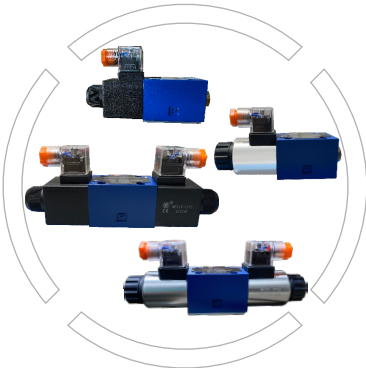


# 4WE 6 or 10

4/3 and 4/2 directional valve  
with wet pin DC and AC Solenoids  
Max pressure up to 350 bar  
Max. Flow up to 120 l/min

Updated on 11.2025



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## Introduction

- The 4WE6 or 10 directional valves are solenoid operated directional spool valves.
- They control the start, stop and direction of flow.
- It is unnecessary to open the pressure tight chamber when changing the coil.
- Under urgent situation, the spool can be derived by hidden hand override.

## Technical data

General			Size 6	Size 10
Weight	Valve with 1 solenoids	Kg	1.65	4.80
	Valve with 2 solenoids	Kg	2.25	6.15
Ambient temperature			-30 to 50	
Installation			Optional	

Hydraulic			Size 6	Size 10
Flow Max.			up to 80(=); up to 60(~)	up to 120
Operating pressure max	Ports A, B, P	Bar	350	315
	Ports T	Bar	up to 210 (=); up to 160 (~) ③	
Pressure Fluid: ①Suitable for NBR and FKM seals; ②only suitable for FKM seals			Mineral oil (HL, HLP) to DIN 51524 <sup>①</sup> fast bio-degradable pressure fluids to VDMA 24568; HETG (rape seed oil) <sup>①</sup> HEPG (Polyglycol); HEES (Synthetic ester); ② other fluids on request	
Pressure fluid temperature range	NBR Seals	°C	-30+80	
	FKM Seals	°C	-20+80	
Viscosity range			2.8 to 500	
Degree of fluid contamination			Maximum permissible degree of contamination of fluid is to NAS 1638 class 9 We therefore recommend a filter minimum retention rat of $\beta_{10} \geq 25$	

Electrical			Size 6		Size 10	
			DC	AC 50/60 Hz	DC	AC 50/60 Hz
Voltage available	V		12, 24, 48	110, 120, 220, 240	12, 24, 48	110, 120, 220, 240
Voltage tolerance (normal voltage)	%		±10	±10	±10	±10
Power consumption	W		32	-	<40	50
Holding current	A		-	-	-	0.9
In-rush current	A		-	<2	-	<2
Shifting time to ISO 6403	On	ms	25 to 45	10 to 20	40 to 60	15 to 25
	Off	ms	10 to 25	15 to 40	20 to 30	20 to 30
Shifting frequency	Sw/h		up to 15000	up to 7200	up to 15000	up to 7200
Insulation to DIN 40 050			IP65	IP65	IP65	IP65
Coil temperature	°C		up to +155	up to +180	up to +155	up to +180

### Note:

- ③For with symbols A and B, Port T must be used as a drain port, if the operating pressure is above the permissible tank pressure is above the permissible tank pressure.



