
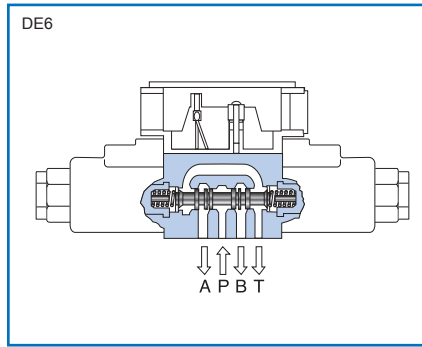
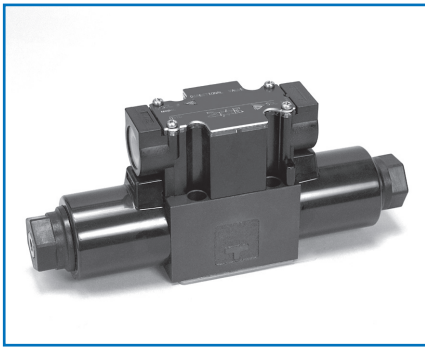


Solenoid operated directional valve

DE6


www.khadamathydraulic.com
 Tell: 021-55882749
 Tell: 021-33488178
 Fax: 021-33488105



Overview

This solenoid operated directional valve is used for controlling start and stop, and movement direction of the hydraulic system with electrical signals.

Features

1. This valve is resistant to contamination and provides stable operation.
2. A wide variety of options are available.

Type indication

DE6P - 30 - 204 - WD24AL - P08 -

Solenoid operated directional valve

Nominal dimension
6

Connection method
P=Gasket connection type

Series number: 30

Position holding method
1 = 2 position, no spring type (with detent)
2 = 2 position, spring offset type
or
3 position, spring center type

Spool type
*Refer to "Spool type symbols".

Solenoid type
W = Wet type (with standard emergency manual operation)

Input power supply
A = Alternating current
D = Direct current
R = AC/DC conversion

Input voltage

Type of hydraulic oil
No symbol = Mineral based hydraulic oil
Fatty ester based hydraulic oil
Water-glycol based hydraulic oil
V = Phosphate ester based hydraulic oil

Presence/absence of P port restriction
No symbol = No restriction
P08 = Restriction contraction diameter ϕ 0.8 mm
P10 = Restriction contraction diameter ϕ 1.0 mm
P12 = Restriction contraction diameter ϕ 1.2 mm
P15 = Restriction contraction diameter ϕ 1.5 mm
P20 = Restriction contraction diameter ϕ 2.0 mm
P25 = Restriction contraction diameter ϕ 2.5 mm
P30 = Restriction contraction diameter ϕ 3.0 mm
P40 = Restriction contraction diameter ϕ 4.0 mm

Electric connection symbol

Symbol	Explanation	Input power supply		
		A	D	R
AL	Integrated terminal box with lamp	○	○	○
B	With DIN connector	○	○	—
C	With DIN large connector	○	○	○
CL	With DIN large connector and lamp	○	○	—
F	With DIN connector (G1/2)	○	○	—

Direct current D	Alternating current A	AC/DC conversion R
	100 : 100V-50/60Hz 110V-60Hz	
12 : 12V 24 : 24V 48 : 48V	120 : 110V-50Hz 120V-50/60Hz	100 : 100V-50/60Hz 200 : 200V-50/60Hz
	200 : 200V-50/60Hz 220V-60Hz	
	240 : 220V-50Hz 240V-50/60Hz	

*For other power supply voltage, please contact us.

Spool type symbol

2 position valve

Number of positions	Position holding method	Spool type symbol	Hydraulic symbols	Transient state	
2 positions	2 (Spring offset type)				
		01			
		03			
		04			
		02			
	25				
	1 (No spring type with detent)				
		01			
		03			
04					

3 position valve

Number of positions	Position holding method	Spool type symbol	Hydraulic symbols	Transient state
3 positions	1 (Spring center type)			
		05		
		06		
		07		
		08		
		10		
		12		
		13		
		16		
		17		
		21		
		22		

- When neutral position and one side position of the 3 position valve are used together

With reference to the 3 position valve, two types of the 2 position valve are available: the valve that uses the neutral position and sol.a excitation position of the 3 position valve (2**A) and the one that uses the neutral position and sol.b excitation position (2**B).

