

Directional Control Valves Series



- | | | | |
|------------|-----------------------------------------------|-------------|-----------------------------------------------------------|
| D.1.1-1.2 | In-Line check valve | D.7.1-7.13 | Manual operated directional control valve |
| D.2.1-2.2 | Orthogonal check valve | D.8.1-8.3 | Hydraulic-operated directional control valve |
| D.3.1-3.2 | Hydraulic-operated check valve | D.9.1-9.6 | Water-proof electrical operated directional control valve |
| D.4.1-4.2 | Prefill valve | D.10.1-10.3 | Modular check valve |
| D.5.1-5.10 | Electrical operated directional control valve | D.11.1-11.3 | Modular pilot-operated check valve |
| D.6.1-6.17 | Electro-hydraulic directional control valve | D.12.1-12.3 | Solenoid valve with hand control |

In-line Check Valve

Technical specification

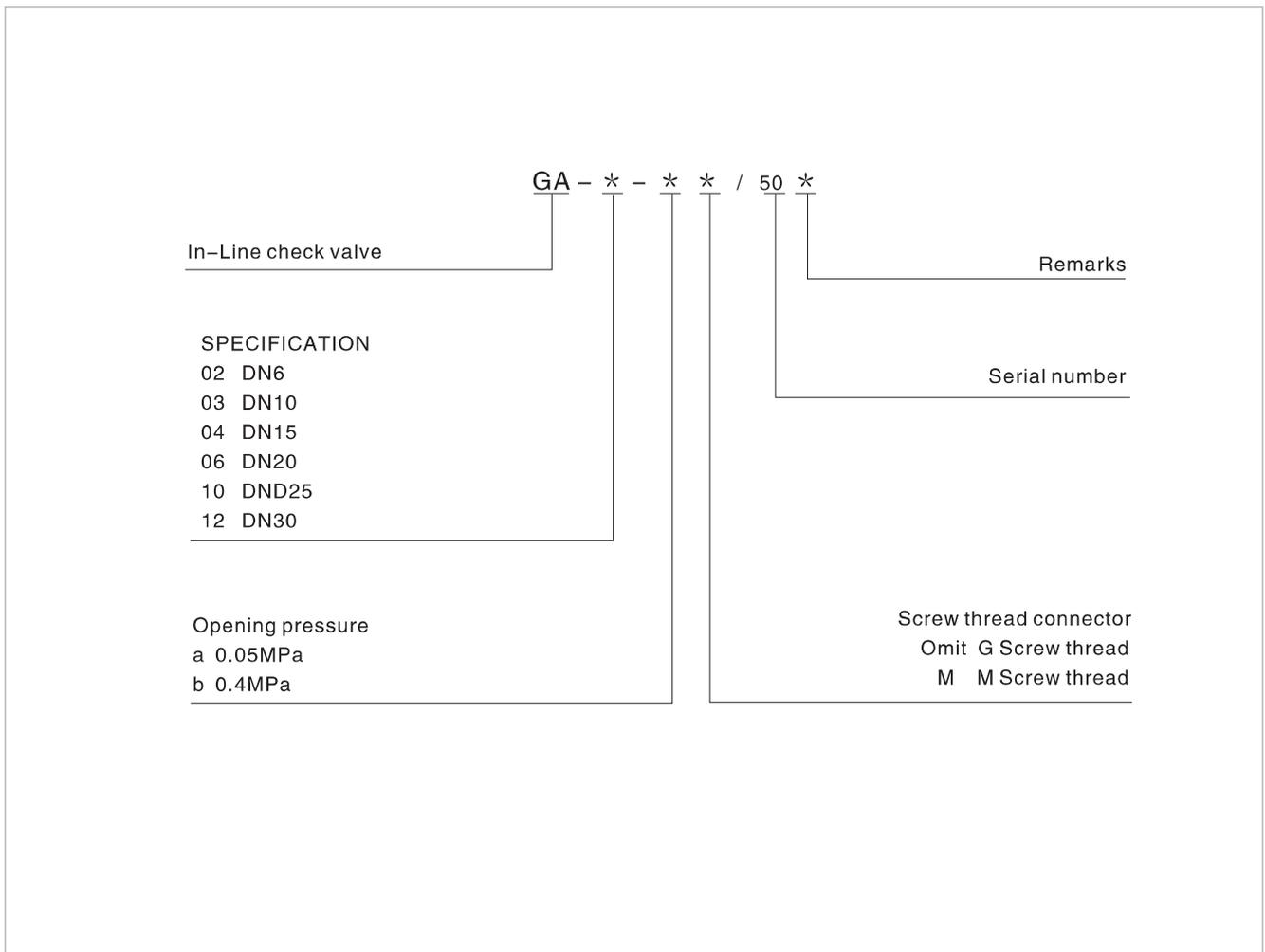


Specification	02	03	04	06	10	12
Max. working pressure (MPa)	31.5					
Max. Flow (L/min)	30	50	140	220	320	430
Working fluid	Mineral oil; phosphate-ester					
Fluid temp. (°C)	-20~70					
Viscosity (mm ² /s)	2.8~380					
Opening pressure (MPa)	a0.05		b0.4			
Cleanliness	The maximum allowable cleanliness of the oil should be according to 9th degree of Standard NAS1638. It is suggested that the minimum filter rating should be $\beta_{10} \geq 75$.					

Check valve allows the fluid to flow only in one direction and prevents it from flowing in the opposite direction.

Check valve could be used at the outlet of hydraulic pressure pump to avoid the oil flow backwards. It can also separate the oil lines to avoid the oil lines mutual interference. It can be used as by-pass valve.

Model description

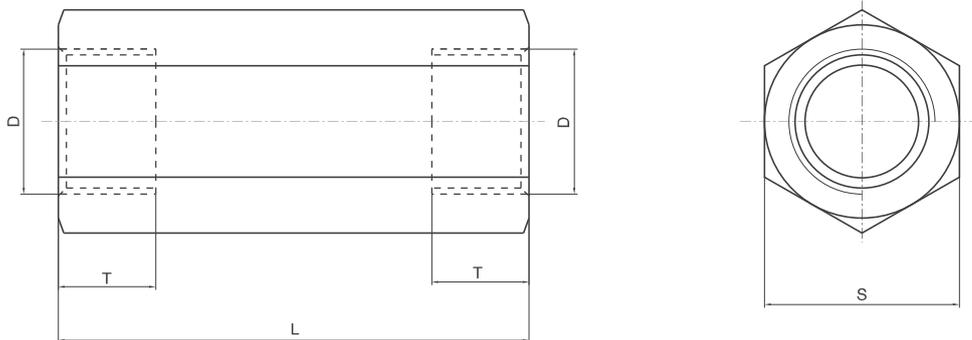


In-line Check Valve

Code symbol



External dimensions



D.1.2

Specification	D		L(mm)	S(mm)	T(mm)
	British System	Metric System			
02	G3/8"	M18X1.5	58	24	12
03	G1/2"	M22X1.5	72	30	15
04	G3/4"	M27X2	85	36	17
06	G1"	M33X2	98	46	20
10	G1 1/4"	M42X2	120	60	22
12	G1 1/2"	M48X2	138	65	24

Orthogonal Check Valve

Technical specification



Specification	03	06	10
Max. working pressure (MPa)	31.5		
Max. Flow(L/min)	80	220	430
Working fluid	Mineral oil; phosphate-ester		
Fluid temp. (°C)	-20~70		
Viscosity (mm ² /s)	2.8~380		
Opening pressure (MPa)	a0.05	b0.4	
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 $\beta_{10} \geq 75$.		

Check valve allows the fluid to flow only in one direction and prevents it from flowing in the opposite direction.

Check valve could be used at the outlet of hydraulic pressure pump to avoid the oil flow backwards. It can also separate the oil lines to avoid the oil lines mutual interference. It can be used as by-pass valve.

Model description

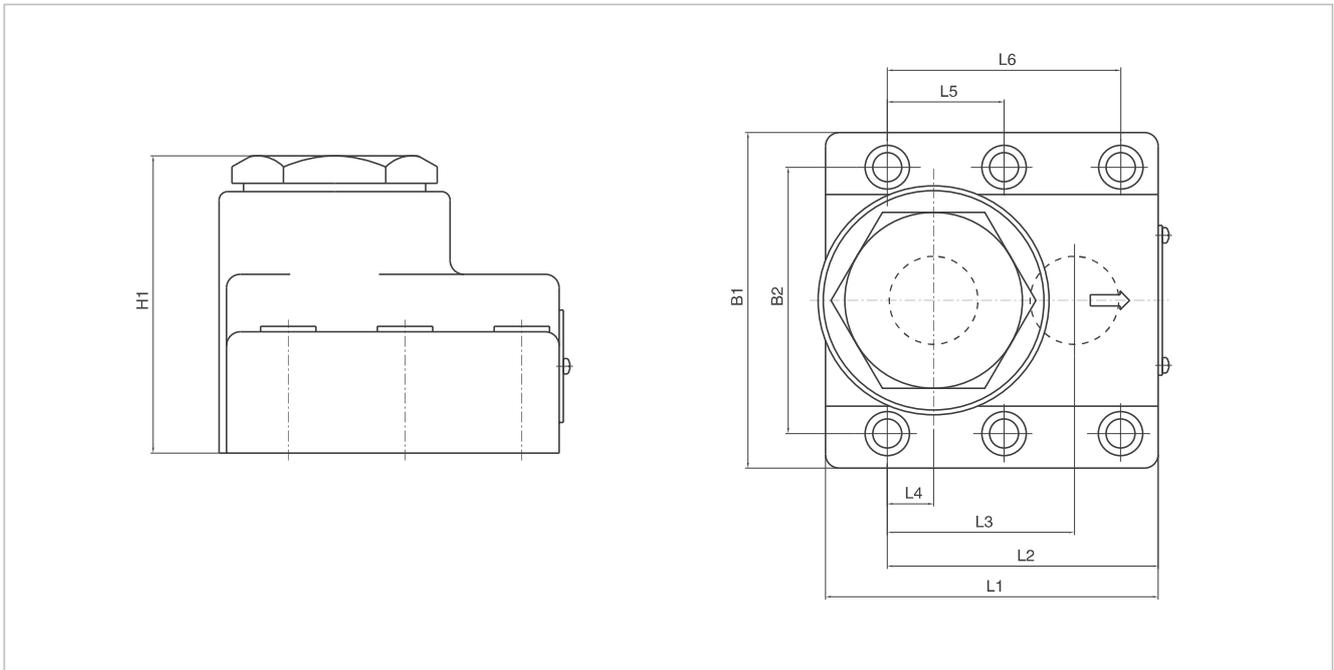
	AJ - * - * / * 50 *		
Orthogonal check valve		Remarks	
Specification 03 DN10 06 DN20 10 DN25		Serial number	
Opening pressure a 0.05MPa b 0.4MPa		Seal material Omit NBR Seals V FPM Seals	

Code symbol

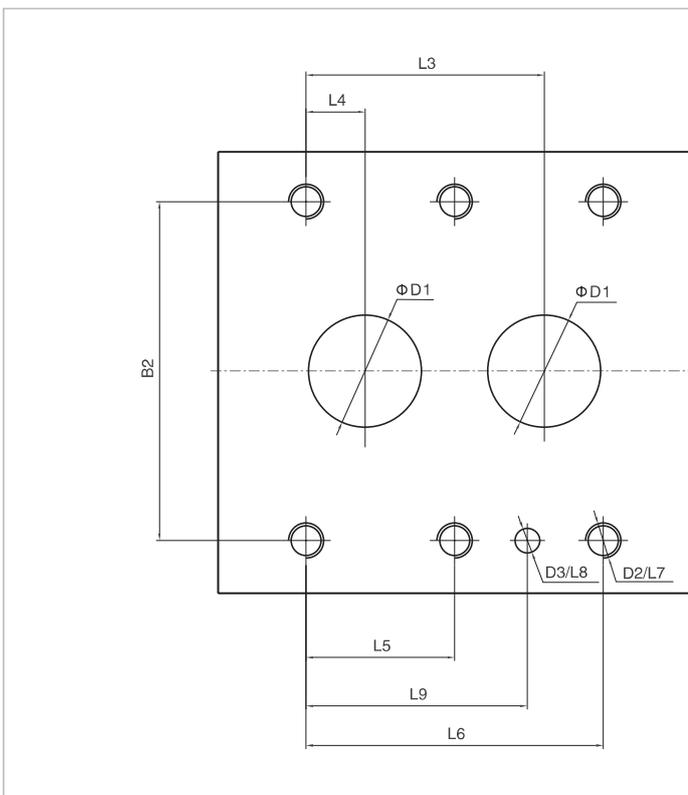


Orthogonal Check Valve

External dimensions



Size of subplate oil port



The drawing shows a subplate with two circular oil ports. The left port has a diameter labeled $\Phi D1$. The right port has a diameter labeled $\Phi D1$. Below the right port, there are two smaller ports labeled D3/L8 and D2/L7. Dimension lines are labeled B2, L3, L4, L5, L6, and L9.

Specification	Mounting screw	Amount	Tighten torque
03	M10x40-10.9	4	75Nm
06	M10x50-10.9	4	75Nm
10	M10x70-10.9	6	75Nm

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 $20\mu\text{m}$.
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.

Specification	B1	B2	L1	L2	L3	L4	L5	L6	L7	L8	L9	D1	D2	D3	H1
03	90	66.7	67	55	35.8	7.25	-	42.9	23	6	31.8	13	M10	7	67
06	103.5	79.4	84.3	72.3	49.2	11.1	-	60.3	24	6	44.5	22	M10	7	79
10	122	96.8	112	98	67.5	16.7	42.1	84.2	25	6	62.7	32	M10	7	105

Hydraulic-operated Check Valve

Technical specification



Specification	03	06	10
Max. working pressure (Mpa)	31.5		
Control pressure (Mpa)	0.5~31.5		
Max. Flow (L/min)	100	350	550
Working fluid	Mineral oil; phosphate-ester		
Fluid temp. (°C)	-20~70		
Viscosity (mm ² /s)	2.8~380		
Opening pressure (Mpa)	a:0.15 b:0.3 c:0.6 d:1.0		
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 $\beta_{10} \geq 75$.		

Hydraulic-operated check valve allows oil to flow in only one direction, and it can not allow the oil to flow in the opposite direction unless it uses the hydraulic control.

Hydraulic-operated check valve can be used as two way on-off valve, and also can be seen as a pressure retaining valve or a sustaining valve of the standing fluid cylinders.

Model description

Hydraulic-operated check valve

A1Y Internal discharge type

A2Y External discharge type

Specification

Plate connecting type	Pipe connecting type	Screw thread connector
03 NS10	10 DN10	G1/2" or M22x1.5
	15 DN15	G3/4" or M27x2
06 NS20	20 DN20	G1" or M33x2
	25 DN25	G1 1/4" or M42x2
10 NS30	30 DN30	G1 1/2" or M48x2

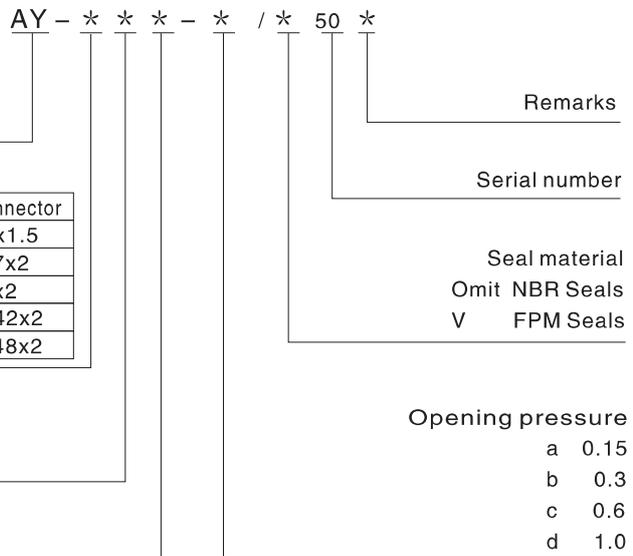
Omit Plate connecting type

G Pipe connecting type-G Screw

G2 Pipe connecting type-M Screw

A with unloading function

B Without unloading function

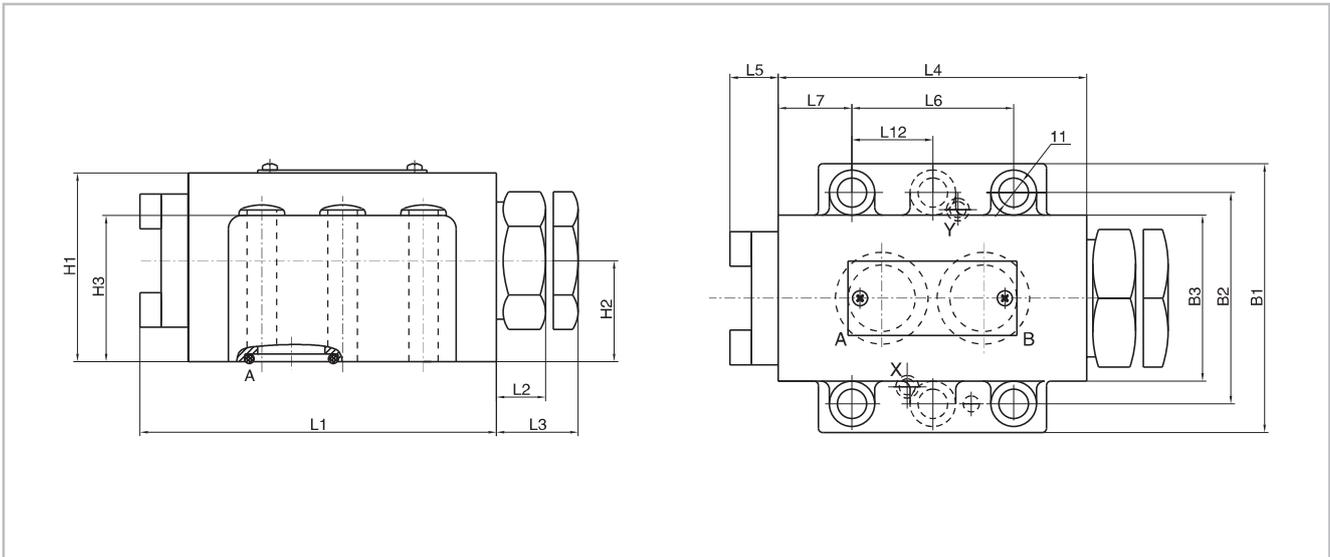


Code symbol

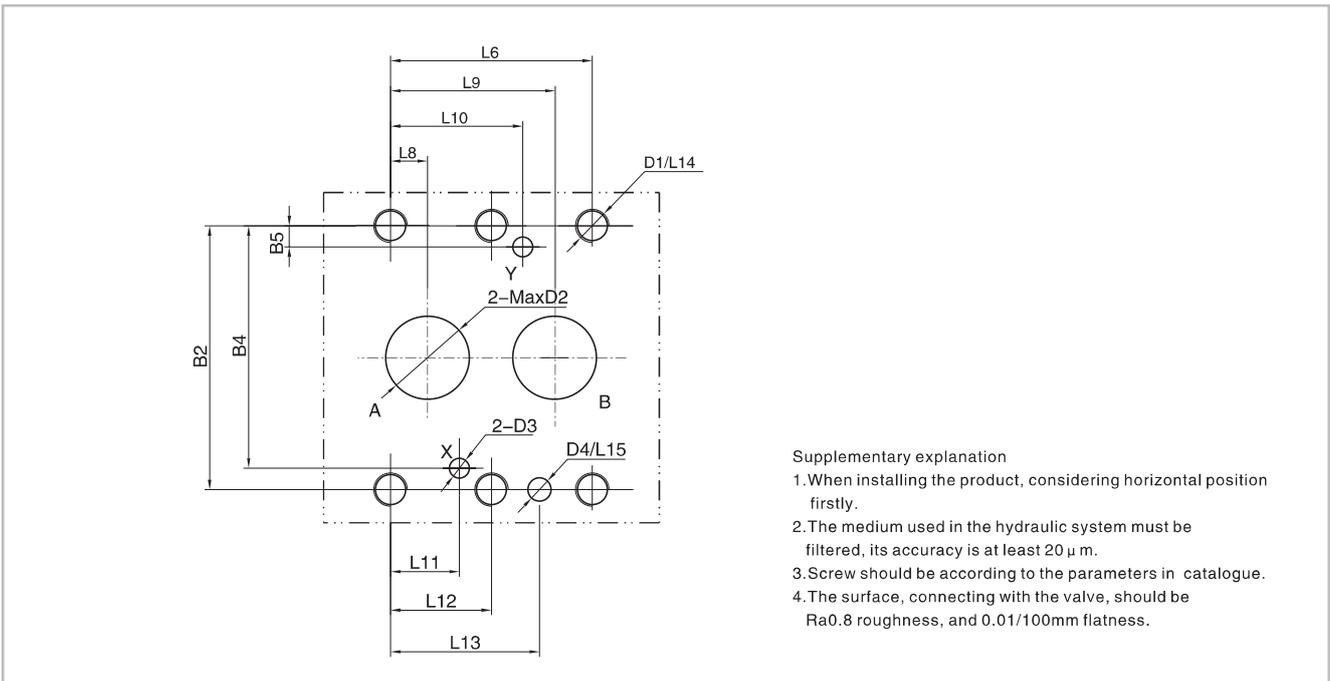


Hydraulic-operated Check Valve

External dimensions



Size of subplate



Model	Specification	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10		L11	L12	L13	L14	L15
											A1Y	A2Y					
A1Y	03	102	14.3	15.5	89	13	42.9	18.5	7.2	35.8	-	21.5	21.5	-	31.8	23	6
	06	133	18.3	47.7	115	18	60.3	27.5	11.1	49.2	-	39.5	20.6	-	44.5	24	6
A2Y	10	156	35.6	46.1	134	22.1	84.2	39	16.7	67.5	-	42.1	24.6	42.1	62.7	25	6

Model	Specification	B1	B2	B3	B4	B5		H1	H2	H3	D1	D2	D3	D4
						A1Y	A2Y							
A1Y	03	84	66.7	44	58.8	-	7.9	51	29	36	M10	13	6	7
	06	101	79.4	62.4	73	-	6.4	71	38	55	M10	22	6	7
A2Y	10	117	96.8	77	92.8	-	3.8	85	42.5	70	M10	32	6	7

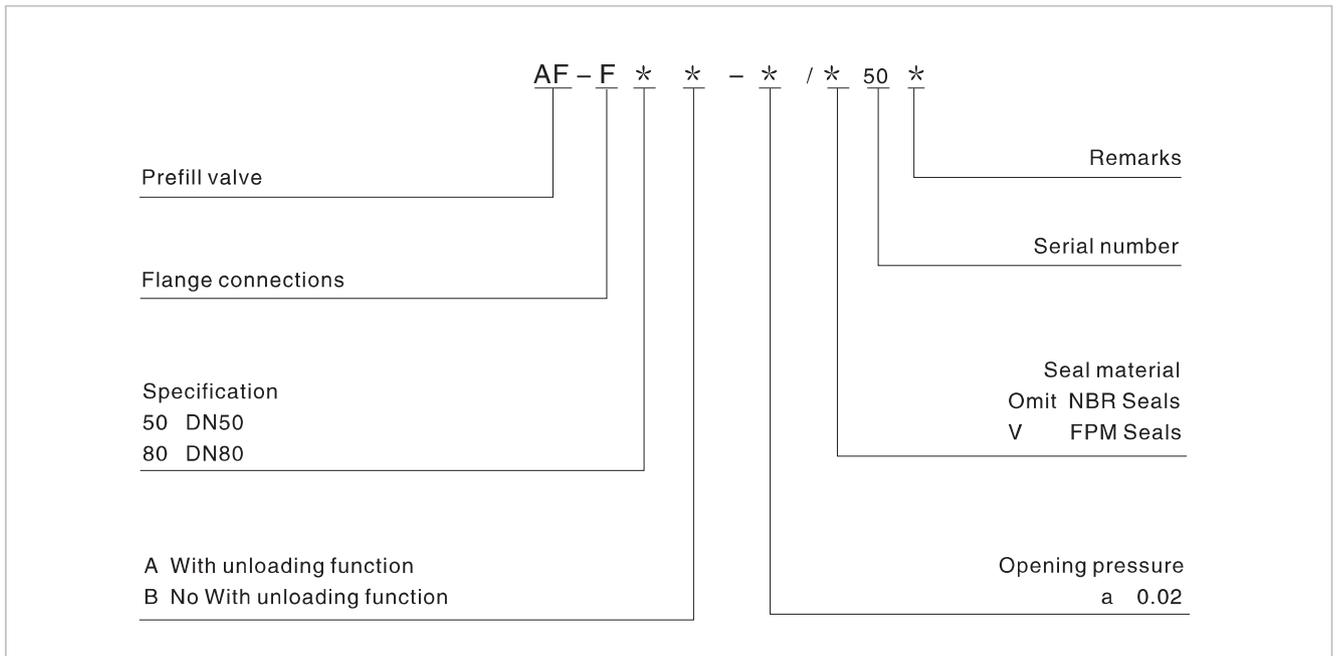
Prefill Valve

Technical specification

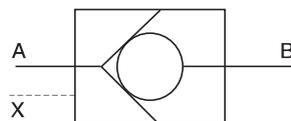


Specification		50	80
Max. working pressure (Mpa)	A	1.6	
	B	31.5	
	C	31.5	
(L/min)		-	
Working fluid		Mineral oil; phosphate-ester	
(°C)		-20~70	
Viscosity (mm ² /s)		2.8~380	
	(MPa)	a:0.02	
Weight (kg)		14	32
Cleanliness	The maximum allowable cleanliness of the oil should be according to 9th degree of Standard NAS1638. It is suggested that the minimum filter rating should be $\beta 10 \geq 75$.		

Model description

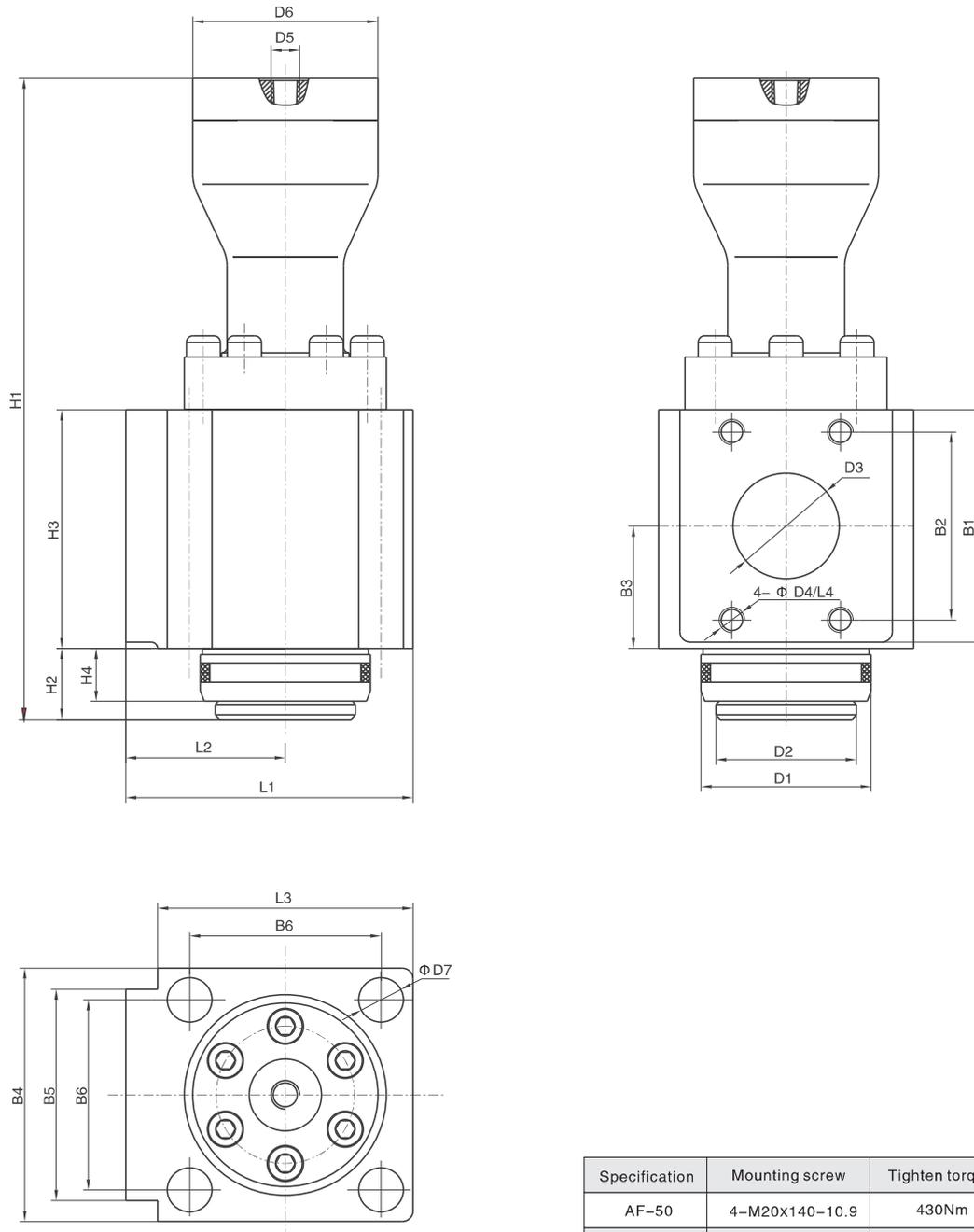


Code symbol



Prefill Valve

External dimensions



Specification	Mounting screw	Tighten torque
AF-50	4-M20x140-10.9	430Nm
AF-80	4-M30x200-10.9	1640Nm

Specification	L1	L2	L3	L4	B1	B2	B3	B4	B5	B6	H1	H2	H3	H4	D1	D2	D3	D4	D5	D6	D7
AF-50	135	75	120	16	110	89	58	120	100	90	303.5	33.5	113	25	80f7	66	50	M12	NPT /4"	87	21
AF-80	192	102	180	20	157	106.5	77.5	180	115	130	357.5	40.5	160	30	115f7	97	76	M16	NPT /4"	87	31

Electrical Operated Directional Control Valve

Technical specification



Specification		02	03
Working pressure (MPa)	Oil ports P,A,B	35	31.5
	Oil port T	10	10
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 (V)	DC	12	24
	AC	110/50Hz	220/50Hz
Max. Switch frequency (T/h)		15000 (DC)	7200 (AC)
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 $\beta_{10} \geq 75$.		

