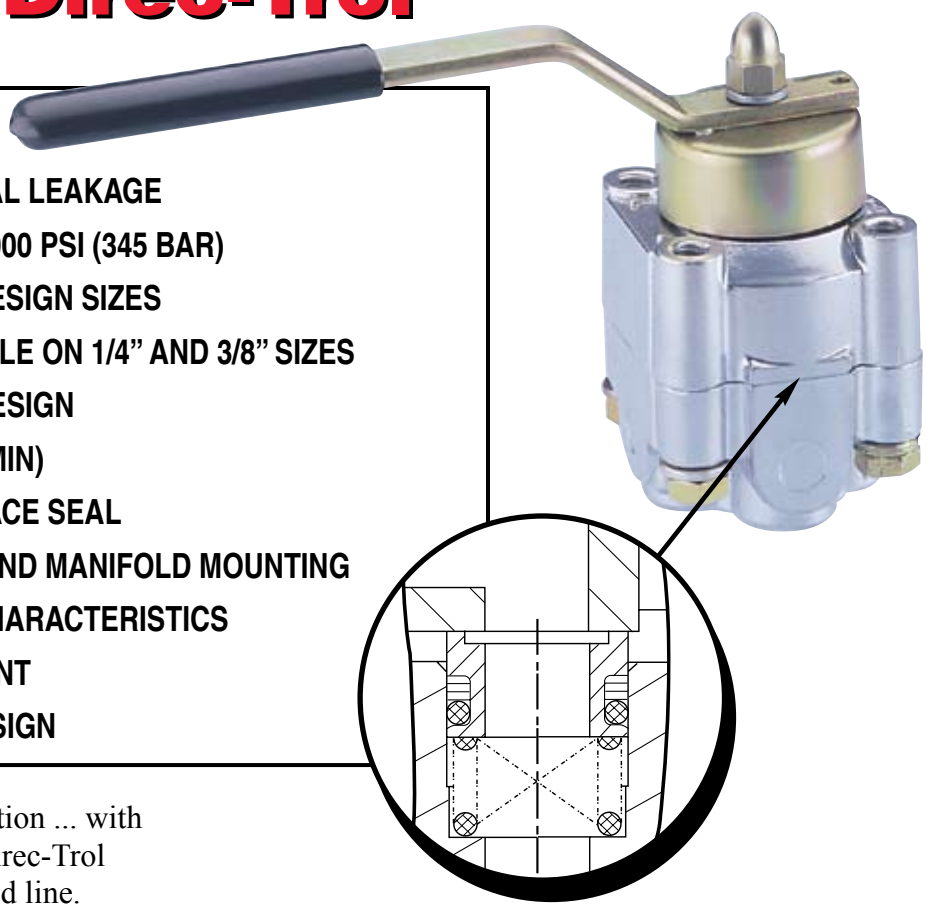
Snap-tite

Directional Control Valves

Snap-tite Direc-Trol



FEATURES

- VIRTUALLY ZERO INTERNAL LEAKAGE
- PRESSURE RATINGS TO 5000 PSI (345 BAR)
- 1/4", 3/8", 1/2", 3/4", & 1" DESIGN SIZES
- NON-INTERFLOW AVAILABLE ON 1/4" AND 3/8" SIZES
- LONG-LIFE, ANTI-WEAR DESIGN
- FLOWS TO 83 GPM (315 L/MIN)
- PRESSURE ENERGIZED FACE SEAL
- VERTICAL, HORIZONTAL AND MANIFOLD MOUNTING
- EXCELLENT METERING CHARACTERISTICS
- CONTAMINATION RESISTANT
- ROTARY FLOW SHEAR DESIGN

If you want to control fluid direction ... with virtual zero leakage, Snap-tite Direc-Trol Valves are the industry's preferred line.

These high performance valves are designed for any application where precise metering and high efficiency are required.

The rotary flow design of Direc-Trol® valves accounts for their outstanding ability to stand up to even the most grueling of hydraulic or pneumatic system applications.

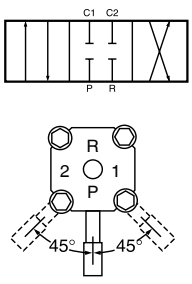
Direc-Trol Valves have so many distinct features that it is easy to specify them in the most demanding situations.

A non-interflow seal and rotor configuration can be added to 1/4" and 3/8" valves. This non-interflow feature minimizes the open center crossover condition.

• Mobile Equipment • Machine Tools • Marine • Oil Field • In-Plant • Pilot Valve Actuators • Accumulator Circuits • Test Stands • High Pressure Clamping, Crimping & Torquing

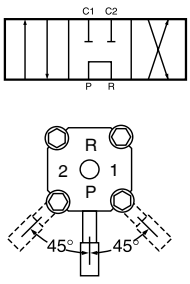
Flow Patterns *(JIC Symbol)*

Closed Center

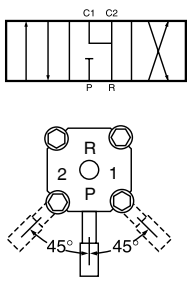


Shift Pattern as viewed from bottom of valve

Tandem Center

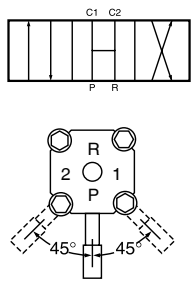


Float Center



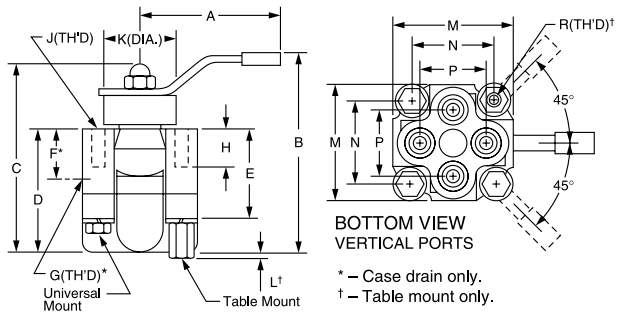
Shift Pattern as viewed from bottom of valve

