CNC
FLOW CONTROL




# BUTTERFLY VALVES

C&C

*C&C is a product brand of CNC Flow Control*

# ABOUT CNC FLOW CONTROL

CNC Flow Control is headquartered in Houston, Texas with multiple other locations in the U.S. and Canada. Our company unifies several trusted valve and flow line brands that have been serving numerous industries in North America for nearly three decades. From long range projects to same-day delivery, our diverse team is dedicated to understanding customers' needs in order to ensure exceptional service and the best solutions. Our extensive product portfolio ranges from commodity products like hammer unions and needle valves, to highly engineered products like API 6D trunnion mounted ball valves.

Quality assurance is critical to CNC Flow Control's process and we hold multiple internationally recognized quality standards certifications and management system. We are dedicated to understanding our customers' needs to ensure exceptional service by offering an in-house engineering and product management team, an extremely large product portfolio and extensive inventory to support same day shipments.

# ABOUT OUR C&C BRAND

C&C's breadth of available products is extremely diverse. From hammer unions to ball valves, C&C products complement most any stocking portfolio. C&C has provided the market with quality valves and fittings for nearly three decades. Today, C&C products are seen in almost all upstream oil and gas applications throughout North America.

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# HOW TO ORDER GUIDE

| A | – | B | C | D | – | E | F | G | H |
|---|---|---|---|---|---|---|---|---|---|
| BF | – | 040 | LW | D | – | D | 1 | B | 1 |

| A | VALVE TYPE |
|---|---|
| BF | Butterfly Valve |

| B | SIZE INCHES |
|---|---|
| 020 | 2" |
| 025 | 2.5" |
| 030 | 3" |
| 040 | 4" |
| 050 | 5" |
| 060 | 6" |
| 080 | 8” |
| 100 | 10” |
| 120 | 12” |
| 140 | 14” |
| 160 | 16” |
| 180 | 18” |
| 200 | 20” |
| 240 | 24” |
| 280 | 28” |
| 300 | 30” |
| 360 | 36” |
| 420 | 42” |
| 480 | 48” |

| C | SERIES |
|---|---|
| LW | C200 Series Wafer |
| LL | C200 Series Lug |
| LR | LR200 Series Wafer |
| LG | LG200 Series Lug |
| LN | LN200 Series |
| SE | T200 Series |
| GG | G200 Series |
| DF | Double Flanged |

| D | DISC MATERIAL |
|---|---|
| A | Aluminum Bronze |
| D | Ductile Iron (Ni Plated) |
| N | Ductile Iron (Nylon Coated) |
| S | A351 Gr. CF8M (316) Stainless |
| P | A351 Gr. CF8 (304) Stainless |
| M | Monel 400® |

| E | BODY MATERIAL |
|---|---|
| C | Cast Iron |
| D | Ductile Iron |
| S | A351 Gr. CF8M (316) Stainless |
| W | A216 Gr. WCB (Carbon) Steel |

| F | STEM MATERIAL |
|---|---|
| 1 | 416 Stainless |
| 2 | 316 Stainless |
| 3 | 304 Stainless Steel |
| 4 | Monel K500® |

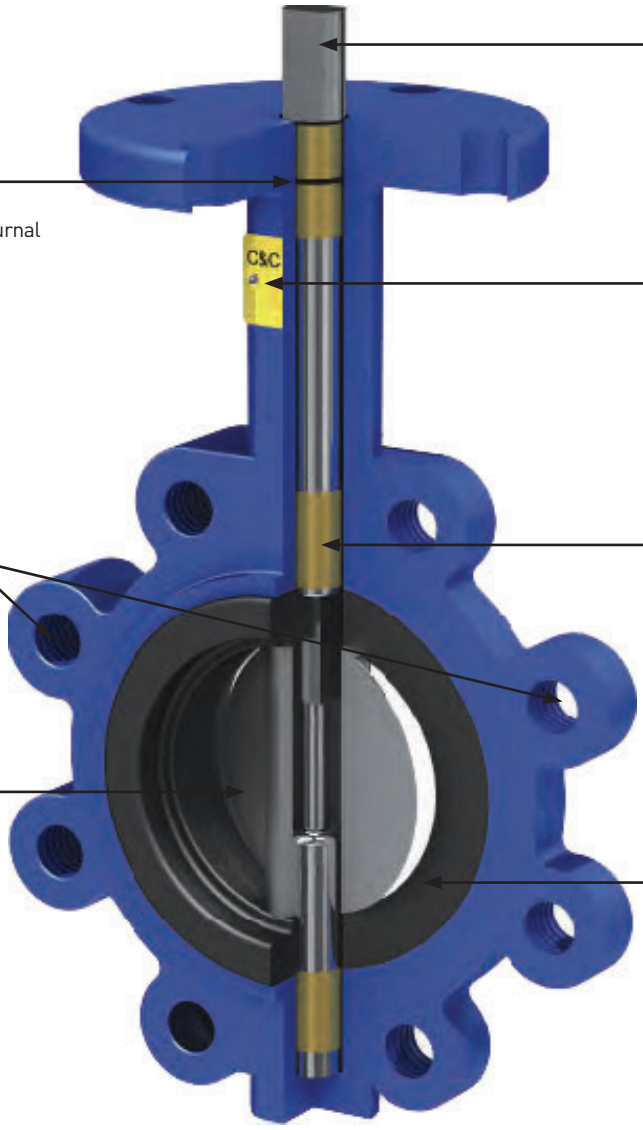
| G | SEAT MATERIAL |
|---|---|
| B | BUNA-N |
| E | E.P.D.M. |
| V | F.K.M. (Viton®) |
| T | P.T.F.E. (Teflon®) |
| N | Neoprene® |
| H | Hypalon® |

| H | ACTUATOR |
|---|---|
| L | Lever |
| G | Gear |

# Wafer and Lug Style Butterfly Valve

## C200 Series - Design & Features

The C200 Series is a perfect balance of economy and durability. This general purpose valve is ideal for a wide range of industries including HVAC, oil and gas production, agriculture, chemical and petrochemical, waste water, and mining. The C200 is pressure rated to 200 PSI for sizes 2" to 12” and 150 PSI for sizes 14” to 48”.




**STEM**
The standard stem for the C200 is constructed of solid 416 stainless steel. Double D stem design provides extended stem life. Mounting pad & stem dimensions meet ISO 5211 requirements.

**O-RING**
Provides a secondary seal to help prevent leaks through the stem journal

**NAME PLATE**
Metal name plate is securely fixed to the valve body. Name plate clearly displays size, flange compatibility, body, seat and disc material

**BODY STYLE**
The C200 Lug comes standard with tapped lug holes, and the wafer style features alignment holes for quick installation

**STEM BUSHING**
The P.T.F.E. (2”~12”) or Lubricated Bronze (14”~48”) stem bushings reduce torque requirements and help increase stem life by isolating the stem from the valve body.

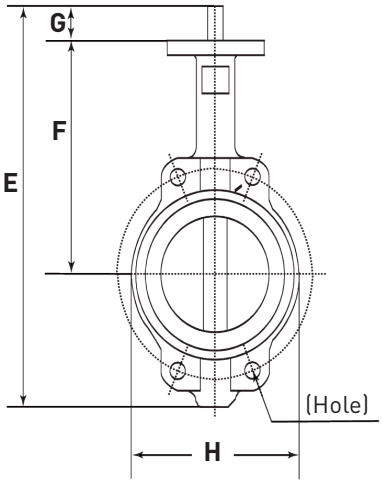
**DISC**
Available in a wide range of materials as listed under the How To Order Guide

**SEAT**
Phenolic-backed resilient seat provides bubble tight shut-off up to 200 psi (2”~12”) and 150 psi (14” and larger). Seats are available in a wide array of materials. See next page for material availability.

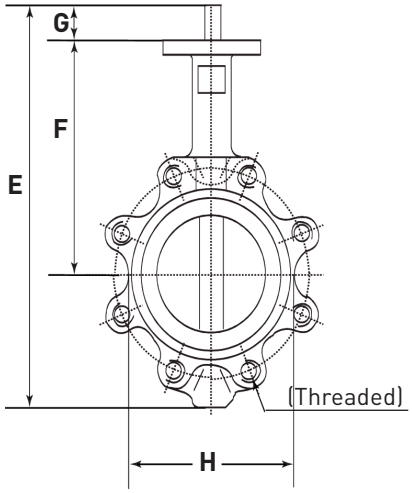
# Wafer and Lug Style Butterfly Valve

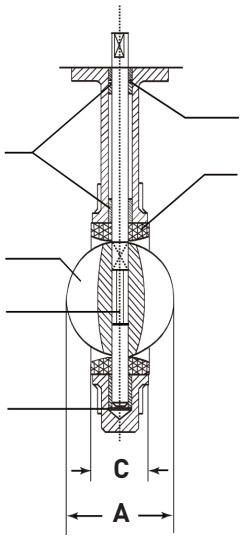
## C200 Series - Dimensional Data

LW




LL




## MATERIALS OF CONSTRUCTION

| No. | DESCRIPTION | MATERIAL |
|---|---|---|
| 1 | Body | Ductile Iron ASTM A536, WCB Gr 216A*, A351 CF8M*, A351 CF8* |
| 2 | Disc | Ductile Iron (Ni Plated), Ductile Iron (Nylon Coated), Aluminum Bronze, CF8M (316 SS), CF8 (304SS)*, Monel®* |
| 3 | Stem | 416 Stainless Steel, 304 Stainless Steel*, 316 Stainless Steel*, Monel®* 7.64 |
| 4 | Seat | 194 BUNA-N, E.P.D.M., F.K.M.(Viton®), P.T.F.E. (Teflon®), Neoprene®*, Hypalon®* |
| 4 | O-ring | 8.94 BUNA-N (Viton® Optional) |
| 6 | Bushing | P.T.F.E. (2”~12”), Lubricated Bronze (14”~24”) |

