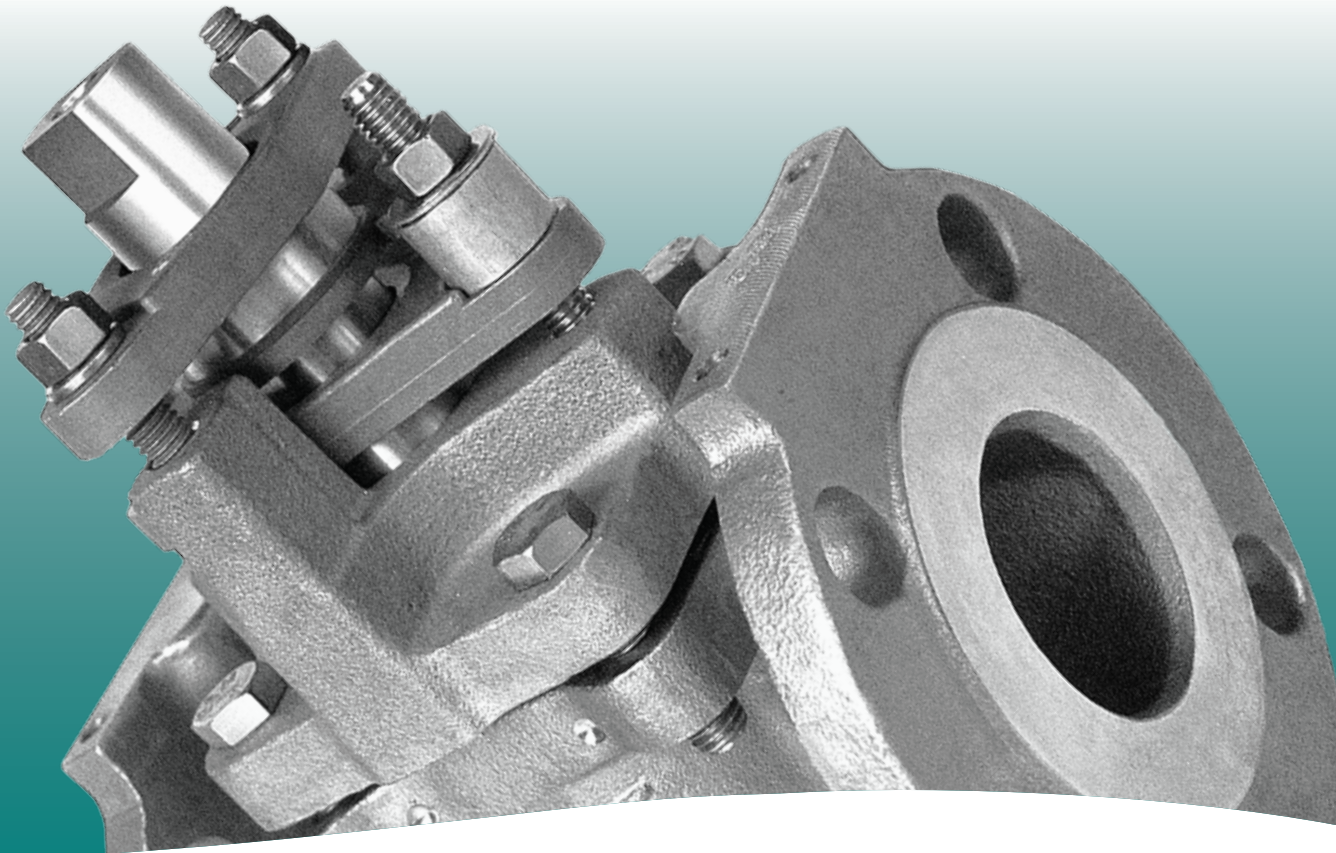


XOMOX[®]

brands you trust.



Tuflin[®] XP Sleeved Plug Valves

CRANE[®]

ChemPharma Flow Solutions

www.cranepharmaceutical.com

Superior fugitive emissions control.

Tufline® XP® Sleeved Plug valves provide exceptional sealing to atmosphere.

The primary top seal is at the plug.

A secondary seal is provided by live loaded packing at the stem.

Thermal cycling emissions control.

Even with thermal cycling, the patented shrink-seal lip assures stem sealing that meets or exceeds the most stringent regulatory requirements.

This little lip assures better emissions control.

During thermal cycling, when fugitive emissions are most likely to escape, this Tufline exclusive and patented shrink-seal lip tightens the seal.

Longer-lasting in-line sealing.

The inert PTFE sleeve completely surrounds the plug. The sleeve provides a full-circumferential sealing surface from port to port. Open, closed, or rotating, the seal is assured.

Performance proven.

Tufline Sleeved Plug valves have proven themselves with decades of trouble-free emissions control service in thousands of applications. Only Tufline valves offer exclusive emissions control attributes that are designed in, not added on.

A family of emissions control valves.

Tufline XP valves are part of a broad line of emissions control valves designed for a variety of applications and differing levels of emissions control requirements. Choose the Tufline valves that most economically meet your emissions control requirements.