Model description

F W - * - * - * * * / * * 50 *

Electrical Operated Directional Control Valve

Specification
02 DN6
03 DN10

Function code
Details as following symbol table

Working voltage
D12 DC12V
D24 DC24V
A110 AC110V
A220 AC220V
B110 AC110V Rectified
B220 AC220V Rectified

Z5L Square connector with light
Z6 Wire box type

Remarks

Serial number

50
60
70
Seal material
Omit NBR Seals
V FPM Seals

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

Omit without hand emergency
N9 with concealed hand emergency

Electrical Operated Directional Control Valve



Code symbol

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

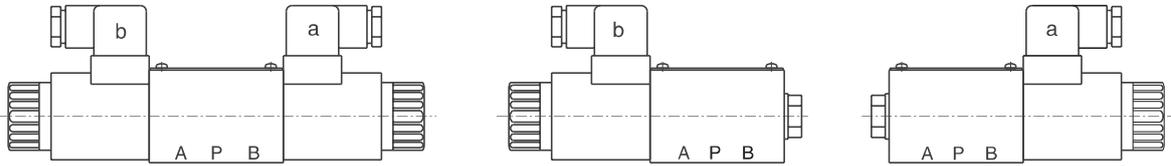
No spring return and no detent mechanical positioning

	2N2
	2N3
	2N8

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

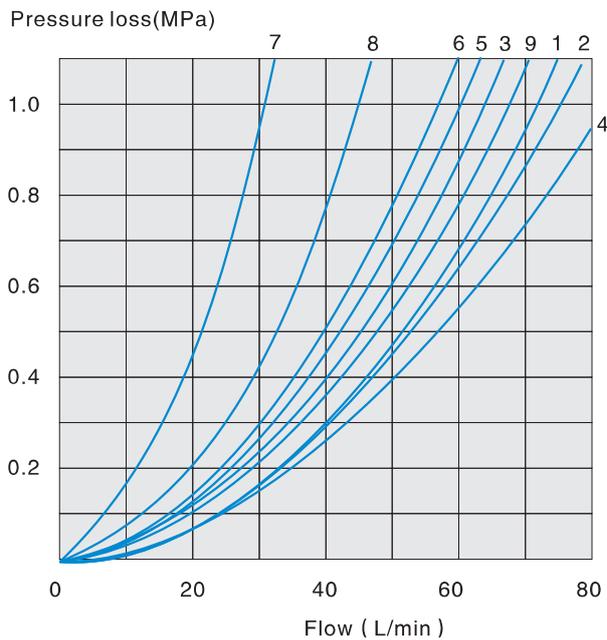
Electrical Operated Directional Control Valve

Name of solenoid



1. a When movement a, 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 3C5, 3C6 symbol Valve.

02 Specification Performance curve (Measured at $\nu=41\text{mm}^2/\text{s}$ and $t=50^\circ\text{C}$)



Function code	Direction			
	P→A	P→B	A→T	B→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 →B

8. Spool symbol 3C6 in the neutral position P →T

Electrical Operated Directional Control Valve

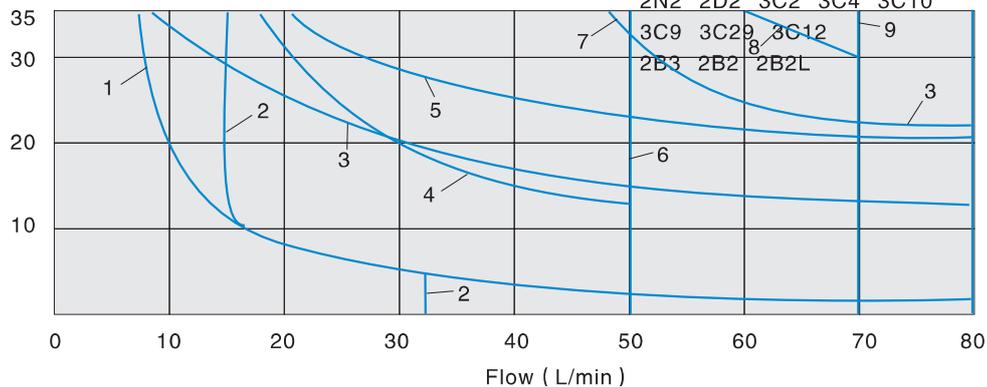


02 Specification Working limits (The working limits for directional valves have determined by using solenoids at their operating temperature, 10% under voltage and with no pre-loading of the tank)

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.

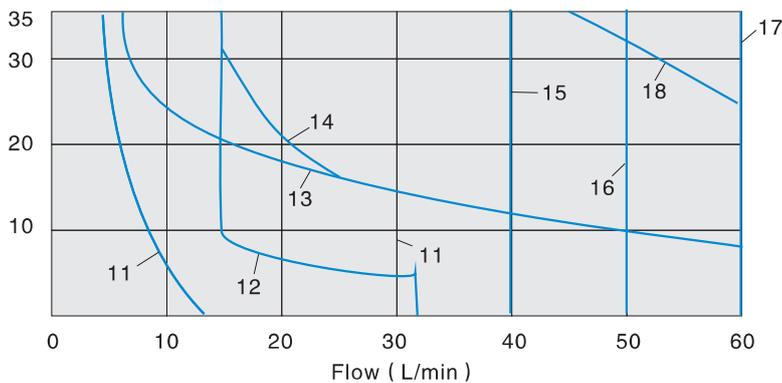
DC solenoid operation DC D24, D1 2, B220, B110		AC solenoid operation AC A110, A220, 50HZ	
Curve	Symbol	Curve	Symbol
1	2B8 2B8L1)	11	
2	3C7	12	
3	2B8 2B8L	13	
4	3C5 3C25	14	
5	3C4	15	
6	3C6 3C3	16	
7	2N8 2D8 3C10 3C12	17	
8	2B3 2B2 2B2L	18	2B8 2B8L1)
9	3C9		3C7
10	3C2 3C29 2N3 2D3 2N2 2D2		2B8 2B8L
			3C5 3C25

Working pressure(MPa)



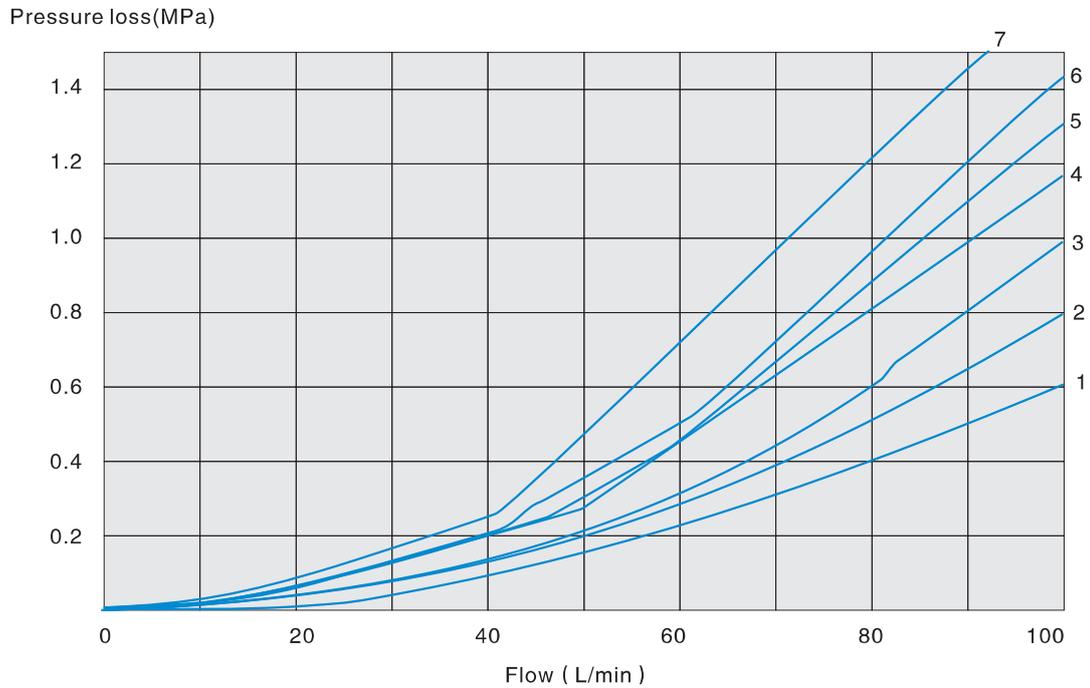
- 1) No manual emergency operation
- 2) Oil return from actuator to oil tank

Working pressure(MPa)



Electrical Operated Directional Control Valve

03 Specification Performance curve (Measured at $v=41\text{mm}^2/\text{s}$ and $t=50^\circ\text{C}$)



Function code	Direction			
	P→A	P→B	A→T	B→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 → B
 4. Spool symbol 3C6 in neutral position P → T

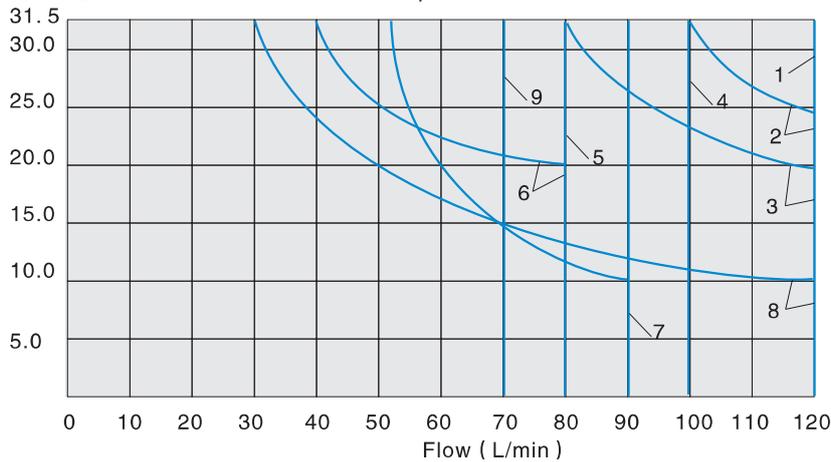
Electrical Operated Directional Control Valve



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)

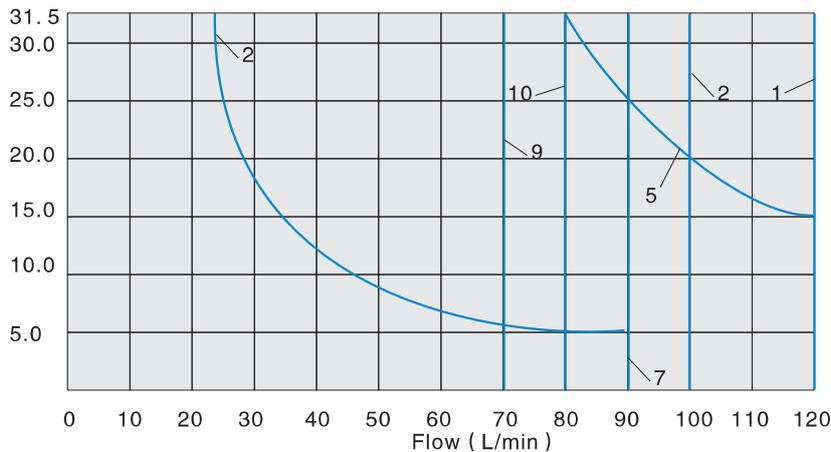
With regard to the four-way valve, the normal flow data as shown is get from the regular use of two directions of the flow (e.g. P to A, and simultaneous return flow from B to T). See tables. If only one flow direction is needed, for example: When a four port valve which is closed up port A or port B,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

Working pressure(MPa) DC solenoid operation



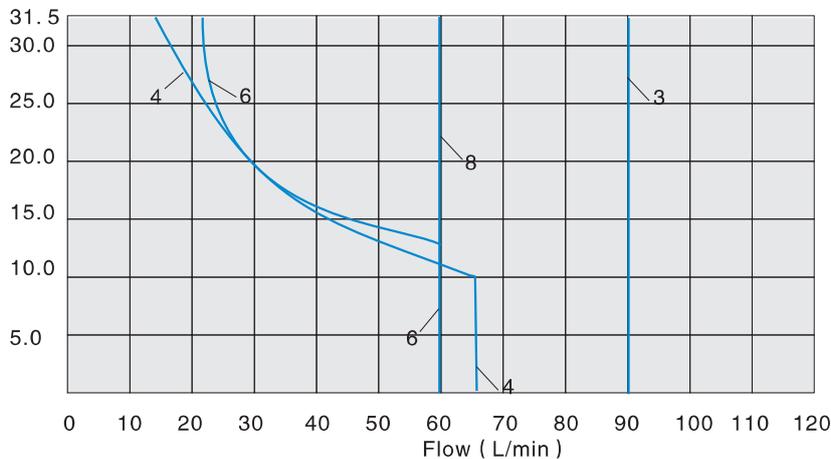
Curve	Symbol
1	2B3 2N3 2D3 2B2 2N2 2D2 2B2L 3C9
2	3C2
3	2N8 2D8 3C10 3C12 3C4
4	3C3
5	3C29
6	3C6
7	3C5 3C25
8	2B8 2B8L
9	3C7
1)	Return circuit (Independent of area ratio)

Working pressure(MPa) AC solenoid operation



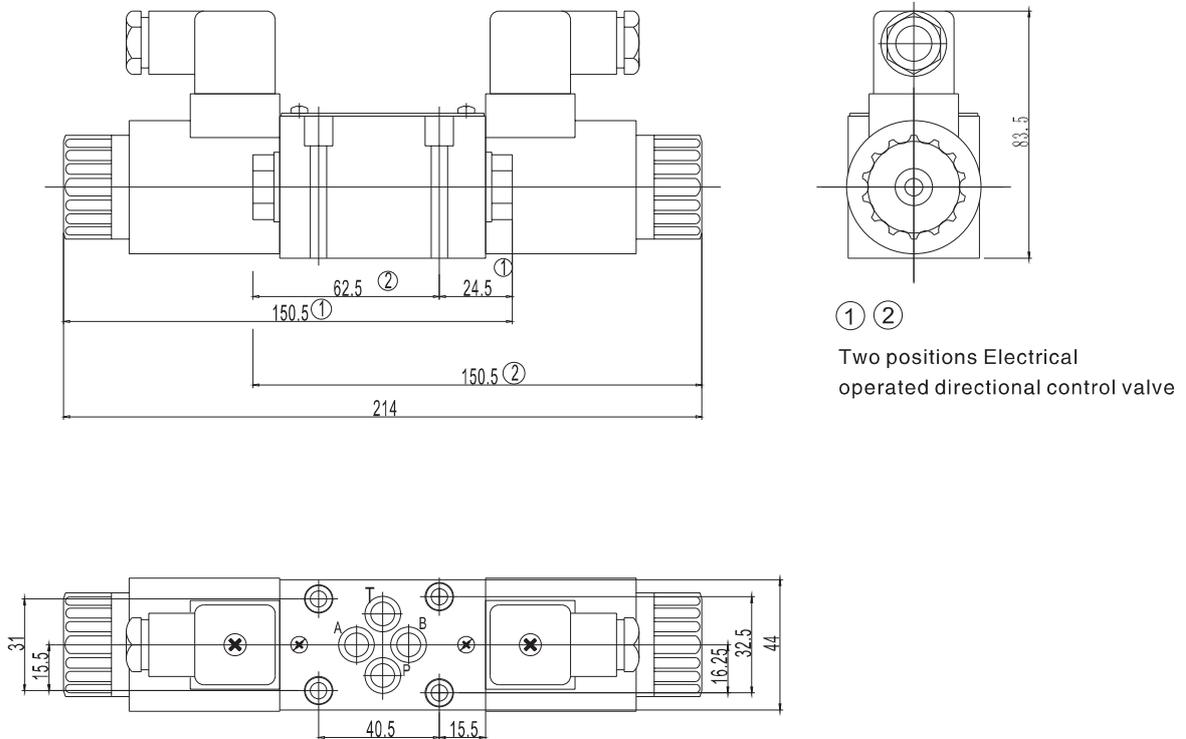
110V,50Hz; 120V,60Hz; 220V,50Hz; 240V,60Hz;	
Curve	Symbol
1	2B3 2N3 2D3 2B2 2N2 2D2 2B2L
2	3C2 3C10
3	3C12 3C9
4	2B8 2B8L
5	2N8 2D8 3C4
6	3C6
7	3C5 3C25
8	3C7
9	3C3
10	3C29

Working pressure(MPa) AC solenoid operation

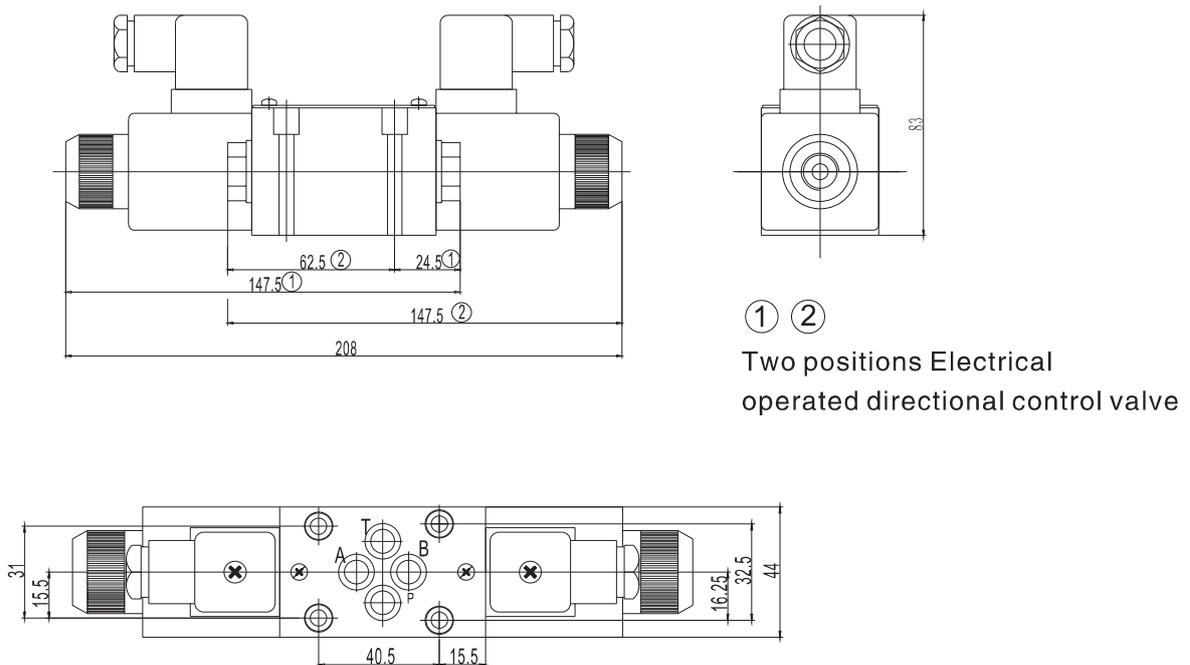


Electrical Operated Directional Control Valve

External dimensions (02 Direct current plug type)



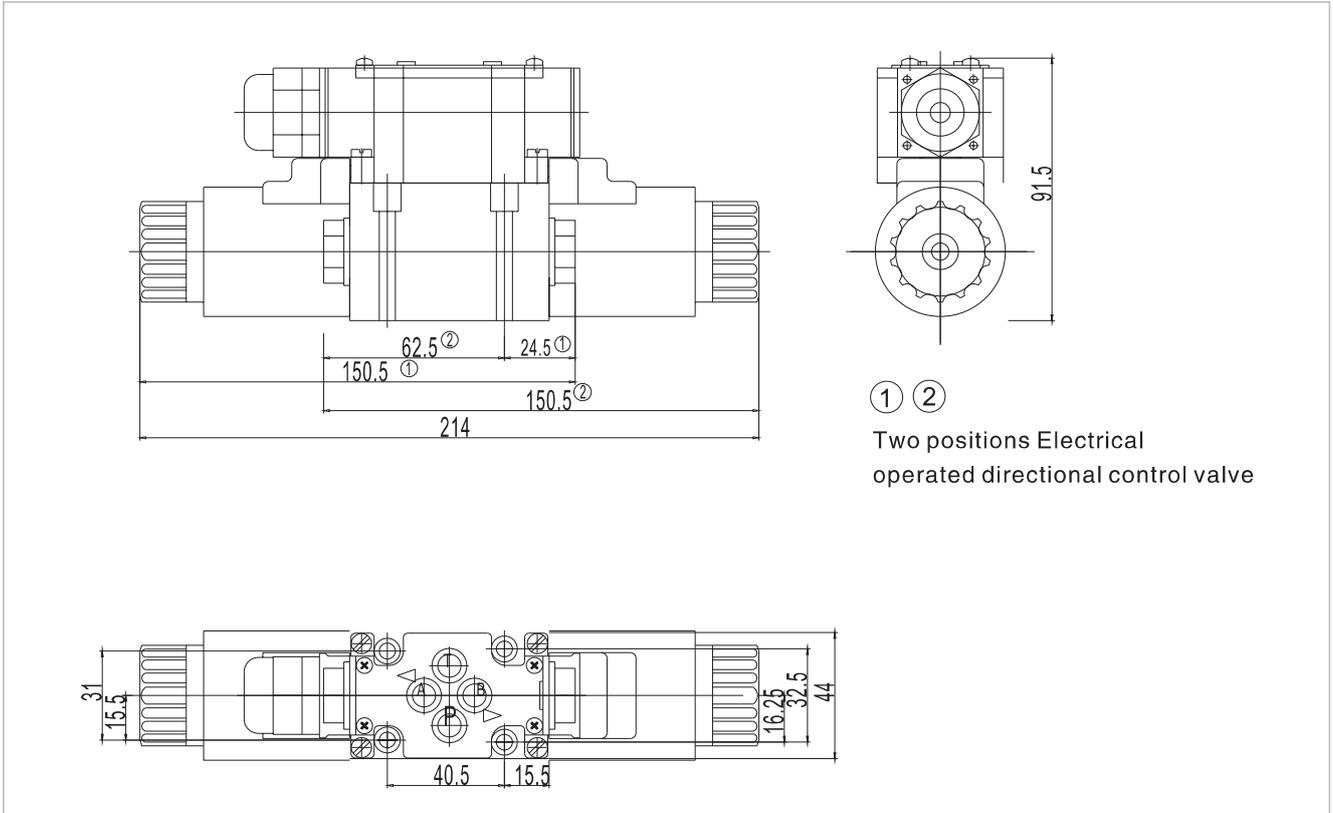
External dimensions (02 Direct current wire box type)



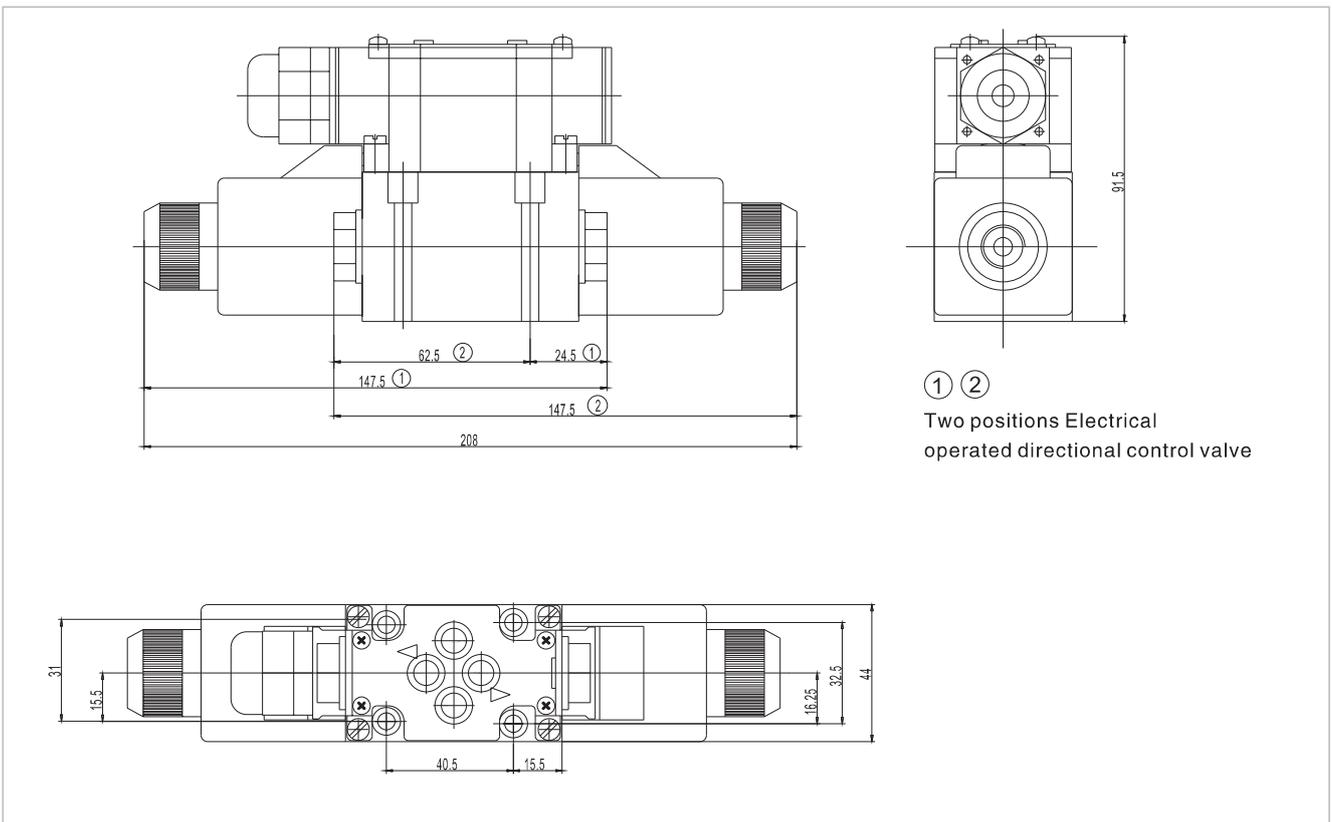
Electrical Operated Directional Control Valve



External dimensions (02 Alternating current plug type)

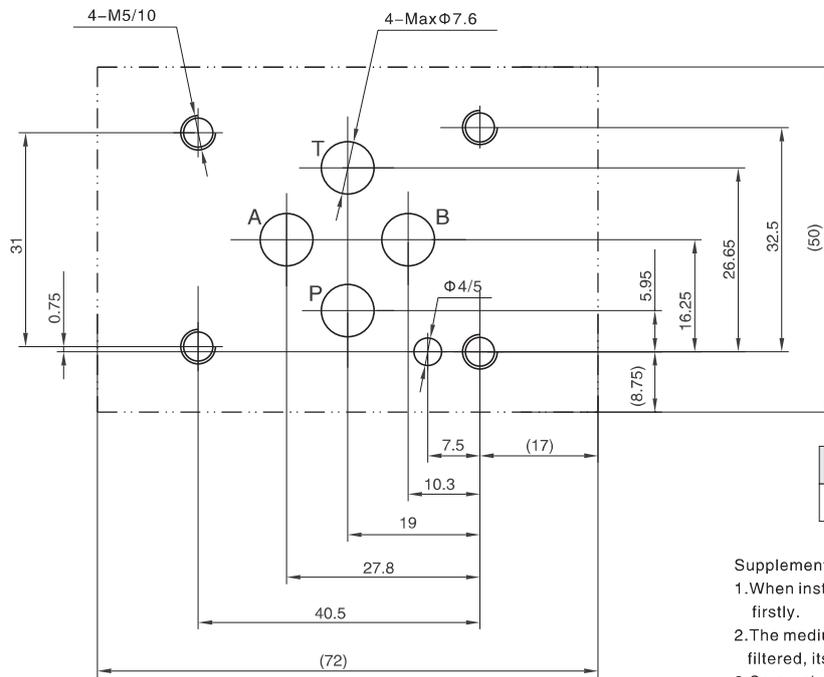


External dimensions (02 Alternating current wire box type)



