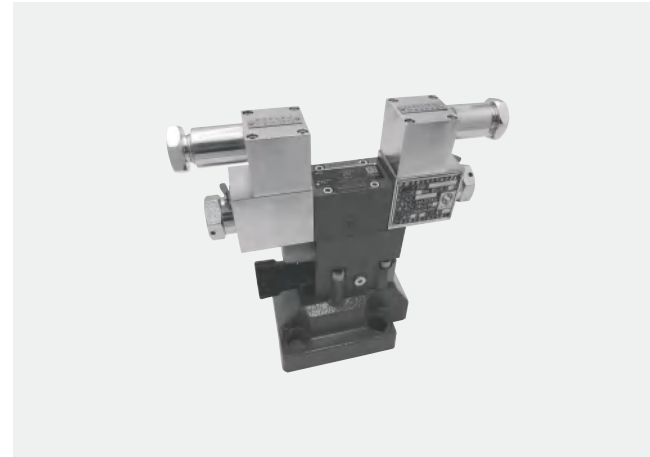


Explosion-proof Multistage Electro-hydraulic Pilot Relief Valve

Model: G-DB3U...-5XJ



- ◆ Size 10 to 30
- ◆ Maximum working pressure 350 bar
- ◆ Maximum flow rate 600 L/min

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Features

- Subplate mounting
- Threaded connection
- Cartridge connection
- Two-stage or three-stage pressure setting
- Controlled by solenoid directional valve
- Pressure adjusting forms:
 - Rotary knob
 - Internal hexagon screw with protective cap
 - Lockable rotary knob with scale

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Function description, sectional drawing

The G-DB3U valve is a pilot controlled two-stage concentric type multistage relief valve (two or three stages). The main valve and pilot valve are both poppet valve structures. The valve is used to control the system pressure, and it may switch the system pressure to the tertiary or multistage pressure by the solenoid directional valve.

G-DB3U valve mainly consists of main valve, 43/-way or 4/2-way directional valve (size 6) and three pilot valves. The pilot valve I and II are direct operated relief valve.

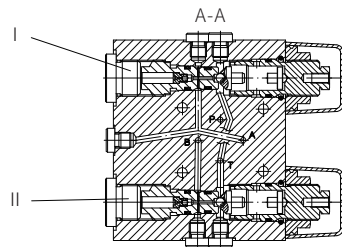
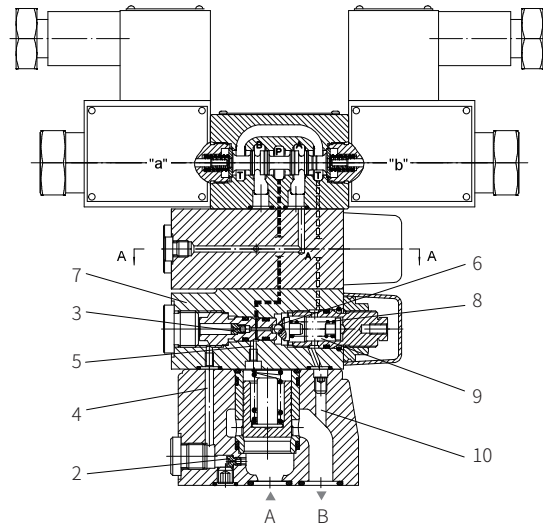
When solenoid is de-energized, the pressure oil at port A is controlled by the pilot valve (7), it acts on bottom of main spool (1), and acts on the upper end of main spool and poppet valve (6) of pilot valve (7) via orifices (2 and 3) and channels (4 and 5). When the system pressure exceeds the setting pressure of the spring (8), the poppet valve (6) is opened, at the same time, the pressure oil at the upper end of the main spool flows back to the oil tank through the orifice (3), channel (5), spring chamber (9), and channel (10) (control oil drain internal type) or back to the oil tank through the external drain port (control oil drain external).

In this way, a differential pressure is formed on the main spool when the pressure oil flows through orifices (2 and 3) and it opens the main spool. The pressure oil flows from A to B at a set pressure.

When solenoid "a" is energized, the pressure at port A is controlled by pilot valve II.

When solenoid "b" is energized, the pressure at port A is controlled by pilot valve I.

The setting pressure of pilot valve 7 must be higher than the setting pressure of pilot valves I and II. There are four different models of control oil: supply and drain internal, supply internal and drain external, supply external and drain internal, supply and drain external. (See the symbols of control oil in details).



