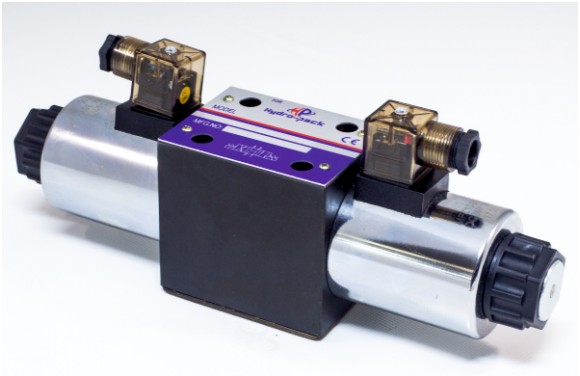
Electrical operated directional control valve

Technical Specification



Specification		02	03
Working pressure (Mpa)	P, A and B ports	35	31.5
	T port	10	10
Max. Flow (L/min)		80	120
Working fluid		Mineral oil;phosphate-ester	
Fluid temp. (℃)		-20~70	
Viscosity (mm²/s)		2.8~100	
Working voltage (V)	DC	12	24
	AC	110/50Hz	220/50Hz
Max.Switch frequency(T/h)		15000 (DC)	7200 (DC)
Insulation grade		IP65	

Weight (kg)					
	Single solenoid	1.45 (DC)	1.4 (AC)	5.1 (DC)	4.3 (AC)
	Double solenoids	1.95 (DC)	1.9 (AC)	6.7 (DC)	5.1 (AC)

Cleanliness	The maximum allowable cleanliness of the oil should be according to 9th degree of Standard NAS1638.It is suggested that the minimum filter rating should be β10≥75。

Ordering code

RH

Electrical Operated
Directional Control Valve

Sspecification
06: NG 6
10: NG 10

Hydraulic Schema
(Please check table in next page.)

Working voltage
D12: 12 V DC
D24: 24 V DC
A110: 110 V AC
A220: 220 V AC
B110: 110 V AC rectified
B220: 220 V AC rectified

Z5L Square connector with light
Z6 Wire box type

Omit without hand emergency
N9 with concealed hand emergency

Omit without damping
08 0.8 Damping
10 1.0 Damping
12 1.2 Damping

Seal material
Omit NBR Seals
V FPM Seals

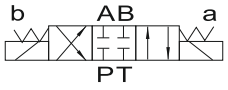
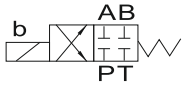
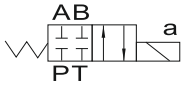
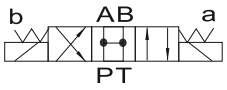
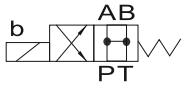
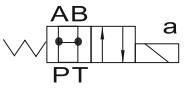
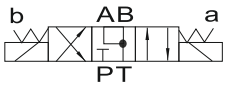
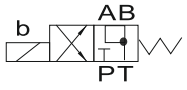
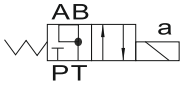
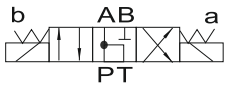
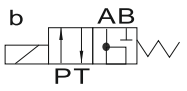
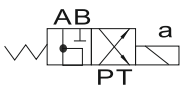
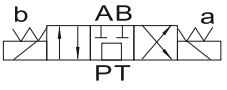
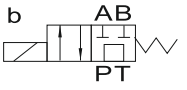
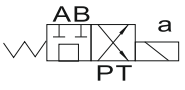
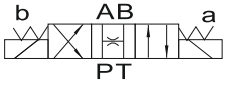
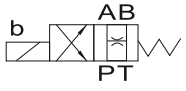
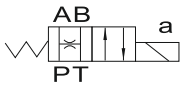
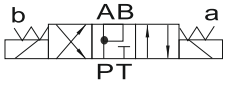
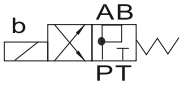
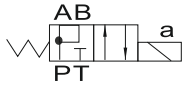
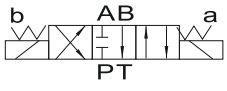
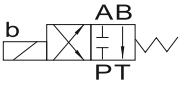
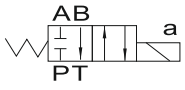
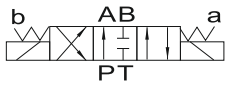
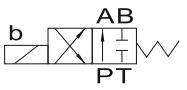
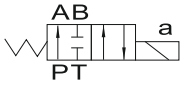
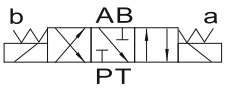
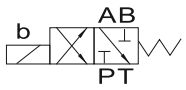
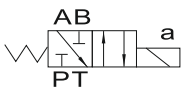
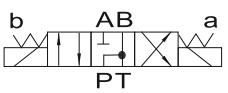
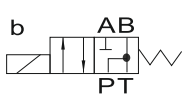
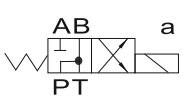
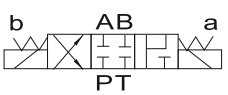
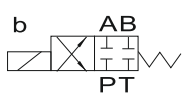
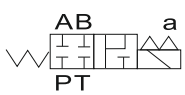
Serial number
50 Rexroth
60 Vickers
70 Yuken