Electrical Operated Directional Control Valve

02 Size of subplate oil port

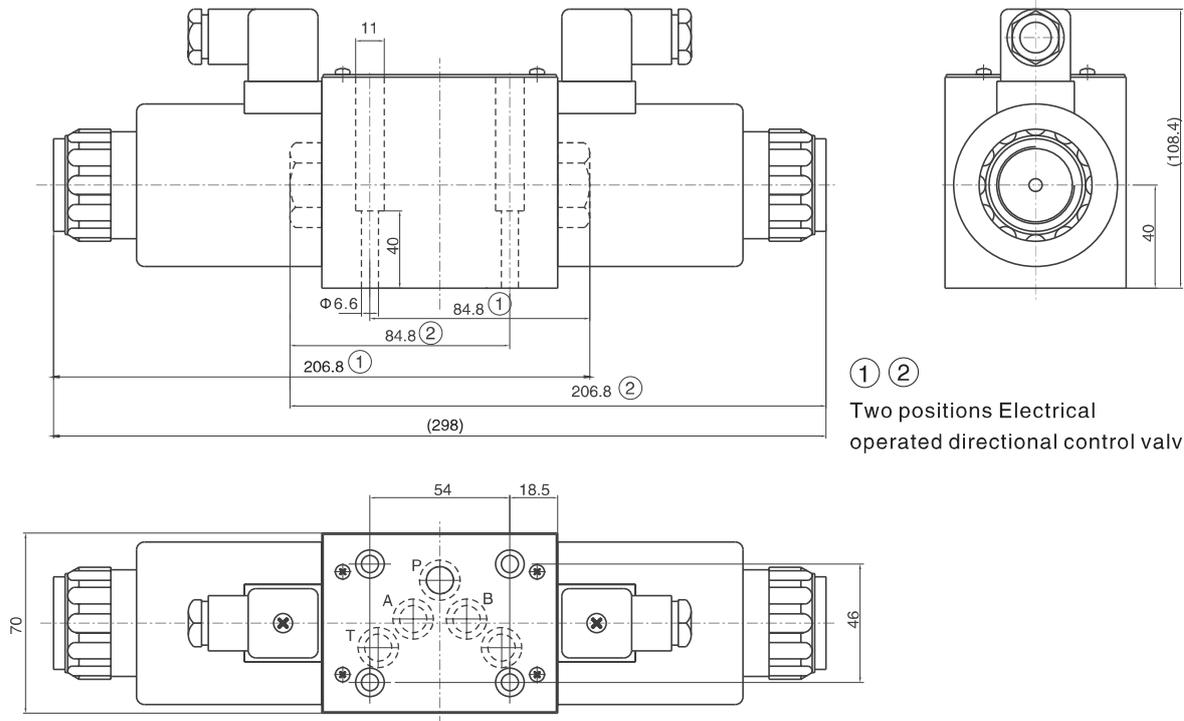


Mounting screw	Amount	Tighten torque
M5x45-10.9	4	9Nm

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 $20 \mu\text{m}$.
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 (03 Direct current plug type)



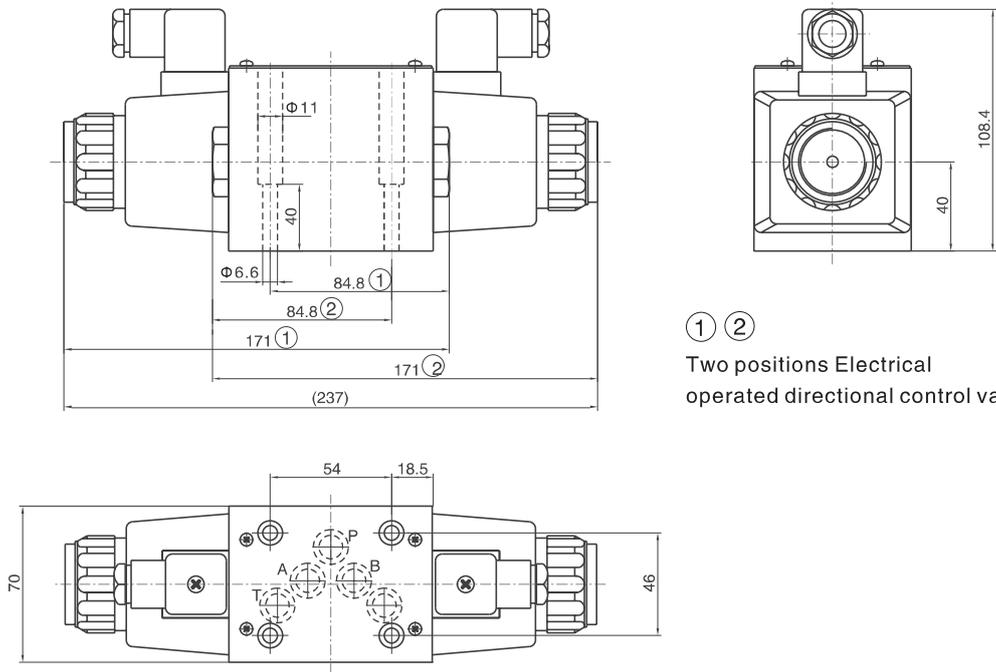
① ②

Two positions Electrical operated directional control valve

Electrical Operated Directional Control Valve

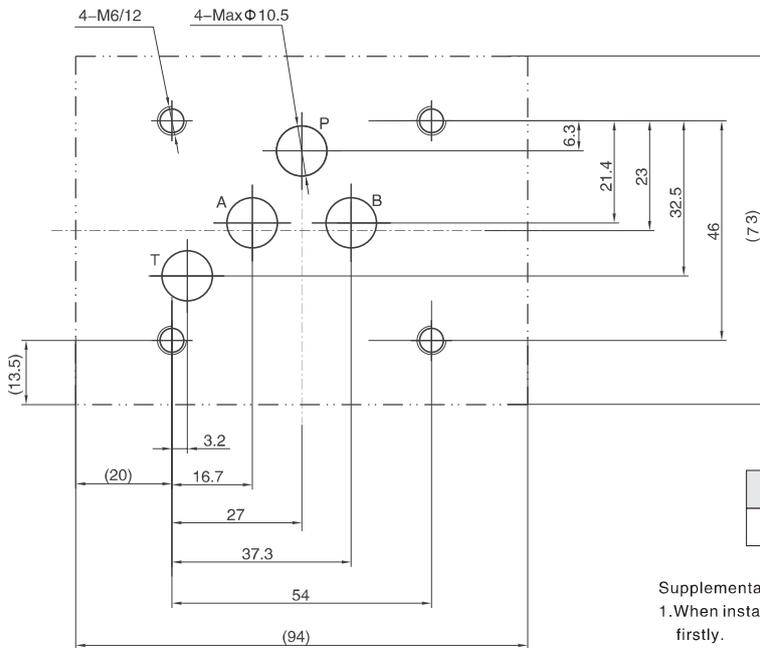


External dimensions (03 Alternating current plug type)



① ②
Two positions Electrical operated directional control valve

03 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 μm.
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.

Electro-hydraulic Directional Control Valve



Electro-hydraulic directional control valve is a control valve which can use the pressure of the hydraulic circuit to pull the spool and change the hydraulic oil direction.

Electro-hydraulic directional control valve is the combination of the electrical operated directional control valve and the hydraulic operated directional control valve. It uses the electrical operated directional control valve to control the hydraulic operated directional control valve, and change the hydraulic oil direction.

Electro-hydraulic directional control valve and hydraulic operated directional control valve are used mostly in hydraulic systems when electrical operated directional control valve can not afford the flow. It may control the movement of the power elements, or control the direction of the flowing oil.

Technical specification

Specification		03		04		06		10	
Model		FWH-03	HFWH-03	FWH-04	HFWH-04	FWH-06	HFWH-06	FWH-16	HFWH-16
Max. Working (MPa) pressure	P、A、B Port	28	35	28	35	28	35	28	35
	T port (internal leakage of control oil)	10		10		10		10	
	Y port (external leakage of control oil)	10		10		10		10	
Minimum control pressure (MPa)		1.0 Spring-Return 4/3 valve 4/2 valve		1.2 Spring-Return 4/3 valve 4/2 valve		1.3 Spring-Return 4/3 valve 4/2 valve		0.8 Spring-Return 4/3 valve 4/2 valve	
Maximum control pressure (MPa)		to25							
Max. Flow (L/min)		160		300		650		1100	
Working fluid		Mineral oil;phosphate-ester							
Fluid temp. (°C)		-20~70							
Viscosity (mm ² /s)		2.8~380							
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 $\beta_{10} \geq 75$.								

Electro-hydraulic Directional Control Valve



Model description

		* FWH/FH - *	* - * - *	*	*	*/	*	*	*	*	*	*	50	*	
Working pressure															Remarks
Omit	28MPa													Serial number	
H	35MPa														Seal material Omit NBR Seals V FPM Seals
FWH	Electro-hydraulic directional control valve													2) Omit No reducing valve D3 With reducing valve	
FH	Hydraulic operated directional control valve														
Specification														1) Omit Without pre-load valve P4.5 With pre-load valve	
03	DN10														
04	DN16													Omit without stroke adjusting device A Head A of main valve with stroke adjustment B Head B of main valve with stroke adjustment W Both heads with stroke adjustment	
06	DN25														
10	DN32														
Main valve return type														Omit without shifting time adjustment S With shifting time adjustment: Inlet flow control S1 shifting time adjustment: Outlet flow control	
Omit	Spring return														
H	Hydraulic centration														
Function code														Omit without damping 08 Φ 0.8 Damping 10 Φ 1.0 Damping 12 Φ 1.2 Damping	
	Details as following symbol table														
Working voltage														Omit Intl cntrl intl disch XY Extl cntrl extl disch X Extl cntrl intl disch Y Intl cntrl extl disch	
D12	DC12V														
D24	DC24V														
A110	AC110V														
A220	AC220V														
B110	AC110V Rectified														
B220	AC220V Rectified														
Z5L	Square connector with light														
Z6	Wire box type														
Omit	without hand emergency														
N9	with concealed hand emergency														

Explanation

- For neutral unloaded directional control valve it must be ordered separately.
There is no model (FWH-03)Electro-hydraulic directional control valve NS10.
- Only applied when the controlling pressure is higher than 25MPa

Electro-hydraulic Directional Control Valve

Code symbol

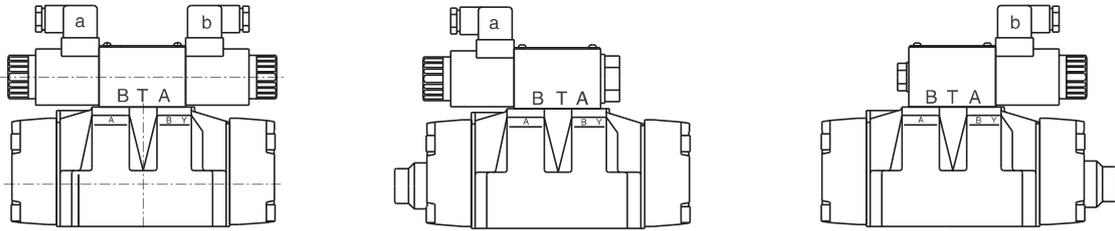
Spring return

3C2		2B2B		2B2BL		2B2	
3C3		2B3B		2B3BL		2B3	
3C4		2B4B		2B4BL		2B8	
3C5		2B5B		2B5BL		2B2L	
3C6		2B6B		2B6BL		2B3L	
3C7		2B7B		2B7BL		2B8L	
3C9		2B9B		2B9BL			
3C10		2B10B		2B10BL			
3C11		2B11B		2B11BL			
3C12		2B12B		2B12BL			
3C25		2B25B		2B25BL			
3C29		2B29B		2B29BL			
						FWH...	
						FWH... X/...	
						FWH... Y/...	
						FWH... XY/...	

Electro-hydraulic Directional Control Valve

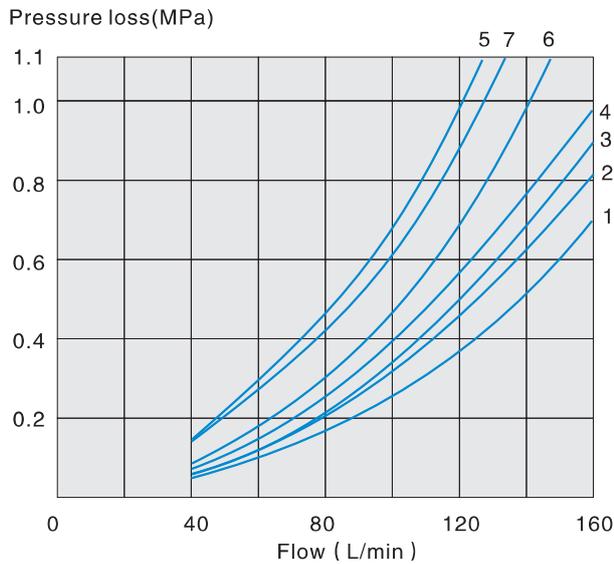


Name of solenoid



1. aWhen movement a, P→A B→T
2. bWhen movement b, P→B A→T
3. 3C6 Oil flow in the opposite direction with the above-mentioned movement.
Four 3C29, when solenoid "a" works, P → A,B

03 Specification Performance curve (Measured at $v=41\text{mm}^2/\text{s}$ and $t=50^\circ\text{C}$)



Function	Switching position			
Symbol	P→A	P→B	A→T	B→T
3C2	1	2	4	5
3C5	1	4	1	1
3C6	4	2	2	6
3C3	4	4	1	4
3C4	1	2	1	3
3C12	2	3	1	4
3C9	4	4	3	4
3C25	4	1	3	4
3C29	2	3	3	5
3C10	3	3	3	4
3C7	2	2	3	5

Function	Neutral		
	A→T	B→T	P→T
3C5	3	-	6
3C6	-	-	7
3C3	1	3	5
3C25	-	7	5

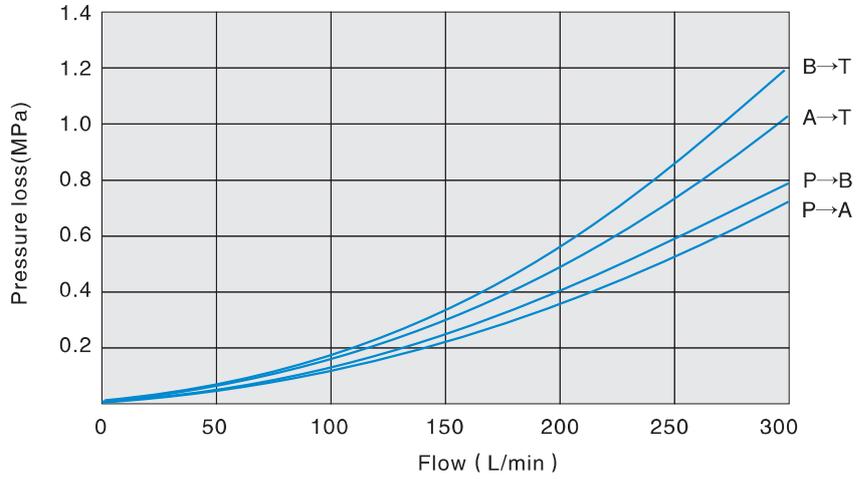
Function	Neutral		
	A→T	B→T	P→T
3C12	3	-	-
3C10	-	4	-

Electro-hydraulic Directional Control Valve

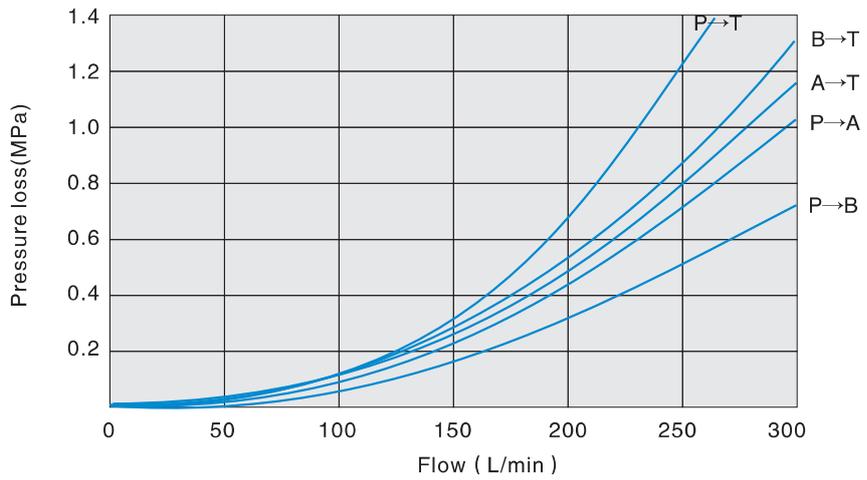
04 Specification Performance curve (Measured at $u=41\text{mm}^2/\text{s}$ and $t=50^\circ\text{C}$)

D.6.5

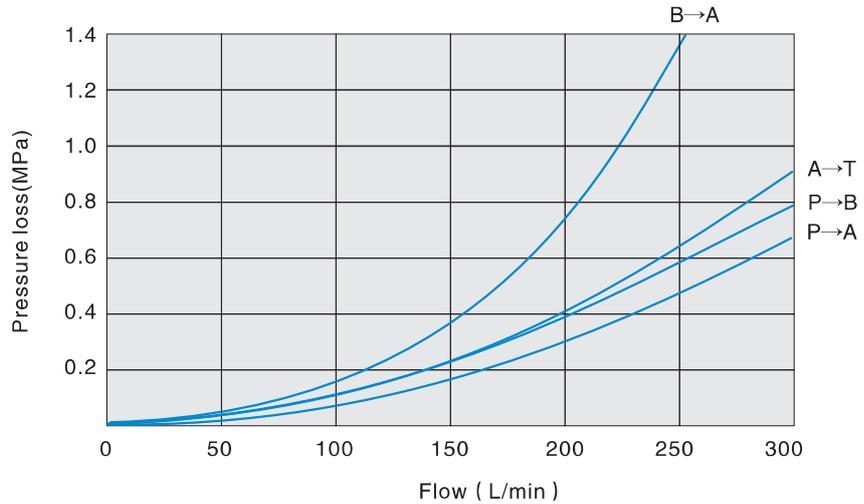
3C2



3C6



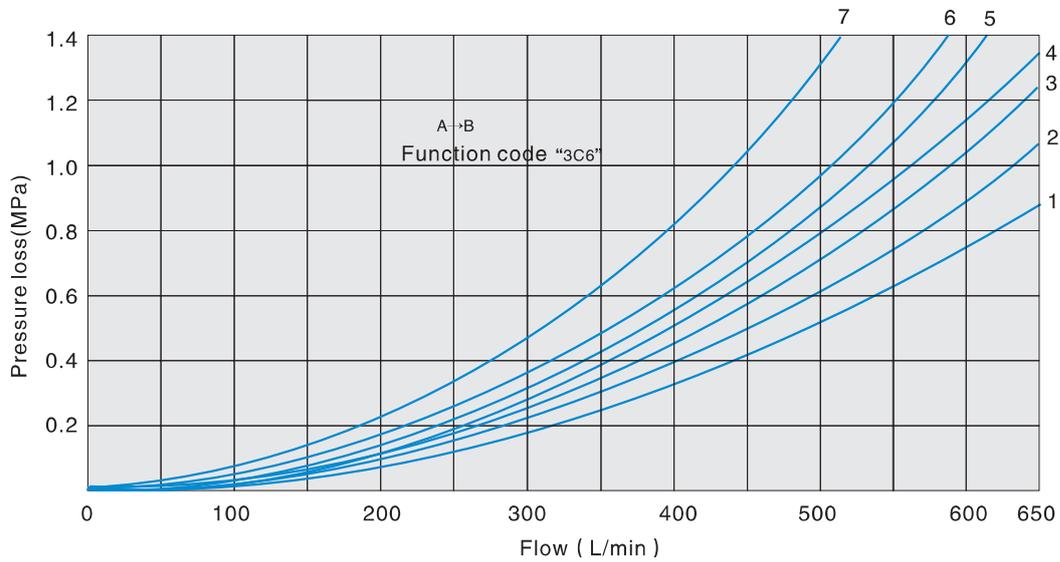
3C29



Electro-hydraulic Directional Control Valve



06 Specification Performance curve (Measured at $v=41\text{mm}^2/\text{s}$ and $t=50^\circ\text{C}$)



Function	Switching position			
	P→A	P→B	A→T	B→T
3C2	1	1	1	3
3C5	1	4	3	3
3C6	3	1	2	4
3C3	4	4	3	4
3C4	2	2	3	5
3C12	2	2	3	3
3C9	4	4	1	4
3C25	4	1	1	5
3C29	2	1	1	–
3C10	2	1	1	6
3C7	4	4	3	6

7.Function code "3C6" type, neutral position P→T
 8.Function code "3C29" type, control position A→B

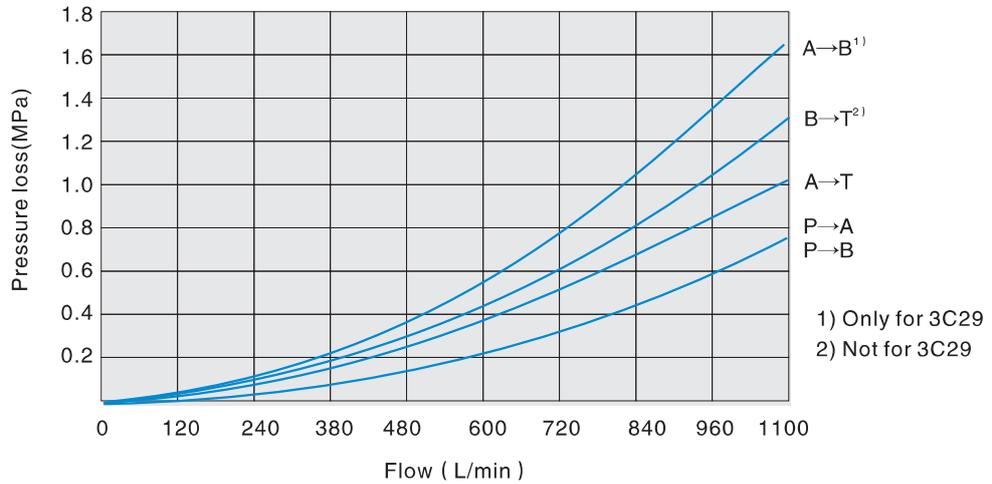
D.6.6

Electro-hydraulic Directional Control Valve

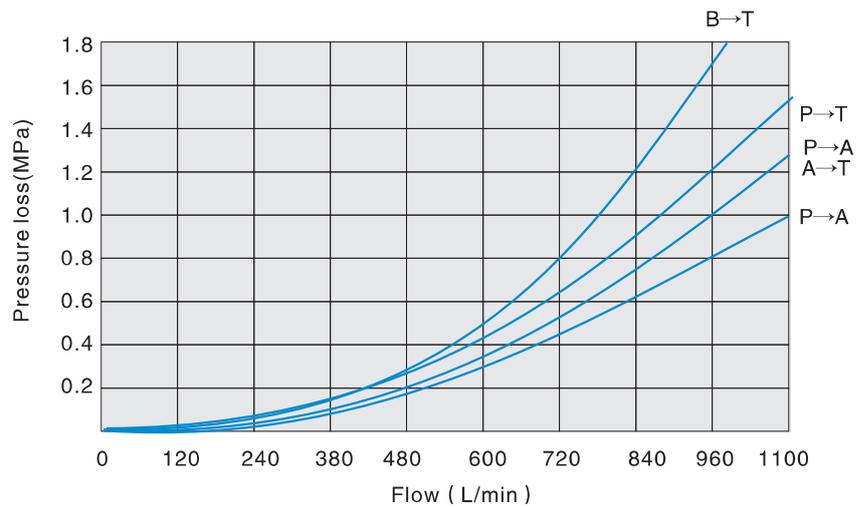
10 Specification Performance curve (Measured at $v=41\text{mm}^2/\text{s}$ and $t=50^\circ\text{C}$)

D.6.7

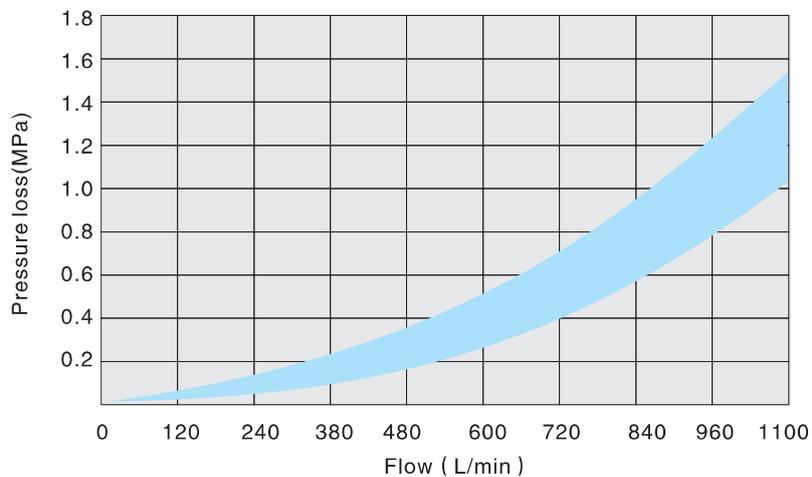
3C2, 3C4, 3C29



3C6

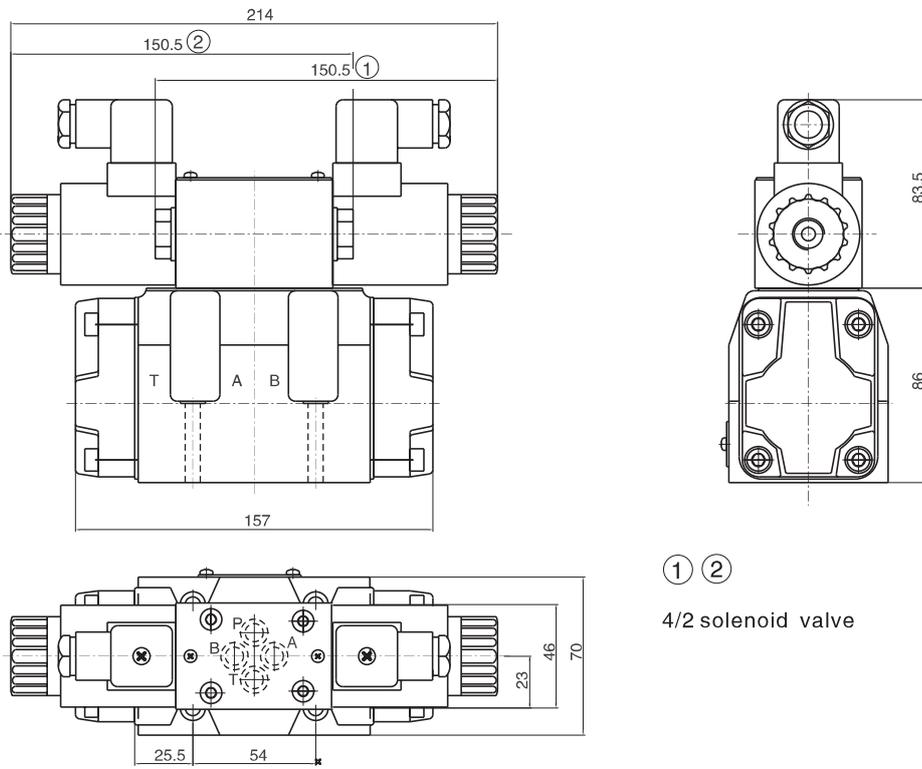


Other spool types

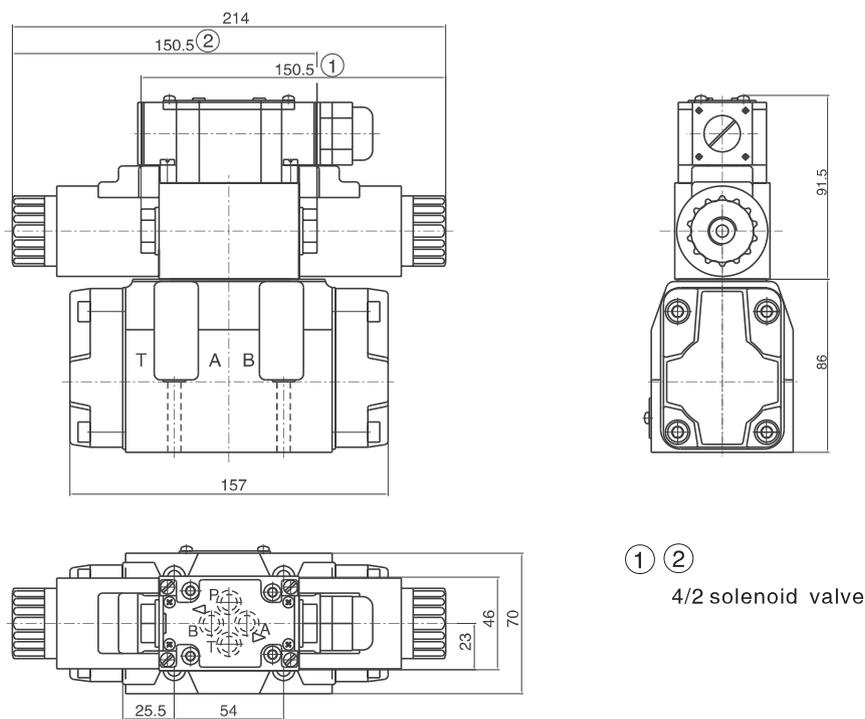


Electro-hydraulic Directional Control Valve

External dimensions (03 Direct current plug type)

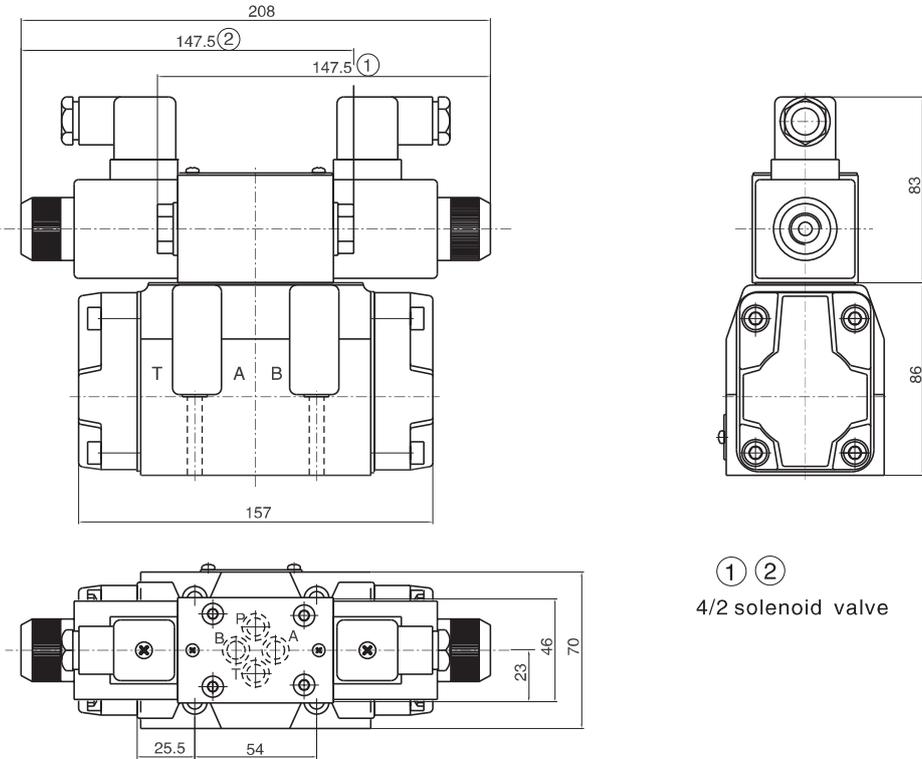


External dimensions (03 Direct current wire box type)