Open Center

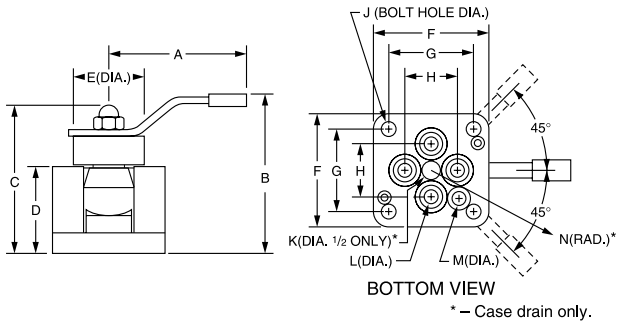


Dimensions (±.015)

Detent and Spring Centered



Manifold Mounting

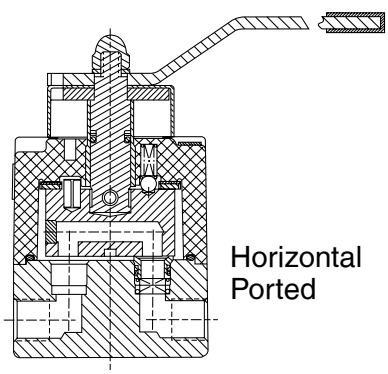


	1/4″	3/8″	1/2″	3/4″	1″
A	7.00 (177.8)	7.00 (177.8)	7.00 (177.8)	8.75 (222.3)	8.75 (222.3)
B	4.60 (116.8)	5.30 (134.6)	5.80 (147.3)	8.92 (226.6)	8.92 (226.6)
C	4.46 (113.3)	5.16 (131.1)	5.66 (143.8)	6.18 (157.0)	6.18 (157.0)
D	2.70 (68.6)	3.40 (86.4)	3.90 (99.1)	5.16 (131.1)	5.16 (131.1)
E	2.01 (51.1)	2.82 (71.7)	3.10 (78.7)	4.39 (111.5)	4.39 (111.5)
F	.86 (21.8)	1.47 (37.4)	1.15 (29.2)	1.86 (47.2)	1.86 (47.2)
G(NPSF)	1/8-27	1/8-27	1/8-27	3/8-18	3/8-18
H	.38 (9.7)	.85 (21.6)	.75 (19.1)	.50 (12.7)	.50 (12.7)
J(UNC)	3/8-16	3/8-16	3/8-16	1/2-13	1/2-13
K	2.00 (50.8)	2.00 (50.8)	2.00 (50.8)	3.40 (86.4)	3.40 (86.4)
L	.29 (7.4)	.15 (3.8)	.16 (4.1)	.25 (6.4)	.25 (6.4)
M	2.63 (66.8)	3.00 (76.2)	3.75 (95.3)	5.00 (127.0)	5.00 (127.0)
N	1.88 (47.8)	2.25 (57.2)	2.63 (66.8)	4.06 (103.1)	4.06 (103.1)
P	1.38 (35.1)	1.50 (38.1)	2.31 (58.7)	3.00 (76.2)	3.00 (76.2)
R(UNC)	3/8-16	3/8-16	3/8-16	1/2-13	1/2-13

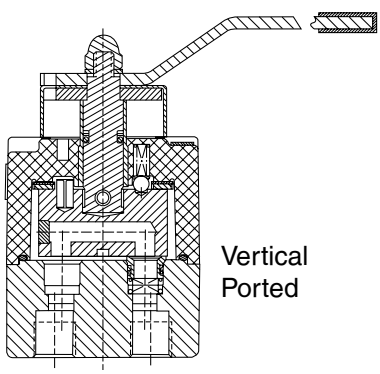
	1/4″	3/8″	1/2″	3/4″	1″
A	7.00 (177.8)	7.00 (177.8)	7.00 (177.8)	8.75 (222.3)	8.75 (222.3)
B	3.73 (94.7)	4.53 (115.1)	4.75 (120.1)	7.50 (190.5)	7.50 (190.5)
C	3.59 (91.2)	4.39(111.5)	4.61(117.1)	4.81(122.2)	4.81 (122.2)
D	1.83 (46.5)	2.63 (66.9)	2.84 (72.1)	3.78 (96.0)	3.78 (96.0)
E	2.00 (50.8)	2.00 (50.8)	2.00 (50.8)	3.40 (86.4)	3.40 (86.4)
F	2.63 (66.9)	3.00 (76.2)	3.75(95.3)	5.00 (127.0)	5.00 (127.0)
G	1.88 (47.8)	2.25 (57.2)	2.63 (66.8)	4.06 (103.1)	4.06 (103.1)
H	1.00 (25.4)	1.30 (33.0)	1.78 (45.2)	3.00 (76.2)	3.00 (76.7)
J	.34 (8.6)	.41 (10.4)	.41 (10.4)	.52 (13.2)	.52 (13.2)
K	–	–	.44 (11.2)	–	–
L	.25 (6.4)	.41 (10.4)	.50 (12.7)	.75 (19.1)	.75(19.1)
M	.19 (4.8)	.25 (6.4)	–	.69 (17.5)	.69 (17.5)
N	.75 (19.1)	1.06 (26.9)	–	1.81(46.0)	1.81 (46.0)

