Double A
Hydraulics
®

series Q-03 premier directional control valve

4500 psi, 16 gpm max

wet armature solenoid operated

536 TOWNSHIP LINE ROAD
FLUID TECHNOLOGY ANNEX
BLUE BELL, PENNSYLVANIA 19422
Tel: 215.643.0617
Fax: 216.643.4017
sales@doubleahydraulics.com
www.doubleahydraulics.com

series Q-03 premier directional control valve

Specifications

MAXIMUM OPERATING PRESSURE		RATED FLOW CAPACITY	MOUNTING BOLTS	VISCOSITY RANGE	TEMPERATURE RANGE	FLUID CLEANLINESS	WEIGHT
P,A,B PORTS	T PORT	P,A,B,T PORTS	10-24 X 2”	60-1800 SSU	-13 TO 194F	20/18/15 Or Better (ISO 4460)	Single Solenoid 3.5 lbs
4500 psi	3000 psi	16 gpm	45-60 inch-#				Double Solenoid 4.4 lbs

SOLENOID COIL TYPE	CYCLES (Hz)	VOLTAGE RANGE (Volts)	CURRENT (Amps) IN-RUSH	HOLDING	MAXIMUM FREQUENCY OF OPERATION (CPM)
A120	50 Hz	99 -121	1.30	0.27	300
	60 Hz	108 - 132	1.20	0.23	300
R120	50 / 60 Hz	90 - 120	0.30	0.15	300
D12		10.80 - 13.20	2.20	2.20	300
D24		21.60 - 26.40	1.10	1.10	300

Ordering Information

Q * * - 03 - * - * - ** - *** - 10E1**

SUBPLATE MOUNTED

SPOOL/SPRING ARRANGEMENT

- F – 3 POS. SPRING CENTERED
- G – 2 POS. SPRING OFFSET, SOL A
- J – 2 POS. SPRING OFFSET, SOL B
- K – 3 POS. DETENTED
- M – 2 POS. DETENTED

ACTUATION TYPE

- OMIT – SOLENOID OPERATED
- R – MANUAL (LEVER) OPERATED

VALVE INTERFACE

- 03 – NFPA D03
  - NG06
  - CETOP03

SPOOL FUNCTION AND TYPE

(SEE SPOOL CONFIGURATION ON PAGE 4)

SEAL OPTION

- B – BUNA
- V – VITON

ELECTRICAL CONNECTION

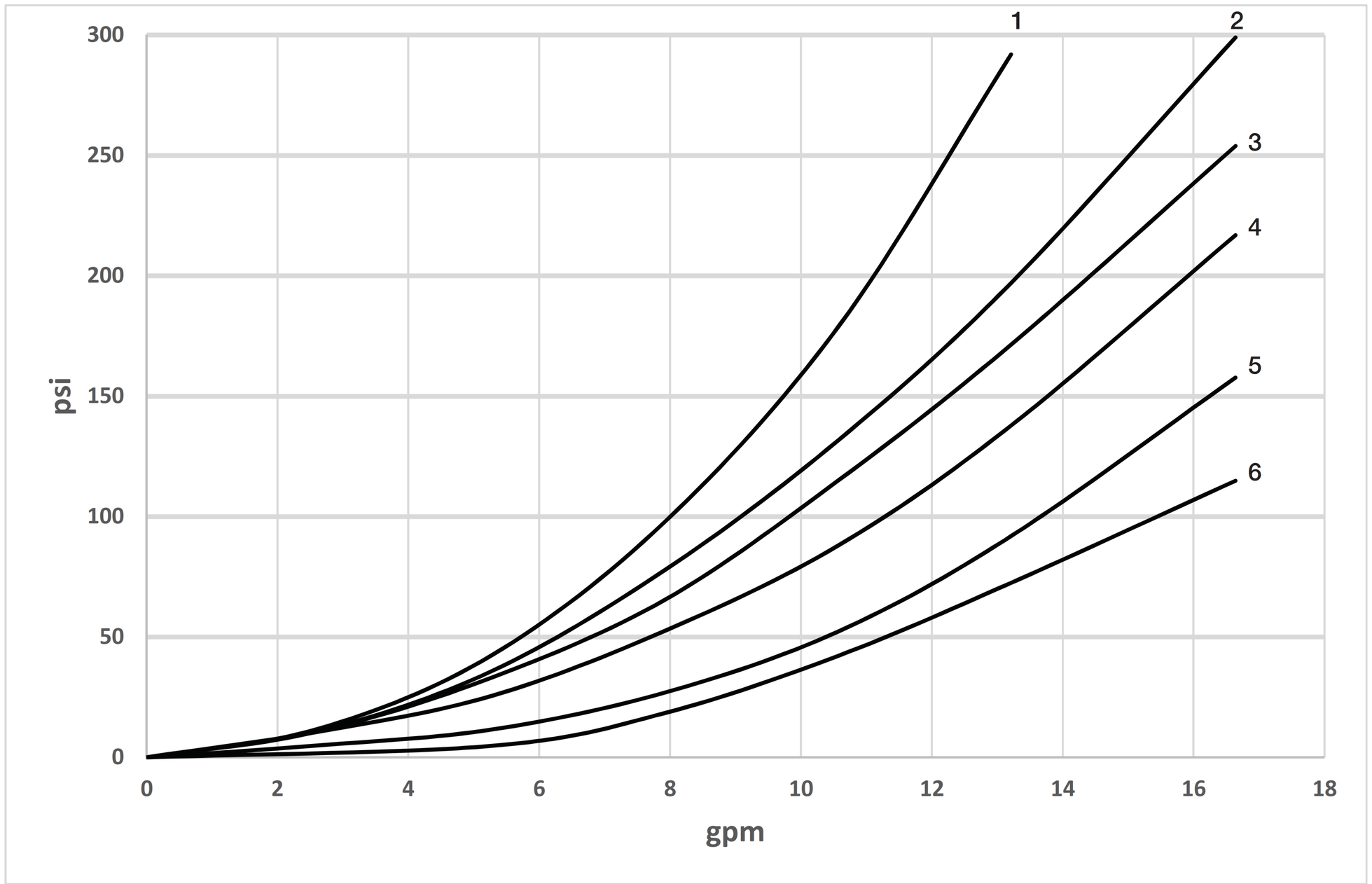
- DN – DIN HIRSCHMANN WITH INDICATING LIGHT
- JL – JUNCTION BOX WITH INDICATING LIGHT
- OMIT FOR MANUAL

