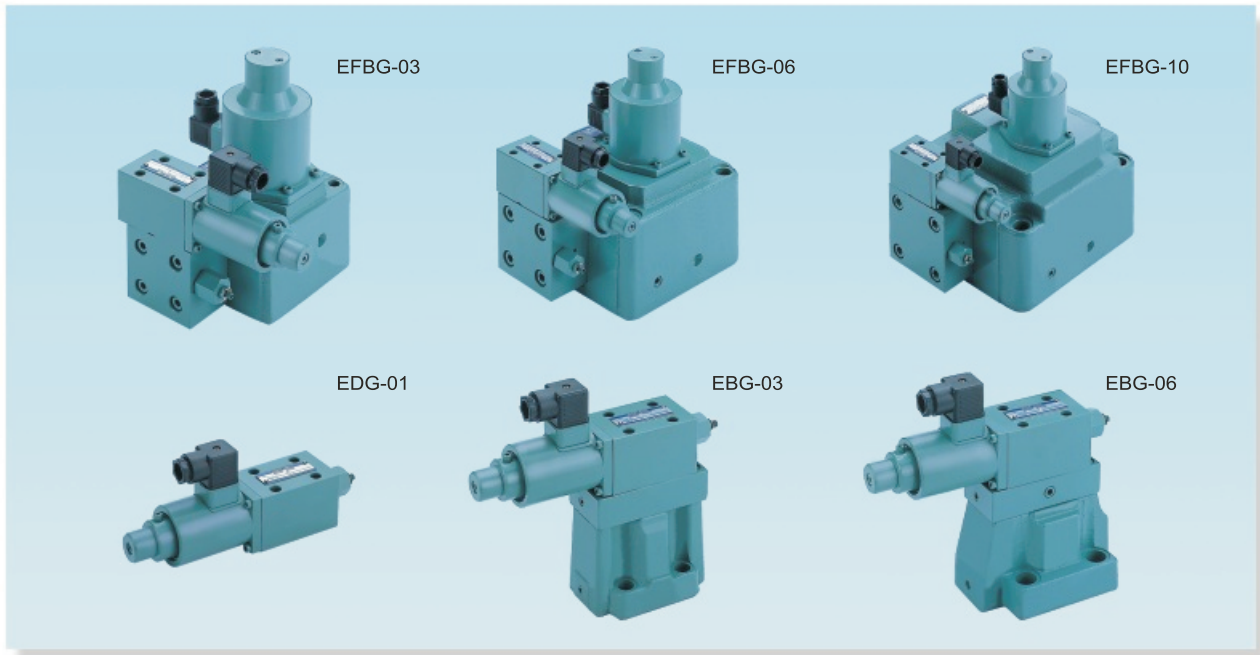


## ELECTRO HYDRAULIC PROPORTIONAL VALVES



## SOLENOID OPERATED DIRECTIONAL VALVES

DFA-02- $\times$ -AC/DC $\times$ - $\times$ -35(35C)



DFA-03- $\times$ -AC $\times$ - $\times$ -35



DFA-03- $\times$ -AC $\times$ - $\times$ -35H



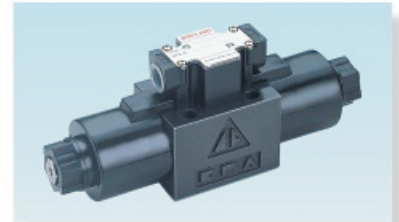
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DFB-03- $\times$ -AC $\times$ - $\times$ -35



DFB-03- $\times$ -AC $\times$ - $\times$ -35H



DFA-02- $\times$ -DC $\times$ - $\times$ -35



DFA-03- $\times$ -DC $\times$ - $\times$ -35



DFA-03- $\times$ -AC $\times$ - $\times$ -35H



DFB-02- $\times$ -DC $\times$ - $\times$ -35



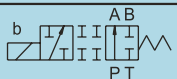
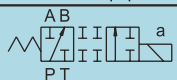
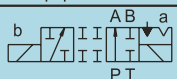