Number of positions	Position holding method	Spool type symbol	Hydraulic symbols
2 positions	2 (Spring offset type)		
		05A	
		05B	
		06A	
		06B	
		07A	
		07B	
		08A	
		08B	
		10A	
		10B	

Specifications

Nominal dimension		6	
Maximum working pressure MPa (kgf/cm ²)	Port A, B, P	35 (357)	
	Port T	21 (214)	
Maximum switching frequency Number of times/min	AC, DC	300	
	AC/DC conversion	120	
Switching time ms (Note 1)	Solenoid excitation	AC	15
		DC	48
		AC/DC conversion	50
	Solenoid demagnetization	AC	23
		DC	19
		AC/DC conversion	100
Maximum ambient temperature °C		50	
Dust proof and water proof properties		JIS C0920 IP65 (Dust proof and water-jets-proof type)	
Mass kg	Single solenoid type	AC	1.4
		DC	
		AC/DC conversion	
	Double solenoid type	AC	1.85
		DC	
		AC/DC conversion	

(Note 1) Switching time varies slightly depending on use conditions.

Sub-plate

Valve type	Sub-plate type	Connection diameter	Mass
DE6P	P-DE6R14-0	Rc 1/4	1.0kg
	P-DE6G14-0	G 1/4	
	P-DE6R38-0	Rc 3/8	1.3kg
	P-DE6G38-0	G 3/8	

When you use a sub-plate, please place an order for the above sub-plate type.

For the dimension drawing, refer to page 11 of the appendix.

Accessories

● Mounting bolt

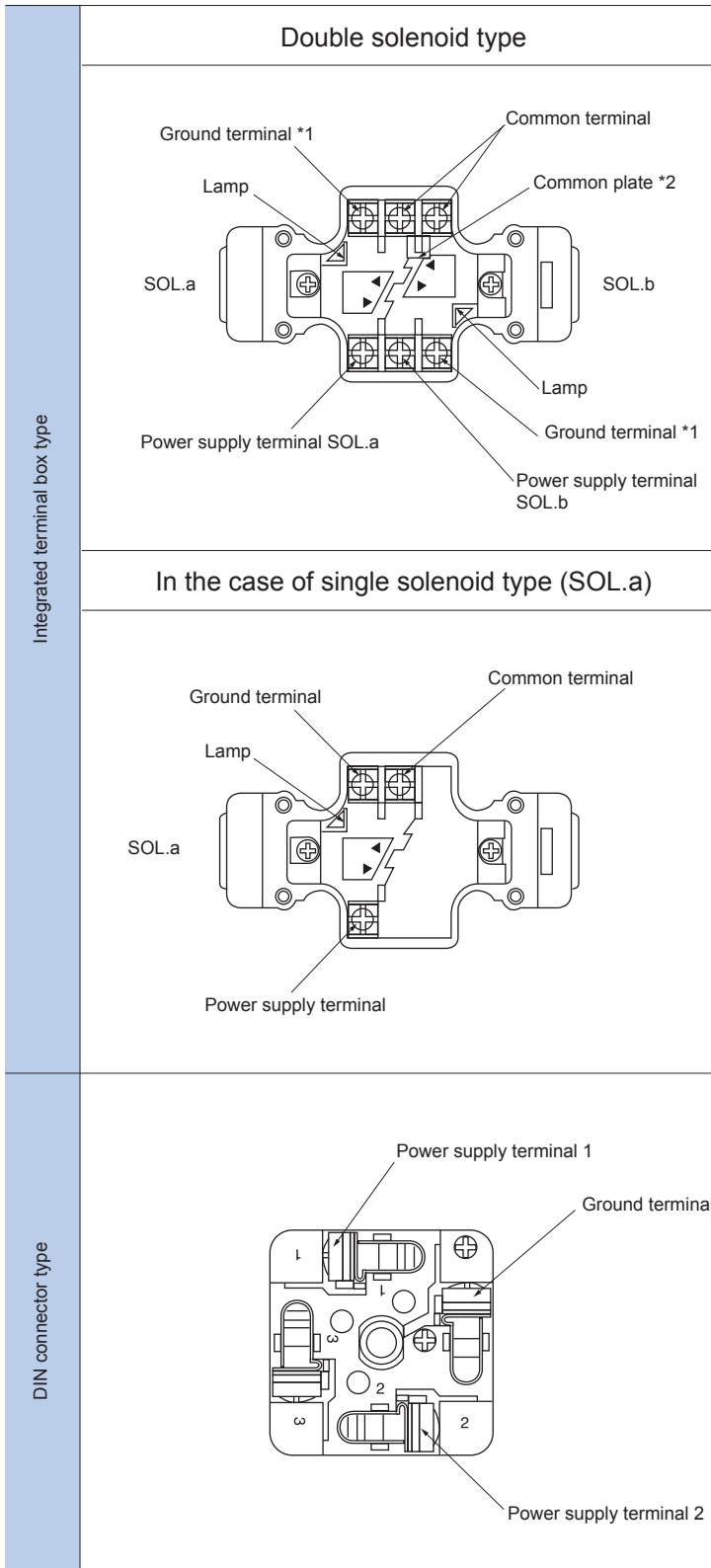
Type	Hexagon socket head cap thread	Quantity	Tightening torque N·m (kgf·cm)
DE6P	M5×45L	4 pcs.	6.4 ± 0.5 (65 ± 5)