Model G-DB3U10-H-2-5XJ/

Models and specifications

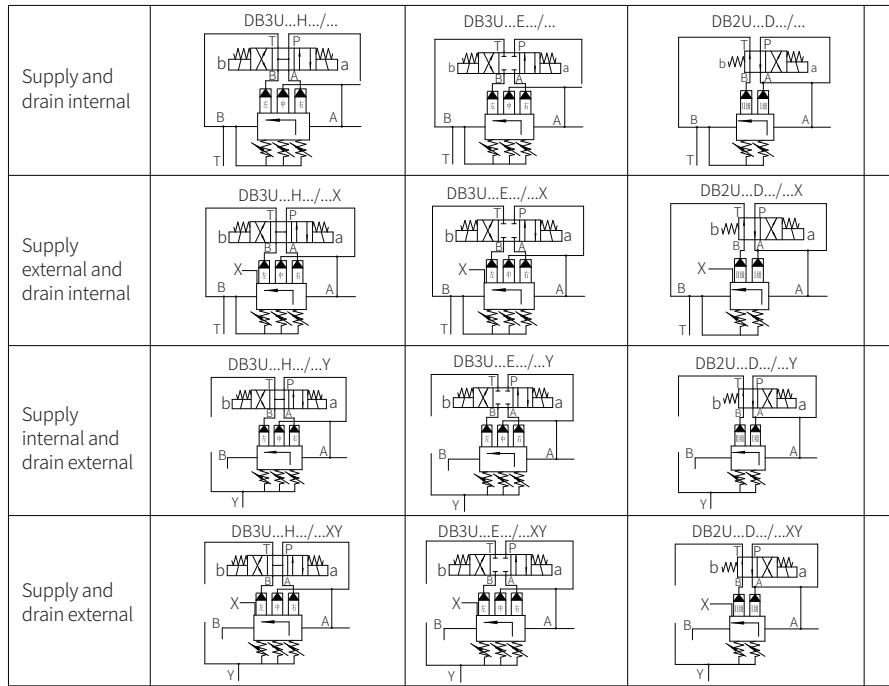
DB		- 5X		J		*	
explosion -proof class I =G1							more information in text
explosion -proof class II =G2							sealing material No code= NBR seals V= FKM seals (consult for other seals)
electro-hydraulic relief valve =No code							G24= 24V DC B36= AC rectified 36V B220= AC rectified 220V B127= AC rectified 127V
pilot valve with main valve spool assembly (plug-in) =C							No code= pilot oil supply and drain internal X= pilot oil supply external and drain internal Y= pilot oil supply internal and drain external XY= pilot oil supply and drain external
three-staged pressure regulation							
ordering code							
size	subplate mounting	threaded connection					
10	10	10(G1/2") or M22x1.5					
15	-	15 (G3/4") or M27x2					
20	20	20(G1") or M33x2					
25	-	25(G1 1/4") or M42x2					
32	30	30(G1 1/2") or M48x2					
subplate mounting =No code		threaded connection =G					
AB		a		b		=H	
P T		P T		P T		=E	
AB		a		b		=D	
P T		P T		P T			
adjusting element =1	rotary knob =2	internal hexagon screw with protective cap =3					
lockable rotary knob with scale =3							

J= Rekith

5X= 50 to 59 series (50 to 59 series installation and connection size unchanged)

Note: G1 explosion-proof grade EXD I
G2 explosion-proof grade EXD II CT4

Functional symbols



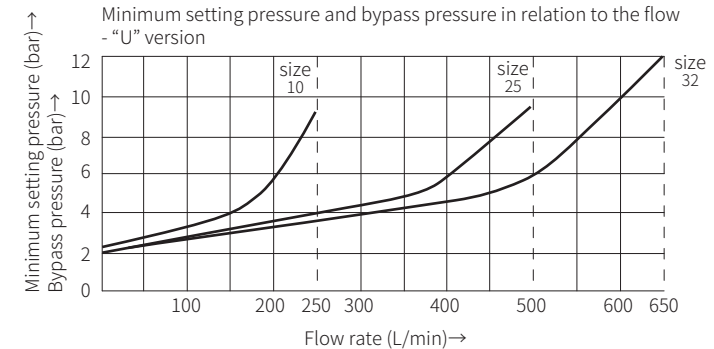
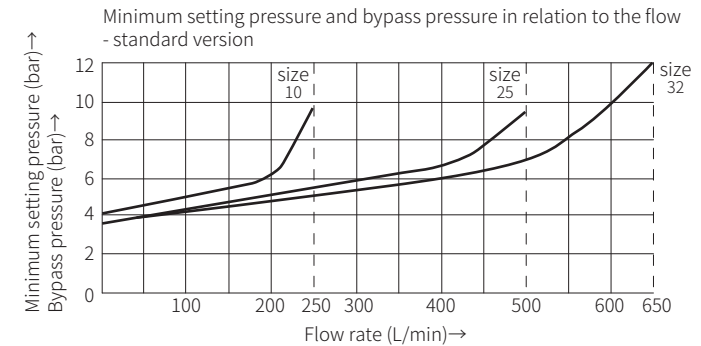
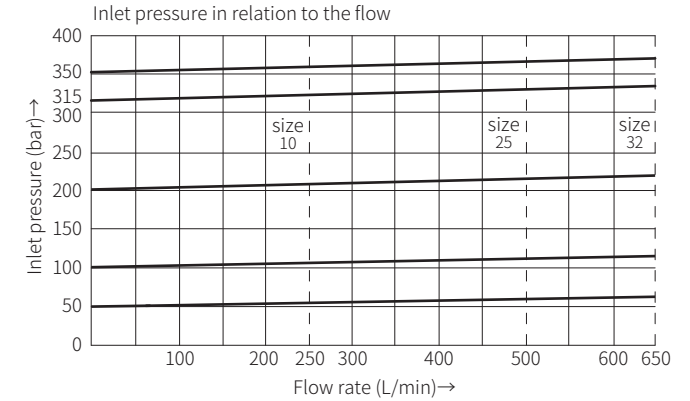
Technical parameters

