

BUTTERFLY VALVES



INDUSTRIES

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Actuation

C200 Lug



G200 Series



C200 Wafer



T200 Series



LG200 Lug



LR Series Wafer

LN Series Wafer

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How To Order

| Valve Type | Size | Series | Disc Material | Body Material | Stem Material | Seat Material | Actuator |
|------------|------|--------|---------------|---------------|---------------|---------------|----------|
| BF | 040 | LW | D | D | 1 | B | L |

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

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

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

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

| | |
|---------------|---|
| 416 Stainless | 1 |
| 316 Stainless | 2 |
| 304 Stainless | 3 |
| Monel K500® | 4 |

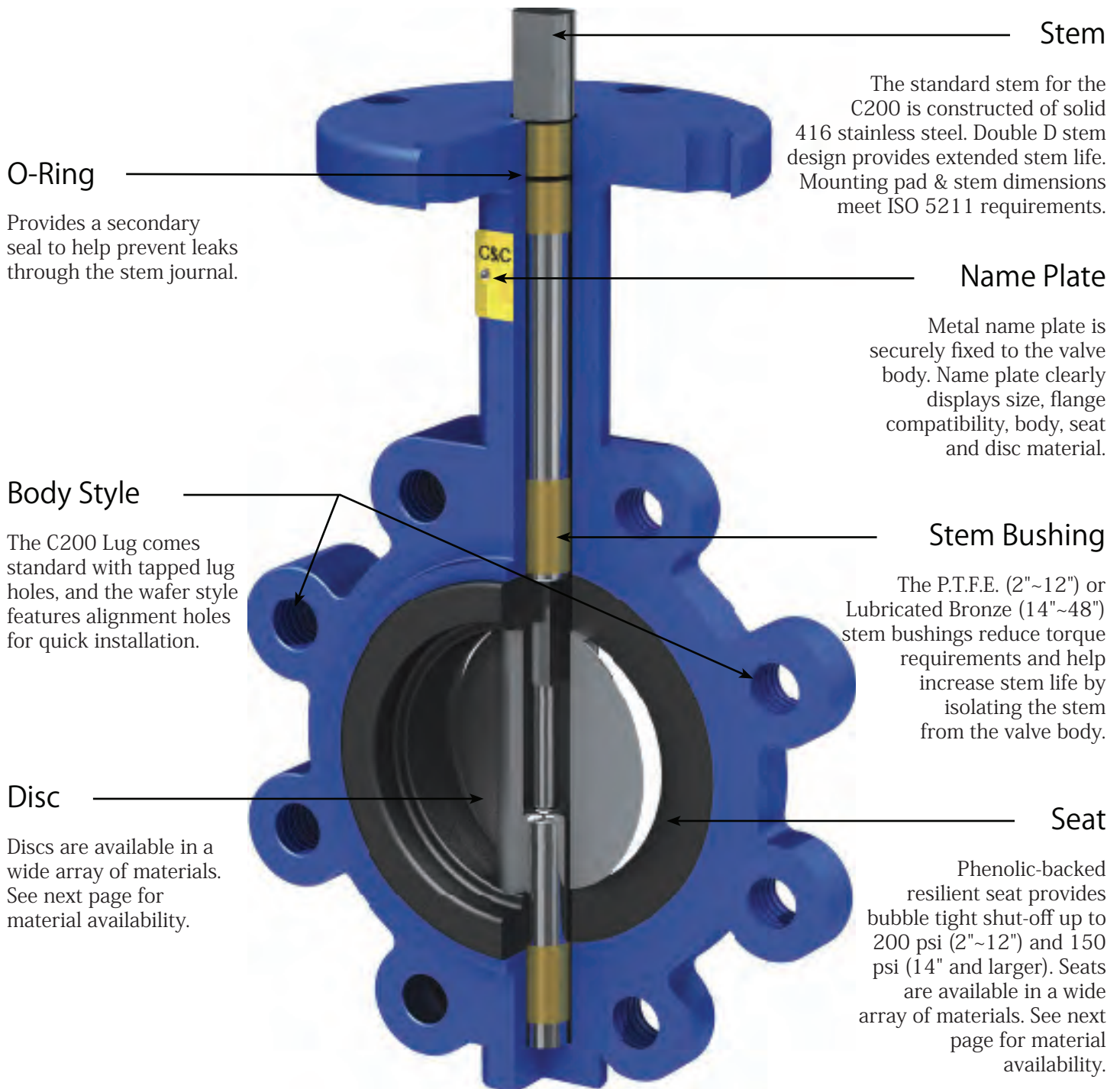
| | |
|--------------------|---|
| BUNA-N | B |
| E.P.D.M. | E |
| F.K.M. (Viton®) | V |
| P.T.F.E. (Teflon®) | T |
| Neoprene® | N |
| Hypalon® | H |

