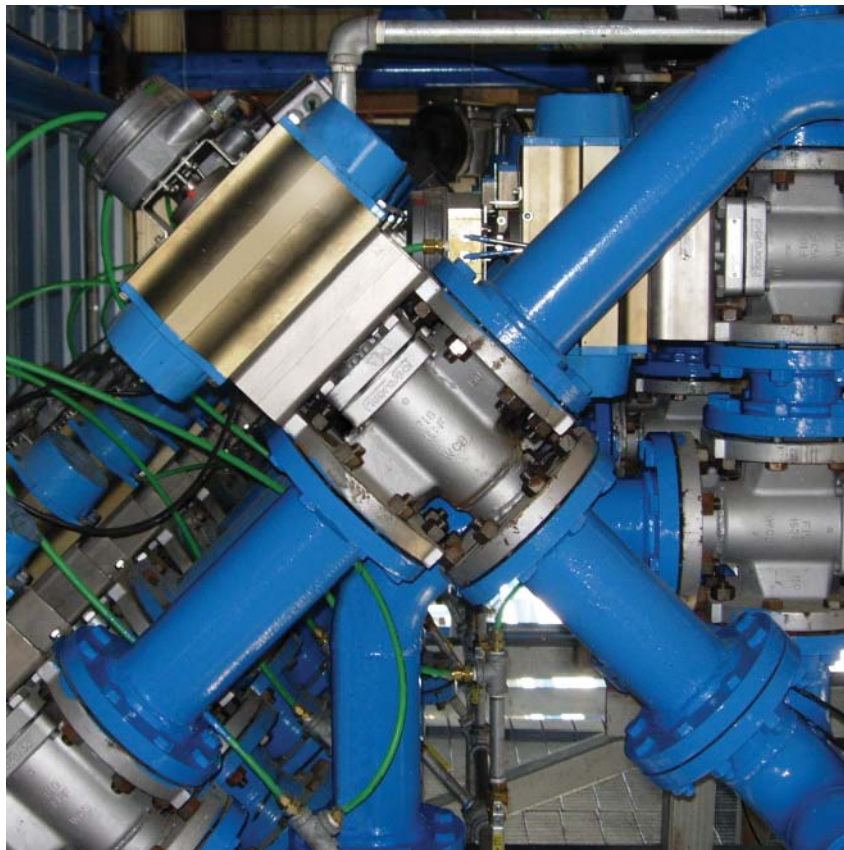


FluoroSeal Inc.

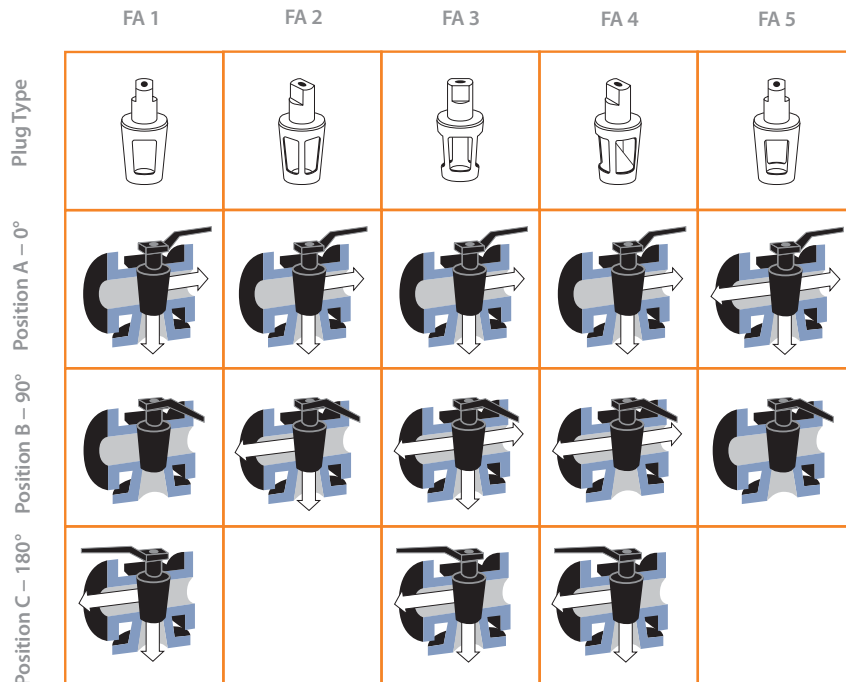
Specialty Valves



SLEEVED MULTIPORT

FLOW ARRANGEMENTS

Flow is indicated by the arrow(s). When rotating plugs FA2, FA3 or FA4 a transflow condition exists at all times. Only position B in plugs FA1 and FA5 will provide a complete shutoff condition. Valves will be supplied with quarter-turn (90°) operators as standard. Should a half-turn (180°) operator be needed, please specify. ANSI/ASME class 600 lbs available upon request.



MULTIPORT ASME/ANSI CLASS 150 LBS

Flanged Ends

Wrench or Enclosed Gear Operated

Actuators Optional on All Sizes

Dimensions to ANSI B16.5 & B16.10

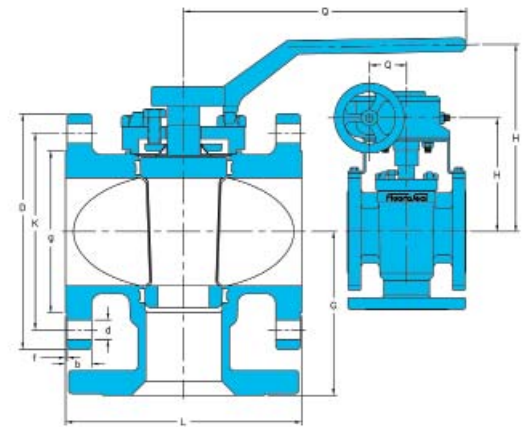
E = Clearance required for resleeving measured from center line

EG = Enclosed gear operated

N = Number of holes

Two (2) top holes in flanges are tapped with UNC threads. See Hole-UNC column

* 2 1/2" valves are made from 3" casting, but flanges are machined to 2 1/2" dimensions



SIZE	L		H		D		K		g		b		f		d		Q		G		Weight		E		N	Hole-UNC
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	kg	lbs	in	mm	#	
1/2"	4.25	108.00	3.69	93.73	3.50	88.90	2.38	60.50	1.38	35.00	0.38	9.65	0.06	1.60	0.63	16.00	8.00	203.00	2.75	69.85	2.5	6.0	6.38	162.10	4	-
3/4"	4.63	117.50	3.69	93.73	3.88	98.50	2.75	69.90	1.69	42.93	0.41	10.41	0.06	1.60	0.63	16.00	8.00	203.00	2.88	73.15	3.2	7.0	6.38	162.10	4	-
1"	5.00	127.00	4.38	111.25	4.25	108.00	3.13	79.50	2.00	50.80	0.44	11.20	0.06	1.60	0.63	16.00	9.00	229.00	3.50	88.90	5.0	11.0	8.50	215.90	4	-
1 1/2"	6.50	165.10	5.25	133.35	5.00	127.00	3.88	98.60	2.88	73.20	0.56	14.20	0.06	1.60	0.63	16.00	14.25	362.00	4.13	104.90	8.2	18.0	10.38	263.70	4	-
2"	7.00	177.80	6.00	152.40	6.00	152.40	4.75	120.70	3.63	92.00	0.63	16.00	0.06	1.60	0.75	19.00	16.50	419.00	4.50	114.30	13.6	30.0	12.25	311.20	4	-
*2 1/2"	8.00	203.20	6.56	167.00	7.50	190.50	5.50	139.70	4.13	104.60	0.75	19.00	0.06	1.60	0.75	19.00	16.50	419.00	5.13	130.30	18.2	40.0	12.63	320.80	4	-
3"	8.00	203.20	6.56	167.00	7.50	190.50	6.00	152.40	5.00	127.00	0.75	19.00	0.06	1.60	0.75	19.00	16.50	419.00	5.13	130.30	19.1	42.0	13.63	346.20	4	-
4"	9.00	228.60	7.81	198.37	9.00	228.60	7.50	190.50	6.19	157.20	0.94	23.90	0.06	1.60	0.75	19.00	23.63	600.00	6.00	152.40	32.7	72.0	16.25	412.80	8	-
4" EG	9.00	228.60	9.06	230.12	9.00	228.60	7.50	190.50	6.19	157.20	0.94	23.90	0.06	1.60	0.75	19.00	7.25	184.00	6.00	152.40	41.4	91.0	17.63	447.80	8	-
6" EG	10.50	266.70	10.75	273.05	11.00	279.40	9.50	241.30	8.50	215.90	1.00	25.40	0.06	1.60	0.88	22.40	7.25	184.00	7.50	190.50	70.8	148.0	21.75	552.50	8	-
8" EG	11.50	292.10	13.00	330.20	13.50	342.90	11.75	298.50	10.63	269.80	1.13	28.70	0.06	1.60	0.88	22.40	9.75	248.00	9.00	228.60	117.5	259.0	26.63	676.40	8	3/4"-10
10" EG	13.00	330.20	14.94	379.48	16.00	406.40	14.25	362.00	12.75	323.90	1.19	30.20	0.06	1.60	1.00	25.40	9.75	248.00	11.00	279.40	181.9	401.0	31.25	793.80	12	7/8"-9
12" EG	14.00	355.60	15.69	398.83	19.00	482.60	17.00	431.80	15.00	381.00	1.25	31.80	0.06	1.60	1.00	25.40	13.75	349.25	13.00	330.20	-	-	33.75	857.30	12	7/8"-9
14" EG	15.00	381.00	16.69	423.93	21.00	533.40	18.75	476.30	16.25	412.80	1.38	35.10	0.06	1.60	1.12	28.40	13.75	349.25	15.00	381.00	-	-	34.75	882.70	12	1"-8