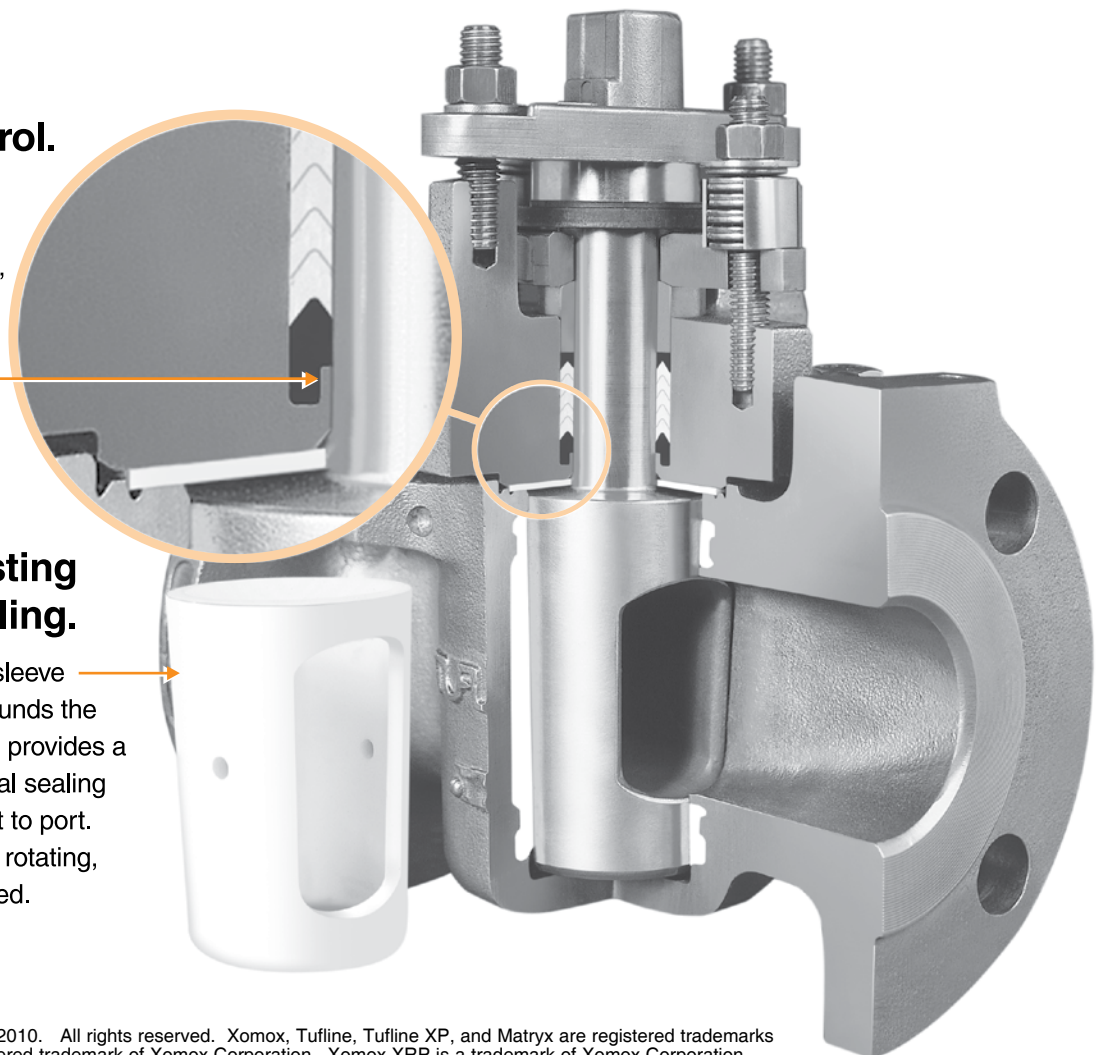
Cost control.

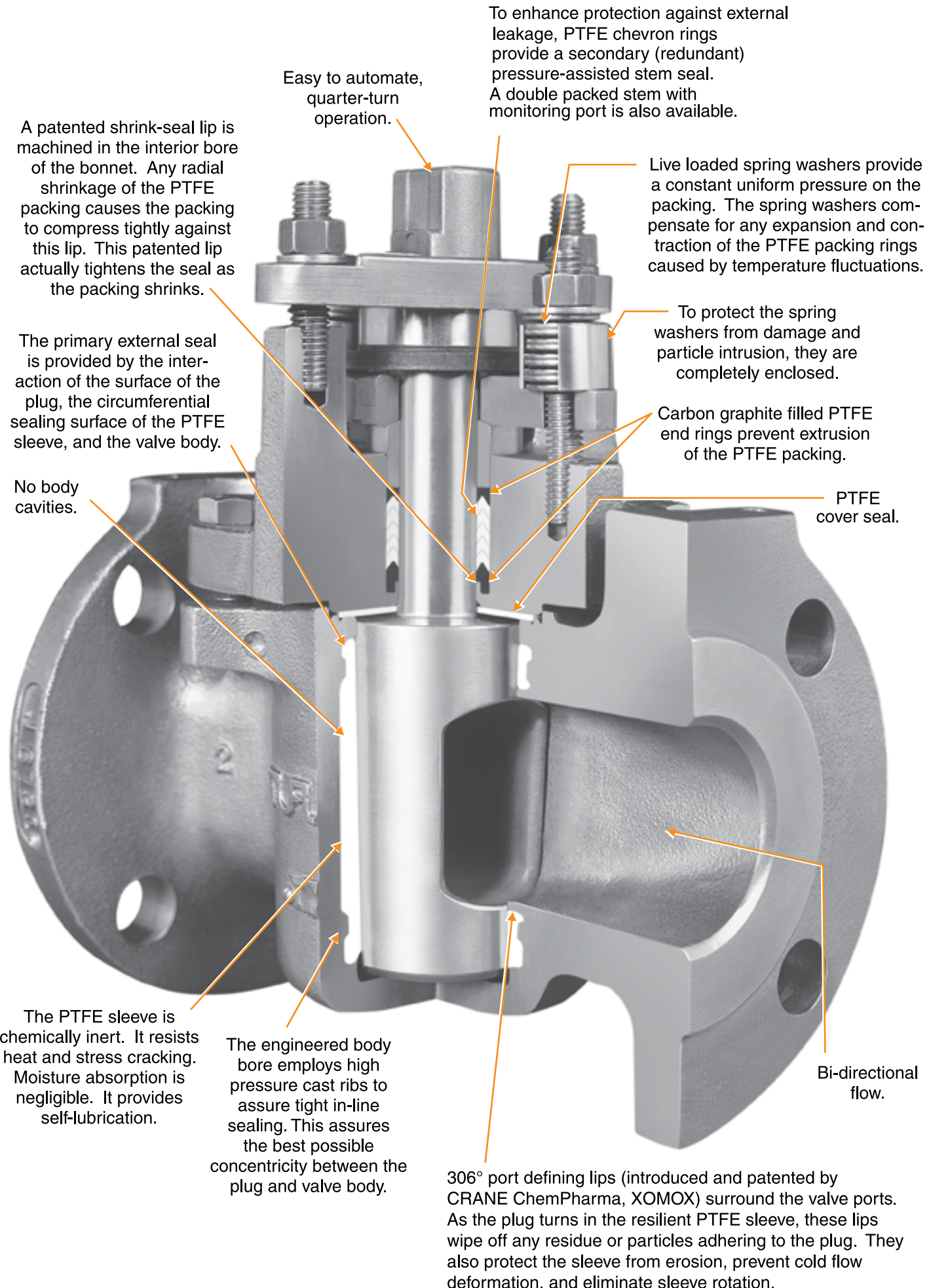
Tufline valves pay for themselves many times over with lower maintenance, longer service life, and greater operating reliability.

