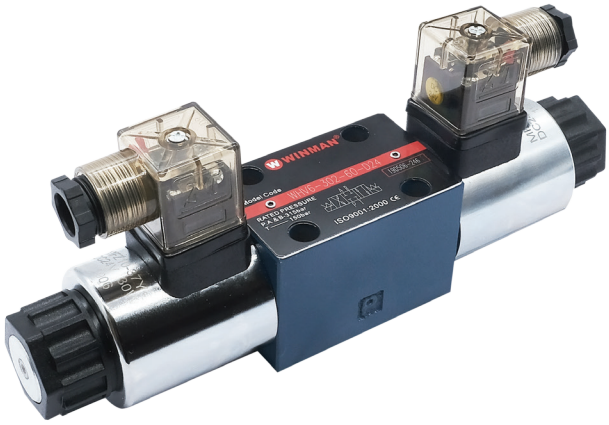
ELECTRICAL OPERATED DIRECTIONAL CONTROL VALVE



Technical Specification

Specification		6	10
Working pressure (Bar)	Oil P,A,B	350	315
	Oil ports T	100	100
Max. Flow	(L/min)	80	120
Working fluid		Mineral oil; phosphate-ester	
Fluid temp.	(°C)	-20~70	
Viscosity	(mm^2/s)	2.8~100	
Working voltage	DC	12	24
	AC	110/50Hz	220/50Hz
Max. Switch frequency (T/h)		1500 (DC)	7200 (AC)
Insulation grade		IP65	

Weight (kg)					
Single solenoid	1.45(DC)	1.4(AC)	5.1(DC)	4.3(AC)
Double solenoid	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 dagree of Standard NAS 1638. It is suggested that the minimum filter rating should be β 10≥75.

Model description

WHV - 6 - * / 60 - * - * - * - * - * - *

Nominal Size : 6 = 06
10 = 10

Symbol

Series Number 60

Working Voltage

D12	DC 12V
D24	DC 24V
A110	AC 110V
A220	AC 220V
B110	AC 110V Rectified
B220	AC 220V Rectified

No Code Square Connector with Light
Z6 Wire box type

No Code without hand emergency
N 9 with concealed hand emergency

No Code without hand emergency

08	Ø0,8	Damping
10	Ø1,0	Damping
12	Ø1,2	Damping

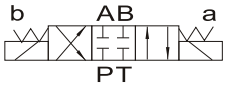
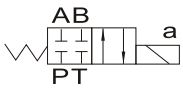
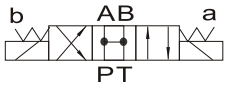
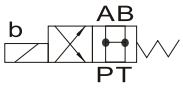
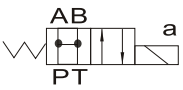
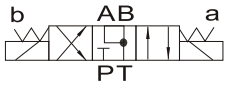
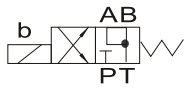
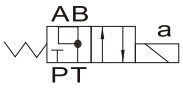
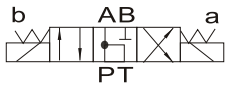
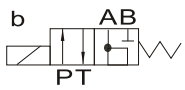
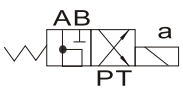
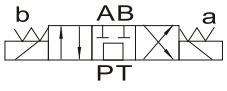
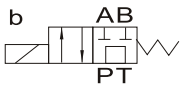
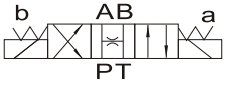
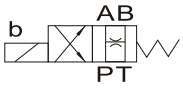
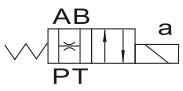
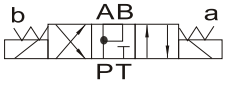
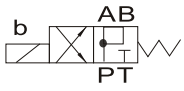
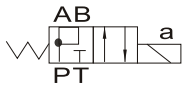
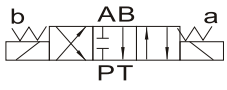
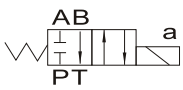
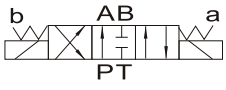
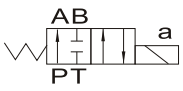
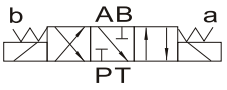
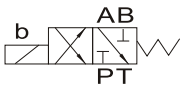
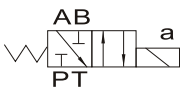
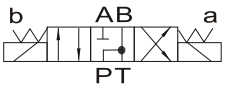
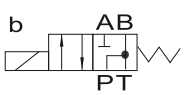
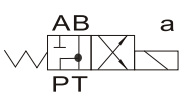
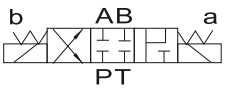
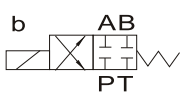
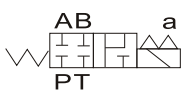
No Code NBR Seals
V FPM Seals

