Nil-Cor®

Ball Valves

The Leader in Advanced Composite Valves

Certified to ISO 9001

TSSA Certified

Type Approved Certified

PED Directive Certified

Nil-Cor®

Nil-Cor is the world's leader in the design and manufacture of corrosion resistant composite valves. Introduced in 1977, Nil-Cor advanced composite valves have consistently proven their value in tough, highly corrosive fluids and environments. Nil-Cor graphite and fiberglass reinforced thermoset and thermoplastic resins provide outstanding resistance to acids, caustics, bleaches, solvents and over 1,000 other corrosive chemicals.

Rugged Lock-Out Lever (Std)

One Piece Body
Provides Exceptional Strength
Choice of (5) Resin Systems
Fiberglass or Graphite Reinforced

Outstanding
Chemical Resistance
Inside & Out
Zero Corrosion Rate

Excellent for Lined Pipe,
Alloy Pipe and
Fiberglass Pipe Installations

EXCELLENT ALTERNATIVE TO HIGH ALLOY VALVES. NIL-COR BALL VALVES ARE 50% - 80% LOWER COST & 1/3 THE WEIGHT

Designed In Accordance with ANSI B16.5
Class 150 lbs (DIN 2501/PN16) Flange
Dimensions and ANSI B16.10 (DIN 3202/FI)
Face to Face Dimensions

"NOT" Just For Fiberglass Pipe

Std. Valve Features

Adjustable Hastelloy C276 Packing Gland & Fasteners

Composite Encapsulated Hastelloy C276 Blow-out Proof Stem

PTFE Chevron Packing

Actuator Mounting Pad (Std)

Separate Ball / Stem Connection Reduces Side Loading, Increases Stem Seal Life

PTFE Self Relieving Seats Provide Bubble Tight Shut-Off

Leak Testing According to API 598 or DIN 3230 Criteria

ANSI 150 Flanges (Std) DIN, JIS Drilling Available

ELIMINATE DAMAGE AND FAILURE DUE TO CORROSION

Industry Firsts

- First Composite Ball Valve - 1977
- First Composite Ceramic Lined - 1982
- First Composite Control Valve - 1982
- First Composite Butterfly Valve - 1983
- First Composite Valve In U.S. Navy - 1989
- First Composite Epoxy Valve - 1993
- First Composite Ball Check Valve - 1997
- First Composite Fire Rated Valve - 2007
- First Composite Swing Check Valve - 2008

Over 300,000 Installed

Strong, Lightweight, Zero Corrosion

Vinyl Ester Resin Valves

310 Series

Vinyl Ester Resin / "Glass Fiber" Reinforced

This mixture of high strength, specially formulated, compression molded glass fiber and vinyl ester thermoset resin offers outstanding corrosion resistance and excellent retention of properties at high temperatures. The 310 series is our most popular resin system, offering chemical resistance to a wide range of chemicals including HCL, brine, sea water and corrosive environments.
The 310 is available in sizes 1" to 10", operates at (-)50°F to +250°F to pressures of 275 psig.