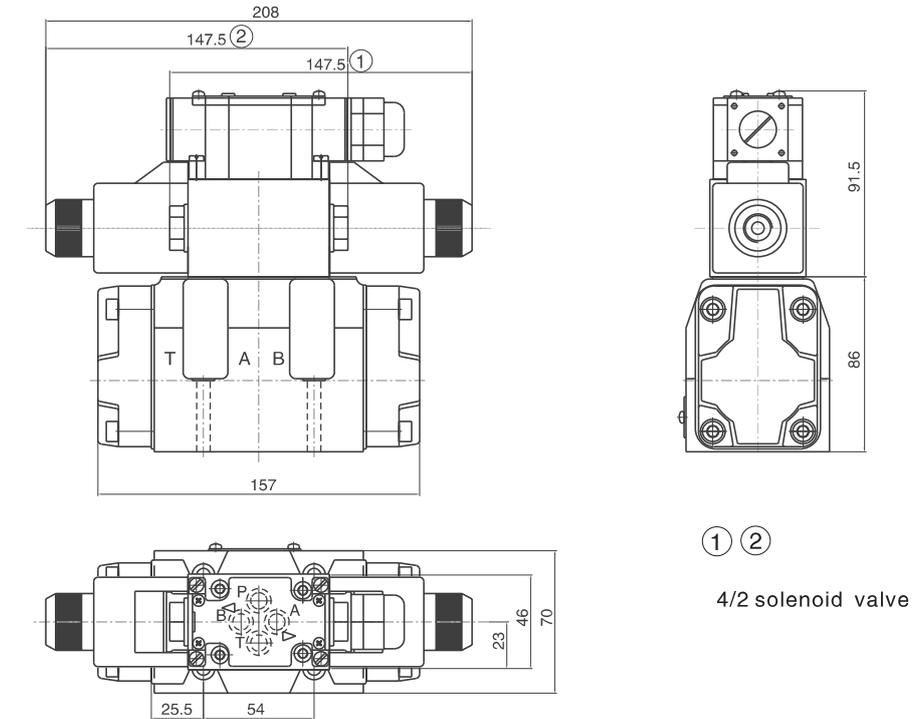


Electro-hydraulic Directional Control Valve

External dimensions (03 Alternating current plug type)



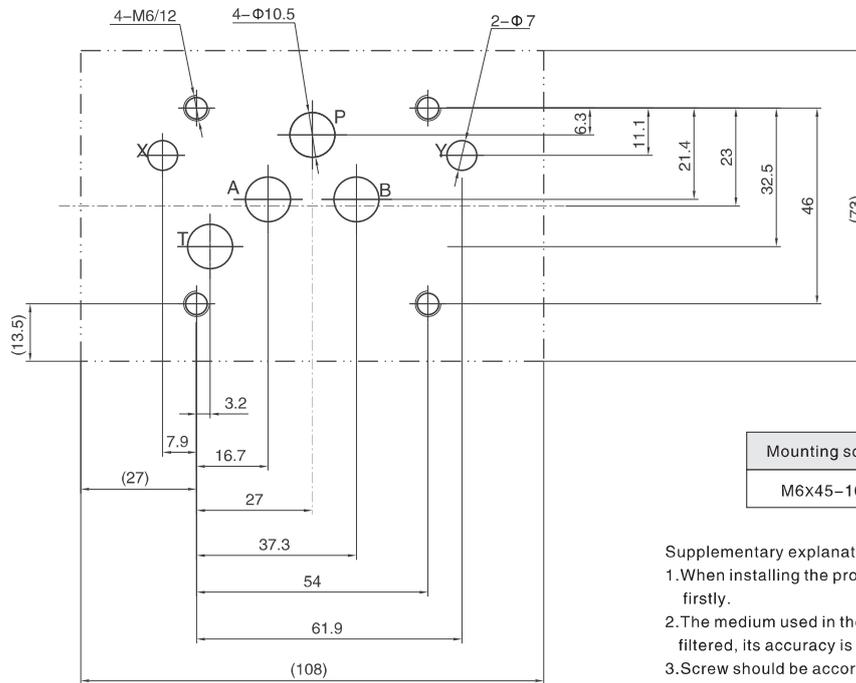
External dimensions (03 Alternating current wire box type)



Electro-hydraulic Directional Control Valve



03 Size of subplate oil port

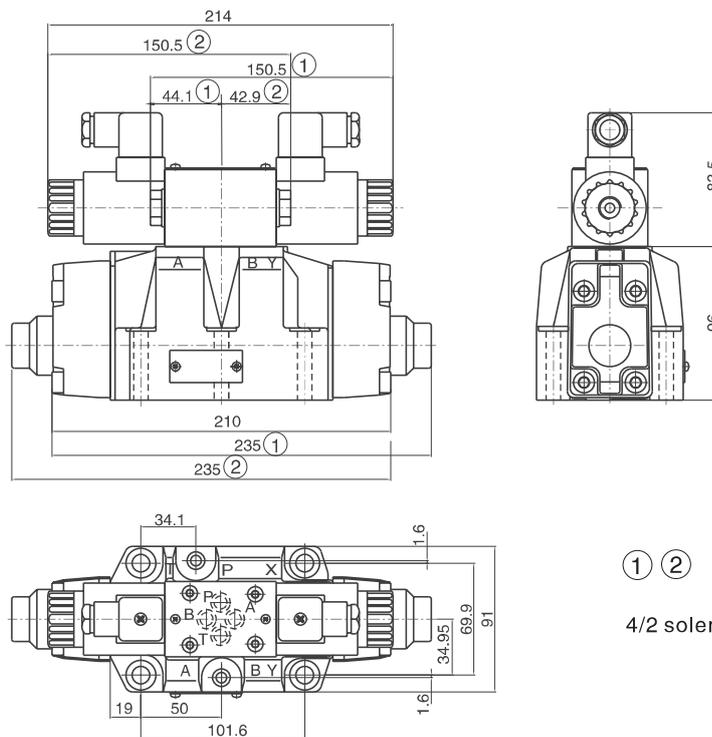


Mounting screw	Amount	Tighten torque
M6x45-10.9	4	15Nm

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 $20 \mu\text{m}$.
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 (04 Direct current plug type)

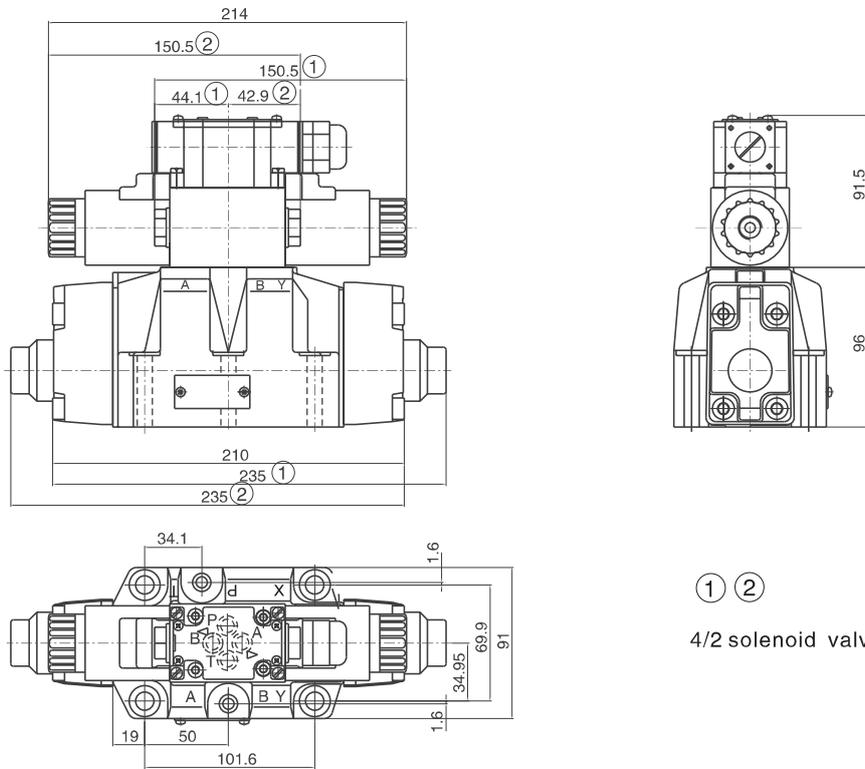


① ②

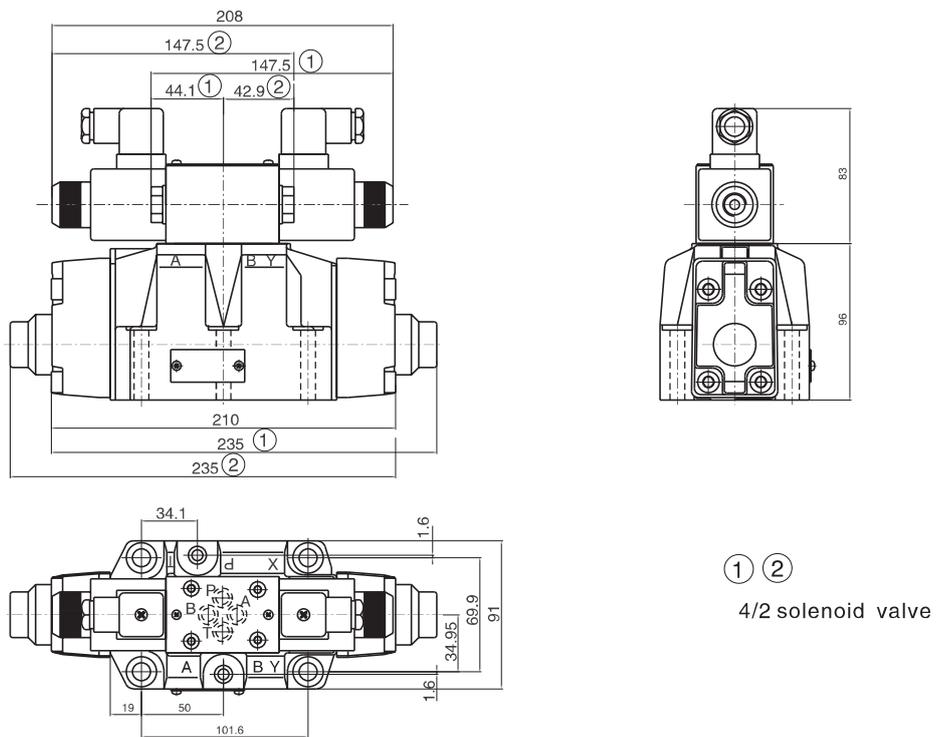
4/2 solenoid valve

Electro-hydraulic Directional Control Valve

External dimensions (04 Direct current wire box type)



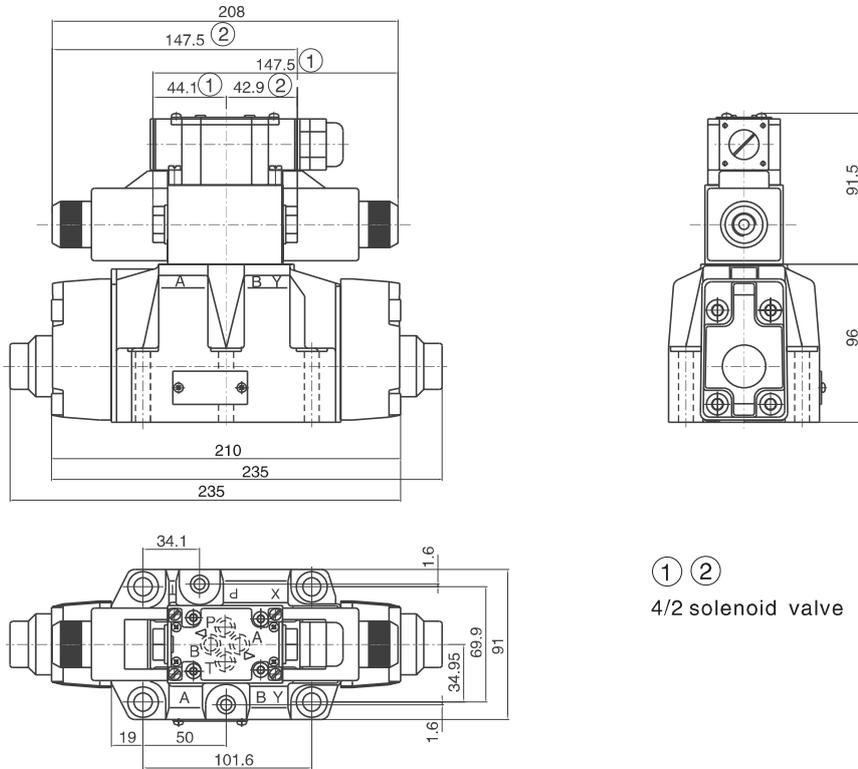
External dimensions (04 Alternating current plug type)



Electro-hydraulic Directional Control Valve

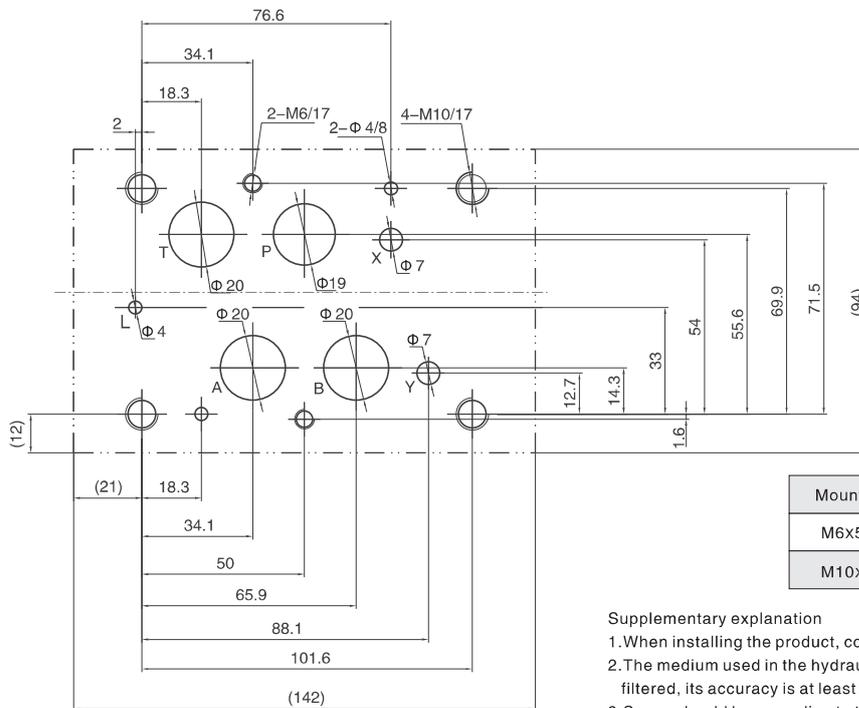


External dimensions (04 Alternating current wire box type)



① ②
4/2 solenoid valve

04 Size of subplate oil port



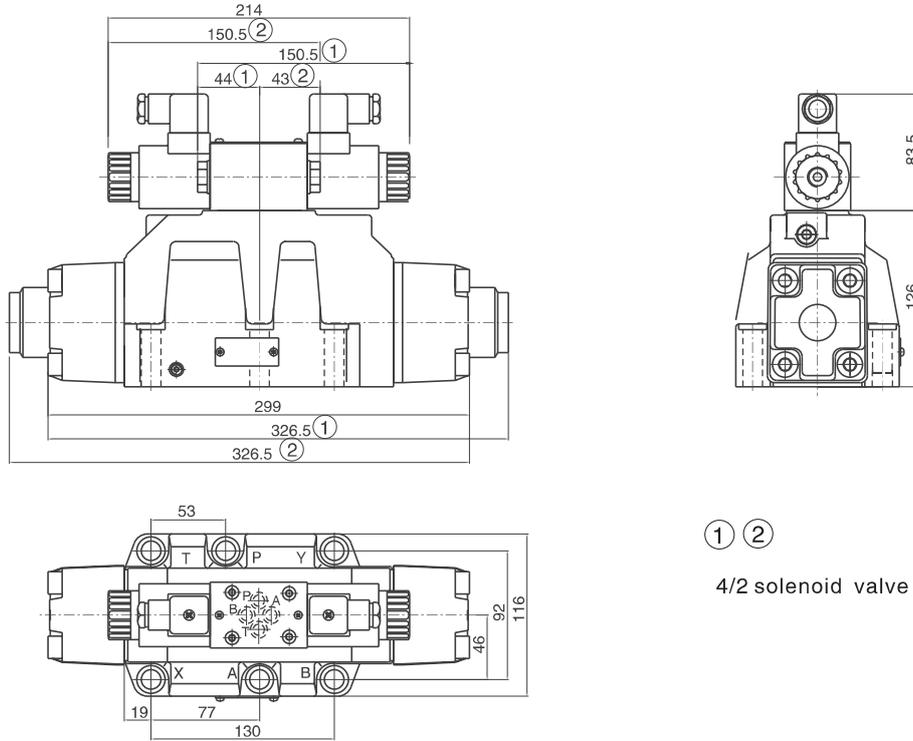
Mounting screw	Amount	Tighten torque
M6x55-10.9	2	15Nm
M10x60-10.9	4	75Nm

Supplementary explanation

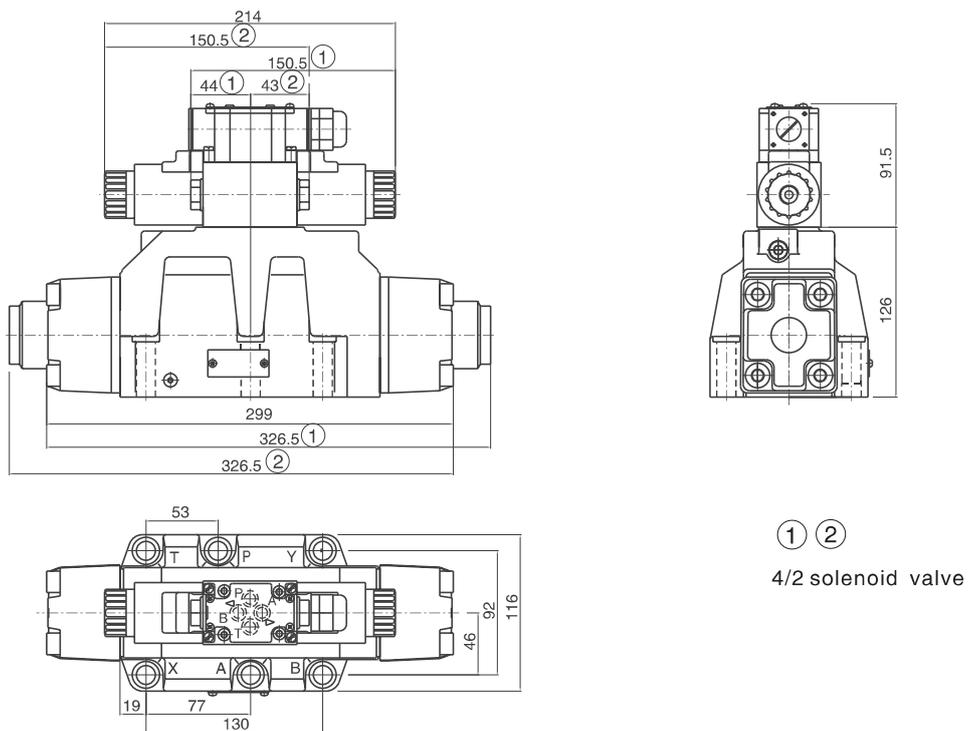
1. When installing the product, considering horizontal position firstly.
2. The medium used in the hydraulic system must be filtered, its accuracy is at least 20 μ m.
3. Screw should be according to the parameters in catalogue.
4. The surface, connecting with the valve, should be Ra0.8 roughness, and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

Electro-hydraulic Directional Control Valve

External dimensions (06 Direct current plug type)



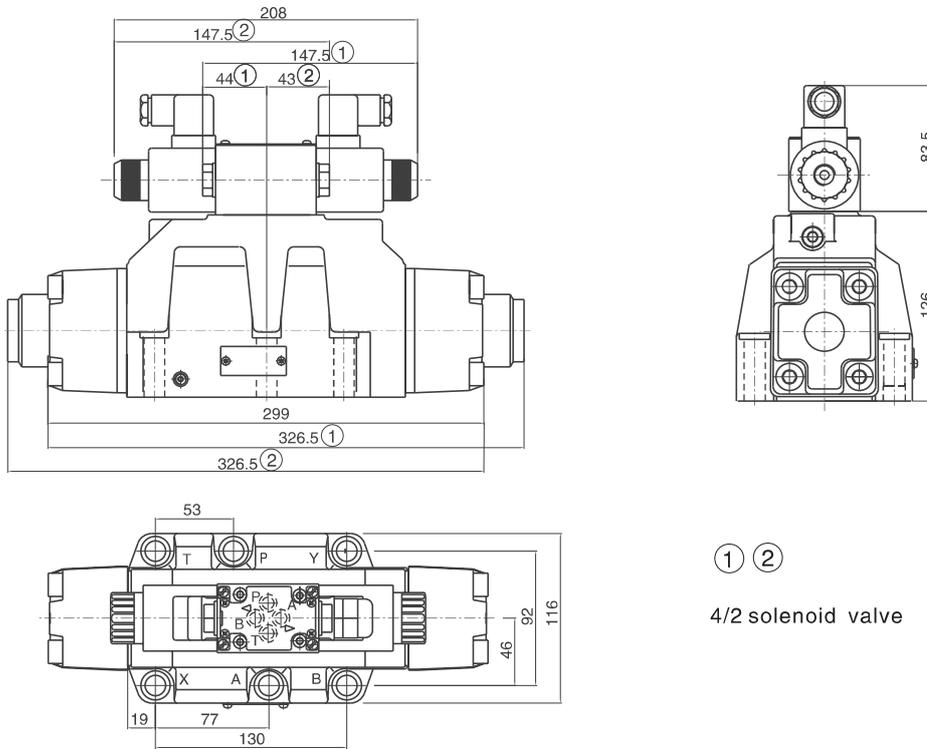
External dimensions (06 Direct current wire box type)



Electro-hydraulic Directional Control Valve

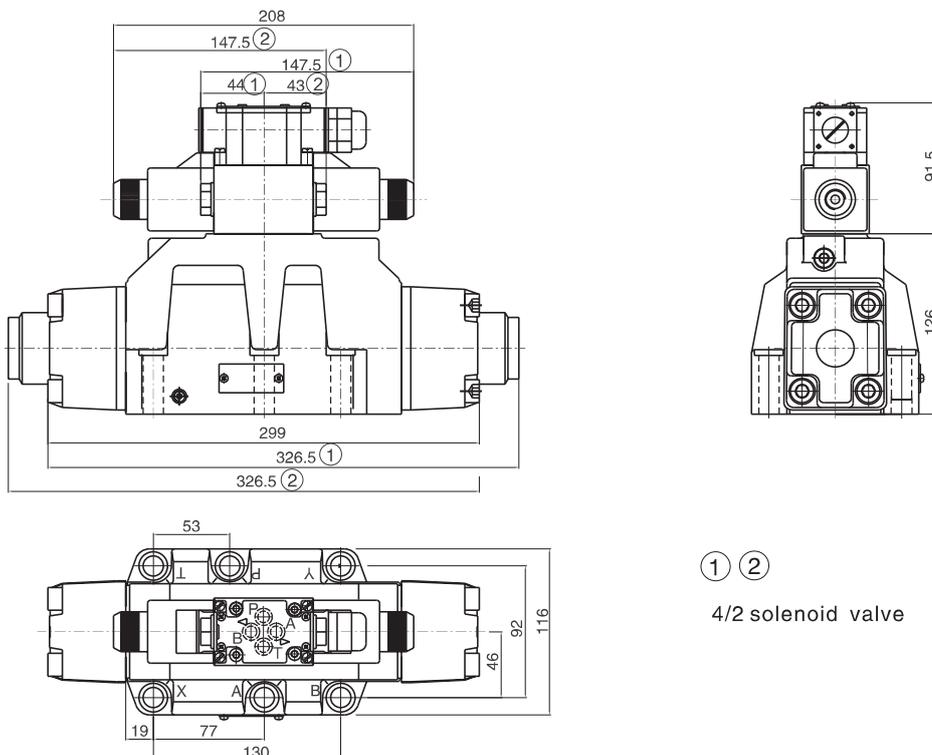


External dimensions (06 Alternating current plug type)



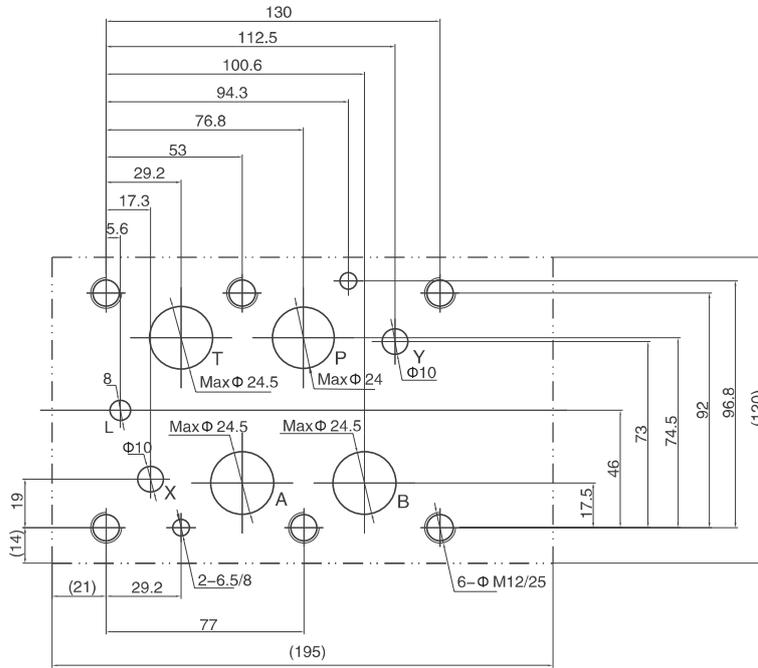
D.6.14

External dimensions (06 Alternating current wire box type)



Electro-hydraulic Directional Control Valve

06 Size of subplate oil port

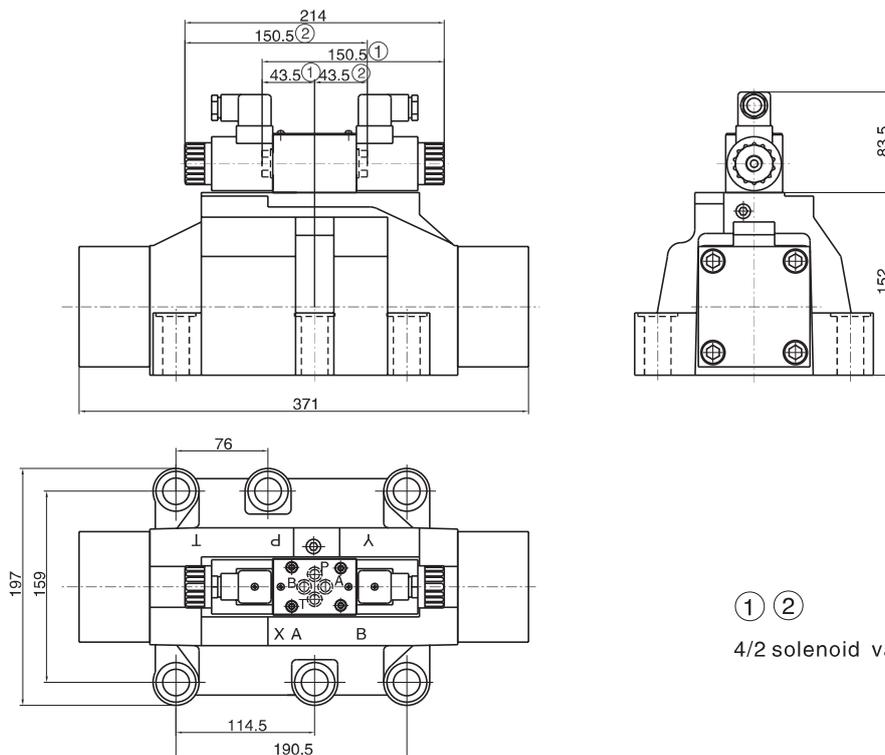


Mounting screw	Amount	Tighten torque
M12x60-10.9	6	130Nm

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 $20\ \mu\text{m}$.
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)