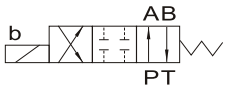
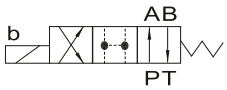
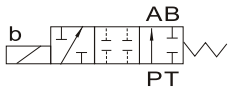
Remarks

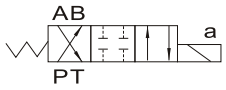
ELECTRICAL OPERATED DIRECTIONAL CONTROL VALVE

Code Symbol

Spring return

302		2828		2828L	
303		2838		2838L	
304		2848		2848L	
305		2858		2858L	
306		2868		2868L	
307		2878		2878L	
309		2898		2898L	
3010		28108		28108L	
3011		28118		28118L	
3012		28128		28128L	
3025		28258		28258L	
3029		28298		28298L	

282	
283	
288	

282L	
283L	
288L	

With detent

	2D2
	2D3
	2D8

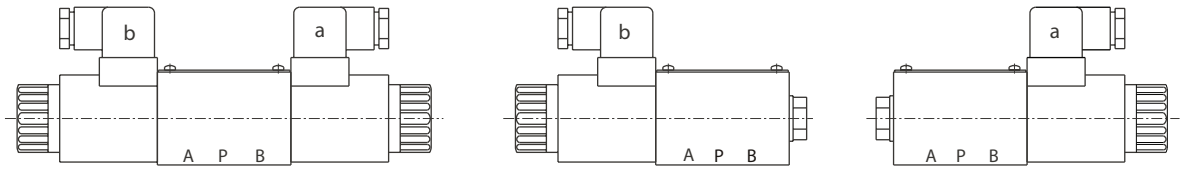
No spring return and no detent mechanical positioning

	2N2
	2N3
	2N8

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

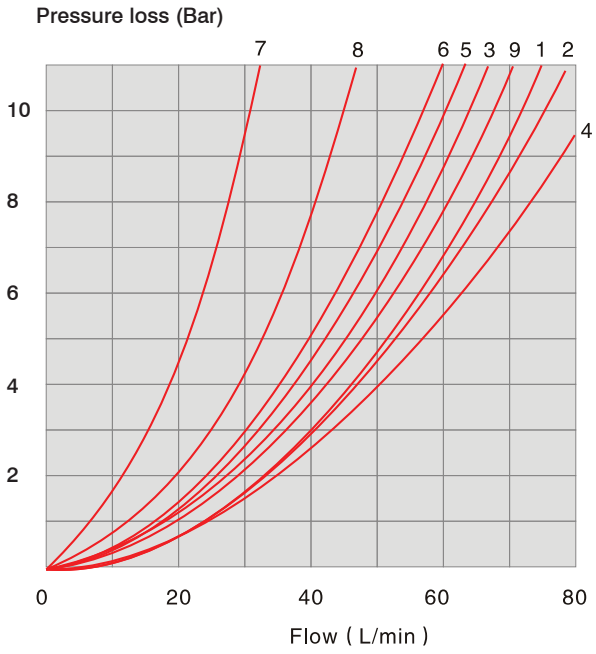
ELECTRICAL OPERATED DIRECTIONAL CONTROL VALVE

Name Of Solenoid



1. a When movement a, P→A B→T
2. b When movement b, P→B A→T
3. Oil flow in the opposite direction with the above - mentioned movement for 305、306 symbol Valve.

6 Specification Performance Curve (Measured at υ=41mm²/s and t=50℃)



Function code	Direction			
	P→A	P→B	A→T	B→T
288 288L	3	3	–	–
283	1	1	3	1
282 282L	5	5	3	3
302	3	3	1	1
305	1	3	1	1
305	6	6	9	9
303	2	4	2	2
304	1	1	2	1
3010,1012	3	3	4	9
309	2	3	3	3
3025	3	1	1	1
3029	5	5	4	–
307	1	2	1	1