*Asterisk denotes factory availability only

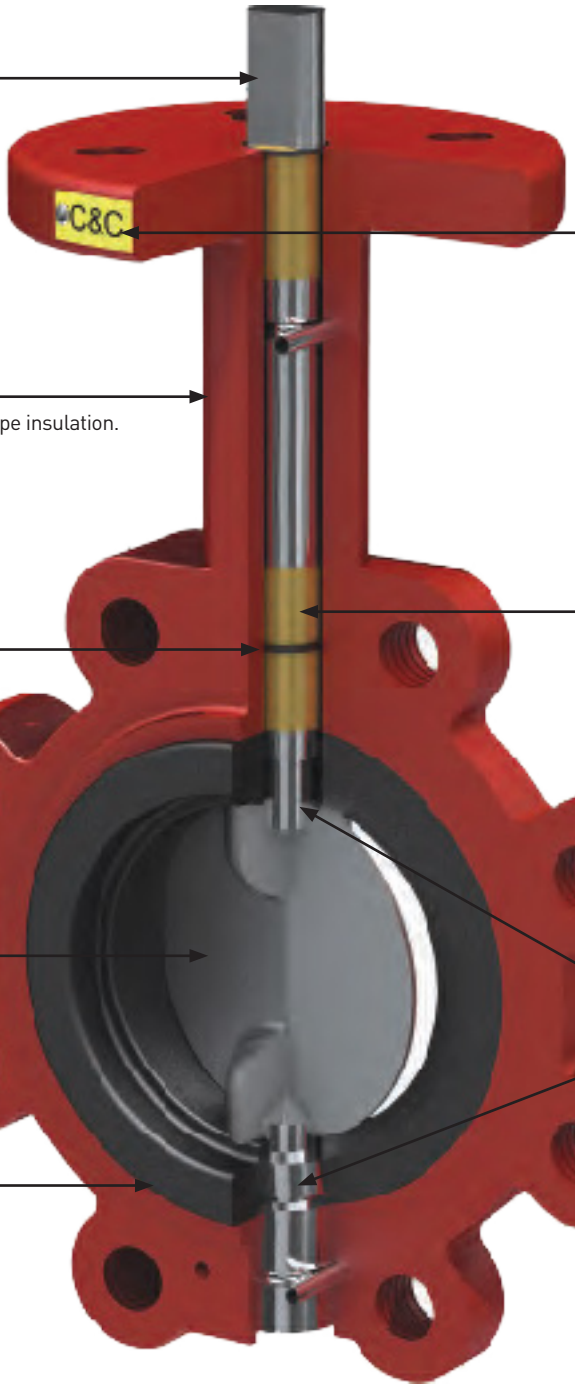
## DIMENSIONAL DATA

| SIZE | A | | c | | E | | F | | G | | H | | WAFER WEIGHT | | LUG WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg | lbs | kg |
| 2” | 2.07 | 52.60 | 1.65 | 42.04 | 10.74 | 273.00 | 6.33 | 161.00 | 1.25 | 32.00 | 3.94 | 100.00 | 8 | 4 | 10 | 5 |
| 2.5” | 2.53 | 64.30 | 1.75 | 44.68 | 11.65 | 296.00 | 6.88 | 175.00 | 1.25 | 32.00 | 4.72 | 120.00 | 10 | 5 | 12 | 5 |
| 3" | 3.10 | 78.80 | 1.77 | 45.21 | 12.12 | 308.00 | 7.12 | 181.00 | 1.25 | 32.00 | 5.00 | 127.00 | 11 | 5 | 13 | 6 |
| 4" | 4.09 | 104.04 | 2.05 | 52.07 | 13.62 | 346.00 | 7.87 | 200.00 | 1.25 | 32.00 | 6.49 | 165.00 | 13 | 6 | 21 | 10 |
| 5” | 4.85 | 123.30 | 2.14 | 54.36 | 14.64 | 372.00 | 8.38 | 213.00 | 1.25 | 32.00 | 7.28 | 185.00 | 18 | 8 | 25 | 11 |
| 6” | 6.11 | 155.38 | 2.19 | 55.75 | 15.62 | 397.00 | 8.89 | 226.00 | 1.25 | 32.00 | 8.34 | 212.00 | 20 | 9 | 29 | 13 |
| 8” | 7.95 | 202.15 | 2.38 | 60.58 | 18.89 | 480.00 | 10.23 | 260.00 | 1.77 | 45.00 | 10.55 | 268.00 | 35 | 16 | 48 | 22 |
| 10” | 9.84 | 250.15 | 2.63 | 67.00 | 21.25 | 540.00 | 11.49 | 292.00 | 1.77 | 45.00 | 13.42 | 341.00 | 47 | 21 | 69 | 31 |
| 12” | 11.86 | 301.45 | 3.02 | 76.90 | 24.17 | 614.00 | 13.26 | 337.00 | 1.77 | 45.00 | 15.74 | 400.00 | 77 | 35 | 108 | 49 |
| 14” | 13.01 | 330.50 | 3.01 | 76.50 | 26.77 | 680.00 | 14.48 | 368.00 | 1.77 | 45.00 | 17.16 | 436.00 | 95 | 43 | 158 | 72 |
| 16” | 15.33 | 389.61 | 3.40 | 86.50 | 29.44 | 748.00 | 15.74 | 400.00 | 2.00 | 50.80 | 19.29 | 490.00 | 114 | 52 | 198 | 90 |
| 18” | 17.34 | 440.51 | 4.15 | 105.60 | 31.02 | 788.00 | 16.61 | 422.00 | 2.00 | 50.80 | 21.22 | 539.00 | 191 | 87 | 244 | 111 |
| 20” | 19.35 | 491.64 | 5.18 | 131.80 | 36.27 | 921.50 | 18.89 | 480.00 | 2.26 | 57.45 | 23.34 | 593.00 | 216 | 98 | 271 | 123 |
| 24” | 23.32 | 592.50 | 5.98 | 152.00 | 42.23 | 1072.80 | 22.12 | 562.00 | 2.75 | 69.85 | 31.49 | 800.00 | 293 | 133 | 392 | 178 |

# Long Neck Butterfly Valve

## LR/LG200 Series - Design & Features

The LR/LG200 Series features an extended neck which allows the mounting pad and stem to clear pipe insulation. This feature makes the LR/LG200 series the logical choice for process and refining applications. The LR/LG200 series also features a two piece stem design that allows for removal and repair of valve parts without special tools or equipment. The LR/LG200 is pressure rated to 200 PSI and is available in sizes 2" through 12".




**STEM**
The standard stem for the LR/LG200 is constructed of solid 416 stainless steel. Double D stem design provides extended stem life. Mounting pad & stem dimensions meet ISO 5211 requirements.

**NAME PLATE**
Metal name plate is securely fixed to the valve body. Name plate clearly displays size, flange compatibility, body, seat and disc material .

**LONG NECK**
Extended neck design will accommodate pipe insulation.

**STEM BUSHINGS**
P.T.F.E. stem bushings reduce torque requirements and help increase stem life by isolating the stem from the valve body.

**O-RING**
Provides a secondary seal to help prevent leaks through the stem journal

**DISC**
Pinless disc design provides superior strength and durability. See next page for material availability.

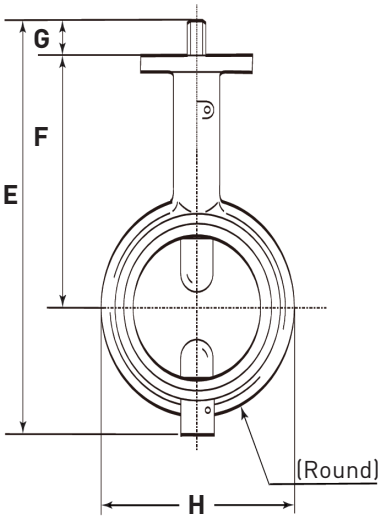
**TWO-PIECE STEM**
Features a two-piece stem design that allows for maximum flow values and increased strength and durability.

**SEAT**
Phenolic-backed resilient seat provides bubble tight shut-off up to 200 psi. Seats are available in a wide array of materials. See next page for material availability.

