

Features

- High pressure 35 MPa / 5,070 psi & high flow up to 100 ℓ/min / 26.4gpm (G-02 / D03 / NG 06) and 160 ℓ / min / 42.3 gpm (G-03 / D05 / NG 10)
- High tank port back pressure up to 21 MPa / 3000 psi (G-02 / D03 / NG 06) and 16 MPa / 2320 psi (G-03 / D05 / NG 10) (check each spool type for max. allowable).
- Twin tank line design upper and lower channels to tank port greatly reduce pressure drop.
- Oil immersed, quiet solenoid design moving core immersed in hydraulic oil provides quiet operation.
- High reliability valve designed to last 30 million spool shifts under proper use.
- Maintenance indicator lamps to diagnose connection plug-in coils provide easy changing without disturbing wiring.
- Hydraulic shockless spool shifting time is increased up to four times by metering the oil in the core tube. (Option S)
- Electric Shockless: Valves coils available electric shockless (rectified) – reducing voltages spikes, extending relay contact life, and providing even quieter operation.

Wiring Box / plug-in coils

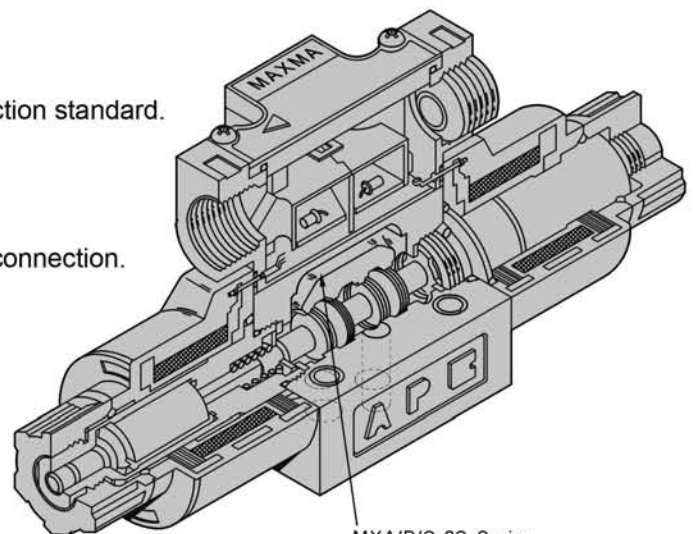
- Large Wiring Space. Easy assembly and disassembly
- Electrical box with indicator lights and terminal strip connection standard.

Lead Wire Coils

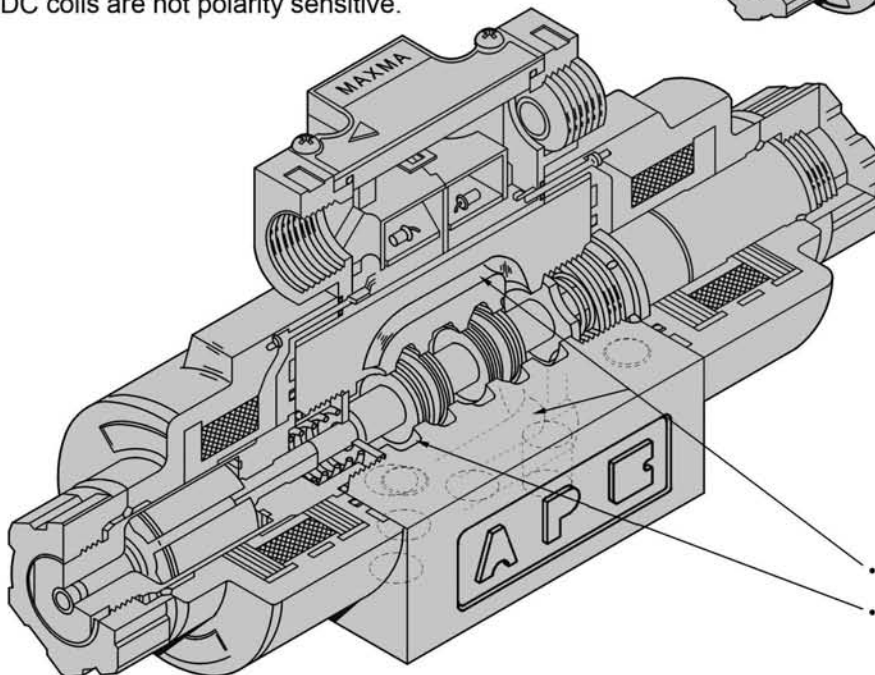
- Lead wire coils available popular with the mobile industry.
- Single spade DC coils also available for one wire “spade” connection.

DIN Coils

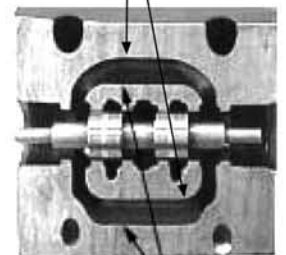
- DIN connector provided standard on DIN style coils.
Connector may optionally be supplied with lights
- AC coils are rated for both 50 / 60 Hz (rewiring not required).
- DC coils are not polarity sensitive.



MXA/B/C-02 Series
• With both upper & lower return line ports (to T port)



MXA/B/C - 03 Ser
• With both upper & lower return line ports (to T port)
• With special 5 channels and 6 teeth



Wet Type Solenoid

- Smooth, lower shift- over noise and longer life.
- Unique, magnetic path circuit makes pulling force powerful.

Specifications

Model		MXA/B/C - 02 - 35 (35C) Series				MXA/B/C - 03 - 35 Series					
		Standard type		Shockless type		Standard type				Shockless type	
						AC		DC & RAC			
Symbol	Valve spool type	Max. operating pressure MPa (psi)	Max. flow ℓ/min (gpm)	Max. operating pressure MPa (psi)	Max. flow ℓ/min (gpm)	Max. operating pressure MPa (psi)	Max. flow ℓ/min (gpm)	Max. operating pressure MPa (psi)	Max. flow ℓ/min (gpm)	Max. operating pressure MPa (psi)	Max. flow ℓ/min (gpm)
	2B8	35 (5070)	100 (26.4)	25 (3620)	50 (13.5)	35 (5070)	130 (34.3)	35 (5070)	160 (42.3)	25 (3620)	130 (34.3)
	2B8L										
	2D8										
	2B2										
	2B2L										
	2D2										
	2B3										
	2B3L										
	2D3										
	2B2B										
	2B2BL	35 (5070)	100 (26.4)	25 (3620)	50 (13.5)	35 (5070)	130 (34.3)	35 (5070)	160 (42.3)	25 (3620)	130 (34.3)
	3C11										
	3C2										
	3C9										
	3C41										
	3C40										
	3C12										
	3C4										
	3C3	25 (3620) 35 (Specified)	50 (13.2)		40 (10.6)	25 (3620) 35 (Specified)	70 (18.5)	25 (3620) 35 (Specified)	100 (26.4)		85 (22.5)
	3C60										
	3C5										