7. Spool type “3029” located in the control position A →B
8. Spool symbol 306 in the neutral position P →T

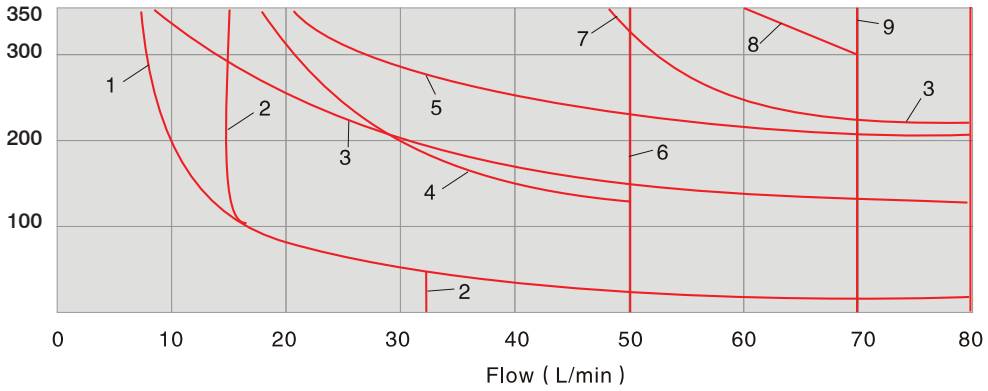
ELECTRICAL OPERATED DIRECTIONAL CONTROL VALVE

6 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.

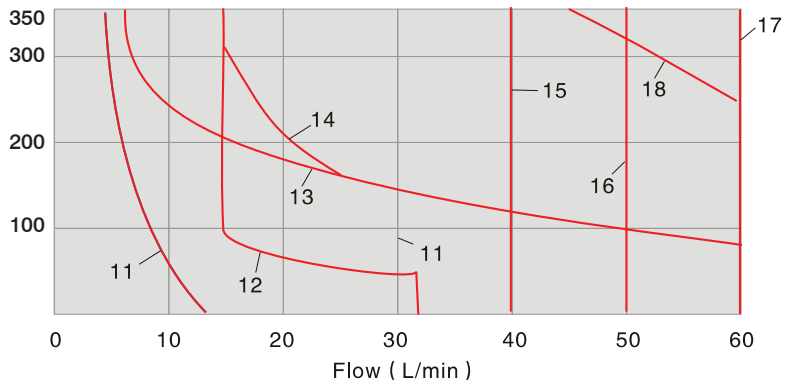
DC solenoid operation DC D24, D1 2, B220, B110		AC solenoid operation AC A110, A220, 50HZ	
Curve	Symbol	Curve	Symbol
1	288 288L1	11	288 288L1
2	307	12	307
3	288 288L	13	288 288L
4	305 3025	14	305 3025
5	304	15	306
6	306 303	16	303
7	2N8 2D8 3010 301	17	2N8 2D8 2N3 2D3
8	283 282 282L		2N2 2D2 302 304 3010
9	309		309 3029 3012
10	302 3029 2N3	18	283 282 282L
	2D3 2N2 2D2		

Working pressure (Bar)



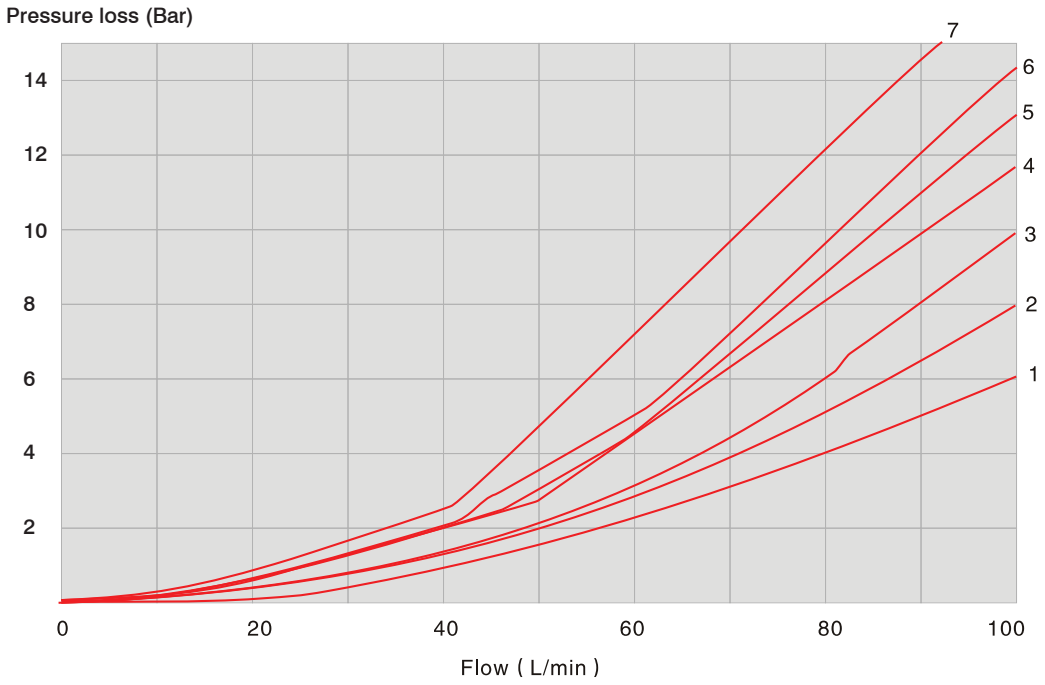
1) No manual emergency operation
2) Oil return from actuator to oil tank