Calculate the low long-term cost of these reliable valves and see how much they can save in your application.

More options.

- ANSI Classes 150, 300, or 600.
- Flanged, screwed, or weld ends.
- Fire tested to API 607, 4th Edition.
- Multiport configurations available.
- Monitoring port available.





To enhance protection against external leakage, PTFE chevron rings provide a secondary (redundant) pressure-assisted stem seal. A double packed stem with monitoring port is also available.

Easy to automate, quarter-turn operation.

A patented shrink-seal lip is machined in the interior bore of the bonnet. Any radial shrinkage of the PTFE packing causes the packing to compress tightly against this lip. This patented lip actually tightens the seal as the packing shrinks.

Live loaded spring washers provide a constant uniform pressure on the packing. The spring washers compensate for any expansion and contraction of the PTFE packing rings caused by temperature fluctuations.

The primary external seal is provided by the interaction of the surface of the plug, the circumferential sealing surface of the PTFE sleeve, and the valve body.

To protect the spring washers from damage and particle intrusion, they are completely enclosed.

Carbon graphite filled PTFE end rings prevent extrusion of the PTFE packing.

No body cavities.

PTFE cover seal.

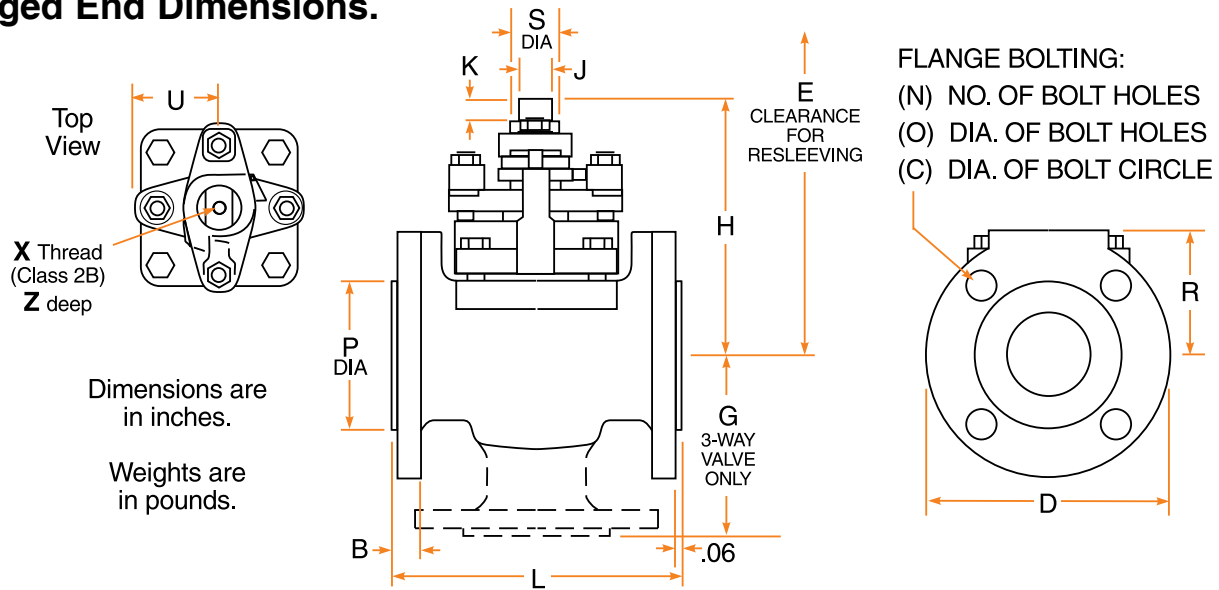
The PTFE sleeve is chemically inert. It resists heat and stress cracking. Moisture absorption is negligible. It provides self-lubrication.