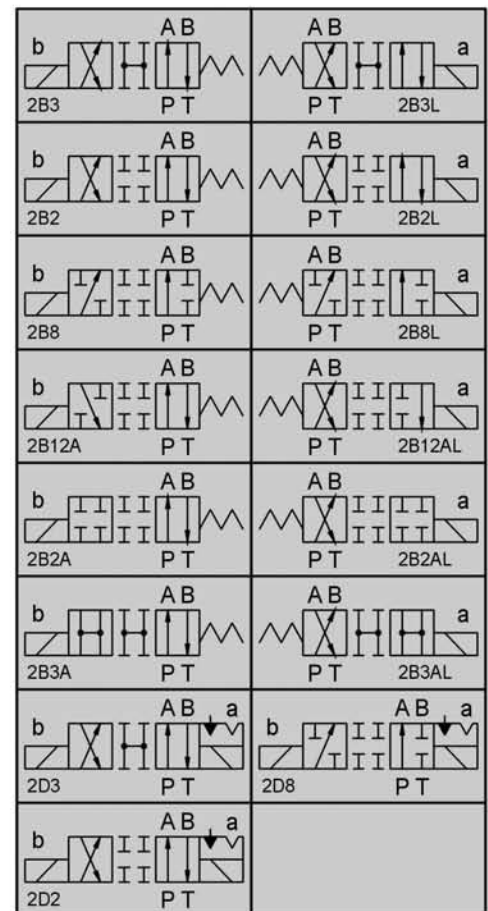
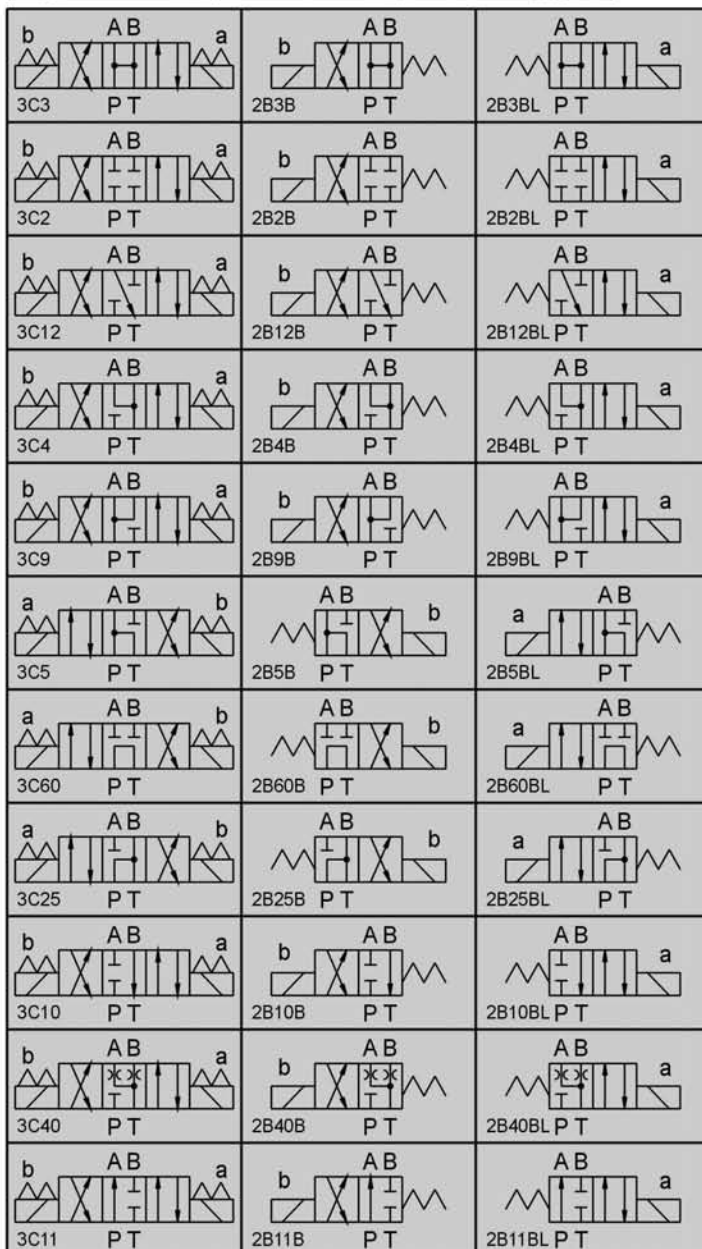
Specifications

		MXA/B/C - 02 - 35(C) Series			MXA/B/C - 03 - 35 Series		
		AC solenoid	DC solenoid		AC solenoid	DC solenoid	
			Built-in rectifier			Built-in rectifier	
		AC ✕	RAC ✕	DC ✕	AC ✕	RAC ✕	DC ✕
Max. operating pressure	P, A, B ports	35 MPa (5070 psi) (Note 1)					
Max. permissible back pressure	T port	35 Series: 21 MPa (3040 psi) 35C Series: 16MPa (2320 psi)			16 MPa (2320 psi)		
Changeover frequency (times/min)	Standard type	300	120	300	300	120	240
	Shockless type	—	—	120	—	—	120
	Indicator light	L (Note 2)			L		
	Shockless	S		S		S	
Mass kg (lbs)	Double solenoids	1.8 (4.0)	2.0 (4.4)	—	4.2 (9.2)	5.0 (11)-35	5.6 (12.3)-35H
	Single solenoid	1.4 (3.1)	1.5 (3.3)	—	3.6 (7.9)	3.9 (8.6)-35	4.2 (9.2)-35H
Recommended operating conditions	Operating temperature range	-20 ~ 70 °C (-4 ~ 158 °F)			5 ~ 60 °C (41 ~ 140 °F)		
	Operating viscosity	15 ~ 300 mm ² /s (80 ~ 1400 SUS)					
	Viscosity index	90 or above					
	Filtration	25 μm or less					

Note 1) Max. operating pressure differs depending on the valve type.

2) MXA: "L" is not standard.

Symbols Valve Spool Type



Solenoid specifications

Solenoid classification		AC solenoid											
Power source		C1 / C3			C120		C2 / C4			C5 / C6			
Voltage(V)		AC110		AC120	AC120		AC220		AC240	AC240			
Frequency(Hz)		50	60	60	50	60	50	60	60	50	60		
Size 02	Solenoid coil type	MXA-02-35(C)			2AH-C1/C3		2AH-C120		2AH-C2/C4			2AH-C5/C6	
		MXB-02-35(C)			2BH-C1/C3		2BH-C120		2BH-C2/C4			2BH-C5/C6	
	Starting current(A)		2.2	2.0	2.2	2.0	1.8	1.1	1.0	1.1	1.0	0.9	
	Holding current(A)		0.54	0.41	0.47	0.45	0.35	0.25	0.19	0.23	0.23	0.18	
	Holding electric power(W)		25	22	28	25	22	25	22	28	25	22	
	Permissible voltage range(V)		80 ~ 120			90 ~ 130		180 ~ 240			200 ~ 260		
Insulation resistance(MΩ)		100 or above (500V)											
Size 03	Solenoid coil type	MXA-03-35			3AH-C1/C3		3AH-C120		3AH-C2/C4			2AH-C5/C6	
		MXB-03-35			3BH-C1/C3		3BH-C120		3BH-C2/C4			2BH-C5/C6	
	Starting current(A)		5.5	4.6	5.0	5.0	4.2	2.7	2.3	2.5	2.5	2.1	
	Holding current(A)		1.1	0.86	1.0	0.9	0.71	0.52	0.42	0.48	0.4	0.33	
	Holding electric power(W)		36	34	42	36	34	36	34	32	36	34	
	Permissible voltage range(V)		80 ~ 120			90 ~ 130		180 ~ 240			200 ~ 260		
Insulation resistance(MΩ)		100 or above (500V)											