COIL VOLTAGE

- A120 – 120 VAC 50/60 HZ
- D12 – 12 VDC
- D24 – 24 VDC
- R120 – RECTIFIED 120 VDC
- OMIT FOR MANUAL

DESIGN CODE

Performance



Viscosity Factors

Factor	Viscosity	
	SSU	CST
0.81	77	15
0.87	98	20
0.96	141	30
1.03	186	40
1.09	232	50
1.14	278	60
1.19	324	70
1.23	371	80
1.27	417	90
1.30	464	100

PRESSURE DROP CURVE REFERENCE

SPOOL TYPE	P → A	B → T	P → B	A → T	P → T
FC	5	5	5	5	
FO	6	6	6	6	4
FFF	5	6	5	6	
FFFX	5	5	5	5	
FFO1	2	2	2	2	4
FTTO	1	1	1	1	4
FFOP	6	5	6	5	
FF1	5	5	5	6	
JC	4	5	4	5	
JO	3	3	5	5	
JP	2		5		
GC	4	5	4	5	
GO	5	5	3	3	
GP	5		2		
MC	5	5	5	5	
MO	5	3	5	3	

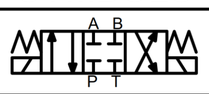
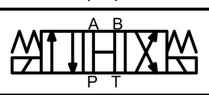
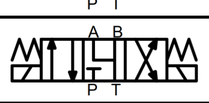
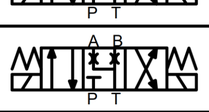
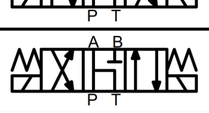
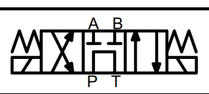
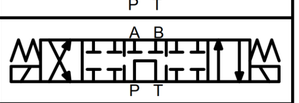
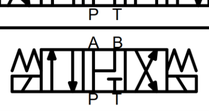
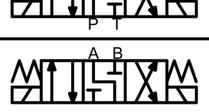
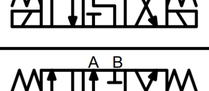
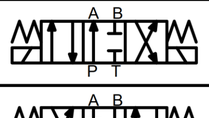
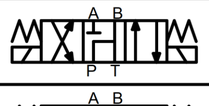
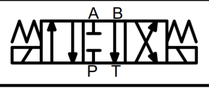
Not all spools shown

△P'= △P(G'/0.85) for other specific gravity (G')

Spool Functions

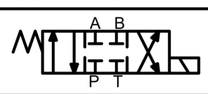
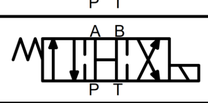
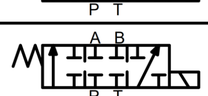
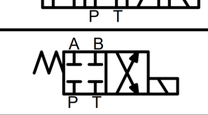
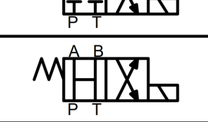
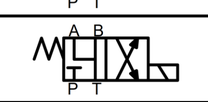
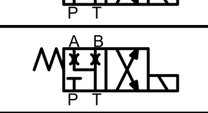
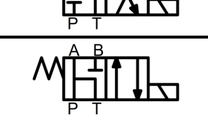
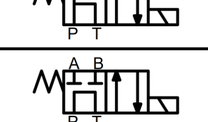
QF-03-**