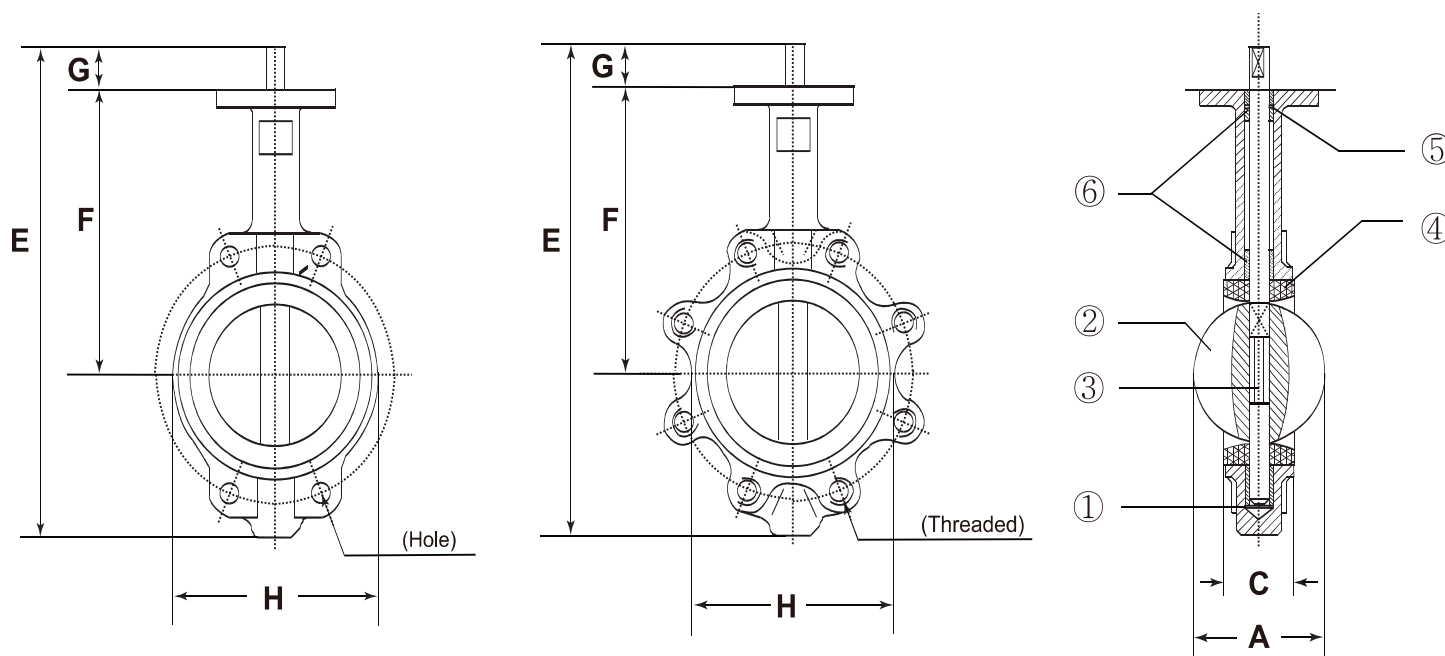
| | |
|-------|---|
| Lever | L |
| Gear | G |

C200 Series

Wafer and Lug Style Butterfly Valve

The C & C C200 series achieves a perfect balance of economy and durability. The C200 is a general purpose valve designed to meet the needs of many different 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"~12" and 150 PSI for sizes 14"~48".





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 | BUNA-N, E.P.D.M., F.K.M.(Viton®), P.T.F.E. (Teflon®), Neoprene®, Hypalon®** |
| 5 | O-ring | 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 |

LR/LG200 Series

Long Neck Butterfly Valve

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.

Long Neck

Extended neck design will accommodate pipe insulation.

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 array of materials. See next page for material availability.