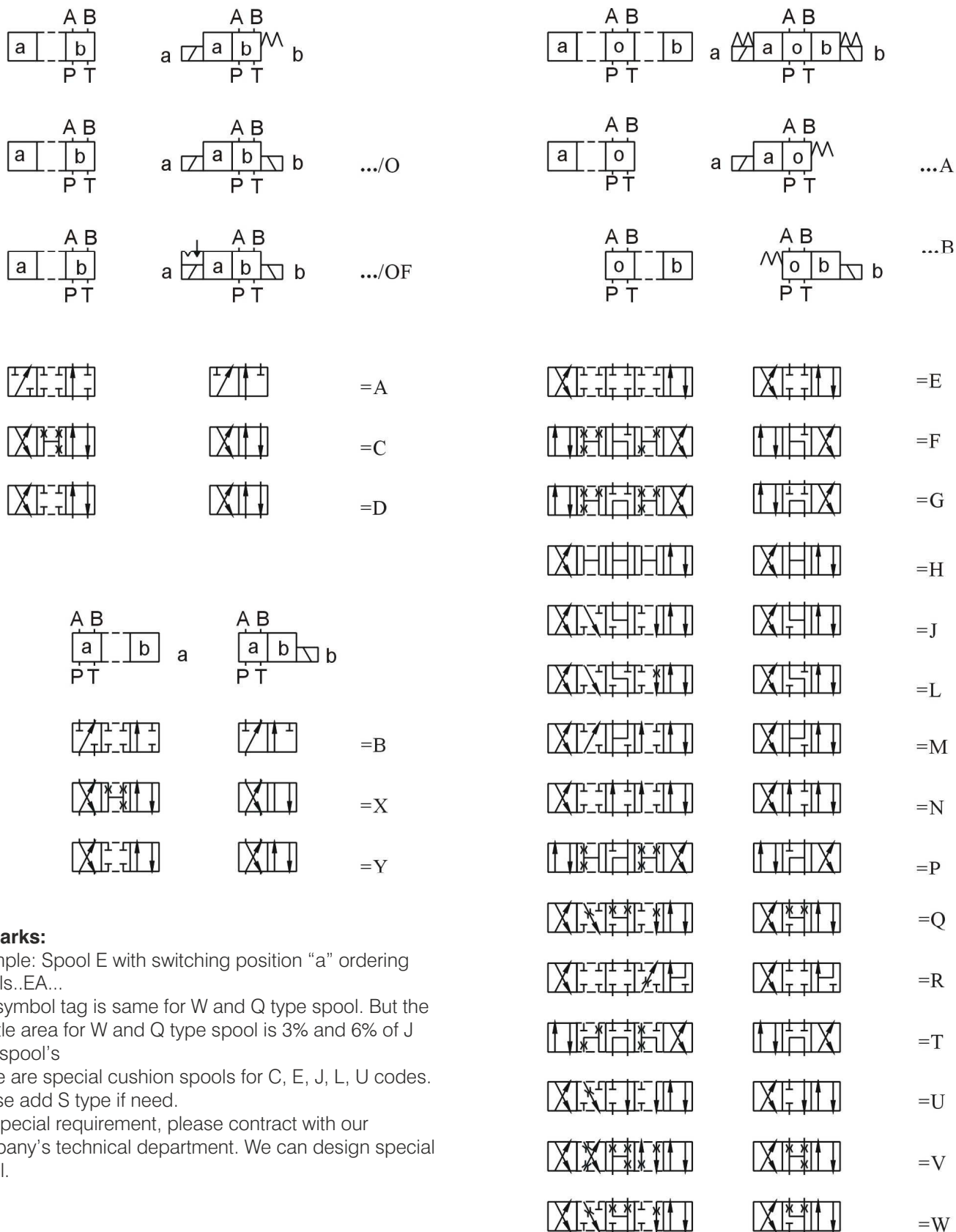
## Ordering code

	4WE																		
4/3 and 4/2 Solenoid operated directional valve	= 4WE																		
<b>Nominal Sizes</b>																			
NG6	= 6																		
NG10	= 10																		
<b>Operated Directional Cushion</b>																			
Standard	= No code																		
Cushion operated directional impact is small	= S																		
Symbols (See symbol list)																			
<b>Series</b>																			
For NG6	= 60T																		
For NG10	= 30T																		
<b>Return mode</b>																			
Spring return	= No code																		
Without Spring return	= O																		
With detent	= Of																		
High-power wet-pin solenoid with detachable coi	= E																		
<b>Input Voltage</b>																			
220V/50Hz, 240V/60Hz	= W220																		
110V/50Hz, 120V/60Hz	= W110																		
220V/50Hz, 240V/60Hz	= RAC220																		
110V/50Hz, 120V/60Hz	= RAC110																		
12V	= G12																		
24V	= G24																		
48V	= G48																		
<b>Hand Override</b>																			
With protected hand override (standard)	= N9																		
With hand override	= N*																		
<b>Electrical conditions</b>																			
Individual connections with component plug ISO4400 without plug-in connector	= K4																		
central connections terminal box with cable connector, with Indicator light	= DL																		
<b>Plug-in connector</b>																			
Without plug-in connector	= No code																		
With quadrate plug-in connector	= Z4																		
Quadrate plug-in connector with indicator light	= Z5L																		
With waterproof plug-in connector <sup>①</sup>	= F6L																		
<b>Throttle position</b>																			
Without cartridge throttle	= No code																		
Active in the P line	= P																		
Active in the A line	= A																		
Active in the B line	= B																		
<b>Throttle Diameter</b>																			
Without cartridge throttle	= No code																		
Throttle Ø0.8mm	= 08																		
Throttle Ø1.0mm	= 10																		
Throttle Ø1.2mm	= 12																		
<b>Seals</b>																			
NBR seals	= No code																		
FKM Seals	= V																		
Further details in clear text																			

Note:

① Waterproof degree of plug-in connector is Ip65;