Solenoid specifications

Solenoid type	Power supply	Symbol	Rated voltage V	Frequency Hz	Working voltage range V	Current value at rated voltage		Energized time	Type of coil insulation		
						Holding current A	Starting current A				
Oil immersion type	Alternating current A	A100	100	50	80 to 110	0.51	2.42	Continuous rating	H type		
				60		90 to 120	0.37			2.14	
			110	0.44	2.35						
		A120	120	50	96 to 132	0.42	2.02				
				60	108 to 144	0.31	1.78				
		A200	200	50	160 to 220	0.25	1.21				
					60	180 to 240	0.19			1.07	
				220			0.22			1.18	
		A240	240	50	192 to 264	0.21	1.01				
					60	216 to 288	0.15			0.89	
				Direct current D		D12	12			—	10.8 to 13.2
		D24	24		21.6 to 26.4						1.23
	D48	48	43.2 to 52.8		0.61						
	AC/DC conversion R	R100	100	50/60	90 to 110	0.33	—				
						R200				200	180 to 220

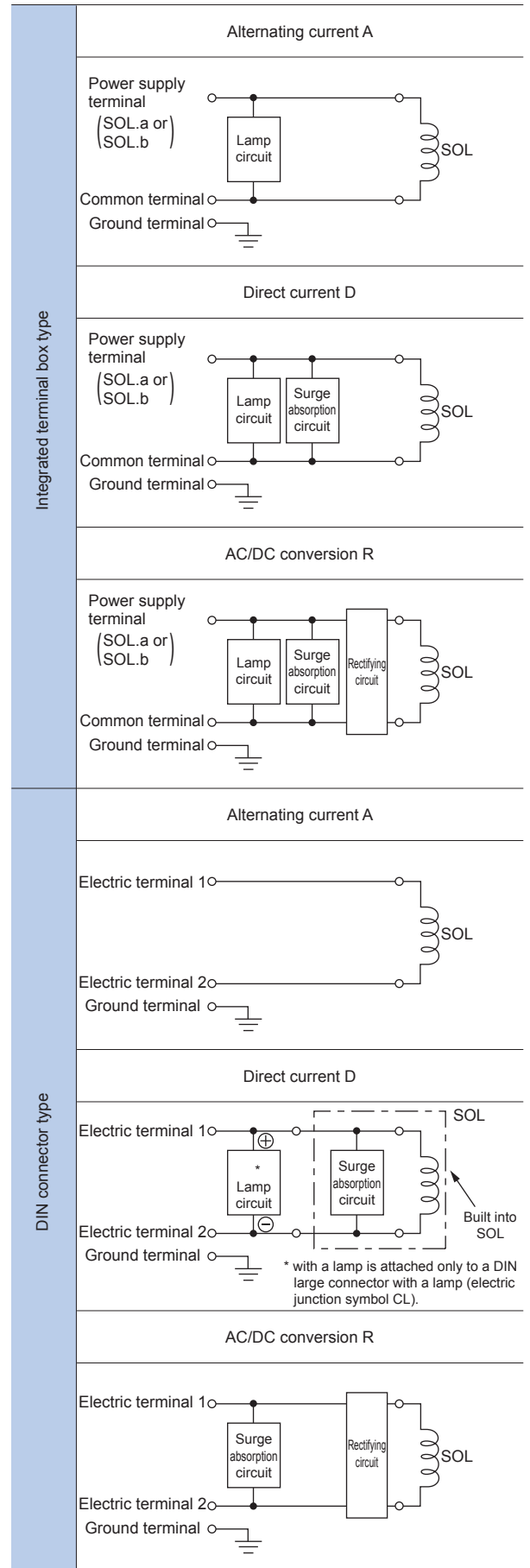
Connection method

Detail of terminal block



- *1 There are two ground terminals and either of the two may be used.
- *2 If a common plate is not necessary, remove the common plate for use.
- *3 There is no polarity in a DC solenoid either. However, there is polarity in a DIN large connector with a lamp with voltage specifications of DC48 V or less.

Electric circuit diagram (in the case of single solenoid type)