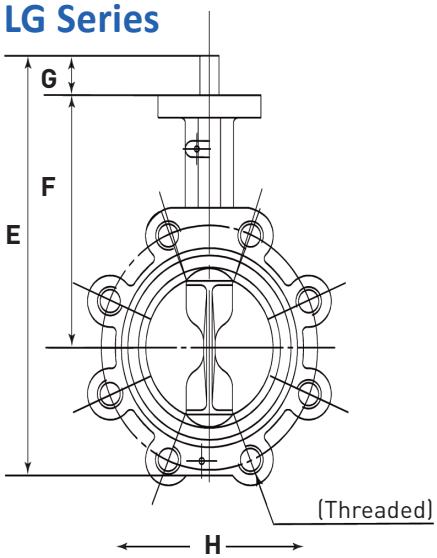
# Long Neck Butterfly Valve

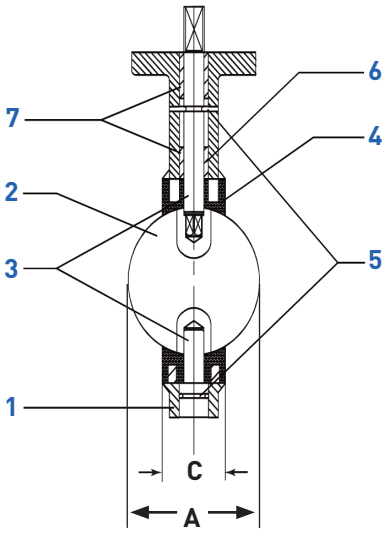
## LR/LG200 Series - Dimensional Data

### LR Series




### LG Series




## MATERIALS OF CONSTRUCTION

| No. | DESCRIPTION | MATERIAL |
|---|---|---|
| 1 | Body | Ductile Iron ASTM A536, WCB Gr 216A*, A351 CF8M*, A351 CF8* |
| 2 | Disc | Ductile Iron (Ni Plated), Ductile Iron (Nylon Coated), Aluminum Bronze, CF8M (316 SS), CF8 (304SS)*, Monel®* |
| 3 | Stem | 416 Stainless Steel, 304 Stainless Steel*, 316 Stainless Steel*, Monel®* |
| 4 | Seat | 194 BUNA-N, E.P.D.M., F.K.M.(Viton®), P.T.F.E. (Teflon®), Neoprene®*, Hypalon®* |
| 5 | Retainer Pin | ASTM Gr. 1065 Steel |
| 6 | O-ring | BUNA-N (Viton® Optional) |
| 7 | Bushing | P.T.F.E. |

*Asterisk denotes factory availability only

## DIMENSIONAL DATA

| SIZE. | A | | c | | E | | F | | G | | H | | WAFER WEIGHT | | LUG WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg | lbs | kg |
| 2” | 2.07 | 52.60 | 1.65 | 42.04 | 9.64 | 245 | 5.59 | 142.00 | 1.25 | 32.00 | 3.94 | 100.00 | 8 | 4 | 10 | 5 |
| 2.5” | 2.53 | 64.30 | 1.75 | 44.68 | 10.43 | 265 | 6.12 | 155.45 | 1.25 | 32.00 | 4.72 | 120.00 | 10 | 5 | 12 | 5 |
| 3" | 3.10 | 78.80 | 1.77 | 45.21 | 10.94 | 278 | 6.37 | 162.00 | 1.25 | 32.00 | 5.00 | 127.00 | 11 | 5 | 13 | 6 |
| 4" | 4.09 | 104.04 | 2.05 | 52.07 | 12.24 | 311 | 7.11 | 180.80 | 1.25 | 32.00 | 6.49 | 165.00 | 13 | 6 | 21 | 10 |
| 5” | 4.85 | 123.30 | 2.14 | 54.36 | 13.34 | 339 | 7.74 | 196.80 | 1.25 | 32.00 | 7.28 | 185.00 | 18 | 8 | 25 | 11 |
| 6” | 6.11 | 155.38 | 2.19 | 55.75 | 14.48 | 368 | 8.25 | 209.55 | 1.25 | 32.00 | 8.34 | 212.00 | 20 | 9 | 29 | 13 |
| 8” | 7.95 | 202.15 | 2.38 | 60.58 | 17.32 | 440 | 9.44 | 240.00 | 1.77 | 45.00 | 10.55 | 268.00 | 35 | 16 | 48 | 22 |
| 10” | 9.84 | 250.15 | 2.63 | 67.00 | 20.47 | 520 | 11.25 | 285.75 | 1.77 | 45.00 | 13.42 | 341.00 | 47 | 21 | 69 | 31 |
| 12” | 11.86 | 301.45 | 3.02 | 76.90 | 23.46 | 596 | 12.18 | 309.60 | 1.77 | 45.00 | 15.74 | 400.00 | 77 | 35 | 108 | 49 |

# Short Neck Butterfly Valve

## LN200 Series - Design & Features

The LN200 Series is the perfect choice for work areas with space constraints. Its shorter neck makes the LN200 an ideal valve for trucks, trailers, tanks, or anywhere a compact valve may be desirable. The LN200 is designed with notches in the body, to guide flange bolts during installation, and to keep the valve aligned with the flange during use. The LN200 is designed with a two piece stem which allows for maximum flow values, and for repair of valve parts without special tools. The LN200 is pressure rated to 200 PSI and is available in sizes 2" through 12".




**STEM**
The standard stem is constructed of solid 416 stainless steel. Double D stem design provides extended stem life. Mounting pad & stem dimensions meet ISO 5211 requirements.

**O-RING**
Provides a secondary seal to help prevent leaks through the stem journal.

**DISC**
Pinless disc design provides superior strength and durability. See next page for material availability.

**SEAT**
Phenolic-backed resilient seat provides bubble tight shut-off up to 200 psi. Seats are available in a wide range of materials. See next page for material availability

**NAME PLATE**
Metal name plate is securely fixed to the valve body. Name plate clearly displays size, flange compatibility, body, seat and disc material .

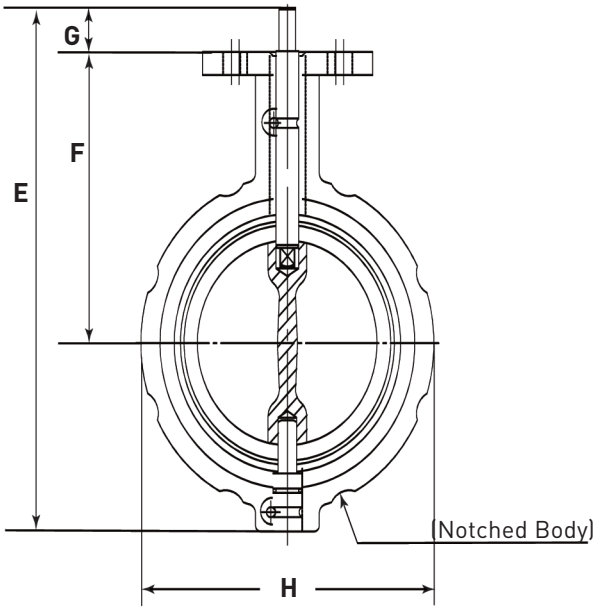
**STEM BUSHINGS**
P.T.F.E. stem bushings reduce torque requirements and help increase stem life by isolating the stem from the valve body.

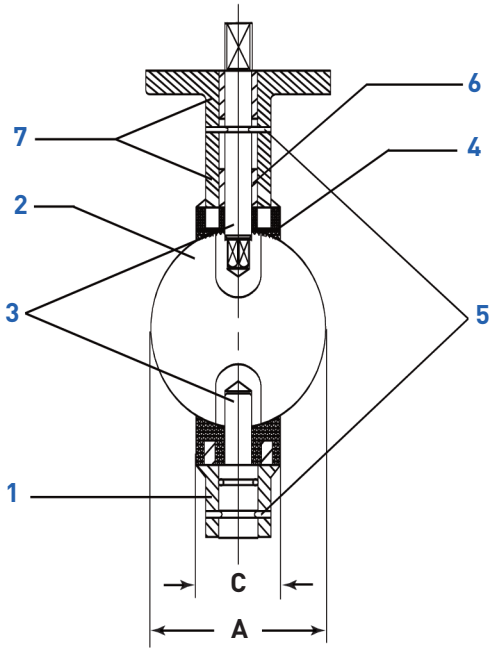
**NOTCHED BODY**
Notched body design makes installation simple, and keeps the valve properly aligned during use.

**TWO-PIECE STEM**
Features a two-piece stem design that allows for maximum flow values and increased strength and durability.

# Short Neck Butterfly Valve

## LN200 Series - Dimensional Data




## MATERIALS OF CONSTRUCTION

| No. | DESCRIPTION | MATERIAL |
|---|---|---|
| 1 | Body | Ductile Iron ASTM A536, WCB Gr 216A*, A351 CF8M*, A351 CF8* |
| 2 | Disc | Ductile Iron (Ni Plated), Ductile Iron (Nylon Coated), Aluminum Bronze, CF8M (316 SS), CF8 (304SS)*, Monel®* |
| 3 | Stem | 416 Stainless Steel, 304 Stainless Steel*, 316 Stainless Steel*, Monel®* |
| 4 | Seat | 194 BUNA-N, E.P.D.M., F.K.M.(Viton®), P.T.F.E. (Teflon®), Neoprene®*, Hypalon®* |
| 5 | Retainer Pin | ASTM Gr. 1065 Steel |
| 6 | O-ring | BUNA-N (Viton® Optional) |
| 7 | Bushing | P.T.F.E. |