Name Plate

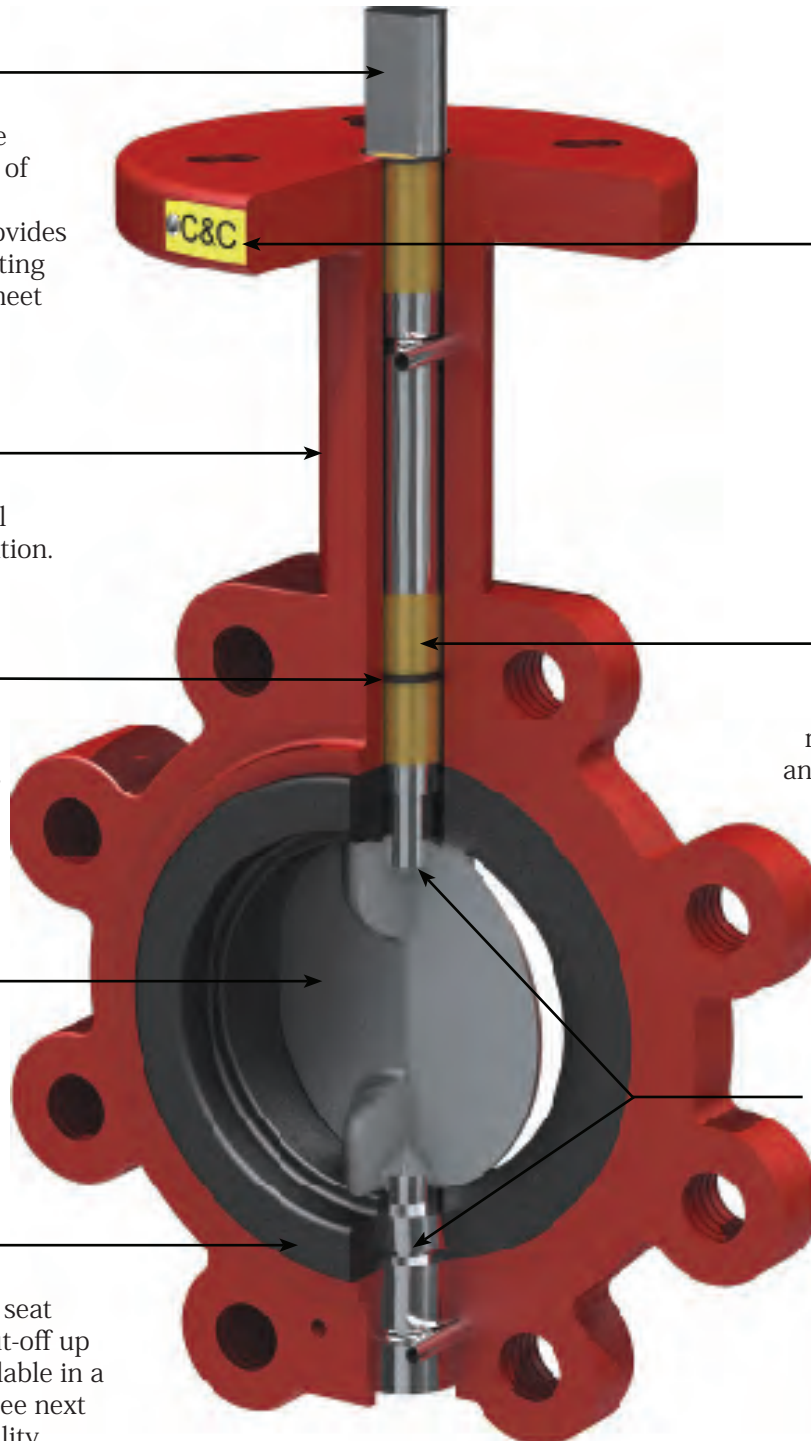
Metal name plate is securely fixed to the valve body. Name plate clearly displays size, flange compatibility, body, seat and disc material.