The engineered body bore employs high pressure cast ribs to assure tight in-line sealing. This assures the best possible concentricity between the plug and valve body.

Bi-directional flow.

306° port defining lips (introduced and patented by CRANE ChemPharma, XOMOX) surround the valve ports. As the plug turns in the resilient PTFE sleeve, these lips wipe off any residue or particles adhering to the plug. They also protect the sleeve from erosion, prevent cold flow deformation, and eliminate sleeve rotation.

Flanged End Dimensions.



Class 150 . . . 2-Way: Figure No. 067XP . . . 3-Way: Figure No. 037XP

Size	L	H	D	B	P	R	N	O	C	S	J	K	E	U	X	Z	G 3-Way	Weight 2-Way	Weight 3-Way
1/2	4.25	4.83	3.50	.38	1.38	1.75	4	.63	2.38	.61	.438	.50	7.00	1.50	1/4-20	.53	2.75	4	5
3/4	4.63	4.83	3.88	.41	1.69	1.94	4	.63	2.75	.61	.438	.50	7.00	1.50	1/4-20	.53	2.88	5	6.2
1	5.00	5.25	4.25	.44	2.00	2.13	4	.63	3.13	.63	.438	.50	8.50	1.50	1/4-20	.53	3.50	9	11.5
1 1/2	6.50	5.94	5.00	.56	2.88	2.50	4	.63	3.88	.88	.563	.63	9.25	1.84	5/16-18	.59	4.13	17	21
2	7.00	6.38	6.00	.63	3.63	3.00	4	.75	4.75	1.13	.750	.63	9.88	2.13	5/16-18	.59	4.50	26	32
2 1/2†	8.00	6.94	7.50	.75	4.13	3.75	4	.75	5.50	1.13	.750	.63	10.38	2.13	5/16-18	.59	5.13	41	52
3	8.00	6.94	7.50	.75	5.00	3.75	4	.75	6.00	1.13	.750	.63	10.38	2.13	5/16-18	.59	5.13	41	52
4	9.00	8.94	9.00	.94	6.19	4.63	8	.75	7.50	1.25	.875	.88	22.00	3.00	5/16-18	.59	6.00	70	85
6	10.50	10.81	11.00	1.00	8.50	5.50	8	.88	9.50	2.00	1.398	1.00	25.00	3.44	5/16-18	.59	7.50	123	147
8	11.50	12.60	13.50	1.13	10.63	6.75	8	.88*	11.75	2.00	1.398	1.00	28.00	4.38	---	---	9.00	200	239

Class 300 . . . 2-Way: Figure No. 0367XP . . . 3-Way: Figure No. 0337XP

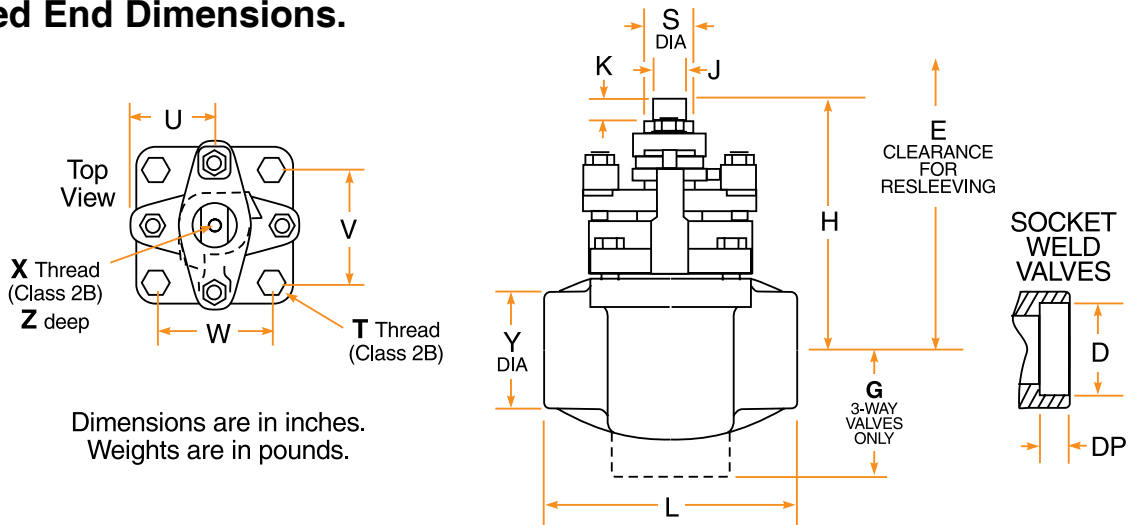
Size	L	H	D	B	P	R	N	O	C	S	J	K	E	U	X	Z	G 3-Way	Weight 2-Way	Weight 3-Way
1/2	5.50	4.83	3.75	.56	1.38	1.88	4	.63	2.63	.61	.438	.50	7.00	1.50	1/4-20	.53	2.88	7.2	9.2
3/4	6.00	4.83	4.63	.63	1.69	2.31	4	.75	3.25	.61	.438	.50	7.00	1.50	1/4-20	.53	3.00	10.7	13.7
1	6.50	5.25	4.88	.69	2.00	2.44	4	.75	3.50	.63	.438	.50	8.50	1.50	1/4-20	.53	3.75	13.5	17.5
1 1/2	7.50	5.94	6.13	.81	2.88	3.06	4	.88	4.50	.88	.563	.63	9.25	1.84	5/16-18	.59	4.38	25	33
2	8.50	6.38	6.50	.88	3.63	3.25	8	.75	5.00	1.13	.750	.63	9.88	2.13	5/16-18	.59	4.75	34	43
2 1/2†	11.13	6.94	8.25	1.13	4.13	4.13	8	.88	5.88	1.13	.750	.63	10.38	2.13	5/16-18	.59	5.56	48	63
3	11.13	6.94	8.25	1.13	5.00	4.13	8	.88	6.63	1.13	.750	.63	10.38	2.13	5/16-18	.59	5.56	48	63
4	12.00	8.94	10.00	1.25	6.19	5.13	8	.88	7.88	1.25	.875	.88	22.00	3.00	5/16-18	.59	6.75	96	121
6	15.88	10.81	12.50	1.44	8.50	6.25	12	.88	10.63	2.00	1.398	1.00	25.00	3.44	5/16-18	.59	8.50	193	235
8	16.50	12.60	15.00	1.63	10.63	7.50	12	100	13.00	2.00	1.398	1.00	28.00	4.38	---	---	10.00	292	359