*N is the radius from the center of the valve to the location of the case drain port

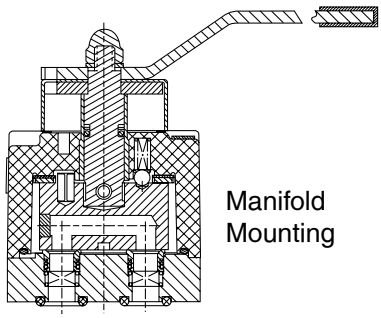
Available Porting



Horizontal Ported



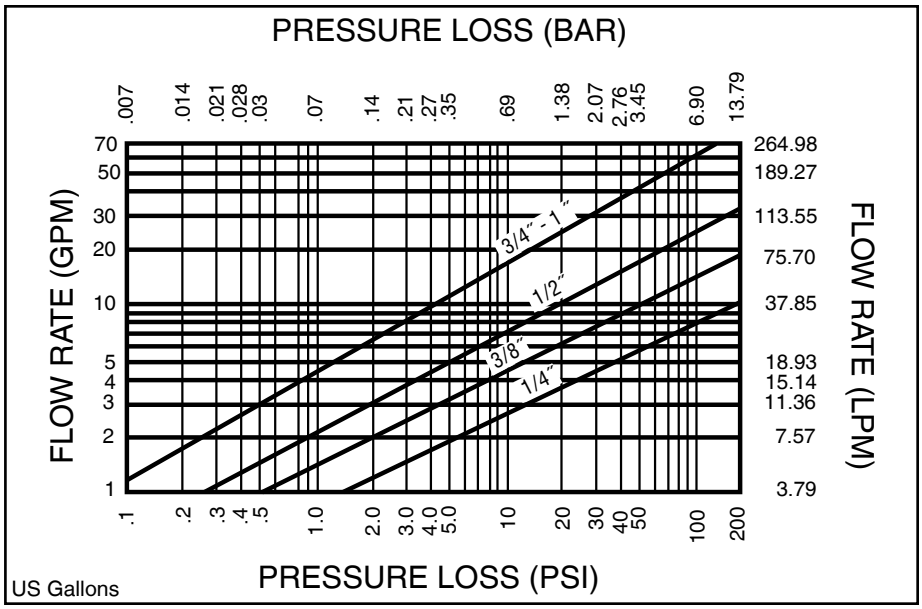
Vertical Ported



Manifold Mounting

Snap-tite Direc-Trol

Specifications



Handle Torque
(inch pounds)

	Type	0 psi (bar)	3000 psi (bar)
1/4	Detent	10 (1.0)	20 (1.5)
	Spring	50 (3.5)	55 (3.8)
3/8	Detent	10 (1.0)	25 (1.8)
	Spring	80 (5.6)	85 (5.9)
1/2	Detent	35 (2.5)	70 (5.0)
	Spring	110 (7.6)	130 (9.0)
3/4	Detent	66 (4.6)	190 (13.2)
1	Detent	66 (4.6)	190 (13.2)

Approximate Flow Capacity-Oil

Port Size NPT	C_V Factor	20 ft/sec gpm	40 ft/sec gpm	60 ft/sec gpm	Ship'g Wt. lbs. (kgs)
1/4	1.0	3	6	9	2.4 (1.1)
3/8	2.0	7	13	21	3.5 (1.6)
1/2	4.0	12	24	37	5.1 (2.3)
3/4	8.0	28	55	83	16.5 (7.5)
1	8.0	28	55	83	16.5 (7.5)

Maximum Ratings

	Pressure	Flow
1/4	5,000 psi (345 bar)	8 gpm (30.3 lpm)
3/8	5,000 psi (345 bar)	16 gpm (60.6 lpm)
1/2	3,000 psi (207 bar)	27 gpm (102.2 lpm)
3/4	3,000 psi (207 bar)	83 gpm (314.2 lpm)
1	3,000 psi (207 bar)	83 gpm (314.2 lpm)

Ordering Information: Select and specify the proper valve from the following table:

	P	4	2	30	V	U	C	D		V	2
Valve Service	**Type of Ports**	**Number of Ports**	**Port Size**	**Pressure Rating**	**Port Location**	**Type of Mounting**	**Flow Pattern**	**Handle Action**	**Type of Valve**	**O-ring Seals**	**Shift Pattern**
No Letter-Standard hydraulic A-pneumatic service*	P -NPSF J -SAE M -Manifold mounting R -RP Female British Parallel BS 2779 **C Following any of the above indicates 4th seal and case drain	4 -Four	2 -1/4″ 3 -3/8″ 4 -1/2″ 6 -3/4″ 8 -1″	30 - 3000 psi (207 bar) for oil 50-5000 psi (345 bar) for oil (1/4″ and 3/8″ only)	H-Horizontal V-Vertical	T-Table U-Universal	C-Closed Center O-Tandem Center M-Float Center N-Open Center	D-Detent T-Non Detented S-Spring Centered	No Letter-Standard N-Non Inter-flow (1/4″ and 3/8″ only)	No Letter-Buna-N Standard V-Viton E-Ethylene Propylene	No Number Standard 3 position 1-Two position 90° 2-Two position 45° CW 3-Two position 45° CCW

*Pneumatic service recommended for 1/4" & 3/8" only pressures to 250 psi (17 bar).
**NOTE: Where tankport pressures exceed 250 (17 bar), specify 4th seal and case drain option.