300 Series

Vinyl Ester Resin / "Graphite Fiber" Reinforced

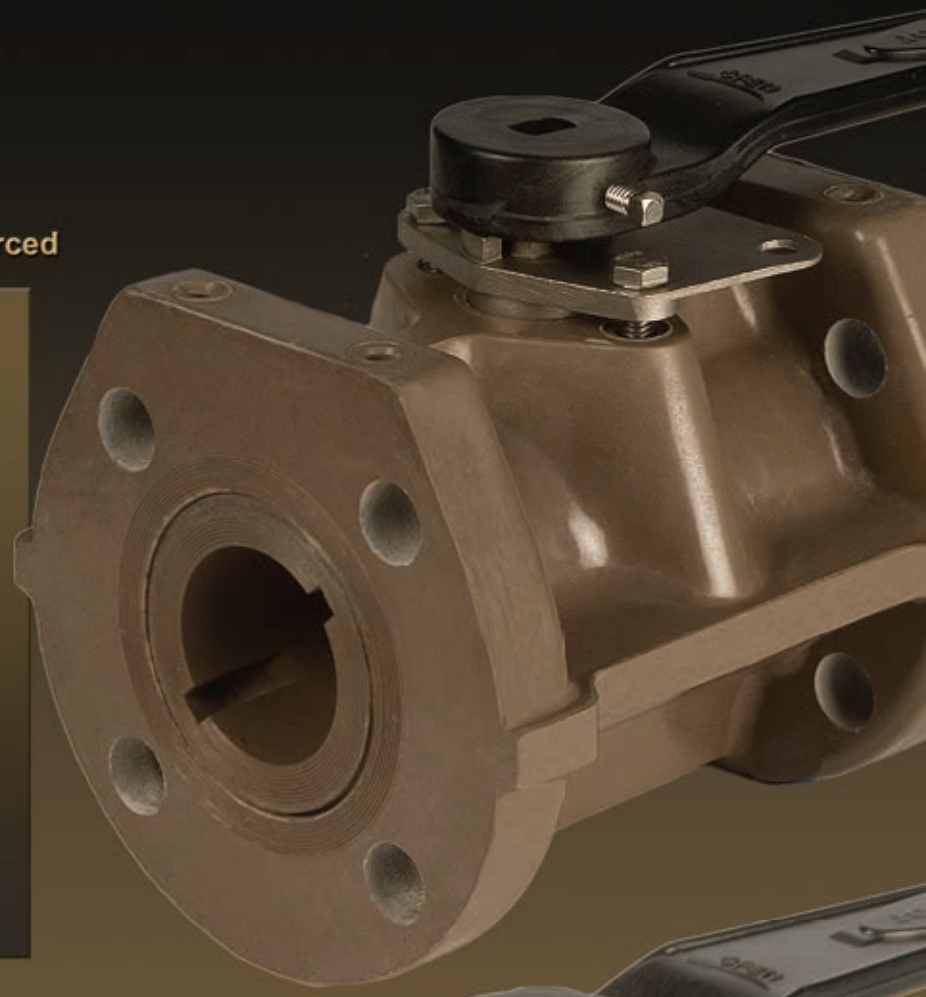
Graphite fibers provide high strength and chemical inertness, conductivity and surface lubricity to valve moving parts. The compression molded 300 material offers the same broad chemical resistance as the 310 material, but at higher temperatures. In addition, the 300 series resists certain chemicals that might attack glass fibers.
The 300 is available in sizes 1" to 10", operates at (-)50°F to +250°F to pressures of 275 psig.

Epoxy Resin Valves

610XP Series

Novolac Epoxy / "Glass Fiber" Reinforced

The 610XP provides chemical resistance to corrosive salt solutions, caustics, solvents and most acids. The compression molded novolac epoxy resin system optimizes both chemical resistance and mechanical capabilities of the 610XP. Rock solid composite construction provides a valve which can handle a multitude of aggressive chemicals internally and externally. The 610XP is available in sizes 1" to 10", operates at (-)50ºF to +300ºF to pressures of 275 psig.



500XP Series

Novolac Epoxy / "Graphite Fiber" Reinforced

Made from a solid construction of graphite fibers combined with high strength corrosion resistant novolac epoxy resin. The 500XP provides outstanding resistance to solvents, organic acids, caustics, and salt solutions in higher temperature applications. The valve also provides conductivity for those applications where grounding throughout the piping system is required.
The 500XP is available in sizes 1" to 10", operates at (-)50ºF to +300ºF to pressures of 275 psig.

Caustic & Bleach Valves

410 Series

Polysulfone Resin / "Glass Fiber" Reinforced

The 410 has been designed and manufactured specifically for troublesome caustic and sodium hypochlorite solutions. The valve body is made of a solid construction of glass fiber and polysulfone resin. The resin is also apprcved by the FDA for food contact.
The 410 is available in sizes 1" to 4", operates at (-)50ºF to +300ºF to pressures of 275 psig.

410 Series Threaded

Polysulfone Resin / "Glass Fiber" Reinforced

Nil-Cor produces the world's only advanced composite three - piece NPT threaded-end ball valve. The valve has the same chemical resistance as the 410 but in smaller sizes and convenient threaded connections. The 410 series can also be repaired in line by simply removing 4 tie rods and sliding out the center valve section.
The 410 is available in sizes 1/2" to 2", operates at (-)50ºF to +250ºF to pressures of 275 psig.
Other materials available.