Working pressure (Bar)



ELECTRICAL OPERATED DIRECTIONAL CONTROL VALVE

10 Specification Performance Curve (Measured at υ=41mm²/s and t=50℃)



Function code	Direction			
	P→A	P→B	A→T	B→T
288 288L	2	2	–	–
283 282 282L	2	2	3	3
302 307	2	2	4	4
305	2	3	3	5
306	3	3	4	6
303	1	1	4	5
3010 3012	2	2	3	5
309	1	1	5	1
3025	3	2	5	3
3029	2	4	3	–

7. Spool symbol “3029” in the shifting position A → B
4. Spool symbol 306 in the position P → T

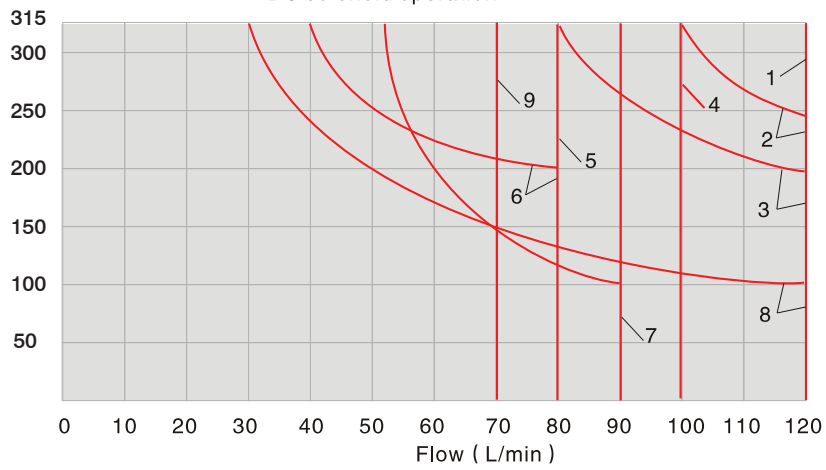
ELECTRICAL OPERATED DIRECTIONAL CONTROL VALVE

10 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 (Bar)

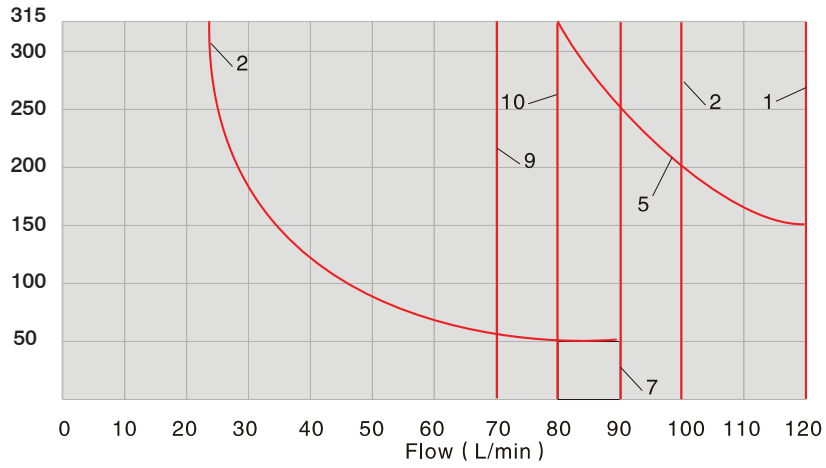
DC solenoid operation



Curve	Symbol
1	283 2N3 2D3 282 2N2 2D2 282L 309
2	302
3	2N8 2D8 3010 3012 304
4	303
5	3029
6	306
7	305 3025
8	388 288L
9	307
1)	Return circuit (Independent of area ratio)

Working pressure (Bar)