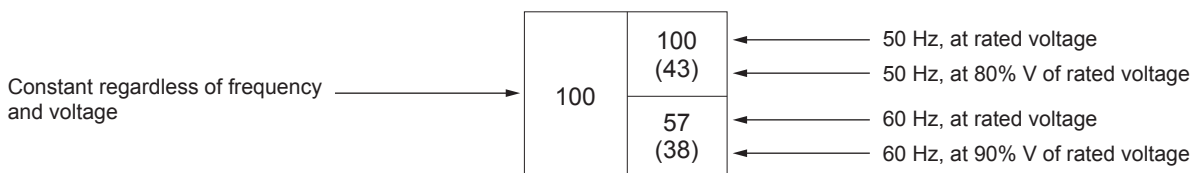


Maximum flow rate

● With AC solenoid DE6P-30***-WA*

Number of positions	Position holding method	Spool type symbol	Hydraulic symbols	Maximum flow rate L/min														
				Flow direction P→A→B→T P→B→A→T					Flow direction of oil P→A					Flow direction of oil P→B				
				Working pressure MPa (kgf/cm ²)					Working pressure MPa (kgf/cm ²)					Working pressure MPa (kgf/cm ²)				
				10 (102)	16 (163)	25 (255)	31.5 (321)	35 (357)	10 (102)	16 (163)	25 (255)	31.5 (321)	35 (357)	10 (102)	16 (163)	25 (255)	31.5 (321)	35 (357)
3 positions	2 (Spring center type)	05		100	100	100	100	100	100 (43)	100 (41)	80 (21)	60 (17)	38 (15)	100 (43)	100 (41)	80 (21)	60 (17)	38 (15)
				57 (38)	53 (31)	29 (17)	19 (10)	13 (9)	57 (38)	53 (31)	29 (17)	19 (10)	13 (9)					
		08		100 (80)	100 (80)	100 (80)	100 (77)	100 (77)	70 (46)	70 (46)	70 (46)	70 (46)	70 (46)	70 (46)	70 (46)	70 (46)	70 (46)	70 (46)
				90 (63)	90 (63)	90 (63)	90 (63)	90 (63)	45 (30)	45 (30)	45 (30)	45 (30)	45 (30)	45 (30)	45 (30)	45 (30)	45 (30)	45 (30)
		10		90	90	90 (22)	90 (18)	35 (18)	100 (38)	76 (28)	67 (15)	57 (10)	35 (7)	100 (38)	76 (28)	67 (15)	57 (10)	35 (7)
				90 (26)	43 (14)	30 (11)	50 (31)	38 (20)	20 (10)	16 (7)	12 (5)	50 (31)	38 (20)	20 (10)	16 (7)	12 (5)		
		17		85	85	85 (40)	80 (22)	80 (22)	85 (40)	85 (35)	85 (24)	60 (16)	55 (12)	85 (40)	85 (35)	85 (24)	60 (16)	55 (12)
				80	80	80 (30)	63 (15)	25 (10)	70 (26)	50 (24)	32 (16)	22 (13)	18 (10)	70 (26)	50 (24)	32 (16)	22 (13)	18 (10)
07		40 (19)	40 (19)	40 (18)	40 (18)	40 (18)	52 (30)	52 (30)	47 (30)	47 (30)	47 (30)	52 (30)	52 (30)	47 (30)	47 (30)	47 (30)		
		37 (19)	37 (19)	36 (18)	36 (18)	33 (17)	37 (28)	37 (28)	36 (28)	35 (28)	35 (28)	37 (28)	37 (28)	36 (28)	35 (28)	35 (28)		
13		100	100	100	100	100	20	15	10	10	8	20	15	10	10	8		
21		100	100 (63)	100 (33)	100 (27)	100 (50)	100 (37)	100 (25)	29 (14)	20 (11)	15 (10)	100 (37)	100 (25)	29 (14)	20 (11)	15 (10)		
		100 (70)	80 (20)	70 (20)	40 (19)	100 (37)	55 (25)	29 (14)	20 (11)	15 (10)	100 (37)	55 (25)	29 (14)	20 (11)	15 (10)	100 (37)		
12		100	100 (63)	100 (33)	100 (27)	100 (50)	100 (37)	100 (25)	29 (14)	20 (11)	15 (10)	100 (37)	100 (25)	29 (14)	20 (11)	15 (10)		
		100 (70)	80 (20)	70 (20)	40 (19)	100 (37)	55 (25)	29 (14)	20 (11)	15 (10)	100 (37)	55 (25)	29 (14)	20 (11)	15 (10)	100 (37)		
2 positions	2 (Spring offset type)	04		85	85	85	85	85	20	16	16	15	13	85 (63)	80 (50)	63 (40)	44 (32)	44 (32)
				85 (30)	60 (33)	50 (28)	40 (28)	40 (28)										
		03		70	70	70	70	70	50	50	50	50	50	80 (70)	80 (70)	80 (70)	80 (70)	80 (70)
	01		—	—	—	—	—	26	17	13	11	10	80 (50)	70 (40)	60 (20)	45 (10)	30 (10)	
1 (No spring type with detent)	04		80	80	80	80	80	45	45	45 (21)	45 (16)	38 (13)	50	50 (45)	50 (42)	45 (40)	45 (40)	
			36 (18)	28 (13)	22 (12)	50 (45)	50 (42)	45 (40)	45 (40)									

(Note) The relationship between the maximum flow rate and the frequency and voltage in the above table is as shown below.