Slurry Handling Valves

300 Zirconia Ceramic or UHMWPE Lined

Vinyl Ester Resin / "Graphite Fiber" Reinforced

Nil-Cor has combined two advanced material technologies: partially stabilized zirconia ceramic and graphite fiber reinforced vinyl ester composite to provide phenomenal abrasion and chemical resistance for those very difficult applications.
The UHMWPE lined version of the 300 series utilizes "ultra high molecular weight polyethylene" body liners with a ceramic ball to provide excellent erosion resistance at a lower cost.
The 300 ceramic lined valve operates at temperatures from (-)50°F to 300°F.
The 300 UHMWPE lined valve operates at temperatures from (-)50 to 180°F.
Both lined valves are available in sizes 1" to 10" with pressure capabilities to 200 psig.
Precision factory assembled modulating control valves are available.

V-Port Options

LIMITED 2 YEAR WARRANTY

Knoop Hardness Comparison

Specialty Valves

8” Wafer Ball Valve

Vinyl Ester or Epoxy / “Glass or Graphite” Reinforced

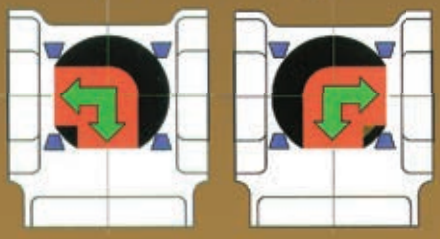
Nil-Cor’s 8” flange-less wafer ball valve is available in 300 series vinyl ester, 510XP & 610XP Epoxy. The wafer design accommodates fluid flowing in either direction and is ideal for those applications where space is premium.
The 8” valve operates at (-)50ºF to +300ºF to pressures of 150 psig.

3-Way Ball Valve

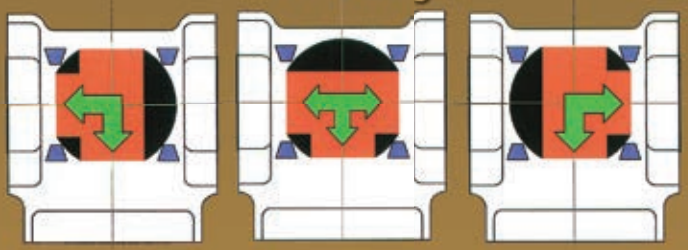
Vinyl Ester / “Graphite Fiber” Reinforced

Nil-Cor produces the world’s only advanced composite 3-way ball valve. The valve is designed for flow diverting and mixing applications and eliminates the need for costly multiple valve arrangements. Two ball configurations, T-port and L-port, permit a variety of flow schemes. The 300 series 3-way valve is available in vinyl ester reinforced with graphite fibers.
The 300 3-way is available in 1-1/2” size, operates at (-)50ºF to +250ºF to pressures of 150 psig.