Size		10	15	20	25	30
Flow (L/min)	threaded connection valve	200		400		600
	subplate mounting valve	200	—	400	—	600
Working pressure	MPa	Port A, B, X to 35				
Port Y back pressure	MPa	to 31.5				
Minimum setting pressure	MPa	Related to flow, see characteristic curve				
Maximum setting pressure	MPa	35				
Medium		Mineral hydraulic oil or phosphate hydraulic oil				
Viscosity range	mm ² /s	10 to 800				
Working medium temperature range	°C	-30 to +80 (NBR seal) -20 to +80 (FKM seal)				
Solenoid valve characteristic		See G-4WE6 solenoid valve				

Characteristic curve

(Measured when using HLP46, $\vartheta_{oil} = 40^\circ\text{C} \pm 5^\circ\text{C}$)

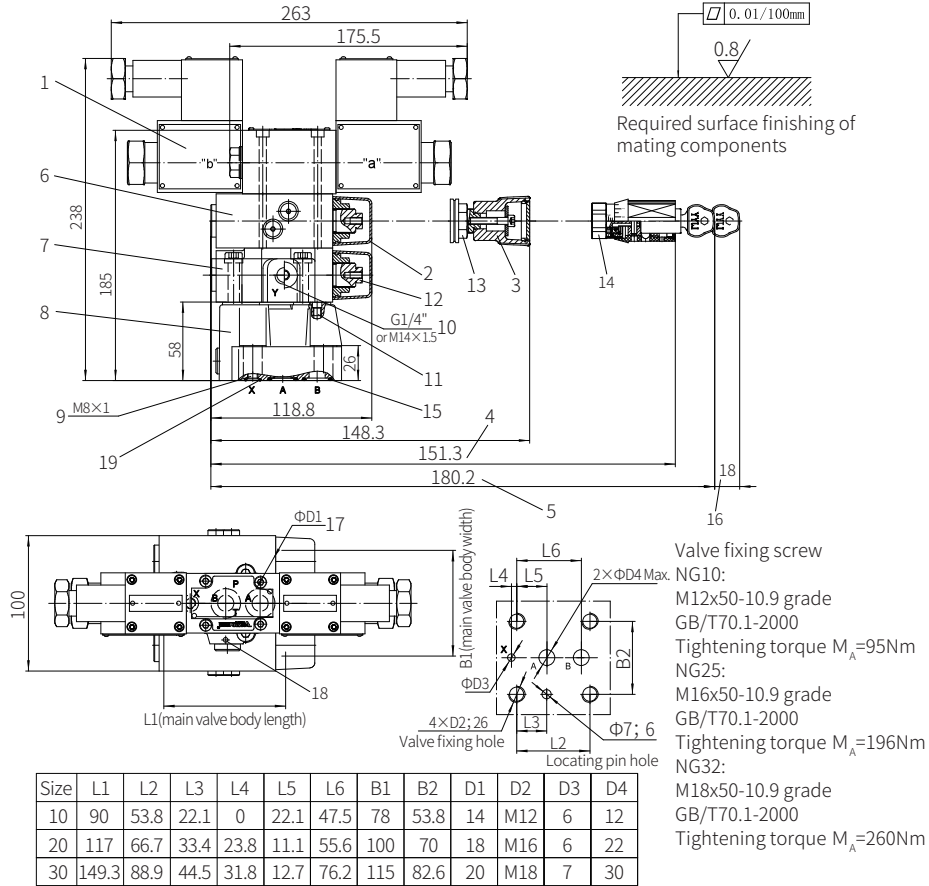
The curve was measured at zero pressure for externally controlled oil leakage.
For internal control oil return, the pressure at port B is added to the command value.