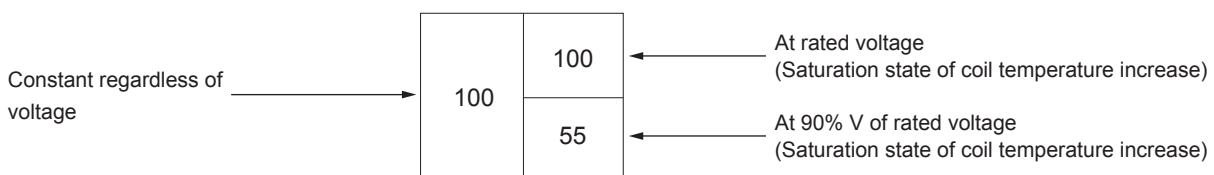
Maximum flow rate

● With DC solenoid DE6P-30***-WD*

With AC/DC conversion type solenoid DE6P-30***-WR*

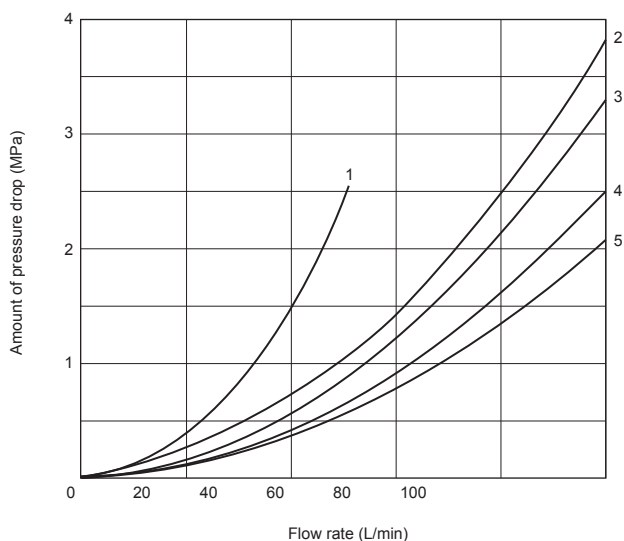
Number of positions	Position holding method	Spool type symbol	Hydraulic symbols	Maximum flow rate L/min														
				Flow direction P→A→B→T P→B→A→T					Flow direction of oil P→A					Flow direction of oil P→B				
				Working pressure MPa (kgf/cm ²)					Working pressure MPa (kgf/cm ²)					Working pressure MPa (kgf/cm ²)				
				10 (102)	16 (163)	25 (255)	31.5 (321)	35 (357)	10 (102)	16 (163)	25 (255)	31.5 (321)	35 (357)	10 (102)	16 (163)	25 (255)	31.5 (321)	35 (357)
3 positions	2 (Spring center type)	05		100	100	100	100	100	100	45	28	25	22	100	45	28	25	22
				55	35	23	19	17	55	35	23	19	17					
		08		100	100	100	100	100	78	78	78	78	75	78	78	78	78	75
				80	80	80	80	80	70	70	70	70	70	70	70	70	70	70
		10		90	90	90	50	38	100	58	38	31	29	100	58	38	31	29
				42	26	20	62	48	30	25	23	62	48	30	25	23		
		17		85	85	65	40	33	85	52	30	26	24	85	52	30	26	24
				45	30	26	65	36	25	21	19	65	36	25	21	19		
07		32	32	32	32	32	52	44	44	44	44	52	44	44	44	44		
		28	28	28	28	28	42	38	38	38	38	42	38	38	38	38		
13		100	100	100	100	100	20	15	10	10	8	20	15	10	10	8		
21		85	85	85	80	40	100	56	36	28	24	100	56	36	28	24		
		35	23	20	74	43	28	20	19	74	43	28	20	19				
12		85	85	85	80	40	100	56	36	28	24	100	56	36	28	24		
		35	23	20	74	43	28	20	19	74	43	28	20	19				
2 positions	2 (Spring offset type)	04		80	80	80	80	80	20	16	16	15	13	46	31	24	22	22
				32	23	19	18	18										
		03		70	70	70	70	70	50	50	50	50	50	75	75	75	75	75
	01		-	-	-	-	-	26	17	13	11	10	53	35	23	19	17	
1 (No spring type with detent)	04		75	75	75	75	75	45	45	40	30	27	50	50	50	45	45	
			70	70	70	70	70			30	25	22		45	42	40	40	

(Note) The relationship between the maximum flow rate and the voltage in the above table is as shown below.