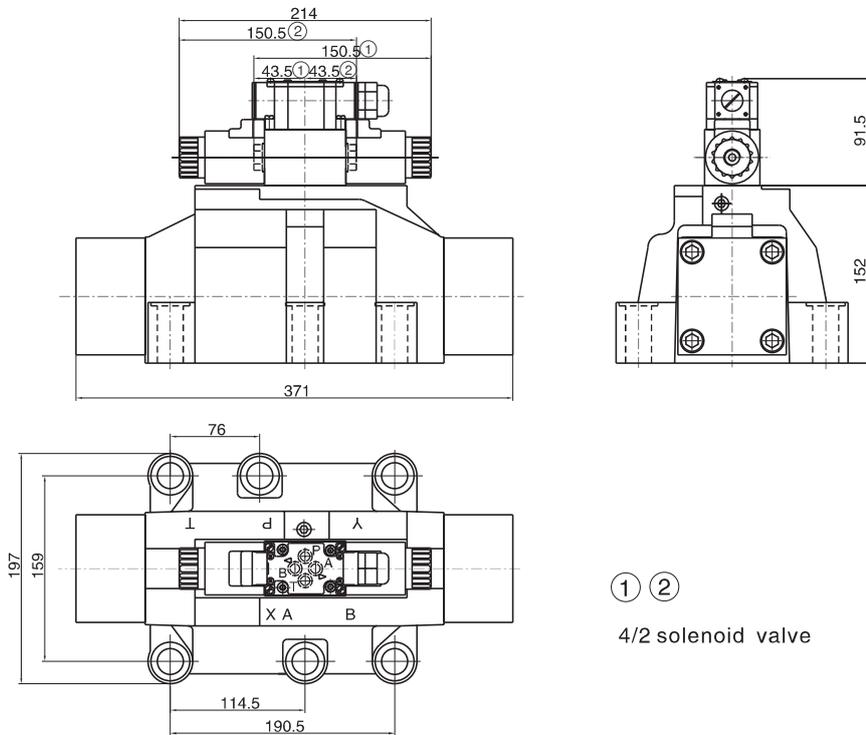


① ②

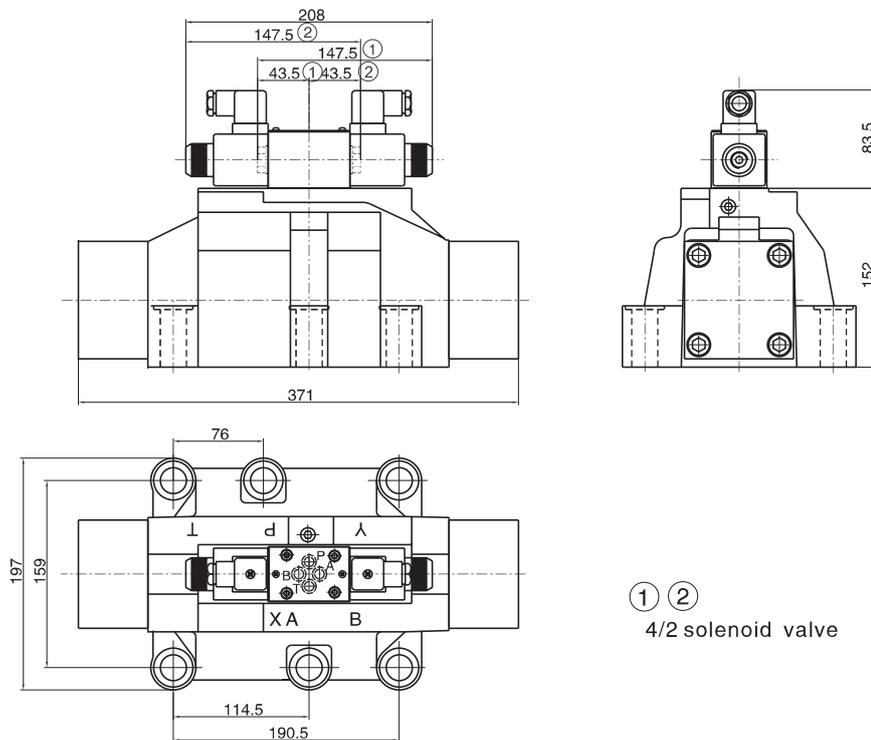
4/2 solenoid valve

Electro-hydraulic Directional Control Valve

External dimensions (10 Direct current wire box type)

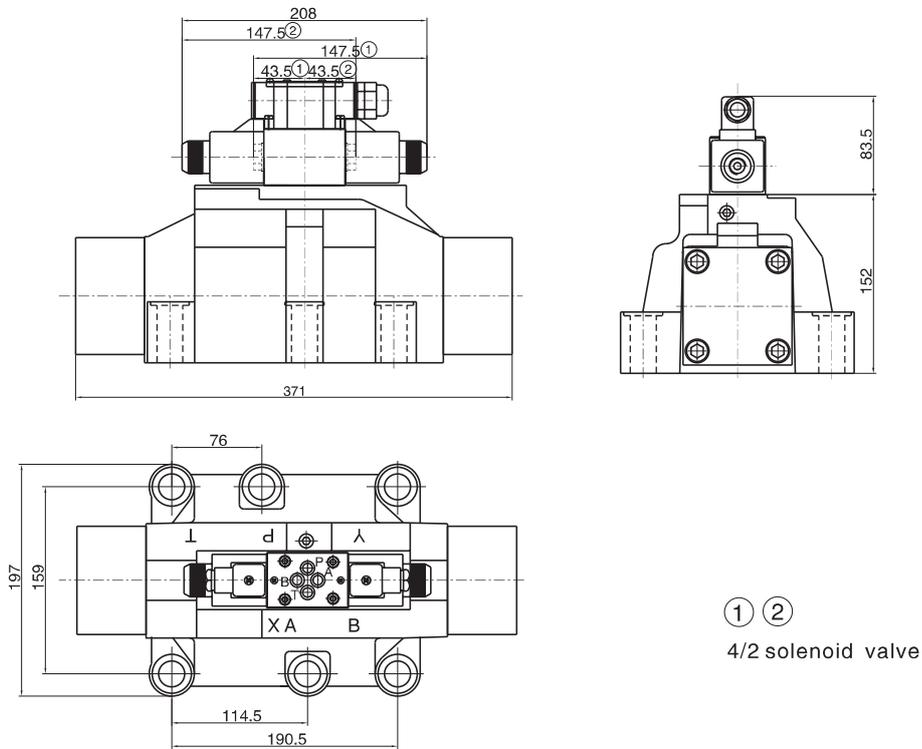


External dimensions (10 Alternating current plug type)

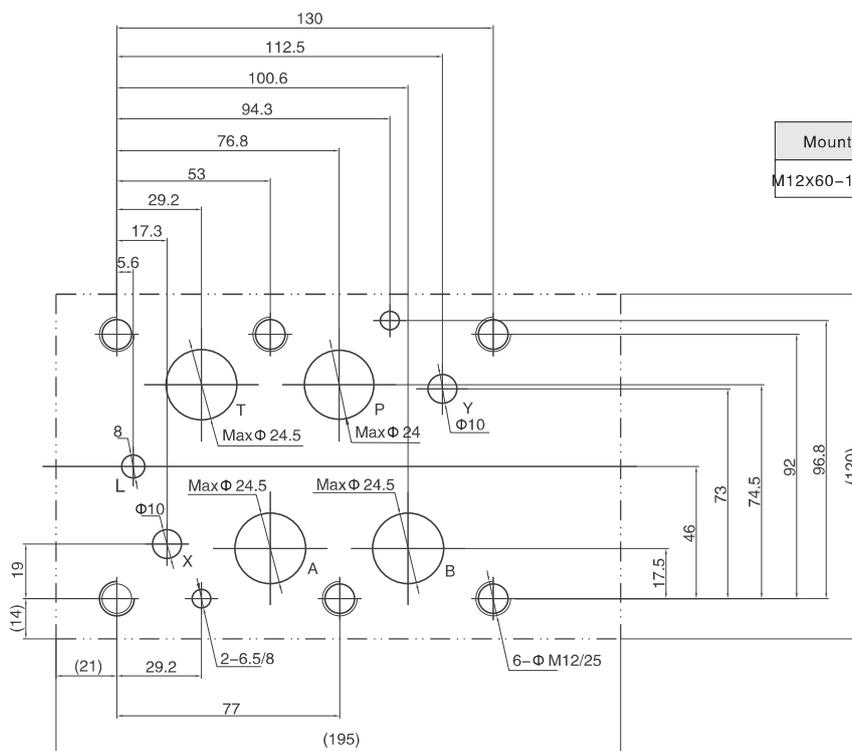


Electro-hydraulic Directional Control Valve

External dimensions (10 Alternating current wire box type)



10 Size of subplate oil port



Mounting screw	Amount	Tighten torque
M12X60-10.9	6	130Nm

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 $20 \mu m$.
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.

Manual operated Directional Control Valve



Technical specification



Specification		02	03	04	06
Working pressure (MPa)	Port P, A, B	31.5			
	Port T	10			
Max. Flow (L/min)		60	100	300	450
Working fluid		Mineral oil; phosphate-ester			
Fluid temp. (°C)		-20~70			
Viscosity (mm ² /s)		2.8~380			
Weight (kg)		About 1.4	About 3.3	About 8	About 17
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 $\beta_{10} \geq 75$.				

Manual operated directional control valve is a directional control valve, by operating the handle, the spool moves in the axial direction to achieve oil loop switching.

Manual operated directional control valve and electrical operated directional control valve are played the same role in the hydraulic system. Easy operation, reliable work, and without the need for electricity.

Model description

Manual operated directional control valve		Remarks	
Specification	02 DN6 03 DN10 04 DN16 06 DN25	Serial number	
Function code	Details as following symbol table	Seal material	Omit NBR Seals V FPM Seals
Omit	Spring return OF With detent	Omit without damping	08 $\Phi 0.8$ Damping 10 $\Phi 1.0$ Damping 12 $\Phi 1.2$ Damping

FS - * - * / * * * 50 *

Manual Operated Directional Control Valve

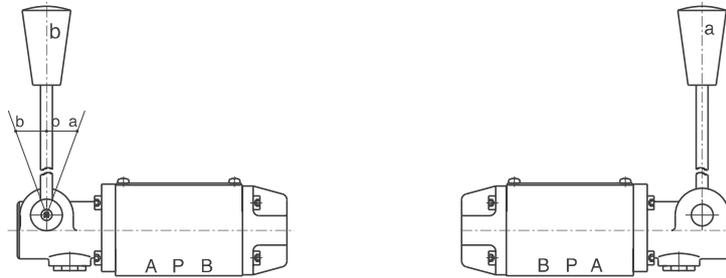
Code symbol

D.7.2

Spring return							
With detent							
3C2		2B2B		2B2BL		(02/03)	
3C3		2B3B		2B3BL		(04/06)	
3C4		2B4B		2B4BL		2B2	
3C5 (02/03)		2B5B (02/03)		2B5BL (02/03)		2B3	
3C5 (04/06)		2B5B (04/06)		2B5BL (04/06)		2B8	
3C6		2B6B		2B6BL			
3C7		2B7B		2B7BL		(02)	
3C9		2B9B		2B9BL		(03)	
3C10		2B10B		2B10BL			
3C11		2B11B		2B11BL			
3C12		2B12B		2B12BL		(04/06)	
3C25 (02/03)		2B25B (02/03)		2B25BL (02/03)		2B2L	
3C25 (04/06)		2B25B (04/06)		2B25BL (04/06)		2B3L	
3C29		2B29B		2B29BL		2B8L	

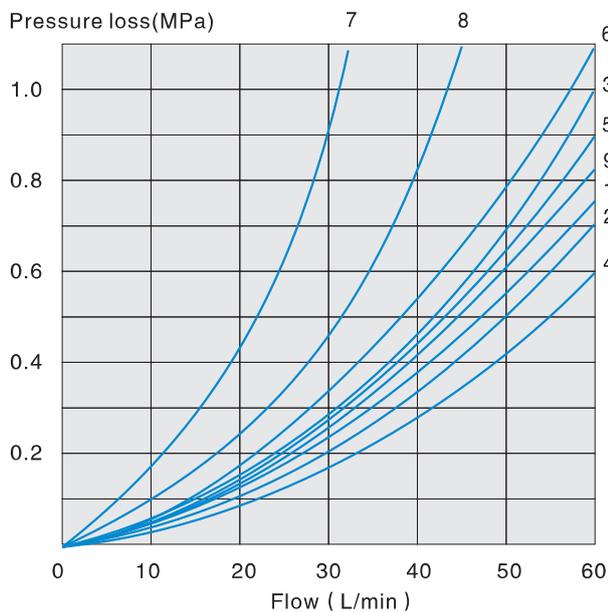
Manual Operated Directional Control Valve

The relationship between the location of the handle and the direction of the oil flow



1. The name of the handle as shown in the picture
2. When the handle is on position b P→B A→T
3. When the handle is on position a P→A B→T
4. Oil flow in the opposite direction with the above-mentioned movement for 02/03:3C5,3C6.
Oil flow in the opposite direction with the above-mentioned movement for 04/06:3C6.
5. For specification 03 spool type 2B2L,2B3L, 2B8L, the handle is at the side of port B, details refer to the external dimension

02 Specification Performance curve (Measured at $v=41\text{mm}^2/\text{s}$ and $t=50^\circ\text{C}$)



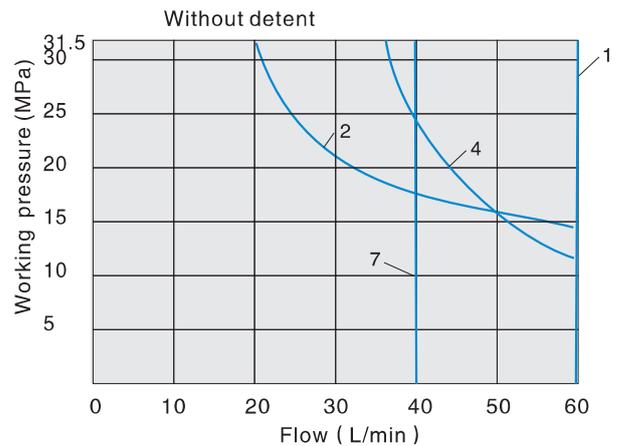
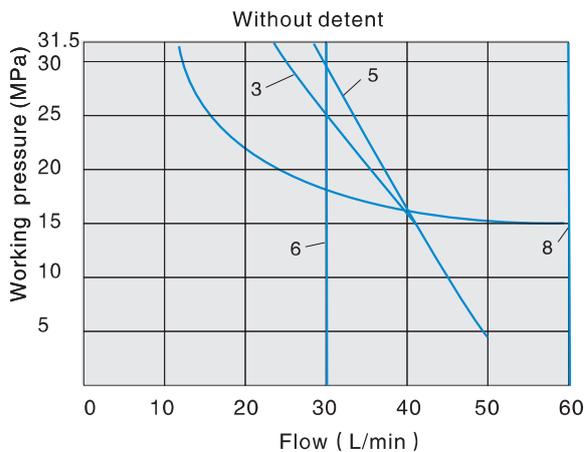
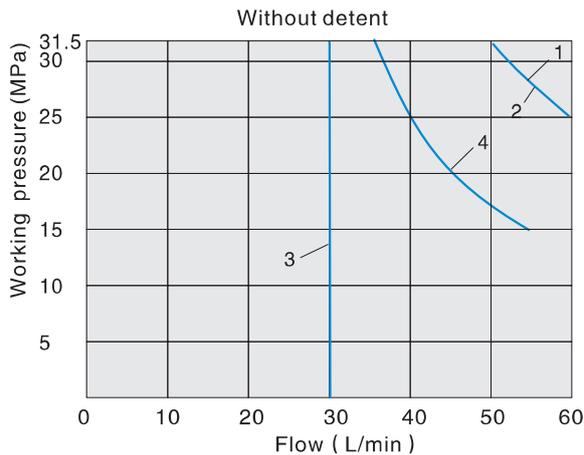
Function code	Direction			
	P→A	P→B	A→T	B→T
2B8 2B8L	3	3	-	-
2B3	1	1	3	1
2B2 2B2L	5	5	3	3
3C2	3	3	1	1
3C5	1	3	1	1
3C6	6	6	9	9
3C3	2	4	2	2
3C4	1	1	2	1
3C10,3C12	3	3	4	9
3C9	2	3	3	3
3C25	3	1	1	1
3C29	5	5	4	-
3C7	1	2	1	1

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

Manual Operated Directional Control Valve

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

As the plug, the switch function of the valve is determined by the filter. In order to reach the largest flow as shown, we suggest to use full-flow filter 20 μm. Every force on the valve can also affect the flow. 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.



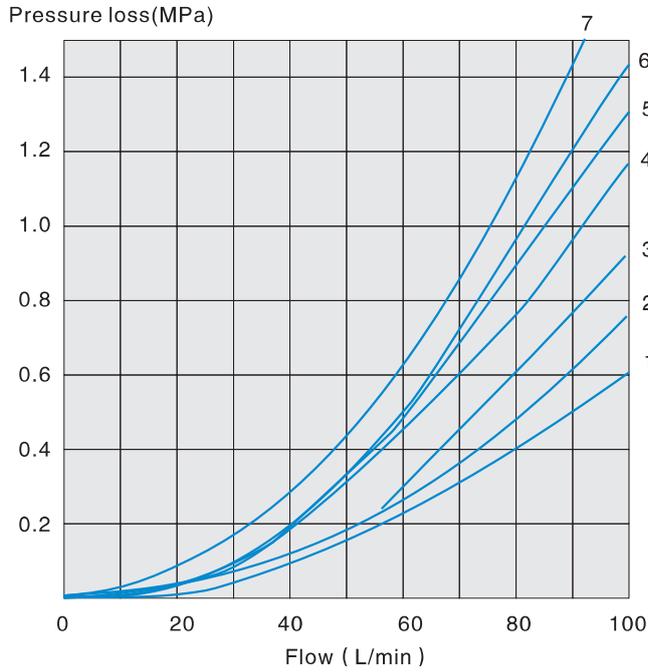
- 4. Spool symbol "3C6" in the median position P to T
- 7. Spool symbol "3C29" in the control position A to B

Performance curve		Function code	Performance curve		Function code
Without detent	1	3C2 3C3 2B3 2B2 3C9 3C10 3C6 3C4 3C12 3C29 2B2L	With detent	1	3C9 3C3 2B3 2B2 2B2L
	2	2B8 2B8L		2	3C2 3C4 3C12 3C10
	3	3C7		3	2B8 2B8L
	4	3C5 3C25		4	3C6
				5	3C5
				6	3C7
				7	3C25
				8	3C29

Manual Operated Directional Control Valve



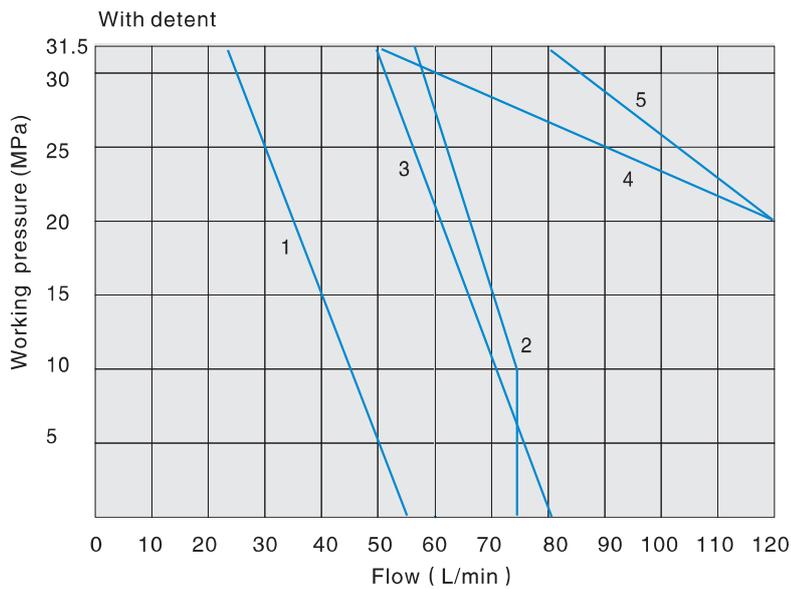
03 Specification Performance curve (Measured at $\nu = 41 \text{ mm}^2/\text{s}$ and $t = 50^\circ\text{C}$)



	P→A	P→B	A→T	B→T
2B8	2	2	-	-
2B8L	2	2	-	-
2B3	2	2	3	3
2B2	2	2	3	3
3C2	2	2	4	4
3C5	2	3	3	5
3C6	3	3	4	6
3C3	1	1	4	5
3C4	2	2	3	3
3C12	2	2	3	5
3C9	1	1	5	5
3C25	3	2	5	3
3C29	2	4	3	-
3C10	2	2	3	5
3C7	2	2	4	4
2B2L	2	2	5	3

4. Spool symbol 3C6 in the neutral position P → T
 7. Spool type "3C29" located in the control position A → B

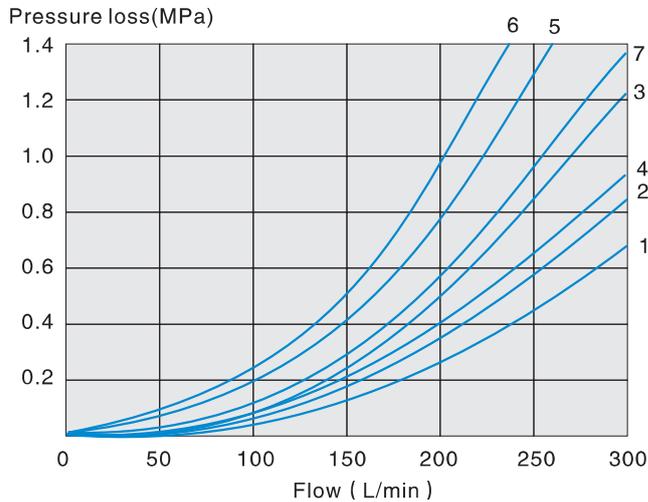
Working limits (The working limits for directional valves have determined by using solenoids at their operating temperature, 10% under voltage and with no pre-loading of the tank.)



1	2B8 2B8L
2	3C3
3	3C5 3C6 3C25 3C29
4	3C4 3C12 3C10
5	2B2 2B3 3C2 3C9 3C7 2B2L

Manual Operated Directional Control Valve

04 Specification Performance curve (Measured at $v=41\text{mm}^2/\text{s}$ and $t=50^\circ\text{C}$)



Function code	Direction			
	P→A	P→B	A→T	B→T
3C2 2B2 2B2L	1	1	1	3
3C5	2	2	3	3
3C6	5	1	3	7
3C3 2B3	2	2	3	3
3C7	2	2	3	3
3C4 3C12	1	1	3	3
3C29	2	2	4	-
3C10	2	2	4	-
3C	1	1	4	7

6.Spool symbol 3C6 in the neutral position P → T

04 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.)

4/2 valve Without detent					
Function code	Working pressure (MPa)				
	7	14	21	28	35
	Flow (L/min)				
2B3	300	300	300	260	220
2B2	300	300	210	190	160

4/2 valve With detent					
Function code	Working pressure (MPa)				
	7	14	21	28	35
	Flow (L/min)				
2B2 2B3	300	300	300	260	220

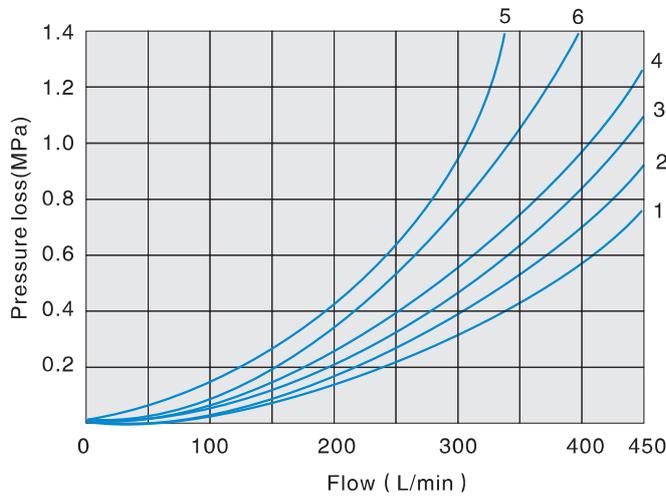
4/3 valve Without detent					
Function code	Working pressure (MPa)				
	7	14	21	28	35
	Flow (L/min)				
3C2 3C3 3C4 3C12 3C9 3C29 3C10	300	300	300	300	300
3C5 3C25	300	300	210	190	170
3C6	300	300	220	210	180
3C7	300	260	200	180	170

4/3 valve With detent					
Function code	Working pressure (MPa)				
	7	14	21	28	35
	Flow (L/min)				
3C2 3C3 3C4 3C12 3C9 3C29 3C10	300	300	300	300	300
3C5 3C25	300	300	280	230	230
3C6	300	300	230	230	230
3C7	300	300	250	230	230

Manual Operated Directional Control Valve



06 Specification Performance curve (Measured at $v=41\text{mm}^2/\text{s}$ and $t=50^\circ\text{C}$)



	P→A	P→B	A→T	B→T
	3C2	2	2	1
3C5	1	2	1	2
3C6	2	2	2	4
3C3	2	2	1	3
3C4	2	2	1	3
3C12	2	2	1	2
3C9	2	2	1	4
3C25	2	2	1	4
3C29	1	2	1	-
3C10	2	2	1	4
3C7	2	2	1	4

- 4. Spool symbol "3C12" in the neutral position A → T
- 6. Spool symbol "3C10" in the neutral position B → T

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

4/2 valve Without detent					
Function code	Working pressure (MPa)				
	7	14	21	28	35
	Flow (L/min)				
2B3	450	300	250	200	180
2B2	350	300	275	250	200

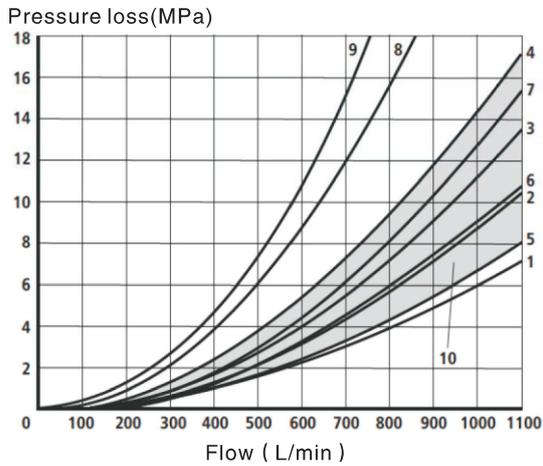
4/2 valve With detent					
Function code	Working pressure (MPa)				
	7	14	21	28	35
	Flow (L/min)				
2B3 2B2	450	450	450	450	450

4/3 valve Without detent					
Function code	Working pressure (MPa)				
	7	14	21	28	35
	Flow (L/min)				
3C2 3C3 3C4 3C12 3C9 3C29 3C10	450	450	450	450	450
3C5	450	250	200	135	110
3C6	450	330	290	230	180
3C3	450	450	400	400	350
3C25	450	310	240	215	150
3C7	450	310	280	270	200

4/3 valve With detent					
Function code	Working pressure (MPa)				
	7	14	21	28	35
	Flow (L/min)				
3C2 3C5 3C6 3C3 3C4 3C10 3C9 3C25 3C29 3C12	450	450	450	450	450
3C7	450	450	400	350	300

Manual Operated Directional Control Valve

10 Specification Performance curve (Measured at $v=41\text{mm}^2/\text{s}$ and $t=50^\circ\text{C}$)



Function code	Direction				
	P→A	P→B	A→T	B→T	P→T
3C2	1	1	2	3	-
3C6	6	5	6	7	7
3C29	1	1	2	-	4

10 All other spool types

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.)