3 POSITION
SPRING CENTERED
SOLENOID OPERATED

TYPE	GRAPHIC SYMBOLS
FC	
FO	
FFF	
FFFX	
FFO1	
FTTO	
FTTC	
FOP	
FF1	
FOP1	
FFO2	
FF2	
FOP2	

QJ-03-**

2 POSITION
SPRING RETURN
SOLENOID OPERATED

TYPE	GRAPHIC SYMBOLS
JC	
JO	
JP	
JFC	
JFO	
JFFF	
JFFFX	
JFFO1	
JFTTO	
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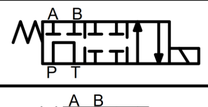
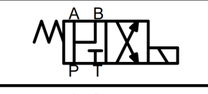
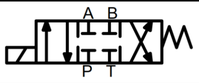
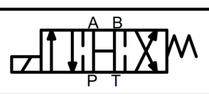
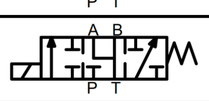
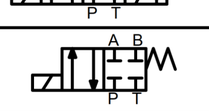
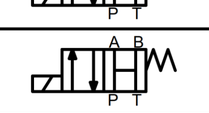
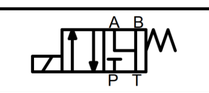
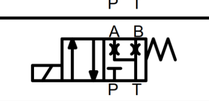
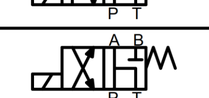
JFOP	
JFF1	
JFOP1	

QG-03-**

2 POSITION
SPRING RETURN
SOLENOID OPERATED

TYPE	GRAPHIC SYMBOLS
GC	
GO	
GP	
GFC	
GFO	
GFFF	
GFFFX	
GFFO1	
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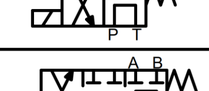
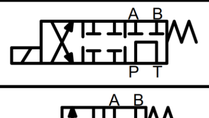
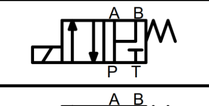
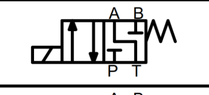
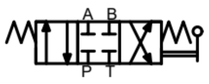
GFTTC	
GFOP	
GFF1	
GFOP1	

