



Flo-Tite Multi-Port Series

Model MPT100SS

Standard Port Threaded End 800 WOG

Installation, Operation and Maintenance Manual

Note: Before using a valve, read the entire IOM carefully and make sure you have a clear understanding of all information included.

This manual describes the procedures for the safe and efficient installation, operation, and maintenance of Flo-Tite Multi Port Series Ball Valves. **Failure to follow the procedures in this manual may result in Flo-Tite warranties being voided.** Problems with the operation and maintenance of these valves should be directed to the nearest Flo-Tite Representative.

The Flo-Tite MPT100SS is designed as a split body, to allow ease of access for maintenance of the valve ball and seat without special tools. This line of valves utilizes the “free-floating” ball principle. The ball is not fixed but is free to move with the line pressure. As a result, these valves are capable of tight shut-off with the flow in either direction or dead-ended, regardless of the position of the valve in the line. The downstream seat, which is opposite the pressurized side, of a closed valve, must carry the load exerted by the line pressure on the ball, while the upstream seat is subject to little load or wear. For this reason, it is sometimes possible to increase useful seat life by turning the valve end-for-end in the pipeline.

INSTALLATION:

A. Receiving and Preparation Procedure

- A1. Remove shipping protection
- A2. Inspect the valve(s) for transportation damage*
- A3. Inspect the valve bore and remove any debris
- A4. Cycle the valve and inspect the valve for smooth operation, size permitting
- A5. As shipped from the factory, valves may contain a silicone based lubricant. This is for break-in and may be removed if it is objectionable for a particular application by disassembling and solvent washing.

*If transportation damage is found, immediately take pictures for record purposes and contact the inbound carrier to submit a claim.

B. Installation Procedure

B1. General – The valve may be fitted in any position in the pipeline. Prior to installing the valve, the pipe on either side of the intended installation should be checked to be free of dirt, debris, weld slag, etc. to prevent damage to the seats, seals, and surface of the ball. The piping must also be free of tension or compression.

WARNING – Never use the valve as a pipe support or structural member.

B2. Installation of the Flo-Tite Multi-Port MPT100 valve is accomplished by inserting the valve between threaded ends attached to piping and supplied by others and attaching the valve to the mating threaded ends with fasteners of the size and type specified by industry standards.

Caution – Ensure that mating threaded ends are of the same size, type and pressure rating as the valve threaded end.

B3. Valves with actuators should be checked for actuator-valve alignment. Angular or linear misalignment will result in high operational torque. Electric and/or pneumatic connections should be made in accordance with the correct actuator IOM instructions.

C. OPERATION:

C1. Valve Flow Path is indicated by markings on the top of ball valve stem. The illustration on the last page shows standard valve position at the time of shipment.

C2. Flo-Tite model MPT100 valves can be operated with either electric or pneumatic actuators. For instructions on installation and operation, refer to the IOM for the correct actuator. Prior to actuator installation, please check the flow path of the valve as indicated by marking on the top of ball valve stem as shown in the illustrations on the last page. After actuator installation, the valve should be checked for valve stem alignment. Axial misalignment will result in high operational torque and unnecessary wear on the stem seal.

C3. Flo-Tite model MPT100 valves may include one of several different styles of limit switches and positioners. Please refer to the appropriate IOM for each device.

MAINTENANCE:

CAUTION – Ball valves can trap fluid in the ball cavity when closed. Be prepared to capture and manage any liquid retained in the valve body when disassembling the valve.

WARNING – **If the valve has been in a hazardous, review applicable MSDS sheet and decontaminate the valve before disassembly. All persons involved with the disassembly should wear personal protective equipment such as aprons, gloves, face shield, etc. to prevent personal injury.**

Access to the valve internals starts with relieving pressure in the pipeline. Turn the valve handle to the 45 degree, half open, position and flush the line, when applicable, to remove any hazardous material from the line. Consult the metal tag attached to the valve body to determine the correct seat and seal materials. Repair kits can be ordered from the local Flo-Tite Representative. This should be done prior to any disassembly work.

CAUTION - Valves with actuators, limit switches or positioners should have these devices disassembled from the valve prior to disassembling of the valve.

WARNING-

Use extreme caution disconnecting any electrical and/or pneumatic sources to the valve to protect against personal injury. Isolate the valve actuator prior to disconnecting.

Stem Packing

Stem seal leakage may be corrected without disassembly. Tighten the packing gland nuts one flat at a time, until leakage stops. If leakage continues, or the valve's operating torque becomes excessive, the seals are worn and replacement of the packing will be necessary.