4/2 valve Without detent					
Function code	Working pressure (MPa)				
	7	14	21	28	35
Flow (L/min)					
2B3	1100	1040	860	800	700
2B2	1100	1040	540	480	420

4/2 valve With detent					
Function code	Working pressure (MPa)				
	7	14	21	28	35
Flow (L/min)					
2B3 2B2	1100	1040	860	750	680

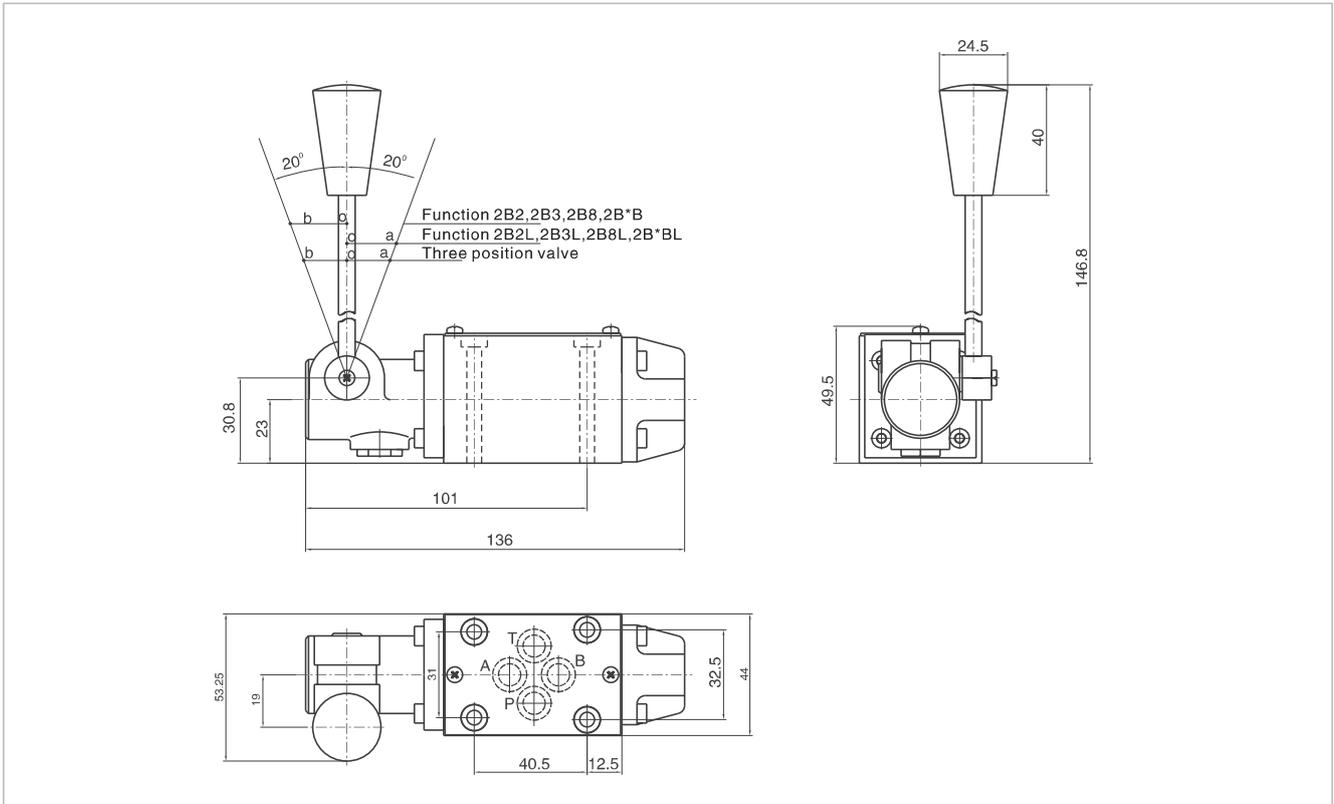
4/3 valve Without detent					
Function code	Working pressure (MPa)				
	7	14	21	28	35
Flow (L/min)					
3C2 3C3 3C4 3C12 3C9 3C29 3C10	1100	1040	860	750	680
3C5	900	900	800	650	450
3C6	900	900	800	650	450
3C3	900	900	800	650	450
3C25	900	900	800	650	450
3C7	1100	1100	680	500	450

4/3 valve With detent					
Function code	Working pressure (MPa)				
	7	14	21	28	35
Flow (L/min)					
3C2 3C5 3C6 3C3 3C4 3C10 3C9 3C25 3C12	1100	1040	860	750	680
3C7	1100	1040	860	750	680

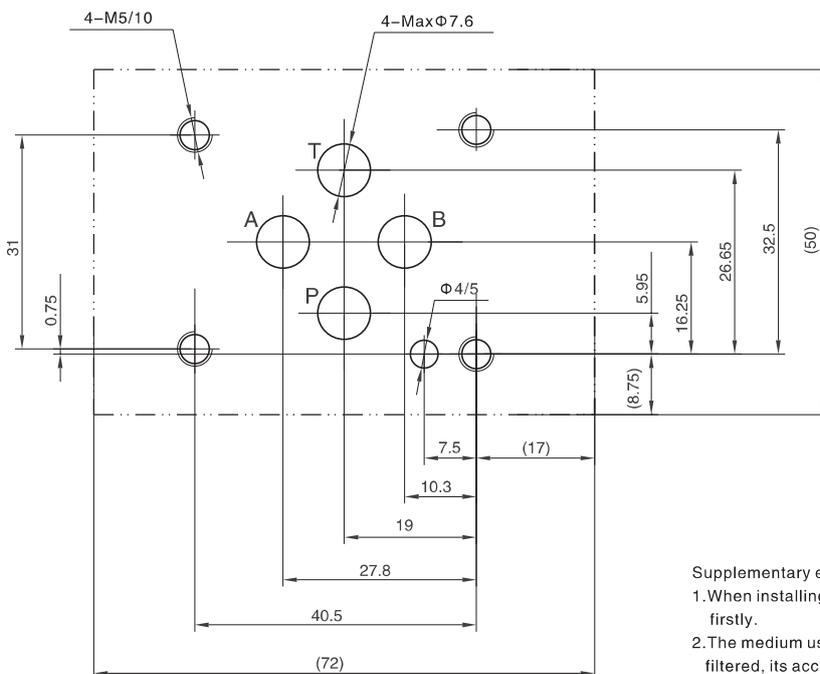
Manual Operated Directional Control Valve



02 External dimensions



02 Size of subplate oil port



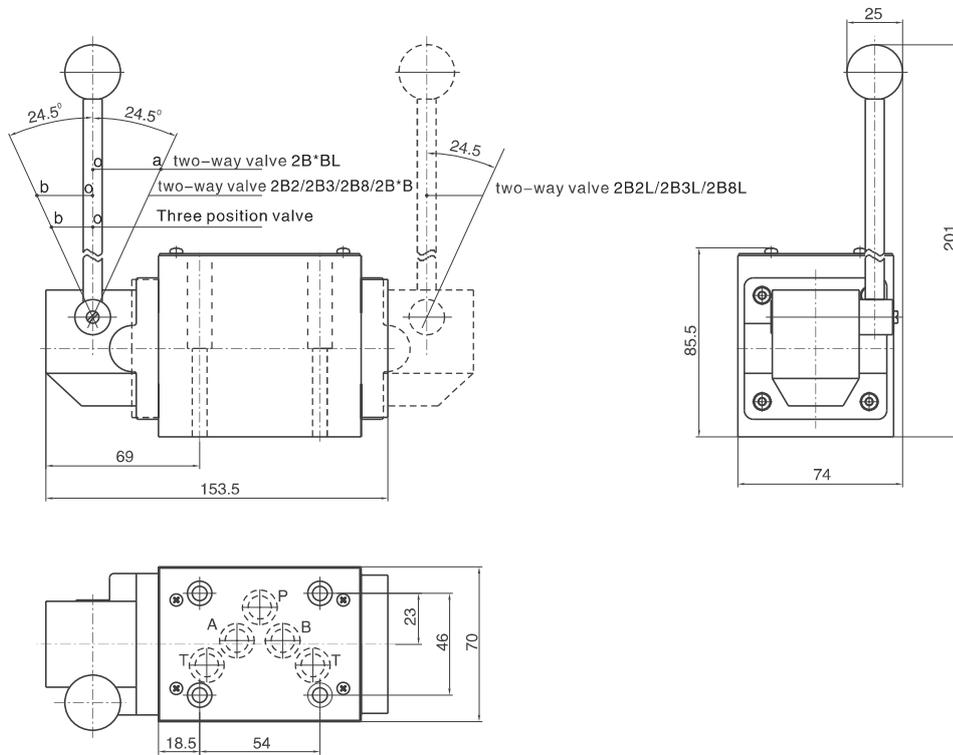
Mounting screw	Amount	Tighten torque
M5x50-10.9	4	9Nm

Supplementary explanation

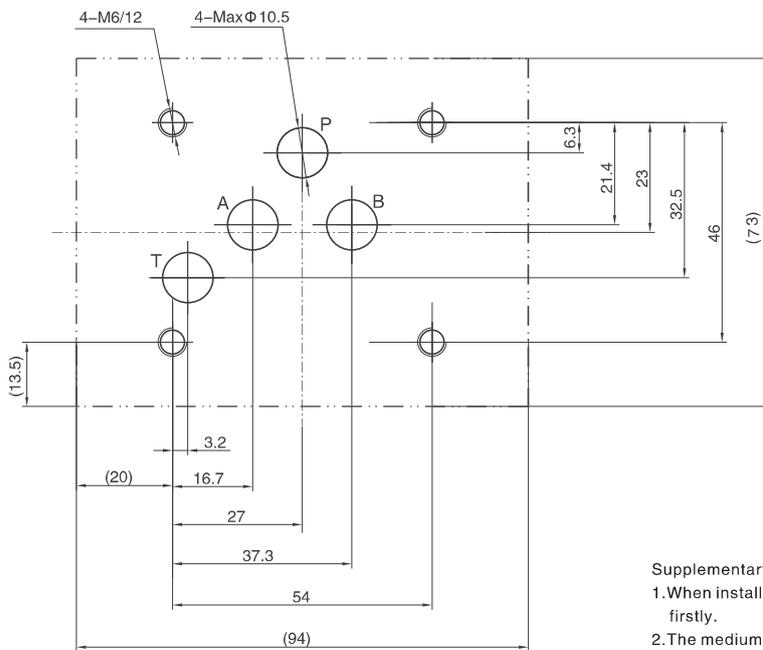
1. When installing the product, considering horizontal position firstly.
2. The medium used in the hydraulic system must be filtered, its accuracy is at least $20\mu\text{m}$.
3. Screw should be according to the parameters in catalogue.
4. The surface, connecting with the valve, should be Ra0.8 roughness,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

Manual Operated Directional Control Valve

03 Spring type external dimensions



03 Spring type size of subplate oil port



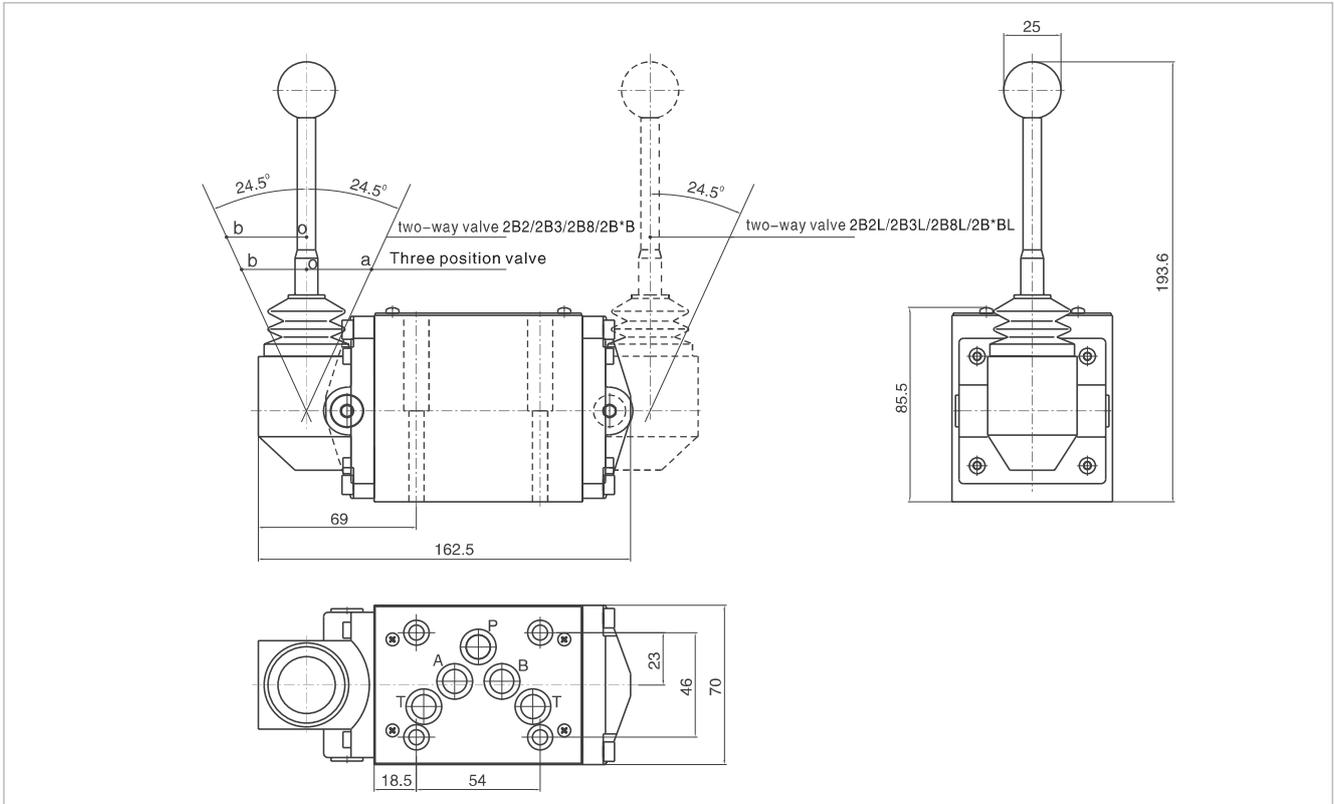
Mounting screw	Amount	Tighten torque
M6x50-10.9	4	15Nm

Supplementary explanation

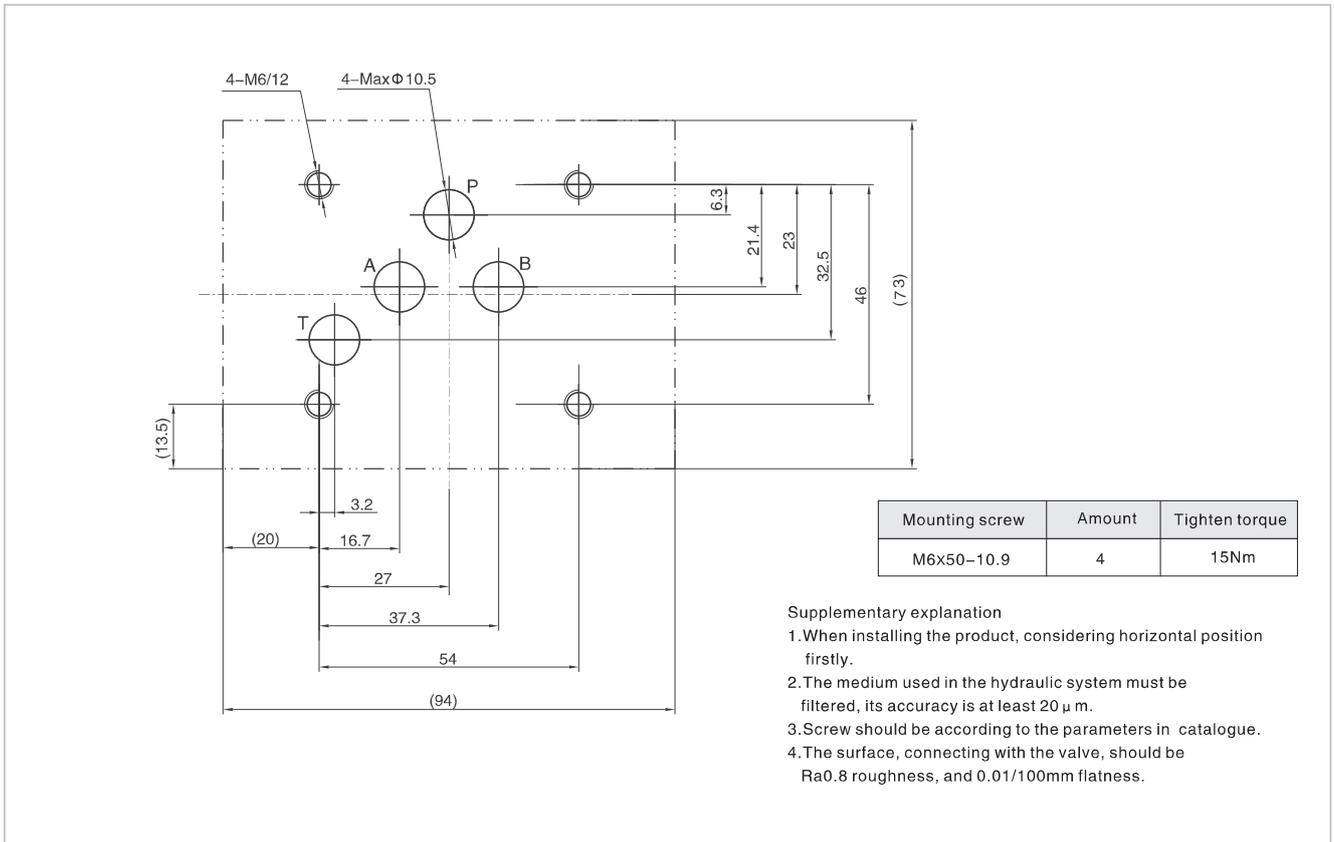
1. When installing the product, considering horizontal position firstly.
2. The medium used in the hydraulic system must be filtered, its accuracy is at least $20\ \mu\text{m}$.
3. Screw should be according to the parameters in catalogue.
4. The surface, connecting with the valve, should be $Ra0.8$ roughness,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

Manual Operated Directional Control Valve

03 With detent type external dimensions

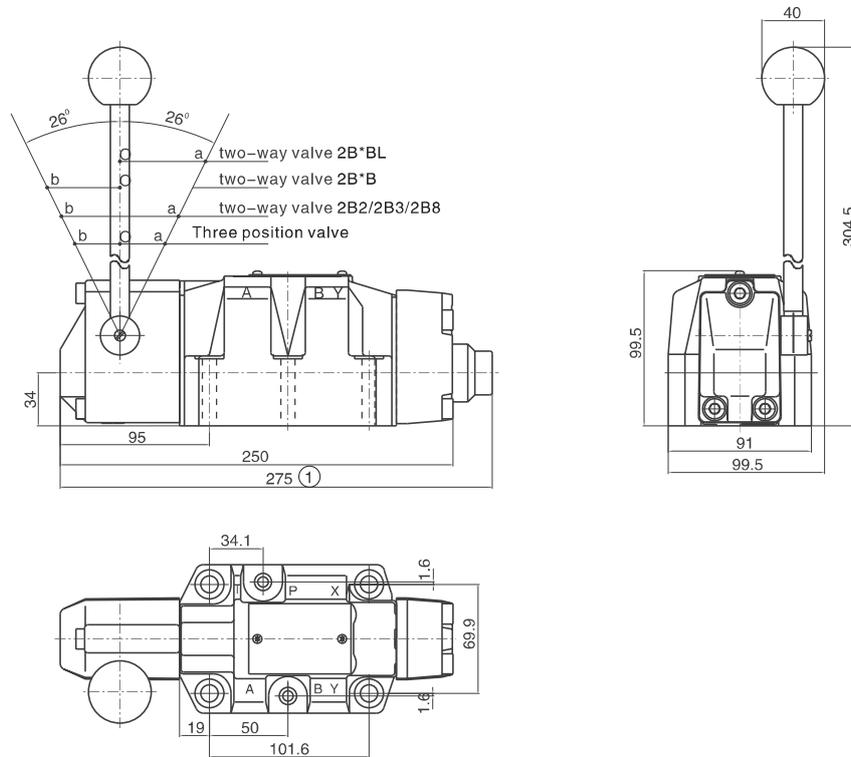


03 With detent type size of subplate oil port

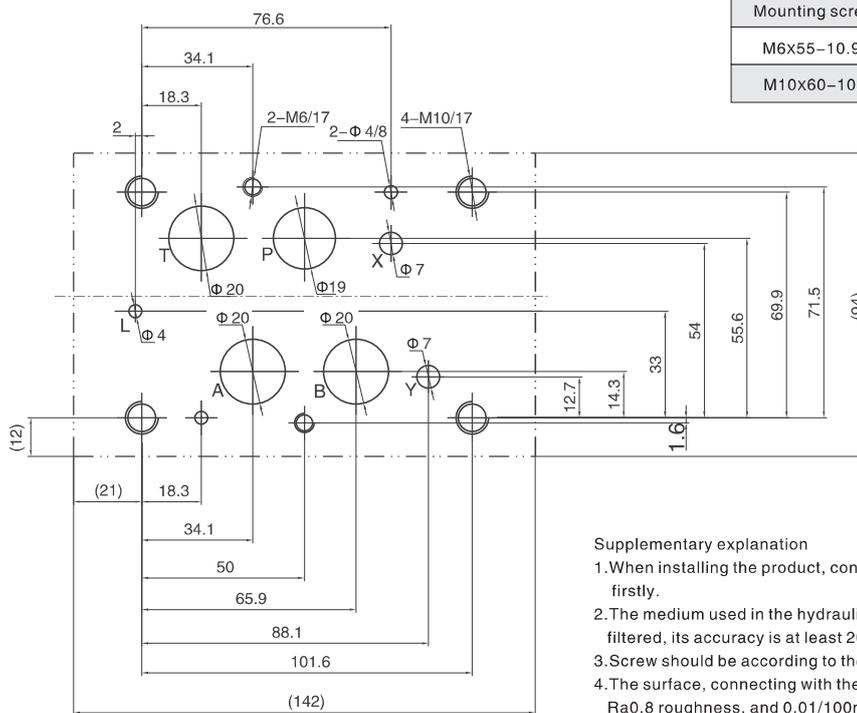


Manual Operated Directional Control Valve

04 External dimensions



04 Size of subplate oil port



Mounting screw	Amount	Tighten torque
M6x55-10.9	2	15Nm
M10x60-10.9	4	75Nm

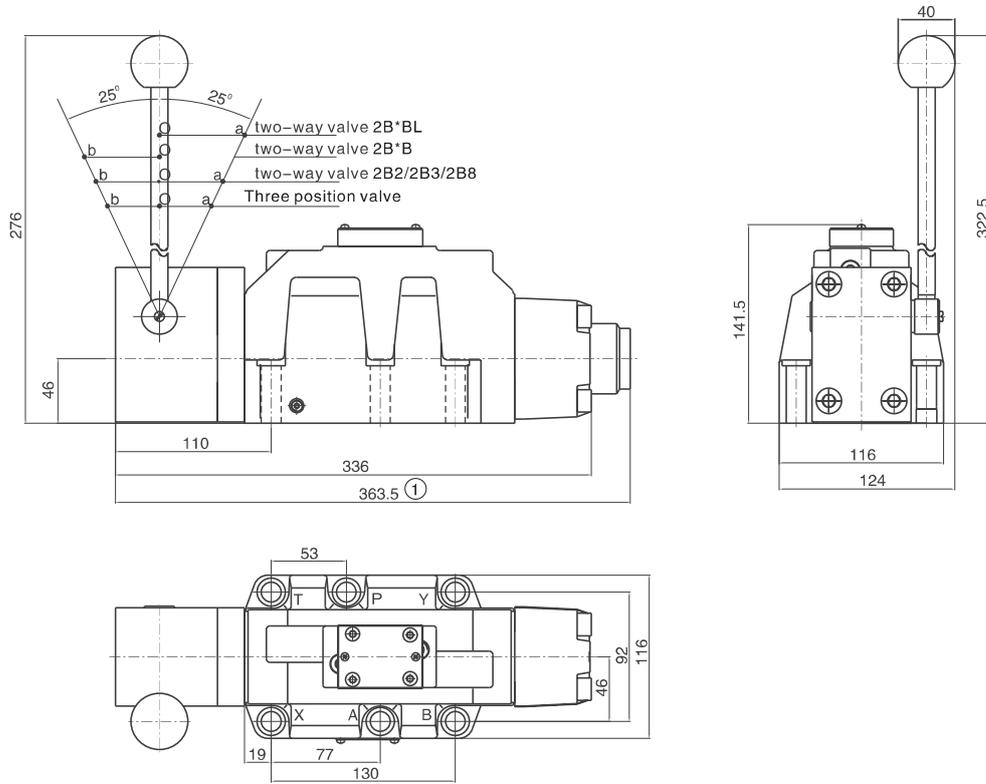
Supplementary explanation

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 μm.
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.

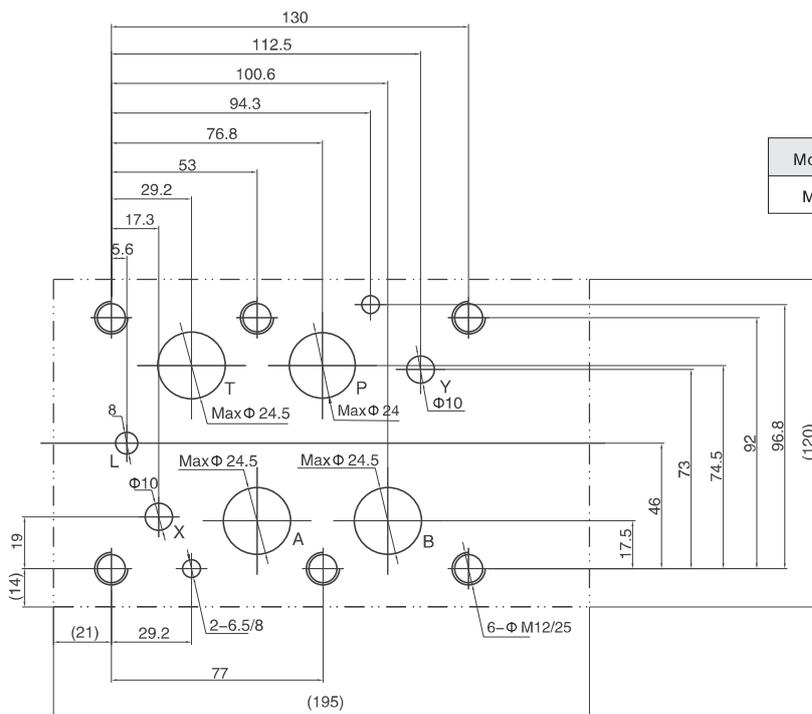
Manual Operated Directional Control Valve



06 External dimensions



06 Size of subplate oil port



Mounting screw	Amount	Tighten torque
M12x60-10.9	6	130Nm

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 $20 \mu\text{m}$.
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.

Hydraulic-operated Directional Control Valve

Parameter



Model		02
Working pressure (MPa)	Oil port P, A, B	31.5
	Oil port T	16
Max flow rate (L/min)		60
Working fluid	Mineral oil; Phosphate oil	
Fluid temp (°C)	-20~70	
Cleanliness	NAS1638 Class 9, recommended filtration precision Min $\beta_{10} \geq 75_0$	

(Please consult us if your application is over above data)

The spool inside the valve FH-02 is driven by hydraulic control oil, so that to change the fluid direction.

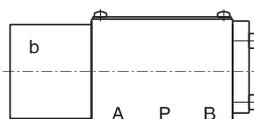
Ordering code

<p>Hydraulic-operated directional control valve</p> <p>specification 02 DN6</p> <p>Spool type</p> <p>Port size G1/8 BSP1/8</p> <p>Return type omit spring return H hydraulic centred OF detend</p>	<p style="text-align: center;">FH - * - * - * / * * * 50 *</p> <p style="text-align: right;">Remark</p> <p style="text-align: right;">Series number</p> <p style="text-align: right;">omit NBR V FPM</p> <p style="text-align: right;">omit without damping 08 $\Phi 0.8$ 10 $\Phi 1.0$ 12 $\Phi 1.2$</p>
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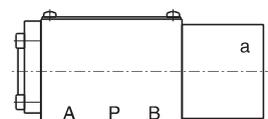
The name of control oil port



1. when control oil flows into end a, P→A B→T



2. When control oil flows into end b



3. The fluid flow direction 3C5 3C6 is opposite against above mentioned.

Hydraulic-operated Directional Control Valve



Spool type

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

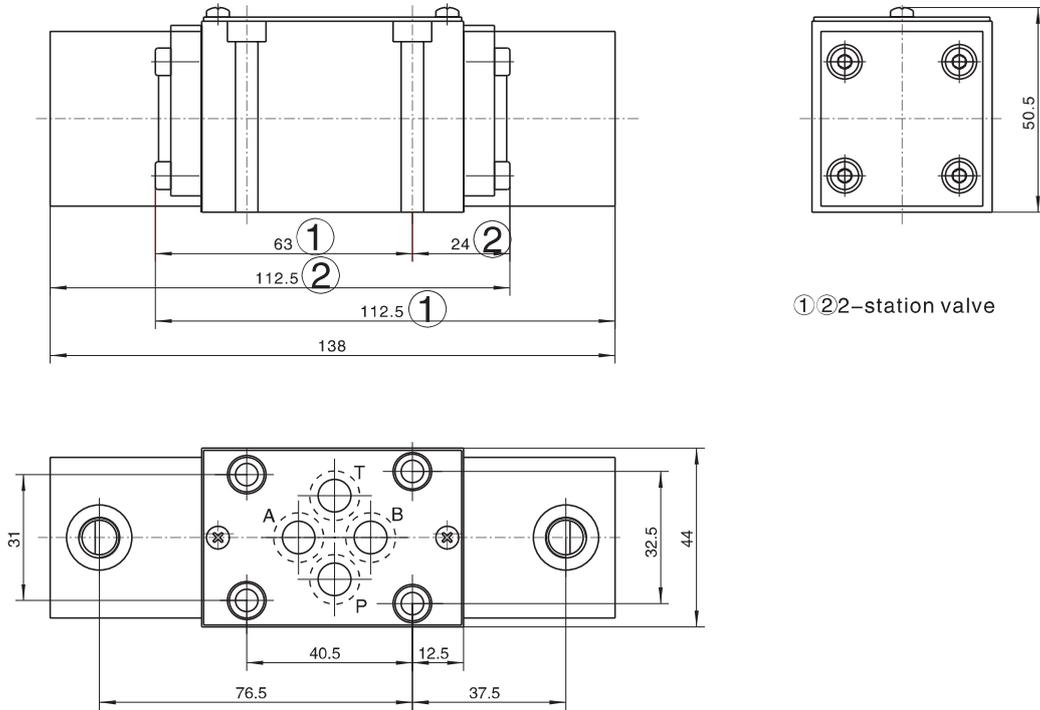
Without spring-return without detent

	2N2
	2N3
	2N8

Note: *D* (without spring-return without detent) ,the valve shall be mounted in horizontal direction.

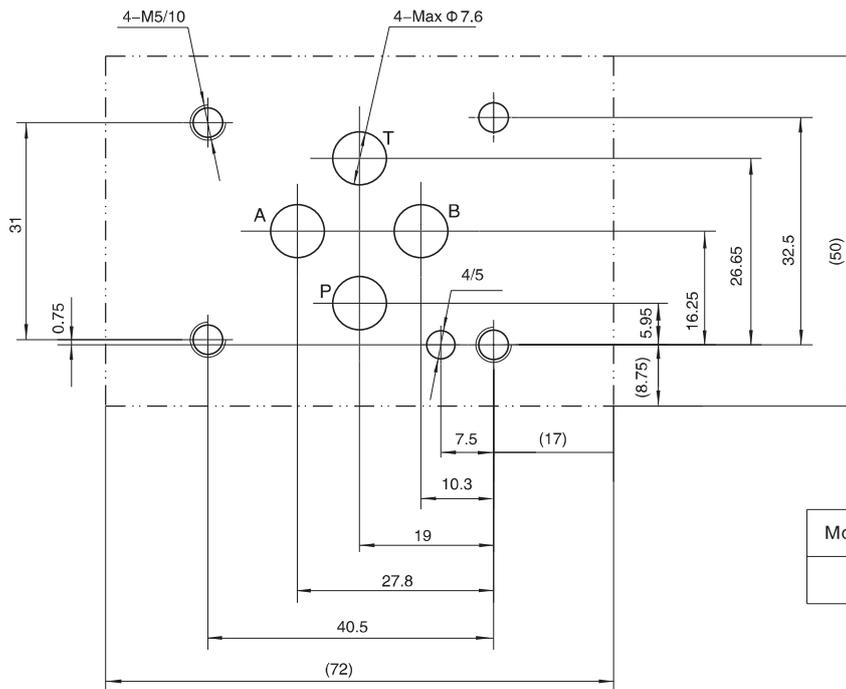
Hydraulic-operated Directional Control Valve

Dimension



① ② 2-station valve

Subplate size



Mounting bolt	Qty	Tightening torque
M5X45	4	9Nm

Note: The surface, connecting with the valve, should be Ra0.8 roughness, and 0.01/100mm flatness.