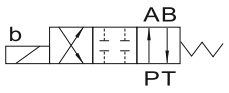
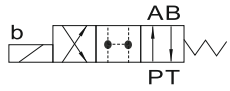
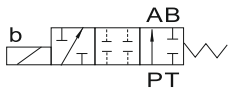
Remarks

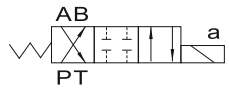
Electrical operated directional control valve

Spool schema

Spring return

3C2		2B2B		2B2BL	
3C3		2B3B		2B3BL	
3C4		2B4B		2B4BL	
3C5		2B5B		2B5BL	
3C6		2B6B		2B6BL	
3C7		2B7B		2B7BL	
3C9		2B9B		2B9BL	
3C10		2B10B		2B10BL	
3C11		2B11B		2B11BL	
3C12		2B12B		2B12BL	
3C25		2B25B		2B25BL	
3C29		2B29B		2B29BL	

2B2	
2B3	
2B8	

2B2L	
2B3L	
2B8L	

With detent

	2D2
	2D3
	2D8

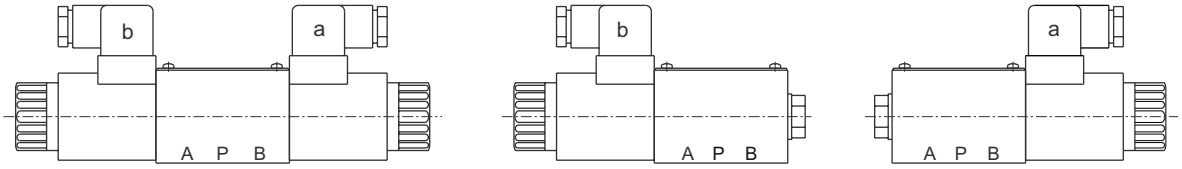
No spring return and no detent mechanical positioning

	2N2
	2N3
	2N8

Note: *D*(No spring return mechanical positioning)
Solenoid directional control valve should be installed horizontally.

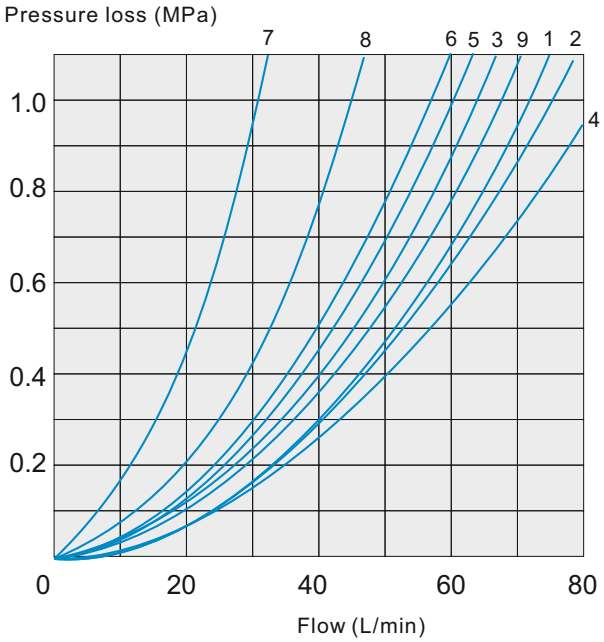
Electrical operated directional control valve

Name of solenoid



1. a When movement a, flow is from P to A, B to T.
2. b When movement b, flow is from P to B, A to T.
3. Oil flow is in the opposite direction with the above mentioned movement for 3C5 and 3C6 spools.

02 Specification Performance curve (Measured at 41 mm^2/s and 50℃)



Function code	Direction			
	P to A	P to B	A to T	B to T
2B8 2B8L	3	3	-	-
2B3	1	1	3	1
2B2 2B2L	5	5	3	3
3C2	3	3	1	1
3C5	1	3	1	1
3C6	6	6	9	9
3C3	2	4	2	2
3C4	1	1	2	1
3C10,3C12	3	3	4	9
3C9	2	3	3	3
3C25	3	1	1	1
3C29	5	5	4	-
3C7	1	2	1	1

7.Spool type 3C29 located in the control position A to B.
8. Spool type 3C6 in the neutral position P to T.