Pressure drop characteristics (viscosity 36 mm²/s (cSt))

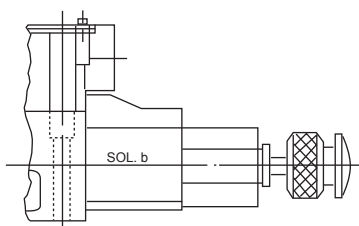
DE6



Spool holding method	Direction of flow				
	P→A	B→T	P→B	A→T	P→T
205	4	4	4	4	—
208	5	5	5	5	2
210	4	4	4	4	—
223	4	4	4	4	—
207	1	1	1	1	2
213	5	3	5	3	—
221	4	5	4	4	—
212	4	4	4	5	—
104	5	4	5	4	—
204	5	4	5	4	—
203	5	5	5	5	—
201	5	—	4	—	—

Option

The following options are available in addition to the standard items.



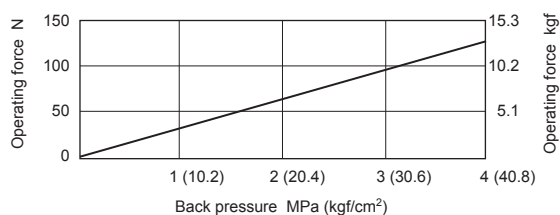
<With push button lock>

At the time of adjustment, the valve can be held at the switched position even if the solenoid in an emergency is not energized.

When placing an order, add a special type, -07, at the end of the type.

Precautions in use

- Mounting posture
When using the valve of the no spring detent type without excitation, mount the solenoid horizontally so that the detent effect is securely obtained. For the valve of other type, there is no limitation of mounting posture.
- Switching of solenoid
Be sure to deenergize one solenoid before energizing the other solenoid.
- Tank port
Do not connect the tank port to a conduit where surge pressure is generated.
Be sure to immerse the end of the tank line piping into oil.
- Manual pin operating force
Be careful that the operation of the manual pin is difficult if the back pressure of the tank line becomes high.

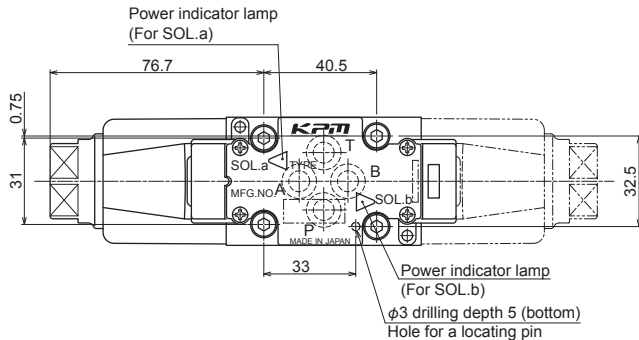
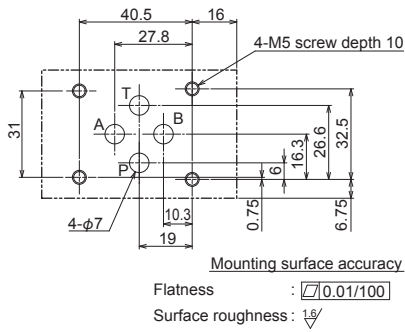


Dimension drawing

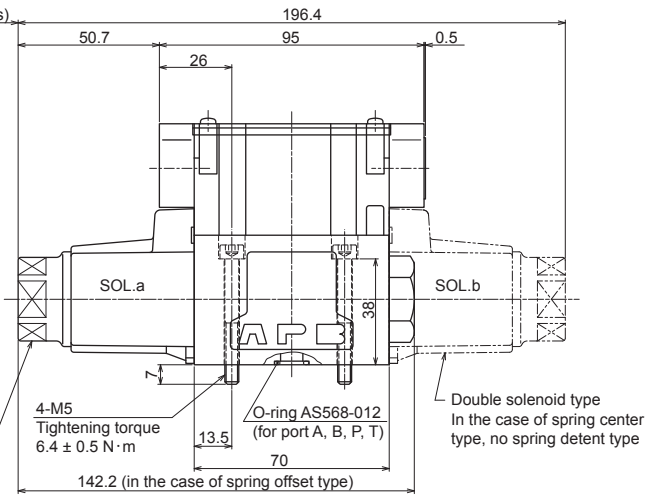
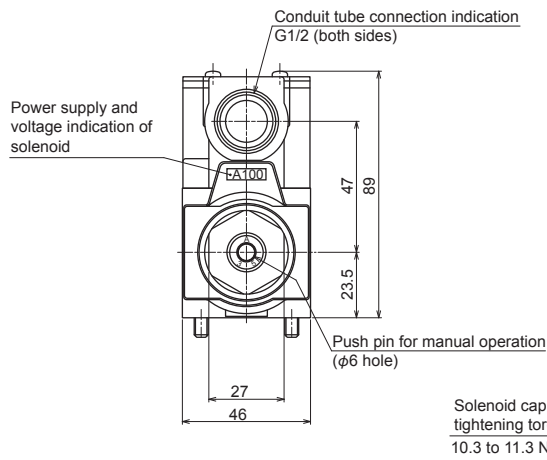
● DE6P (Integrated terminal box type)