Buna Seal Kits

Size	Part No.
1/4″	7350-100
3/8″	7350-101
1/2″	7350-102
3/4″ & 1″	7350-102

Viton Seal Kits

Size	Part No.
1/4″	7350-100V
3/8″	7350-101V
1/2″	7350-102V
3/4″ & 1″	7350-103V

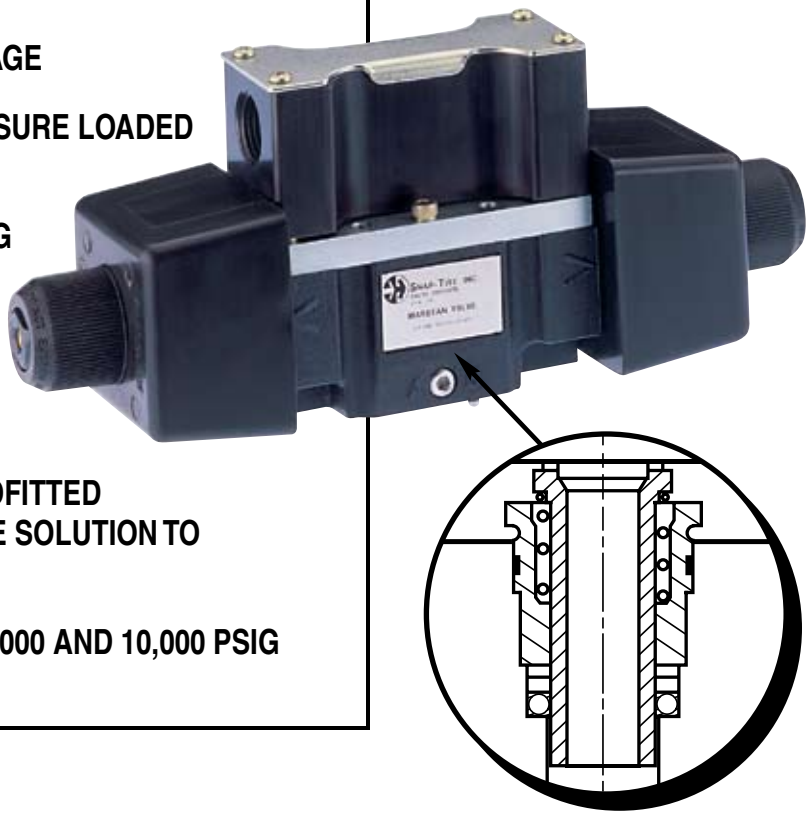
Table Mounting Kits

Size	Part No.
1/4″	7350-81
3/8″ & 1/2″	7350-82
3/4″ & 1″	7350-83

Snap-tite MARSTAN

FEATURES

- VIRTUALLY ZERO INTERNAL LEAKAGE
- SEALING ADVANTAGES OF A PRESSURE LOADED FACE SEAL VALVE
- NFPA 01 SIZE SUBPLATE MOUNTING
- SIMPLIFIES CIRCUITS BY ELIMINATING PILOT OPERATED CHECK VALVES OR LOAD HOLDING CHECKS
- EXISTING CIRCUITS CAN BE RETROFITTED WITH MARSTAN FOR AN EFFECTIVE SOLUTION TO LEAKAGE PROBLEMS
- HIGH PRESSURE CAPACITY: 3500, 6000 AND 10,000 PSIG (245, 415 AND 690 BAR)



The Snap-tite Marstan design controls both static and dynamic fluids, providing many advantages through its inherent "zero leakage" feature. Marstan tight sealing internal seals assure less than four drops per minute leakage (per seal) at pressures from 0 to 10,000 psi (690 bar). The construction of Snap-tite Marstan valves is such that this "zero leakage" characteristic actually improves over time, thus increasing service life.

The valve housings are permanent mold cast aluminum for lightweight with internal sealing components manufactured as hardened, ground and lapped steel parts to assure the desired sealing qualities and minimize wear.

Snap-tite Marstan valves are available in solenoid, manual or pneumatic actuation at three maximum pressure ratings of 3500, 6000, or 10,000 psi (245, 415, or 690 bar). Six internal porting modes are available to choose from with two or three position spring return or detent action.