**Factory availability only*

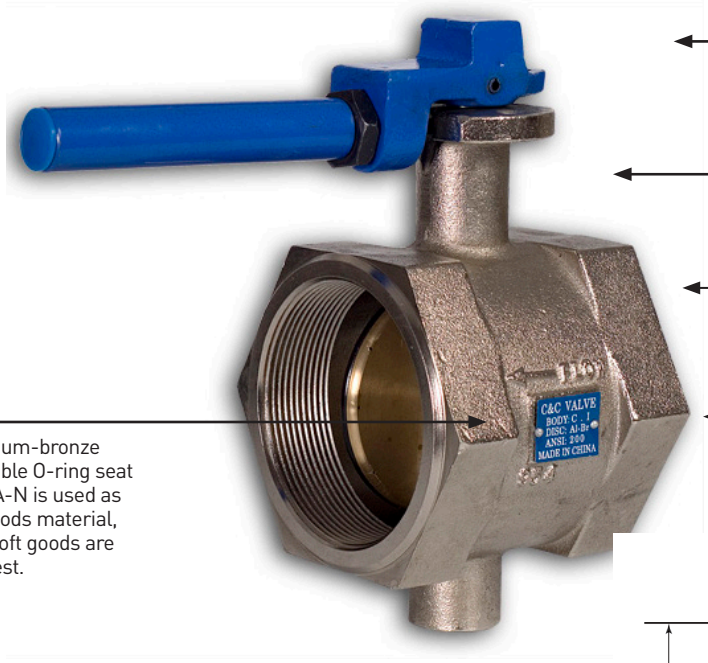
## DIMENSIONAL DATA

| SIZE | A | | c | | E | | F | | G | | H | | WAFER WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | Kg |
| 2” | 2.07 | 52.60 | 1.65 | 42.04 | 7.99 | 203.00 | 3.93 | 100.00 | 1.25 | 32.00 | 4.11 | 104.60 | 8 | 4 |
| 2.5” | 2.53 | 64.30 | 1.75 | 44.68 | 8.77 | 223.00 | 4.44 | 113.00 | 1.25 | 32.00 | 4.88 | 124.00 | 10 | 5 |
| 3" | 3.10 | 78.80 | 1.77 | 45.21 | 9.40 | 239.00 | 4.86 | 123.45 | 1.25 | 32.00 | 5.37 | 136.60 | 11 | 5 |
| 4" | 4.09 | 104.04 | 2.05 | 52.07 | 11.14 | 283.00 | 5.98 | 152.00 | 1.25 | 32.00 | 6.87 | 174.70 | 13 | 6 |
| 5” | 4.85 | 123.30 | 2.14 | 54.36 | 11.61 | 295.00 | 5.98 | 152.00 | 1.25 | 32.00 | 7.50 | 190.70 | 18 | 8 |
| 6” | 6.11 | 155.38 | 2.19 | 55.75 | 12.75 | 324.00 | 6.50 | 165.10 | 1.25 | 32.00 | 8.74 | 222.20 | 20 | 9 |
| 8” | 7.95 | 202.15 | 2.38 | 60.58 | 15.94 | 405.00 | 8.06 | 204.73 | 1.77 | 45.00 | 11.00 | 279.40 | 35 | 16 |
| 10” | 9.84 | 250.15 | 2.58 | 65.63 | 19.17 | 487.00 | 9.97 | 253.24 | 1.77 | 45.00 | 13.37 | 339.80 | 47 | 21 |
| 12” | 11.86 | 301.45 | 3.02 | 76.90 | 22.16 | 563.00 | 10.90 | 277.10 | 1.77 | 45.00 | 15.23 | 387.00 | 77 | 35 |

# Threaded End Butterfly Valve

## T200 Series - Design & Features

The T200 Series threaded butterfly valve is the most cost-eff ective fl ow control valve for threaded applications. Its simple design allows for smooth operation and long valve life, with minimal maintenance. The T200 features a durable one-piece cast iron body, which is nickel plated for corrosion resistance, and a solid 416 stainless steel stem for superior strength. The T200's simplistic design allows for easy fi eld repair without special tools or equipment. The T200 is pressure rated to 200 PSI and is available in sizes 2"~6" NPT.



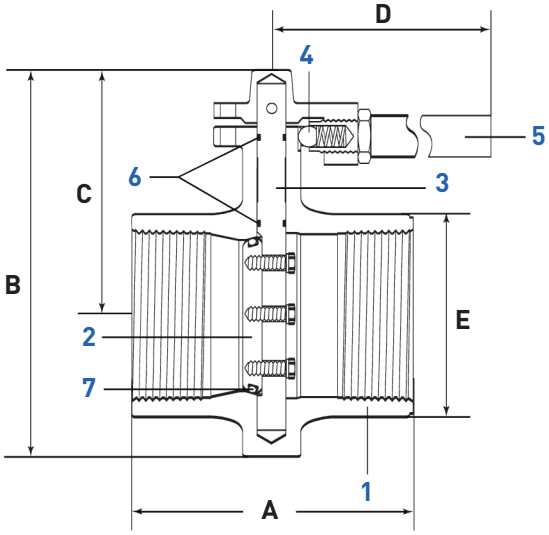

**LOCKING HANDLE**
The T200 is designed to accept a pad lock for increased safety and security on the job site.

**STEM**
Solid 416 stainless steel

**BODY**
Durable cast iron with nickel plating for corrosion prevention.

**NAME PLATE**
Metal name plate securely fixed to the valve body. Clearly displays size, flange compatibility, body, seat and disc material.

**DISC**
A polished aluminum-bronze disc with replaceable O-ring seat is standard. BUNA-N is used as a standard soft goods material, however Viton® soft goods are available on request.




## MATERIALS OF CONSTRUCTION

| No. | DESCRIPTION | MATERIAL |
|---|---|---|
| 1 | Body | ASTM A126 Cast Iron w/ ENP Plating |
| 2 | Disc | Aluminum Bronze |
| 3 | Stem | 416 Stainless Steel |
| 4 | Handle Ball | 44ODC Stainless Steel |
| 5 | Handle | Ductile Iron |
| 6 | Stem O-ring | BUNA-N or Viton® |
| 7 | Disc O-ring | BUNA-N or Viton® |

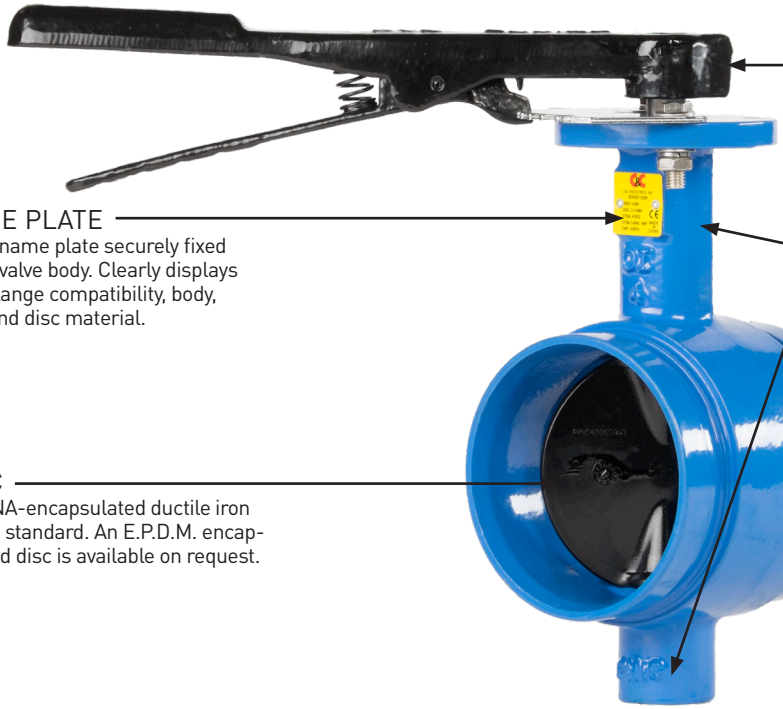
## DIMENSIONAL DATA

| SIZE. | A | | B | | C | | D | | E | | WEIGHT | | Cv RATE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm | in | mm | in | mm | Lbs | Kg | Full Open |
| 2” | 4.25 | 107.95 | 5.22 | 132.56 | 4.15 | 105.41 | 8.00 | 203.20 | 3.00 | 76.20 | 9 | 4 | 120 |
| 3” | 4.87 | 123.70 | 8.88 | 255.76 | 6.02 | 152.91 | 8.00 | 203.20 | 4.06 | 103.12 | 13 | 6 | 270 |
| 4" | 5.12 | 130.05 | 10.03 | 254.77 | 6.34 | 161.04 | 8.00 | 203.20 | 5.31 | 134.87 | 19 | 9 | 520 |
| 6" | 7.00 | 177.80 | 13.85 | 351.89 | 9.10 | 231.24 | 13.00 | 330.20 | 7.75 | 196.85 | 50 | 23 | 1300 |

# Grooved End Butterfly Valve

## G200 Series - Design & Features

The G200 Series is a grooved end bubble tight shutoff valve with outstanding flow characteristics. The BUNA-N seal is molded onto the ductile iron disc, in order to allow for maximum flow potential. The one-piece body is constructed from durable ductile iron and coated with polymid for corrosion resistance. The G200 is designed to provide bidirectional bubble tight shut off at working pressures up to 200 psi and a working temprature range from 0°~180°F.



TEN POSITION TRIGGER GRIP HANDLE
Designed to positively retain disc in the desired position during use and provides the user with a visual indication of disc position.

NAME PLATE
Metal name plate securely fixed to the valve body. Clearly displays size, flange compatibility, body, seat and disc material.

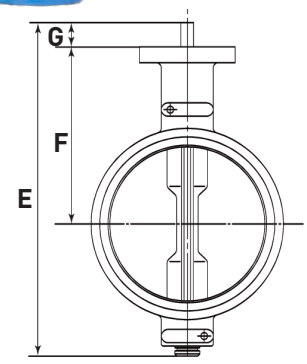
STEM
Both the upper and lower stems are constructed from solid 416 stainless steel.

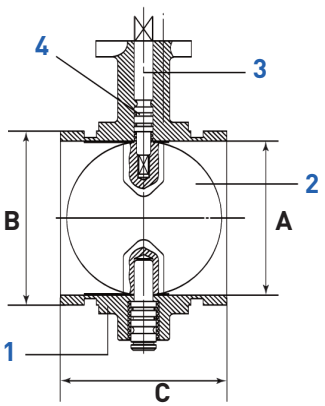
BODY
Polymid coated body prevents corrosion and extends valve life

DISC
A BUNA-encapsulated ductile iron disc is standard. An E.P.D.M. encapsulated disc is available on request.