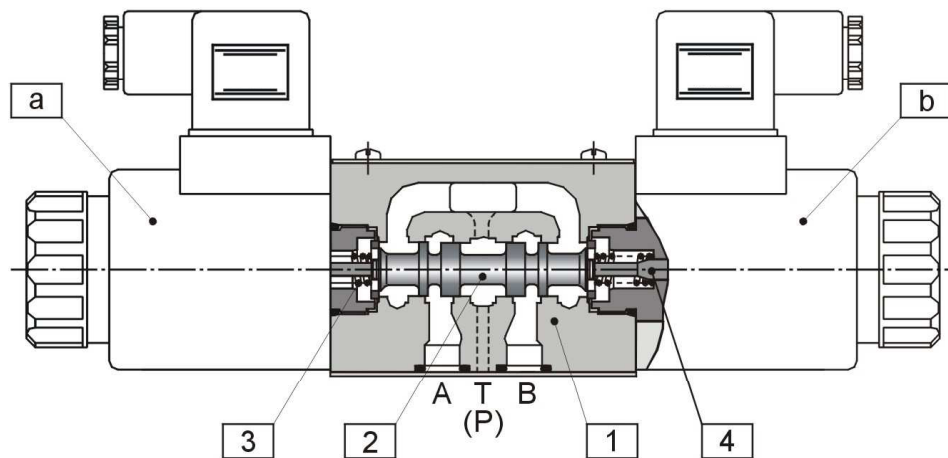
\*Please consult us when you choose this applications.



- Example: Spool E with switching position “a” ordering details..EA...
- The symbol tag is same for W and Q type spool. But the throttle area for W and Q type spool is 3% and 6% of J type spool's
- There are special cushion spools for C, E, J, L, U codes. Please add S type if need.
- For special requirement, please contract with our company's technical department. We can design special spool.



## Function Section



Section photo 3 Type: 4WE 6 .....6X/.....Z5LS

### Function Description

On the section photo 3 the solenoid power which is brought after solenoid 'a' or solenoid 'b' gets through electricity can drive the control spool 2 to move right or left inside housing 1 pass plunger 4. So it can flow freely from P to B, A to T or P to A, B to T.

There are three kinds of return type for spool when de-energising solenoid. Spring return type: return spring 3 drive spool back to the initial position; Without spring return type: the spool position when solenoids are de-energised is not defined; Detent or type: spool can keep any position when solenoid stops electricity

### Spring Return type (4WE.../...)

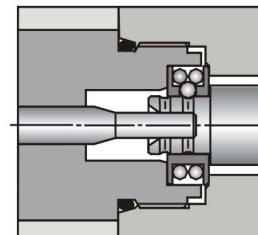
For this kind return type solenoid operated directional valve, solenoid power conquers spring power to drive spool when solenoid gets through electricity. The spool comes back and keeps at one end (two position valve) or middle position (three position valve) because of spring power after solenoid loses electricity.

### Without Spring return type (4WE.../0...)

For this kind return type solenoid operated directional valve, solenoid power drives spool to needed position directly when solenoid gets through electricity. There isn't fixed position after solenoid loses electricity.

### Orientation Organ type (4WE.../OF...)

For this kind return type solenoid operated directional valve, solenoid power drives spool to needed position directly when solenoid gets through electricity. After that, when solenoids are de-energised, the spool is held in the detent position and thus the solenoids do not need to be continuously energised.

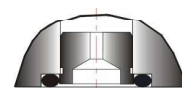


Section photo 4 : detent

### Cartridge throttle (4WE...P08...)

In some fixed work condition hydraulic system, please insert right throttle into P.A.B oil port base on details situation when the flows exceed permitted power limit of the valve during operation (see section photo 5)

There are three dimensions for damper are 0.8, 1.0, 1.2 (mm)