MULTIPORT ASME/ANSI CLASS 300 LBS

Flanged Ends
Wrench or Enclosed Gear Operated
Actuators Optional on All Sizes

Dimensions to ANSI B16.5 & B16.10

E = Clearance required for resleeving measured from center line

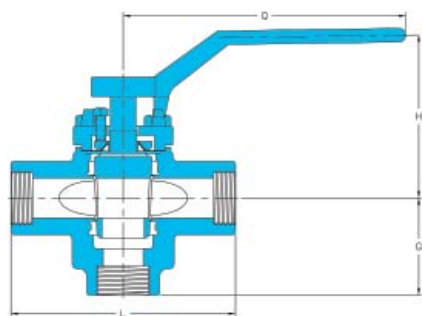
EG = Enclosed gear operated

N = Number of holes

Two (2) top holes in flanges are tapped with UNC threads. See Hole-UNC column

* 2 1/2" valves are made from 3" casting, but flanges are machined to 2 1/2" dimensions

SIZE	L		H		D		K		g		b		f		d		Q		G		Weight		E		N	Hole-UNC
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	kg	lbs	in	mm	#	
1/2"	5.50	139.70	3.69	93.73	3.75	95.30	2.63	66.80	1.38	35.00	0.56	14.20	0.06	1.60	0.63	16.0	8.00	203.00	2.88	73.20	3.2	7.0	6.38	162.10	4	-
3/4"	6.00	152.40	3.69	93.26	4.63	117.60	3.25	82.60	1.69	42.70	0.63	16.00	0.06	1.60	0.75	19.00	8.00	203.00	3.00	76.20	4.1	9.0	6.38	162.10	4	-
1"	6.50	165.10	4.38	111.25	4.88	124.00	3.50	88.90	2.00	50.80	0.69	17.50	0.06	1.60	0.75	19.00	9.00	229.00	3.75	95.30	5.5	12.0	8.50	215.90	4	-
1 1/2"	7.50	190.50	5.25	133.35	6.13	155.70	4.50	114.30	2.88	73.20	0.81	20.60	0.06	1.60	0.88	22.40	14.25	362.00	4.38	111.30	9.5	21.0	10.38	263.70	4	-
2"	8.50	215.90	6.00	152.40	6.50	165.10	5.00	127.00	3.63	92.00	0.88	22.40	0.06	1.60	0.75	19.00	16.50	419.00	4.75	120.70	13.2	29.0	12.25	311.20	8	-
*2 1/2"	11.13	282.70	6.56	167.00	8.25	209.60	5.88	149.40	4.13	104.60	1.13	28.70	0.06	1.60	0.88	22.40	16.50	419.00	5.56	141.20	21.8	48.0	12.63	320.80	8	-
3"	11.13	282.70	6.56	167.00	8.25	209.60	6.63	168.40	5.00	127.00	1.13	28.70	0.06	1.60	0.88	22.40	16.50	419.00	5.56	141.20	21.8	48.0	13.63	346.20	8	-
4"	12.00	304.80	7.81	198.37	10.00	254.00	7.88	200.20	6.19	157.20	1.25	31.80	0.06	1.60	0.88	22.40	23.63	600.00	6.75	171.50	42.0	92.0	16.25	412.80	8	-
4" EG	12.00	304.80	9.06	230.12	10.00	254.00	7.88	200.20	6.19	157.20	1.25	31.80	0.06	1.60	0.88	22.40	7.25	184.00	8.00	203.20	54.0	119.0	17.63	447.80	8	-
6" EG	15.88	403.40	10.75	273.05	12.50	317.50	10.63	270.00	8.50	215.90	1.44	36.6	0.06	1.60	0.88	22.40	7.25	184.00	12.00	304.80	91.4	201.0	21.75	552.50	12	-
8" EG	16.50	419.10	13.00	330.20	15.00	381.00	13.00	330.20	10.63	269.80	1.63	41.40	0.06	1.60	1.00	25.40	9.75	248.00	12.00	304.80	141.4	311.0	26.63	676.40	12	7/8"-7
10" EG	18.00	457.20	14.94	379.48	17.50	444.50	15.25	387.40	12.75	323.90	1.88	47.80	0.06	1.60	1.13	28.70	9.75	248.00	16.00	406.40	210.9	464.0	31.25	793.80	16	1"-8
12" EG	19.75	501.70	15.69	398.53	20.50	520.70	17.75	450.90	15.00	381.00	2.00	50.80	0.06	1.60	1.25	31.80	13.75	349.25	16.00	406.40	279.0	614.0	33.75	857.30	16	1 1/8"-7
14" EG	30.00	762.00	16.69	423.93	23.00	584.20	20.25	514.40	16.25	412.80	2.12	53.80	0.06	1.60	1.25	31.80	13.75	349.25	20.00	508.00	363.0	800.0	34.75	882.70	20	-



MULTIPORT ASME/ANSI CLASS 150/300/600 LBS

Screwed Ends
Wrench Operated
Actuators Optional on All Sizes

Dimensions to ANSI B16.11

E = Clearance required for resleeving measured from center line

SIZE	L		H		G		Q		Weight		E	
	in	mm	in	mm	in	mm	in	mm	kg	lbs	in	mm
1/2"	3.93	100.00	3.38	85.90	1.69	42.90	8.00	203.00	2.1	4.7	6.38	162.10
3/4"	3.93	100.00	3.38	85.50	1.80	45.70	8.00	203.00	2.1	4.7	6.38	162.10
1"	5.50	140.00	4.50	114.00	2.38	60.50	9.00	229.00	3.2	7.1	8.50	215.90
1 1/2"	6.30	160.00	5.31	135.00	2.88	73.20	14.25	362.00	6.4	14.2	10.38	263.70
2"	7.87	200.00	6.25	159.00	3.38	85.90	16.50	419.00	10.4	23.0	12.25	311.20

SLEEVED PLUG VALVES — MULTIPORT

MULTIPORT ASME/ANSI CLASS 150/300/600 LBS

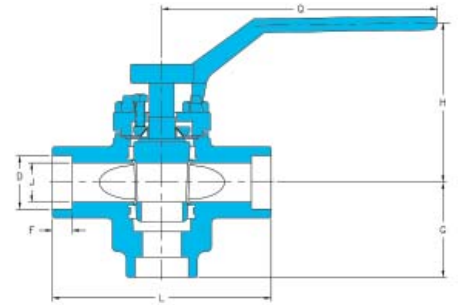
Socket Weld Ends

Wrench Operated

Actuators Optional on All Sizes

Dimensions to ANSI B16.11

E = Clearance required for resleeving measured from center line



SIZE	L		H		D		J		F		G		Q		Weight		E	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	kg	lbs	in	mm
1/2"	3.93	100.00	3.38	85.90	0.85	21.70	0.55	14.00	0.37	9.50	1.69	42.90	8.00	203.00	2.1	4.7	6.38	162.10
3/4"	3.93	100.00	3.38	85.50	1.07	27.20	0.75	19.00	0.50	12.70	1.80	45.70	8.00	203.00	2.1	4.7	6.38	162.10
1"	5.50	140.00	4.50	114.00	1.34	34.00	0.98	25.00	0.50	12.70	2.38	60.50	9.00	229.00	3.2	7.1	8.50	215.90
1 1/2"	6.30	160.00	5.31	135.00	1.92	48.80	1.50	38.00	0.50	12.70	2.88	73.20	14.25	362.00	6.4	14.2	10.38	263.70
2"	7.87	200.00	6.25	159.00	2.40	61.00	1.97	50.00	0.66	16.70	3.38	85.90	16.50	419.00	10.4	23.0	12.25	311.20

MULTIPORT DIN PN 16 & PN 40

Flanged Ends

Wrench or Enclosed Gear Operated

Actuators Optional on All Sizes

Dimensions to DIN EN 1092-1 & DIN EN 558-1

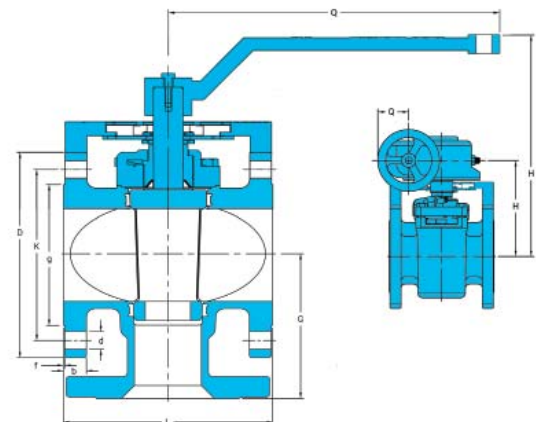
Enclosed gear optional on DN 100, and standard on DN 125 and DN 150

E = Clearance required for resleeving measured from center line

N = Number of holes

Two (2) top holes in flanges are tapped with metric threads. See Bolt Size column

*According to DIN EN 1092-2 (Cast Iron Flanges) and DIN prEN 1092-3 (Copper Alloy Flanges), the flanges in this DN and PN may be supplied with four (4) holes. Where steel flanges are required with four (4) holes, these may be supplied by agreement between manufacturer and purchaser.



SIZE	PN	L	H	D	K	g	b	f	d	Q	G	Weight	E	N	Bolt Size
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	mm	#	
DN 15	16 & 40	130.00	145.00	95.00	65.00	45.00	16.00	2.00	14.00	210.00	65.00	-	131.00	4	M12
DN 20	16 & 40	150.00	145.00	105.00	75.00	58.00	18.00	2.00	14.00	210.00	75.00	-	131.00	4	M12
DN 25	16 & 40	160.00	145.00	115.00	85.00	68.00	18.00	2.00	14.00	210.00	80.00	-	131.00	4	M12
DN 32	16 & 40	180.00	176.00	140.00	100.00	78.00	18.00	2.00	18.00	262.50	90.00	-	161.00	4	M16
DN 40	16 & 40	200.00	176.00	150.00	110.00	88.00	18.00	2.00	18.00	262.50	100.00	-	161.00	4	M16
DN 50	16	230.00	195.00	165.00	125.00	102.00	18.00	2.00	18.00	419.10	115.00	-	189.00	4	M16
	40	230.00	195.00	165.00	125.00	102.00	20.00	2.00	18.00	419.10	115.00	-	189.00	4	M16
DN 65	16	290.00	173.00	185.00	145.00	122.00	18.00	2.00	18.00	419.10	145.00	-	217.00	8*	M16
	40	290.00	173.00	185.00	145.00	122.00	22.00	2.00	18.00	419.10	145.00	-	217.00	8	M16
DN 80	16	310.00	173.00	200.00	160.00	138.00	20.00	2.00	18.00	419.10	155.00	-	217.00	8	M16
	40	310.00	173.00	200.00	160.00	138.00	24.00	2.00	18.00	419.10	155.00	-	217.00	8	M16
DN 100	16	350.00	200.00	220.00	180.00	158.00	20.00	2.00	18.00	618.00	175.00	-	270.00	8	M16
	40	350.00	200.00	235.00	190.00	162.00	24.00	2.00	22.00	618.00	175.00	-	270.00	8	M20
DN 125	16	325.00	303.00	250.00	210.00	188.00	22.00	2.00	18.00	184.20	163.00	-	370.00	8	M16
	40	325.00	303.00	270.00	220.00	188.00	26.00	2.00	26.00	184.20	163.00	-	370.00	8	M24
DN 150	16	350.00	290.00	285.00	240.00	212.00	22.00	2.00	22.00	184.20	175.00	-	370.00	8	M20
	40	350.00	290.00	300.00	250.00	218.00	28.00	2.00	26.00	184.20	175.00	-	370.00	8	M24

FluoroSeal Inc.