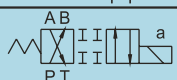
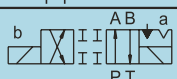

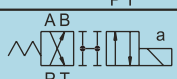

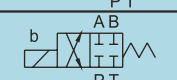
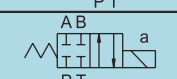
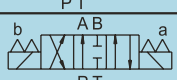
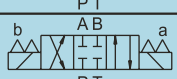
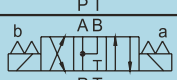
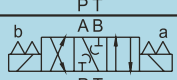
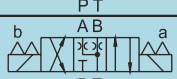

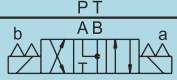

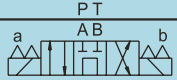
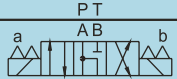
DFB-03- $\times$ -DC $\times$ - $\times$ -35



DFB-03- $\times$ -DC $\times$ - $\times$ -35H



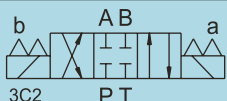
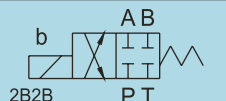
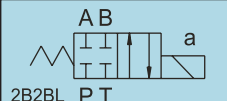
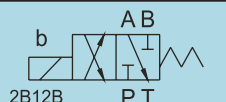
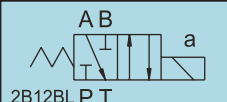
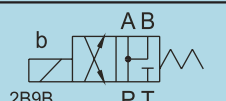
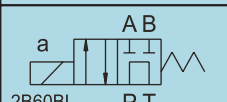
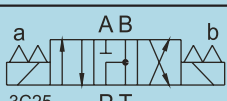
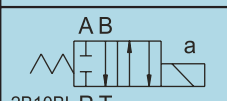
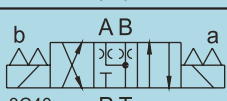
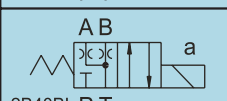
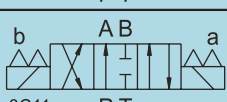
**SPECIFICATIONS**



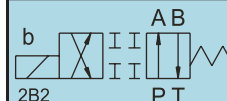
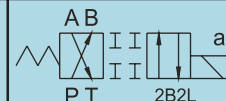

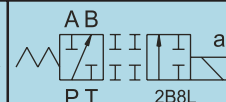

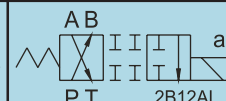

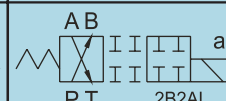





Model		DFA/B/C - 02 - 35(C) Series				DFA/B/C - 03 - 35(H) Series					
		Standard type		Shockless type		Standard type				Shockless type	
		Max. operating pressure MPa (psi)	Max. flow $\ell$ /min (gpm)	Max. operating pressure MPa (psi)	Max. flow $\ell$ /min (gpm)	AC		DC & RAC		Max. operating pressure MPa (psi)	Max. flow $\ell$ /min (gpm)
Symbol	Valve spool type					Max. operating pressure MPa (psi)	Max. flow $\ell$ /min (gpm)	Max. operating pressure MPa (psi)	Max. flow $\ell$ /min (gpm)	Max. operating pressure MPa (psi)	Max. flow $\ell$ /min (gpm)
	2B8	35 (5070)	30 (7.9)	30 (7.9)	35 (5070)	35 (5070)	40 (10.6)	85 (22.5)	85 (22.5)	25 (3620)	50 (13.5)
	2B8L										
	2D8										
	2B2										
	2B2L										
	2D2										
	2B3										
	2B3L										
	2D3										
	2B2B										
	2B2BL										
	3C11										
	3C2										
	3C9										
	3C41										
	3C40										
	3C12	AC: 65 (17.1)	80 (21.1)								
	3C4	DC: 80 (21.1)									
	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										

		DFA/B/C - 02			DFA/B/C - 03		
		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	35:21 MPa (3040 psi) 35C:16 MPa (2320 psi)			16 MPa (2320 psi)		
Changeover frequency (times/min)	Standard type	300	120	300	300	120	240
	Shockless type	—		120			
Standard	Indicator light	L (Note 2)			L		
	Shockless	—	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 <sup>2</sup> /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) DFA: "L" is not standard.