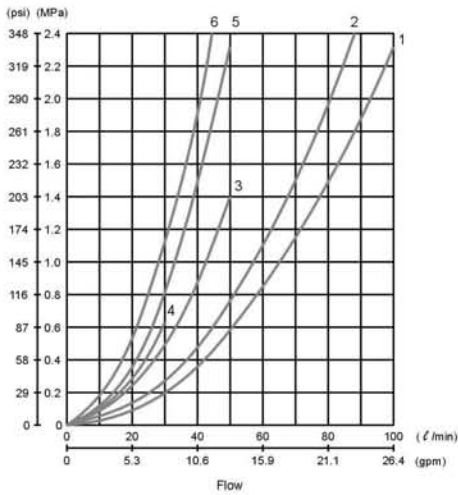
Solenoid classification		DC solenoid							
		Built-in rectifier				D1	D2		
Power source		R1 / R3		R2 / R4		D1	D2		
Voltage(V)		AC110	AC120	AC220	AC240	DC12	DC24		
Frequency(Hz)		50 / 60		50 / 60		—	—		
Size 02	Solenoid coil type	MXA-02-35(C)		2AF-R1/R3		2AF-R2/R4		2AF-D1	2AF-D2
		MXB-02-35(C)		2BF-R1/R3		2BF-R2/R4		2BF-D1	2BF-D2
	Current(A)		0.31	0.32	0.15	0.16	2.5	1.25	
	Holding electric power(W)		30	32	30	32	30	30	
	Permissible voltage range(V)		80 ~ 130		180 ~ 250		10.8 ~ 13.2	21.6 ~ 26.4	
Insulation resistance(MΩ)		100 or above (500V)							
Size 03	Solenoid coil type	MXA-03-35		3EA-R1/R3		3EA-R2/R4		3EA-D1	3EA-D2
		MXB-03-35		3EB-R1/R3		3EB-R2/R4		3EB-D1	3EB-D2
	Current(A)		0.46	0.49	0.22	0.24	3.0	1.5	
	Holding electric power(W)		31	34	30	33	31	36	
	Permissible voltage range(V)		80 ~ 130		180 ~ 250		10.8 ~ 13.2	21.6 ~ 26.4	
Insulation resistance(MΩ)		100 or above (500V)							

Solenoid classification		AC solenoid											
Power source		C1 / C3			C120		C2 / C4			C5 / C6			
Voltage(V)		AC110		AC120	AC120		AC220		AC240	AC240			
Frequency(Hz)		50	60	60	50	60	50	60	60	50	60		
Size 03	Solenoid coil type	MXA-03-35			3EA-C1/C3		3EA-C120		3EA-C2/C4			3EA-C5/C6	
		MXB-03-35			3EB-C1/C3		3EB-C120		3EB-C2/C4			3EB-C5/C6	
	Starting current(A)		5.3	4.5	5	5	4.2	2.6	2.2	2.4	2.5	2.1	
	Holding current(A)		1.1	0.9	1.0	1.1	0.87	0.56	0.45	0.53	0.47	0.38	
	Holding electric power(W)		36	34	42	36	34	36	34	32	36	34	
	Permissible voltage range(V)		80 ~ 120			90 ~ 130		180 ~ 240			200 ~ 260		
Insulation resistance(MΩ)		100 or above (500V)											

Solenoid classification		DC solenoid							
		Built-in rectifier				D1	D2		
Power source		R1 / R3		R2 / R4		D1	D2		
Voltage(V)		AC110	AC120	AC220	AC240	DC12	DC24		
Frequency(Hz)		50 / 60		50 / 60		—	—		
Size 03	Solenoid coil type	MXA-03-35		3AF-R1/R3		3AF-R2/R4		3AF-D1	3AF-D2
		MXB-03-35		3BF-R1/R3		3BF-R2/R4		3BF-D1	3BF-D2
	Current(A)		0.42	0.46	0.21	0.23	3.2	1.6	
	Holding electric power(W)		31	34	30	33	30	30	
	Permissible voltage range(V)		80 ~ 130		180 ~ 250		10.8 ~ 13.2	21.6 ~ 26.4	
	Insulation resistance(MΩ)		100 or above (500V)						

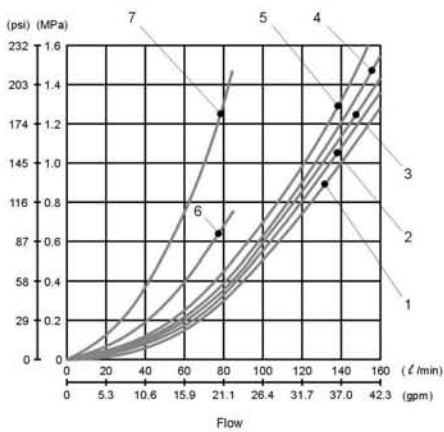
Performance Curve

Pressure drop characteristics



Model	Valve spool type	P→A	P→B	A→T	B→T	P→T
MXA-02 MXB-02 MXC-02 SERIES	2B8, 2B8L, 2D8	4	4	—	—	—
	2B2, 2B2L	2	2	2	2	—
	2D2	2	2	2	2	—
	2B3, 2B3L, 2D3	1	1	1	1	—
	3C3	1	1	1	1	1
	2B2B, 2B2BL, 3C2, 3C40	2	2	2	2	—
	3C12, 3C41	2	2	1	2	—
	3C11	1	2	2	2	—
	3C4	2	2	1	1	—
	3C60	6	6	5	5	3
3C5	1	6	2	5	3	
3C9	1	1	2	2	—	

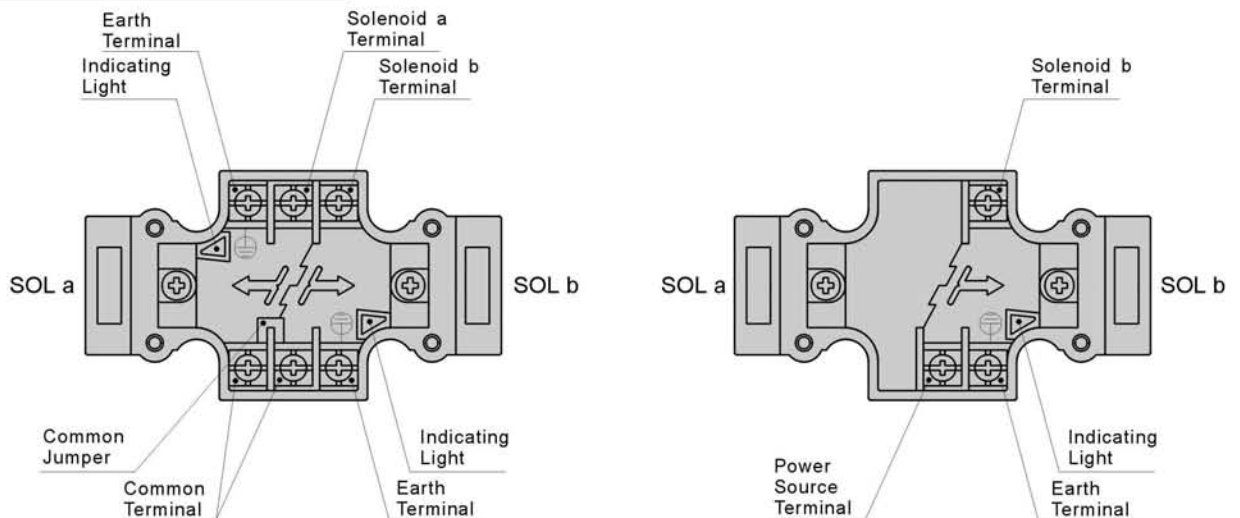
Viscosity of hydraulic fluid 32 mm²/s {150 SUS}



Model	Valve spool type	P→A	P→B	A→T	B→T	P→T
MXA-03 MXB-03 MXC-03 SERIES	2B8, 2B8L, 2D8	5	5	—	—	—
	2B2B	—	3	3	—	—
	2B2BL	3	—	—	3	—
	2B2, 2B2L, 2D2	3	3	4	4	—
	2B3, 2B3L	1	1	4	4	—
	2D3	2	2	1	1	—
	3C12	3	3	1	3	—
	3C11	1	3	3	3	—
	3C3	1	1	1	1	1
	3C2, 3C41, 3C40	3	3	3	3	—
	3C4	3	3	1	1	—
	3C60	7	7	7	7	6
	3C5	1	7	1	7	6
3C9	1	1	3	3	—	

