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.

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

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
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.
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.
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 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 (-)50°F to +250°F to pressures of 275 psig. Other materials available.
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 psi.
Precision factory assembled modulating control valves are available.

---

**Knoop Hardness Comparison**

<table>
<thead>
<tr>
<th>Material</th>
<th>Hardness</th>
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<tr>
<td>Nil-Cor Zirconia</td>
<td>1200</td>
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<tr>
<td>Tungsten Carbide Hardfacing</td>
<td>780</td>
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<tr>
<td>Porcelain</td>
<td>600</td>
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<tr>
<td>Glass</td>
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<tr>
<td>Titanium</td>
<td>437</td>
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<td>Stainless 310</td>
<td>109</td>
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<tr>
<td>Carbon Steel Rolled</td>
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<tr>
<td>Stainless 304</td>
<td>138</td>
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</tbody>
</table>
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 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 (-)50°F to +250°F to pressures of 150 psig.
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

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.

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**

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<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J - Lever</th>
<th>HW Dia</th>
<th>HW Hgt</th>
<th>K (QTY)</th>
<th>L</th>
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**Actuation Mounting Dimensions**

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<th>N</th>
<th>P</th>
<th>R x (deep)</th>
<th>S</th>
<th>T</th>
<th>+0.000-.010 U</th>
<th>+0.000-.010 V</th>
<th>Valve Running Torque (in-lbs.)</th>
<th>0-100 psi</th>
<th>100-150 psi</th>
<th>Breakaway Torque (in-lbs.)</th>
<th>Max Cv</th>
<th>w/o Gear</th>
<th>With Gear</th>
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<tbody>
<tr>
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<td>4.18</td>
<td>1.75</td>
<td>5”/16 - 8 x1/2</td>
<td>0.64</td>
<td>3.50</td>
<td>0.375</td>
<td>0.500</td>
<td>90</td>
<td>140</td>
<td>180</td>
<td>75</td>
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<td>9</td>
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<tr>
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<td>5.52</td>
<td>1.75</td>
<td>5”/16 - 8 x1/2</td>
<td>1.05</td>
<td>3.75</td>
<td>0.375</td>
<td>0.500</td>
<td>125</td>
<td>190</td>
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<td>5”/16 - 8 x5/8</td>
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<td>0.375</td>
<td>0.625</td>
<td>150</td>
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<td>3”/8 - 16 x3/4</td>
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<td>1.13</td>
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<td>4.75</td>
<td>7/16 - 14 x7/8</td>
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<td>7200</td>
<td>2600</td>
<td>100</td>
<td>125</td>
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</tr>
</tbody>
</table>

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
510XP - 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

Part Number

3 - 310 - ST - T - H - A -

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

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 (6” Only)
CF - Cavity Filled
Glazed Filled PTFE
UL - ULHMPFE 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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Ph. 616-554-3100 Fax 616-554-5623
www.nicor.com

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