## SYMBOLS

**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	DFA-02-35	2AH-C1/C3			2AH-C120		2AH-C2/C4			2AH-C5/C6	
		DFB-02-35	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	DFA-03-35	3AH-C1/C3			3AH-C120		3AH-C2/C4			2AH-C5/C6	
		DFB-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)										

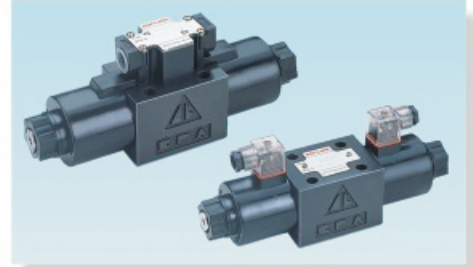
Solenoid classification		DC solenoid						
		Built-in rectifier				D1	D2	
Power source		R1 / R3		R2 / R4				
Voltage(V)		AC110		AC120		DC1 2	DC24	
Frequency(Hz)		50 / 60		50 / 60		—	—	
Size 02	Solenoid coil type	DFA-02-35	2AF-R1/R3		2AF-R2/R4		2AF-D1	2AF-D2
		DFB-02-35	2BF-R1/R3		2BF-R2/R4		2BF-D1	2BF-D2
	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	DFA-03-35	3EA-R1/R3		3EA-R2/R4		3EA-D1	3EA-D2
		DFB-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	DFA-03-35H	3EA-C1/C3			3EA-C120		3EA-C2/C4			3EA-C5/C6	
		DFB-03-35H	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				
Voltage(V)		AC110		AC120		DC12	DC24	
Frequency(Hz)		50 / 60		50 / 60		—	—	
Size 03	Solenoid coil type	DFA-03-35H	3AF-R1/R3		3AF-R2/R4		3AF-D1	3AF-D2
		DFB-03-35H	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)						

**S-DFA/B/C-02-※-AC/DC ※-※-35(35C)**

**DFA/B/C-03-※-AC※-※-35**

**DFA/B/C-03-※-AC※-※-35H**

**S-DFA/B/C-02-※-DC※-※-35**

**S-DFA/B/C-03-※-DC※-※-35**

**S-DFA/B/C-03-※-DC※-※-35H**

**ORDERING CODE**
**S - DF - A - 02 - 3C2 - A110 - L - 35C - 00**

Manufacturing year

 02: 2002  
03: 2003

Designing number for high pressure &amp; high flow type:

 35: Permissible back pressure 210bar  
35H: Specially specified  
35C: Permissible back pressure 160bar (only for size 02)

L: With indicating light

No code: Without indicating light

Coil voltage:

 AC: A110(50/60Hz) & A120(60Hz)=C1/C3  
A120(50/60Hz)=C120  
A220(50/60Hz) & A240(60Hz)=C2/C4  
A240(50/60Hz)=C5/C6

 DC: D12(D1), D24(D2), D36(D3) & D48(D4)  
other DC voltage as requested

 RAC: R110(50/60Hz) & R120(50/60Hz)=R1/R3  
R220(60/60Hz) & R240(50/60Hz)=R2/R4  
(W/Built-in rectifier, change AC into DC)

Spool type ( see spool symbol chart)

Nominal size:

 02: 1/4"  
03: 3/8"

Electrical conduit connection:

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

 DF: Wet type solenoid operated  
directional valves

S: Shockless type

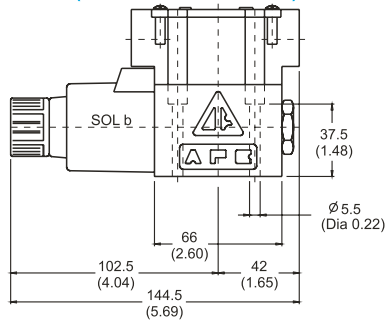
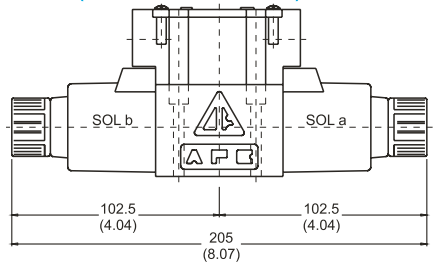
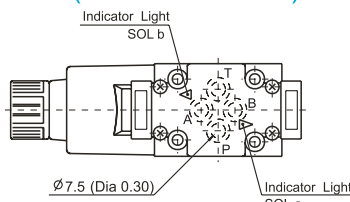
No code: Standard type



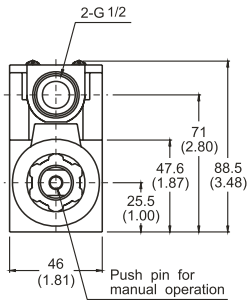
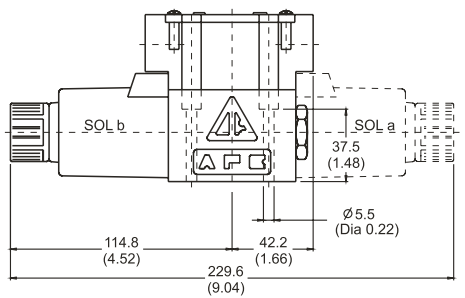
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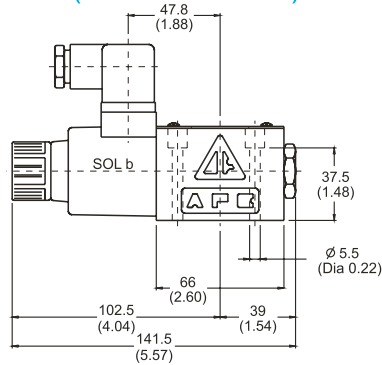
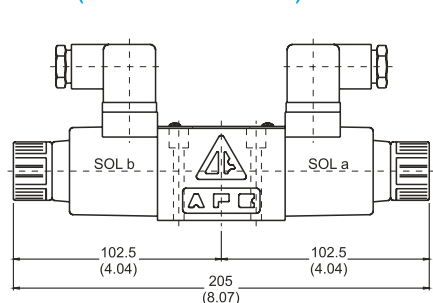
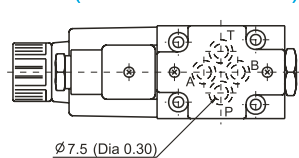
mm(inch)

 Joint Box Type  
 DFB-02-※-※-35(35C)

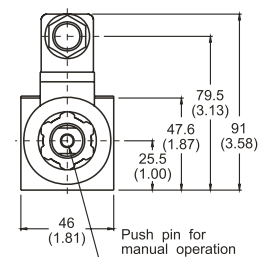
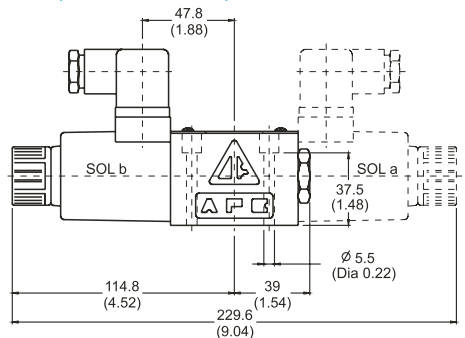
 35 (AC solenoid)  
 35C (AC/DC solenoid)

 35 (AC solenoid)  
 35C (AC/DC solenoid)

 35 (AC solenoid)  
 35C (AC/DC solenoid)