Viscosity of hydraulic fluid 32 mm²/s {150 SUS}

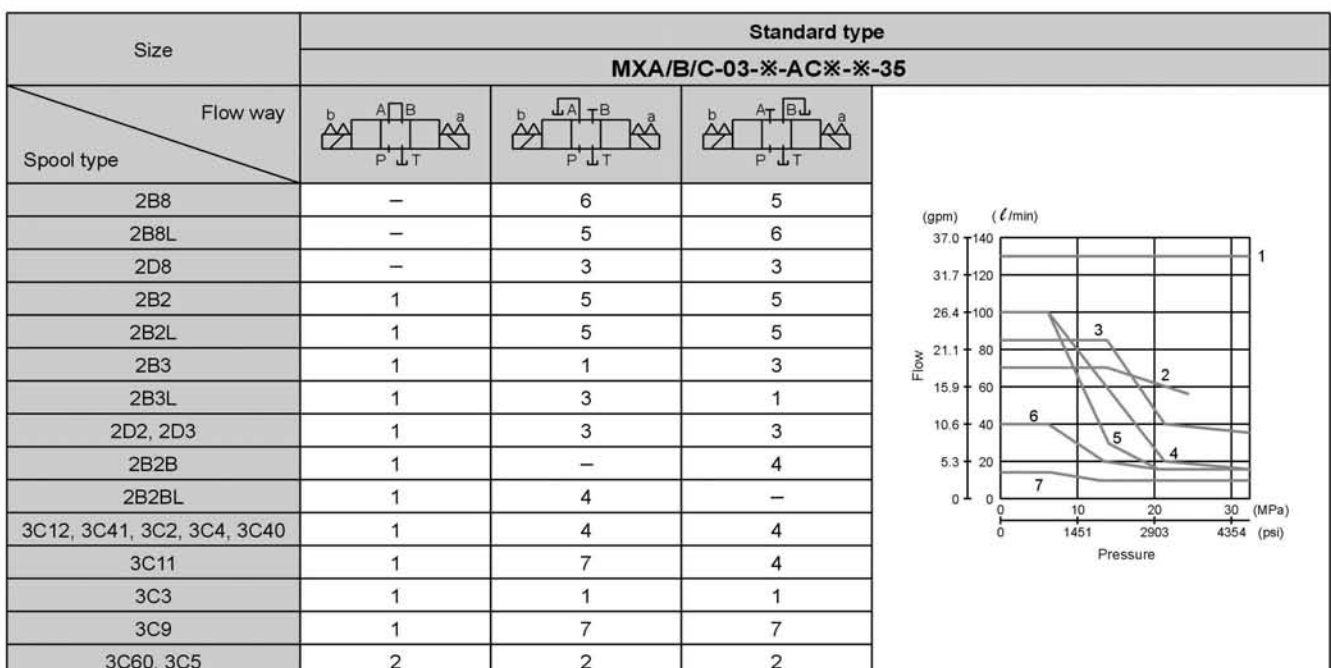
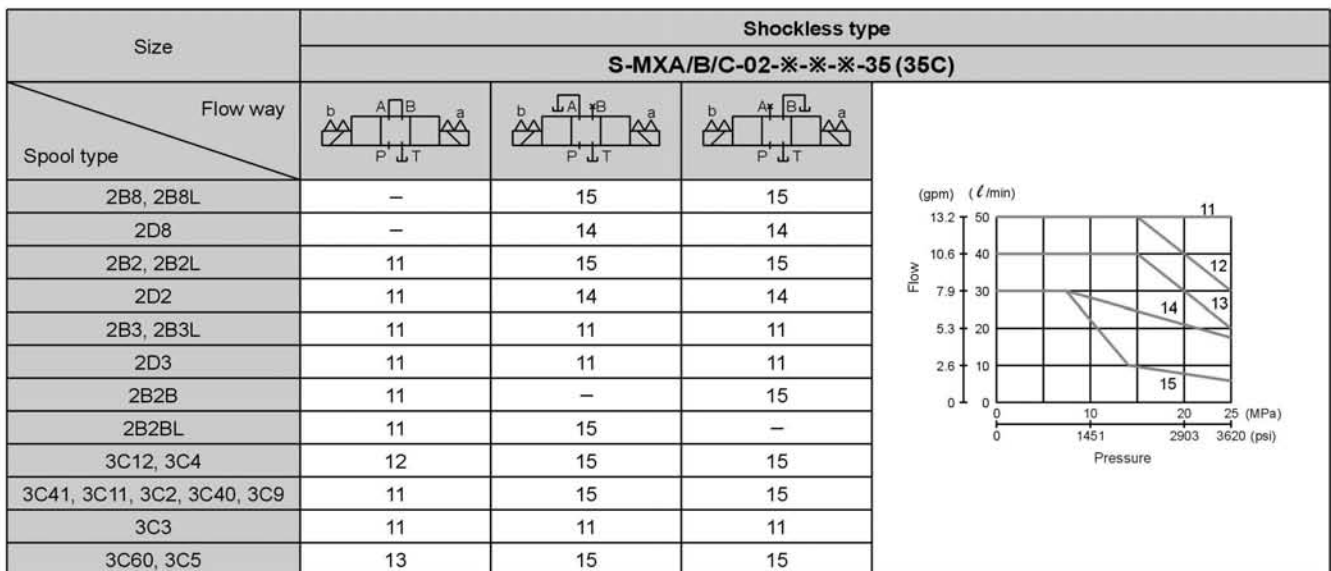
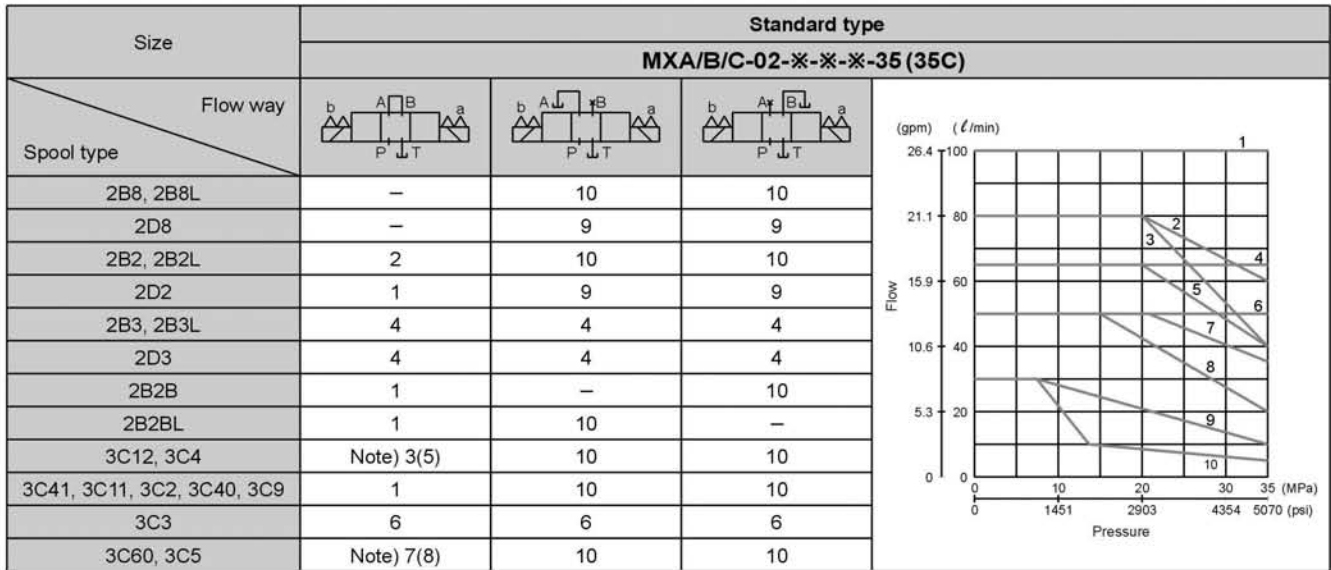
Electrical Box Wiring