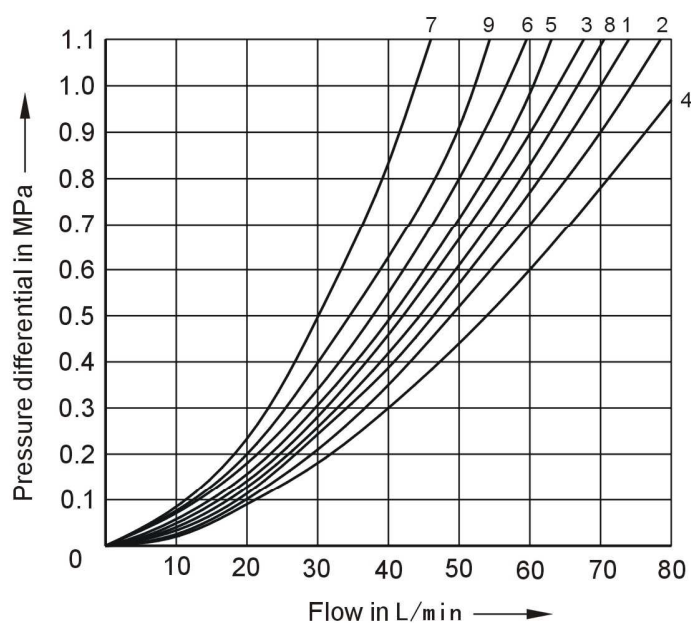


Section photo 5 : throttle



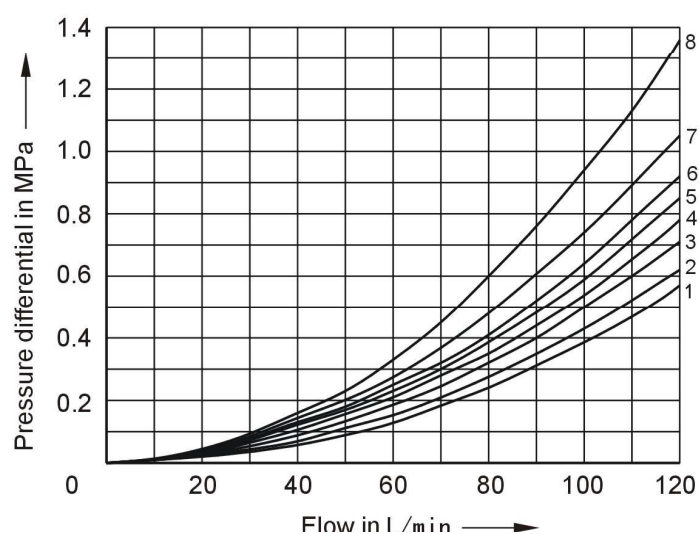
## Characteristic curves (measured at $v = 41 \text{ mm}^2/\text{s}$ and $t = 50^\circ\text{C}$ )

- Nominal size 6



Symbol	Flow Direction				
	P-A	P-B	A-T	B-T	P-T
A, B	3	3	-	-	-
C, X	1	1	3	1	-
D, Y	5	5	3	3	-
E	3	3	1	1	-
F	1	3	1	1	-
G	6	6	8	8	7
H	2	4	2	2	-
J, Q	1	1	2	1	-
L	3	3	4	8	-
M	2	4	3	3	-
P	3	1	1	1	-
R	5	5	4	-	-
T	9	9	8	8	7
U	3	3	8	4	-
V	1	2	1	1	-
W	1	1	2	2	-

- Nominal size 10



Symbol	Flow Direction				
	P-A	P-B	A-T	B-T	P-T
A, B	3	3	-	-	-
C, X	1	3	4	5	-
D, Y	5	5	6	6	-
E	1	1	4	4	-
F	2	3	7	4	8
G	3	3	6	7	9
H	1	1	6	7	3
J, Q	1	1	3	3	-
L	2	2	3	5	-
M	1	1	4	5	-
P	3	1	1	1	-
R	5	5	4	-	-
T	9	9	8	8	7
U	2	2	3	3	-
V	1	2	1	1	-
W	1	1	2	2	-

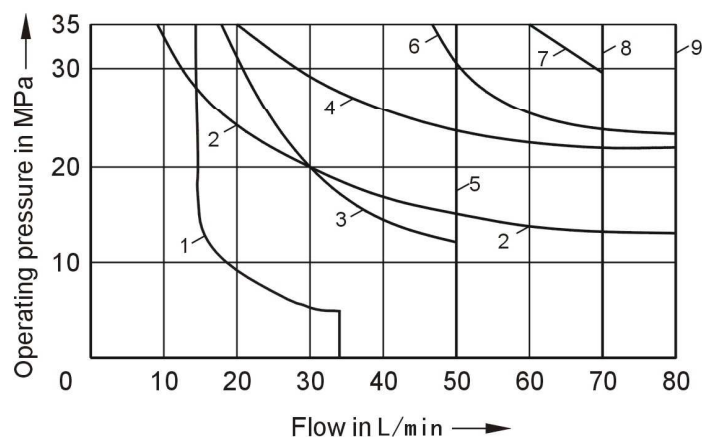


## Shifting Power lifts

### • Nominal size 6 DC Solenoid & AC Solenoid

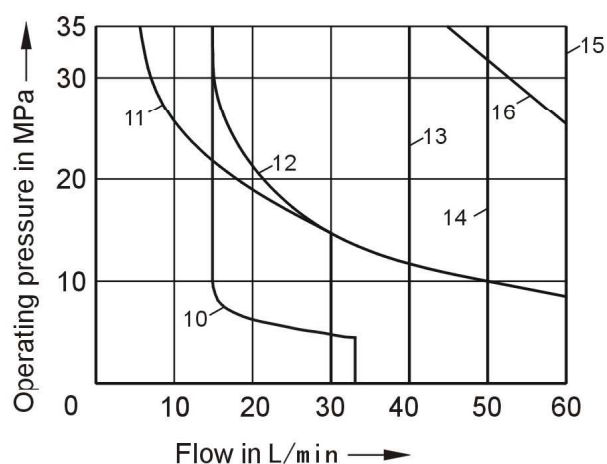
The given switching power limits are for applications with two flow directions and were measured with the solenoids at operating temperature, 10% under voltage and without tank back pressure.