35 (DC solenoid)

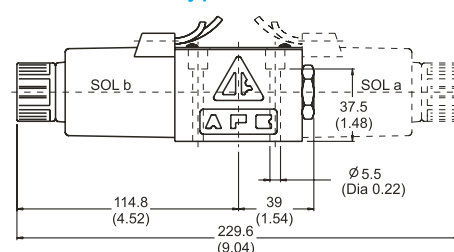

 DIN Type  
 DFA-02-※-※-35(35C)

 35 (AC solenoid)  
 35C (AC/DC solenoid)

 35 (AC solenoid)  
 35C (AC/DC solenoid)

 35 (AC solenoid)  
 35C (AC/DC solenoid)


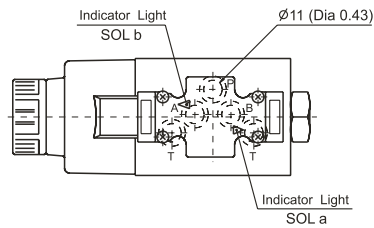
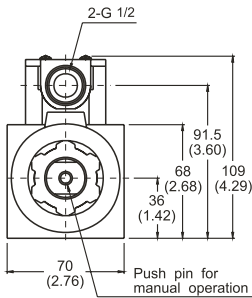
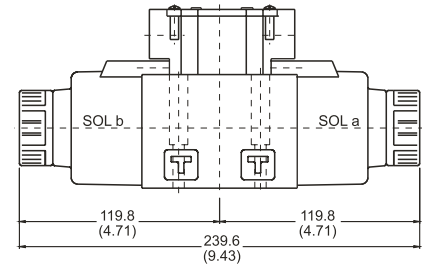
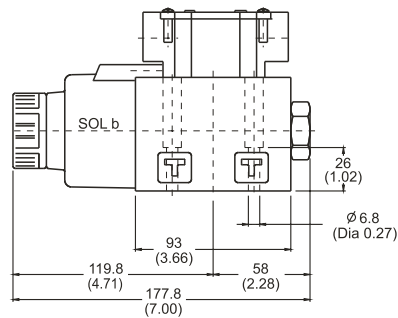
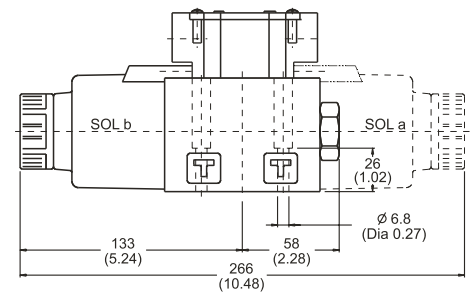
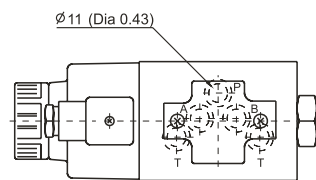
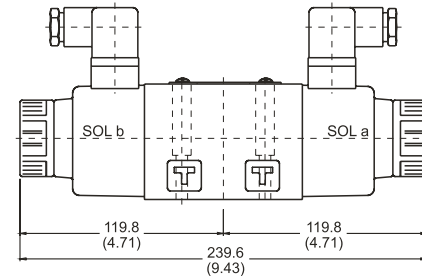
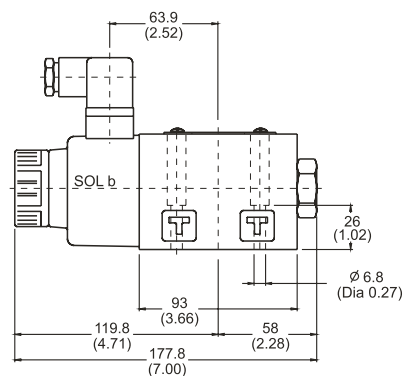
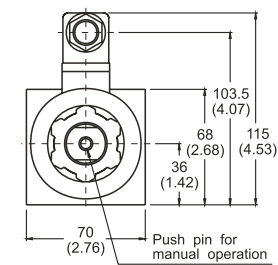
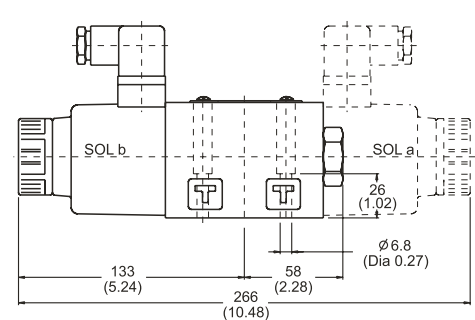
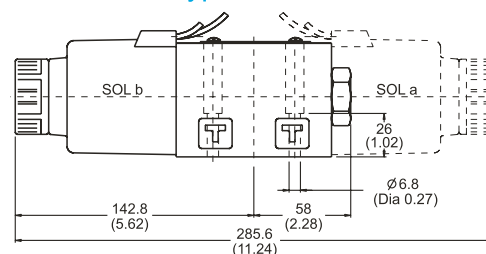
35 (DC solenoid)