Electrical operated directional control valve

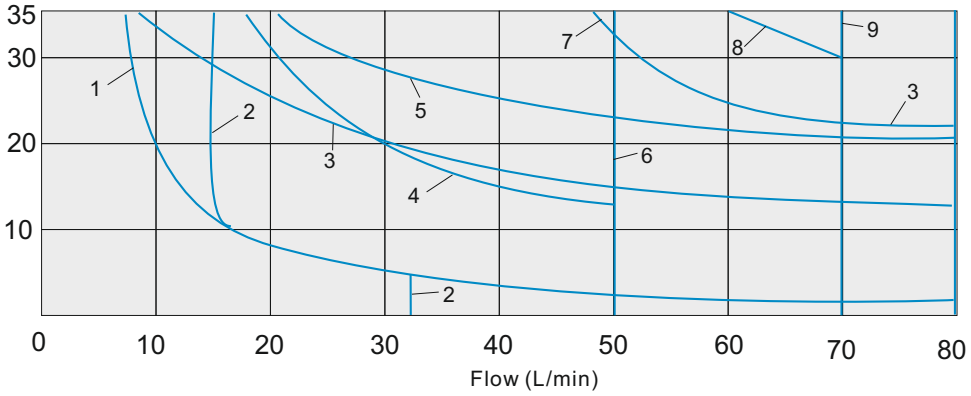
02 Specification Working limits

(The working limits for directional valves have determined by using solenoids at their operating temperature, 10% under voltage and with no pre-loading of the tank)

With regard to the four-way valve, the normal flow data as shown is get from the regular use of two directions of the flow (e.g.P to A,and simultaneous return flow from B to T). See tables. If only one flow direction is needed for example: When a four port valve which is closed up port A or port B, used as a three-way valve, the Maximum flow may be very small in the serious condition

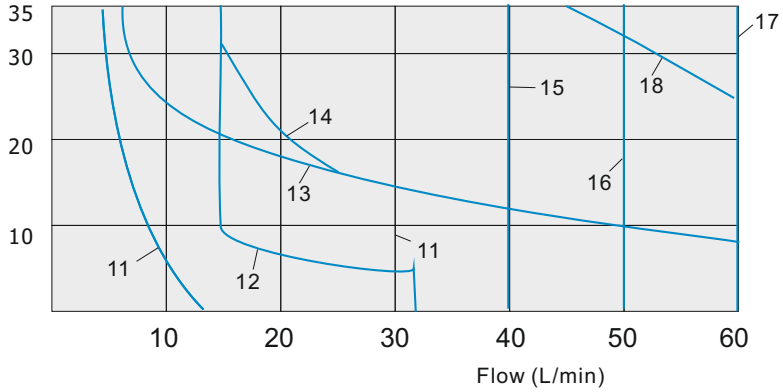
DC solenoid operation D24, D12, B220, B110		AC solenoid operation AC A110, A220, 50HZ	
Curve	Symbol	Curve	Symbol
1	2B8, 2B8L1	11	2B8 2B8L1
2	3C7	12	3C7
3	2B8 2B8L	13	2B8 2B8L
4	3C5 3C25	14	3C5 3C25
5	3C4	15	3C6
6	3C6 3C3	16	3C3
7	2N8 2D8 3C10 3C12	17	2N8 2D8 2N3 2D3
8	2B3 2B2 2B2L		2N2 2D2 3C2 3C4 3C10
9	3C9		3C9 3C29 3C12
10	3C2 3C29 2N3 2D3 2N2 2D2	18	2B3 2B2 2B2L

Working pressure (MPa)