QFR-03-**

3 POSITION
SPRING CENTERED
LEVER OPERATED

TYPE	GRAPHIC SYMBOLS
FC	
FO	
FFF	
FTTO	
FOP	
FF1	
FOP1	

QKR-03-**

3 POSITION
SPRING RETURN
LEVER OPERATED

TYPE	GRAPHIC SYMBOLS
KC	
KO	
KFFF	
KFTTO	
KFOP	
KFF1	
KFOP1	

QJR-03-**

2 POSITION
SPRING RETURN
LEVER OPERATED

TYPE	GRAPHIC SYMBOLS
JC	
JO	

QMR-03-**

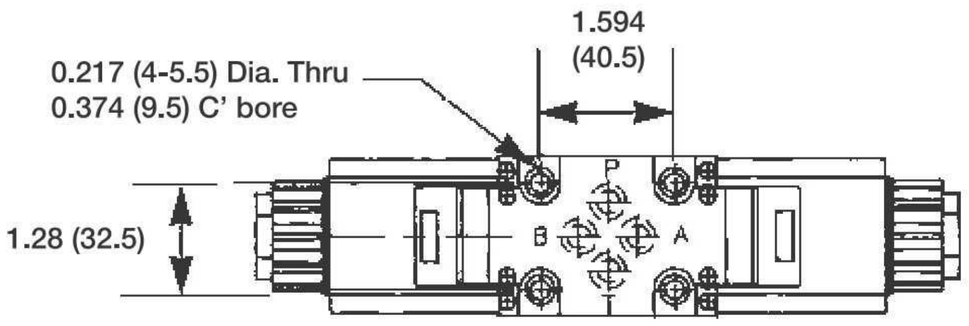
2 POSITION
DETENTED
LEVER OPERATED

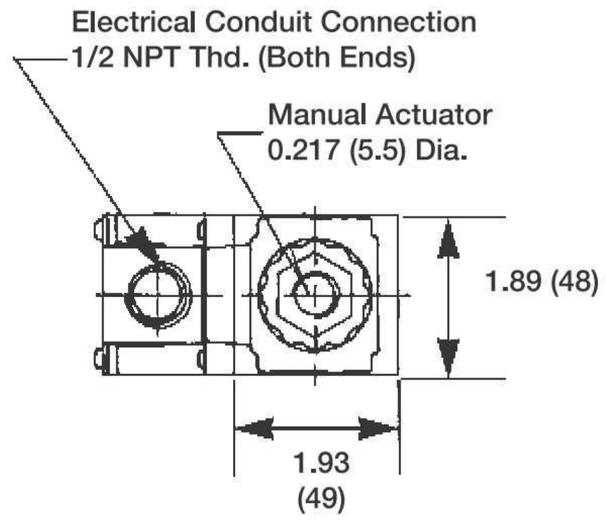
TYPE	GRAPHIC SYMBOLS
MC	
MO	

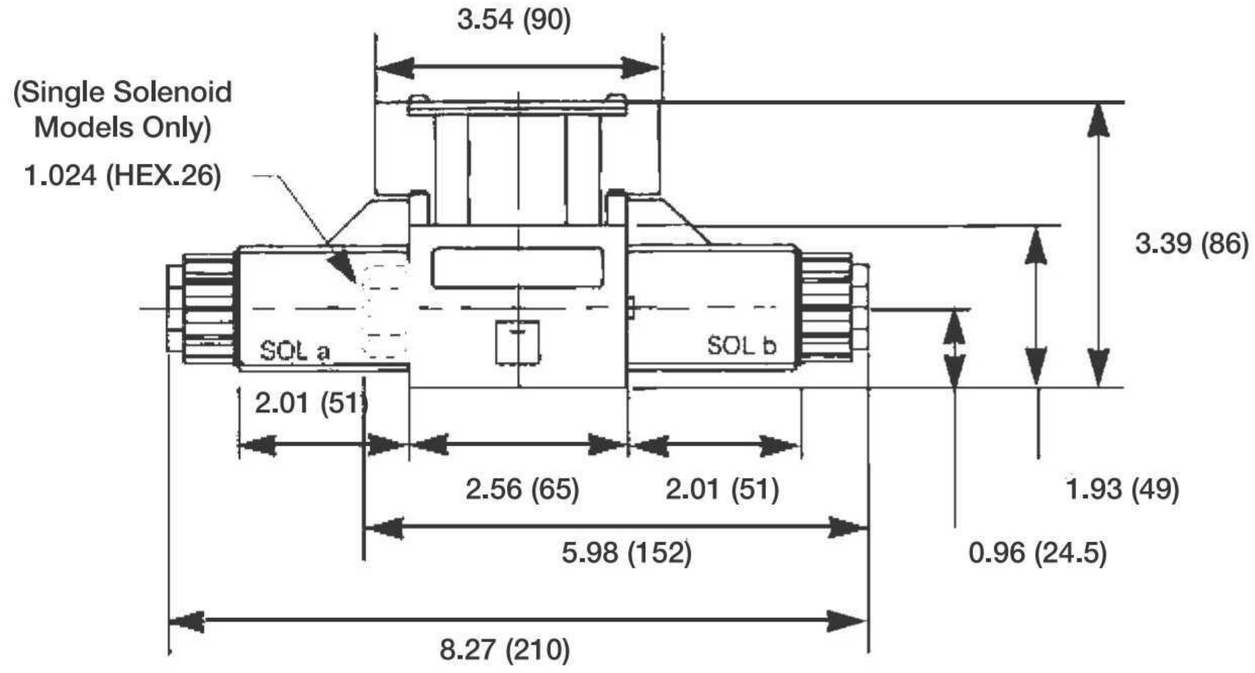
PORT INTERCONNECTION.