Component size

Size unit: mm

Subplate mounting valve model G-DB3U...-5XJ/...



- 1 Solenoid directional valve (type H, type D, optional)
- 2 Adjustment form "2"
- 3 Adjustment form "1"
- 4 Adjustment form "3"
- 5 Adjustment form "7"
- 6 Secondary or tertiary pilot valve
- 7 Primary pilot valve
- 8 Main valve
- 9 Port X for external pilot oil supply
- 10 Port Y for external pilot oil drain (G1/4" and M14x1.5, optional)

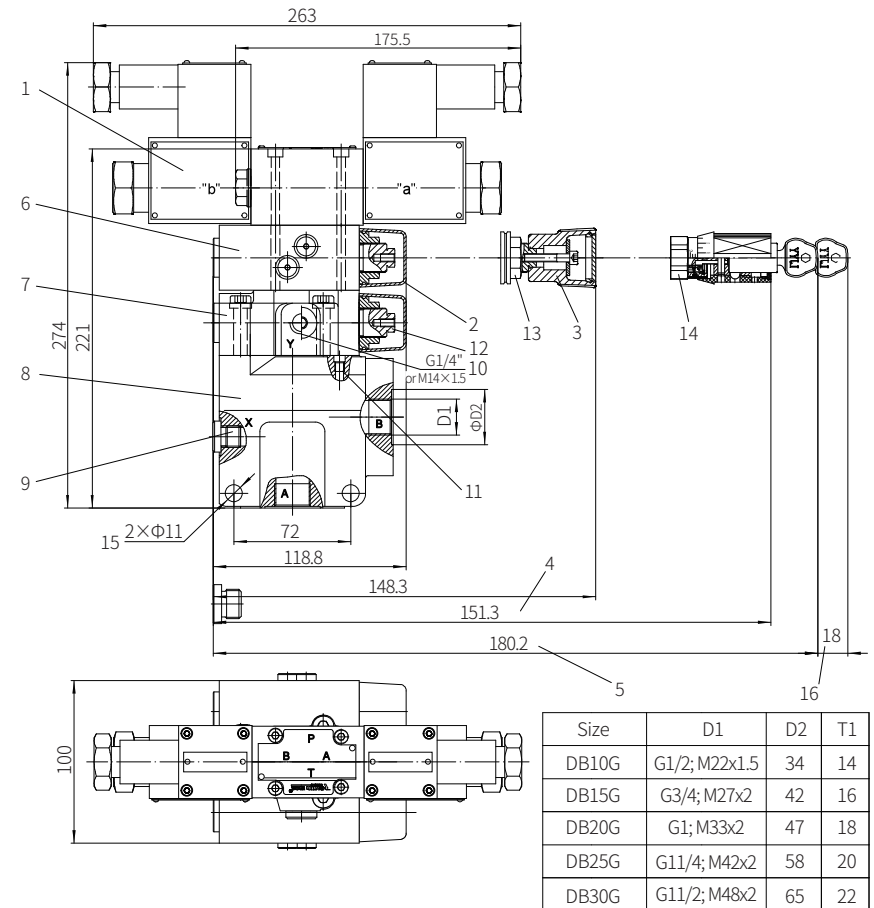
- 11 Omitted with internal pilot oil drain
- 12 External hexagon screw S=10
- 13 Hexagon nut S=24
- 14 External hexagon screw S=24
- 15 O ring 17.12x2.62 (for port A, B)
- 16 Space required to remove the key
- 17 Valve screw fixing holes
- 18 Locating pin hole
- 19 O ring 9.25x1.78 (for port X)

- It must be ordered separately if connection subplate is needed.
- NG10 Subplate model:
G545/01 (G3/8"); G545/02 (M18x1.5)
G546/01 (G1/2"); G546/02 (M22x1.5)
- NG25 Subplate model:
G408/01 (G3/4"); G408/02 (M27x2)
G409/01 (G1"); G409/02 (M33x2)
- NG32 Subplate model:
G410/01 (G1 1/4"); G410/02 (M42x2)
G411/01 (G1 1/2"); G411/02 (M48x2)

Component size

Size unit: mm

Threaded connection valve model G-DB3U...G...-5XJ/...