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



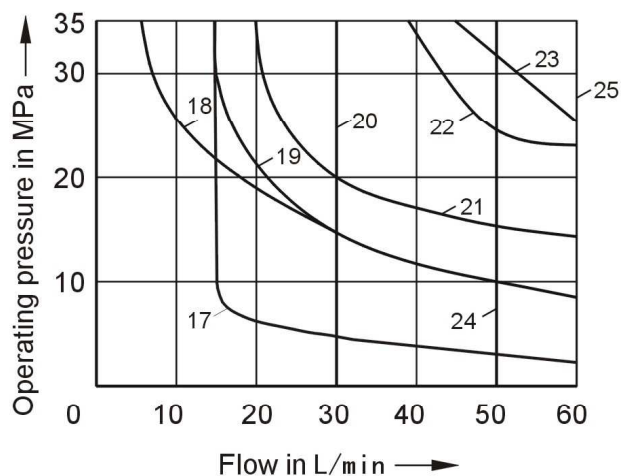
DC Solenoid

Curve	Symbol	Curve	Symbol
1	V	6	A/O, A/OF, L, U
2	A, B	7	C, D, Y
3	F, P	8	M
4	J	9	E, C/O, C/OF, D/O, D/OF, Q, W, R
5	G, H, T		



50 Hz AC Solenoid

Curve	Symbol	Curve	Symbol
10	V	15	A/O, A/OF, C/O, C/OF, D/O, D/OF, M, J, Q, R, W, E, L, U
11	A, B		
12	F, P		
13	G, T		
14	H	16	C, D, Y



60 Hz AC Solenoid

Curve	Symbol	Curve	Symbol
17	V	22	A/O, A/OF, Q, W
18	A, B	23	C, D, Y
19	F, P	24	H
20	G, T	25	C/O, C/OF, D/O, D/OF, E, M, R
21	L, U, J		

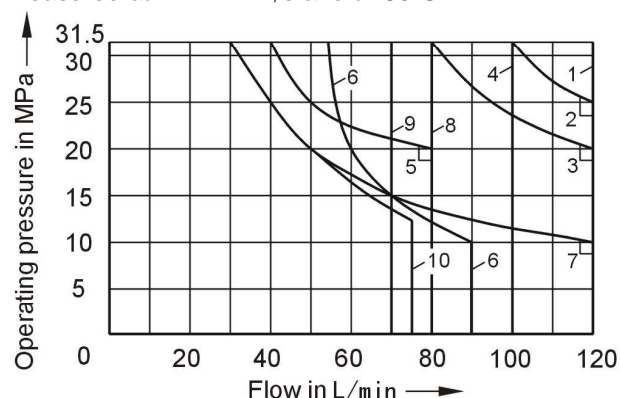


## Shifting Power lifts

### • Nominal size 10 DC Solenoid & AC Solenoid

The given switching power limits are for applications with two flow directions and were measured with the solenoids at operating temperature, 10% under voltage and without tank back pressure.

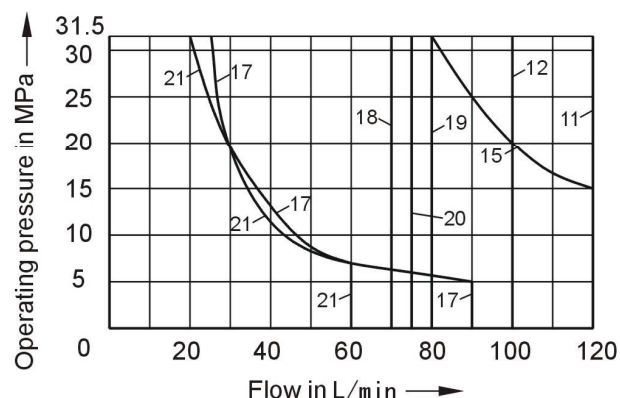
Measured at  $v=41\text{mm}^2/\text{s}$  and  $t=50^\circ\text{C}$



DC Solenoid: 24V

Curve	Symbol	Curve	Symbol
1	C, C/O, C/OF, D, D/O, D/OF, Y, M	5	G
2	E	6	F, P
3	A/O, A/OF, L, U, J, Q, W	7	A, B
4	H	8	R, L <sup>Ⓢ</sup> , U <sup>Ⓢ</sup>
		9	V
		10	T

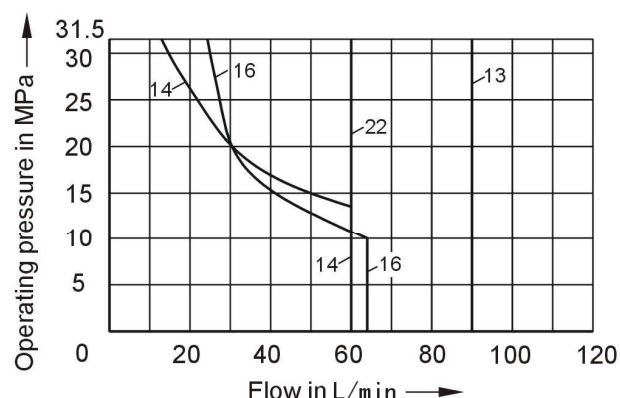
Ⓢ Only fir for the situation at middle position.