Water-proof Electrical Operated Directional Control Valve



Technical specification



Specification	02	
Working pressure (MPa)	Oil ports P, A, B	31.5
	Oil port T	10
Max. Flow (L/min)	80	
Working fluid	Mineral oil; phosphate-ester	
Fluid temp. (°C)	-20~70	
Viscosity (mm ² /s)	2.8~380	
Working voltage (V)	DC 12	24
Max. Switch frequency (T/h)	15000	
Insulation grade	Ip65	
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 $\beta 10 \geq 75$.	

Water-proof electrical operated directional control valve uses solenoid to pull the spool and change the direction of the hydraulic oil.

Water-proof electrical operated directional control valve can directly control the start, stop and direction of a fluid flow. It also can be used as the pilot-operated valve, which could operate other valves.

Supplement: Water-proof electrical operated directional control valve is usually used at damp environment such as garbage trucks.

Model description

W P F W - * - * - * * / * * 5 1 *

<p>Water-proof electrical operated directional control valve</p> <hr/> <p>Specification 02 DN6 03 DN10</p> <hr/> <p>Function code Details as following symbol table</p> <hr/> <p>Working voltage D12 DC12V D24 DC24V</p>	<p>Remarks</p> <hr/> <p>Serial number</p> <hr/> <p>Seal material Omit NBR Seals V FPM Seals</p> <hr/> <p>Omit without damping 08 $\Phi 0.8$ Damping 10 $\Phi 1.0$ Damping 12 $\Phi 1.2$ Damping</p> <hr/> <p>Omit without hand emergency N9 with concealed hand emergency</p>	
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Water-proof Electrical Operated Directional Control Valve

Code symbol

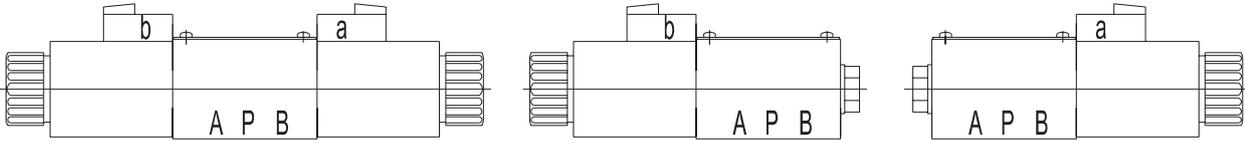
Spring return

3C2		2B2B		2B2BL		2B2	
3C3		2B3B		2B3BL		2B3	
3C4		2B4B		2B4BL		2B8	
3C5		2B5B		2B5BL		2B2L	
3C6		2B6B		2B6BL		2B3L	
3C7		2B7B		2B7BL		2B8L	
3C9		2B9B		2B9BL			
3C10		2B10B		2B10BL			
3C11		2B11B		2B11BL			
3C12		2B12B		2B12BL			
3C25		2B25B		2B25BL			
3C29		2B29B		2B29BL			

Water-proof Electrical Operated Directional Control Valve



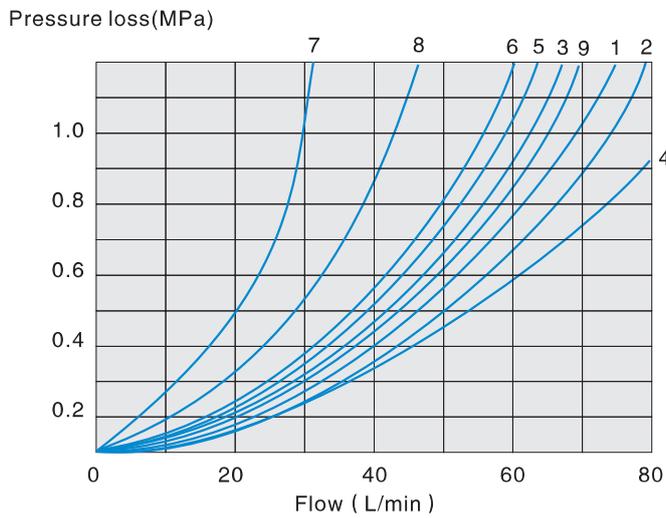
Name of solenoid



1. a When movement a, P→A B→T
2. b When movement b, P→B A→T
3. 3C5,3C6 Oil flow in the opposite direction with the above-mentioned movement.

D.9.3

Specification Performance curve (Measured at $v=41\text{mm}^2/\text{s}$ and $t=50^\circ\text{C}$)



Function code	Direction			
	P→A	P→B	A→T	B→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
C25	3	1	1	1
3C29	5	5	4	-
3C7	1	2	1	1

7. Spool type "3C29" located in the control position A → B
 8. Spool symbol 3C6 in the median position P → T

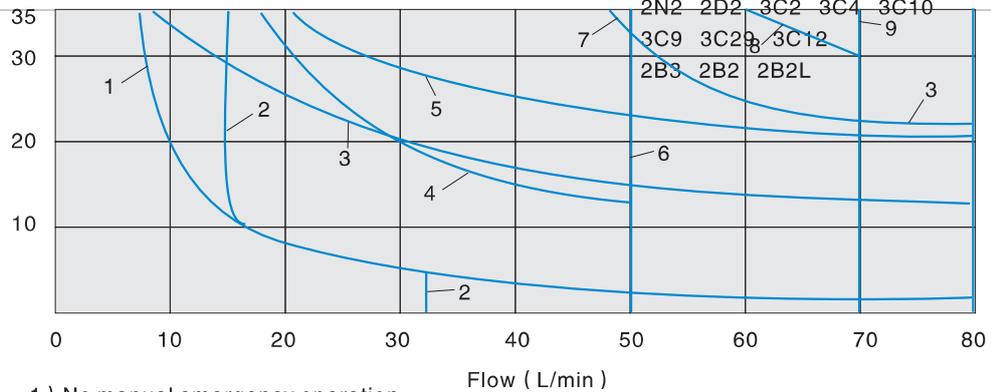
Water-proof Electrical Operated Directional Control Valve

Specification Working limits (The working limits for directional valve 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.

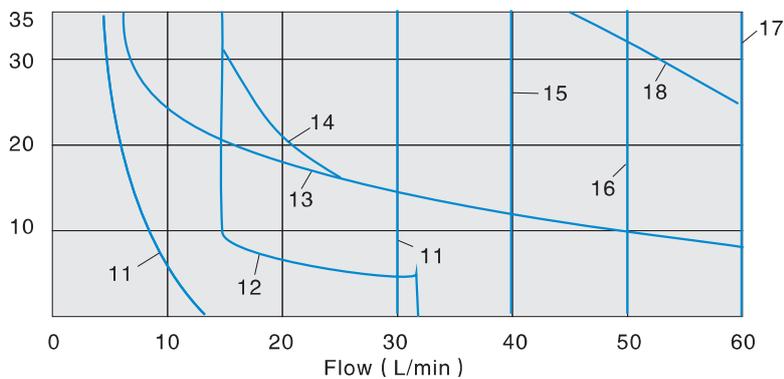
DC solenoid operation DC D24, D1 2, B220, B110		AC solenoid operation AC A110, A220, 50HZ	
Curve	Symbol	Curve	Symbol
1	2B8 2B8L1)	11	
2	3C7	12	
3	2B8 2B8L	13	
4	3C5 3C25	14	
5	3C4	15	
6	3C6 3C3	16	
7	2N8 2D8 3C10 3C12	17	
8	2B3 2B2 2B2L		2B8 2B8L1)
9	3C9		3C7
10	3C2 3C29 2N3 2D3 2N2 2D2	18	2B8 2B8L 3C5 3C25

Working pressure(MPa)



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

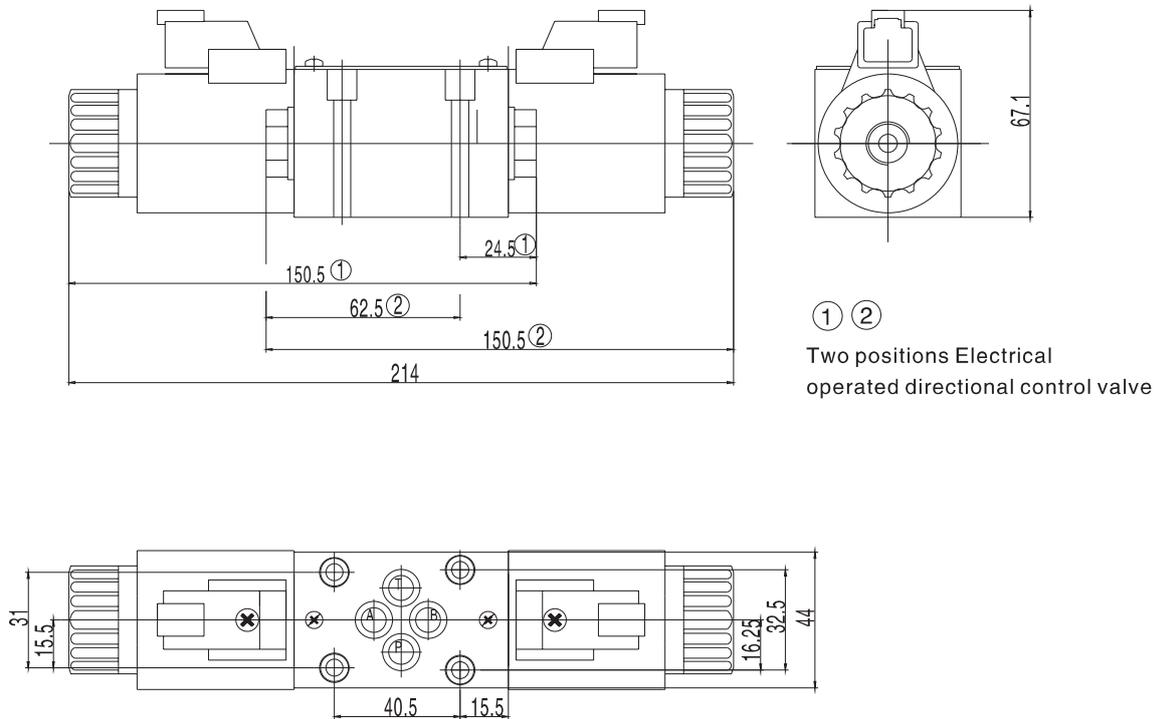
Working pressure(MPa)



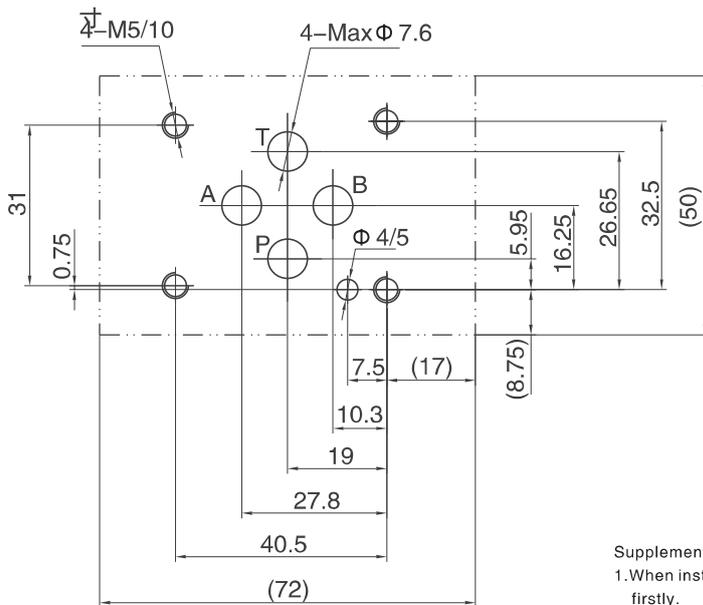
Water-proof Electrical Operated Directional Control Valve



External dimensions



Size of subplate oil port



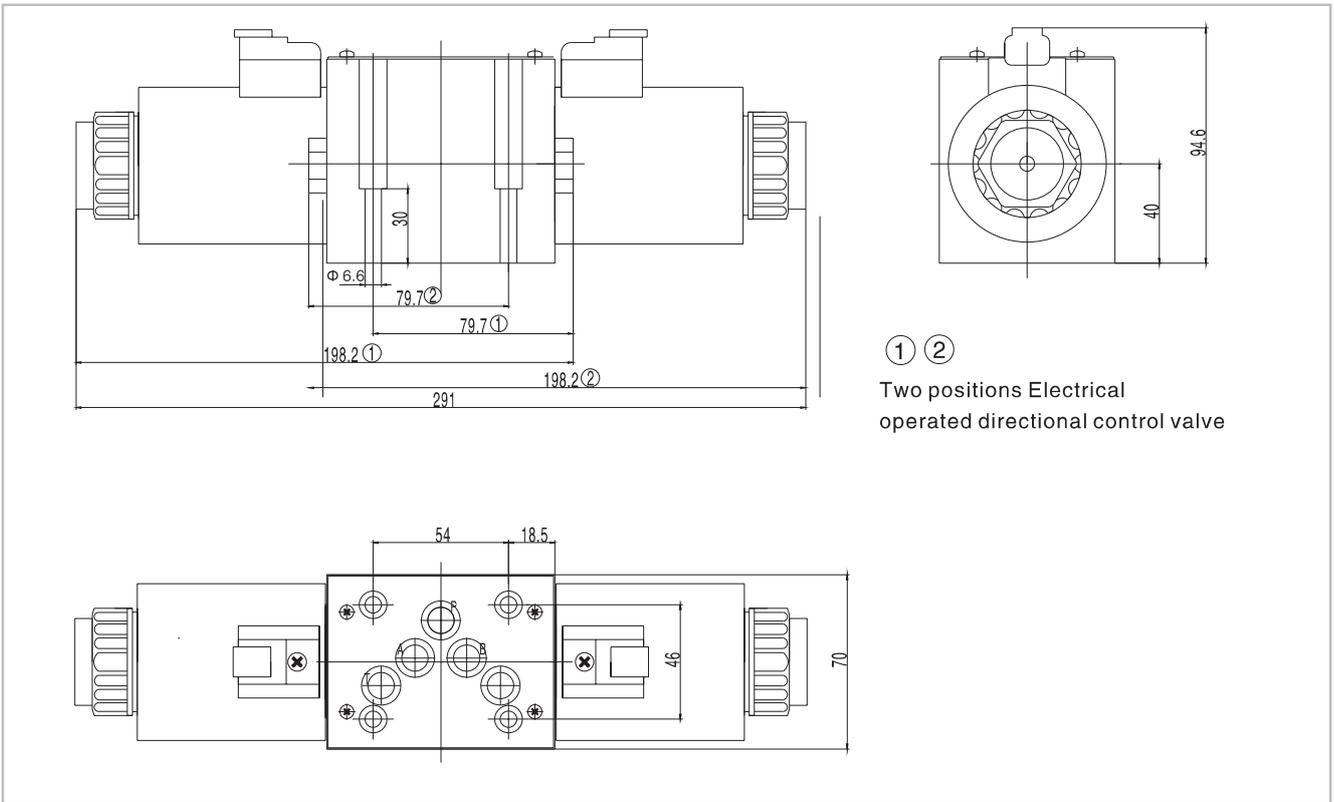
Mounting screw	Amount	Tighten torque
M5X45-10.9	4	9Nm

Supplementary explanation

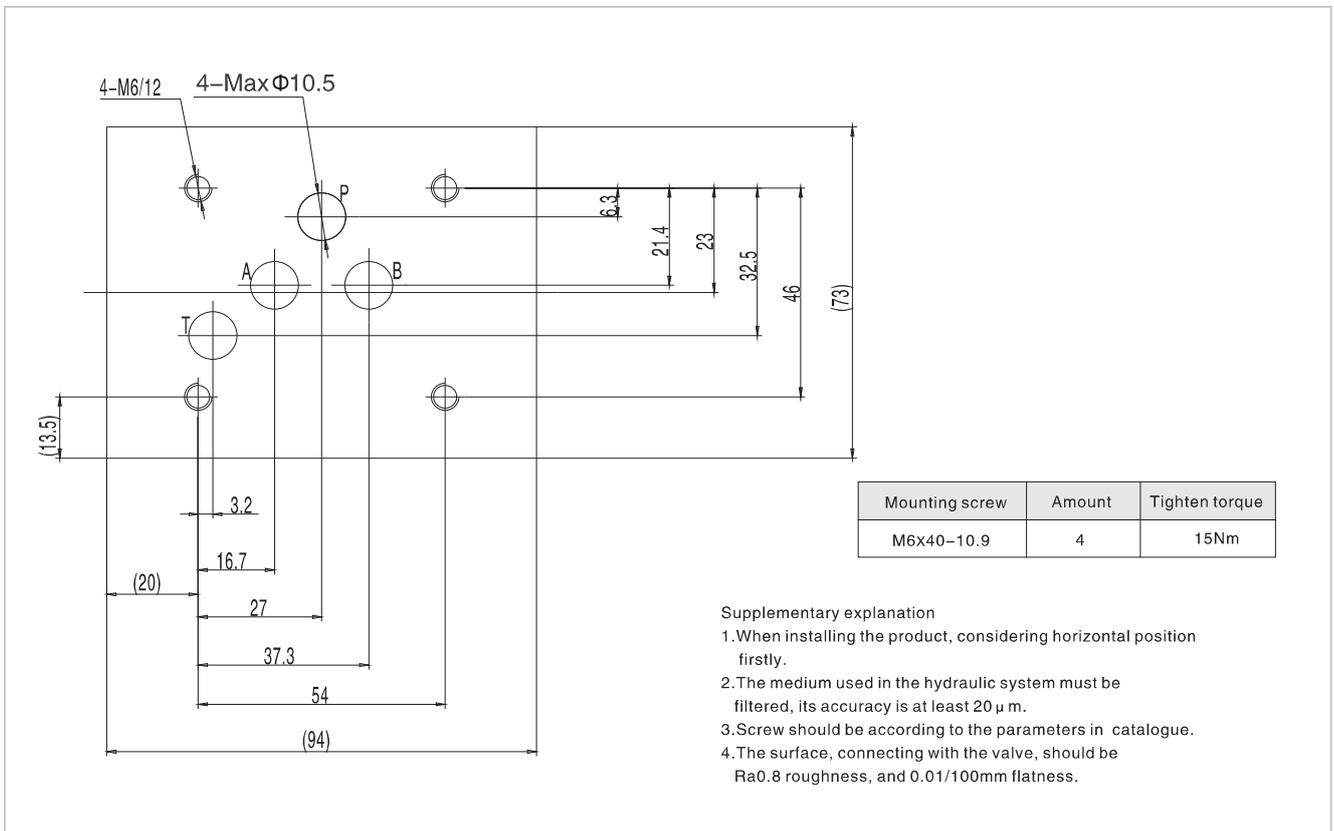
1. When installing the product, considering horizontal position firstly.
2. The medium used in the hydraulic system must be filtered, its accuracy is at least $20\ \mu\text{m}$.
3. Screw should be according to the parameters in catalogue.
4. The surface, connecting with the valve, should be Ra0.8 roughness,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

Water-proof Electrical Operated Directional Control Valve

External dimensions



Size of subplate oil port



Modular Check Valve



Technical specification



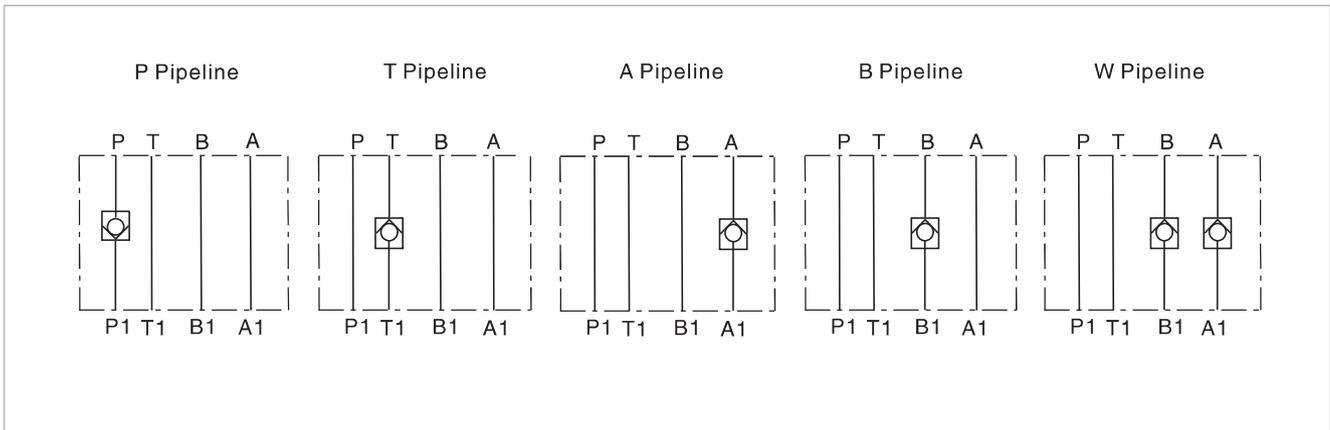
Specification	02	03
Max. working pressure (MPa)	31.5	
Max. Flow (L/min)	40	100
Working fluid	Mineral oil; phosphate-ester	
Fluid temp. (°C)	-20~70	
Viscosity (mm ² /s)	2.8~380	
O pening pressure (MPa)	a:0.05 b:0.25 c:0.4	
Cleanliness	The maximum allowable cleanliness of the oil should be according to 9th degree of Standard NAS1638. It is suggested that the minimum filter rating should be $\beta_{10} \geq 75$.	

Model description

DA - * * - * / * 70 *

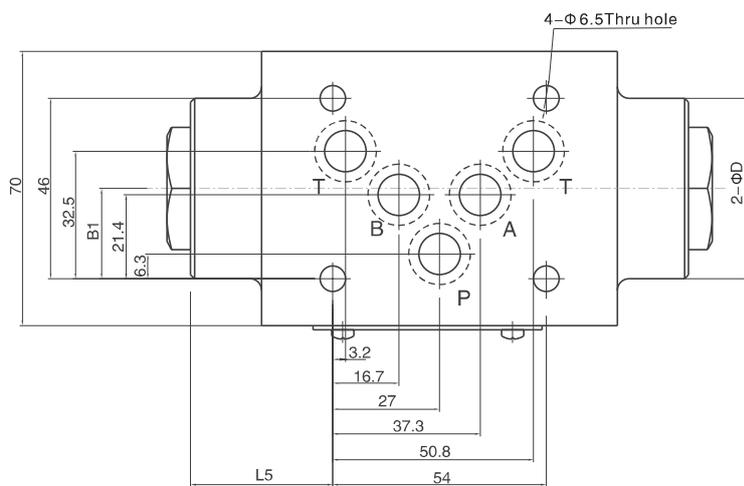
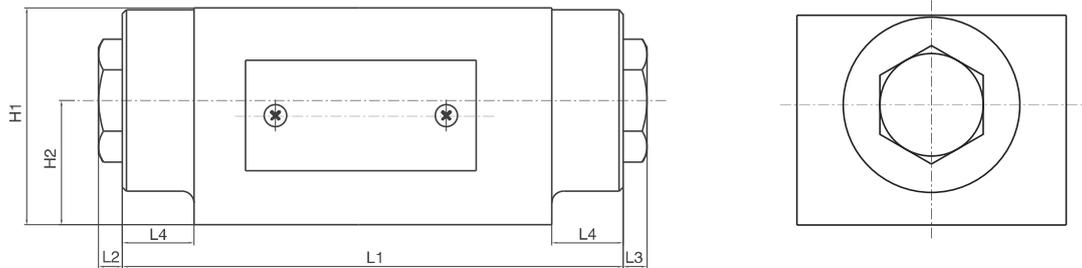
<p>Modular check valve</p> <p>Specification 02 DN 6 03 DN 10</p> <p>P P Pipeline T T Pipeline A A Pipeline B B Pipeline W AB Pipeline</p>	<p>Remarks</p> <p>Serial number</p> <p>Seal material Omit NBR Seals V FPM Seals</p> <p>O pening pressure a 0.05 b 0.25 c 0.4</p>	<p>Remarks</p> <p>Serial number</p> <p>Seal material Omit NBR Seals V FPM Seals</p> <p>O pening pressure a 0.05 b 0.25 c 0.4</p>
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Code symbol



Modular Check Valve

03 External dimensions



Specification	D	B1	H1	H2	L1	L2	L3	L4	L5
DA-03-A	-	18.5	55	27.5	80	-	6	-	10
DA-03-B	-	18.5	55	27.5	80	6	-	-	16
DA-03-P	-	15.8	55	27.5	80	-	6	-	16
DA-03-T	-	23	55	27.5	100	-	6	-	19.5
DA-03-W	46	23	55	31.5	126	6	6	18	36
DA-03-WT	-	32.5	55	27.5	150	6	6	-	48

Modular Pilot-operated Check Valve

Technical specification



Specification	02	03	04	06
Max. working pressure (Mpa)	31.5			
Max. Flow (L/min)	60	100	200	360
Working fluid	Mineral oil; phosphate-ester			
Fluid temp. (°C)	-20~70			
Viscosity (mm ² /s)	2.8~500			
Opening pressure (MPa)	a0.05	b0.25	c0.4	
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 $\beta_{10} \geq 75$.			