WARNING-

Do not remove packing gland while the line is under pressure. Personal injury could occur.

D. Valve Disassembly-**WARNING**

Use extreme caution when removing the threaded end valve from the pipeline to prevent personal injury that may be caused by “cold springing” of the piping.

CAUTION

Valves shall be adequately supported prior to unfastening in line and secured with lifting straps or slings to hold the weight of the valve.

- D1. Remove the threaded end caps and lift the valve from the line for service. Note – care should be taken to avoid scratching or damaging the threaded end caps. Damaged gaskets must be replaced prior to Reinstalling in the line.
- D2. Loosen handle screw and remove handle. Remove gland nut.
- D3. Mark each threaded end cap to the body joint. This is to allow ease of alignment in re-installation.
- D4. Safely place the valve on a clean, secure and stable work surface.
- D5. Protect the end caps when handling to prevent scratching and damage.
- D6. EXTREME CARE should be taken upon ball removal as not to scratch seating surface or the stem, which will result in leakage after reassembly.
- D7. Screw off the Packing Nut.
- D8. Remove Seats and Gaskets. Use caution to prevent damage to metal parts.
- D9. Take O-Ring and Stem Packing out of packing chamber.
- D10. Take ball & stem out of valve body, remove Stem Bushing.

CAUTION

Use extreme care in handling the ball to avoid damage. The stem must be removed from the inside of the body. Gently tap the top of the stem with a non-metallic mallet. The thrust washer should come out with the stem. Stem packing can now be removed. If a packing pick is used to remove packing, care must be taken not to scratch any surface.

Visual Inspection-

Clean and inspect all metal parts. It is not necessary to replace the ball and stem unless the seating surfaces have been damaged by abrasion or corrosion. Flo-Tite strongly recommends that all seats, seals, and packing be replaced whenever a valve is disassembled for reconditioning. This is the surest protection against subsequent leakage after reassembly. Replacement parts are sold in kit form. Kits can be obtained via the local Flo-Tite Distributor. Replacement parts should be purchased prior to valve disassembly. Required information to purchase replacement parts include:

- a. Line size
- b. Model designation
- c. Seat/seal materials – see stamping on metal tag attached to the valve body.

Valve Reassembly -

Note- the valve may be reassembled and operated dry when no lubricants are allowed in the system; however, a light lubricant on the ball and stem will aid in assembly or reduce initial operating torque. Lubricant used must be compatible with the intended system fluid.

1. Install the thrust washer on stem O.D.
2. Install stem packing in valve body.
3. Slide the stem into the stem bushing and put on glands.
4. Install the seats inside each seat pocket of the end caps make sure the spherical curvature side of the seat will face the ball.
5. Put in ball, be sure flow pattern of ball corresponds with markings on top of the stem.
6. Install new gasket on endcaps.
7. Assemble the end cap onto the valve body. Place remaining seats to correct end caps and gradually tighten all three end caps in rotation. Do not fully tighten one end cap, bring them all up gradually.

NOTE:

When assembling end caps, be sure to put in closed position for the end cap being assembled to prevent or to seat risk damage.

7. Tighten packing gland nut, ensure valve operates smoothly.

Note:

Valve must be in the 100% full open position.

8. Install travel stop.
9. Put handle back on with flow marking to correspond with ball, then put handle bolt and washer.

Note:

Make sure ball is in closed position before tightening up the end connections.

WARNING

Extreme care must be exercised during tightening of the valve, to make sure that complete engagement threads are maintained.

Cycle the valve slowly, with a gentle back and forth motion to build gradually to a full quarter turn. By cycling slowly, the new seat lips will conform to the seal shape against the ball. An initial fast turning motion, at this point, may cut the seats before they have a chance to form the proper seal. When possible and practical, test the valve prior to reinstalling into the pipeline.

Reinstallation-

Carefully inspect the faces of both the valve threaded ends and the mating threaded ends to ensure they are clean and undamaged. Place the valve in the preferred position and support it from moving. Install a sealing gasket between each pair of threaded ends and tighten.

Repair Kits –

Repair kits typically consist of replaceable seats, body seals, and packing seals. Refer to the unit nameplate, as shown below, to confirm what materials are currently installed. Contact your local Flo-Tite Representative to order and receive the kits prior to any maintenance work.