Notice:

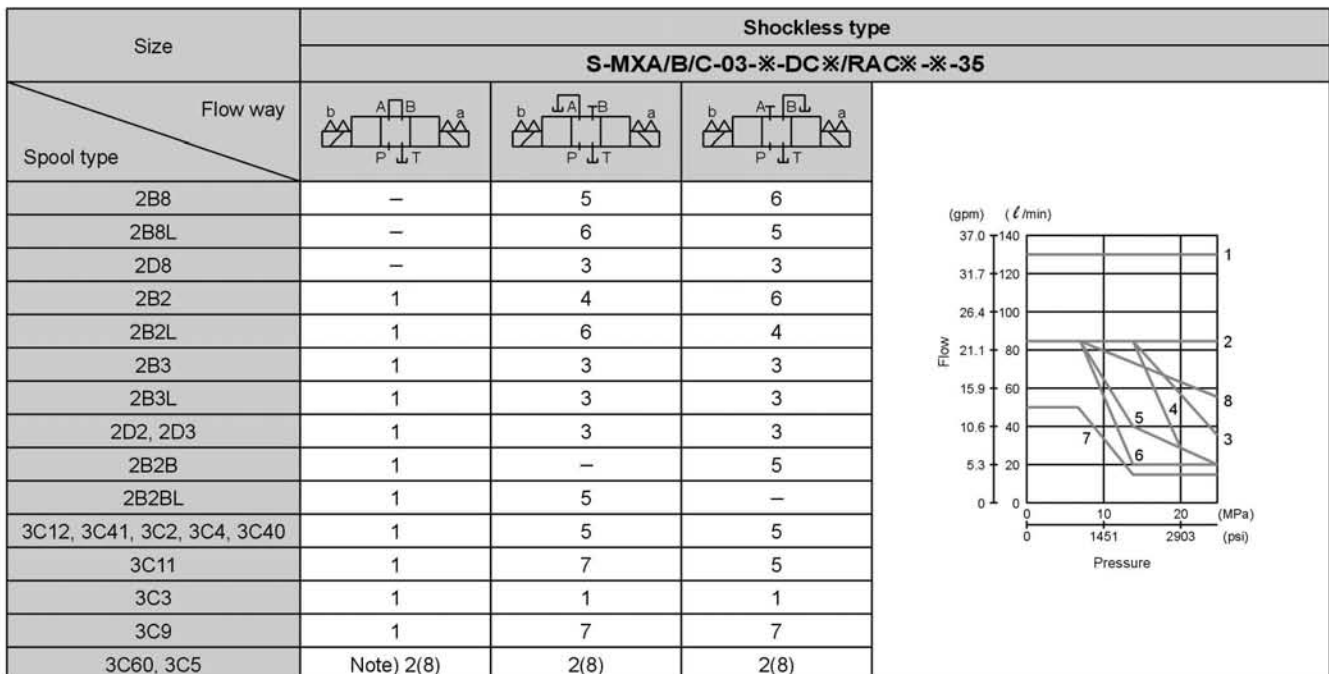
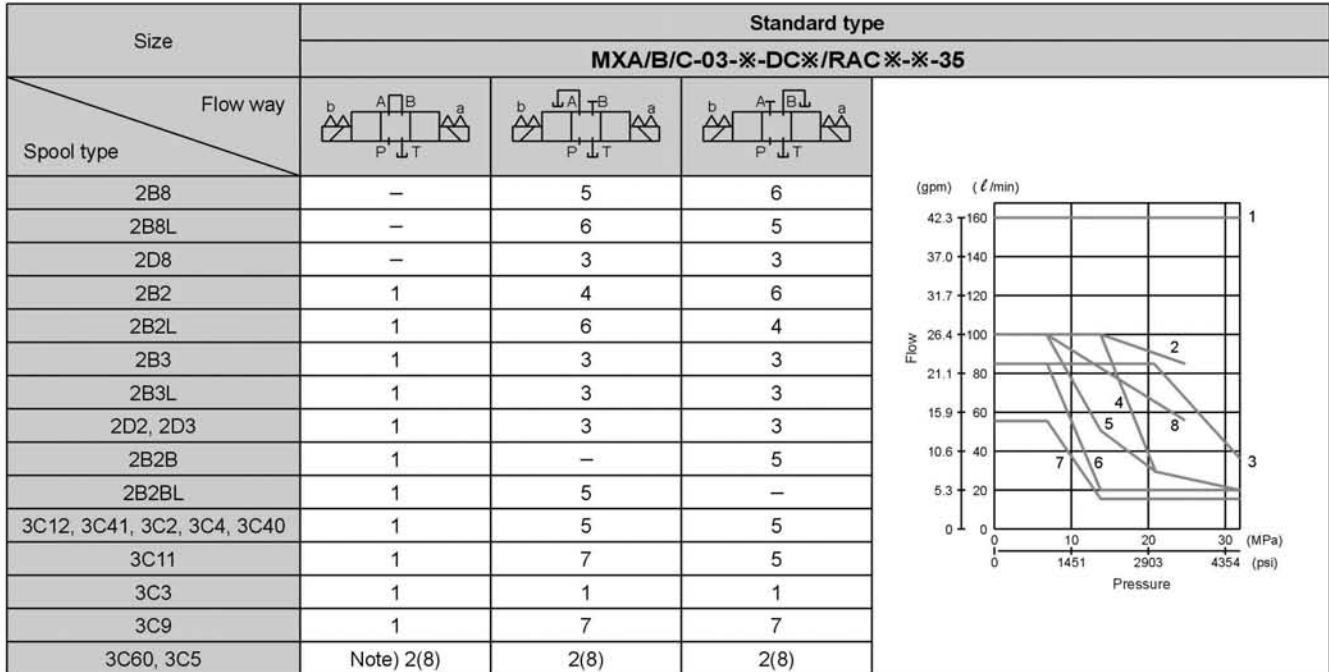
1. Either one of two earth terminals can be used when ground wiring is necessary.
2. Common Jumper can be dismantled when unnecessary.
3. When using direct current solenoid, No polarity concerned.

Pressure-Flow characteristics



Note) In the case of rectifier built-in type solenoid valve, pressure-flow characteristics becomes (5), (8).

Pressure-Flow characteristics

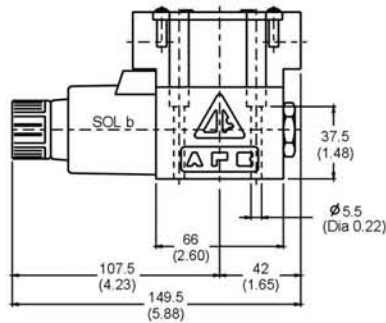


Note) In the case of rectifier built-in type solenoid valve, pressure-flow characteristics becomes (8).