## MATERIALS OF CONSTRUCTION

| No. | DESCRIPTION | MATERIAL |
|---|---|---|
| 1 | Body | ASTM A-395 Ductile Iron |
| 2 | Disc | Ductile Iron Disc Encapsulated w/ BUNA |
| 3 | Stem | 416 Stainless Steel |
| 4 | Stem O-Ring | BUNA or E.P.D.M. |



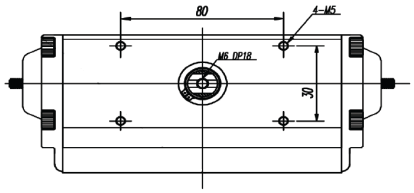

## DIMENSIONAL DATA

| SIZE | A | | B | | C | | D | | E | | F | | WEIGHT | | Cv RATE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | Lbs | Kg | Full Open |
| 2” | 2.09 | 53.10 | 2.37 | 60.33 | 3.20 | 81.50 | 8.32 | 211.50 | 3.87 | 98.50 | 1.25 | 3200 | 6 | 3 | 170 |
| 2.5” | 2.55 | 64.80 | 2.87 | 73.03 | 3.79 | 96.50 | 9.02 | 229.35 | 4.38 | 111.35 | 1.25 | 32.00 | 9 | 4 | 260 |
| 3" | 3.12 | 79.30 | 3.50 | 88.90 | 3.79 | 96.50 | 9.80 | 249.10 | 4.64 | 118.10 | 1.25 | 32.00 | 10 | 5 | 440 |
| 4" | 4.11 | 104.50 | 4.50 | 114.30 | 4.55 | 115.70 | 11.17 | 283.75 | 5.38 | 136.75 | 1.25 | 32.00 | 12 | 6 | 820 |
| 5" | 4.87 | 123.70 | 5.56 | 141.30 | 5.82 | 148.00 | 12.13 | 308.25 | 5.85 | 148.75 | 1.25 | 32.00 | 18 | 8 | 1200 |
| 6" | 6.13 | 155.80 | 6.62 | 168.28 | 5.82 | 148.00 | 13.31 | 338.25 | 6.38 | 162.25 | 1.25 | 32.00 | 23 | 10 | 1800 |
| 8" | 7.97 | 202.60 | 8.62 | 219.08 | 5.27 | 134.00 | 16.69 | 424.00 | 7.75 | 197.00 | 1.77 | 45.00 | 40 | 18 | 3400 |

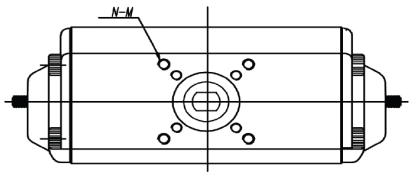
# Double Acting Pneumatic Actuator

## ESD Series - Design & Features

Top View

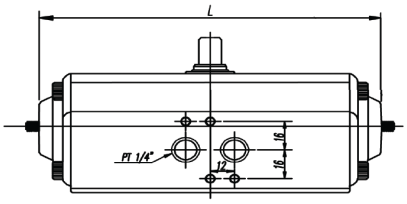



Bottom View

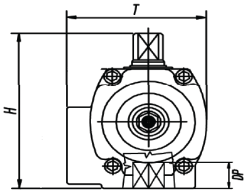


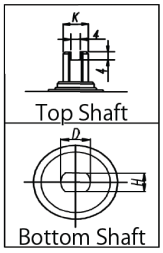



Front View




Side View




## TORQUE OUTPUT (lbf.in)

| MODEL # | ANGLE | 45 PSI | | 60 PSI | | 75 PSI | | 90 PSI | | 105 PSI | | 120 PSI | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | Close | Open | Close | Open | Close | Open | Close | Open |
| G-ESD-50 | 0° | 239.4 | 222.2 | 322.1 | 295.4 | 407.1 | 360.7 | 488.6 | 429.9 | 569.5 | 484 | 650.9 | 553.2 |
| | 45° | 127.2 | 122.9 | 169.6 | 163.9 | 213.9 | 201.7 | 258.4 | 250.3 | 303.8 | 288.3 | 347.2 | 329.5 |
| | 90° | 212.4 | 320.4 | 286.7 | 309.3 | 361 | 383.6 | 436.8 | 460.3 | 491.8 | 548.3 | 562.1 | 626.7 |
| G-ESD-65 | 0° | 558 | 482.7 | 747.8 | 638.4 | 942.1 | 772.5 | 1,126.9 | 939.1 | 1,314.3 | 1,088.2 | 1,502.0 | 1,243.6 |
| | 45° | 289.5 | 274.4 | 386 | 362.5 | 484.5 | 456.9 | 581.4 | 548.3 | 681.9 | 639.5 | 779.3 | 730.8 |
| | 90° | 475.4 | 482 | 632 | 638.4 | 783.1 | 780.6 | 987.8 | 936.8 | 1,144.7 | 1,103.7 | 1,308.2 | 1,267.9 |
| G-ESD-80 | 0° | 1,102.3 | 931.3 | 1,469.7 | 1,243.6 | 1,864.1 | 1,561.3 | 2,236.9 | 1,885.1 | 2,653.8 | 2,119.8 | 3,052.5 | 2,422.7 |
| | 45° | 587.5 | 473.8 | 778.2 | 654.1 | 969.1 | 829.4 | 1,161.7 | 1,009.4 | 1,328.4 | 1,187.1 | 1,518.2 | 1,356.7 |
| | 90° | 975.1 | 898.6 | 1,297.0 | 1,243.6 | 1,610.1 | 1,528.7 | 1,938.1 | 1,841.2 | 2,204.6 | 2,190.5 | 2,519.6 | 2,503.4 |
| G-ESD-100 | 0° | 1,841.2 | 1,659.5 | 2,455.0 | 2,212.7 | 3,122.2 | 2,870.4 | 3,746.6 | 3,422.4 | 4,472.8 | 3,872.2 | 5,111.8 | 4,425.4 |
| | 45° | 1,059.9 | 1,013.0 | 1,413.2 | 1,356.7 | 1,796.8 | 1,707.6 | 2,142.5 | 2,059.3 | 2,444.9 | 2,483.3 | 2,794.1 | 2,883.0 |
| | 90° | 1,726.1 | 1,609.4 | 2,298.7 | 2,148.1 | 2,846.6 | 2,724.1 | 3,415.9 | 3,319.0 | 3,957.0 | 3,886.3 | 4,522.3 | 4,441.5 |
| G-ESD-125 | 0° | 4,245.7 | 3,986.7 | 5,660.9 | 5,310.7 | 7,180.2 | 6,366.2 | 8,721.5 | 7,484.8 | 10,290.4 | 8,732.3 | 11,903.3 | 10,150.9 |
| | 45° | 2,131.9 | 2,089.5 | 2,842.6 | 2,786.0 | 3,577.9 | 3,479.2 | 4,271.1 | 4,175.0 | 4,910.9 | 4,875.6 | 5,612.5 | 5,572.1 |
| | 90° | 3,506.8 | 3,294.8 | 4,675.7 | 4,393.1 | 5,822.2 | 5,484.6 | 7,130.0 | 6,581.5 | 8,020.0 | 7,737.3 | 9,165.7 | 8,842.7 |

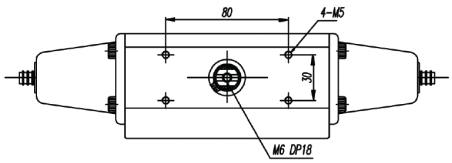
## DIMENSIONAL DATA

| MODEL # & VALVE SIZE | D x H (Bottom Shaft) | | L | | T | | K | | H | | DP | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | Lbs | Kg |
| G-ESD-50 (2"~3") | 0.49 x 0.35 | 12.6 x 9.00 | 7.40 | 188.00 | 2.70 | 69.00 | .43 | 11.00 | 3.40 | 87.00 | 0.67 | 17.00 | 3 | 1.5 |
| G-ESD-65 (4") | 0.62 x 0.43 | 15.77 x 11.15 | 9.20 | 234.00 | 3.30 | 83.00 | 0.51 | 13.00 | 4.17 | 106.00 | 0.67 | 17.00 | 6 | 2.5 |
| G-ESD-80 (5"~6") | 0.74 x 0.50 | 18.92 x 12.70 | 11.30 | 286.00 | 3.90 | 98.00 | 0.67 | 17.00 | 4.82 | 122.50 | 0.94 | 24.00 | 9 | 4 |
| G-ESD-100 (8") | 0.87 x 0.62 | 22.10 x 15.90 | 13.50 | 344.00 | 4.59 | 116.50 | 0.87 | 22.00 | 5.60 | 143.00 | 1.02 | 26.00 | 15 | 7 |
| G-ESD-100 (10") | 1.12 x 0.81 | 28.45 x 20.62 | 13.50 | 344.00 | 4.59 | 116.50 | 0.87 | 22.00 | 5.60 | 143.00 | 1.02 | 26.00 | 15 | 7 |
| G-ESD-125 (12") | 1.24 x 0.94 | 31.60 x 24.00 | 17.40 | 443.00 | 5.40 | 137.00 | 0.87 | 22.00 | 6.61 | 168.00 | 1.02 | 26.00 | 24 | 11 |