VALVE - SOFT PARTS							
SEAT		STEM SEALS		BODY SEAL		O-RINGS	
TFM	F	TFM	F	TFM	F	VITON	V
CTFM	Y	CTFM	Y	CTFM	Y	EPDM	E
PTFE	T	RTFM	X	PTFE	T	PTFE	T
RPTFE	R	PTFE	T	RPTFE	R	BUNA	B
50/50	S	RPTFE	R	50/50	S	NONE	N
UHMWPE	U	50/50	S	UHMWPE	U		
PEEK	P	UHMWPE	U	PEEK	P		
Cavity Filled	C	PEEK	P	Graphite	G		
Metal	M	Graphite	G	Kel-F	K		
Kel-F	K						

F lo-Tite’s marking system follows MSS SP-25-1998

Valve Markings- Casted into valve bodies include the following; Flo-Tite Name, Model Numbers, Body Material, Valve Size, & WOG Pressure Rating

All Flo-Tite valves have metal name plates spot welded to the valve body.

Standard Trim Soft Parts

Flo-Tite Name

Valve Size

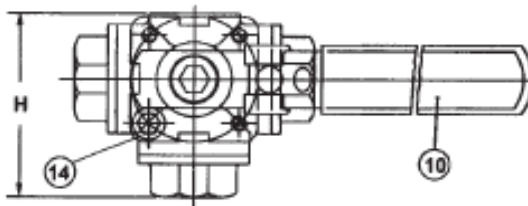


3 WAY STANDARD PORT BALL VALVE 800 WOG

BILL OF MATERIALS:

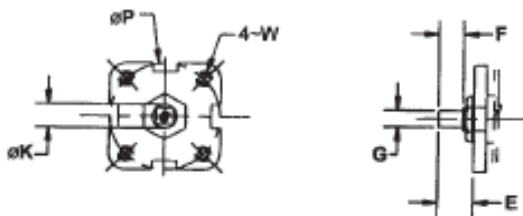
ITEM	PART NAME	QTY	MATERIAL
1	BODY	1	A351 CF8M / SS316
2	END CAP	3	A315 CF8M / SS316
3	BALL	1	A351 CF8M / SS316
4	SEAT*	4	SUPER TEK TFM
5	STEM	1	SS316
6	PACKING*	1	PTFE
7	GLAND NUT	1	SS304
8	WASHER	2	SS304
9	STEM CAPNUT	1	SS304
10	HANDLE	1	SS304
11	PLASTIC COVER	1	VINYL PLASTIC
12	THRUST WASHER*	1	PTFE
13	FLAT WASHER	1	SS304
14	STOPPIN	1	SS304

*Recommended Spare Parts

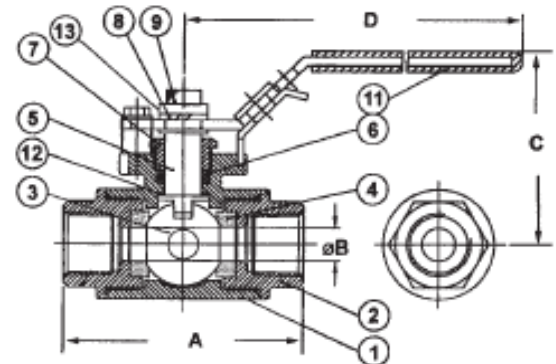


Note:

- ☒ Now available 3 Way Valve With Clamp Type Sanitary Ends - Model MPC100
- ☒ ANSI Class 150 And 300 LB, MPF15 and MPF30
- ☒ Threaded End Connections Meet ANSI B1.20.1



MODEL MPT 100 Valve Components

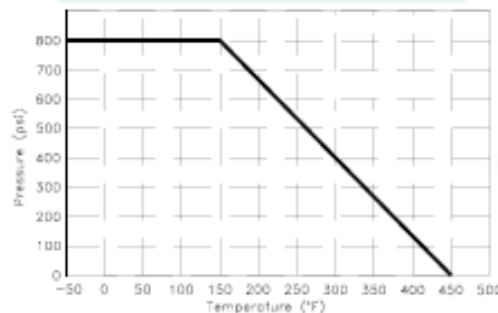


SPECIFICATIONS:

Body Test Pressure: 1200 PSIG Hydrostatic
Pressure Rating: 800 PSI WOG

- Our Unique new handle design has position stops in 90° increments for full 360° operation (for MPT100 only)
- A wide variety of special seat materials are available C/F
- Valves Stem Seals and Seats 100% tested by 100 psig air under water for bubble tight integrity