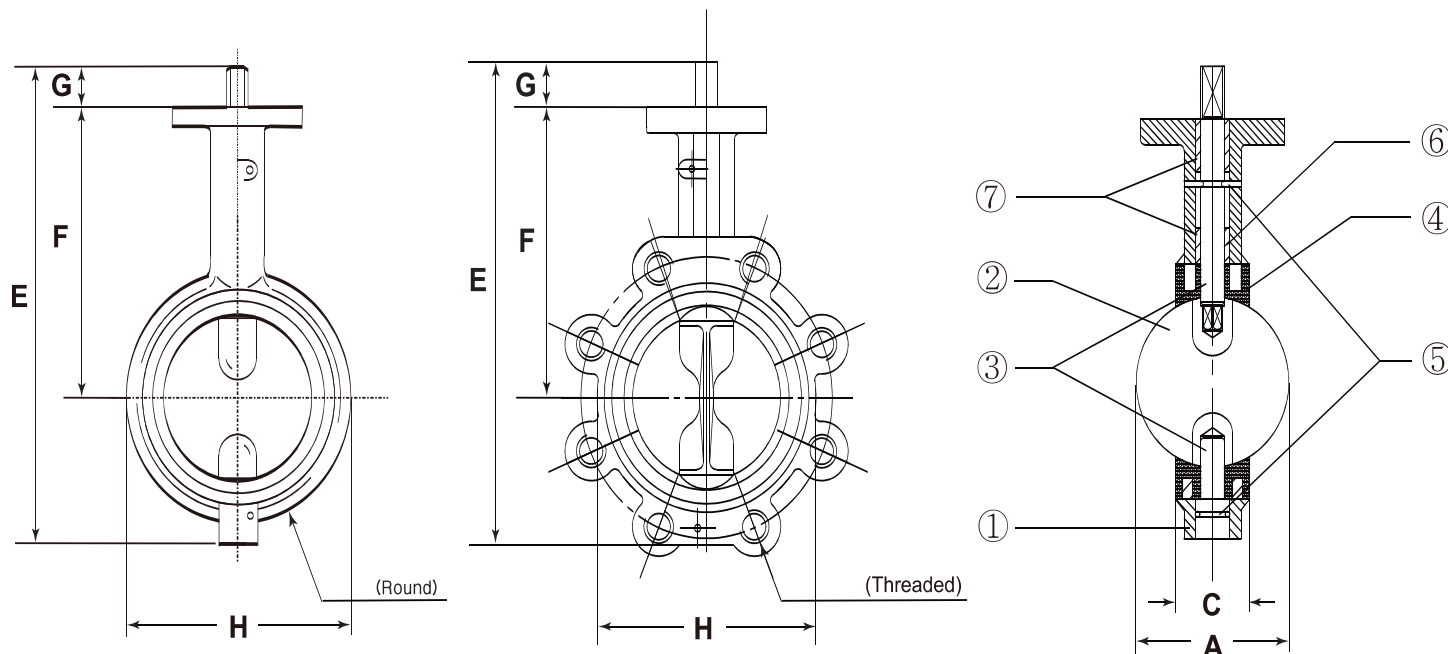
Stem Bushings

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

Two-Piece Stem

The LR/LG200 features a two-piece stem design which allows for maximum flow values, and provides increased strength and durability.





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 (304 SS)*, Monel** |
| 3 | Stem | 416 Stainless Steel, 304 Stainless Steel*, 316 Stainless Steel*, Monel** |
| 4 | Seat | 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