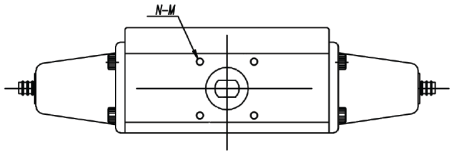
# Spring Return Pneumatic Actuator

## ESA Series - Design & Features

Top View

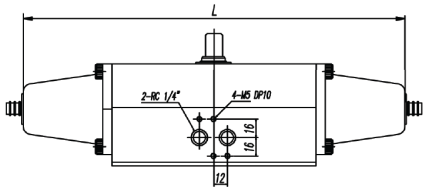



Bottom View

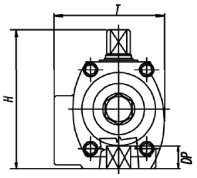


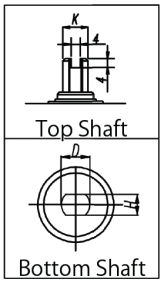



Front View




Side View




## TORQUE OUTPUT (lbf. in)

| MODEL # | ANGLE | 45 PSI | 60 PSI | 75 PSI | 80 PSI | 90 PSI | 116 PSI | Spring to Close |
|---|---|---|---|---|---|---|---|---|
| G-ESA-65 Middle* | 0° | 200.1 | 365.7 | 517.6 | 552.1 | 702.4 | 1,005.3 | 319.7 |
| | 45° | 63.8 | 163.7 | 266.9 | 284.7 | 349.5 | 527.4 | 215.1 |
| | 90° | - | 200 | 309.9 | 330.5 | 478.2 | 795.2 | 435.1 |
| G-ESA-80 Middle* | 0° | 405.3 | 733.1 | 1,133.0 | 1,208.5 | 1,457.6 | 2,076.5 | 618 |
| | 45° | 86.2 | 264.2 | 497.8 | 531 | 690.5 | 1,046.5 | 428.5 |
| | 90° | - | 341 | 686.7 | 732.4 | 1,039.9 | 1,878.7 | 848.7 |
| G-ESA-100 Middle* | 0° | 715.7 | 1,321.2 | 1,914.1 | 2,041.7 | 2,489.0 | 3,650.3 | 997 |
| | 45° | 129.3 | 554.1 | 927 | 988.8 | 1,295.7 | 2,068.2 | 758.1 |
| | 90° | - | 647.8 | 1,244.6 | 1,327.6 | 1,849.7 | 3,131.2 | 1,458.5 |
| G-ESA-125 S* | 0° | 672.6 | 1,866.8 | 3,081.4 | 3,286.8 | 4,304.7 | 6,386.0 | 3,510.2 |
| | 45° | - | 656.4 | 1,373.3 | 1,464.9 | 2,071.4 | 3,378.4 | 2,125.9 |
| | 90° | - | 383.6 | 1,596.5 | 1,702.9 | 2,787.4 | 5,133.5 | 4,087.0 |

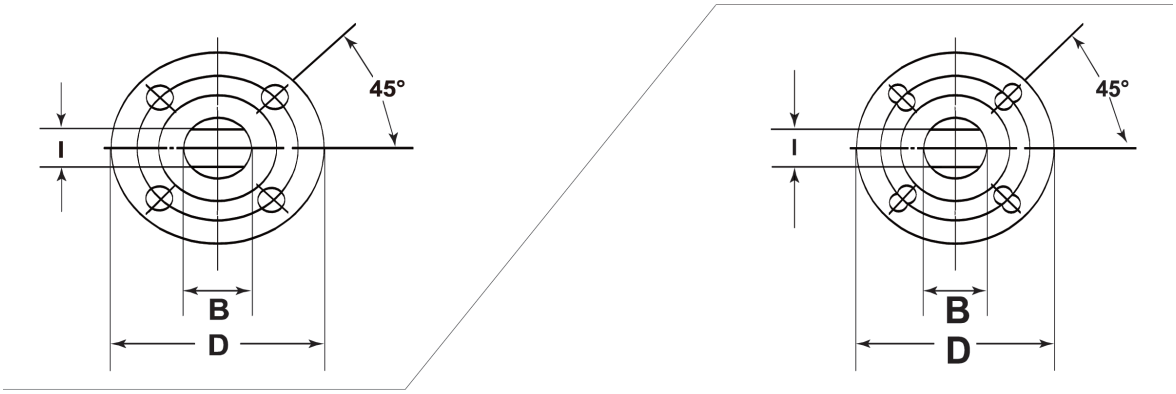
## DIMENSIONAL DATA

| MODEL # & VALVE SIZE | D x H (Bottom Shaft) | | L | | T | | K | | H | | DP | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | Lbs | Kg |
| G-ESA-65 (2"~3") | 0.49 x 0.35 | 12.6 x 9.00 | 12.60 | 320.00 | 3.30 | 83.00 | .51 | 13.00 | 4.17 | 106.00 | 0.67 | 17.00 | 7 | 3.2 |
| G-ESA-80 (4") | 0.62 x 0.43 | 15.77 x 11.15 | 16.50 | 418.00 | 3.90 | 98.00 | 0.59 | 15.00 | 4.82 | 122.50 | 0.94 | 24.00 | 12 | 5.4 |
| G-ESA-100 (5"~6") | 0.74 x 0.50 | 18.92 x 12.70 | 19.90 | 506.00 | 4.59 | 116.50 | 0.87 | 22.00 | 5.60 | 143.00 | 1.00 | 26.00 | 22 | 10 |
| G-ESA-125 (8") | 0.87 x 0.62 | 22.10 x 15.90 | 24.41 | 620.00 | 5.39 | 137.00 | 0.87 | 22.00 | 6.61 | 168.00 | 1.00 | 26.00 | 37 | 17 |
| G-ESD-140 (10") | 1.12 x 0.81 | 28.45 x 20.62 | 28.20 | 716.00 | 6.06 | 154.00 | 0.87 | 22.00 | 7.48 | 190.00 | 1.20 | 30.00 | 53 | 24 |
| G-ESD-160 (12") | 1.24 x 0.94 | 31.60 x 24.00 | 32.09 | 815.00 | 6.93 | 176.00 | 1.26 | 32.00 | 8.30 | 210.00 | 1.20 | 30.00 | 77 | 35 |

# DESIGN INFORMATION

## C200 Series Top Works Data

| SIZE | B | | D | | I | | Bolt Circle | | Hole Diameter | | Number of Bolts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm | in | mm | in | mm | --- |
| 2" | 0.49 | 12.60 | 3.03 | 77.00 | 0.35 | 9.00 | 1.97 | 50.04 | 0.28 | 7.11 | 4 |
| 2.5" | 0.49 | 12.60 | 3.03 | 77.00 | 0.35 | 9.00 | 1.97 | 50.04 | 0.28 | 7.11 | 4 |
| 3" | 0.49 | 12.60 | 3.03 | 77.00 | 0.35 | 9.00 | 1.97 | 50.04 | 0.28 | 7.11 | 4 |
| 4" | 0.62 | 15.77 | 3.62 | 92.00 | 0.43 | 11.15 | 2.76 | 70.10 | 0.39 | 9.91 | 4 |
| 5" | 0.74 | 18.92 | 3.62 | 92.00 | 0.50 | 12.70 | 2.76 | 70.10 | 0.39 | 9.91 | 4 |
| 6" | 0.74 | 18.92 | 3.62 | 92.00 | 0.50 | 12.70 | 2.76 | 70.10 | 0.39 | 9.91 | 4 |
| 8" | 0.87 | 22.10 | 4.62 | 125.00 | 0.62 | 15.90 | 4.02 | 102.11 | 0.55 | 13.97 | 4 |
| 10" | 1.12 | 28.45 | 4.92 | 125.00 | 0.81 | 20.62 | 4.02 | 102.11 | 0.55 | 13.97 | 4 |
| 12" | 1.24 | 31.60 | 5.51 | 140.00 | 0.94 | 24.00 | 4.02 | 102.11 | 0.55 | 13.97 | 4 |
| 14" | 1.24 | 31.60 | 5.51 | 140.00 | 0.94 | 24.00 | 4.02 | 102.11 | 0.55 | 13.97 | 4 |
| 16" | 1.30 | 33.15 | 7.75 | 197.00 | 1.06 | 27.10 | 5.51 | 139.95 | 0.71 | 18.03 | 4 |
| 18" | 1.49 | 38.00 | 7.75 | 197.00 | 1.06 | 27.10 | 5.51 | 139.95 | 0.71 | 18.03 | 4 |
| 20" | 1.62 | 41.15 | 7.75 | 197.00 | 1.26 | 32.10 | 6.49 | 164.85 | 0.71 | 18.03 | 4 |
| 24" | 1.99 | 50.65 | 10.86 | 276.00 | 1.42 | 36.10 | 6.49 | 164.85 | 0.91 | 23.11 | 4 |




## LR, LG & LN200 Series Top Works Data

| SIZE | B | | D | | I | | Bolt Circle 1 | | Bolt Circle 2 | | Hole Diameter | | Number of Bolts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | --- |
| 2" | 0.49 | 12.60 | 4.00 | 101.60 | 0.35 | 9.00 | 2.76 | 70.00 | 3.25 | 82.55 | 0.408 | 10.36 | 4 |
| 2.5" | 0.49 | 12.60 | 4.00 | 101.60 | 0.35 | 9.00 | 2.76 | 70.00 | 3.25 | 82.55 | 0.408 | 10.36 | 4 |
| 3" | 0.49 | 12.60 | 4.00 | 101.60 | 0.35 | 9.00 | 2.76 | 70.00 | 3.25 | 82.55 | 0.408 | 10.36 | 4 |
| 4" | 0.62 | 15.77 | 4.00 | 101.60 | 0.43 | 11.15 | 2.76 | 70.00 | 3.25 | 82.55 | 0.408 | 10.36 | 4 |
| 5" | 0.74 | 18.92 | 4.00 | 101.60 | 0.50 | 12.70 | 2.76 | 70.00 | 3.25 | 82.55 | 0.408 | 10.36 | 4 |
| 6" | 0.74 | 18.92 | 4.00 | 101.60 | 0.50 | 12.70 | 2.76 | 70.00 | 3.25 | 82.55 | 0.408 | 10.36 | 4 |
| 8" | 0.87 | 22.10 | 6.00 | 152.40 | 0.62 | 15.90 | 4.02 | 102.11 | 5.00 | 127.00 | 0.533 | 0.533 | 4 |
| 10" | 1.12 | 28.45 | 6.00 | 152.40 | 0.81 | 20.62 | 4.02 | 102.11 | 5.00 | 127.00 | 0.533 | 0.533 | 4 |
| 12" | 1.24 | 31.60 | 6.00 | 152.40 | 0.94 | 24.00 | 4.02 | 102.11 | 5.00 | 127.00 | 0.533 | 0.533 | 4 |