1 No manual emergency operation
2 Oil returns from actuator to oil tank

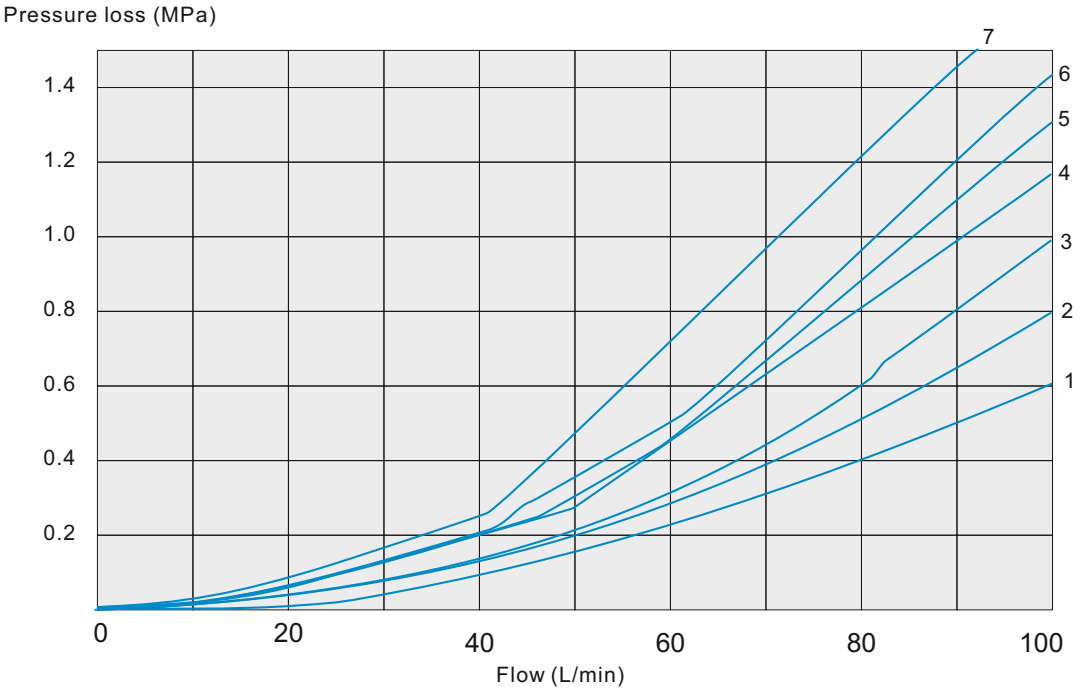
Working pressure (MPa)



Electrical operated directional control valve

03 Specification

Performance curve (Measured at 41 mm^2/s and 50°C)



Function code	Direction			
	P to A	P to B	A to T	B to T
2B8 2B8L	2	2	-	-
2B3 2B2 2B2L	2	2	3	3
3C2 3C7	2	2	4	4
3C5	2	3	3	5
3C6	3	3	4	6
3C3	1	1	4	5
3C10 3C12	2	2	3	5
3C9	1	1	5	1
3C25	3	2	5	3
3C29	2	4	3	-

7.Spool symbol 3C29 in the shifting position A to B

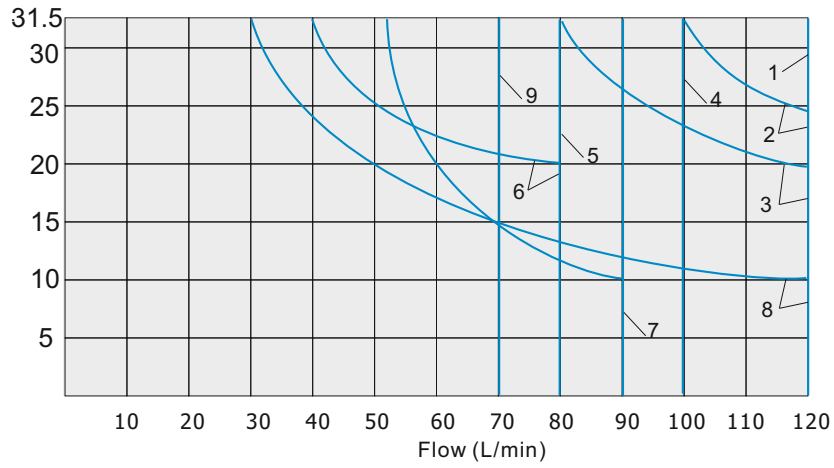
4. Spool symbol 3C6 in neutral position P to T

03 Specification Working limits

(The working limits for directional valves have determined by using solenoids at their operating temperature, 10% under voltage and with no pre-loading of the tank)

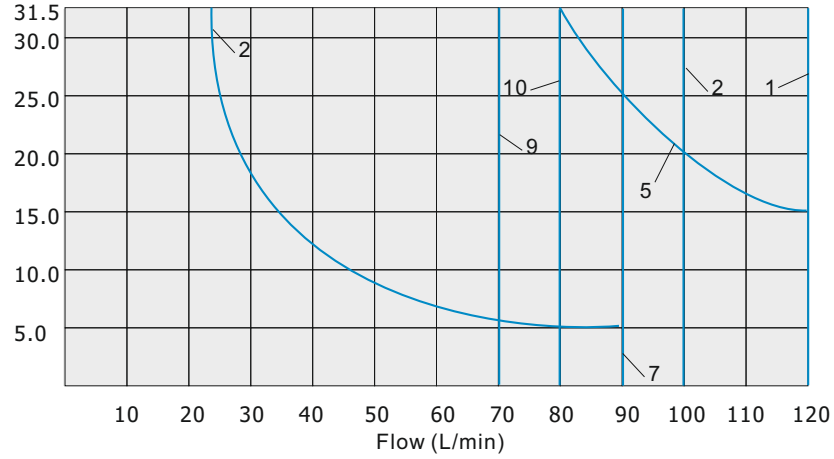
With regard to the four-way valve, the normal flow data as shown is get from the regular use of two directions ,of the flow (e.g.P to A, and simultaneous return flow from B to T). See tables. If only one flow direction is needed for example: When a four port valve which is closed up port A or port B, used as a three-way valve, the Maximum .flow may be very small in the serious condition