Specialty Valves



SPECIAL SERVICE

SLEEVED PLUG VALVES — SPECIAL SERVICE



SPECIAL SERVICE FLUOROSEAL® PLUG VALVES

Whether you are looking for a valve to suit a specific application, or want to customize a standard FluoroSeal® Plug Valve, you have come to the right place. Our special service valves provide you with both an array of turn-key solutions and the ability to fully match your application needs.

CAGED CONTROL PLUG VALVES

The Caged Control Valve is ideal for abrasive applications with high solids concentrations and is commonly used in both throttling and on/off applications. Caged valves have been used successfully in many critical applications in the Mining, Pulp & Paper, and Chemical Processing industries.

The design of the Caged Control Valve provides maximum protection to the polymer sealing surfaces in the plug valves. The key to the caged design is that the PTFE sleeve in the valve is never directly exposed to the process flow. This allows the sleeve to maintain its sealing integrity in abrasive applications.

The design of the Caged Control Valve allows the plug to rotate freely around a fixed cage within the body. The cage is stationary in the body while the plug rotates, thus allowing the sealing area of the plug to be in direct contact with the sleeve to provide bubble-tight shutoff. The cage stays in position protecting the polymer sleeve from erosion/abrasion while the plug is in any intermediate position such as when the valve is moving from the open to the closed position or when the valve is throttling.

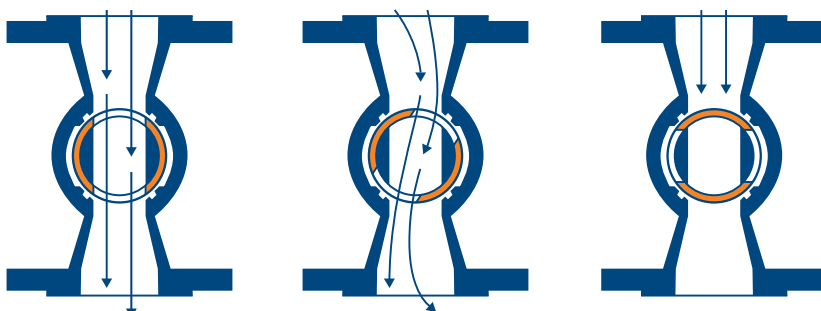
The cage has upper and lower graphite filled RTFE bearings that prevent galling between the plug and cage. A keyway keeps the cage from rotating in the body. This allows free movement of the plug around the cage.

The Caged Control Valve still allows for in-line adjustment for through valve leakage just as a standard plug valve does since the plug and the cage are independent of each other.

The cage and plug in the Caged Control Valve are generally made from CD4MCu material, an abrasion resistant alloy with the corrosion resistance of 316 SS. Caged Control Valves are available in any material, from carbon steel and stainless steel to any of the more exotic alloys.



PLUG-SLEEVED-R001-2013



From Left to Right: Full Flow (Plug 0°), Control Flow (Plug Throttling), Shutoff (Plug 90°)

FIRE SAFE SLEEVED PLUG VALVES



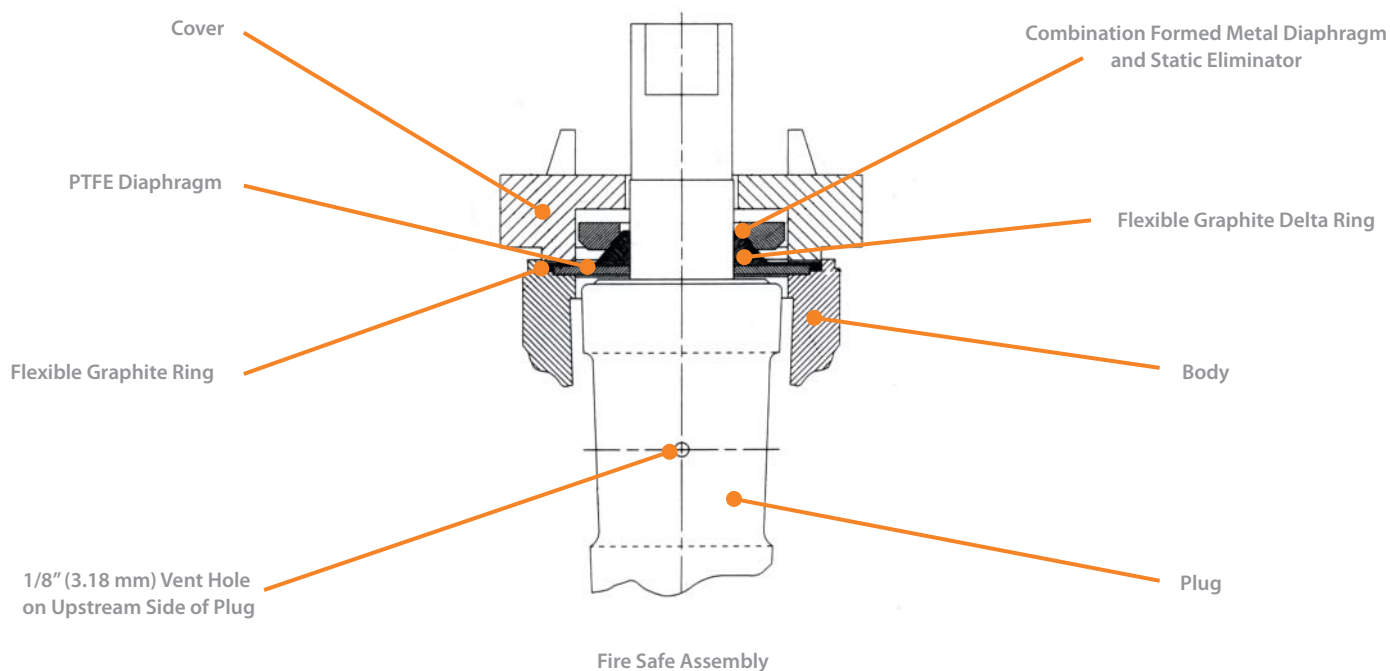
FluoroSeal[®] Fire Safe Plug Valve

FluoroSeal[®] Sleeved Plug Valves with the Fire Safe top seal have been tested and certified by an independent laboratory to the requirements of API 607, latest edition (ISO 10497-5) for external leakage.

The FluoroSeal[®] Fire Safe design utilizes a PTFE sleeve and PTFE diaphragm as the external sealing components under normal conditions. Should these components be destroyed by fire, external leakage is prevented by:

1. A secondary flexible graphite seal ring encapsulated and compressed between the metal diaphragm and the machined counterbore in the valve body
2. A flexible graphite delta ring encapsulated and compressed between the unique shaped metal diaphragm and the machined plug stem

FluoroSeal[®] Fire Safe Valves also utilize a vented plug designed to relieve pressure buildup resulting from expansion of the service media within the plug, due to elevated temperatures caused by fire. The pressure is relieved to the upstream side, providing a preferred flow direction indicated by an arrow on the valve cover.



Fluoroseal Inc.

Specialty Valves



OPTIONS

PLUG VALVES — OPTIONS

EZ-SEAL® TOP SEAL & ADJUSTMENT SYSTEM

This product is available on FluoroSeal® Sleeved and Lined Plug Valves in ANSI/ASME and DIN standards. In fact all DIN valves up to DN 150 come fitted with the EZ-SEAL® (patented) as standard. This innovation places FluoroSeal® Plug Valves at the leading edge of technology in the industrial valve market .

The EZ-SEAL® offers 360° simultaneous and even compression adjustment of the packing and plug, eliminating side loading. Visual indication takes the guess work out of valve adjustment and remaining service life diagnostic.

THE EZ-SEAL® CONCEPT

An easily accessible, single point frontal adjustment system that introduces the ease and precision of maintenance planning and cost savings on both manual and automated valve applications. Achievement is two-fold:

1. Maintenance technicians now have a trouble-free way of resealing both manual and automated valves with a single, quick and easy adjustment point (in comparison to time-consuming, cumbersome multiple adjustment bolt designs)
2. Visual gauging offers up-front knowledge of valve status, useful in scheduling valve change-out on shutdowns

ADVANTAGES

- No special tooling needed
- Significantly reduces recordable leakages
- Visual diagnostic
- Extended service life
- Allows for easy maintenance planning
- EZ-SEAL® Bracket and EZ-SEAL® Lock with a wide range of ISO mount patterns and five locking positions are offered in 304 SS as standard
- Allows direct mounting of actuation without inhibiting visual verification of stem status

DESIGN FEATURES SUMMARY

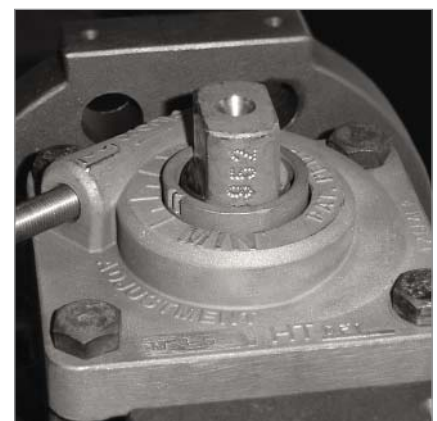
1. Single point frontal adjustment system
2. 360° simultaneous and even compression of top seal and plug
3. Plug adjustment is linear, impossible to side load
4. Tapered stem for increased sealing capabilities
5. Visual Min / Max cam adjustment indicator
6. Combination formed metal diaphragm and static eliminator
7. ISO mount stem
8. All-in-one ISO bracket and locking device, as standard
9. All components are high precision investment cast
10. Explosion-proof stem design
11. Positive shutoff



Valve with EZ-SEAL® (Patented) Assembly



EZ-SEAL® (Patented) Bracket and Lock



EZ-SEAL® (Patented) Cover with Cast On Min / Max Gauge

JACKETED PLUG VALVES

FluoroSeal® offers a number of jacketing solutions to customers requiring steam or hot oil-heated two-way or multiport plug valves to prevent process line freezing: either the bolt-on full jacket, or a welded-on full or partial jacketed valves to meet your requirements.

