

Nil-Cor[®]

Ball Valves

The Leader in Advanced Composite Valves



Certified to ISO 9001:2000
With Design



TSSA Certified



Type Approved Certified



PED Directive Certified



Nil-Cor®

Nil-Cor is the worlds 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.

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



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*

*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 The 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 (-)50°F to +300°F 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 (-)50°F to +300°F 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 approved by the FDA for food contact.

The 410 is available in sizes 1" to 4", operates at (-)50°F to +300°F to pressures of 275 psig.

410 Series Threaded

Polysulfone / "Glass Fiber" Reinforced



Nil-Cor produces the worlds 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 (-)50°F to +250°F 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 6" with pressures capabilities to 200 psig.

Precision factory assembled modulating control valves are available.



Flow Control Options



Full Cv

Step 1

Step 2

Step 3



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 (-)50°F to +300°F to pressures of 150 psig.

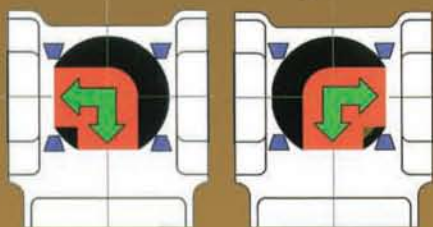


3-Way Ball Valve

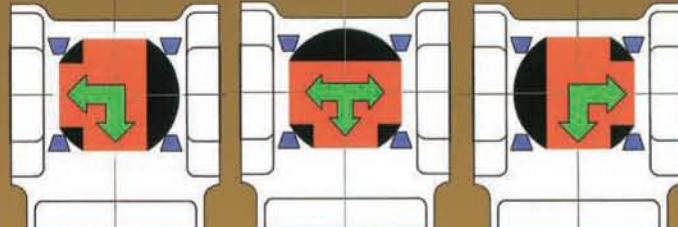
Vinyl Ester / "Graphite Fiber" Reinforced

Nil-Cor produces the worlds 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 (-)50°F to +250°F 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 actuators and accessories to satisfy specific customer requirements. Our modulating control valves offer a broad selection of trim materials including zirconia ceramic or advanced composite balls with precision linear or equal percentage flow characteristics.

Composite Mounting Bracket



Linear or Equal Percentage



Flow Control Options



Full Cv

Step 1

Step 2

Step 3



Seat Options & P/T Curve



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

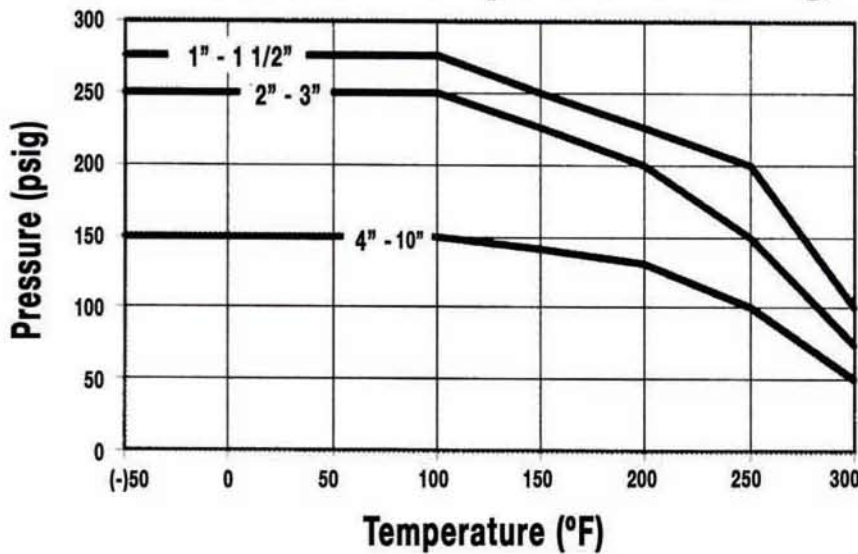


CF = Cavity Filled
Seat (Opt)