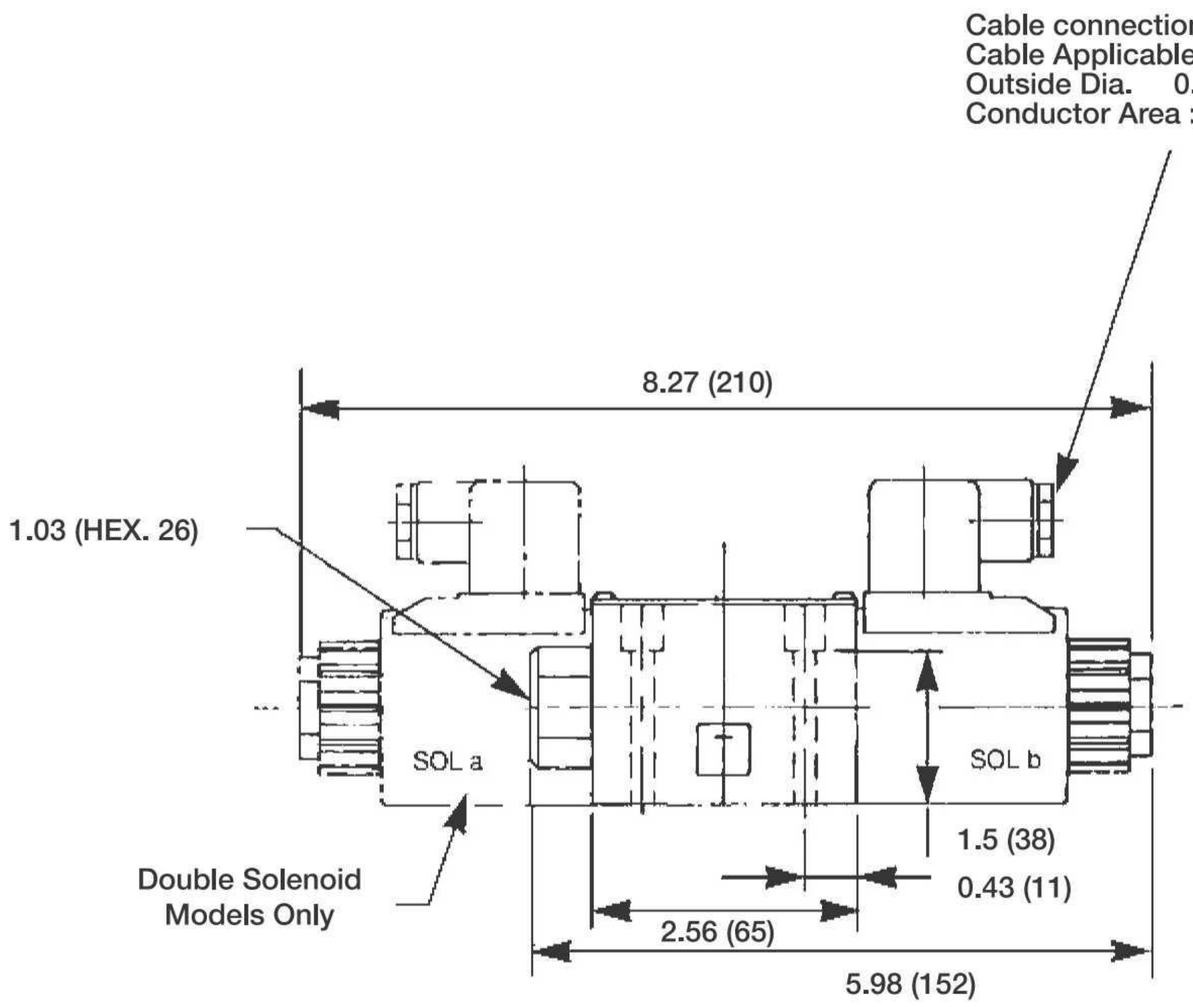
- With solenoid “a” energized P ⟶ A, B ⟶ T
- With solenoid “b” energized P ⟶ B, A ⟶ T
- Both port interconnections are reversed for FFO1, FFO2, FTTO, and FTTC type