# DESIGN INFORMATION

## C200 Torque Values

| SIZE | Differential Pressure | | | |
|---|---|---|---|---|
| | 50 PSI | 100 PSI | 150 PSI | 200 PSI |
| 2" | 139 | 148 | 156 | 164 |
| 2.5" | 195 | 207 | 218 | 230 |
| 3" | 264 | 278 | 293 | 307 |
| 4" | 371 | 401 | 431 | 461 |
| 5" | 579 | 627 | 676 | 725 |
| 6" | 875 | 946 | 1016 | 1087 |
| 8" | 1476 | 1559 | 1642 | 1726 |
| 10" | 2451 | 2613 | 2775 | 2937 |
| 12" | 3900 | 4111 | 4323 | 4534 |
| 14" | 5189 | 5467 | 5744 | 6022 |
| 16" | 10985 | 11569 | 12154 | 12738 |
| 18" | 13946 | 14688 | 15431 | 16173 |
| 20" | 14695 | 15478 | 16260 | 17043 |
| 24" | 29738 | 31321 | 32903 | 34486 |

Torque values in/lbs

## C200 Flow Coefficient

| SIZE | Disc Position / Cv Rate | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 90° | 80° | 70° | 60° | 50° | 40° | 30° | 20° | 10° |
| 2" | 100 | 91 | 61 | 38 | 23 | 13 | 8 | 3 | 0.60 |
| 2.5" | 170 | 158 | 103 | 65 | 39 | 22 | 10 | 5 | 0.1 |
| 3" | 261 | 238 | 158 | 115 | 70 | 34 | 16 | 8 | 0.2 |
| 4" | 519 | 472 | 314 | 199 | 120 | 68 | 31 | 15 | 0.3 |
| 5" | 884 | 904 | 536 | 339 | 205 | 115 | 53 | 25 | 0.5 |
| 6" | 1366 | 1243 | 829 | 523 | 317 | 177 | 82 | 30 | 0.8 |
| 8" | 2713 | 2460 | 1646 | 1040 | 629 | 353 | 163 | 77 | 2 |
| 10" | 4819 | 4203 | 2803 | 1771 | 1070 | 600 | 277 | 131 | 3 |
| 12" | 7136 | 6494 | 4329 | 2735 | 1663 | 927 | 428 | 202 | 4 |
| 14" | 10308 | 9380 | 6254 | 3951 | 2338 | 1340 | 618 | 282 | 5 |
| 16" | 14176 | 12900 | 8600 | 5434 | 3284 | 1842 | 850 | 401 | 7 |
| 18" | 18775 | 17805 | 11390 | 7157 | 4340 | 2441 | 1126 | 532 | 10 |
| 20" | 24140 | 21968 | 14645 | 95254 | 5592 | 3138 | 1448 | 684 | 12 |
| 24" | 37295 | 33930 | 22623 | 14297 | 8640 | 4848 | 2238 | 1057 | 19 |

## LR, LG & LN200 Torque Values

| SIZE | Differential Pressure | | | |
|---|---|---|---|---|
| | 50 PSI | 100 PSI | 150 PSI | 200 PSI |
| 2" | 108 | 119 | 125 | 132 |
| 2.5" | 108 | 173 | 182 | 192 |
| 3" | 192 | 270 | 285 | 300 |
| 4" | 264 | 405 | 428 | 450 |
| 5" | 450 | 630 | 665 | 700 |
| 6" | 550 | 810 | 855 | 900 |
| 8" | 1000 | 1350 | 1425 | 1500 |
| 10" | 1800 | 2385 | 2518 | 2650 |
| 12" | 3000 | 4050 | 4275 | 4500 |

## LR, LG & LN200 Flow Coefficient

| SIZE | Disc Position / Cv Rate | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 90° | 80° | 70° | 60° | 50° | 40° | 30° | 20° | 10° |
| 2" | 145 | 115 | 70 | 53 | 27 | 17 | 9 | 4 | 0.07 |
| 2.5" | 225 | 175 | 105 | 83 | 42 | 26 | 15 | 8 | 0.2 |
| 3" | 325 | 260 | 160 | 125 | 63 | 38 | 22 | 11 | 0.3 |
| 4" | 590 | 510 | 305 | 235 | 120 | 73 | 42 | 21 | 0.4 |
| 5" | 1125 | 1000 | 625 | 490 | 250 | 155 | 88 | 42 | 0.8 |
| 6" | 1950 | 1650 | 1030 | 800 | 410 | 250 | 145 | 54 | 1.4 |
| 8" | 3250 | 2725 | 1750 | 1300 | 700 | 420 | 250 | 118 | 3.0 |
| 10" | 5000 | 4300 | 2750 | 2150 | 1150 | 670 | 390 | 185 | 4.2 |
| 12" | 7500 | 6050 | 4050 | 3100 | 1600 | 1000 | 550 | 260 | 5.1 |

# Seat Insert Information

**Material**: Nitrile
**Trade Name**: BUNA-N
**Temperature Range**: (0ºF~180ºF)
**Information**: BUNA-N is accepted industry-wide as the best general purpose material for seats and seals. The low cost of BUNA-N, its resistance to most hydrocarbons, and its wide temperature range, make it the logical choice for most oil & gas applications.

**Material**: E.P.D.M.
**Trade Name**: Vistalon®
**Temperature Range**: (-30ºF~250ºF)
**Information**: E.P.D.M. is the most cost effective seat/seal material for hot water or steam applications; conversely, its low-end temperature range and compatibility with most types of glycol allow it to be used in many HVAC applications. E.P.D.M. is not compatible with hydrocarbons.

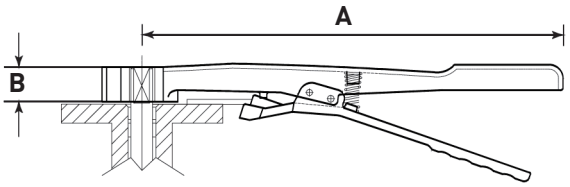
**Material**: F.K.M
**Trade Name**: Viton B®
**Temperature Range**: (14ºF~300ºF)
**Information**: Fluroelastomers have a field-proven reputation of providing excellent resistance to a wide range of corrosive chemicals, even when elevated temperatures are present. Fluroelastomers are not compatible with hot water or steam.

**Material**: P.T.F.E.
**Trade Name**: Teflon®
**Temperature Range**: (-30ºF~250ºF)
**Information**: Its wide temperature range, broad chemical resistance, and low coefficient of friction have made P.T.F.E. a staple in the oilfield, industrial, and food service industries.

# Manual Actuators

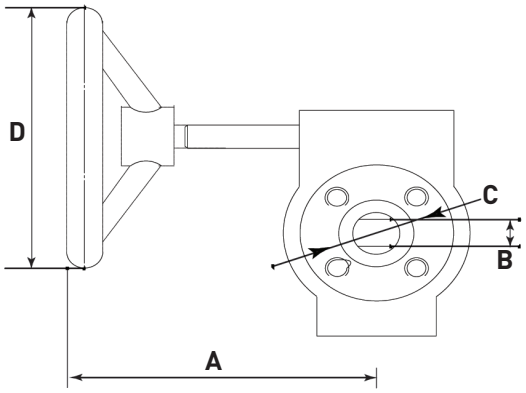
## Lever Dimensional Data

| SIIZE | A | | B | | WEIGHT | |
|---|---|---|---|---|---|---|
| | in | mm | in | mm | Lbs | Kg |
| 2" ~ 3" | 9.44 | 240 | 1.25 | 32 | 1.10 | 0.5 |
| 4" ~ 6" | 10.43 | 265 | 1.25 | 32 | 1.76 | 0.8 |
| 8"~12" | 14.40 | 366 | 1.77 | 45 | 2.87 | 1.3 |