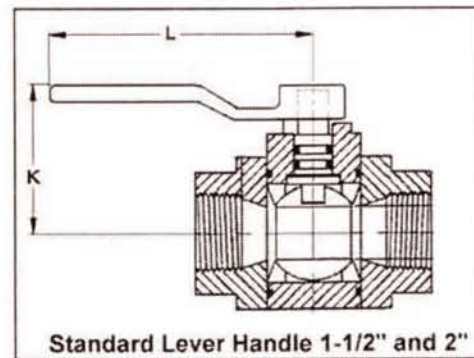
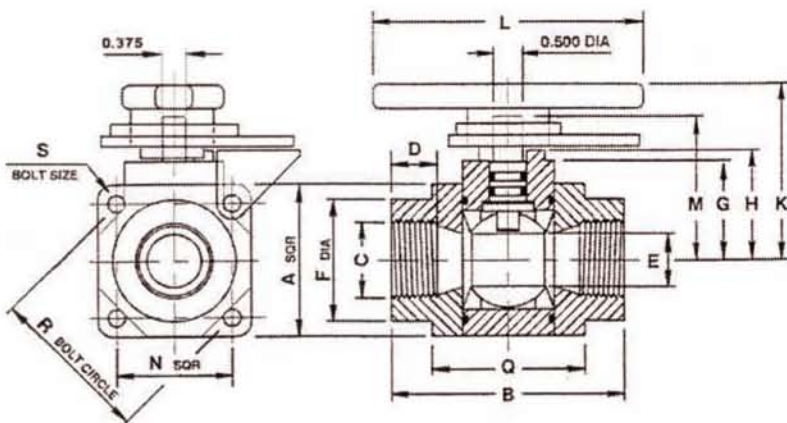
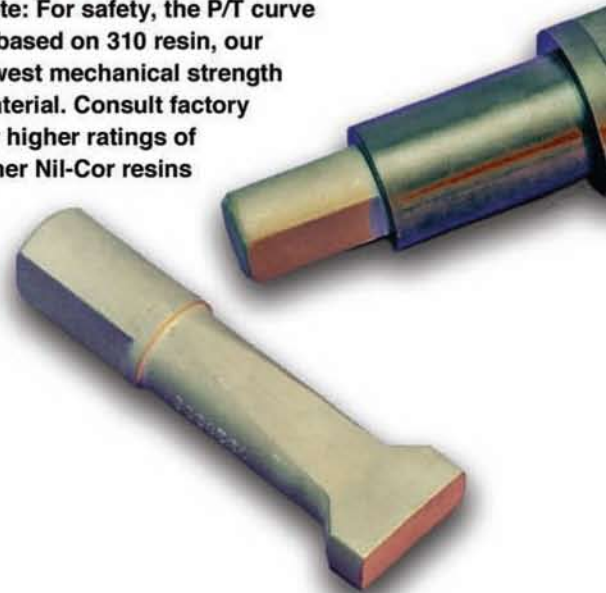


R = Glass Filled PTFE
O-Ring Energized Seat
Silicone or Viton W/ PFA
cover (Opt).

Pressure / Temperature Rating

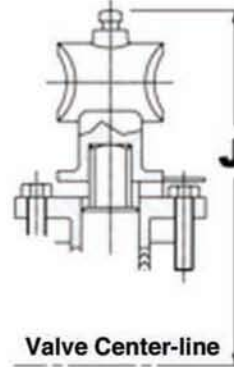
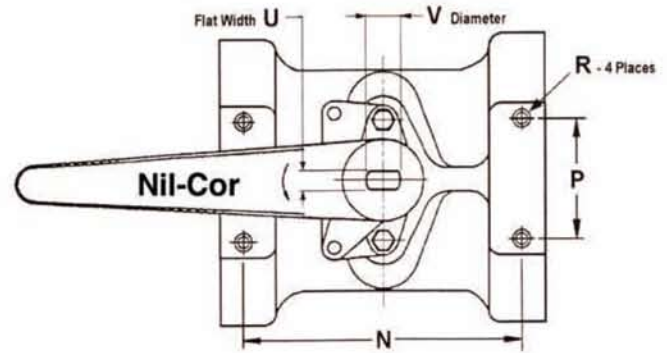
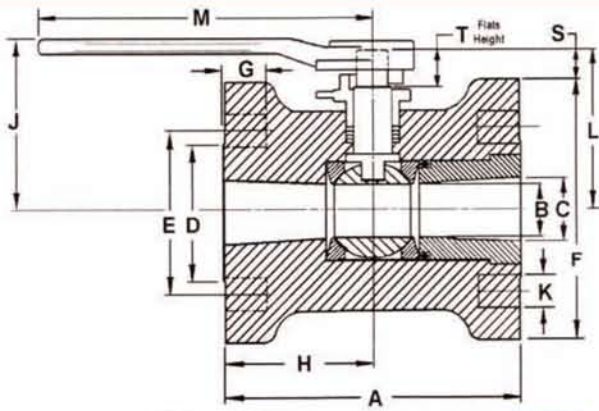