AC Solenoid: 110 V/50Hz; 120V/60Hz;  
220V/50Hz; 240V/60Hz.

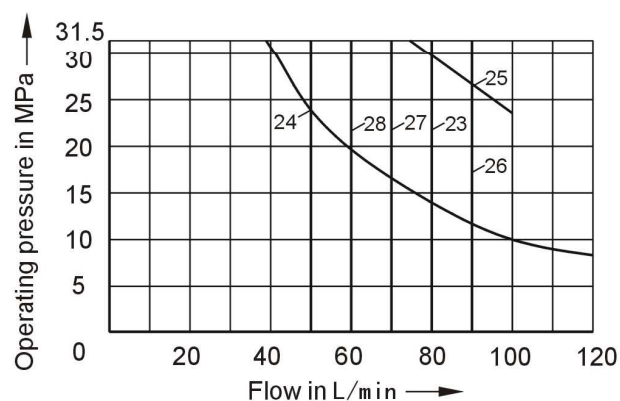
Curve	Symbol	Curve	Symbol
11	C, C/O, C/OF, D, D/O, D/OF, Y	16	G
12	E, L, U, Q, W	17	F, P
13	M	18	H
14	A, B	19	R
15	A/O, A/OF, J	20 <sup>Ⓢ</sup>	L, U
		21	T
		22	V

Ⓢ Only fir for the situation at middle position.



AC Solenoid: 110 V/60Hz; 220V/60Hz;

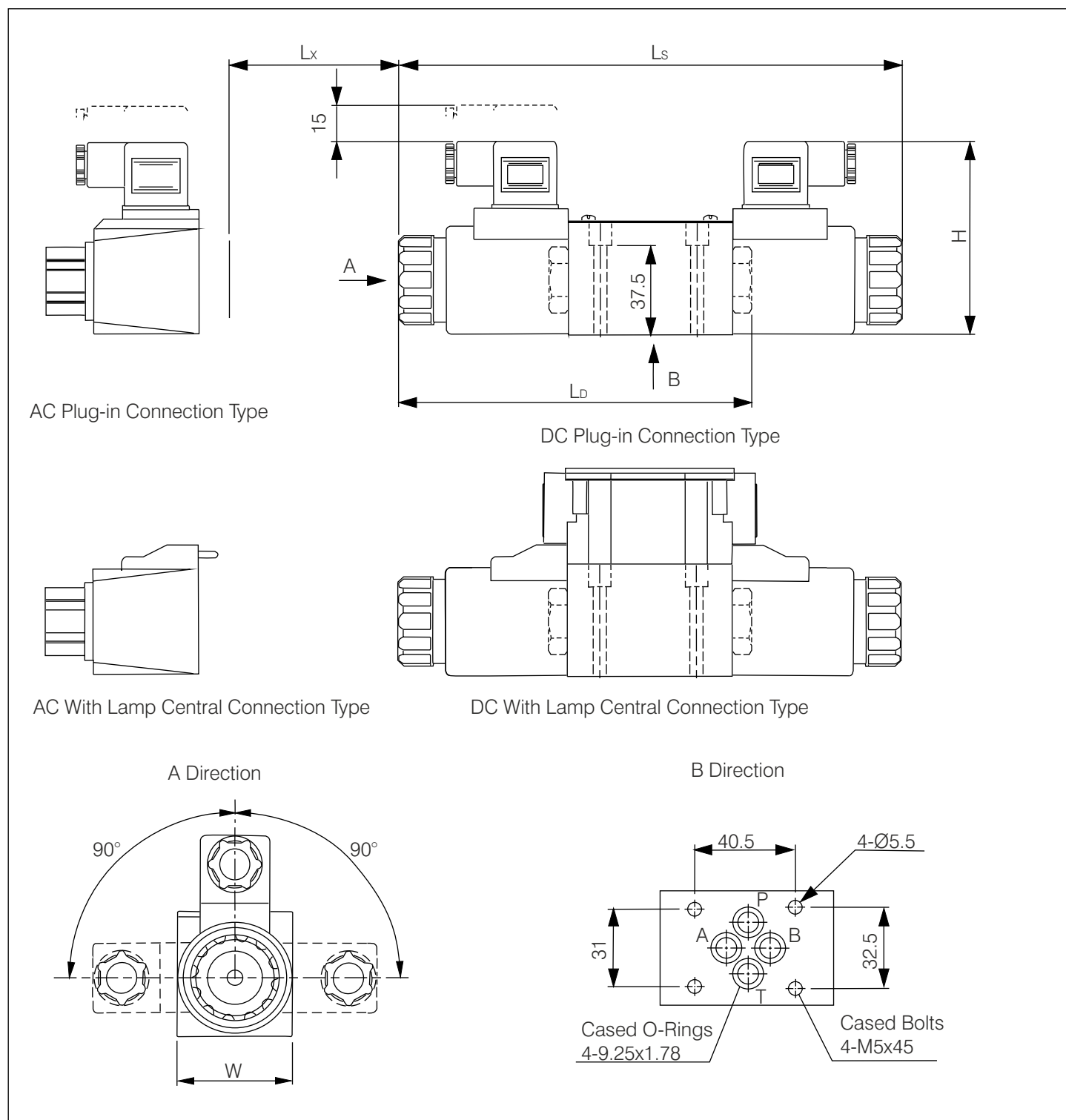
Curve	Symbol	Curve	Symbol
23	C, C/O, C/OF, D, D/O, D/OF, Y	26	M
24	A/O, A/OF	27	H
25	E	28	V