AC solenoid operation

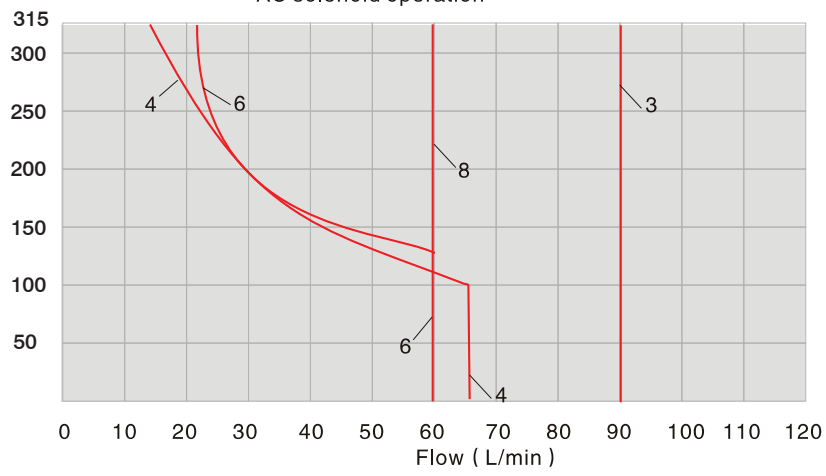


110V,50Hz; 120V,60Hz;
220V,50Hz; 240V,60Hz;

Curve	Symbol
1	283 2N3 2D3 282 2N2 2D2 282L
2	302 3010
3	3012 309
4	288 288L
5	288 2D8 304
6	306
7	305 3025
8	307
9	303
10	3029

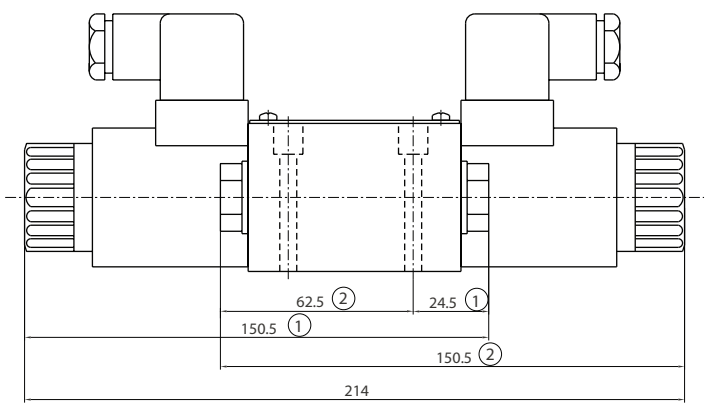
Working pressure (Bar)

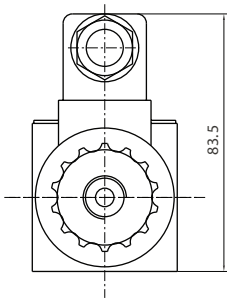
AC solenoid operation



ELECTRICAL OPERATED DIRECTIONAL CONTROL VALVE

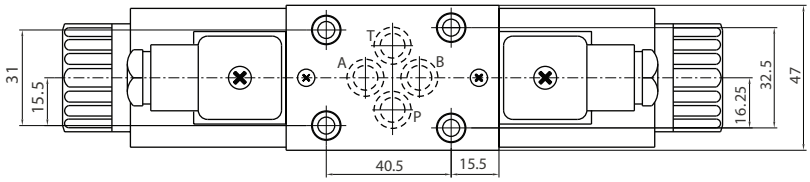
External Dimensions (6 Direct Current Plug Type)