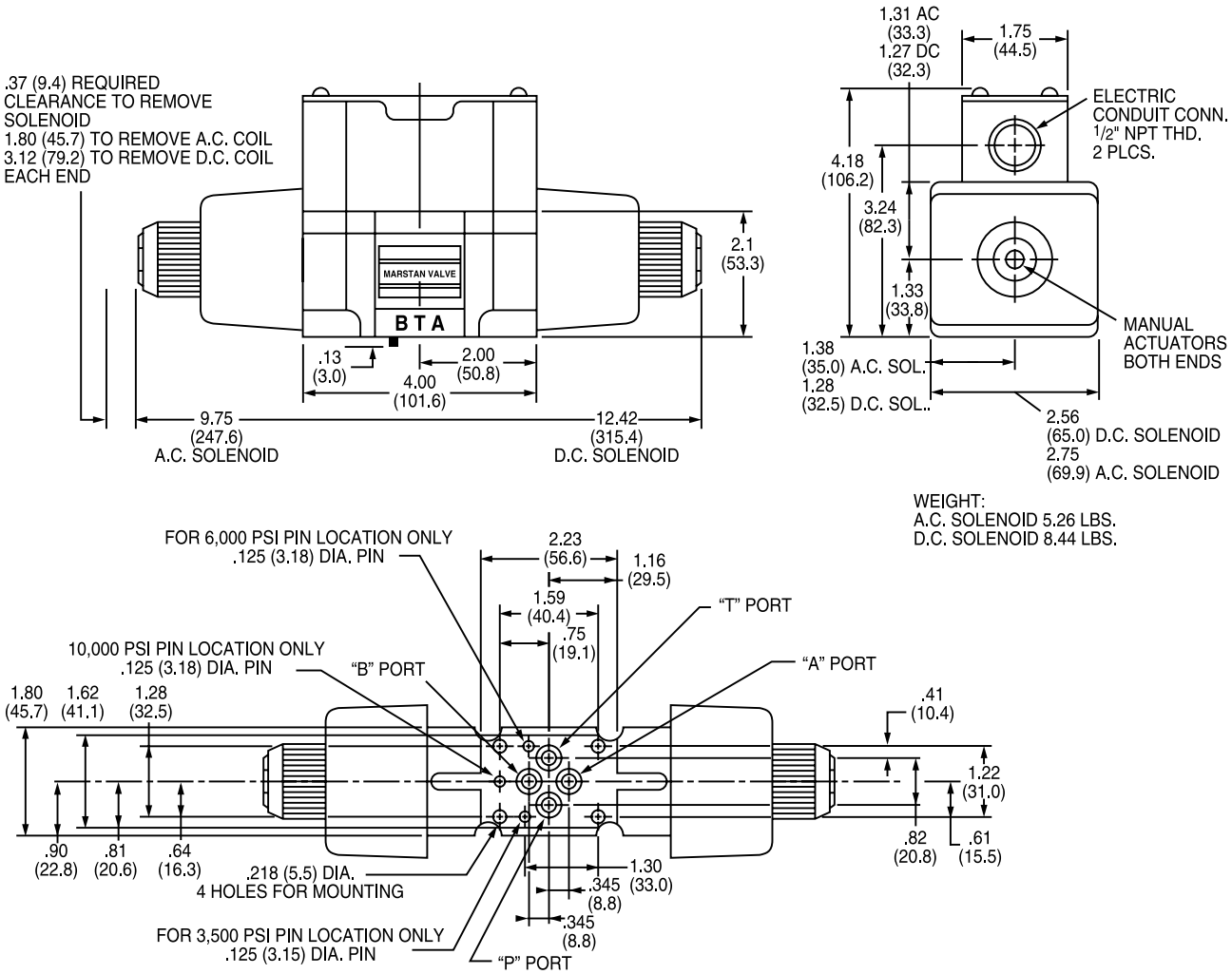
• Mobile Equipment • Machine Tools • Marine • Oil Field
• In-Plant • Pilot Valve Actuators • Accumulator Circuits
• Test Stands • High Pressure Clamping, Crimping & Torquing

Snap-tite MARSTAN

- 2 or 3 position
- 3 way or 4 way
- Subplate mounted
- 3,500 PSIG (245 bar), 6,000 PSIG (415 bar) and 10,000 PSIG (690 bar) ratings

Size 01 *(NFPA DO1-DO3)*

Double Solenoid Operated



NOTES:

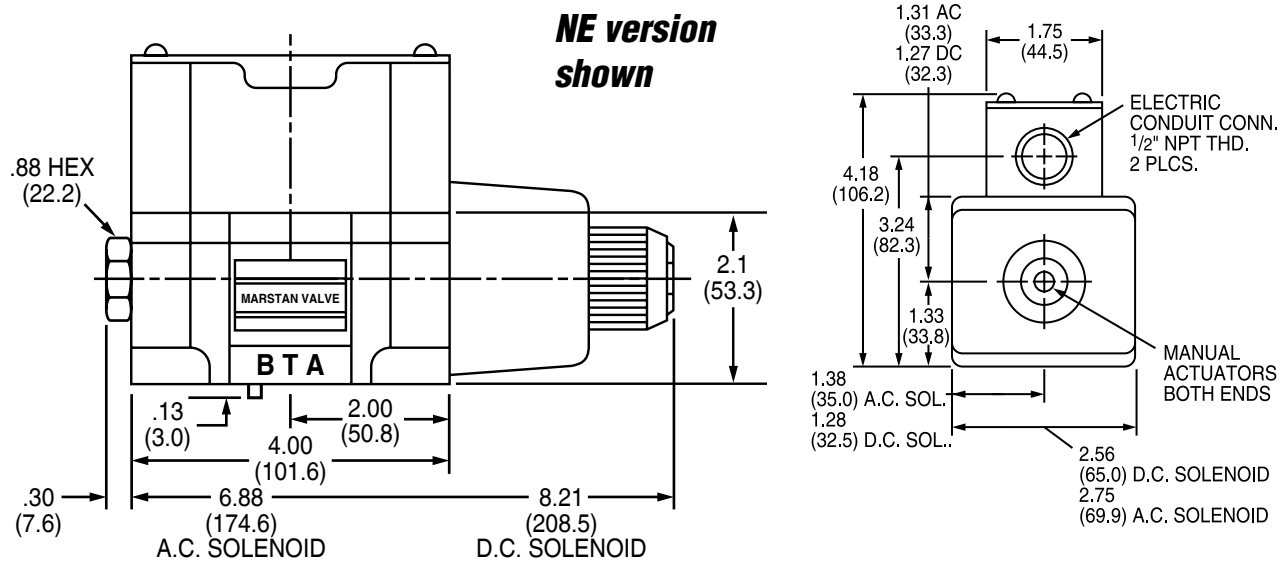
1.) **Maximum Subplate Port Dia. .250 (6.35) for all ports except 10,000 PSI (690 bar) Models for which P, A & B Ports MUST NOT EXCEED .156 (4.0) Dia.**

2.) **All dimensions shown are nominal unless otherwise indicated.**

3.) **Recommended minimum center to center spacing between valve assemblies**
2.62 (66.55) for D.C. solenoid versions
2.87 (72.90) for A.C. solenoid versions.