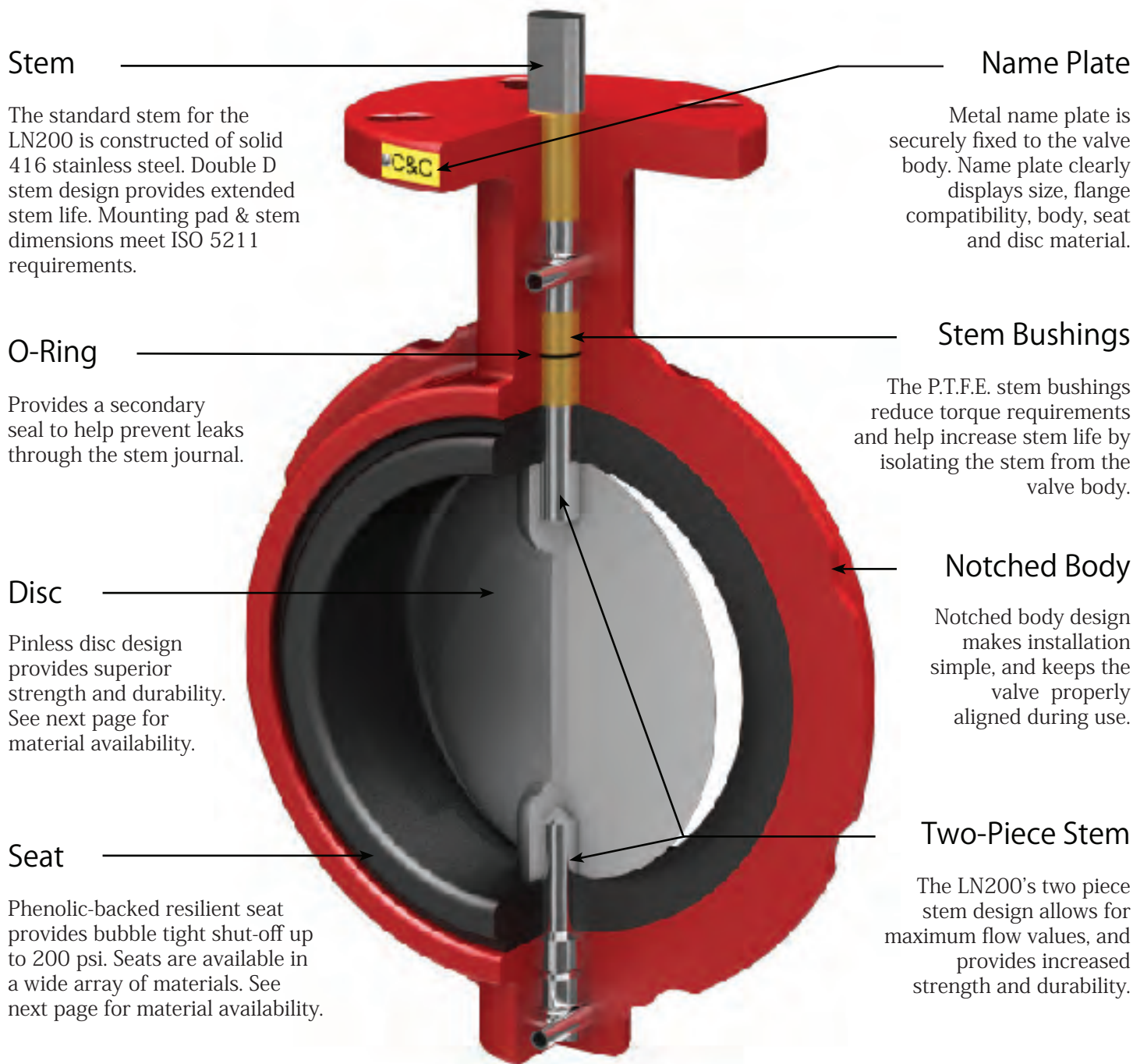
Dimensional Data

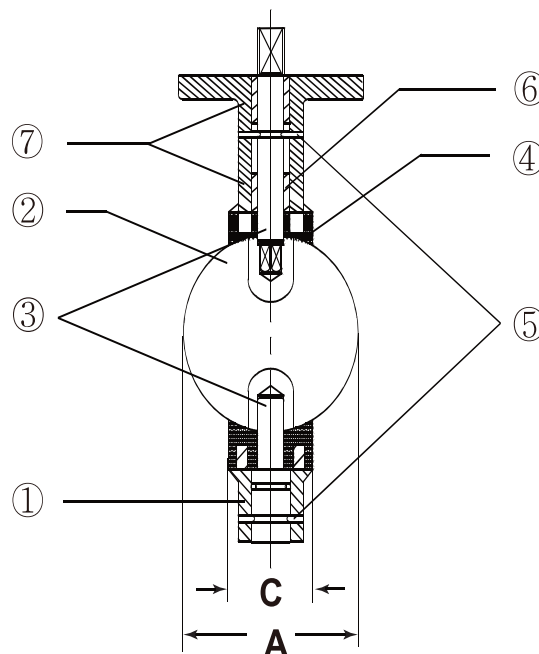
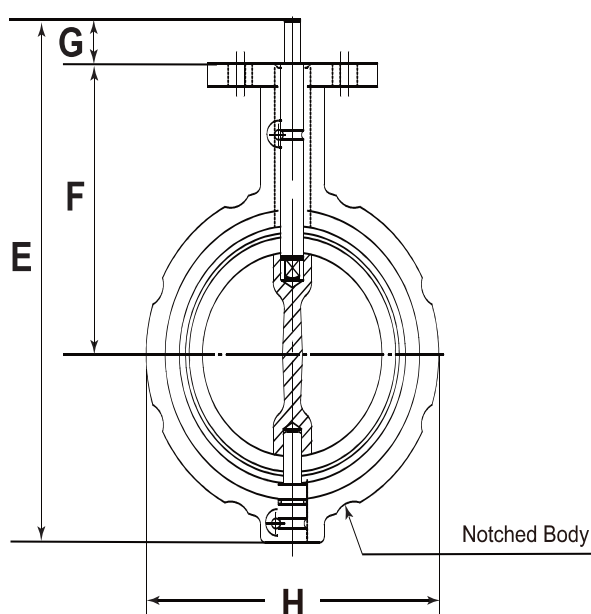
| Size | A | | C | | E | | F | | G | | H | | Wafer Weight | | Lug Weight | |
|------|-------|--------|------|-------|-------|-----|-------|--------|------|-------|-------|--------|--------------|----|------------|----|
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | Kg | lbs | Kg |
| 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 |

LN200 Series

Short Neck Butterfly Valve

The C & C LN200 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".