# Installation Dimensions NG6

(Dimensions in mm)

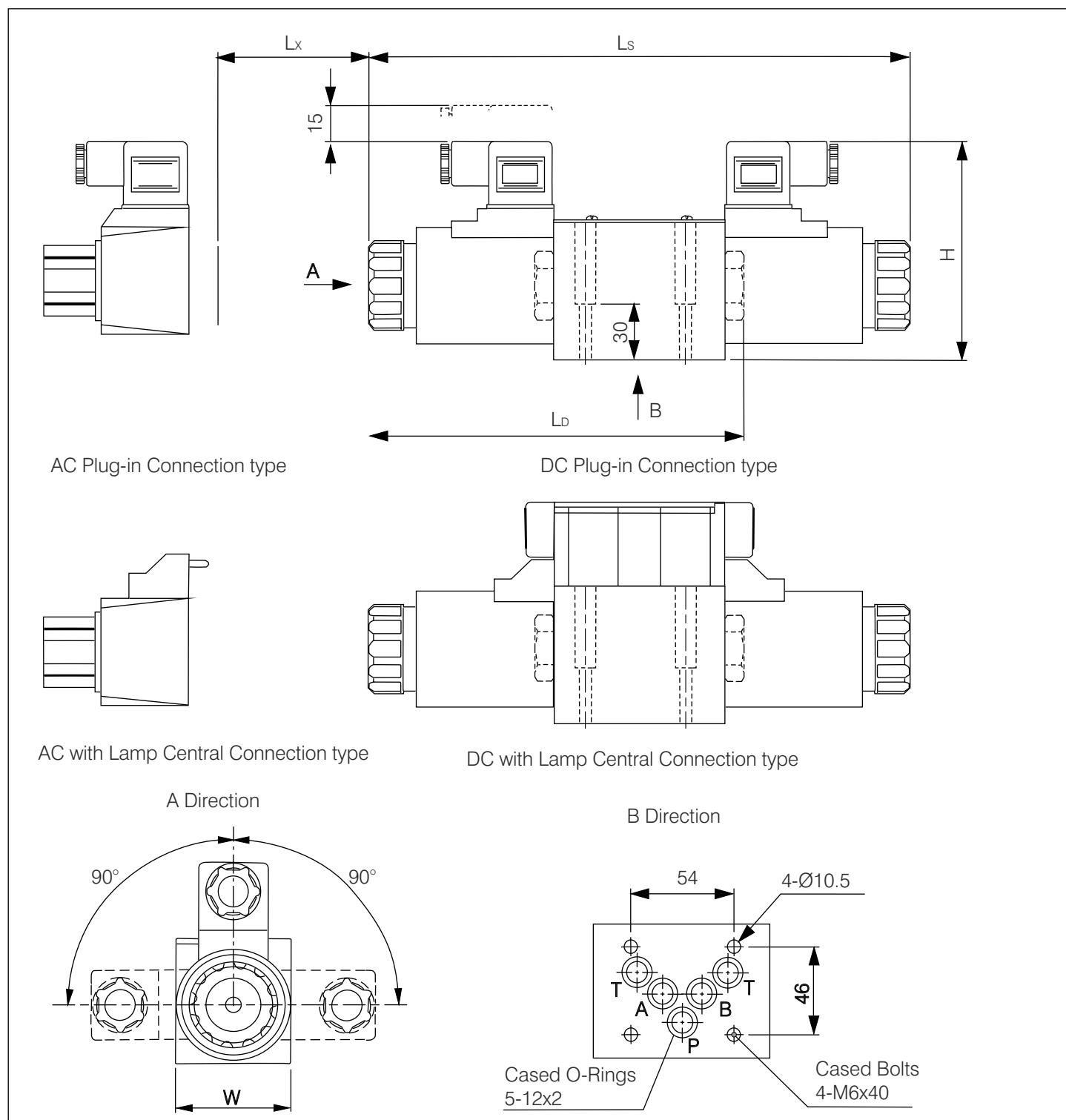


Valve type	Total length		Total width (W)	Total high (H)	Take out coil (Lx)
	L <sub>D</sub>	L <sub>S</sub>			
DC Plug-in connection type	148	207	46	81	71
DC with Lamp central connectopm type	148	207	46	85	71
AC Plug-in Connection type	141	197	46	81	64
AC with Lamp central connection type	141	197	46	85	64



# Installation Dimensions NG10

(Dimensions in mm)

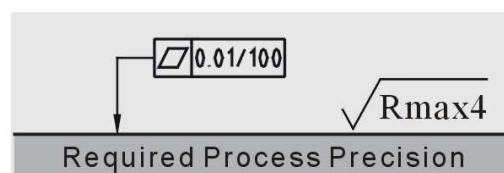
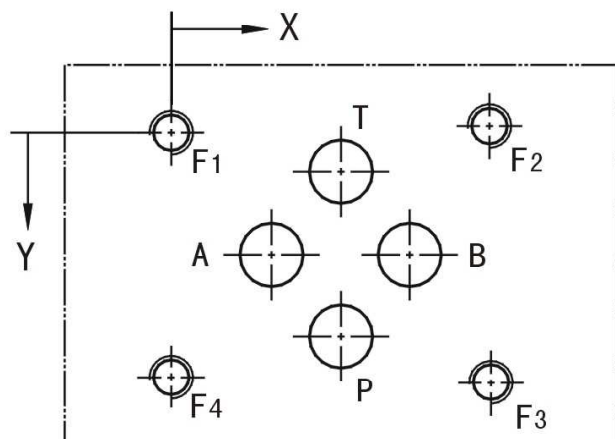


Valve type	Total length		Total width (W)	Total high (H)	Take out coil (Lx)
	L <sub>D</sub>	L <sub>S</sub>			
DC Plug-in connection type	207.3	302	70	111	105