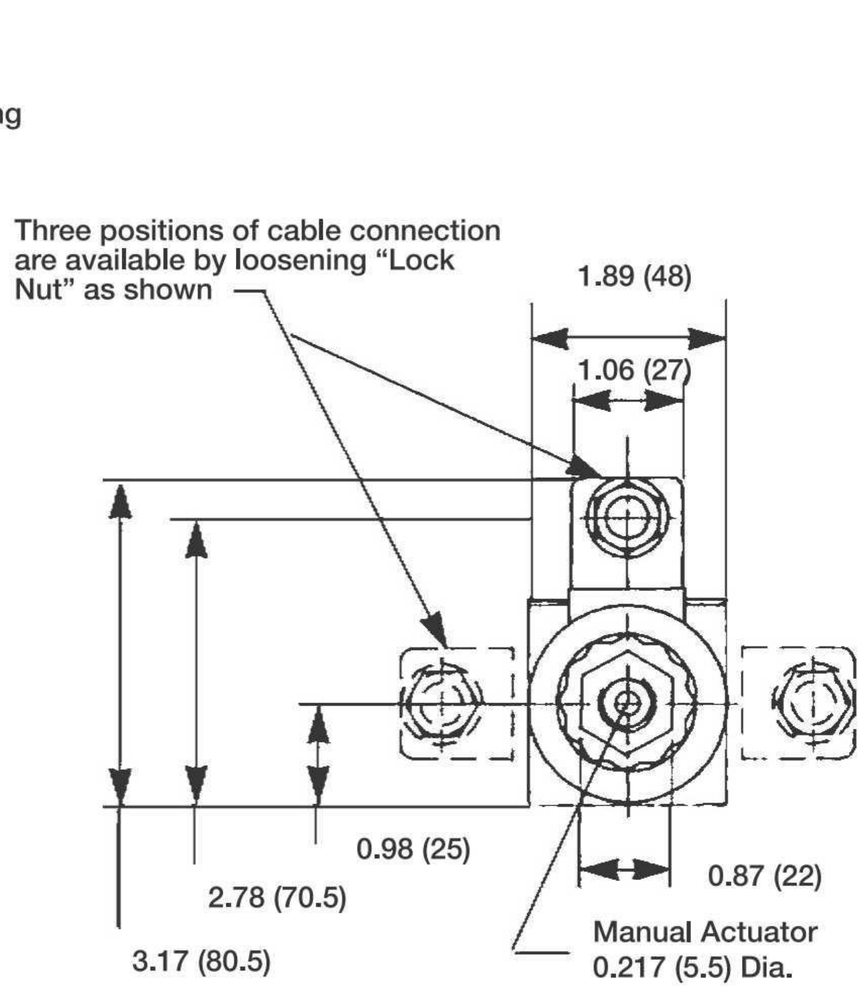
Installation Dimensions



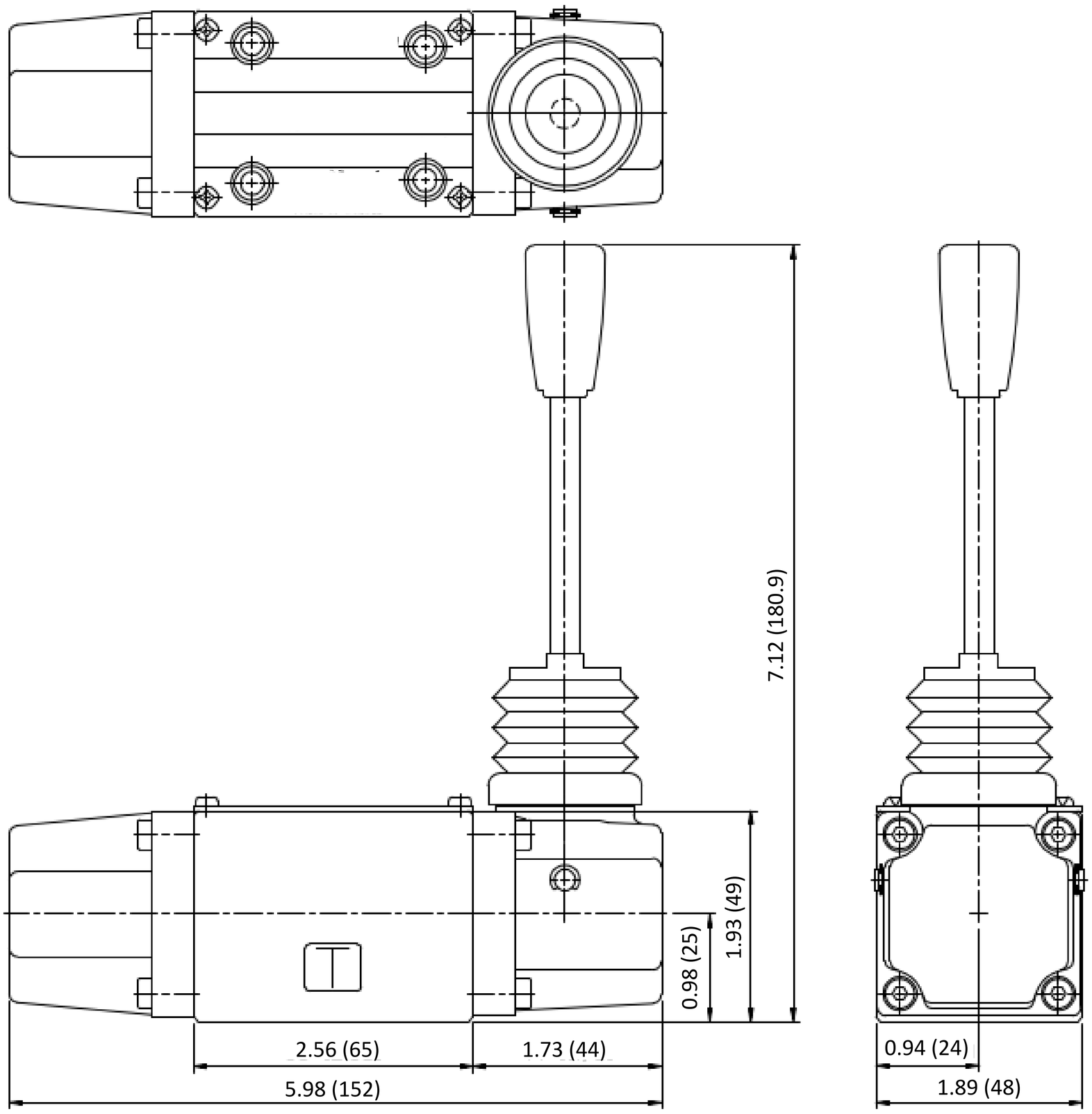




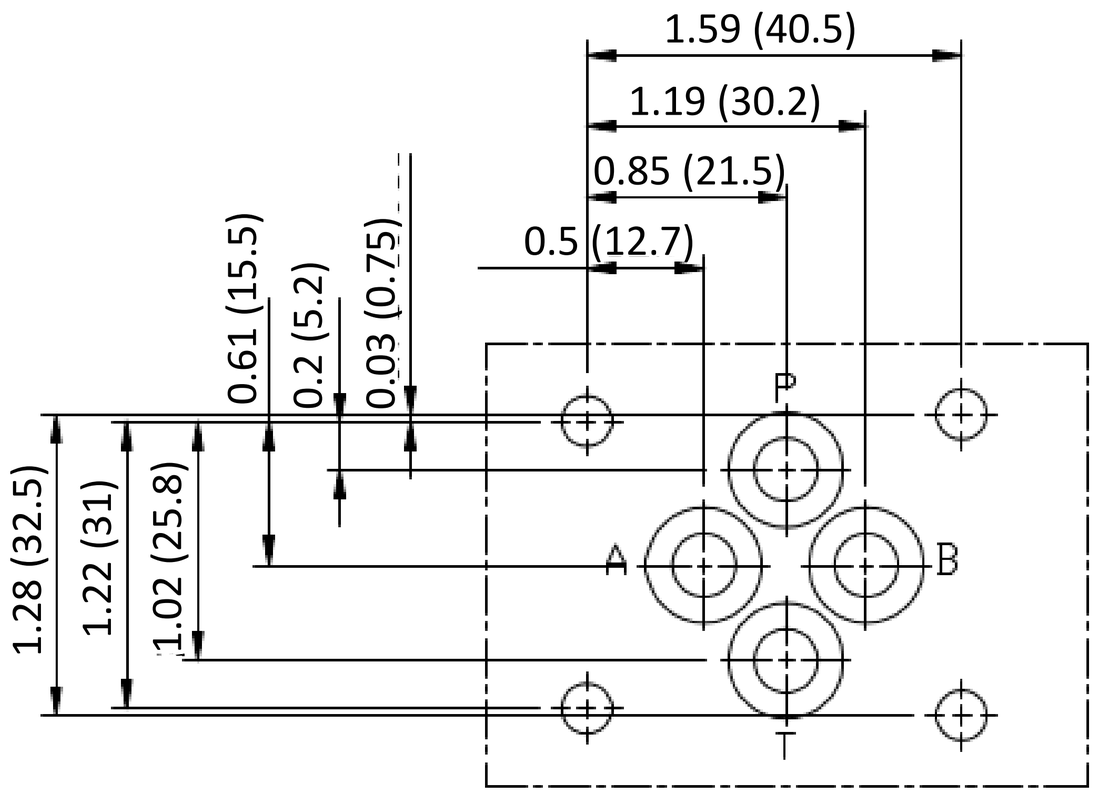




Installation Dimensions



Mounting Interface



List of Spool Function

MAXIMUM FLOW RATE GPM (LPM) UNDER DIFFERENT PRESSURE PSI

Spool valves have flow forces acting on them that are a function of flow and pressure that will cause the valve to malfunction when certain combinations are exceeded. The chart below lists maximum flow rates under various pressures beyond which the valves will malfunction. It must be noted that this data is laboratory derived under controlled conditions, and that actual performance in an application cannot be replicated. It is required that each valve be qualified in a specific application under all of the conditions that may affect the valves performance.

