope of supply.
3) Type DBW.../350...must use high capability solenoid ″ 6B″.
4) Plug in connectors must be specially ordered.
5) only used for directional valve

Technical data

General

Installation			optional				
Weight			DB10	DB15	DB20	DB25	DB30
	Subplate mounting	DB (Kg)	2.6	-	3.5	-	4.4
		DBW (Kg)	3.8	-	4.7	-	5.6
		DBC (Kg)	1.2（type DBWC add 1.2Kg）				
		DBC10 or 30 (Kg)	1.5（DBWC10 or 30 add 1.2Kg）				
	Threade connection	DB..G.. (Kg)	5.3	5.2	5.1	5.0	4.8
		DBW..G.. (Kg)	6.5	6.4	6.3	6.2	6.0
Technical data for the directional valves			see WE6.../...				

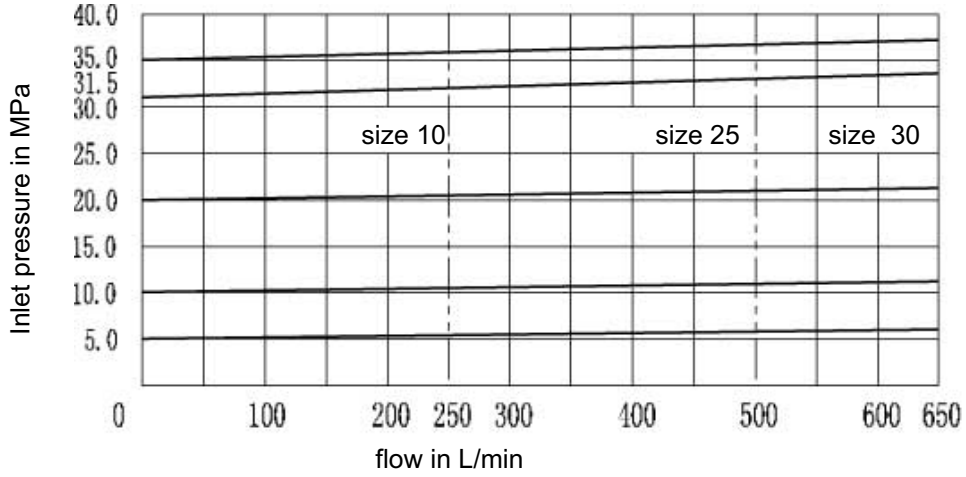
Hydraulic technical data

Maximum operating pressure at ports A, B, X (MPa)		up to 35.0				
Maximum back pressure at port Y	DB (MPa)	up to 31.5				
	DBW.6A.（standard solenoids） (MPa)	AC(DC) 10.0 AC(DC) 16.0				
	DBW.6B.（high-power solenoids） (MPa)	AC(DC) 16.0				
Settable pressure	Minimum (MPa)	flow dependent (see characteristic curves)				
	Maximum (MPa)	Maximum 5.0、10.0、20.0、31.5、35.0				
Maximum flow		DB10	DB15	DB20	DB25	DB30
	Subplate mounting (L/min)	250	-	500	-	650
	Threaded connections (L/min)	250	500	500	500	650
Pressure fluid		Mineral oil (for NBR seal)or phosphate ester(for FPM seal)				
Pressure fluid temperature range (℃)		-30 to + 80				
Viscosity range (mm^2/s)		10 to 800				
Degree of contamination		NAS 1638 class 9.				

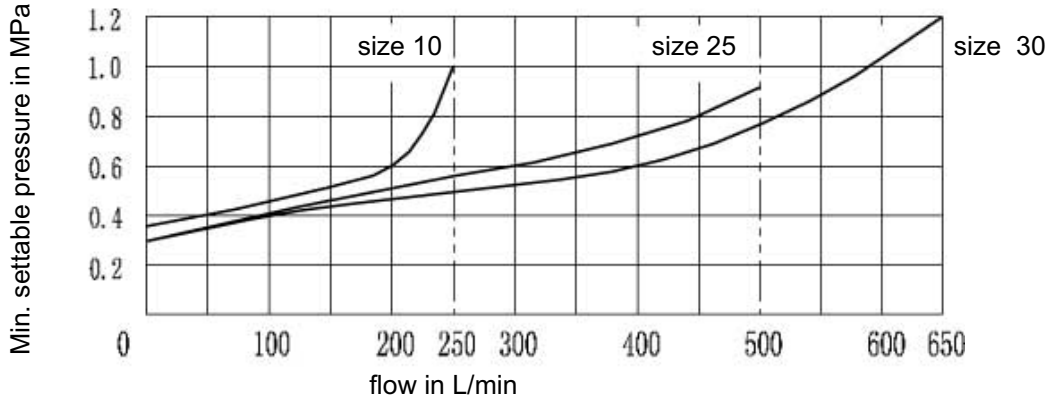
Characteristic curves (measured at v = 41 mm²/s and t = 50°C)

The characteristic curves were measured with external, at zero pressure, drain pilot oil.
With internal pilot oil drain the inlet pressure increases by the outlet pressure present at port B.