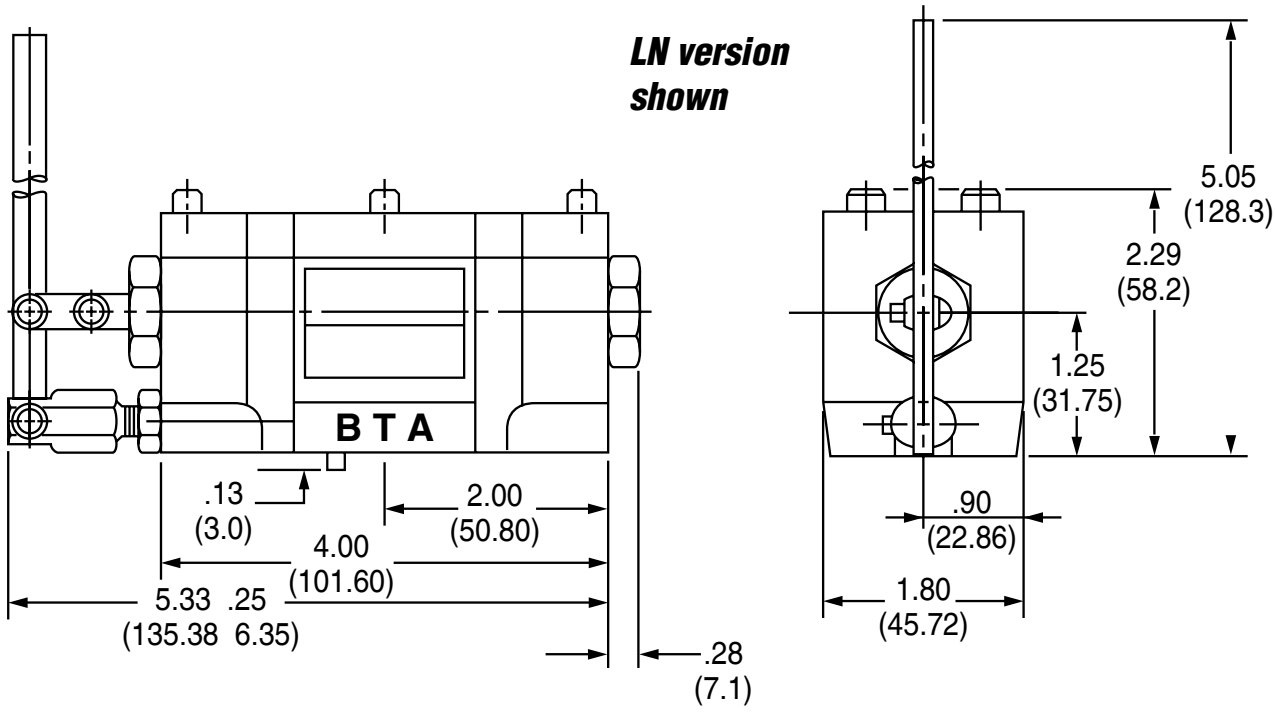
4.) **Weight: A.C. Solenoid 5.3 lbs. (2.4 Kilos)**
D.C. Solenoid 8.4 lbs. (3.8 Kilos)

Single Solenoid Operated



WEIGHT:
A.C. SOLENOID 3.7 LBS. (1.7 Kilos)
D.C. SOLENOID 5.3 LBS. (2.4 Kilos)

Manually Operated

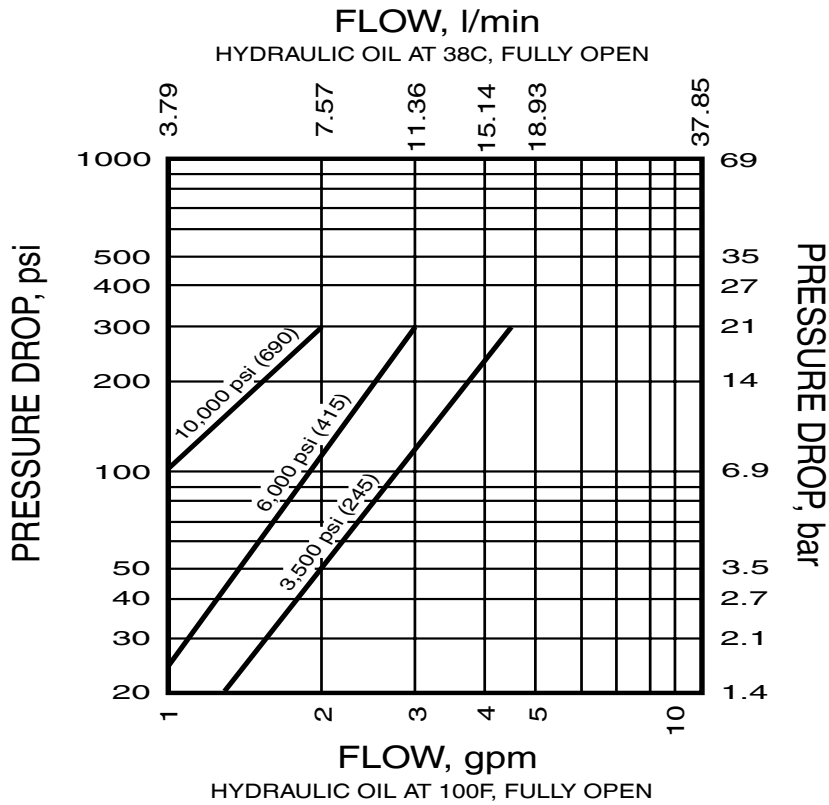


WEIGHT 2 LBS. (.91 Kilos)