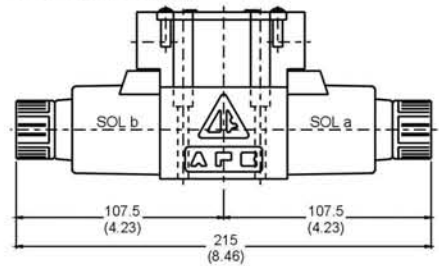
Installation Dimensions mm(inch)

Wiring Box Type
MXB-02-※-※-35 (35C)

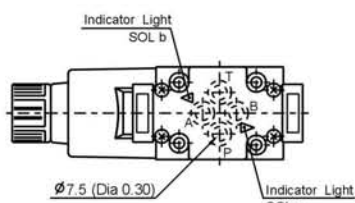
AC solenoid



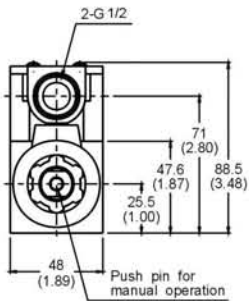
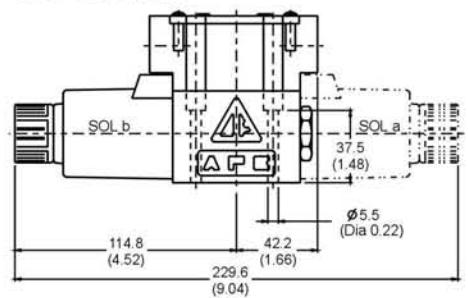
AC solenoid



AC solenoid

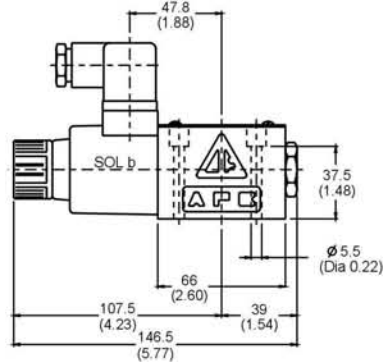


DC solenoid

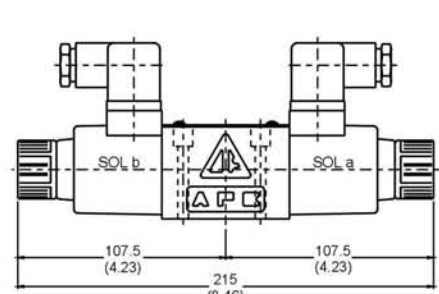


DIN Type
MXA-02-※-※-35 (35C)

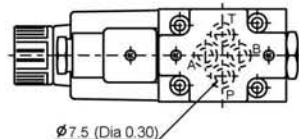
AC solenoid



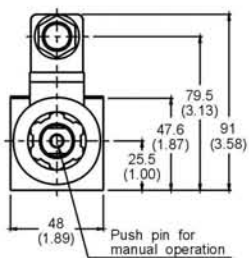
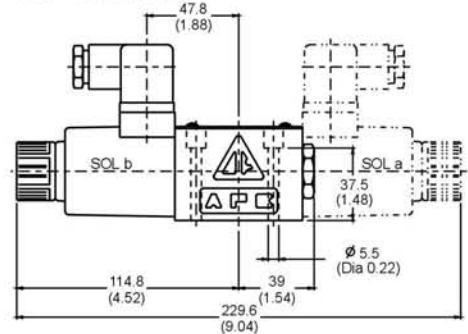
AC solenoid



AC solenoid

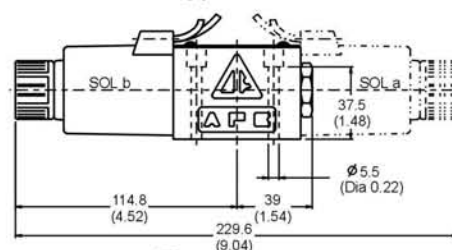


DC solenoid



Lead Wire Type
MXC-02-※-※-35

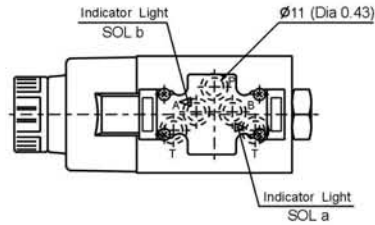
Lead Wire Type



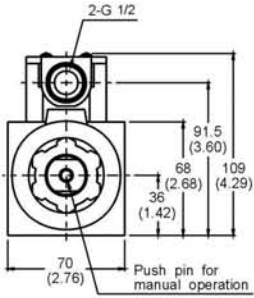
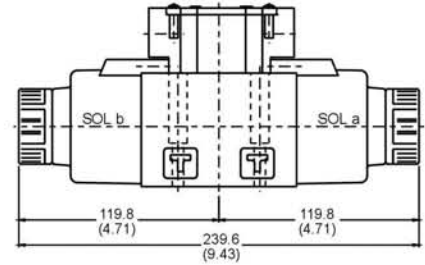
Installation Dimensions mm(inch)

Wiring Box Type
MXB-03-※-※-35

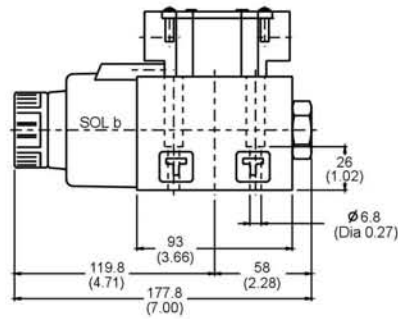
AC solenoid



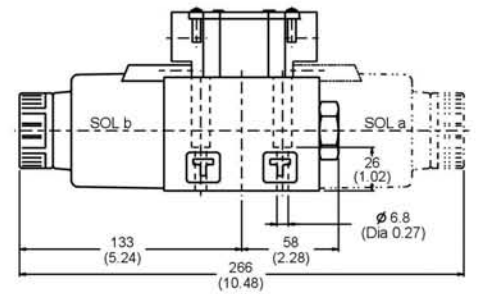
AC solenoid



AC solenoid

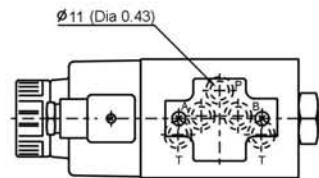


DC solenoid

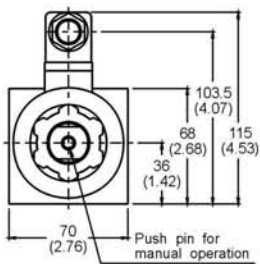
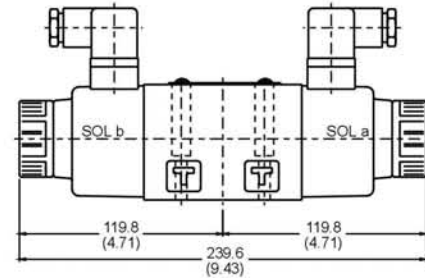