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 (304 SS)*, Monel** |
| 3 | Stem | 416 Stainless Steel, 304 Stainless Steel*, 316 Stainless Steel*, Monel** |
| 4 | Seat | 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 | |
|------|-------|--------|------|-------|-------|--------|-------|--------|------|-------|-------|--------|--------------|----|
| | 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 |

T200 Series

Threaded End Butterfly Valve

The C & C series T200 threaded butterfly valve is the most cost-effective flow 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 field 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.

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.

Stem

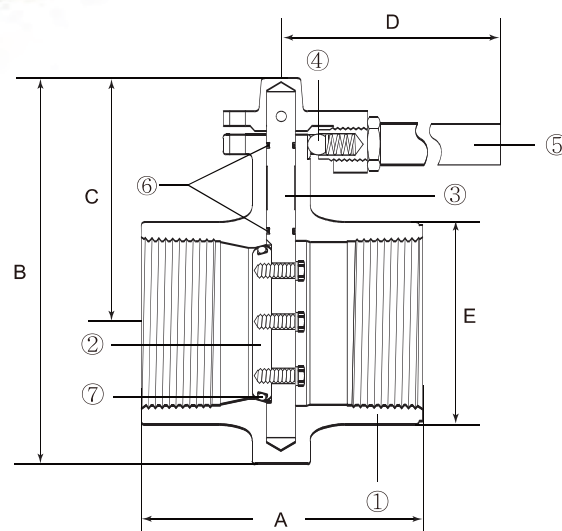
Stem is solid 416 stainless steel

Body

The T200 has a durable cast iron body, with nickel plating for corrosion prevention.

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 | 440DC 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 Full Open |
|------|------|--------|-------|--------|------|--------|-------|--------|------|--------|--------|----|----------------------|
| | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | Kg | |
| 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 | 225.76 | 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 |

G200 Series

Grooved End Butterfly Valve

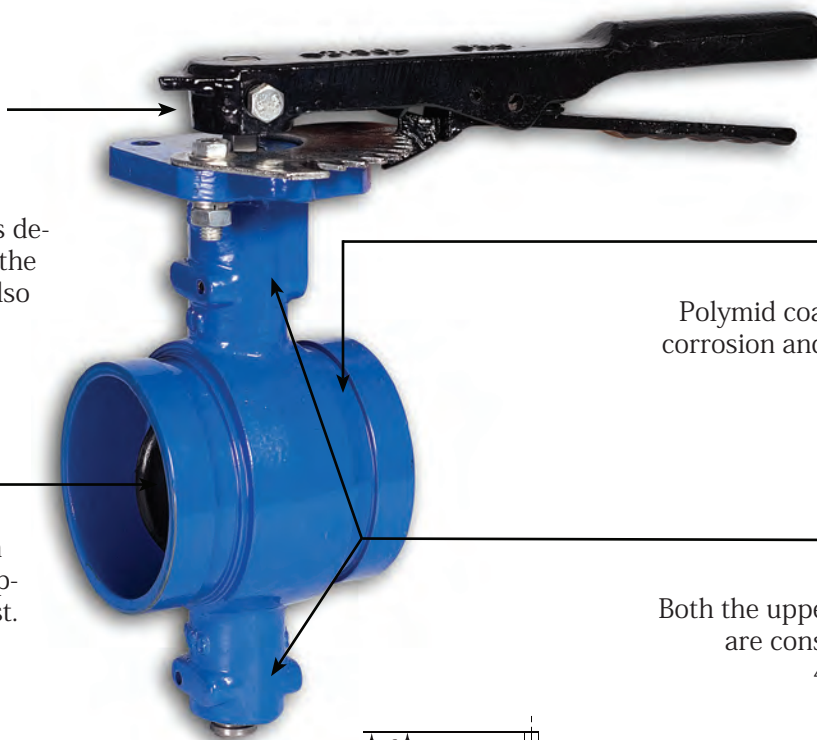
The C & C series G200 is a grooved end bubble tight shutoff valve with outstanding flow characteristics. The BUNA-N seal is molded onto the ductile iron disc, in order to allow for maximum flow potential. The one-piece body is constructed from durable ductile iron and coated with polyimide for corrosion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

Ten Position Trigger Grip Handle

Ten position trigger grip handle is designed to positively retain disc in the desired position during use and also provides the user with a visual indication of disc position.