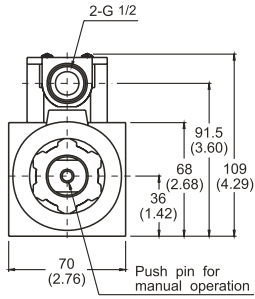
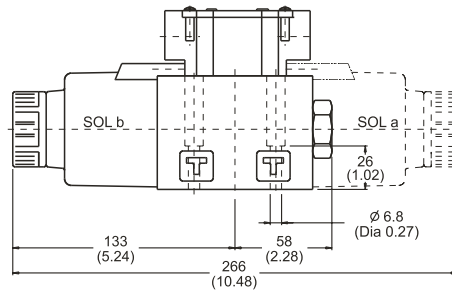
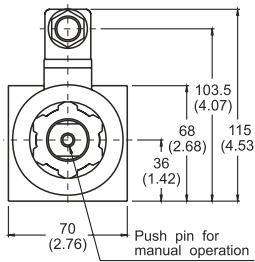
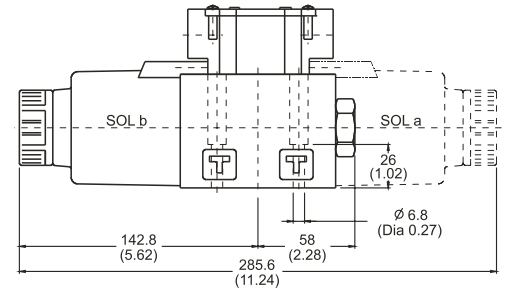
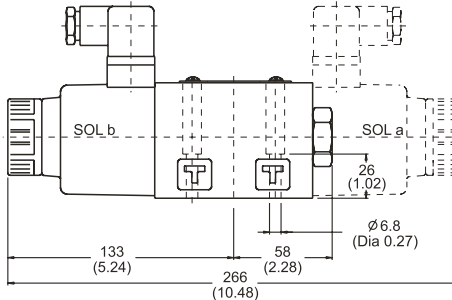
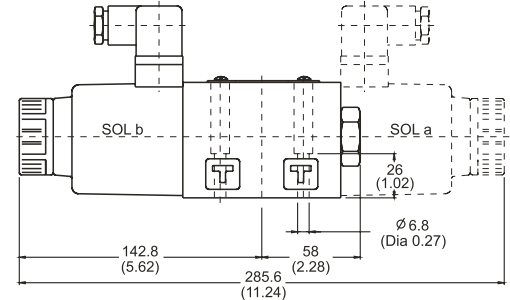