Technical Information

Pressure Drop

Each curve represents valves of the rated pressure capacity shown. Data is based on 100 SSU fluid with specific gravity of .865. Curves show full loop ΔP to A to B to T in 4 way valve. For P to A or B in 3 way, use 65% of ΔP shown. *Pressure drop curves include manifold subplate.*



Maximum Flows*			
4 gpm	(15.1 liters)	3,500 psi	(245 bar)
3 gpm	(11.4 liters)	6,000 psi	(415 bar)
2 gpm	(7.6 liters)	10,000 psi	(690 bar)

**Maximum allowable leakage is less than 4 drops/min. across any seal after the second minute at maximum rated pressure.*

Solenoids

All cataloged solenoids are WET ARMATURE, push type with manual override and 6" #18 AWG leads.
Note: External surface of solenoids can reach temperatures of 240°F (115°C).

Operating temperature of solenoid is limited 140°F (60°C) ambient.

Solenoid Current *(approximate maximum)*

CODE	VOLTAGES CYCLES		INRUSH AMPS	HOLDING	
				AMPS	WATTS
01	115	60	8.0	1.6	60
02	230	60	4.0	.8	60
03	460	60	2.0	.4	60
04	12 DC	-	-	5.0	60
05	24 DC	-	-	2.5	60

Subplate Ordering Data

P M L 01 – 4S

SUBPLATE

VALVE TYPE
Directional Control

PRESSURE RATING
L < 3,500 PSIG MAX. (245 bar)
6,000 PSIG MAX. (415 bar)
T 10,000 PSIG MAX. (690 bar)

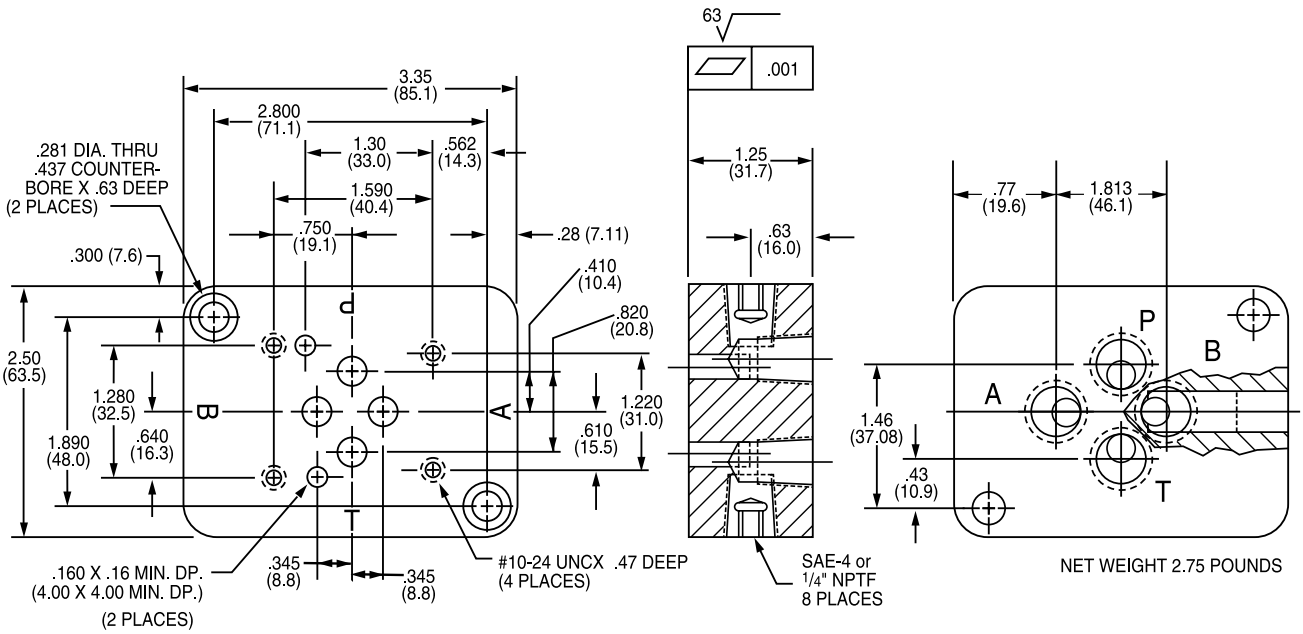
01 VALVE BODY SIZE

PORT TYPE
4S -1/4" SAE Straight Thread O-ring seals
2P-1/4" NPTF
2RP - 1/4" BS2779 Female British Parallel

Mounting Position

Optimum performance will be obtained by installing valves horizontally with the mounting face down.