For the most efficient heat transfer, the welded-on full jacketed plug valve is offered with oversized flanges and face-to-face to match the jacketed piping it will be mounted on. A partial jacket with standard flanges is also available as an alternate, when space constraints or alternate piping heat source drive its use.

Finally, although less efficient, the bolt-on full jacket allows for in-line heat jacketing to be applied to an installed standard plug valve, eliminating the need for a shutdown for extensive maintenance action or piping change-over.

All FluoroSeal® jackets are available in various pressure-temperature ratings in a variety of materials, fabricated according to the latest ASME and PED process piping requirements, and welded using ASME- and PED-approved welders and procedures, ensuring a safe and reliable service according to the highest industry standards.



Fig. 1 Standard Welded Full Jacket with Oversized Flanges



Fig. 3 Full Bottom Jacket Using Valve Body Standard Flanges
(Jacket Pressure Rating Available in 150 & 300 lbs)



Fig. 2 Partial Welded Jacket



Fig. 4 Multiport with Full Welded Jacket

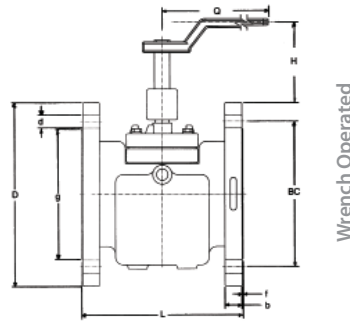
PLUG VALVES — OPTIONS

FULLY JACKETED ANSI/ASME CLASS 150 LBS

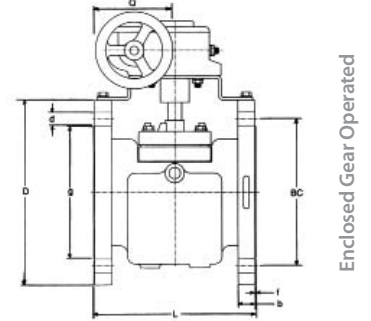
E = Clearance required for resleeving measured from center line

EG = Enclosed gear operated

N = Number of holes



Wrench Operated



Enclosed Gear Operated

SIZE	L		H		D		K		g		b		f		d		Q		E		N
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	#
2" x 1" x 2"	7.00	177.80	7.00	177.80	6.00	152.40	4.75	120.70	3.63	92.00	0.63	16.00	0.06	1.60	0.75	19.00	9.00	228.60	8.50	215.90	4
2 1/2" x 1 1/2" x 2 1/2"	8.00	203.20	7.63	193.70	7.50	190.50	5.50	139.70	4.13	104.60	0.75	19.00	0.06	1.60	0.75	19.00	14.25	362.00	10.38	263.70	4
3" x 1 1/2" x 3"	8.00	203.20	7.63	193.70	7.50	190.50	6.00	152.40	5.00	127.00	0.75	19.00	0.06	1.60	0.75	19.00	14.25	362.00	10.38	263.70	4
3" x 2" x 3"	8.00	203.20	8.00	203.20	7.50	190.50	6.00	152.40	5.00	127.00	0.75	19.00	0.06	1.60	0.75	19.00	16.50	419.10	12.25	311.20	4
4" x 3" x 4"	9.00	228.60	9.00	228.60	9.00	228.60	7.50	190.50	6.19	157.20	0.94	23.90	0.06	1.60	0.75	19.00	16.50	419.10	13.63	346.20	8
6" x 4" x 6"	10.50	266.70	10.00	254.00	11.00	279.40	9.50	241.30	8.50	215.90	1.00	25.40	0.06	1.60	0.88	22.40	23.63	600.20	16.25	412.80	8
6" x 4" x 6" EG	10.50	266.70	11.50	292.10	11.00	279.40	9.50	241.30	8.50	215.90	1.00	25.40	0.06	1.60	0.88	22.40	14.50	368.30	17.63	447.80	8
8" x 6" x 8" EG	11.50	292.10	12.00	304.80	13.50	342.90	11.75	298.45	10.62	269.75	1.13	28.70	0.06	1.60	0.88	22.40	14.50	368.30	21.75	552.50	8
10" x 8" x 10" EG	13.00	330.20	14.25	361.95	16.00	406.40	14.25	361.95	12.75	323.85	1.19	30.20	0.06	1.60	1.00	25.40	19.50	495.30	26.63	676.40	12
12" x 10" x 12" EG	14.00	355.60	15.75	400.05	19.00	482.60	17.00	431.80	15.00	381.00	1.25	31.80	0.06	1.60	1.00	25.40	19.50	495.30	31.25	793.80	12
14" x 12" x 14" EG	15.00	381.00	14.19	360.43	21.00	533.40	18.75	476.30	16.25	412.80	1.38	35.10	0.06	1.60	1.12	28.45	27.50	698.50	33.75	857.30	12
16" x 12" x 16" EG	16.00	406.40	16.31	414.27	23.00	584.20	21.25	539.75	18.50	469.90	1.38	35.10	0.06	1.60	1.13	28.58	27.50	698.50	33.75	857.30	16
18" x 16" x 18" EG	34.00	863.60	-	-	25.00	635.00	22.75	577.85	21.00	533.40	1.50	38.10	0.06	1.60	1.25	31.75	27.50	698.50	46.00	1168.40	16
20" x 18" x 20" EG	36.00	914.40	21.88	555.75	27.00	685.80	25.00	635.00	23.00	584.20	1.62	41.15	0.06	1.60	1.25	31.75	27.50	698.50	46.00	1168.40	20

FULLY JACKETED ANSI/ASME CLASS 300 LBS

E = Clearance required for resleeving from center line

EG = Enclosed gear operated

N = Number of holes

SIZE	L		H		D		K		g		b		f		d		Q		E		N
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	#
2" x 1" x 2"	8.50	215.90	5.00	127.00	6.50	165.10	5.00	127.00	3.63	92.00	0.88	22.40	0.06	1.60	0.75	19.00	9.00	228.60	8.50	215.90	8
2 1/2" x 1 1/2" x 2 1/2"	11.13	282.70	5.31	135.00	8.25	209.60	5.88	149.40	4.13	104.60	1.13	28.70	0.06	1.60	0.88	22.40	14.25	362.00	10.38	263.70	8
3" x 1 1/2" x 3"	11.13	282.70	5.31	135.00	8.25	209.60	6.63	168.40	5.00	127.00	1.13	28.70	0.06	1.60	0.88	22.40	14.25	362.00	10.38	263.70	8
3" x 2" x 3"	11.13	282.70	5.31	135.00	8.25	209.60	6.63	168.40	5.00	127.00	1.13	28.70	0.06	1.60	0.88	22.40	16.50	419.10	12.25	311.20	8
4" x 3" x 4"	12.00	304.80	6.10	155.00	10.00	254.00	7.88	200.20	6.19	157.20	1.25	31.80	0.06	1.60	0.88	22.40	16.50	419.10	13.63	346.20	8
6" x 4" x 6"	15.88	403.40	11.50	292.10	12.50	317.50	10.63	270.00	8.50	215.90	1.44	36.60	0.06	1.60	0.88	22.40	23.63	600.20	16.25	412.80	12
6" x 4" x 6" EG	15.88	403.40	11.50	292.10	12.50	317.50	10.63	270.00	8.50	215.90	1.44	36.60	0.06	1.60	0.88	22.40	14.50	368.30	17.63	447.80	12
8" x 6" x 8" EG	16.50	419.10	12.00	304.80	15.00	381.00	13.00	330.20	10.62	269.75	1.63	41.40	0.06	1.60	1.00	25.40	14.50	368.30	21.75	552.50	12
10" x 8" x 10" EG	18.00	457.20	14.25	361.95	17.50	444.50	15.25	387.35	12.75	323.85	1.88	47.80	0.06	1.60	1.12	28.45	19.50	495.30	26.63	676.40	16
12" x 10" x 12" EG	19.75	501.65	15.75	400.05	20.50	520.70	17.75	450.85	15.00	381.00	2.00	50.80	0.06	1.60	1.25	31.75	19.50	495.30	31.25	793.80	16
16" x 12" x 16" EG	24.00	609.60	16.31	414.27	25.50	647.70	22.50	571.50	18.50	469.90	2.19	55.63	0.06	1.60	1.38	35.05	27.50	698.50	33.75	857.30	20
18" x 16" x 18" EG	26.00	660.40	-	-	28.00	711.20	24.75	628.65	21.00	533.40	2.31	58.67	0.06	1.60	1.38	35.05	27.50	698.50	46.00	1168.40	24
20" x 18" x 20" EG	28.00	711.20	-	-	30.50	774.70	27.00	685.80	23.00	584.20	2.44	61.98	0.06	1.60	1.38	35.05	27.50	698.50	46.00	1168.40	24