L-Port Design



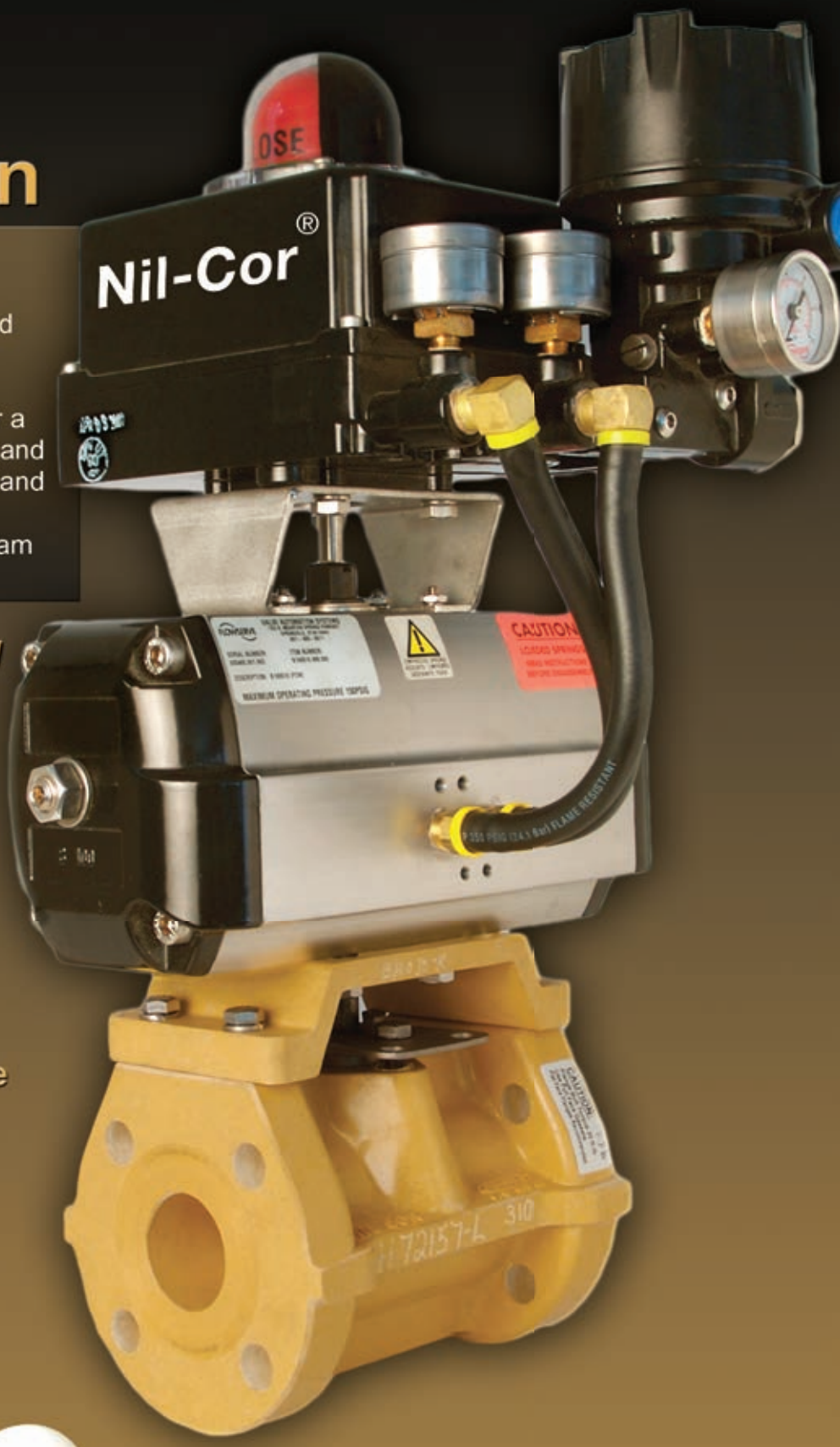
T-Port Design



Automated & Control

Automation

Nil-Cor Valves can be readily automated with a variety of pneumatic / electric actuators and accessories, including Smart positioners to satisfy specific customer requirements. We offer a broad selection of trim materials and port characteristics for corrosive and erosive process control. Our proprietary software sizing program ensures control performance.



Composite Mounting Bracket

Linear or Equal Percentage

V-Port Options

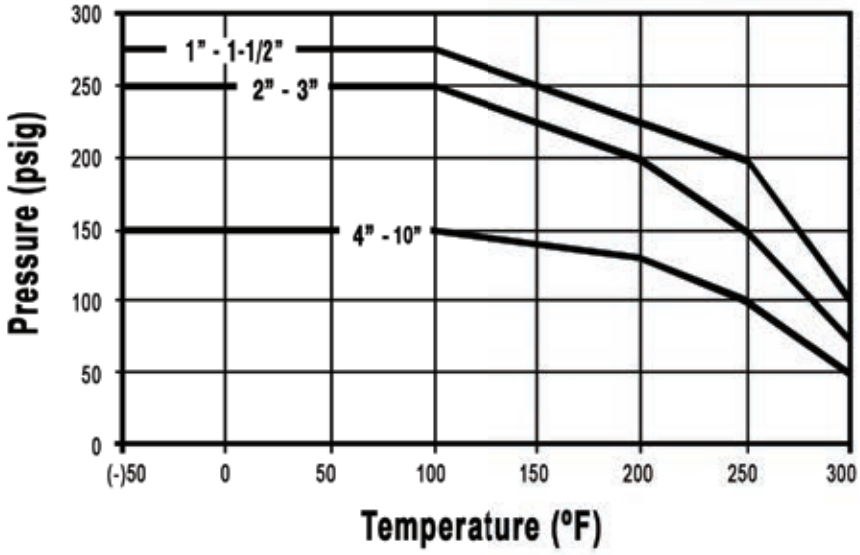
Seat Options & P/T Curve

ST = Virgin PTFE Self Relieving (STD).
SR = Glass Filled PTFE Self Relieving (Opt).