Model description

DAY- * * - * / * 50 *

Modular Pilot-Operated Check Valve

Specification
 02 DN6
 03 DN10
 04 DN16
 06 DN22

A A Pipeline
 B B Pipeline
 W AB Pipeline

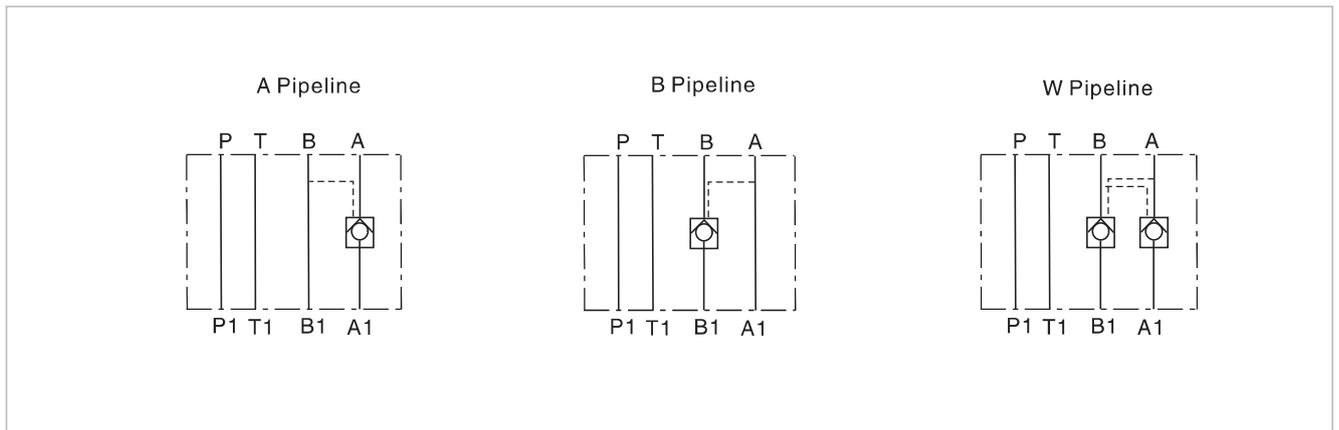
Remarks

Serial number

Seal material
 Omit NBR Seals
 V FPM Seals

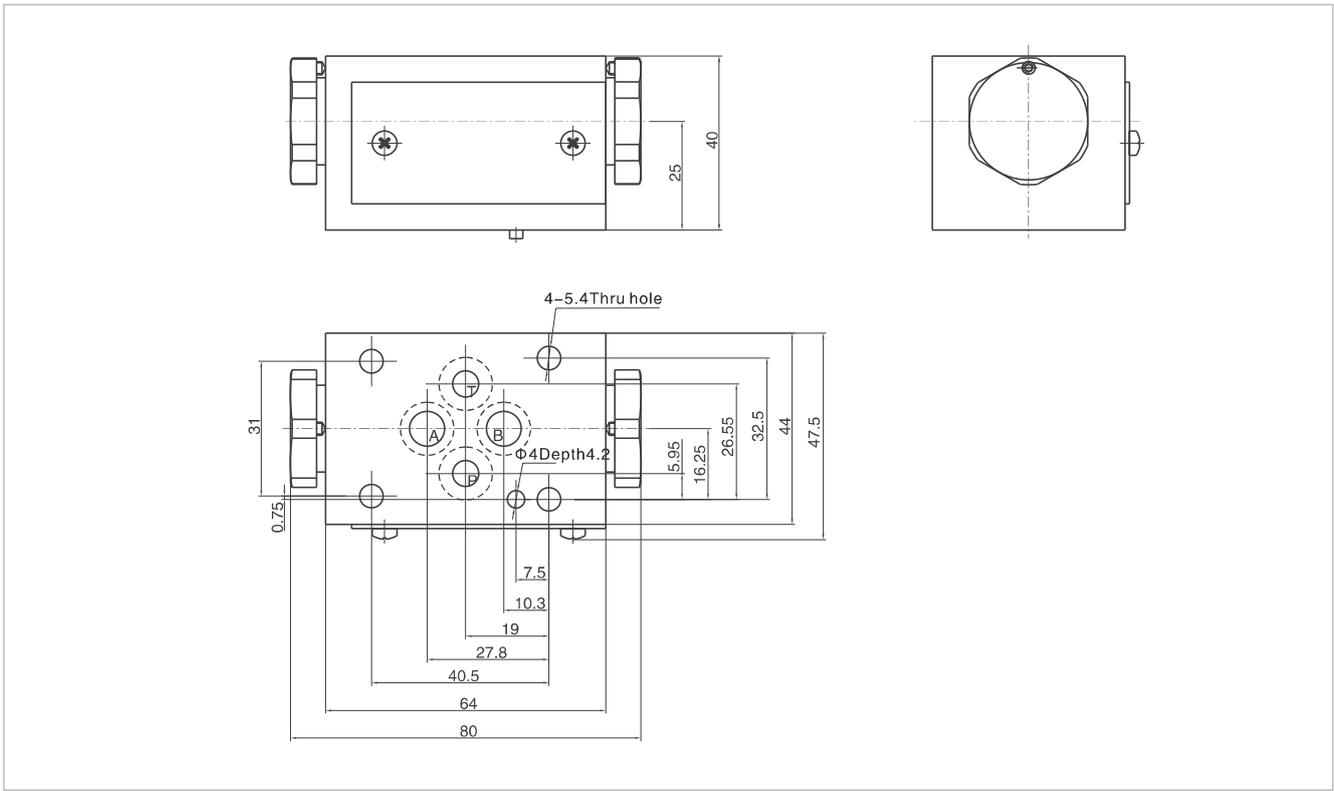
Opening pressure
 a 0.05
 b 0.25
 c 0.4

Code symbol

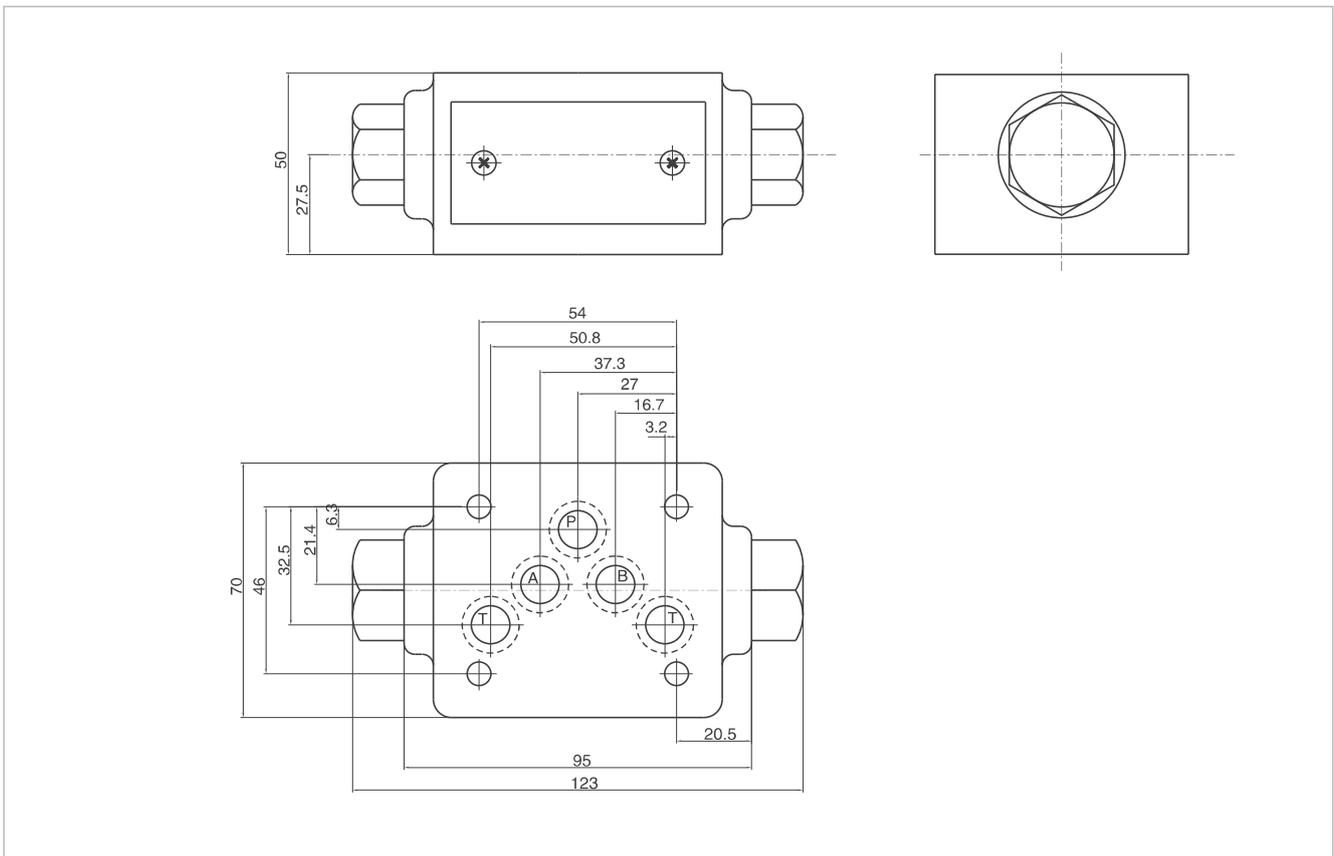


Modular Pilot-operated Check Valve

02 External dimensions

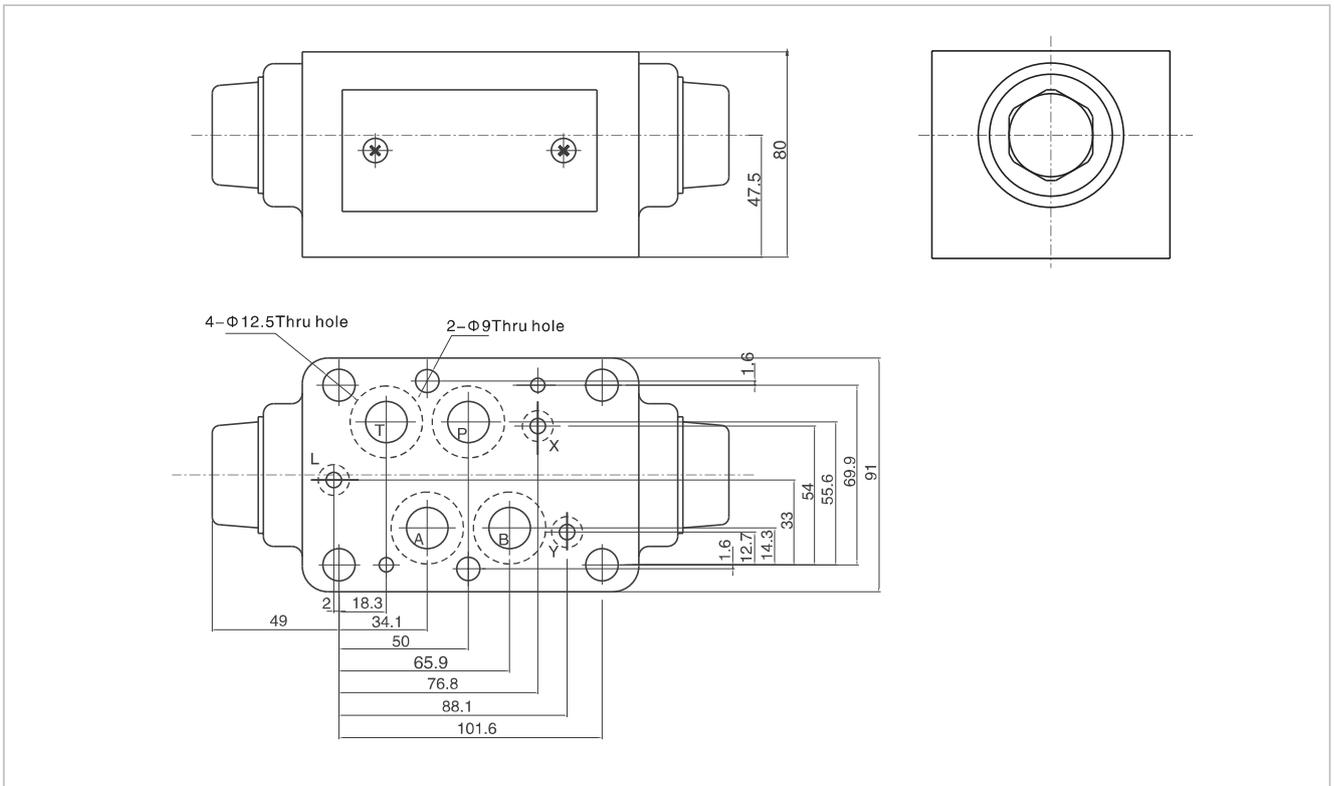


03 External dimensions

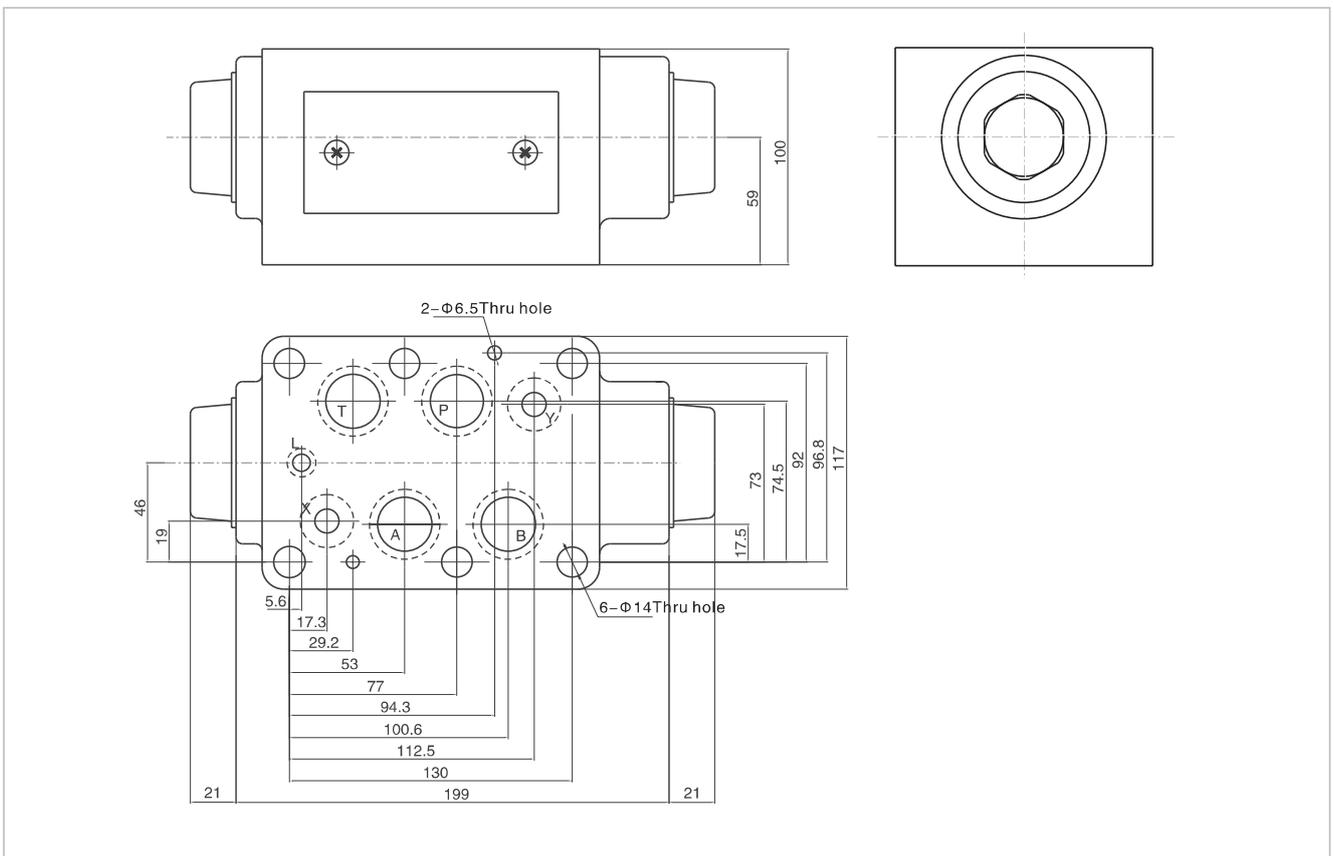


Modular Pilot-operated Check Valve

04 External dimensions



06 External dimensions



Solenoid Valve With Hand Control



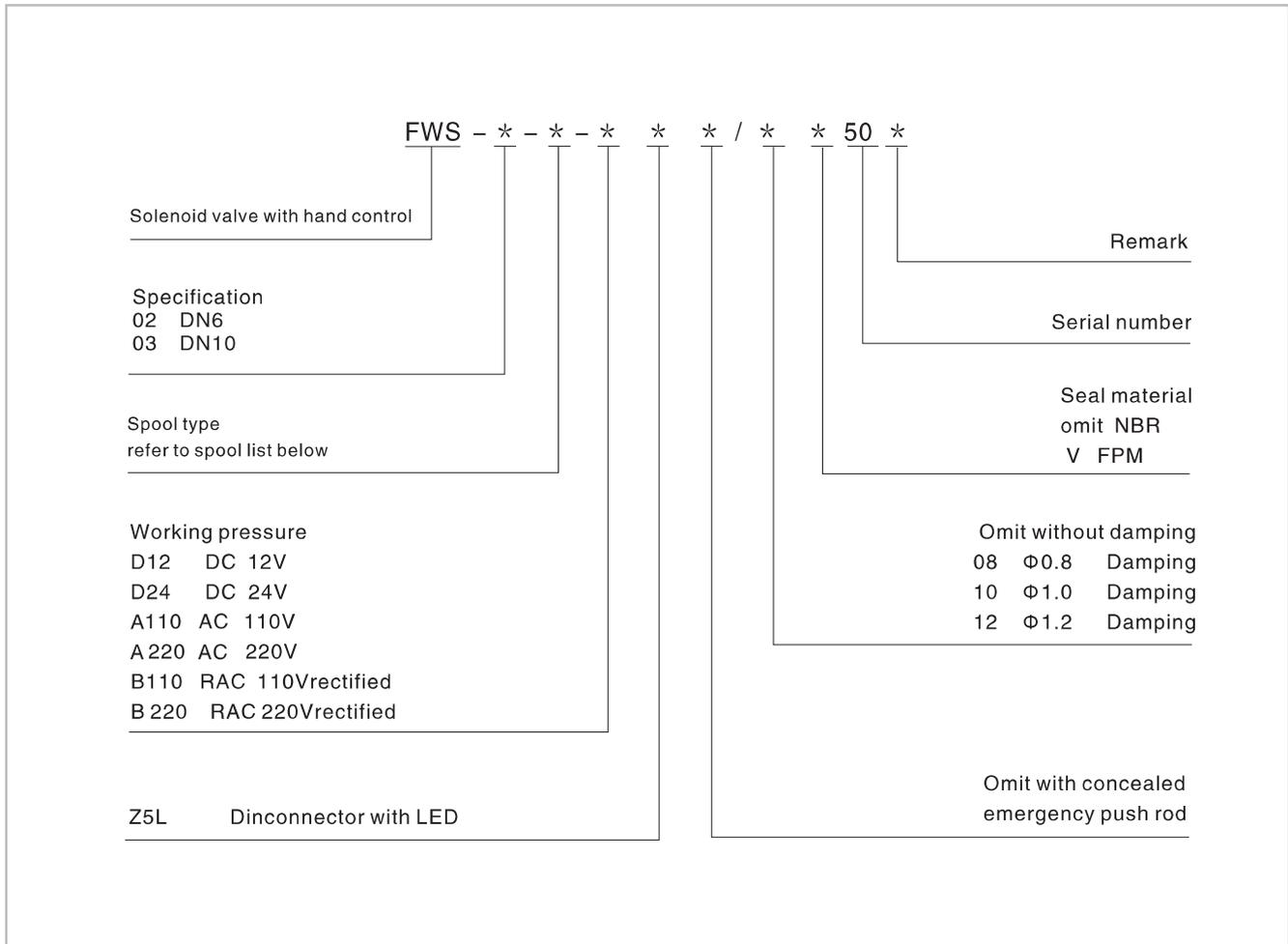
Technical data



Model		02	03
Pressure range (MPa)	Oil port P, A,B	35	31.5
	Oil port T	10	
Max flow rate(L/min)		80	120
Installation		Any, recommended horizontal installation	
Working fluid		Mineral hydraulic oil; phosphate ester hydraulic oil	
Fluid temp (°C)		-20~70	
Fluid viscosity (mm ² /s)		2.8~100	
Working voltage (V)	DC	12	24
	AC	110/50Hz	220/50Hz
Protection grade		IP65	
Cleanliness		NAS1638 Class 9, recommended filtration precision Min $\beta_{10} \geq 75_0$	

FWS can work as standard solenoid directional valve, also can control the spool movement with hand level on power-off condition.

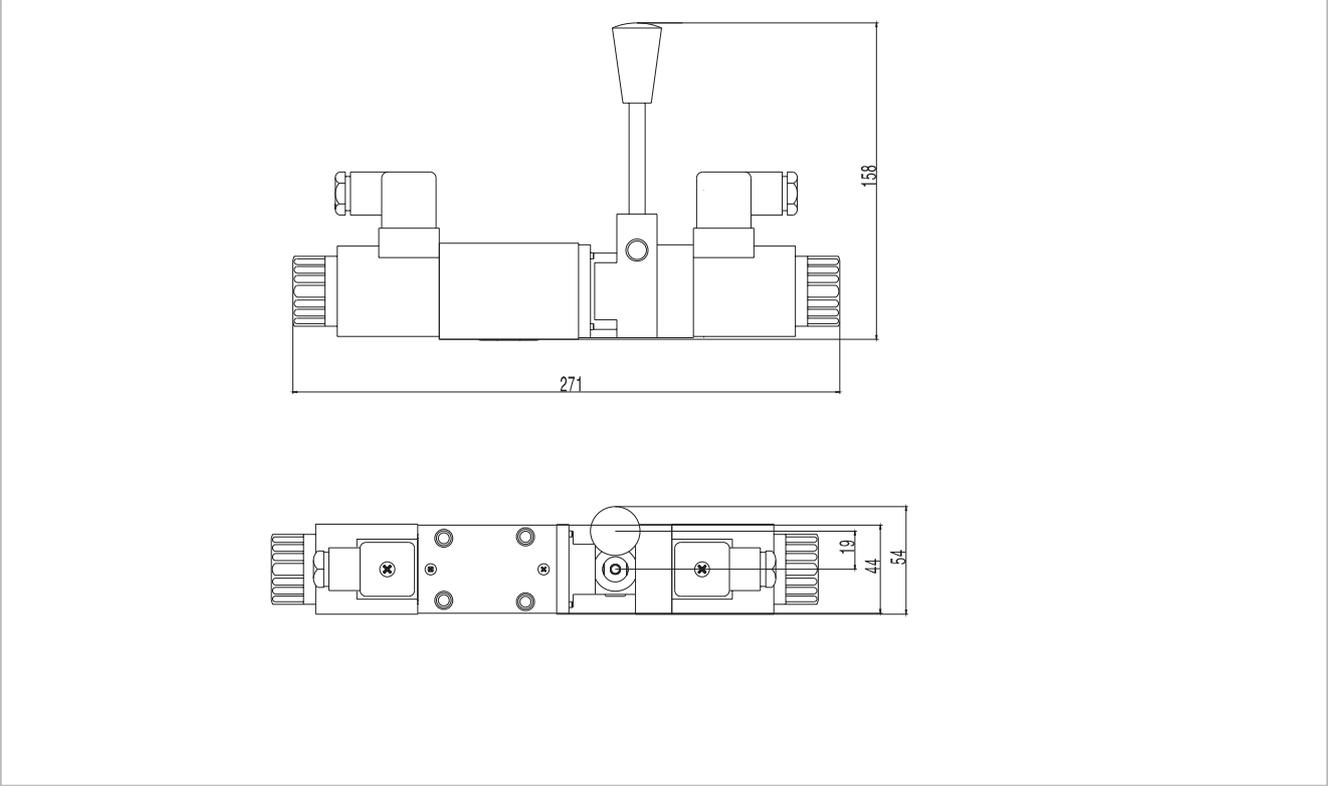
Model description



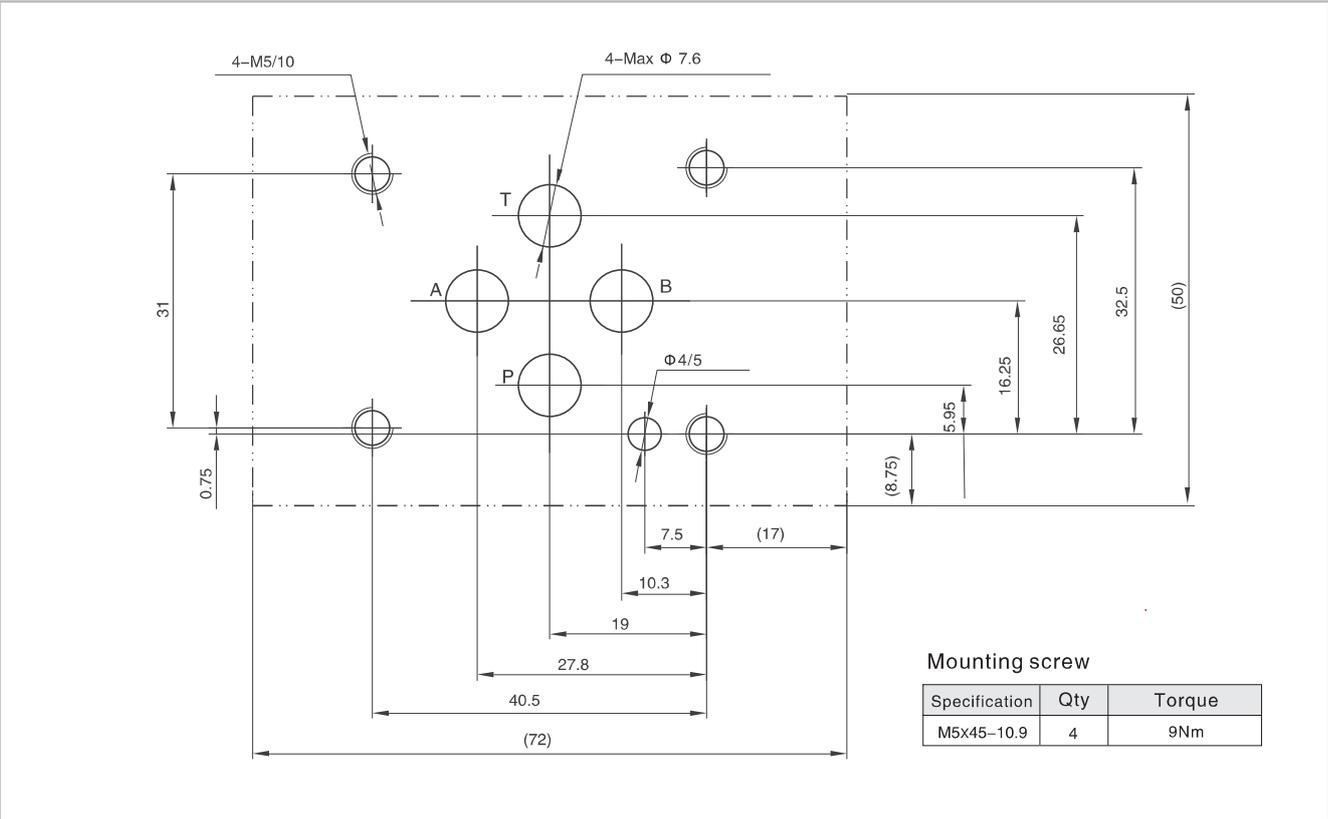
D.12.1

Solenoid Valve With Hand Control

02 Dimension



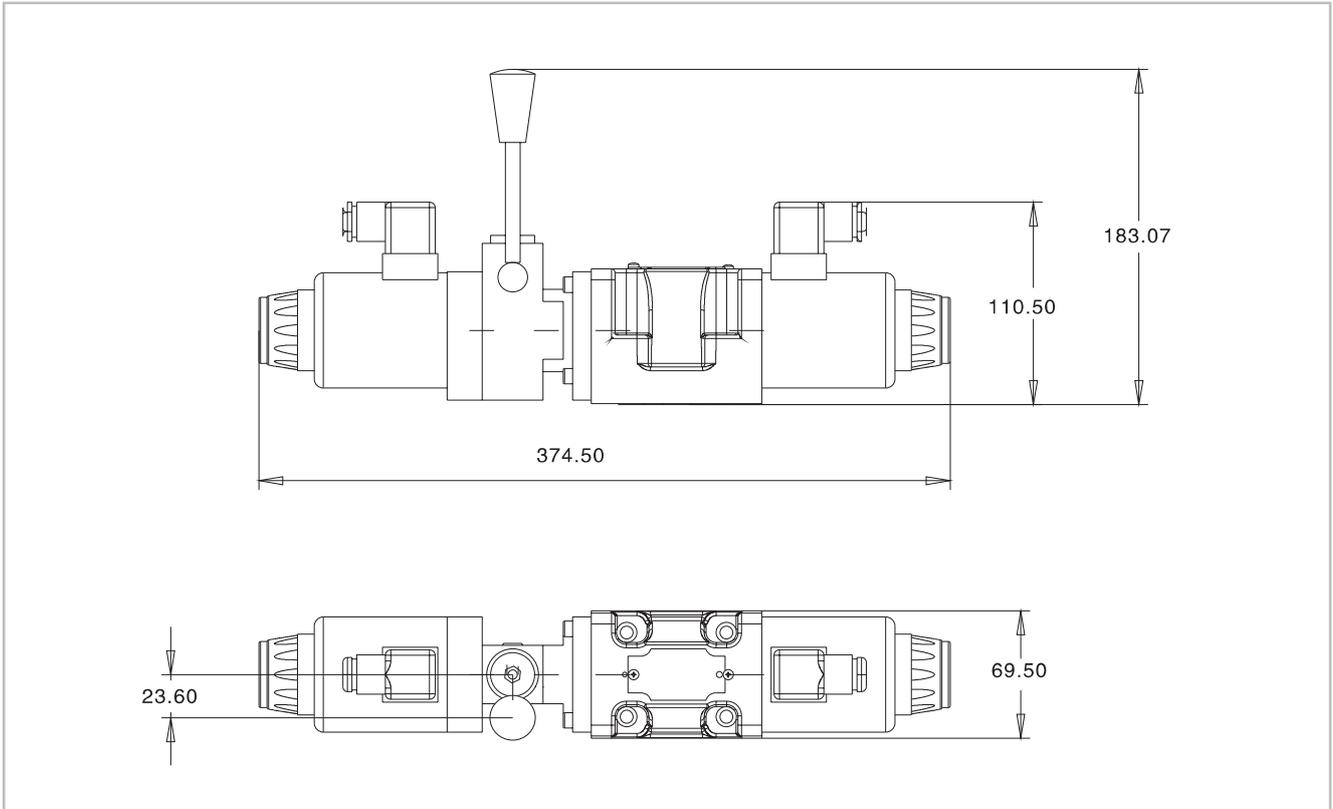
02 Subplate mounting size



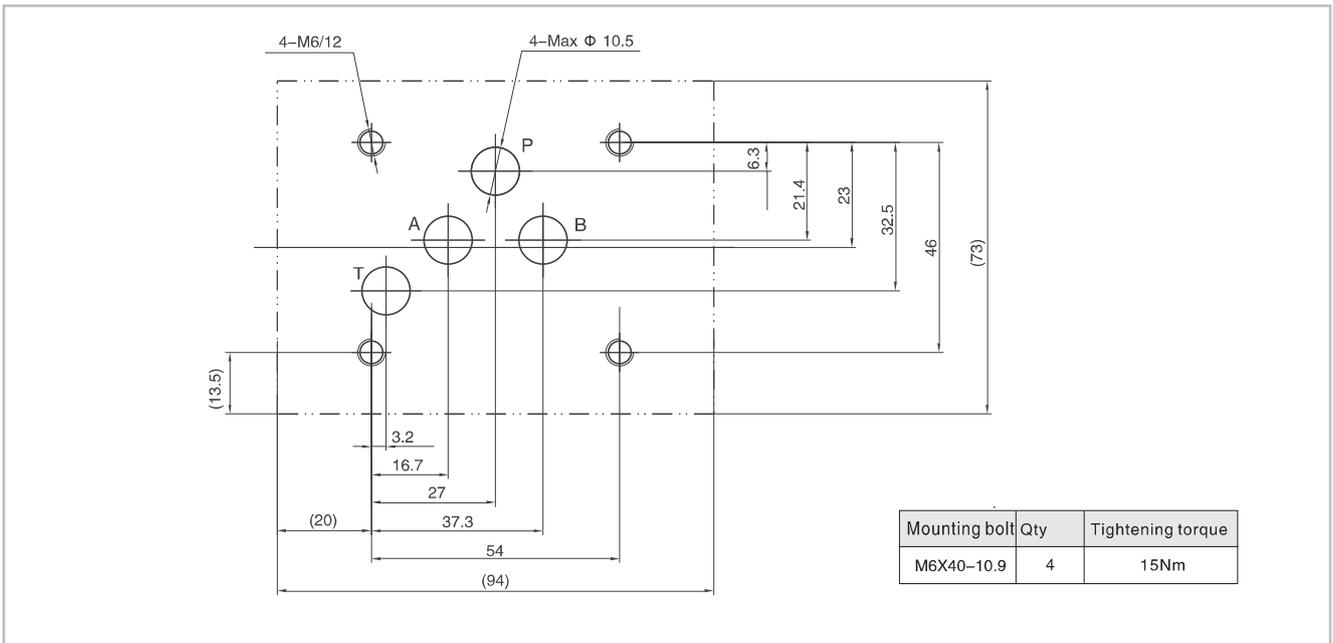
D.12.2

Solenoid Valve With Hand Control

03 Dimension



03 Subplate mounting size



Notice:

1. Please refer to "user's guide" before mounting .
2. When installing the product, considering horizontal position firstly.
3. The medium used in the hydraulic system must be filtered, its accuracy is at least 20 μ m.

4. Screw should be according to the parameters in catalogue.
5. The surface, connecting with the valve, should be Ra0.8 roughness, and 0.01/100mm flatness.