● With AC solenoid

Machining dimension of manifold

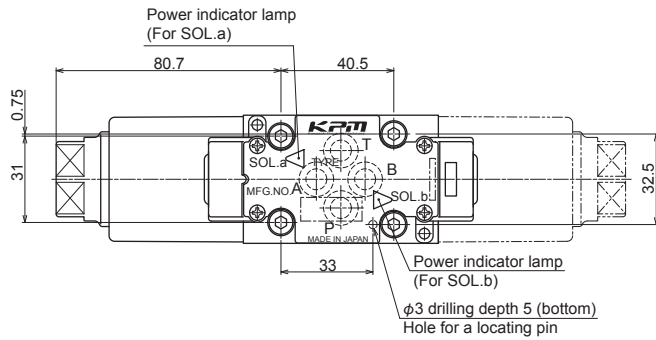


Space for removal and installation of solenoid 45.5 (for both sides)

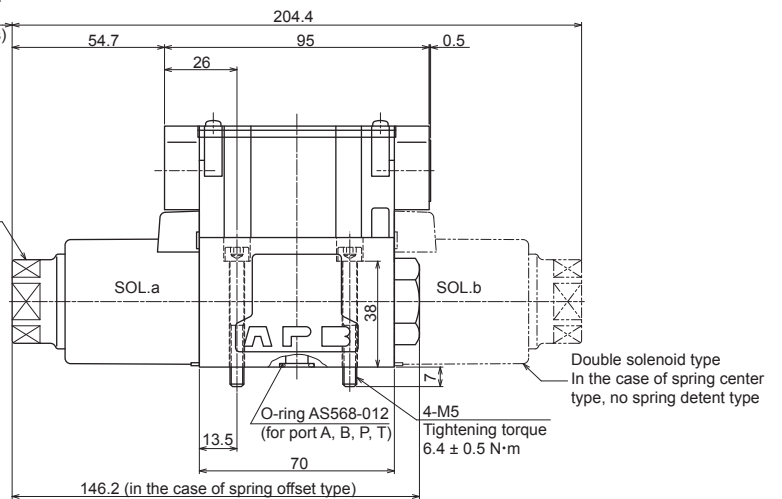
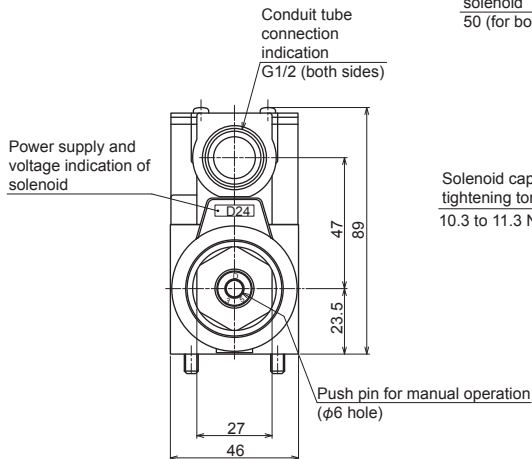


● With DC solenoid

● With AC/DC conversion type solenoid



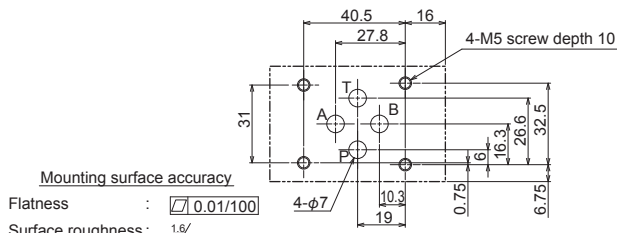
Space for removal and installation of solenoid 50 (for both sides)



● DE6P (DIN connector type, DIN large connector type, DIN large connector type with power indicator lamp)