Working pressure (MPa) DC solenoid operation



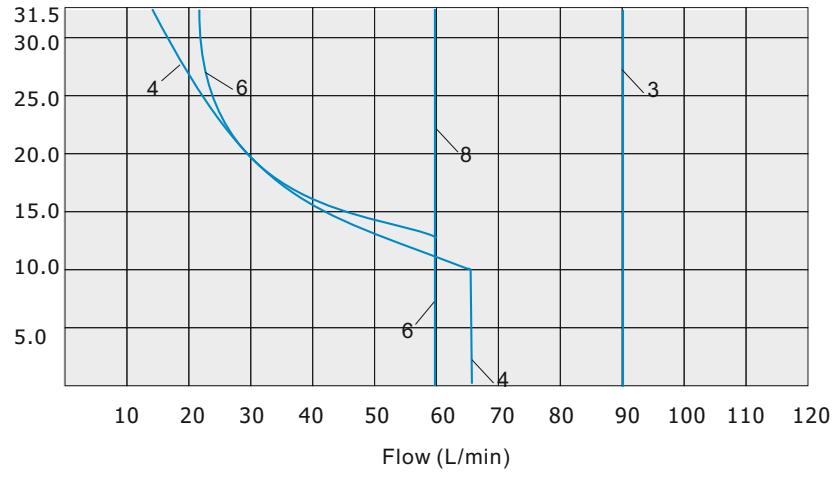
Curve	Symbol
1	2B3 2N3 2D3 2B2 2N2 2D2 2B2L 3C9
2	3C2
3	2N8 2D8 3C10 3C12 3C4
4	3C3
5	3C29
6	3C6
7	3C5 3C25
8	2B8 2B8L
9	3C7
1)	Return circuit (Independent of area ratio)

Working pressure (MPa) AC solenoid operation



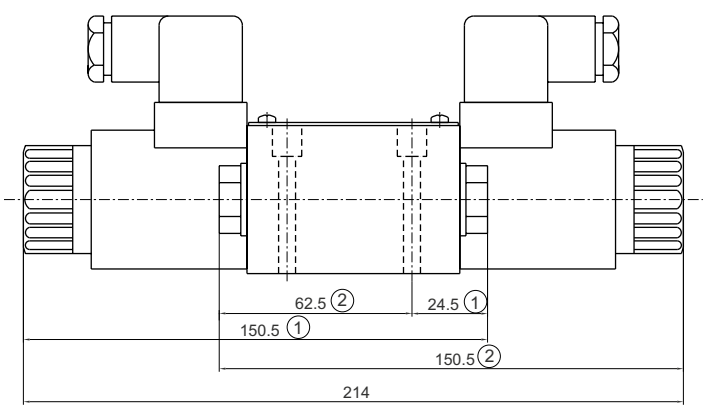
110 V 50 Hz, 120 V 60 Hz 220 V 50 Hz, 240 V 60 Hz	
Curve	Symbol
1	2B3 2N3 2D3 2B2 2N2 2D2 2B2L
2	3C2 3C10
3	3C12 3C9
4	2B8 2B8L
5	2N8 2D8 3C4
6	3C6
7	3C5 3C25
8	3C7
9	3C3
10	3C29

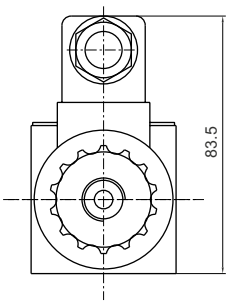
Working pressure (MPa) AC solenoid operation



Electrical operated directional control valve

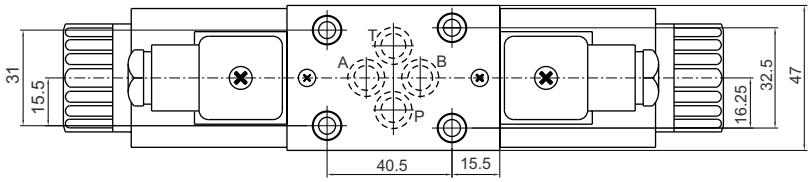
External dimensions (Ng6 Direct current plug type)