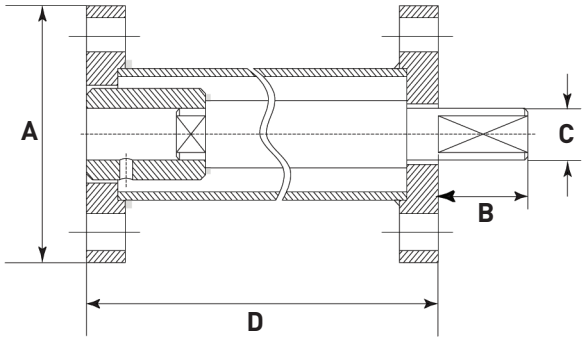

## Gear Dimensional Data

| SIIZE | A | | B | | C | | D | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm | in | mm | Lbs | Kg |
| 2" | 6.18 | 157.00 | 0.35 | 9.04 | 1.96 | 50.00 | 5.90 | 150.00 | 13 | 6 |
| 2.5" | 6.18 | 157.00 | 0.35 | 9.04 | 1.96 | 50.00 | 5.90 | 150.00 | 13 | 6 |
| 3" | 6.18 | 157.00 | 0.35 | 9.04 | 1.96 | 50.00 | 5.90 | 150.00 | 13 | 6 |
| 4" | 6.18 | 157.00 | 0.44 | 11.30 | 2.75 | 70.00 | 5.90 | 150.00 | 13 | 6 |
| 5" | 6.18 | 157.00 | 0.50 | 12.90 | 2.75 | 70.00 | 5.90 | 150.00 | 13 | 6 |
| 6" | 6.18 | 157.00 | 0.50 | 12.90 | 2.75 | 70.00 | 5.90 | 150.00 | 13 | 6 |
| 8" | 9.37 | 238.00 | 0.63 | 16.10 | 4.01 | 102.00 | 11.81 | 300.00 | 19 | 9 |
| 10" | 9.37 | 238.00 | 0.81 | 20.8 | 4.01 | 102.00 | 11.81 | 300.00 | 19 | 9 |
| 12" | 8.89 | 226.00 | 0.95 | 21.18 | 4.01 | 102.00 | 11.81 | 300.00 | 40 | 18 |
| 14" | 8.89 | 226.00 | 0.95 | 24.18 | 4.01 | 102.00 | 11.81 | 300.00 | 40 | 18 |
| 16" | 10.62 | 270.00 | 1.07 | 27.18 | 5.51 | 140.00 | 11.81 | 300.00 | 66 | 30 |
| 18" | 10.90 | 277.00 | 1.07 | 27.18 | 5.51 | 140.00 | 11.81 | 300.00 | 66 | 30 |
| 20" | 13.30 | 338.00 | 1.26 | 32.18 | 5.51 | 140.00 | 11.81 | 300.00 | 159 | 72 |
| 24" | 13.30 | 338.00 | 1.42 | 36.17 | 6.49 | 165.00 | 11.81 | 300.00 | 159 | 72 |




## Extension Dimensional Data

| SIIZE | A | | B | | C | | D |
|---|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm | in |
| 2" | 3.03 | 77.00 | 1.25 | 32.00 | 0.49 | 12.60 | 24" ~ 72" |
| 2.5" | 3.03 | 77.00 | 1.25 | 32.00 | 0.49 | 12.60 | 24" ~ 72" |
| 3" | 3.03 | 77.00 | 1.25 | 32.00 | 0.49 | 12.60 | 24" ~ 72" |
| 4" | 3.62 | 92.00 | 1.25 | 32.00 | 0.62 | 15.77 | 24" ~ 72" |
| 5" | 3.62 | 92.00 | 1.25 | 32.00 | 0.74 | 18.92 | 24" ~ 72" |
| 6" | 3.62 | 92.00 | 1.25 | 32.00 | 0.74 | 18.92 | 24" ~ 72" |
| 8" | 4.92 | 125.00 | 1.77 | 45.00 | 0.87 | 22.10 | 24" ~ 72" |
| 10" | 4.92 | 125.00 | 1.77 | 45.00 | 1.12 | 28.45 | 24" ~ 72" |
| 12" | 5.51 | 140.00 | 1.77 | 45.00 | 1.24 | 31.60 | 24" ~ 72" |
| 14" | 5.51 | 140.00 | 1.77 | 45.00 | 1.24 | 31.60 | 24" ~ 72" |
| 16" | 7.75 | 197.00 | 2.00 | 50.80 | 1.30 | 33.15 | 24" ~ 72" |
| 18" | 7.75 | 197.00 | 2.00 | 50.80 | 1.49 | 38.00 | 24" ~ 72" |
| 20" | 7.75 | 197.00 | 2.25 | 57.15 | 1.63 | 41.45 | 24" ~ 72" |
| 24" | 10.86 | 276.00 | 2.75 | 69.85 | 1.99 | 50.65 | 24" ~ 72" |



# INSTALLATION GUIDE

## Instructions

1. Align pipe flanges accurately in the line. Insure that there is enough space between the flanges to accommodate the valve.
2. Clear the flange of any foreign material, and inspect flange faces for any damage.
3. Insert the valve between the flanges carefully so as not to damage the seat and/or flange faces. Use of lubricant is not recommended, as some lubricants may damage seat materials.
4. Align the valve with the flanges, select desired type of bolting shown in “Figure A/B/C”, and insert the recommended bolts as shown in “Figure 3”. Tighten the bolts enough to hold the valve in place.
5. Operate the valve to ensure that the disc will clear the inside of the pipe and that the lever/gear will clear any nearby obstacles. When gear-operated valves are installed, move the valve to full open, and full closed, positions to ensure that the gear stops have been properly set.
6. Once proper valve operation has been confirmed, open valve to position 2 (20°), and tighten the bolts with the recommended amount of force shown in “Figure 1”. Bolts should be tightened in an alternating pattern shown in “Figure 2”.

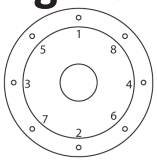
Caution:

- C&C Butterfly Valves are designed to fit ANSI 125 flat faced & ANSI 150 raised face flanges only.
- C&C Butterfly Valves are not compatible with rubber faced or mechanical flanges.
- Verify compatibility of valve materials with flow medium. Improper selection of valve materials could cause failure of valve, and subsequent injury of personnel.
- C&C Butterfly valves are not designed to be welded. No weld repair should be preformed on a C&C Butterfly valve.
- Only C&C parts should be used to repair a C&C valve.
- Gear operators are recommended for sizes 12" and larger.
- E.P.D.M. seats should not be used with any oil/petroleum based products or compressed air.
- F.K.M. (Viton®) and BUNA seats are not acceptable for steam service.

## Figure 1

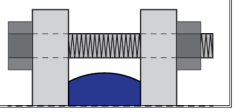
| Valve Size | Recommended Bolt Torque | Valve Size | Recommended Bolt Torque |
|---|---|---|---|
| 2" ~ 4" | 240 - 360 in-lb | 14" ~ 16" | 1680 - 2400 in-lb |
| 5" ~ 8" | 396 - 600 in-lb | 18" ~ 20" | 1800 - 2520 in-lb |
| 10" | 696 - 900 in-lb | 24" ~ 30" | 2580 - 3600 in-lb |
| 12" | 960 - 1320 in-lb | | |

## Figure 2



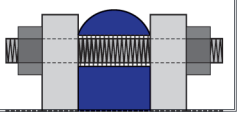

## Figure A

Wafer pattern stud bolt with nut



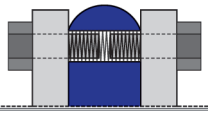
## Figure B

Lug pattern all-thread with nuts



## Figure C

Lug pattern with cap screws



## Figure 3

| VALVE SIZE | Bolt Diameter | Number of Bolts Req. | | Stud Bolt Length "A" | All Thread Length "B" | Cap Screw Length "C" |
|---|---|---|---|---|---|---|
| | | Fig A & B | Fig C | | | |
| 2" | 5/8" ~ 11 UNC | 4 | 8 | 4" | 5" | 1 1/4" |
| 2.5" | 5/8" ~ 11 UNC | 4 | 8 | 4 1/4" | 5 1/4" | 1 1/2" |
| 3" | 5/8" ~ 11 UNC | 4 | 8 | 4 1/2" | 5 1/4" | 1 1/2" |
| 4" | 5/8" ~ 11 UNC | 8 | 16 | 5" | 6" | 1 3/4" |
| 5" | 3/4" ~ 10 UNC | 8 | 16 | 5 1/2" | 6 1/2" | 1 3/4" |
| 6" | 3/4" ~ 10 UNC | 8 | 16 | 5 1/2" | 6 3/4" | 2" |
| 8" | 3/4" ~ 10 UNC | 8 | 16 | 6" | 7" | 2 1/4" |
| 10" | 7/8" ~ 9 UNC | 12 | 24 | 6 3/4" | 8" | 2 1/4" |
| 12" | 7/8" ~ 9 UNC | 12 | 24 | 7" | 8 1/4" | 2 1/2" |
| 14" | 1" ~ 8 UNC | 12 | 24 | 7 1/2" | 8 1/2" | 2 3/4" |
| 16" | 1" ~ 8 UNC | 16 | 32 | 8" | 9 1/2" | 3 1/4" |
| 18" | 1 1/8" ~ 7 UNC | 16 | 32 | 9" | 10 1/2" | 3 1/2" |
| 20" | 1 1/8" ~ 7 UNC | 20 | 40 | 9 1/2" | 11" | 4" |
| 24" | 1 1/4" ~ 7 UNC | 20 | 40 | 11" | 12 1/2" | 4 3/4" |

# NOTES

# About Our Company

CNC Flow Control is headquartered in Houston, Texas with multiple other locations in the U.S. and Canada. Our company unifies several trusted valve and flow line brands that have been serving numerous industries in North America for nearly three decades. From long range projects to same-day delivery, our diverse team is dedicated to understanding customers' needs in order to ensure exceptional service and the best solutions. Our extensive product portfolio ranges from commodity products like hammer unions and needle valves, to highly engineered products like API 6D trunnion mounted ball valves.

CE

CERTIFIED ISO 9001:2015 COMPANY

Member of API




Quality assurance is critical to CNC Flow Control's process and we hold multiple internationally recognized quality standards certifications and management system. We are dedicated to understanding our customers' needs to ensure exceptional service by offering an in-house engineering and product management team, an extremely large product portfolio and extensive inventory to support same day shipments.

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**Additional Consignment Locations**

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Kilgore TX
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Casper WY
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