Note: For safety, the P/T curve is based on 310 resin, our lowest mechanical strength material. Consult factory for higher ratings of other Nil-Cor resins



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

Dimensions & Technical



For 5" - 8" Handle Adapter Only

Note: use 18" length of 1" Sch. 40 pipe with 5" & 6" handle adapter & 24" length for 8" valve size

Dimensions

SIZE	A	B	C	D	E	F	G	H	J	K	K (QTY)	L	M
1"	5.00	.88	1.00	2.25	3.13	4.25	.88	2.50	3.08	.62	4	2.77	6.25
1-1/2"	6.50	1.25	1.50	3.00	3.88	5.00	1.00	3.25	3.73	.62	4	3.55	6.25
2"	7.00	1.50	2.00	3.66	4.75	6.00	1.00	3.50	4.18	.75	4	3.96	9.00
2-1/2"	7.50	1.88	2.50	4.25	5.50	7.00	1.19	3.75	5.44	.75	4	5.17	9.00
3"	8.00	2.31	3.00	5.00	6.00	7.50	1.36	4.00	5.58	.75	4	5.42	9.00
4"	9.00	3.00	4.00	6.19	7.50	9.00	1.50	4.50	7.05	.75	8	6.50	11.44
5"	10.00	3.75	5.00	7.50	8.50	10.00	1.50	5.00	7.75	.88	8	7.21	Note 4
6"	10.50	4.50	6.00	8.50	9.50	11.00	1.63	5.25	10.51	.88	8	7.91	Note 4
*8"	11.50	6.00	8.00	11.25	11.75	13.50	1.75	5.75	11.77	.88	8	9.21	Note 4
10"	13.00	7.50	10.00	14.00	14.25	16.00	1.75	6.50	NA	1.00	12	11.10	NA

* Applies to 8" flanged valve dimensions only

Valve Size	Actuation Mounting Dimensions				Actuation Torque (in-lbs.)				Flow Max. Cv	Weight (lbs.)		
	N	P	(Note 1) R x (deep)	S	T	+0.00-.010 U	+0.00-.010 V	Valve Running Torque (Note 2)			Breakaway Torque (Note 3)	
1"	4.18	1.75	5/16 - 18 x 1/2	0.64	0.50	0.38	0.50	90	140	160	75	3
1-1/2"	5.62	1.75	5/16 - 18 x 1/2	1.05	0.70	0.38	0.50	125	190	230	115	6
2"	6.18	2.25	5/16 - 18 x 5/8	0.96	0.75	0.38	0.63	150	230	270	135	8
2-1/2"	6.62	2.63	3/8 - 16 x 3/4	1.67	0.75	0.50	0.88	260	400	475	250	13
3"	7.12	3.50	3/8 - 16 x 3/4	1.67	0.75	0.50	0.88	370	570	680	350	14
4"	8.00	4.00	7/16 - 14 x 7/8	2.00	1.13	0.75	1.00	680	1040	1250	540	23
5"	9.00	4.75	7/16 - 14 x 7/8	2.21	1.13	0.75	1.00	1000	1570	1825	1000	33
6"	9.00	5.25	7/16 - 14 x 1-1/8	2.41	1.13	0.75	1.00	1400	2100	2400	1240	40
8"	9.75	6.00	7/16 - 14 x 1-1/8	2.46	1.13	0.94	1.25	2800	4200	4800	1700	65
10"	11.25	7.75	1/2 - 13 x 1-1/8	3.10	1.13	0.94	1.25	4100	6300	7200	2600	100

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 a handle adapter or gear operator. For manual 10", use a gear operator

How To Order Flanged Valves

Valve Series

310 - VE / Glass

300 - VE / Graphite

400 - Polysulfone

/ Glass

500XP - Novolac Epoxy

/ Graphite

610XP - Novolac Epoxy

/ Glass

Operator

Bland - Lever (Std)

A - Actuated (Specify)

GR - Gear

CW - Gear W/ Chain Wheel

GD - Gear W/ Drive Nut

Seals

T - PTFE Coated Viton

P - PFA Encapsulated

Silicone

Example:

3" size, series 310 with standard PTFE seats, PTFE / Viton seals, 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

3

4

6

8

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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