SPOOL TYPE NORMAL POSITION	P –> A,B –> T P –> B,A –> T						P –> A						P –> B					
	735 PSI (50kgf/cm²)	1470 PSI (100kgf/cm²)	2200 PSI (150kgf/cm²)	3000 PSI (210kgf/cm²)	3675 PSI (250kgf/cm²)	4500 PSI (315kgf/cm²)	735 PSI (50kgf/cm²)	1470 PSI (100kgf/cm²)	2200 PSI (150kgf/cm²	3000 PSI (210kgf/cm²)	3675 PSI (250kgf/cm²)	4500 PSI (315kgf/cm²)	735 PSI (50kgf/cm²)	1470 PSI (100kgf/cm²)	2200 PSI (150kgf/cm²)	3000 PSI (210kgf/cm²)	3675 PSI (250kgf/cm²)	4500 PSI (315kgf/cm²)
FC	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	10.7 (40)	10.7 (40)	4.8 (18)	3.7 (14)	2.7 (10)	2.7 (10)	10.7 (40)	10.7 (40)	4.8 (18)	3.7 (14)	2.7 (10)	2.7 (10)
							8.5 (32)	6.7 (25)	3.2 (12)	2.4 (9)	1.9 (7)	1.9 (7)	8.5 (32)	6.7 (25)	3.2 (12)	2.4 (9)	1.9 (7)	1.9 (7)
FO	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)
FFF	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	10.7 (40)	10.7 (40)	4.8 (18)	3.7 (14)	2.7 (10)	2.7 (10)	10.7 (40)	10.7 (40)	4.8 (18)	3.7 (4)	2.7 (10)	2.7 (10)
							8.5 (32)	6.7 (25)	3.2 (12)	2.4 (9)	1.9 (7)	1.9 (7)	8.5 (32)	6.7 (25)	3.2 (12)	2.4 (9)	1.9 (7)	1.9 (7)
FFFX	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	10.7 (40)	10.7 (40)	4.8 (18)	3.7 (14)	2.7 (10)	2.7 (10)	10.7 (40)	10.7 (40)	4.8 (18)	3.7 (14)	2.7 (10)	2.7 (10)
							8.5 (32)	6.7 (25)	3.2 (12)	2.4 (9)	1.9 (7)	1.9 (7)	8.5 (32)	6.7 (25)	3.2 (12)	2.4 (9)	1.9 (7)	1.9 (7)
FFO1	13.3 (50)	13.3 (50)	13.3 (50)	13.3 (50)	13.3 (50)	—	13.3 (50)	13.3 (50)	13.3 (50)	13.3 (50)	13.3 (50)	—	13.3 (50)	13.3 (50)	13.3 (50)	13.3 (50)	13.3 (50)	—
FTTO	10.7 (40)	10.7 (40)	10.7 (40)	10.7 (40)	10.7 (40)	—	10.7 (40)	10.7 (40)	10.7 (40)	10.7 (40)	10.7 (40)	—	10.7 (40)	10.7 (40)	10.7 (40)	10.7 (40)	10.7 (40)	—
FOP	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	10.7 (40)	10.7 (40)	4.8 (18)	3.7 (14)	2.7 (10)	2.7 (10)	10.7 (40)	10.7 (40)	4.8 (18)	3.7 (14)	2.7 (10)	2.7 (10)
							8.5 (32)	6.7 (25)	3.2 (12)	2.4 (9)	1.9 (7)	1.9 (7)	8.5 (32)	6.7 (25)	3.2 (12)	2.4 (9)	1.9 (7)	1.9 (7)
FF1	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	10.7 (40)	10.7 (40)	4.8 (18)	3.7 (14)	2.7 (10)	2.7 (10)	10.7 (40)	10.7 (40)	4.8 (18)	3.7 (14)	2.7 (10)	2.7 (10)
							8.5 (32)	6.7 (25)	3.2 (12)	2.4 (9)	1.9 (7)	1.9 (7)	8.5 (32)	6.7 (25)	3.2 (12)	2.4 (9)	1.9 (7)	1.9 (7)
JC	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	5.3 (20)	5.3 (20)	5.3 (20)	5.3 (20)	5.3 (20)	5.3 (20)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)
JO	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	9.9 (37)	8 (30)	7.5 (28)
													12 (45)	12 (45)	12 (45)	12 (45)	12 (45)	12 (45)
JP	—	—	—	—	—	—	9.3 (35)	8.5 (32)	6.7 (25)	5.3 (20)	4.8 (18)	4 (15)	16.8 (63)	13.3 (50)	12 (45)	10.7 (40)	8.5 (32)	6.7 (25)
													12 (45)	8 (30)	7.5 (28)	6.7 (25)	5.9 (22)	4.8 (18)
MC	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	10.7 (40)	8 (30)	6.7 (25)	5.6 (21)	4.3 (16)	3.5 (13)	10.7 (40)	8 (30)	6.7 (25)	5.6 (21)	4.3 (16)	3.5 (13)
MO	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	16.8 (63)	10.7 (40)	8 (30)	6.7 (25)	5.6 (21)	4.3 (16)	3.5 (13)	10.7 (40)	8 (30)	6.7 (25)	5.6 (21)	4.3 (16)	3.5 (13)

For cells containing two sets of maximum flows, the upperside number describes the maximum flow with a DC or RF coil, while the lower number describes the maximum flow with an AC coil. *Not all spools shown

WARNING

Use of a directional valve with an incorrect flow path could result in machine malfunction that could result in personal injury and death to the operator or others. Physical interchangeability or the ability of one directional valve to fit in place of another does not mean that the replacement has the same flow paths or will function in the same way. Use and application of these valves should be done by qualified individuals after consulting with the product literature or the factory before making substitutions. The right to modification is reserved.

Double A
Hydraulics
®

536 TOWNSHIP LINE ROAD
FLUID TECHNOLOGY ANNEX
BLUE BELL, PENNSYLVANIA 19422
Tel: 215.643.0617
Fax: 216.643.4017
sales@doubleahydraulics.com
www.doubleahydraulics.com