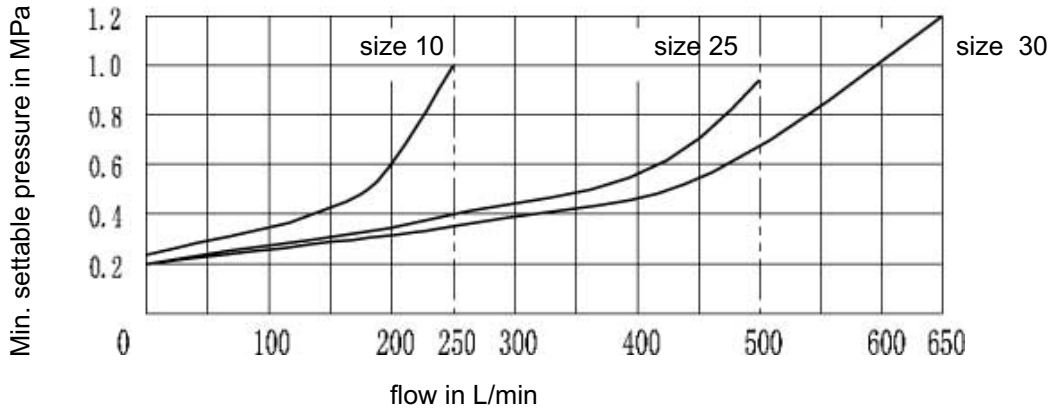
Inlet pressure in relation to the flow



Minimum settable pressure and bypass pressure in relation to the flow
Standard version