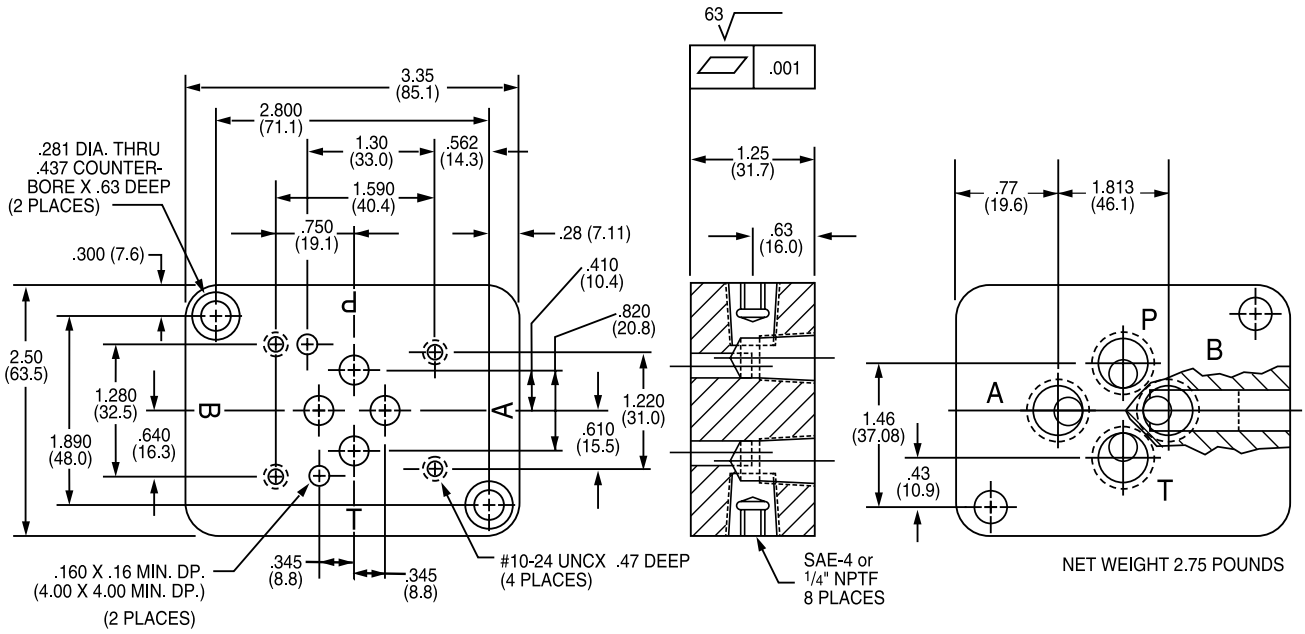
Mounting Subplates *(For Valve Size 01)*



3,500 PSIG (245 bar) and 6,000 PSIG (415 bar)
All Interface Dimensions are STD.NFPA D01

Technical Information

Mounting Subplates *(For Valve Size 01)*



10,000 PSIG (690 bar)
High Pressure Interface with DT Pressure Rated Valve

Mounting Bolts

The mounting bolts are Grade 8 or better socket head cap screws 10-24 x 2.5 inches (63.5 mm) long. 4 required. Bolts should be torqued to 80 inch pounds. Order bolt kit separate when MARSTAN subplate not ordered with valve. **Bolt Kit Part Number PMT01-BK**

Subplate comes complete with required mounting bolts and is drilled and tapped for bottom and side porting. Four plugs are provided to seal unused ports. Standard ports are 1/4" SAE straight thread O-ring sealed, 1/4" NPTF, 1/4" BS2779 Female British Parallel.

Valve Ordering Data

M □ 01 □ □ □□ □ □ □□

DIRECTIONAL CONTROL VALVE

PRESSURE RATINGS
- **G** 3,500 PSIG (245 bar)
- **L** 6,000 PSIG (415 bar)
- **T** 10,000 PSIG (690 bar)

BODY SIZE

SOLENOID VOLTAGE
- **00** Not Available
- **01** 115V/60Hz
- **02** 230V/60Hz
- **03** 460V/60Hz
- **04** 12VDC
- **05** 24VDC

Consult Factory for Other Voltages. Solenoid Valves Include Manual Override as Standard

SEAL COMPOUNDS
- **B –** Buna N
- **V –** Viton
- **E –** Ethylene Propylene

SOLENOID, AIR PILOT AND MANUAL OPERATORS

First Operator in part no. code is on "B" end. Second is on "A" end.
- **E** Solenoid
- **†L** Lever
- **N** None
- ***P** Pneumatic Double Acting

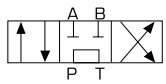
*Maximum Pilot Pressure - 250 PSIG (17 bar)
†ON "B" END ONLY AS STANDARD

VALVE ACTION FLOW PATTERNS

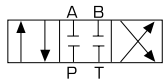
- **Double Solenoid Operated**
  - **03** Spring Centered, 3-position
  - **06** 2-Position Detent
  - **08** Detented 2-Position, Center and P to B
  - **09** Detented 2-Position Center and P to A
  - **10** No Springs, No Detents
- **Single Solenoid Operated - Type**
  - **01** Spring Offset P to B (with NE) De-energized
  - **02** Spring Offset P to A (with EN) De-energized
- **Manually Operated**
  - **01** Spring Offset P to B De-energized
  - **02** Spring Offset P to A De-energized
  - **03** Spring Centered 3-Position
  - **04** Spring to Center 2-Position, Operator P to A
  - **05** Spring to Center 2-Position, Operator P to B
  - **06** 2-Position Detent
  - **07** 3-Position Detent
  - **08** Detented 2-Position, Center and P to B
  - **09** Detented 2-Position, Center and P to A
  - **10** No Spring, No Detents

INTERNAL PORTING*

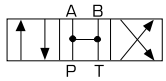
3-Position Types (with Valve Action Flow-Patterns 03, 04, 06, 07, 08, 09, 10):

A 

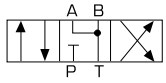
TANDEM - Pump open to tank cylinder ports blocked

B 

CLOSED CENTER - All ports blocked

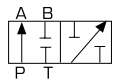
C 

OPEN CENTER - All ports open to tank

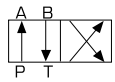
D 

PRESSURE BLOCKED - cylinder ports open to tank

2-Position Types (with Valve Action Flow-patterns 01, 02, 06, 10):

Y 

3-WAY

Z 

4-WAY

* Tank Port Pressure limited to 1000 psi (69 bar)

FOR OTHER MODEL CONFIGURATIONS CONSULT FACTORY

! WARNING !

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND/OR PROPERTY DAMAGE.

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