FULLY JACKETED ANSI/ASME CLASS 600 LBS

E = Clearance required for resleeving from center line

EG = Enclosed gear operated

N = Number of holes

SIZE	L		H		D		K		g		b		f		d		Q		E		N
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	#
2" x 1" x 2"	11.50	292.10	-	-	6.50	165.10	5.00	127.00	3.62	91.90	1.00	25.40	0.25	6.35	0.75	19.10	9.00	228.60	8.50	215.90	8
2 1/2" x 1 1/2" x 2 1/2"	13.00	330.20	-	-	7.50	190.50	5.88	149.40	4.12	104.60	1.12	28.40	0.25	6.35	0.88	22.40	14.25	362.00	10.38	263.70	8
3" x 1 1/2" x 3"	14.00	355.60	-	-	8.25	209.60	6.62	168.10	5.00	127.00	1.25	31.80	0.25	6.35	0.88	22.40	14.25	362.00	10.38	263.70	8
3" x 2" x 3"	14.00	355.60	-	-	8.25	209.60	6.62	168.10	5.00	127.00	1.25	31.80	0.25	6.35	0.88	22.40	16.50	419.10	12.25	311.20	8
4" x 3" x 4"	17.00	431.80	-	-	10.75	273.10	8.50	215.90	6.19	157.20	1.50	38.10	0.25	6.35	1.00	25.40	16.50	419.10	13.63	346.20	8
6" x 4" x 6"	22.00	558.80	-	-	14.00	355.60	11.50	292.10	8.50	215.90	1.88	47.80	0.25	6.35	1.12	28.40	23.63	600.20	16.25	412.80	12
6" x 4" x 6" EG	22.00	558.80	-	-	14.00	355.60	11.50	292.10	8.50	215.90	1.88	47.80	0.25	6.35	1.12	28.40	14.50	368.30	17.63	447.80	12
8" x 6" x 8" EG	26.00	660.40	-	-	16.50	419.10	13.75	349.30	10.62	269.70	2.19	55.60	0.25	6.35	1.25	31.80	14.50	368.30	21.75	552.50	12
10" x 8" x 10" EG	31.00	787.40	-	-	20.00	508.00	17.00	431.80	12.75	323.90	2.50	63.50	0.25	6.35	1.38	35.10	19.50	495.30	26.63	676.40	16
12" x 10" x 12" EG	33.00	838.20	-	-	22.00	558.80	19.25	489.00	15.00	381.00	2.62	66.50	0.25	6.35	1.38	35.10	19.50	495.30	31.25	793.80	20
16" x 12" x 16" EG	39.00	990.60	-	-	27.00	685.80	23.75	603.25	18.50	469.90	3.00	76.20	0.25	6.35	1.63	41.28	27.50	698.50	33.75	857.30	20
18" x 16" x 18" EG	43.00	1092.20	-	-	29.50	749.30	25.75	654.10	21.00	533.40	3.25	82.60	0.25	6.35	1.75	44.50	27.50	698.50	46.00	1168.40	20
20" x 18" x 20" EG	47.00	1193.80	-	-	32.00	812.80	28.50	723.90	23.00	584.20	3.50	88.90	0.25	6.35	1.75	44.50	27.50	698.50	46.00	1168.40	24

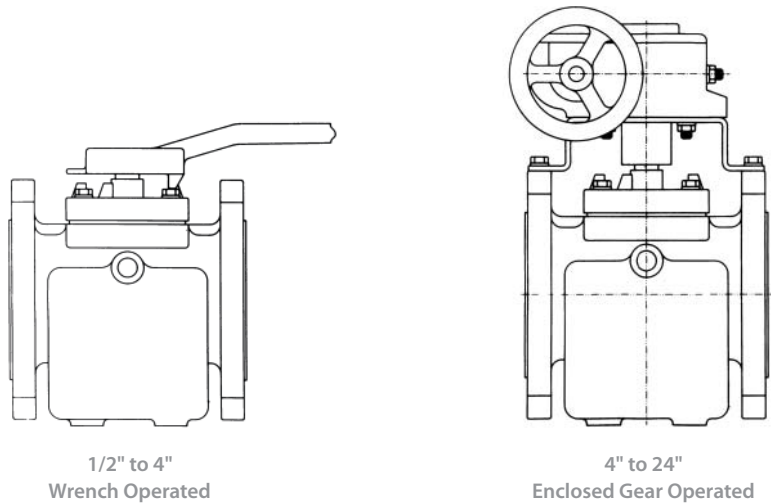
PARTIALLY JACKETED PLUG VALVES

Heat dissipation due to the partial insulating effect of the PTFE sleeve, combined with the basic plug valve design, provides a more uniform heat flange-to-flange with a partial jacket than with a full jacket. Therefore, a partial jacket should be selected for most applications.

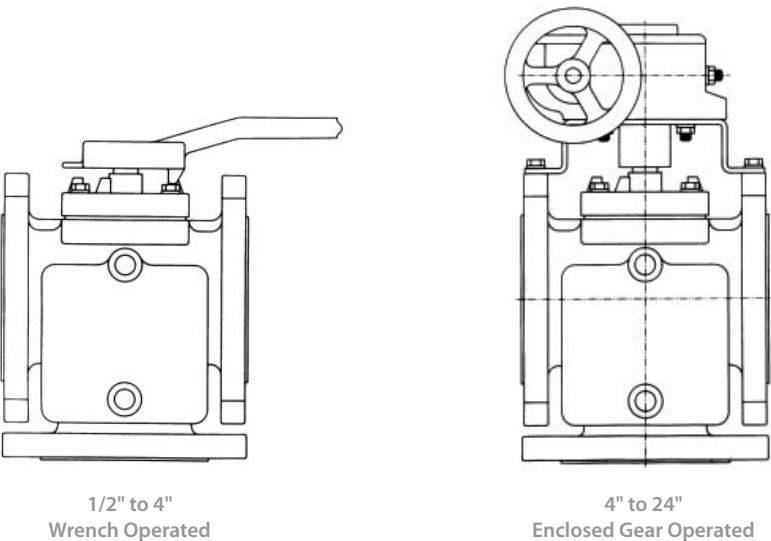
Refer to standard valves for dimensional data. Available in sizes 1" to 18".

DIN Partially Jacketed Plug Valves are available upon request.

PARTIALLY JACKETED 2-WAY ANSI/ASME CLASS 150, 300 & 600 LBS



PARTIALLY JACKETED MULTIPORT ANSI/ASME CLASS 150, 300 & 600 LBS



JACKET INLET OUTLET AND DRAIN CONNECTIONS

VALVE SIZE	1/2" – 2"		3" – 6"		8" – 24"	
	in	mm	in	mm	in	mm
NPT	1/2	12.70	3/4	19.05	1	25.40

PLUG-SLEEVED-R001-2013

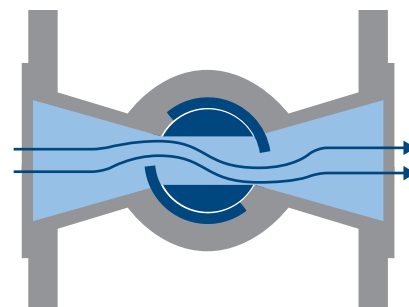
PLUG VALVES — OPTIONS

V-PORT & CHARACTERIZED PLUGS

FluoroSeal® Plug Valves are also available with Characterized Plugs for fine control applications. Standard V-Ports in 60° and other custom configurations are available in all trim materials.

The design and features of the FluoroSeal® Plug Valve makes it an excellent choice for fine throttling in slurry and chemical applications. The no cavity design allows the plug valve to throttle without exposing the stem seal to line pressure, a definite advantage over most ball valves specifically in high cycling applications.

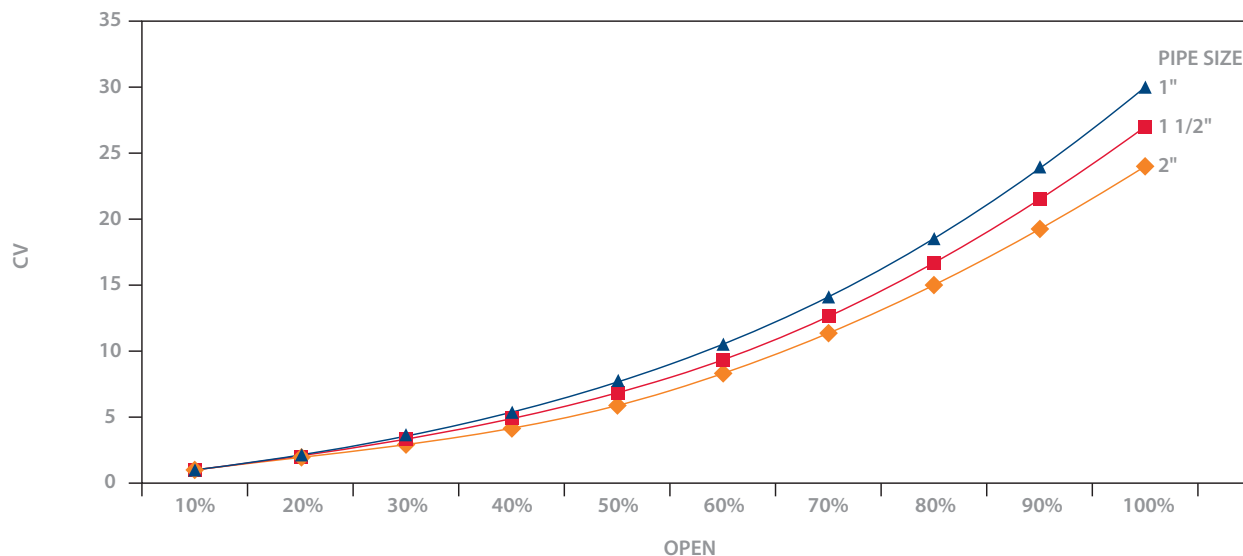
The Cage Control V-Port Plug Valve is mostly used in highly abrasive applications offering the benefits of a metal seated control valve, with the added advantage of a bubble-tight shutoff at a fraction of the cost. This product is available in all materials from 1" to 14" (DN 25 to DN 150).