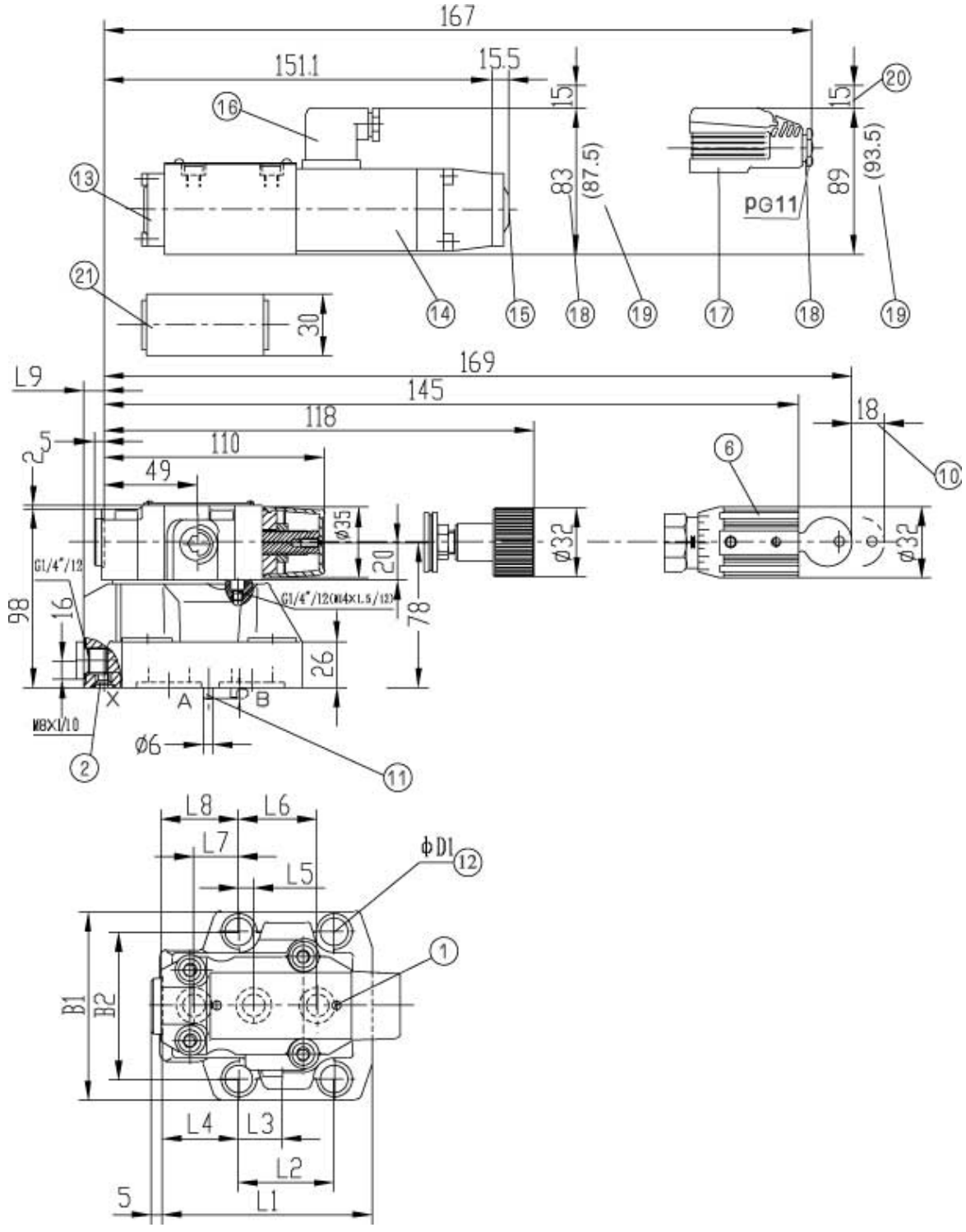


Minimum settable pressure and bypass pressure in relation to the flow
Version "U"