● With AC solenoid

Machining dimension of manifold



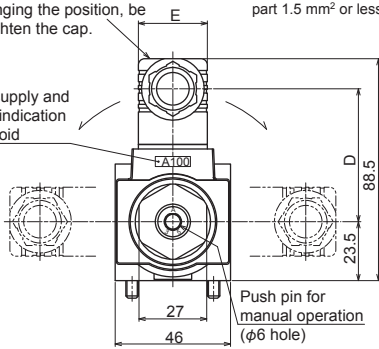
Mounting surface accuracy

Flatness : $\sqrt[0.01/100]$

Surface roughness : $\sqrt[1.6]$

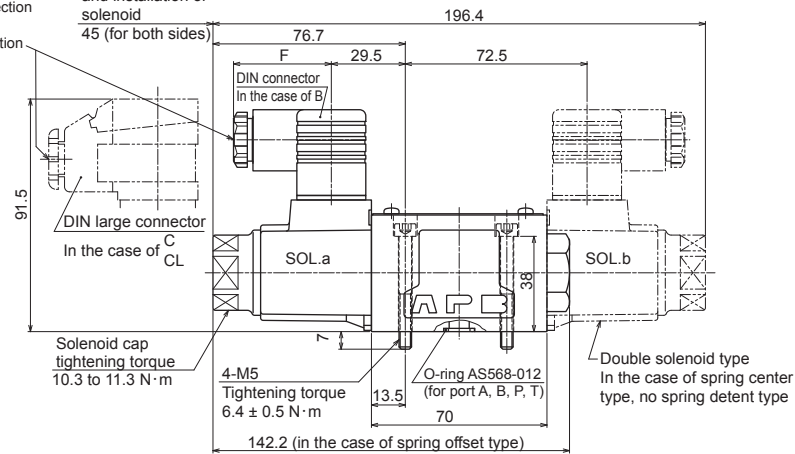
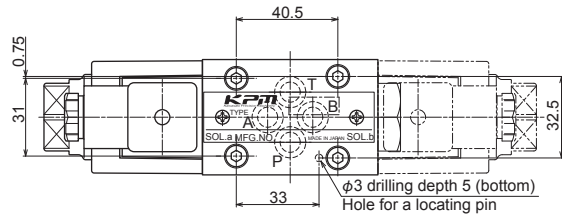
The position can be changed by loosening the solenoid cap. After changing the position, be sure to tighten the cap.

Power supply and voltage indication of solenoid



PG11
Outer diameter of connection cable $\phi 8$ to 10 mm
Cross section of connection part 1.5 mm² or less

Space for removal and installation of solenoid
45 (for both sides)



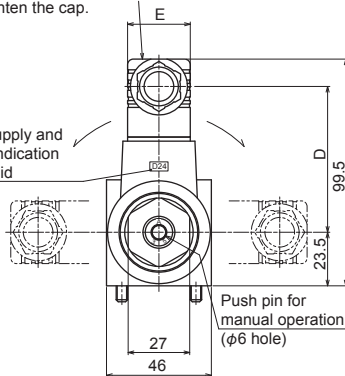
Type of connector	D	E	F
DIN connector (B)	53	27.5	39
DIN large connector (C, CL)	46.1	34	53

● With DC solenoid

● With AC/DC conversion type solenoid

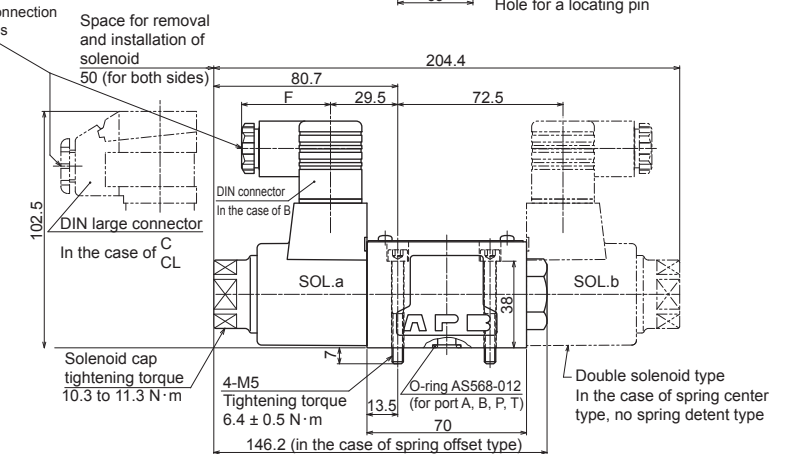
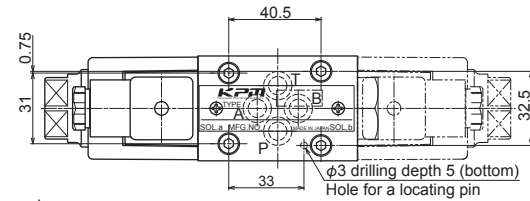
The position can be changed by loosening the solenoid cap. After changing the position, be sure to tighten the cap.

Power supply and voltage indication of solenoid



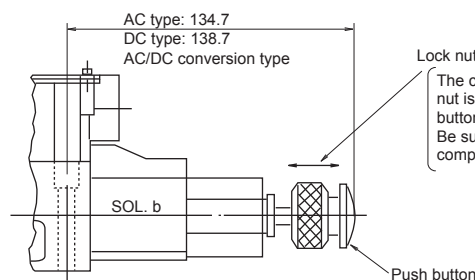
PG11
Outer diameter of connection cable $\phi 8$ to 10 mm
Cross section of connection part 1.5 mm² or less

Space for removal and installation of solenoid
50 (for both sides)



Type of connector	D	E	F
DIN connector (B)	64	27.5	39
DIN large connector (C, CL)	57.2	34	53

● DE6P (with push button lock)



The connector is locked when the lock nut is turned clockwise with the push button pushed in. Be sure to loosen the lock nut completely during energization.