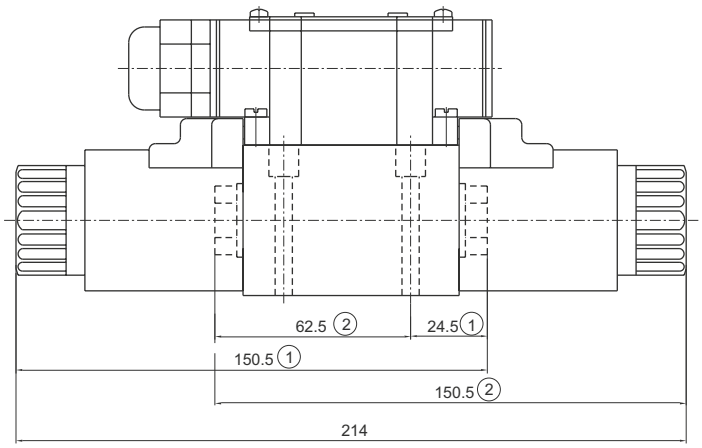


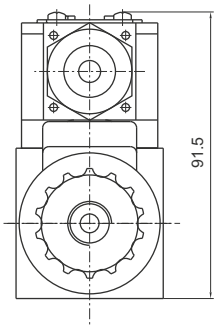
① ②

Two positions Electrical operated directional control valve



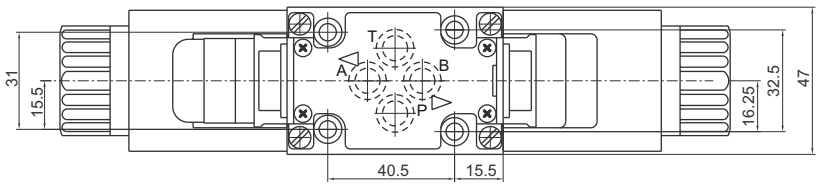
External dimensions (Ng6 direct current wire box type)





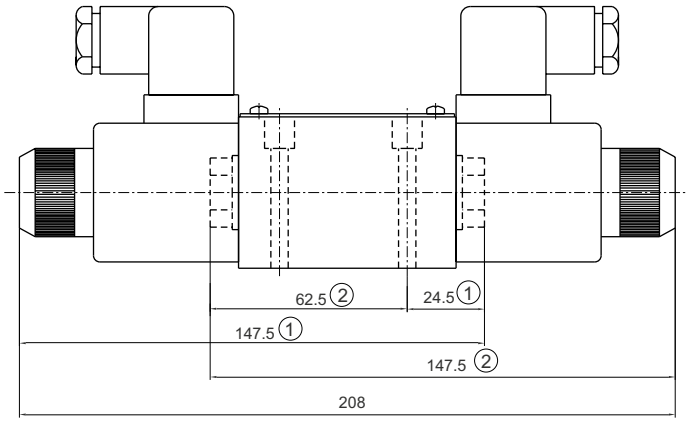
① ②

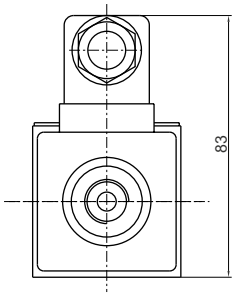
Two positions Electrical operated directional control valve



Electrical operated directional control valve

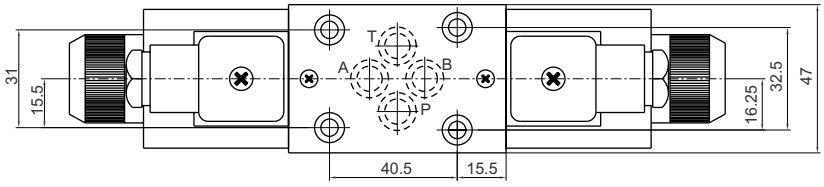
External dimensions (Ng6 alternating current plug type)



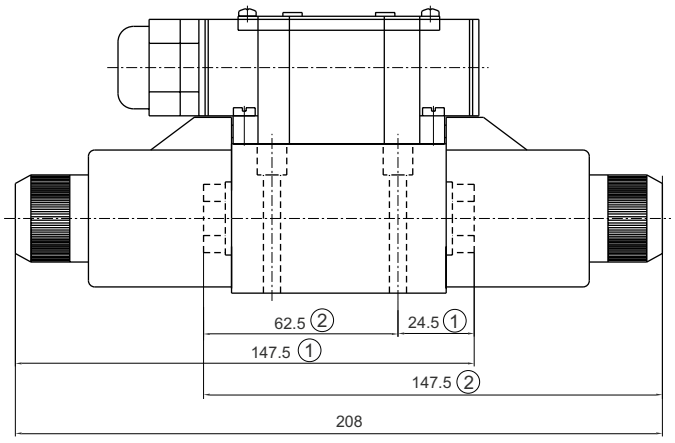


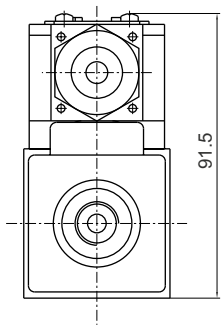
① ②

Two positions Electrical
operated directional control valve



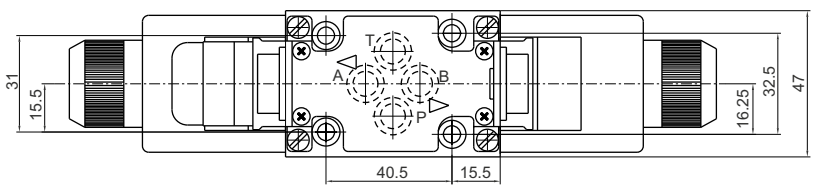
External dimensions (Ng6 alternating current wire box type)