† 2 1/2-inch valves are machined from 3-inch castings, but the flanges are machined to 2 1/2-inch dimensions.

* On Class 150, 8-inch valves, the two top holes in the flanges are tapped for 3/4-10UNC-2B threads.

** On 8-inch valves, cover bolts are arranged around a 7.63 dia. bolt circle.

Screwed End Dimensions.



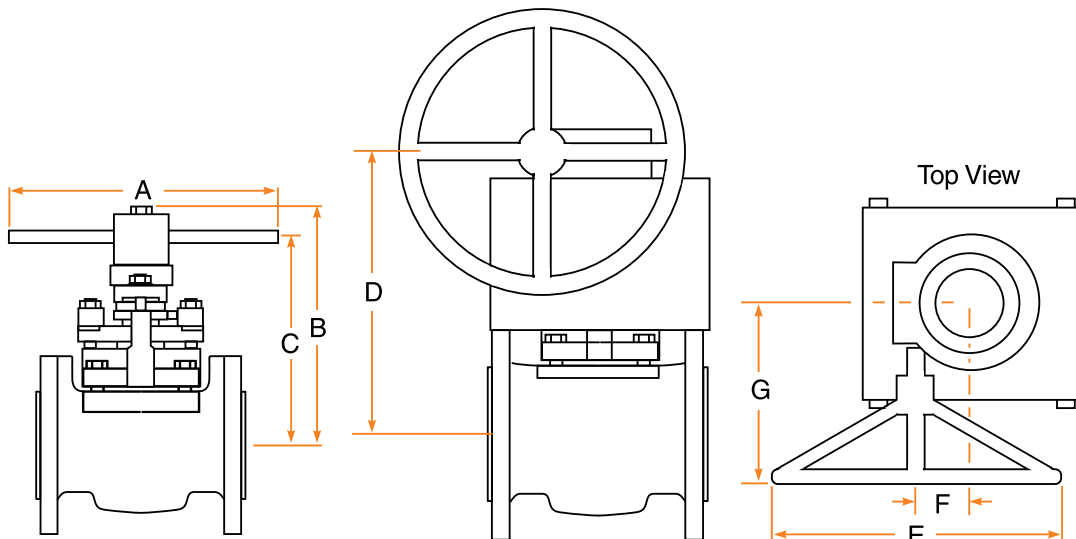
Class 150 . . . **2-Way:** Figure No. 066XP . . . **3-Way:** Figure No. 036XP

Class 300 . . . **2-Way:** Figure No. 0366XP . . . **3-Way:** Figure No. 0336XP

Socket Weld

Size	L	H	Y	S	J	K	E	T	U	V	W	X	Z	G 3-Way	Weight 2-Way	Weight 3-Way
1/2	3.25	4.83	1.68	.61	.438	.50	7.00	5/16-18	1.50	1.68	1.43	1/4-20	.53	1.69	2.7	3.0
3/4	3.25	4.83	1.68	.61	.438	.50	7.00	5/16-18	1.50	1.68	1.43	1/4-20	.53	1.80	3.2	3.5
1	4.63	5.25	2.21	.63	.438	.50	8.50	3/8-16	1.50	1.90	2.21	1/4-20	.53	2.38	6.5	7.5
1 1/2	5.50	5.94	2.33	.88	.563	.63	9.25	3/8-16	1.84	2.33	2.33	5/16-18	.59	2.88	14	15
2	6.50	6.38	3.02	1.13	.750	.63	9.88	7/16-14	2.13	3.02	3.02	5/16-18	.59	3.38	20	22

Size	D	DP
1/2	.860	.38
3/4	1.070	.50
1	1.335	.50
1 1/2	1.920	.50
2	2.411	.63



Wrench & 90° Enclosed Gear Operator Dimensions

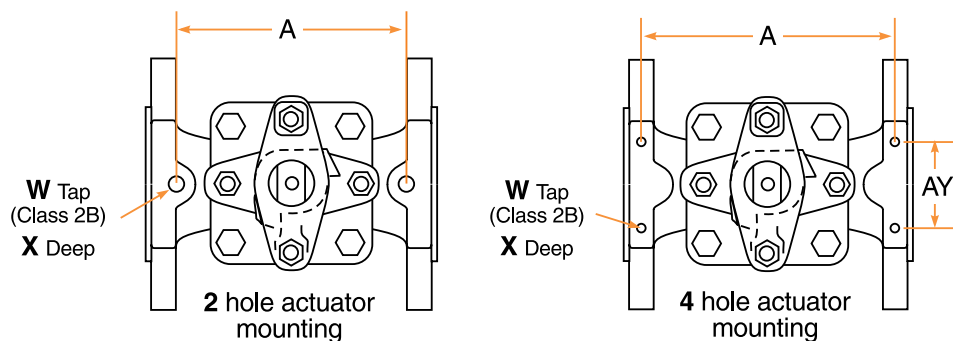
These operator dimensions apply to all flange types and all multi-port valves.