DIN Type
MXA-03-※-※-35

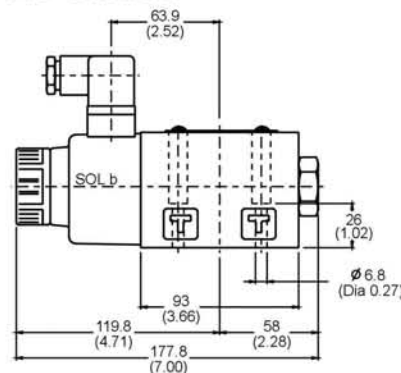
AC solenoid



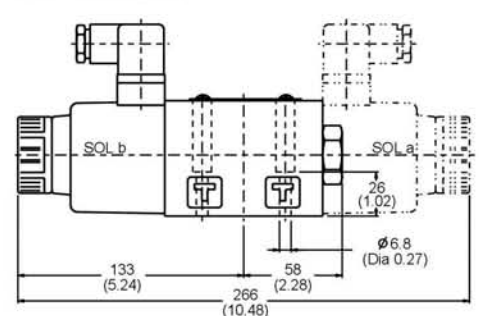
AC solenoid



AC solenoid

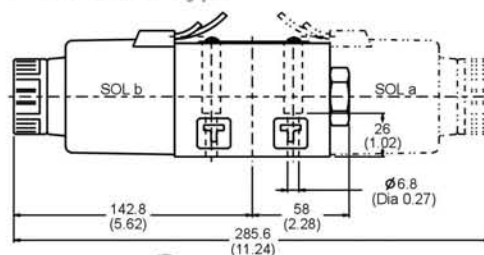


DC solenoid



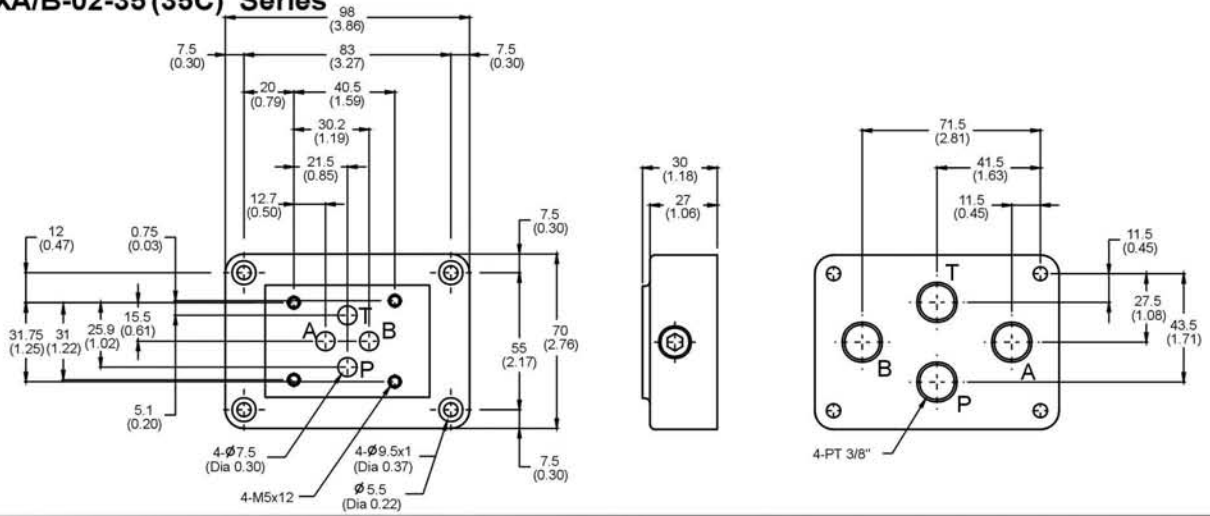
Lead Wire Type
MXC-03-※-※-35

Lead Wire Type

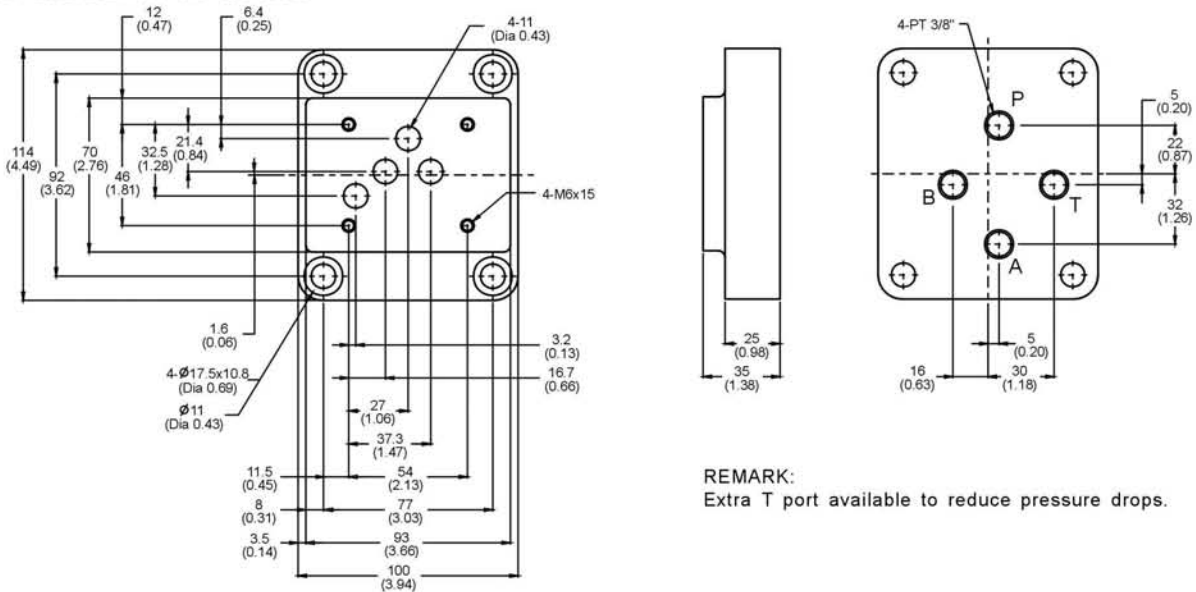


Subplate mm(inch)

For MXA/B-02-35 (35C) Series

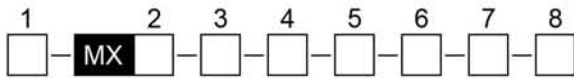


For MXA/B-03-35 Series



REMARK:
Extra T port available to reduce pressure drops.

Ordering Information



└─ Wet Type Solenoid directional Control Valve

Pos.1 Type

S : Shockless type
 Omit: Standard type

Pos.2 Electronic Conduit Connection

A : Hirschmann/DIN type
B : Wiring box type
C : Lead wire type

Pos.3 Size

02 : 1/4" – Cetop3-NG 06 -D03
03 : 3/8" – Cetop5-NG 10 -D05

Pos.4 Valve Spool Type

(See Page 2.3)

Pos.5 Coil Voltage

A110 =AC110(50/60HZ)
A120 =AC120(50/60HZ)
A220 =AC220(50/60HZ)
A240 =AC240(50/60HZ)
D12 =DC12
D24 =DC12
D36 =DC36
D48 =DC48
R110 =RAC110
R120 =RAC120
R220 =RAC220
R240 =RAC240

(W/Buit-in rectifer, change AC into DC)