Disc

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



Body

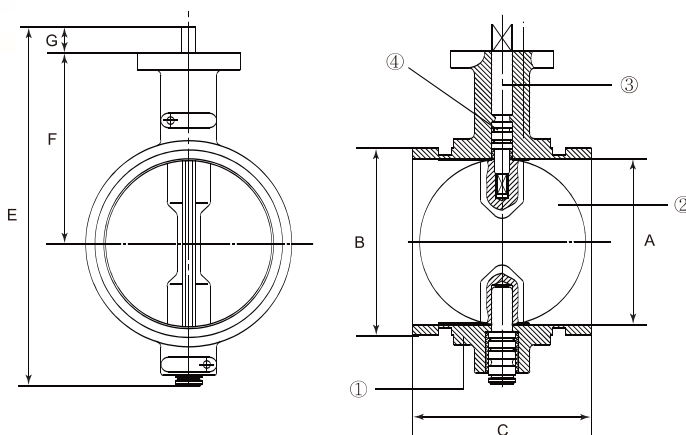
Polymid coated body prevents corrosion and extends valve life

Stem

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

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. |



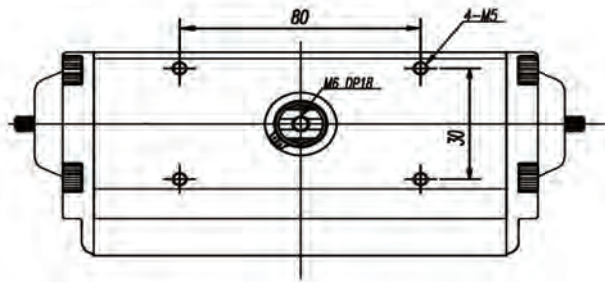
Dimensional Data

| Size | A | | B | | C | | D | | E | | F | | Weight | | Cv Rate Full Open |
|------|------|--------|------|--------|------|--------|-------|--------|------|--------|------|-------|--------|----|----------------------|
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | Kg | |
| 2" | 2.09 | 53.10 | 2.37 | 60.33 | 3.20 | 81.50 | 8.32 | 211.50 | 3.87 | 98.50 | 1.25 | 32.00 | 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 |

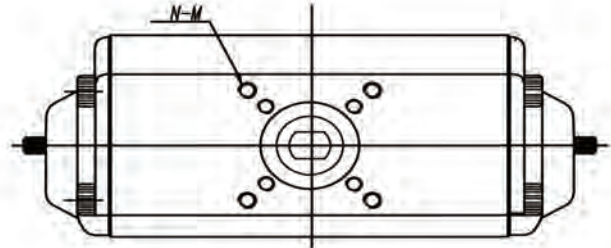
Series ESD

Double Acting Pneumatic Actuator

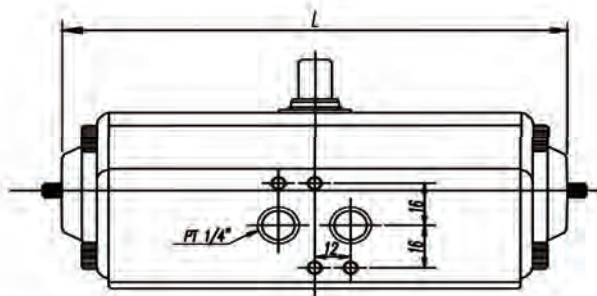
Top View



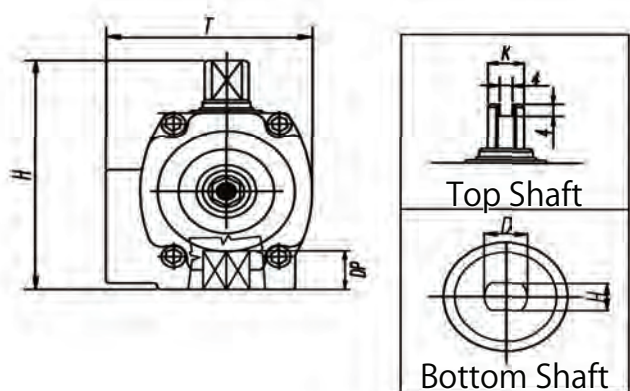
Bottom View



Front View



Side View



Double-Acting Pneumatic Actuator Dimensional Data

| Model # of Actuator & 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 | 0.43 | 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 |