Size	A	B	C
1/2	8.75	6.56	5.50
3/4	8.75	6.56	5.50
1	8.75	6.56	5.60
1 1/2	12.50	7.54	6.50
2	18.00	8.00	6.91
2 1/2	24.00	8.54	7.50
3	24.00	8.54	7.50

Size	D	E	F	G
4	12.63	18.00	2.63	10.50
6	14.88	24.00	3.38	12.75
8	16.63	30.00	4.38	15.38

More information.

The full Tufline Sleeved Plug valve catalog outlines many additional unique design features of the Tufline Sleeved Plug valve.



Actuator mounting hole configurations.

Full dimensions for valve and actuator assemblies are available.

Class 150

Size	4 Hole Pattern				2 Hole Pattern		
	A	AY	W	X	A	W	X
1/2	---	---	---	---	3.62	5/16 - 18	.47
3/4	---	---	---	---	3.75	5/16 - 18	.47
1	4.19	1.75	5/16 - 18	.38	---	---	---
1 1/2	5.75	1.75	5/16 - 18	.47	---	---	---
2	6.31	2.25	5/16 - 18	.47	---	---	---
2 1/2	7.13	3.50	3/8 - 16	.56	---	---	---
3	7.13	3.50	3/8 - 16	.56	---	---	---
4	8.00	4.00	7/16 - 14	.63	---	---	---
6	9.44	4.00	7/16 - 14	.63	---	---	---
8	10.19	6.00	1/2 - 13	.63	---	---	---

Class 300

Size	4 Hole Pattern				2 Hole Pattern		
	A	AY	W	X	A	W	X
1/2	---	---	---	---	4.38	5/16 - 18	.47
3/4	---	---	---	---	4.38	5/16 - 18	.47
1	5.75	1.75	5/16 - 18	.38	---	---	---
1 1/2	6.63	1.75	5/16 - 18	.47	---	---	---
2	7.56	2.25	5/16 - 18	.47	---	---	---
2 1/2	9.94	3.50	3/8 - 16	.56	---	---	---
3	9.94	3.50	3/8 - 16	.56	---	---	---
4	10.69	4.00	7/16 - 14	.63	---	---	---
6	14.00	4.00	7/16 - 14	.63	---	---	---
8	14.63	6.00	1/2 - 13	.63	---	---	---

Cv factors for valve sizing.

Class 150 & 300

Size	2-Way	3-Way A,AX,C pos.	3-Way D pos. 0° & 180°	3-Way D pos. 90°
1/2	9	7	4	5
3/4	9	7	4	5
1	43	20	11	17
1 1/2	89	40	21	37
2	172	70	40	47
2 1/2	294	100	54	87
3	294	100	54	87
4	548	175	94	159
6	1075	350	210	255
8	1591	475	360	450

Operating torques. (Inch-Pounds)

Figures are for 2-Way valves with PTFE sleeves.

Consult factory for torque adjustment factors for other sleeve materials.

Class 150 & 300

Size	Break torque	Seating torque	Running torque
1/2	154	88	77
3/4	154	88	77
1	440	275	220
1 1/2	880	550	440
2	1210	715	605
2 1/2	1320	770	660
3	1320	770	660
4	2640	1595	1320
6	5500	3300	2750
8	8580	5170	4290

Pressure-temperature ratings.

The useful range . . .