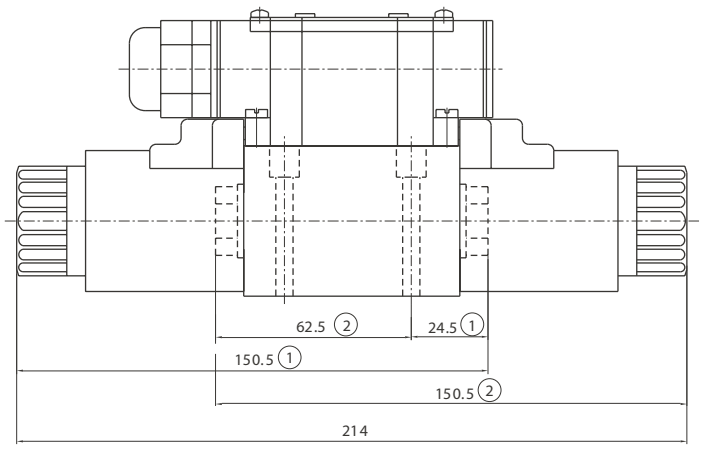


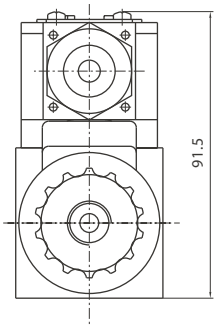
① ②

Two positions Electrical
operated directional control valve



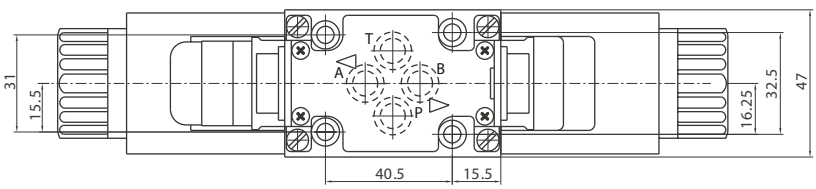
External Dimensions (6 Direct Current Wire Box Type)





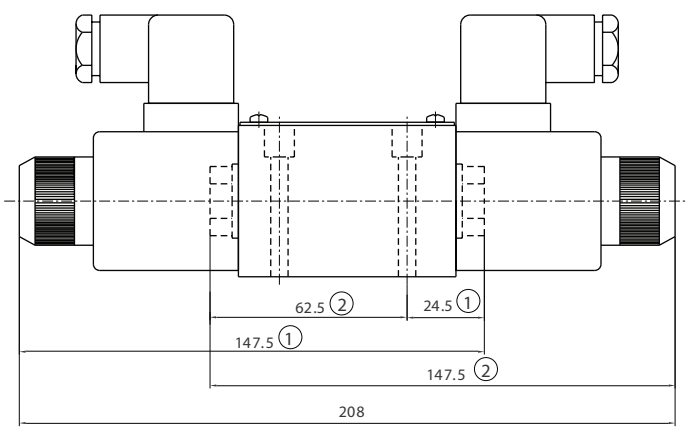
① ②

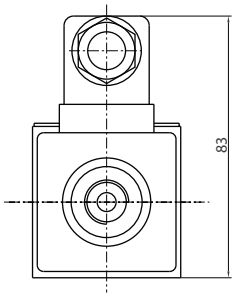
Two positions Electrical
operated directional control valve



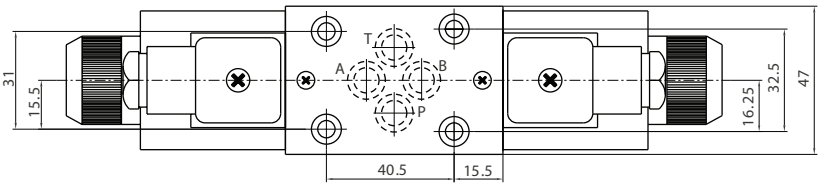
ELECTRICAL OPERATED DIRECTIONAL CONTROL VALVE

External Dimensions (6 Direct Current Plug Type)

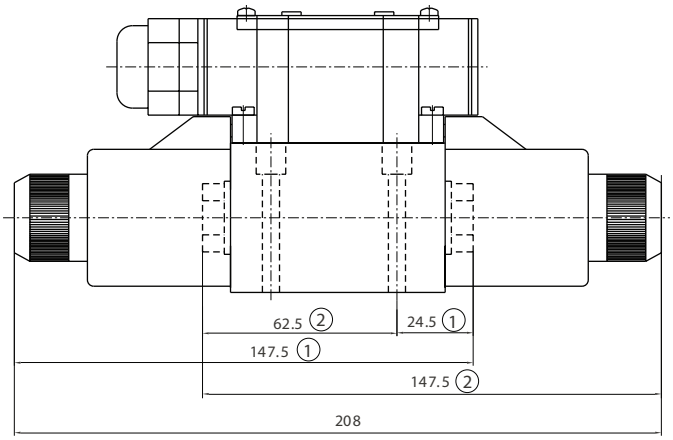


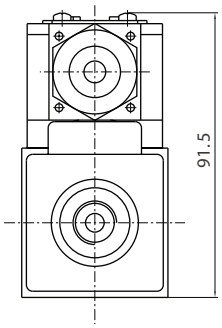


① ②
Two positions Electrical
operated directional control valve

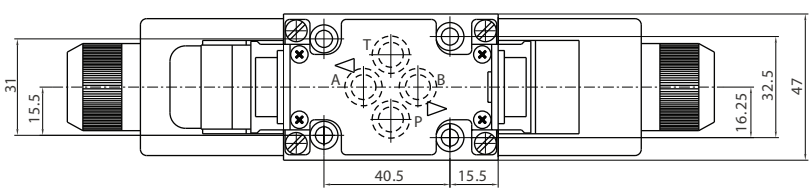


External Dimensions (6 Alternating Current Wire Box Type)