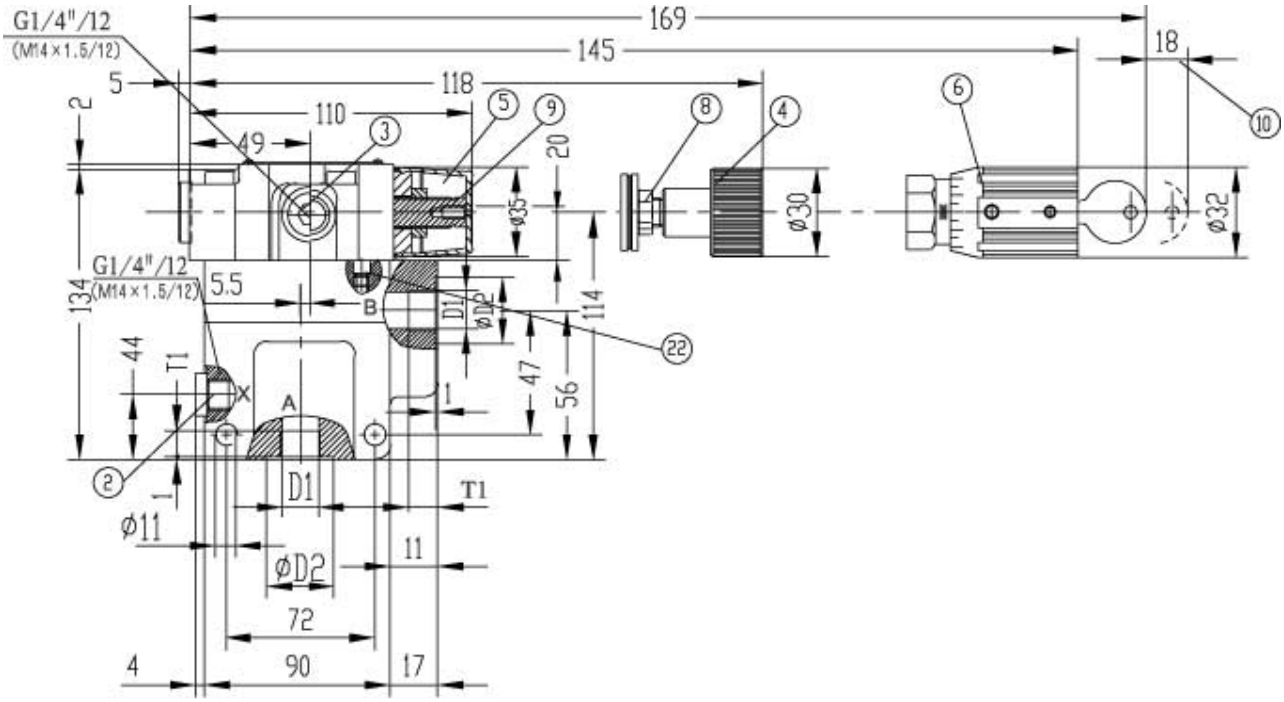


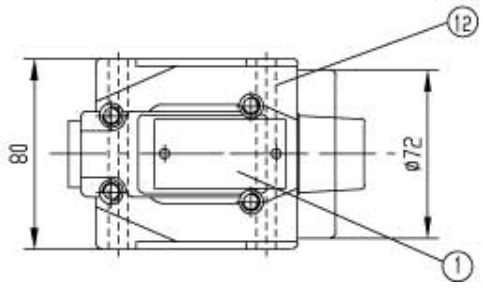
The characteristic curves are valid for outlet pressure B = 0 over the entire flow range!

DB/DBW Unit dimensions (series 50) : for subplate mounting **(Dimensions in mm)**



Type	L1	L2	L3	L4	L5	L6	L7	L8	L9	B1	B2	ϕD1	Ports A,B	Port Y
DB/DBW10	91	53.8	22.1	27.5	22.1	47.5	0	25.5	2	78	53.8	14	17.12 × 2.62	9.25 × 1.78
DB/DBW20	116	66.7	33.4	33.3	11.1	55.6	23.8	22.8	10.5	100	70	18	28.17 × 3.53	9.25 × 1.78
DB/DBW30	147.5	88.9	44.5	41	12.7	76.2	31.8	20	21	115	82.6	20	34.52 × 3.53	9.25 × 1.78