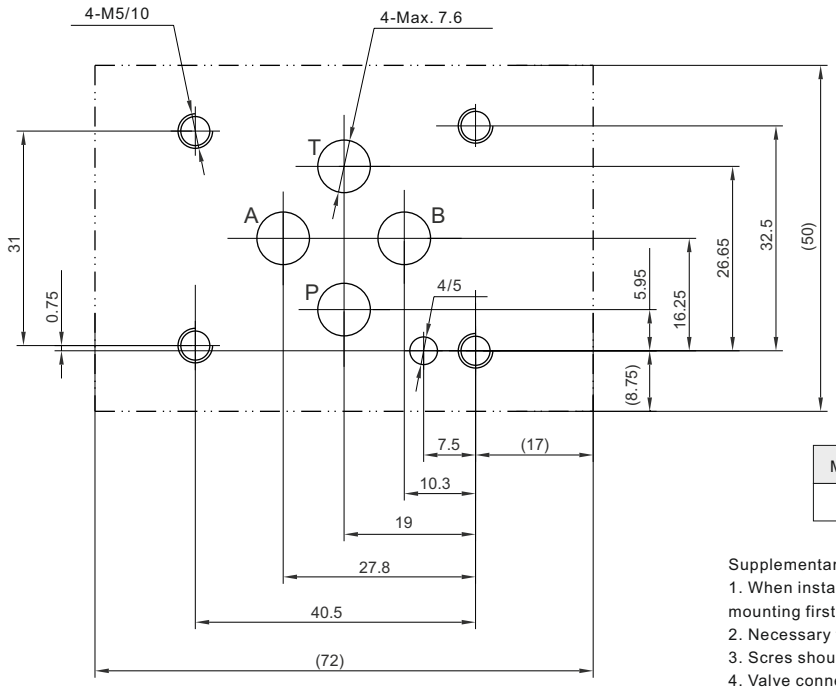
① ②

Two positions Electrical
operated directional control valve



Electrical operated directional control valve

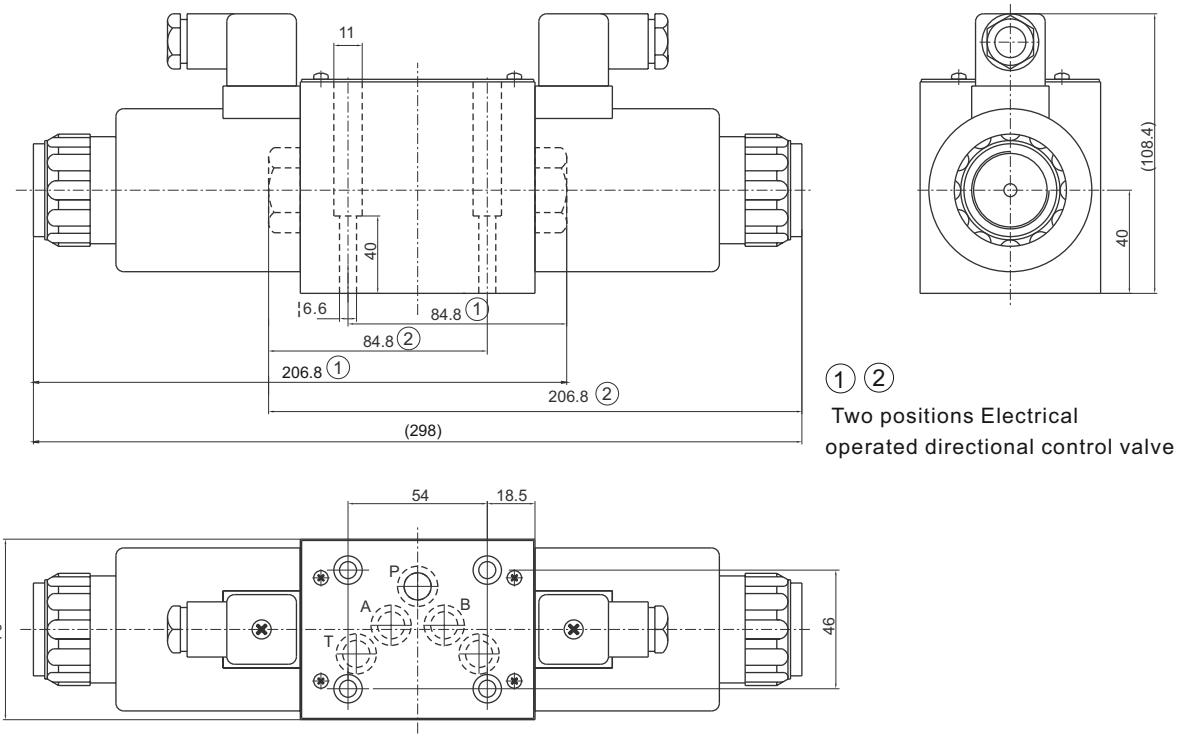
Ng6 size of sub plate



Mounting screw	Amount	Tighten torque
M5x45-10.9	4	9Nm

Supplementary explanation
1. When installing the product, please consider horizontal mounting first.
2. Necessary filtration should be at least 20 micron.
3. Scres should be according to parameters in catalogue.
4. Valve connection surface should be Ra 0.8 roughness and 0.01/100 mm flatness.

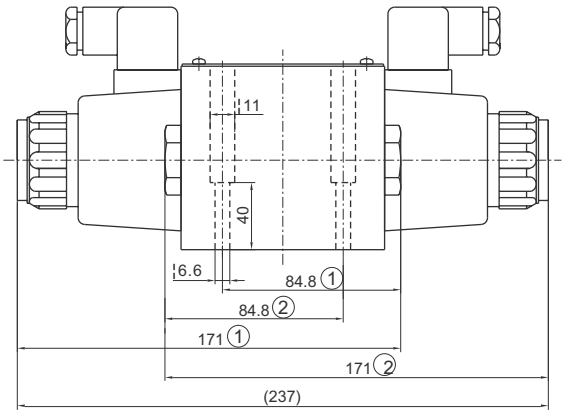
External dimensions (Ng10 direct current plug type)

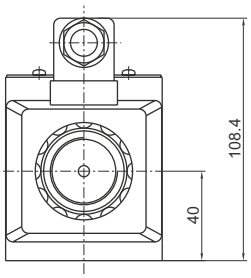