Pos.6 Indicating Light

L : With
 Omit: Without

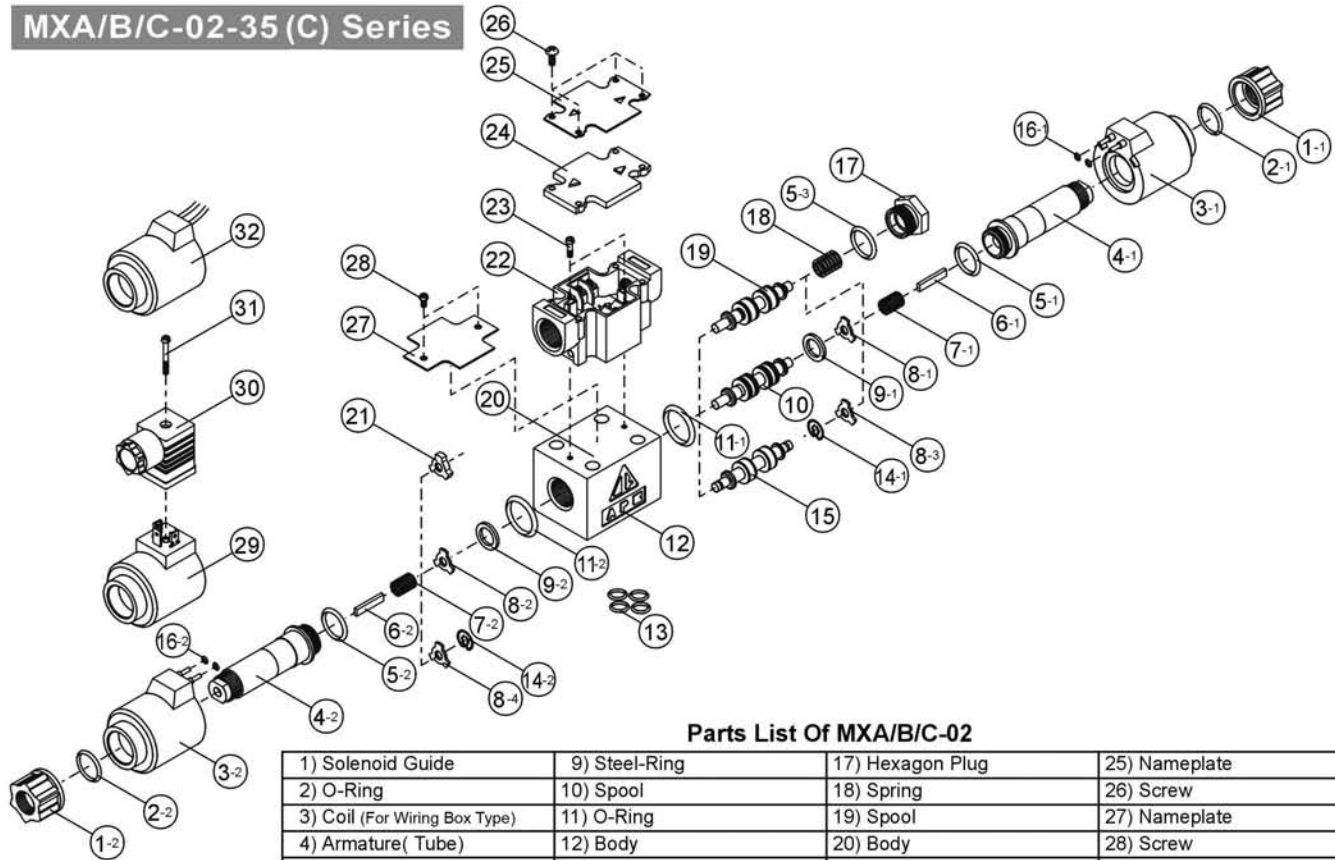
Pos.7 Design Number

35 : High pressure & high flow type
35C : Only for size 02, T port 16MPa

Pos.8 Manufacturing year (Factory only)

07 : 2007
08 : 2008

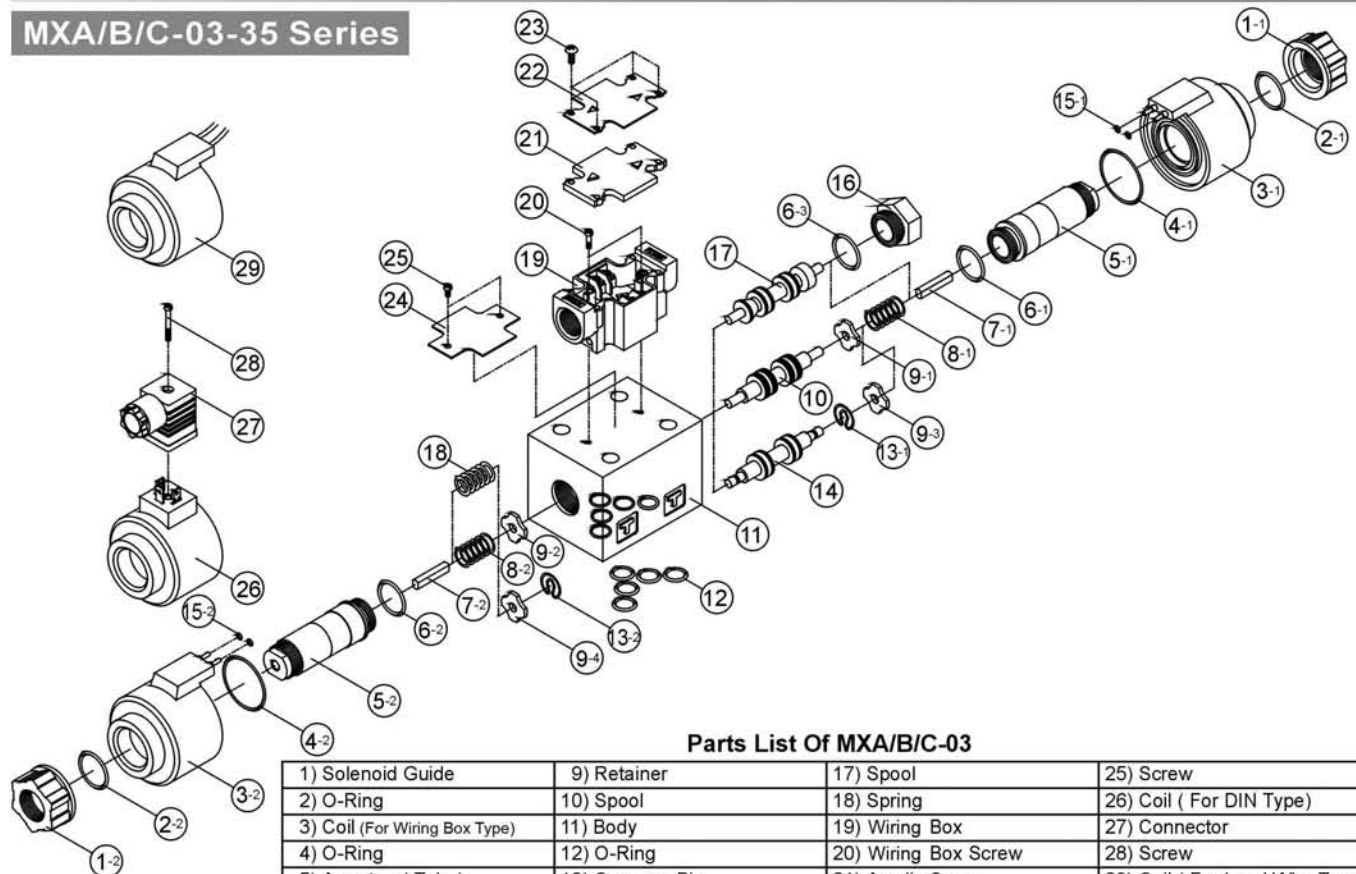
MXA/B/C-02-35 (C) Series



Parts List Of MXA/B/C-02

1) Solenoid Guide	9) Steel-Ring	17) Hexagon Plug	25) Nameplate
2) O-Ring	10) Spool	18) Spring	26) Screw
3) Coil (For Wiring Box Type)	11) O-Ring	19) Spool	27) Nameplate
4) Armature(Tube)	12) Body	20) Body	28) Screw
5) O-Ring	13) O-Ring	21) Retainer	29) Coil (For DIN Type)
6) Push Pin	14) Concave Pin	22) Wiring Box	30) Connector
7) Spring	15) Spool	23) Screw	31) Screw
8) Retainer	16) O-Ring	24) Acrylic Cover	32) Coil (For Lead Wire Type)

MXA/B/C-03-35 Series



Parts List Of MXA/B/C-03

1) Solenoid Guide	9) Retainer	17) Spool	25) Screw
2) O-Ring	10) Spool	18) Spring	26) Coil (For DIN Type)
3) Coil (For Wiring Box Type)	11) Body	19) Wiring Box	27) Connector
4) O-Ring	12) O-Ring	20) Wiring Box Screw	28) Screw
5) Armature(Tube)	13) Concave Pin	21) Acrylic Cover	29) Coil (For Lead Wire Type)
6) O-Ring	14) Spool	22) Nameplate	
7) Push Pin	15) O-Ring	23) Screw	
8) Spring	16) Hexagon Plug	24) Nameplate	