PTFE sleeve: -20°F to +400°F

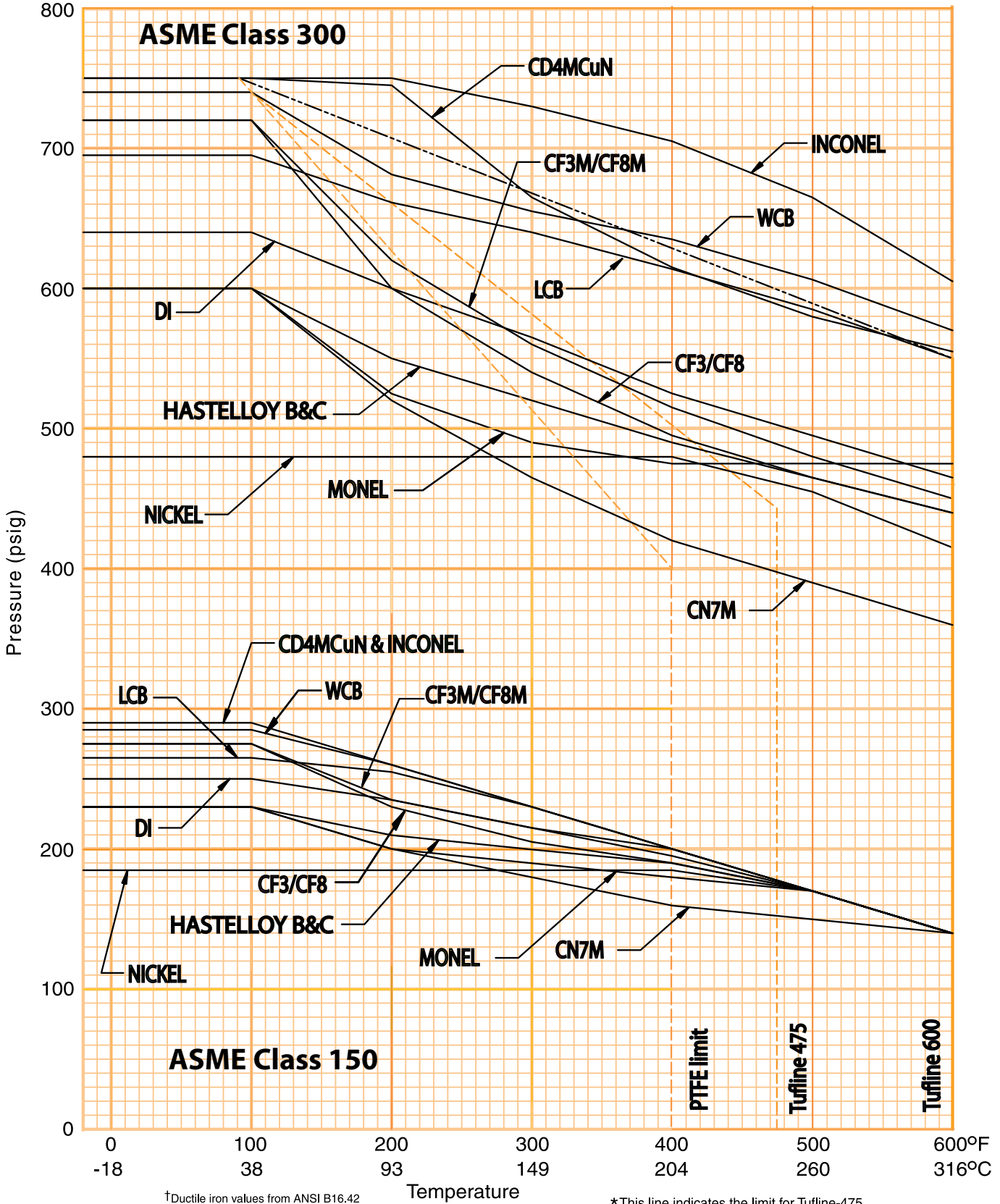
Tufline-475 sleeve: -20°F to +475°F

Tufline-600 sleeve: -20°F to +600°F

. . . all with a maximum temperature variation of 200°F.

Applications beyond these ranges can be handled effectively but may require valve adjustments at the operating temperature or use of alternate sleeve materials.

Material selections are governed by the limits imposed by ASME B16.34, 2004 edition.



†Ductile iron values from ANSI B16.42

*This line indicates the limit for Tufline-475 sleeve material when used in 8"-16" valves.



CRANE ChemPharma, Xomox Rack & Pinion (XRP) Actuators and Matryx® Actuators.

Tufline automated valve packages assure you of single-source responsibility for flow control equipment.

With the Crane ChemPharma, Xomox family of valves, actuators, control accessories, and problem solving expertise, you are assured of valve packages that will provide optimum performance in your application.

CRANE ChemPharma, Xomox Automation & Service Centers.

Our Automation & Service Centers are strategically located to provide comprehensive:

- Automated valve packaging.
- Valve modification.
- Valve repair.
- Application counseling.

For more information, fast response, comprehensive service, and knowledgeable technical help, call your nearest CRANE ChemPharma, Xomox Automation & Service Center.

The CRANE ChemPharma, Xomox Special Products Group.

Our Special Products Group custom-designs, manufactures, and modifies valves.

CRANE ChemPharmaXomox Special Products valves are used in unusual, complex, or especially difficult applications.

Processors find that investing in these special valves pays off with greatly extended service life, improved overall operating efficiency, and reduced maintenance requirements.

Multiport valves.

Tufline XP Multiport Sleeved Plug valves bring economy and more compact system design to thousands of applications.

These valves are available through the CRANE ChemPharma, Xomox Special Products Group.

Bi-directional flow for more flexibility.

In the diagrams the color indicates the path of fluid flow. Bi-directional flow permits more system design options.