Flow Diagram

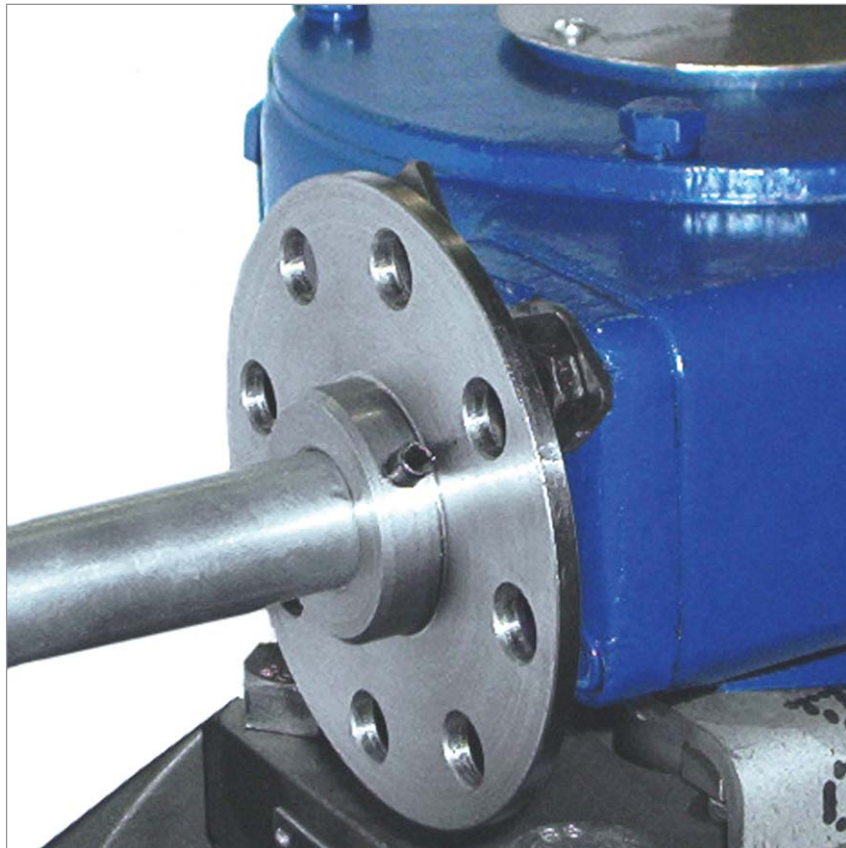


TYPICAL FLOW CHART FOR A 1" 60° V-PORT PLUG VALVE



FluoroSeal Inc.

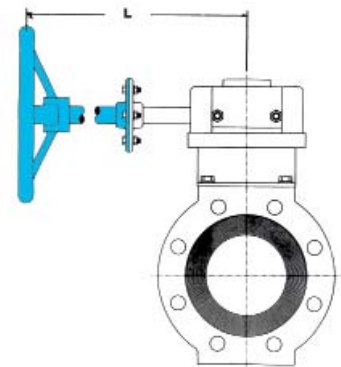
Specialty Valves



ACCESSORIES

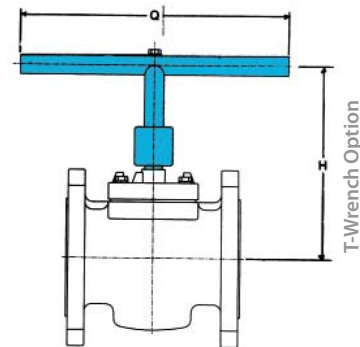
HANDWHEEL EXTENSION — GEAR OPERATOR

Custom extension to fit your particular space requirements. Please specify the length (L) needed. Support may be required depending on the length of the extension. (To be supplied by the customer.)



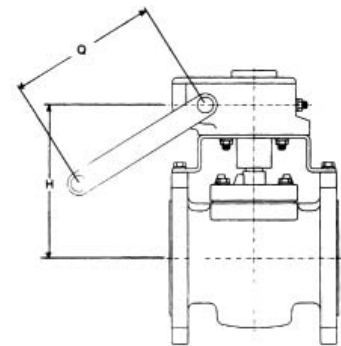
T-WRENCH AND EXTENSION OPTION

If longer "H" dimension, please specify.



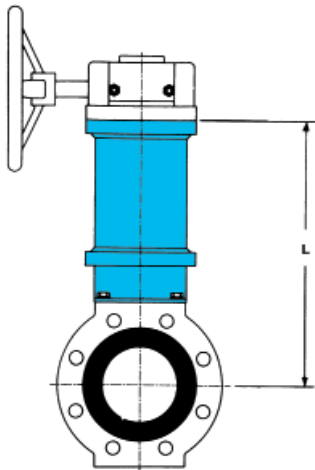
VALVE SIZE	1/2" (DN 15)		3/4" (DN 20)		1" (DN 25)		1 1/2" (DN 40)		2" (DN 50)		3" (DN 80)		4" (DN 100)	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
Q	12.00	304.80	12.00	304.80	18.00	457.20	28.00	711.20	36.00	914.40	36.00	914.40	42.00	1066.80
H	6.80	172.72	6.80	172.72	7.40	187.96	8.00	203.20	8.40	213.36	9.00	228.60	9.60	243.84

CRANK HANDLE



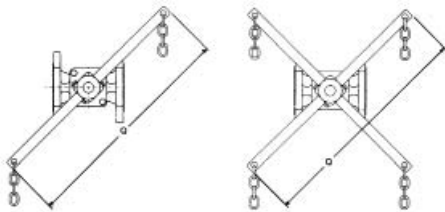
VALVE SIZE	4" EG (DN 100)		6" EG (DN 150)		8" EG		10" EG		12" EG	
	in	mm	in	mm	in	mm	in	mm	in	mm
Q	7.25	184.15	7.25	184.15	9.75	247.65	9.75	247.65	13.75	349.25
H	10.75	273.05	11.50	292.10	13.00	330.20	15.50	393.70	17.25	438.15

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STEM EXTENSION — GEAR OPERATOR

Stem extensions are used for remote operation of the valve. Actuators can be attached to the top of the extension. Specify the length (L) of the extension required and the figure number of the valve it is to be attached to.

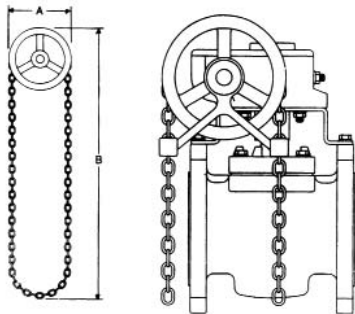


CHAIN WRENCH

Specify the chain length required and whether the valve will be installed in a horizontal or vertical line. To calculate chain length:

- 90° rotation: 1. Double required drop
2. Multiply Q by 0.5
3. 1+2 = required chain length
- 180° rotation: Double calculation for 90°

VALVE SIZE	1/2" (DN 15)		3/4" (DN 20)		1" (DN 25)		1 1/2" (DN 40)		2" (DN 50)		3" (DN 80)		4" (DN 100)	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
Q	13.00	330.20	13.00	330.20	16.00	406.40	24.00	406.40	36.00	914.40	36.00	914.40	60.00	1524.00



CHAIN WHEEL

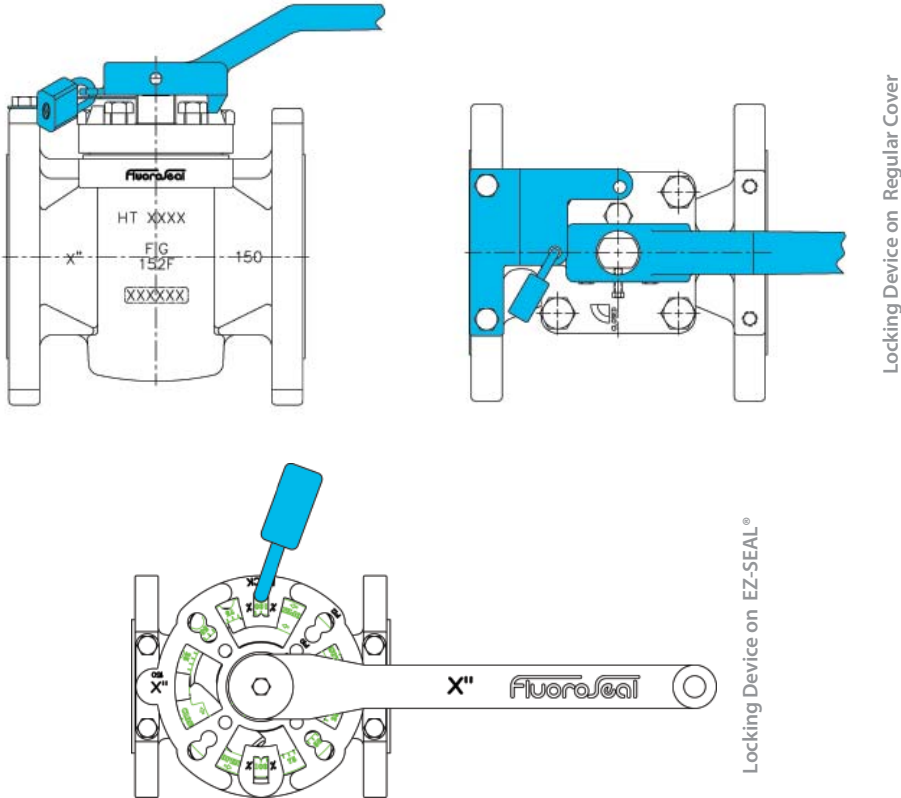
Specify the chain length required and whether the valve will be installed in a horizontal or vertical line. To calculate chain length:

1. Double required drop B
2. Multiply chain wheel diameter A by 2.6
3. 1+2 = required chain length

PLUG-SLEEVED-R001-2013

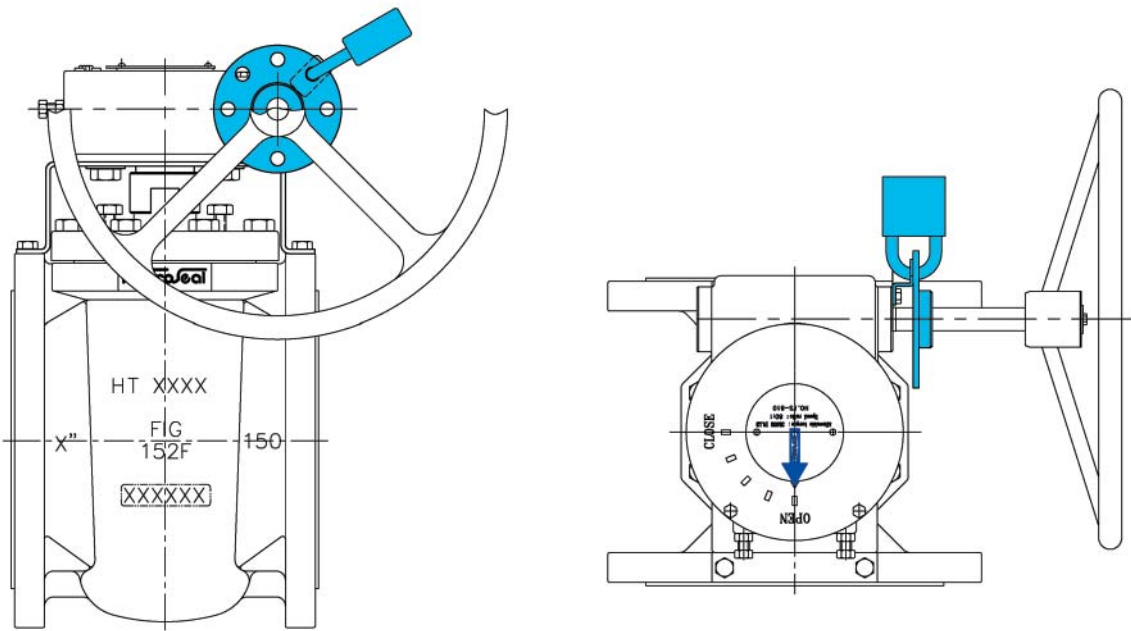
WRENCH OPERATOR LOCKING DEVICE

Padlock is not supplied.