① ②
Two positions Electrical operated directional control valve

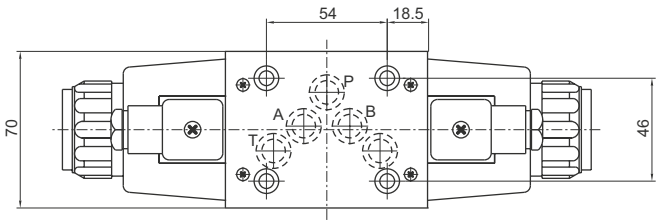
Electrical operated directional control valve

External dimensions (Ng10 alternating current plug type)

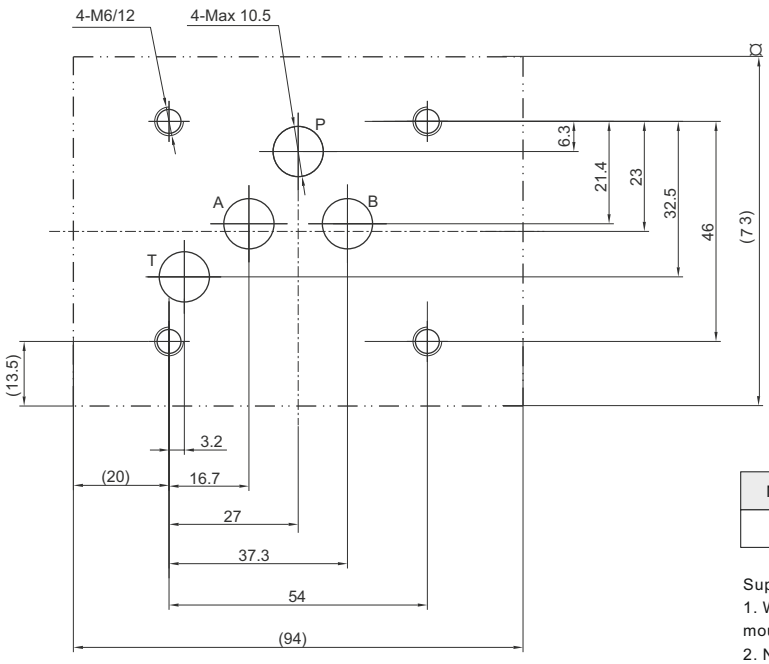




① ②
Two positions Electrical operated directional control valve



Ng10 size of sub plate



Mounting screw	Amount	Tighten torque
M6x50-10.9	4	15Nm

Supplementary explanation
1. When installing the product, please consider horizontal mounting first.
2. Necessary filtration should be at least 20 micron.
3. Scres should be according to parameters in catalogue.
4. Valve connection surface should be Ra 0.8 roughness and 0.01/100 mm flatness.