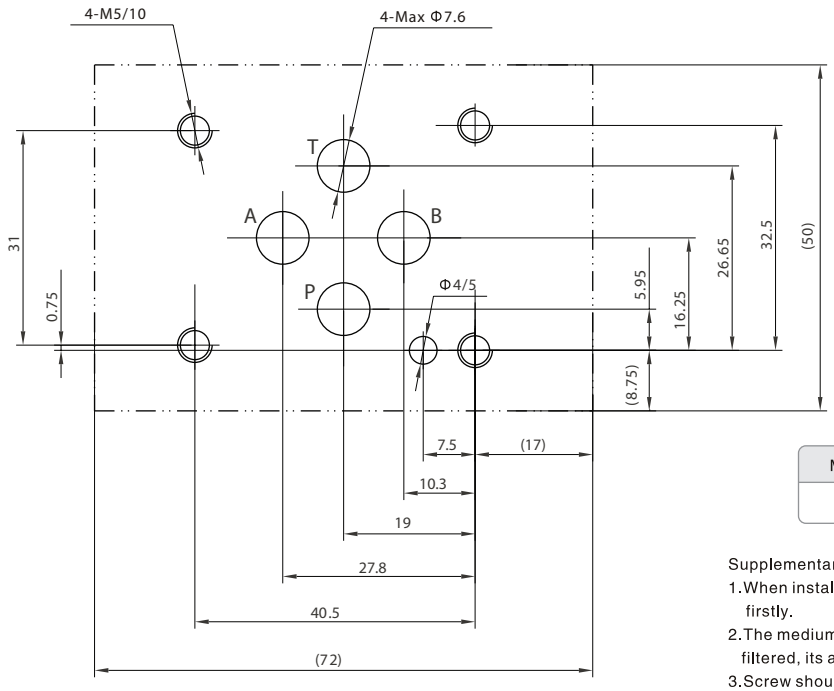


① ②
Two positions Electrical
operated directional control valve



ELECTRICAL OPERATED DIRECTIONAL CONTROL VALVE

6 Size of Subplate Oil Port

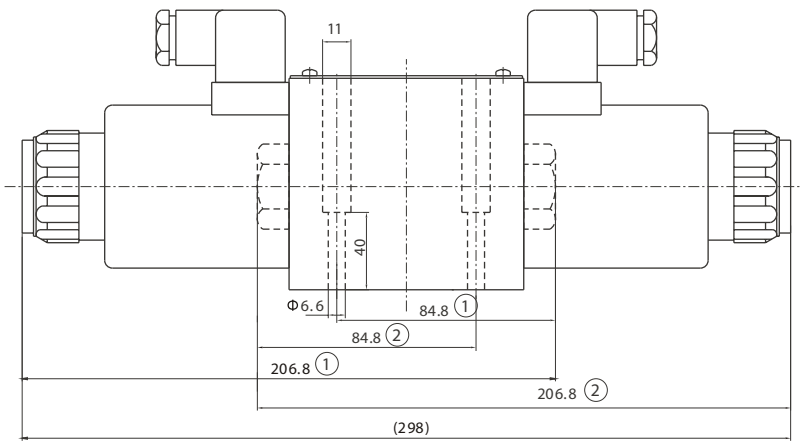


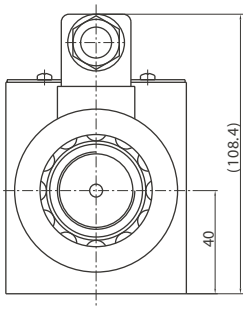
Mounting screw	Amount	Tighten torque
M5x45-10.9	4	9Nm

Supplementary explanation

1. When installing the product, considering horizontal position firstly.
2. The medium used in the hydraulic system must be filtered, its accuracy at least 20 μ m.
3. Screw should be according to the parameters in catalogue.
4. The surface, connecting with the valve, should be Ra0.8 roughness, and 0.01/100mm flatness.