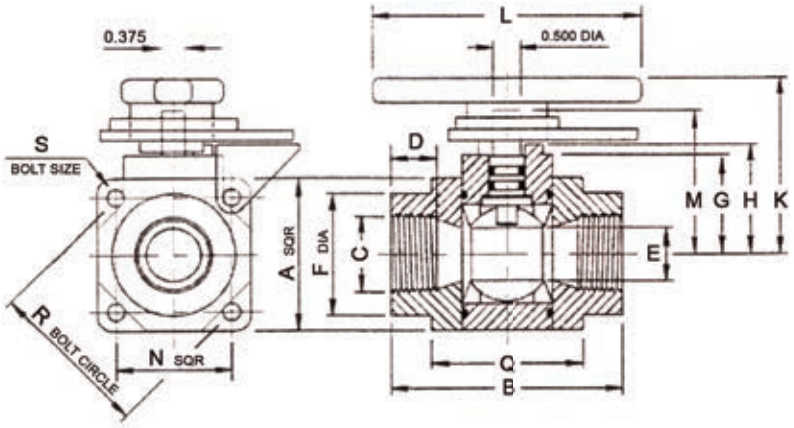
CF = Cavity Filled Seat (Opt).

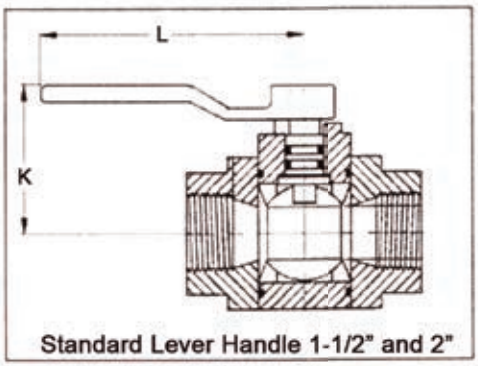
R = Glass Filled PTFE O-Ring Energized Seat Silicone or Viton W/ PFA Cover (Opt).

Pressure / Temperature Rating



Note: For safety, the P/T curve is based on 310 resin, our lowest mechanical strength material. Consult factory for higher ratings of other Nil-Cor resins



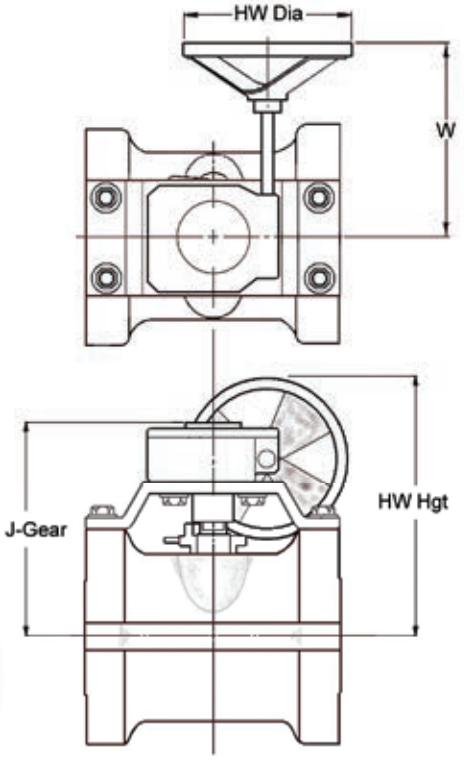


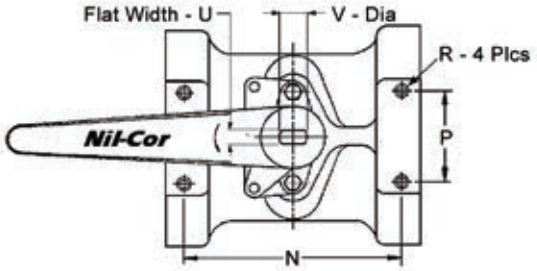
Standard Lever Handle 1-1/2" and 2"