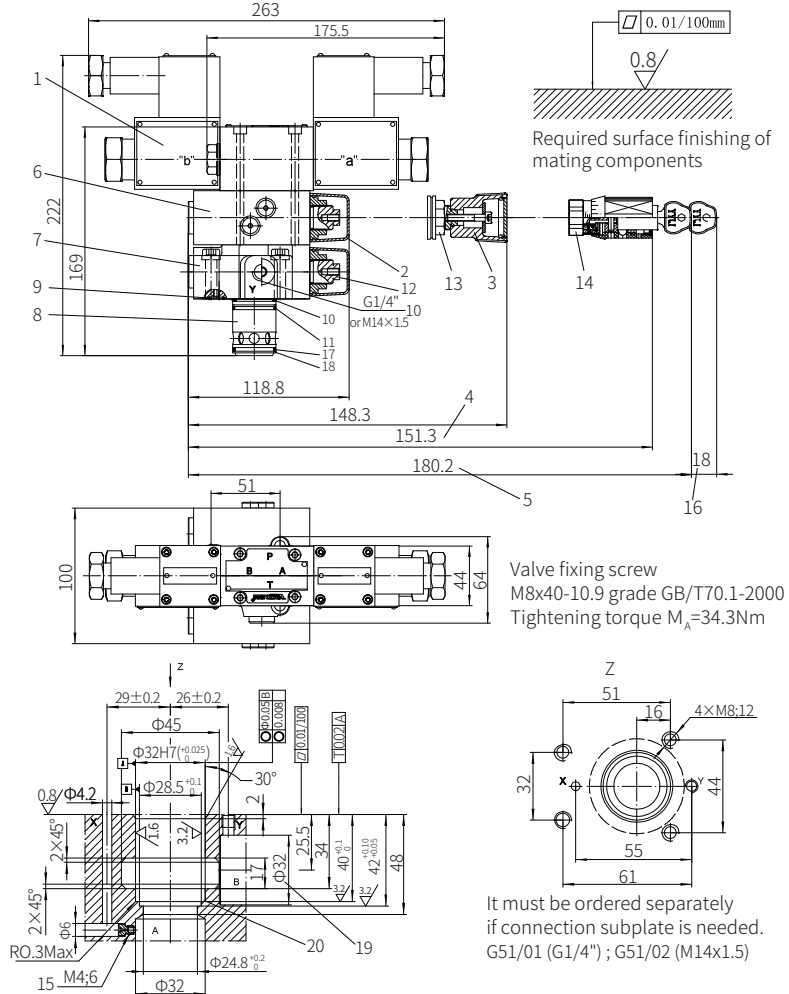
- 1 Solenoid directional valve (type H, type D, optional)
- 2 Adjustment form "2"
- 3 Adjustment form "1"
- 4 Adjustment form "3"
- 5 Adjustment form "7"
- 6 Secondary or tertiary pilot valve
- 7 Primary pilot valve
- 8 Main valve
- 9 Port X for external pilot oil supply
- 10 Port Y for external pilot oil drain (G1/4" and M14x1.5, optional)

- 11 Omitted with internal pilot oil drain
- 12 External hexagon screw S=10
- 13 Hexagon nut S=24
- 14 External hexagon screw S=24
- 15 Valve screw fixing holes
- 16 Space required to remove the key

Component size

Size unit: mm

With (G-DBC3U10 or 30) or without (G-DBC3U)



- 1 Solenoid directional valve (type H, type D, optional)
- 2 Adjustment form "2"
- 3 Adjustment form "1"
- 4 Adjustment form "3"
- 5 Adjustment form "7"
- 6 Secondary or tertiary pilot valve
- 7 Primary pilot valve
- 8 Main spool
- 9 O ring 9.25x1.78
- 10 O ring 28x2.65
- 11 O ring 28x1.8
- 12 External hexagon screw S=10
- 13 Hexagon nut S=24
- 14 External hexagon screw S=24
- 15 Throttle must be order separately
- 16 Space required to remove the key
- 17 O ring 27.3x2.4
- 18 Retainer ring 32x28.4x0.8
- 19 The Φ32 hole can intersect Φ45 hole at any position
Be careful not to damage oil port X and fixing holes
- 20 The retainer ring and O-ring should be installed in this hole before install main spool position

Explosion-proof Solenoid Pilot Relief Valve

Model: G-DBW...5XJ



- ◆ Size 10 to 32
- ◆ Maximum working pressure 350 bar
- ◆ Maximum flow rate 650 L/min

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Features

- Subplate mounting, threaded connection, manifolds installation
- 5 setting pressure ranges
- Pressure adjusting elements: Rotary knob
- Inner hexagon screw with protective cap