Pressure Temperature Rating



ATTENTION

MAWP/WOG is a do-not exceed pressure at normal ambient Npt & Weld End Models

DIMENSIONS AND WEIGHTS:

VALVE SIZE	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
A	3.11	3.11	3.11	3.35	4.25	4.88	5.31	6.46
B	0.35	0.35	0.43	0.59	0.79	0.98	1.26	1.57
C	2.54	2.54	2.54	3.05	3.19	3.46	3.66	4.13
D	6.50	6.50	6.50	7.87	7.87	9.06	9.84	10.43
H	2.42	2.42	2.42	2.83	3.35	3.78	4.23	5.12
App. Weight (lbs)	1.80	1.80	1.80	2.73	3.79	4.74	9.00	15.5
Valve Torque (in-lbs)	70	80	90	170	260	390	550	800
E	0.43	0.43	0.43	0.51	0.75	0.93	0.93	0.96
F	0.20	0.20	0.20	0.28	0.45	0.61	0.61	0.63
G	0.35	0.35	0.35	0.43	0.43	0.43	0.43	0.55
K	0.47	0.47	0.47	0.59	0.59	0.59	0.59	0.73
P	1.65	1.65	1.65	1.97	1.97	1.97	2.76	2.76
W	10-24UNC	10-24UNC	10-24UNC	1/4-20UNC	1/4-20UNC	1/4-20UNC	5/16-18UNC	5/16-18UNC
CV - 90°	3.2	3.5	4.5	10	16	31	49	82
CV - 180°	3.6	4.8	7.0	14	27	43	72	113



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Due to continuous development & improvement of our product range, we reserve the right to alter the dimensions and technical data included in this brochure.

Please carefully review all important procedures in this manual. If anything is unclear, please feel free to contact Flo-Tite directly.

FLOW PATTERNS

All T Port Flow Patterns are available from one standard ball and can be rearranged in the field.

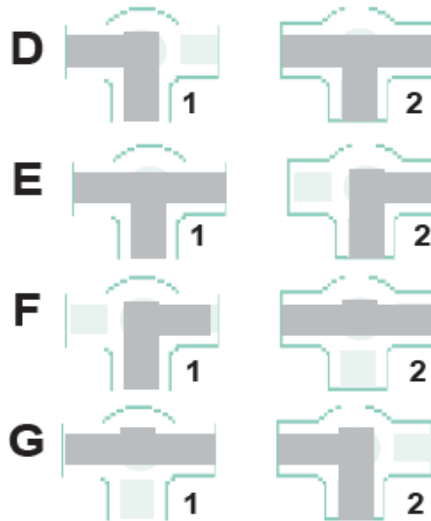
L-Port: 90°



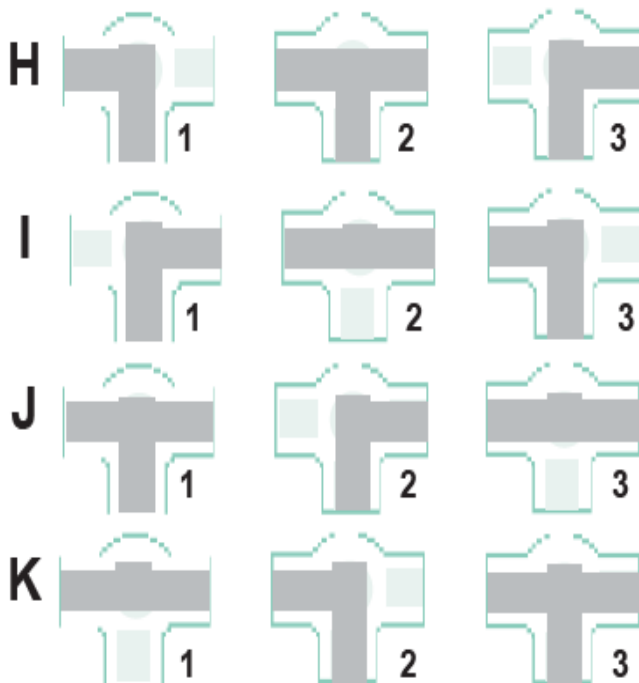
L-Port: 180°



T-Port: 90°



T-Port: 180°



4-WAY LL-Port: 90°



4-WAY L-Port: 180°



4-WAY: 90°



4-WAY: 270°



Optional patterns are available using T,L & standard ball. Please consult factory.