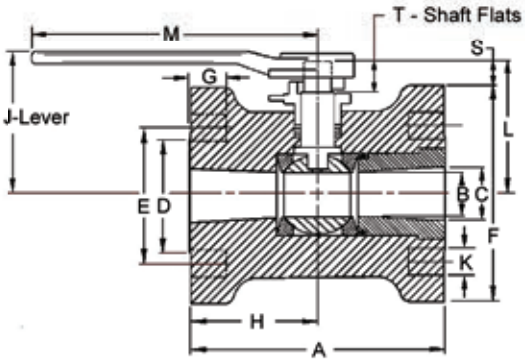
Valve Size	A	B	C (NPT)	D	E	F	G	H	K	L	M	N	Q	R	S Body Bolts	Body Bolt Torque (in-lbs)	Actuation Torque (in-lbs)
1/2"	2.50	3.88	1/2	0.56	0.66	2.00	1.63	1.88	3.10	4.50	2.36	1.88	2.54	2.65	1/4-20	25	140
3/4"	2.50	3.88	3/4	0.63	0.87	2.00	1.63	1.88	3.10	4.50	2.36	1.88	2.54	2.65	1/4-20	25	140
1"	2.50	3.88	1	0.75	0.88	2.00	1.63	1.88	3.10	4.50	2.36	1.88	2.54	2.65	1/4-20	25	140
1-1/2"	3.50	5.13	1-1/2	0.78	1.25	2.75	2.38	2.63	3.44	6.25	3.11	2.50	3.53	3.54	3/8-16	50	190
2"	4.38	5.63	2	0.81	1.50	3.25	2.94	3.19	4.00	6.25	3.81	3.00	4.14	4.24	1/2-13	100	230

Note: T-Handle standard on 1/2" - 1". Lever handle standard on 1-1/2" and 2" sizes

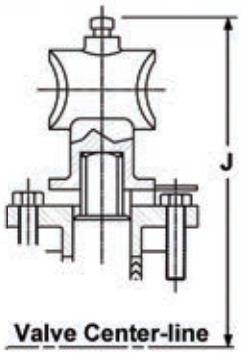
Dimensions & Technical



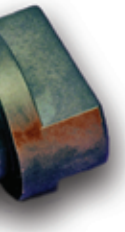




6" & 8" Handle Adaptor



Note: Use 18" length of 1" sch. 40 pipe w/handle adaptor.



Dimensions

SIZE	A	B	C	D	E	F	G	H	J-Lever	J-Gear	HW Dia	HW Hgt	K	K (QTY)	L	M	W
1"	5.00	.88	1.00	2.25	3.13	4.25	.88	2.50	3.08	5.60	8	8.00	0.62	4	2.77	6.25	6.32
1-1/2"	6.50	1.25	1.50	3.00	3.88	5.00	1.00	3.25	3.73	6.53	8	8.92	0.62	4	3.55	6.25	6.32
2"	7.00	1.50	2.00	3.66	4.75	6.00	1.00	3.50	4.18	6.71	8	9.11	0.75	4	3.96	9.00	6.32
2-1/2"	7.50	1.88	2.50	4.25	5.50	7.00	1.19	3.75	5.44	8.52	8	10.92	0.75	4	5.17	9.00	6.32
3"	8.00	2.31	3.00	5.00	6.00	7.50	1.36	4.00	5.58	8.52	8	10.92	0.75	4	5.42	9.00	6.32
4"	9.00	3.00	4.00	6.19	7.50	9.00	1.50	4.50	7.05	9.56	8	11.96	0.75	8	6.50	11.44	6.32
5"	10	3.75	5.00	7.50	8.50	10.00	1.50	5.00	7.75	11.08	12	14.46	0.88	8	7.21	**Note 4**	7.39
6"	10.50	4.50	6.00	8.50	9.50	11.00	1.63	5.25	10.51	11.58	12	14.96	0.88	8	7.91	**Note 4**	7.39
8"	11.50	6.00	8.00	11.25	11.75	13.50	1.75	5.75	11.77	13.00	12	17.11	0.88	8	9.21	**Note 4**	8.77
10"	13.00	7.50	10.00	14.00	14.25	16.00	2	6.50	NA	13.64	18	17.50	1.00	12	11.10	**NA**	8.77