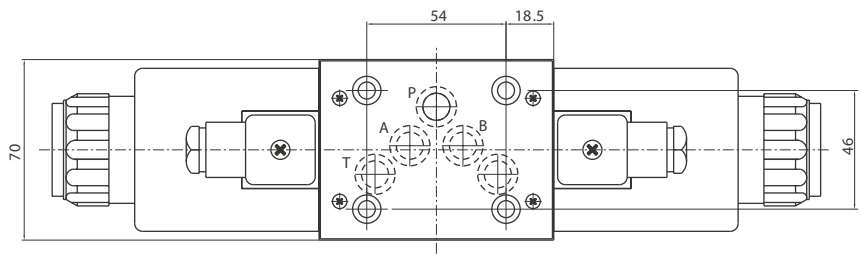
External Dimensions (10 Direct Current Plug Type)





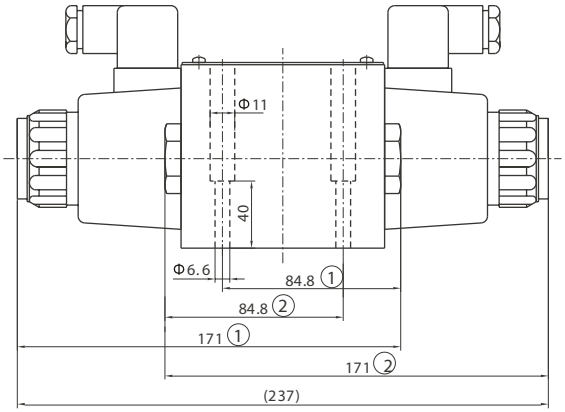
① ②

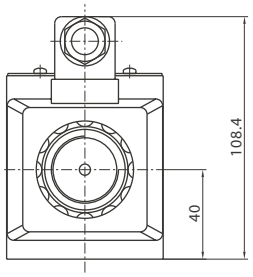
Two positions Electrical operated directional control valve



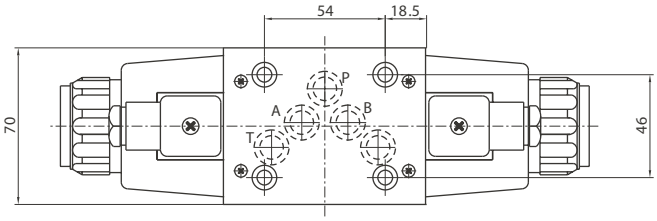
ELECTRICAL OPERATED DIRECTIONAL CONTROL VALVE

External Dimensions (10 Alternating Current Plug Type)

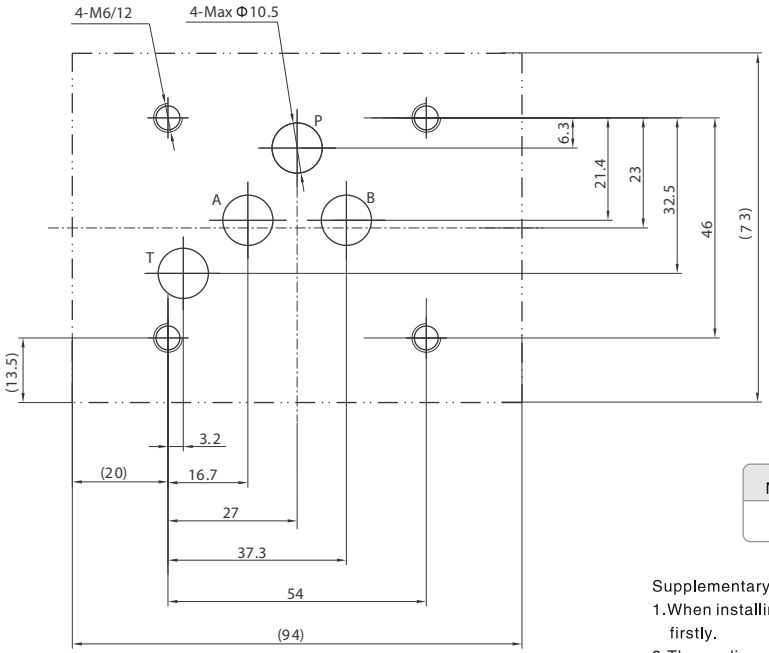




① ②
Two positions Electrical
operated directional control valve



10 Size Of Subplate Oil Port



Mounting screw	Amount	Tighten torque
M6X50-10.9	4	15Nm

Supplementary explanation
1.When installing the product, considering horizontal position firstly.
2.The medium used in the hydraulic system must be filtered, its accuracy is at least 20 μ m.
3.Screw should be according to the parameters in catalogue.
4.The surface, connecting with the valve, should be Ra0.8 roughness, and 0.01/100mm flatness.