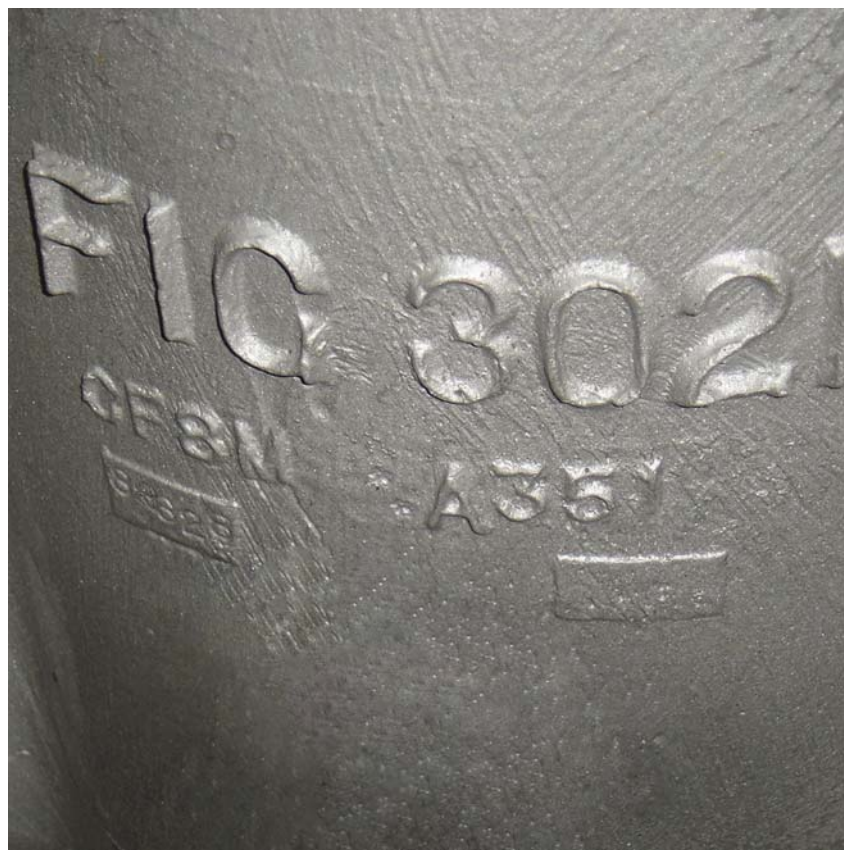
GEAR OPERATOR LOCKING DEVICE

Padlock is not supplied.



FluoroSeal Inc.

Specialty Valves



TECHNICAL DATA

OUR ENGINEERING COMMITMENT

We will assist you in making the most appropriate selection of alloys and polymers to suit your application. We will provide you with CV factors and other necessary flow calculations, therefore making your decision process as easy as possible. We will work together with you to develop the best valve possible, no matter what your industry sector. Our Engineered Solutions Division (ESD) is staffed with highly skilled engineers, technicians and draftsmen specialized in modifying existing designs to meet your specific needs.

Please consult our website, www.fluorosealvalves.com, for the most up-to-date listing of torque and CV values.

QUALITY ASSURANCE

FluoroSeal® Plug Valves possess all of the best design features presently available in a non-lubricated valve. They are inspected throughout the full manufacturing process from foundry to final assembly and packaging to assure high quality and consistency in every unit.

All internal processes are vetted according to best standard industry practices, inspections performed with equipment subject to periodic calibrations, and for special processes, such as welding, procedures and operators are fully qualified to the requirements of the ASME Boiler and Pressure Vessel Code, as well as to PED/CE requirements.

Please consult our website, www.fluorosealvalves.com, for the latest copy of our ISO, PED and AD Certificates.

TESTING

All FluoroSeal® valves are pressure tested prior to shipment to ensure full compliance with ANSI B16.34 and MSS SP-61 (or DIN EN 12266-1) shell and seat test requirements. At customer option, API 598 requirements can also be met.

All high nickel alloy valves are also shell tested with helium on a standard basis. In addition, non-destructive tests such as radiographic, liquid penetrant or magnetic particle evaluations can be performed to various requirements, at customer option.



Chemical



Mining



Oil & Gas

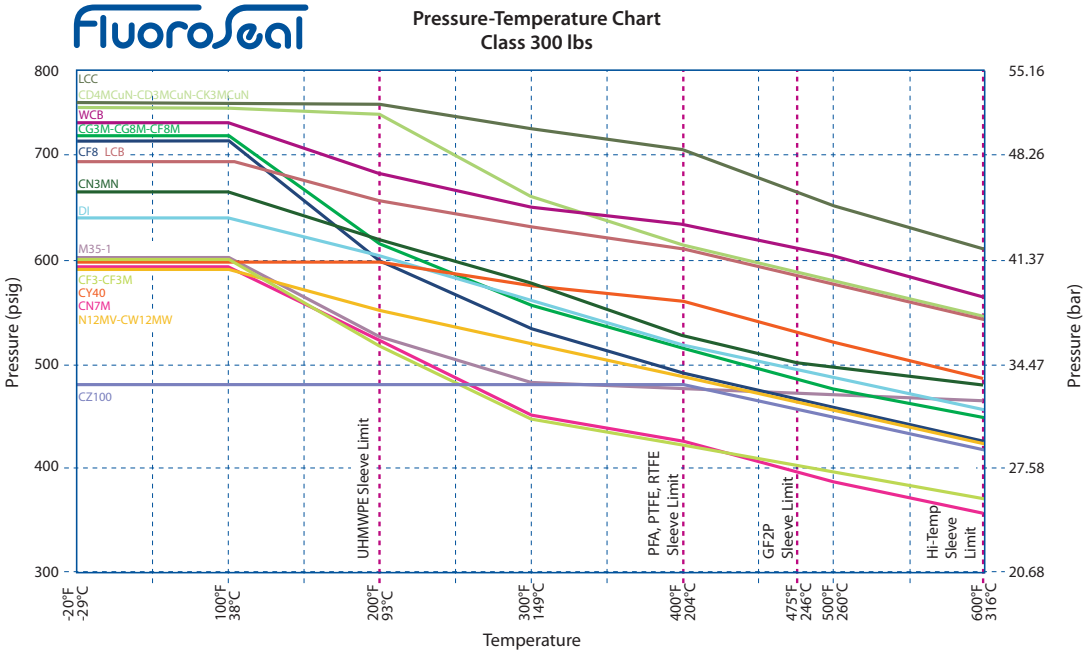
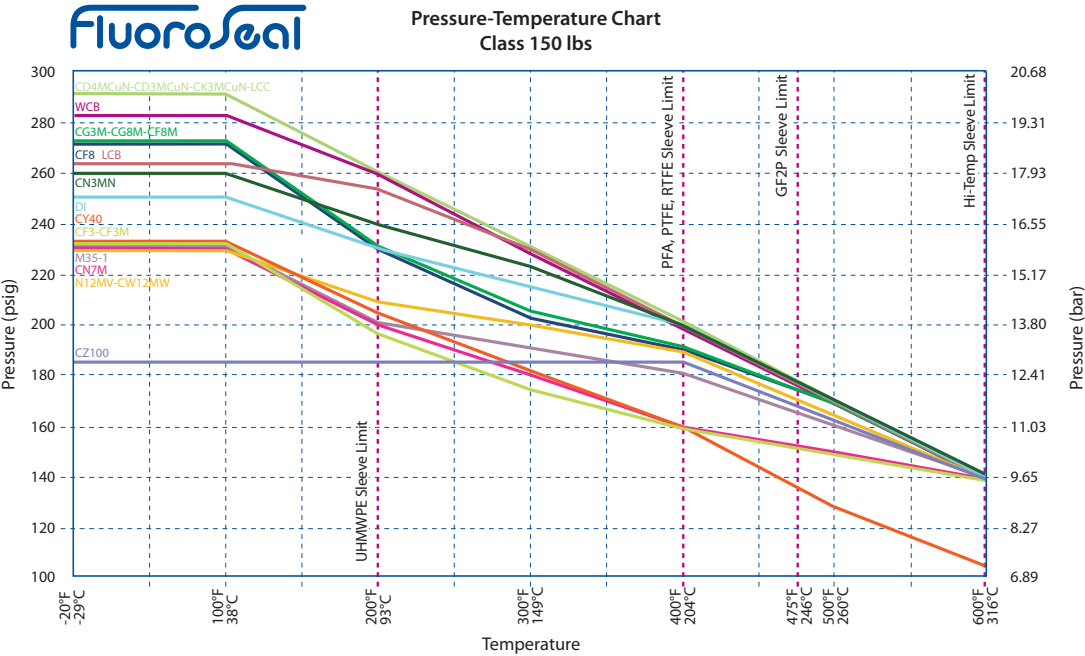