 Lead Wire Type  
 DFC-02-※-※-35

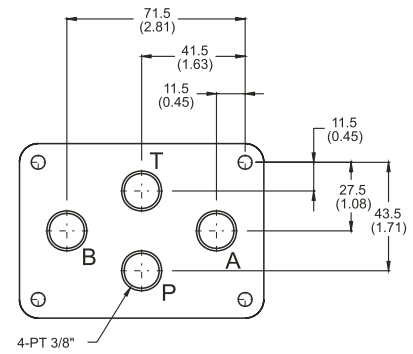
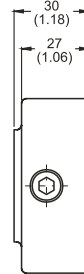
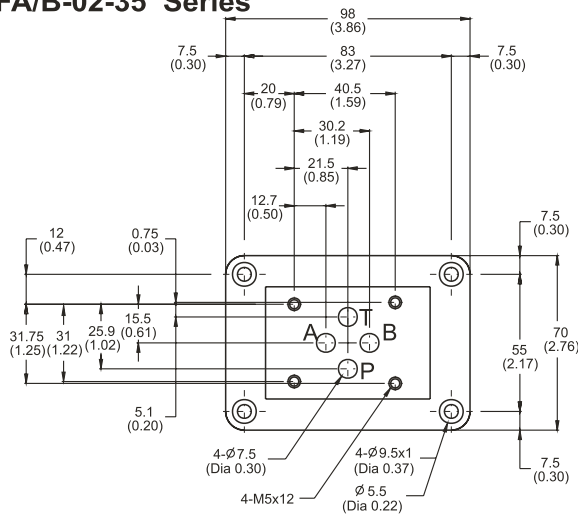
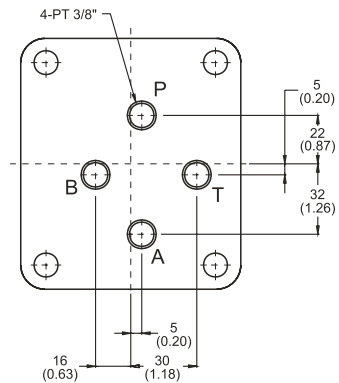
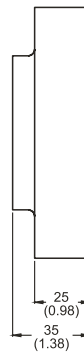
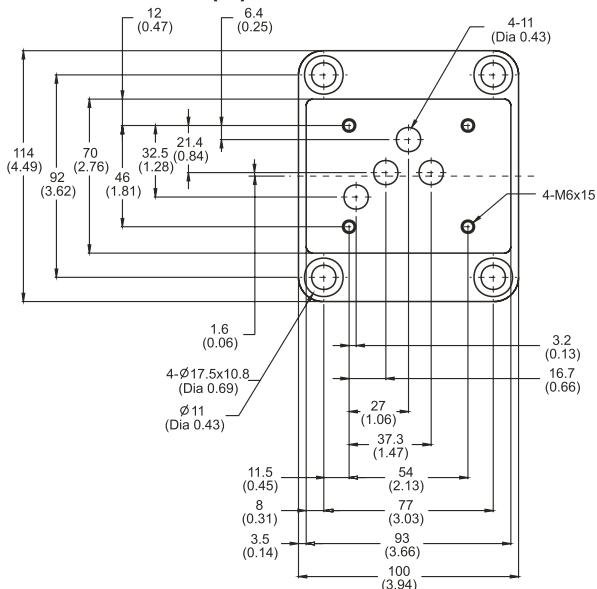
Lead Wire Type



**Installation Dimensions** mm(inch)

**Joint Box Type  
DFB-03-※-※-35**
**AC solenoid**

**AC solenoid**

**AC solenoid**

**DC solenoid**

**DIN Type  
DFA-03-※-※-35**
**AC solenoid**

**AC solenoid**

**AC solenoid**

**DC solenoid**

**Lead Wire Type  
DFC-03-※-※-35H**
**Lead Wire Type**


**Joint Box Type  
DFB-03-※-※-35H**

**AC solenoid**

**DC solenoid**

**AC solenoid**

**DC solenoid**

**SUBPLATE** mm(inch)

**For DFA/B-02-35 Series**

**For DFA/B-03-35(H) Series**


**REMARK:**  
Extra T port available to reduce pressure drops.