Actuation Mounting Dimensions								Actuation Torque (in-lbs.)			Flow	Weight (lbs.)	
Valve Size	N	P	R x (deep[1])	S	T	+.000-.010 U	+.000-.010 V	Valve Running Torque [2]	Breakaway Torque [2] 0-100 psi	Breakaway Torque [2] >100 psi	Max Cv	w/o Gear	With Gear
1"	4.18	1.75	5/16 - 18 x 1/2	0.64	0.50	0.375	0.500	90	140	160	75	3	9
1-1/2"	5.62	1.75	5/16 - 18 x 1/2	1.05	0.70	0.375	0.500	125	190	230	115	6	12
2"	6.18	2.25	5/16 - 18 x 5/8	0.96	0.75	0.375	0.625	150	230	270	135	8	15
2-1/2"	6.62	2.63	3/8 - 16 x 3/4	1.67	0.75	0.500	0.880	260	400	475	250	13	20
3"	7.12	3.50	3/8 - 16 x 3/4	1.67	0.75	0.500	0.875	370	570	680	350	14	21
4"	8.00	4.00	7/16 - 14 x 7/8	2.00	1.13	0.750	1.000	680	1040	1250	540	23	30
5"	9.00	4.75	7/16 - 14 x 7/8	2.21	1.13	0.750	1.000	1000	1570	1825	1000	33	46
6"	9.00	5.25	7/16 - 14 x 1-1/8	2.41	1.13	0.750	1.000	1400	2100	2400	1240	40	53
8"	9.75	6.00	1/2 - 13 x 1-7/16	2.46	1.13	1.094	1.250	2800	4200	4800	2200	65	90
10"	11.25	7.75	1/2 - 13 x 1-1/8	3.10	1.13	1.250	1.438	4100	6300	7200	2600	100	125

1. Minimum thread engagement required to develop design joint strength on the actuator mounting pad (composite valve body).
2. Flowing fluid, ball in motion between 0 and 90 deg.
3. Maximum breakaway torque for clean liquid service.
4. For manual 5"-8" size, use handle adapter or gear operator. Gear only on 10".

How To Order Flanged Valves

Valve Series

- **310 - VE / Glass**
- 300 - VE / Graphite
- 400 - Polysulfone / Glass
- 500XP - Novolac Epoxy / Graphite
- 610XP - Novolac Epoxy / Glass

Seals

- **T - PTFE Coated Viton**
- P - PFA Encapsulated Silicone

Operator

- Blank - Lever (Std)
- **A - Actuated (Specify)**
- GR - Gear
- CW - Gear W/ Chain Wheel
- GD - Gear W/ Drive Nut

Example:
3" size, series 310 with standard PTFE seats, PTFE/Viton seals and Hastelloy bolting. Valve is to be air actuated, Spring to close.

Part Number **3 - 310 - ST - T - H - A - ■**

Size (in)

- 1
- 1.5
- 2
- 2.5
- **3**
- 4
- 5
- 6
- 8
- 10

Seats

- **ST - Virgin PTFE (Std)**
- SR - Glass Filled PTFE
- R - Glass Filled PTFE Energized O-Ring
- T - Virgin PTFE (8" Only)
- CF - Cavity Filled Glass Filled PTFE
- UL - UHMWPE Seats / Liner
- ZL - Zirconia Ceramic Seats / Liner

Bolts

- **H - Hastelloy C276 (Std)**

Specials

- **Blank - None**
- C - Prepared For Chlorine Service
- D - Grounding Spring
- E - Stem Extension
- X - Characterized Ball
- Z - Special Flange Drilling
- W1 - 310 Ball W/ 310 Body

Other Composite Valve Products

High Performance Double-Offset ButterFly Valves

PTFE / PFA Lined ButterFly Valves

Elastomer Lined ButterFly Valves

Ball & Swing Check Valves

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