Power Generation

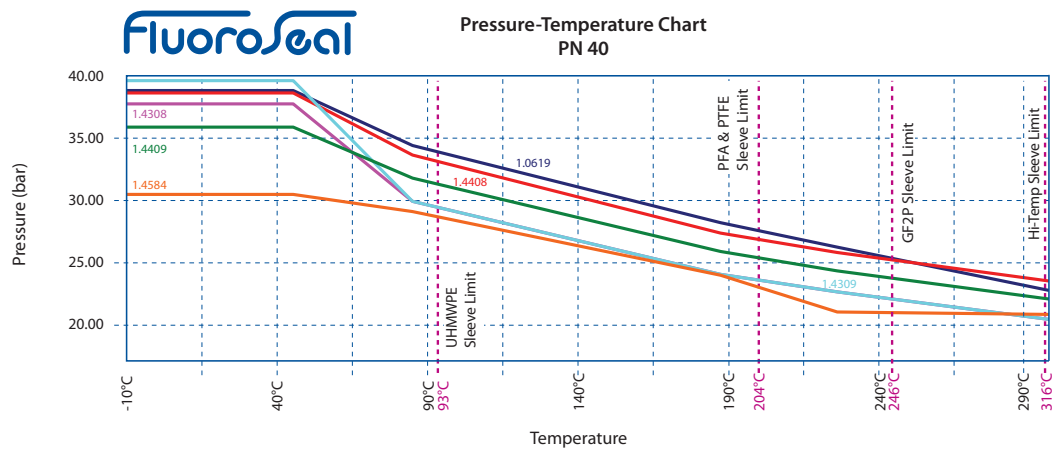
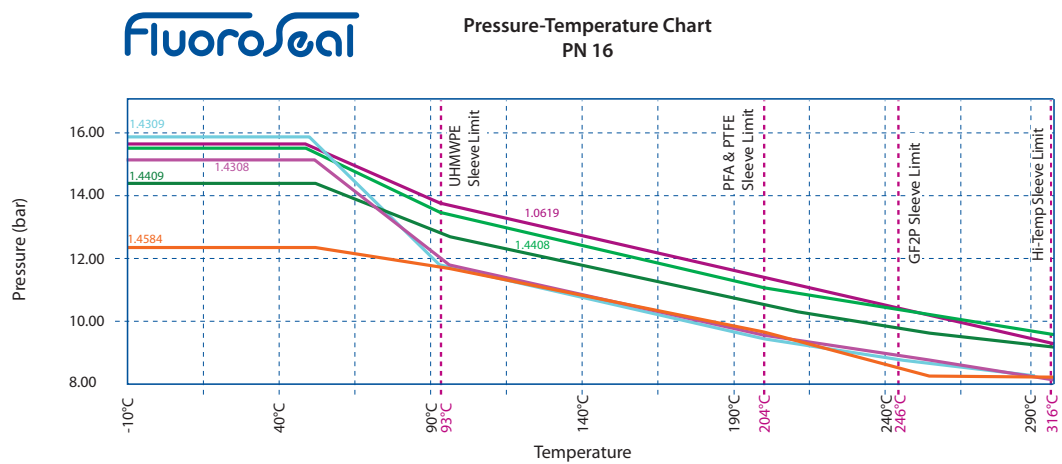
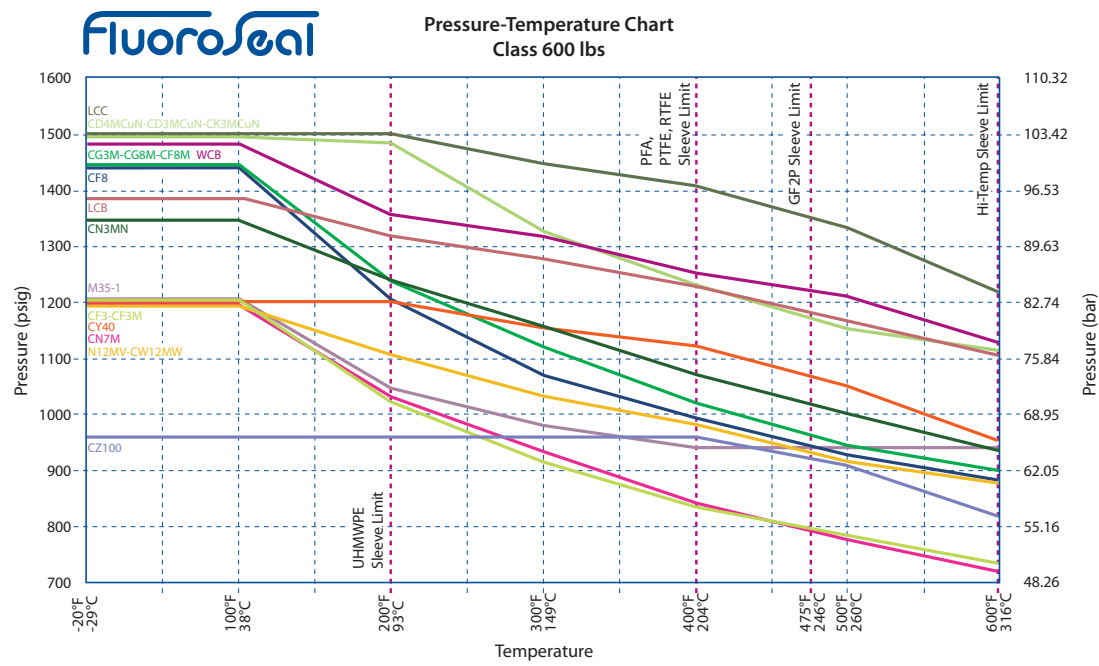


Pulp & Paper

MATERIAL PROPERTIES



PLUG-SLEEVED-R001-2013



Size	Port	Class	Flow	End Connection	Operator	Flow Pattern	Body Material	Plug Material	Cover Bolt Material	Sleeve Material	Special and / or Option
1/2" to 24" or DN15 to DN600 Refer to catalog for Class avail.	R Reduced F Full	15 Class 150 lbs 60 Class 600 lbs D16 PN 16 D40 PN 40	30 Class 300 lbs D10 PN10 D25 PN25	2 2-Way 3 3-Way	F Flanged Raised Face SE Screwed X Screwed x Socket Weld S Special	FF Flanged Flat Face SW Socket Weld BW Butt Weld					
Operator B Bare Stem EGL Enclosed Gear + Locking Device WL Wrench + Locking Device EG Enclosed Gear W Wrench WXT Wrench + Stem Extension											
Flow Pattern (Leave blank for 2-Way) FA1, FA2, FA3, FA4, FA5 Refer to catalog for Flow Patterns											
Body Material Refer to Body & Plug Material Table											
Plug Material Refer to Body & Plug Material Table											
Cover Bolt Material 1 B7* 2 B7M* 3 B8* 4 B16* 5 B8M Class 1* 6 B8M Class 2* 7 L7** 8 L7M** 9 B446 Gr.1 10 TC3 11 A20 12 A20 (Teflon Coated) 13 MO 400 14 HC 15 HC (Teflon Coated) 16 Inconel 718 17 TC5 18 ISO 898-1, 5.6 19 A2-70 20 A4-70 21 Special *According to ASTM A193 **According to ASTM A320											
Sleeve Material A PFA G GF2P P PTFE R RTFE U UHMWPE Z Hi-Temp Teflon®											
Special (A combination of Specials can be used) CL Prepared for Chlorine Service DBB Double Block & Bleed FE Severe Service HF UOP-Approved HF-Alkylation Configuration HOX Prepared for Hydrogen Peroxide ISY Prepared for Isocyanate Service OXY Prepared for Oxygen Service PHOS Prepared for Phosgene Service											
Options (A combination of Options can be used) CCV Cage Control Valve EZ EZ-SEAL® FJ Full Jacket FS Fire Safe PJ Partial Jacket V6 V-Port 60° S Special — Description required VN(X,Y,Ø) Vented Plug (Specify Location (X,Y) and Diameter(Ø)) Special venting available on request X: U: Upstream Y: T: Top Ø: 1/8 D: Downstream M: Middle 1/4 B: Bottom											

BODY & PLUG MATERIAL TABLE

CODE	DESCRIPTION	ASTM DESIGNATION	DIN
WCB	Carbon Steel	A216 Gr. WCB	1.0619
LCB	Low Temp. Ferritic Alloy Steel	A352 Gr. LCB	1.6220
LCC	Low Temp. Ferritic Alloy Steel	A352 Gr. LCC	1.7219
304	304 Austenitic Stainless Steel	A351 Gr. CF8	1.4308
304L	304L Austenitic Stainless Steel	A351 Gr. CF3	1.4309
316	316 Austenitic Stainless Steel	A351 Gr. CF8M	1.4408
316L	316L Austenitic Stainless Steel	A351 Gr. CF3M	1.4409
317	317 Austenitic Stainless Steel	A351 Gr. CG8M	
317L	317L Austenitic Stainless Steel	A351 Gr. CG3M	
A20	Alloy 20	A351 Gr. CN7M	1.4500
904L	904L Stainless Steel	Cast Grade	1.4584
CD4N	Ferinox® 255 Super-Duplex S.S.	A995 Gr. 1B (CD4MCuN)	1.4517
CD3	2205 Super-Duplex S.S.	A995 Gr. 4A (CD3MN)	1.4470
CE3	2507 Super-Duplex S.S.	A995 Gr. 5A (CE3MN)	1.4417
CK3	254 SMO Super-Austenitic S.S.	A351 Gr. CK3MCuN	
CN3	AL-6XN Super-Austenitic S.S.	A351 Gr. CN3MN	
HB	HASTELLOY® B*	A494 Gr. N7M	2.4882
HB2	HASTELLOY® B 2*	A494 Gr. N12MV	2.4685
HC	HASTELLOY® C*	A494 Gr. CW6M	2.4883
HC2	HASTELLOY® C 276*	A494 Gr. CW12MW	2.4686
I600	INCONEL® 600*	A494 Gr. CY40	2.4816
I625	INCONEL® 625*	A494 Gr. CW6MC	2.4856
MO	MONEL® 400	A494 Gr. M35-1	2.4365
NI	Nickel	A494 Gr. CZ-100	2.4170
TC2	Titanium (Comm. Pure)*	B367 Gr. C2	3.7035
TC3	Titanium (Comm. Pure)*	B367 Gr. C3	3.7031
TC5	Titanium Alloy 6Al-4V*	B367 Gr. C5	
ZR2	Zirconium*	B752 Gr. 702C	
ZR5	Zirconium*	B752 Gr. 705C	

Other and Special Alloys Available on Request

* Drilled and tapped flange actuation-mounting pads independent of cover and top seal assembly are optional on lever-operated valves (1/2" thru 4") in HASTELLOY®, INCONEL®, Titanium, and Zirconium alloys.

Note: HF, FS, CL are vented by default, specify NV if no venting is required for these options.

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