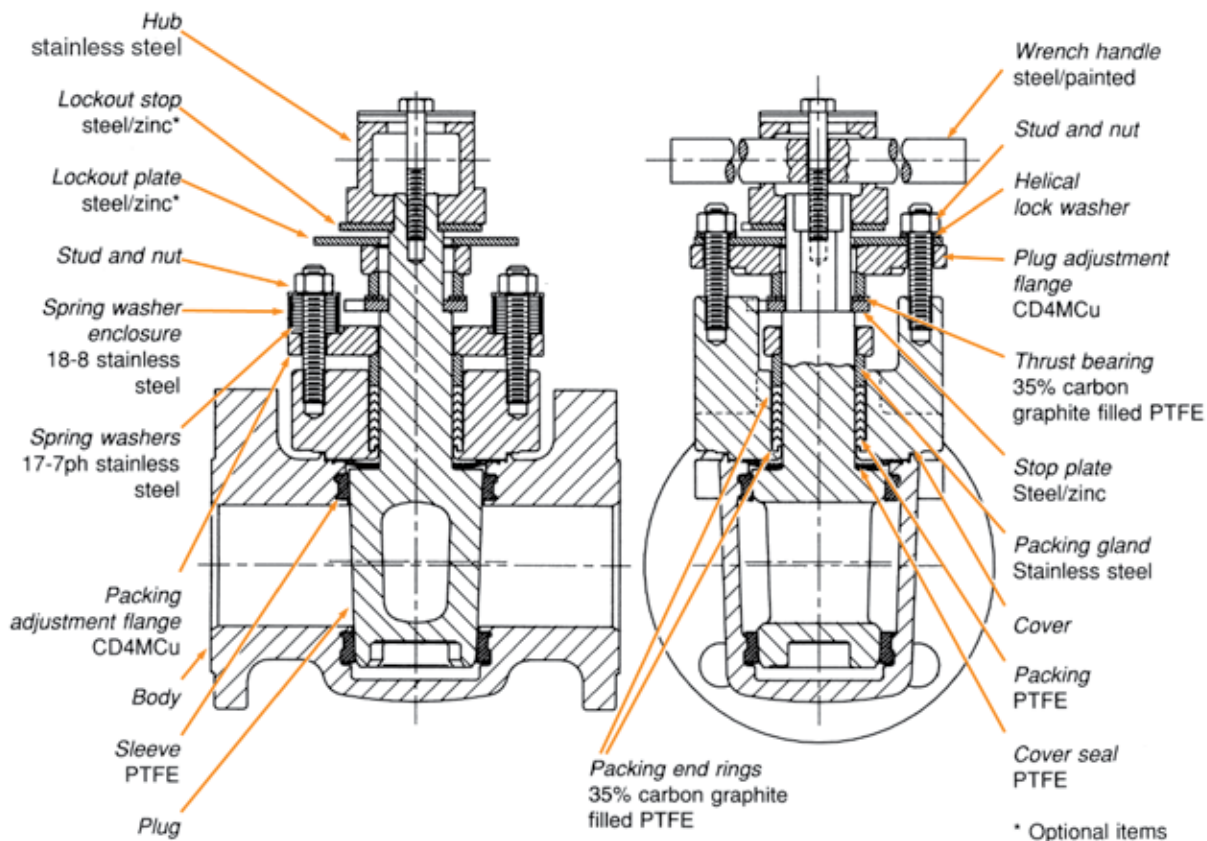
3-way arrangements.

Only the Type A plug will shut off the flow. With the Type AX, C, and D plugs, there is always flow between the bottom port and one of the side ports.

		0° position	90° position	180° position
Type A				
Type AX				
Type C				
Type C pos. 1&2 only				
Type C pos. 2&3 only				
Type D				
Type D pos. 1&2 only				
Type D pos. 2&3 only				

Quick Reference Selection Table.

No. of Ports	Type	ANSI Class	Size Range	Operator	Figure Number	Additional Information
2	Screwed End	150	1/2 - 2	Wrench	066XP	2-Way Tufline Sleeved Plug valves provide tight shutoff from high vacuum through rated pressure at temperatures from -20°F to 600°F.
		300			0366XP	
	Flanged End	150	1/2 - 4	Enclosed Gear	067XP	
			4 - 24		067XP G	
		300	1/2 - 4	Wrench	0367XP	
			4 - 24	Enclosed Gear	0367XP G	
3	Screwed End	150	1/2 - 2	Wrench	036XP	When ordering 3-Way valves, be sure to include the port configuration. Refer to page 9.
		300			0336XP	
	Flanged End	150	1/2 - 4	Enclosed Gear	037XP	
			4 - 24		037XP G	
		300	1/2 - 4	Wrench	0337XP	
			4 - 24	Enclosed Gear	0337XP G	



How to order

Size Figure No. Option Body Plug Sleeve Operator Service

1" - 066XP - FT - 6 - 6 - P1 - W - C

Size & Figure No.

See Quick Reference Selection Table on the previous page

Options

Fire Tested **FT**

Port Arrangements for 3-Way Valves (See page 9)
 **A, AX, C, or D**

Body

Alloy 20 **0**
 Carbon Steel . . . **2**
 Monel **3**
 Nickel **5**
 CF8M **6**
 Hastelloy B **8**
 Hastelloy C **9**
 Inconel **40**
 Other (Specify) . **X**

Service

Chlorine . . **C**
 Oxygen . . **O**
 Vacuum . . **V**
 General Service . . . **Blank**
 Other** . . . **X**

Operator

Less Operator . **N**
 Wrench **W**
 Wrench with locking device..**WY**
 Gear **G**
 Gear with locking device.**GZ**
 Actuator* **A**

Sleeve

PTFE **P1**
 15% RPTFE . **P2**
 25% RPTFE . **P3**
 PFA **P6**
 Xomox-7 **P7**
 UHMWPE . . . **P8**
 Tuffline-475 . **P16**
 Tuffline-600 . **P20**
 Other (Specify) . . . **PX**

Plug

Alloy 20 **0**
 Monel **3**
 304SS **4**
 Nickel **5**
 CF8M **6**
 Hastelloy B **8**
 Hastelloy C **9**
 Inconel **40**
 Other (Specify) . **X**

* Specify actuator type and available air supply.

** Consult your CRANE ChemPharma, Xomox Sales Engineer for a wide variety of other available service options.

XOMOX®

CRANE ChemPharma Flow Solutions™

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Fax: (49) 8382-702-144

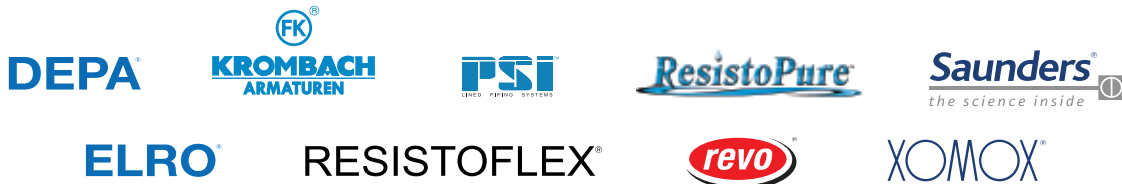
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