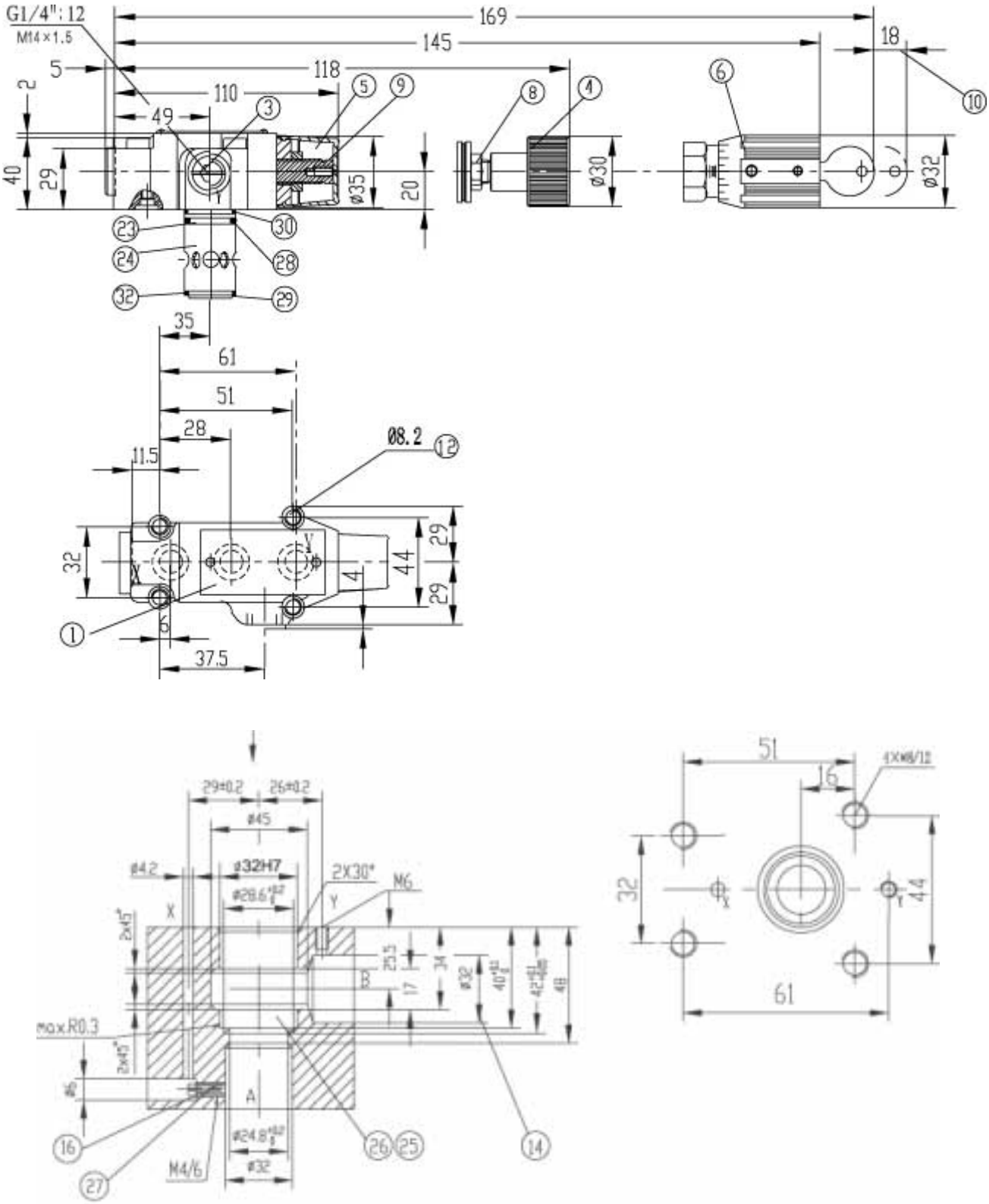




Type	D1	ϕ D2	T
DB(DBW)10G	G1/2″ (M22 × 1.5)	34	14
DB(DBW)15G	G3/4″ (M27 × 2)	42	16
DB(DBW)20G	G1″ (M33 × 2)	47	18
DB(DBW)25G	G11/4″ (M42 × 2)	58	20
DB(DBW)30G	G11/4″ (M48 × 2)	65	22

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

Pilot control valves with cartridge element (DBC 30) or without cartridge element (DBC).



Item explanations

1 Nameplate
2 Port X for external pilot oil supply
3 Port Y for external pilot oil drain
4 Adjustment element 1
5 Adjustment element 2
6 Adjustment element 3
8 Lock nut 22 A/F
9 Hexagon 10 A/F
10 Space required to remove key
11 Locating pin
12 Valve fixing holes
13 Directional spool valve WE6
14 Solenoid "a"
15 Hand override, optional
16 Plug-in connector〞Z4〞
17 Large plug-in connector 〞Z5〞 and 〞Z5L〞
18 The dimension of the standard solenoid 〞A〞
19 The dimension of the high-power solenoid 〞B〞
20 Space required to remove plug-in connector
21 Switching shock damping valve,optional
22 Omitted with internal pilot oil drain
23 O-ring 9.25X1.78
24 Main spool assembly
25 The Φ 32 bore may connect the Φ 45 bore at any position.Please take care that the connection hole X and the fixing holes are not damaged.
26 Back-up ring and O-ring must be inserted into this bore before assembling the main spool.
27 Cartridge element include orrfice and main spool assembly
28 O-ring 28x 1.8
29 O-ring 27.3 x 2.4
30 O-ring 28 x 2.65
32 Back-up ring 28.4X32X0.8

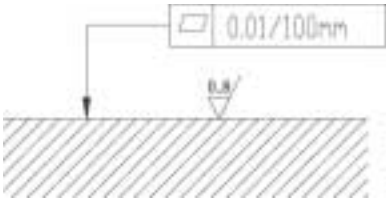
Subplates for:

DB/DBW10	DB/DBW20	DB/DBW30	DBC/DBWC
G545/01（G3/8"）	G408/01（G3/4"）	G410/01（G11/4"）	G51/01（G1/4")
G545/02（M18 × 1.5）	G408/02（M27 × 2）	G410/02（M42 × 2）	G51/02（M14 × 1.5）
G546/01（G1/2"）	G409/01（G1"）	G411/01（G11/2"）	
G546/02（M22 × 1.5）	G409/02（M33 × 2)	G411/02（M48 × 2）	

See page 148、149

Valve fixing screws for:
Types DB/DBW 10
4-M12 x 50 -10.9(GB/T70.1-2000); M_A = 130 Nm
Types DB/DBW 20
4-M16 x 50 -10.9(GB/T70.1-2000); M_A = 310 Nm
Types DB/DBW 30
4-M18 x 50 -10.9(GB/T70.1-2000); M_A = 430 Nm
Types DBC/DBWC, DBT/DBWT
Types DBC 10/DBWC 10 and types DBC 30/DBWC 30
4-M8 x 40 -10.9(GB/T70.1-2000); M_A = 37 Nm

Required surface finish
of mating piece



NOTICE

1. **The fluid must be filtered. Minimum filter fineness is 20 μm.**
2. **The tank must be sealing up and an air filter must be installed on air entrance.**
3. **Products without subplate when leaving factory, if need them, please ordering specially.**
4. **Valve fixing screws must be high intensity level (class 10.9). Please select and use them according to the parameter listed in the sample book.**
5. **Roughness of surface linked with the valve is required to** 

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

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