DC with Lamp central connectopm type	207.3	302	70	119	105
AC Plug-in Connection type	168.3	224.2	70	111	66
AC with Lamp central connection type	168.3	224.2	70	119	66



## Sub-plate Installation Dimensions (Porting pattern to ISO 4401)

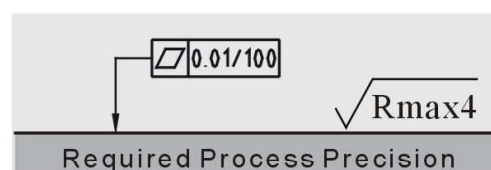
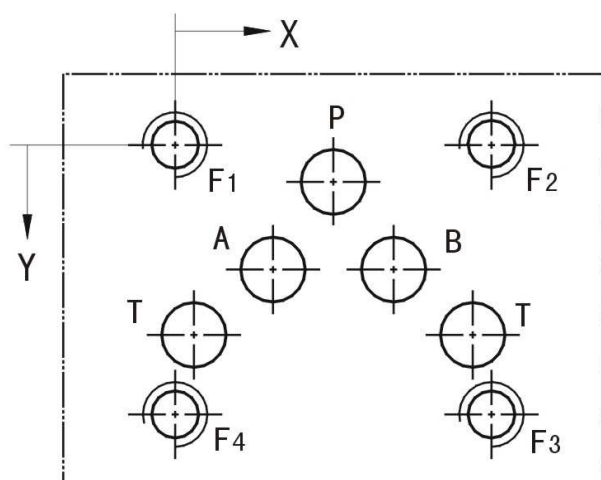
- Nominal size 6



	4-M5 Deep 10				4-Ø7.6max			
X	0	40.5	40.5	0	12.7	21.5	30.2	21.5
Y	0	-0.75	31.75	31	15.5	5.1	15.5	25.9
Code	F1	F2	F3	F4	A	T	B	P

Note: The tolerance for each hole dimension is  $\pm 0.1$

- Nominal size 10



	4-M6 Deep 12				5-Ø10.5max			
X	0	54	54	0	16.7	3.2	50.8	37.3
Y	0	0	46	48	21.4	32.5	21.4	6.3
Code	F1	F2	F3	F4	A	T	B	P

Note: The tolerance for each hole dimension is  $\pm 0.1$