Torque Output

| Model # | Angle | 45 PSI | 60 PSI | 75 PSI | 90 PSI | 105 PSI | 120 PSI |
|-----------|-------|--------|--------|--------|--------|---------|---------|
| G-ESD-50 | 0° | 270 | 359 | 423 | 539 | 625 | 710 |
| | 90° | 233 | 314 | 365 | 465 | 538 | 612 |
| G-ESD-65 | 0° | 588 | 780 | 918 | 1171 | 1357 | 1543 |
| | 90° | 504 | 669 | 787 | 1004 | 1163 | 1322 |
| G-ESD-80 | 0° | 1127 | 1499 | 1763 | 2249 | 2605 | 2962 |
| | 90° | 904 | 1202 | 1413 | 1803 | 2089 | 2374 |
| G-ESD-100 | 0° | 1808 | 2404 | 2827 | 3605 | 4177 | 4750 |
| | 90° | 1612 | 2143 | 2521 | 3215 | 3725 | 4236 |
| G-ESD-125 | 0° | 3990 | 5303 | 6237 | 7953 | 9216 | 10161 |
| | 90° | 3589 | 4770 | 5610 | 7154 | 8291 | 9426 |

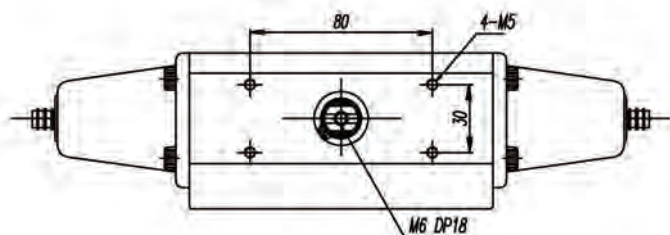
Torque values in/lbs



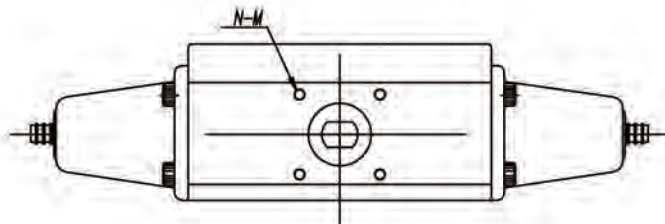
Series ESA

Spring Return Pneumatic Actuators

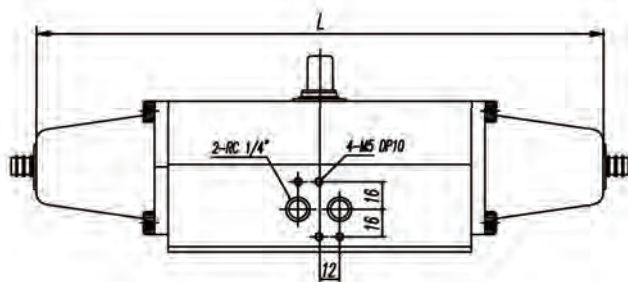
Top View



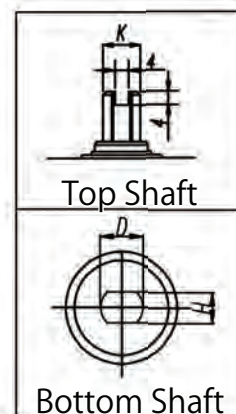
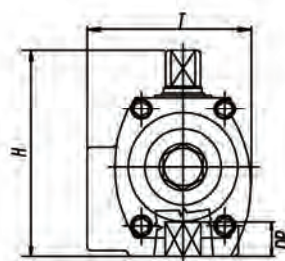
Bottom View



Front View



Side View



Spring-Return Pneumatic Actuator Dimensional Data

| Model # of Actuator & 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 | 0.51 | 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-ESA-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-ESA-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 |

Torque Output

| Model # | Angle | Spring | 45 PSI | 60 PSI | 75 PSI | 90 PSI |
|-----------|-------|--------|--------|--------|--------|--------|
| G-ESA-50 | 0° | 124 | 106 | 195 | 319 | 354 |
| | 90° | 230 | -- | 35 | 150 | 195 |
| G-ESA-65 | 0° | 310 | 257 | 451 | 690 | 779 |
| | 90° | 478 | -- | 150 | 389 | 469 |
| G-ESA-80 | 0° | 531 | 425 | 770 | 1257 | 1416 |
| | 90° | 885 | 35 | 327 | 805 | 947 |
| G-ESA-100 | 0° | 885 | 876 | 1460 | 2390 | 2673 |
| | 90° | 1682 | -- | 469 | 1336 | 1655 |
| G-ESA-125 | 0° | 2655 | 1124 | 2425 | 4213 | 4868 |
| | 90° | 4514 | -- | 177 | 1965 | 2567 |

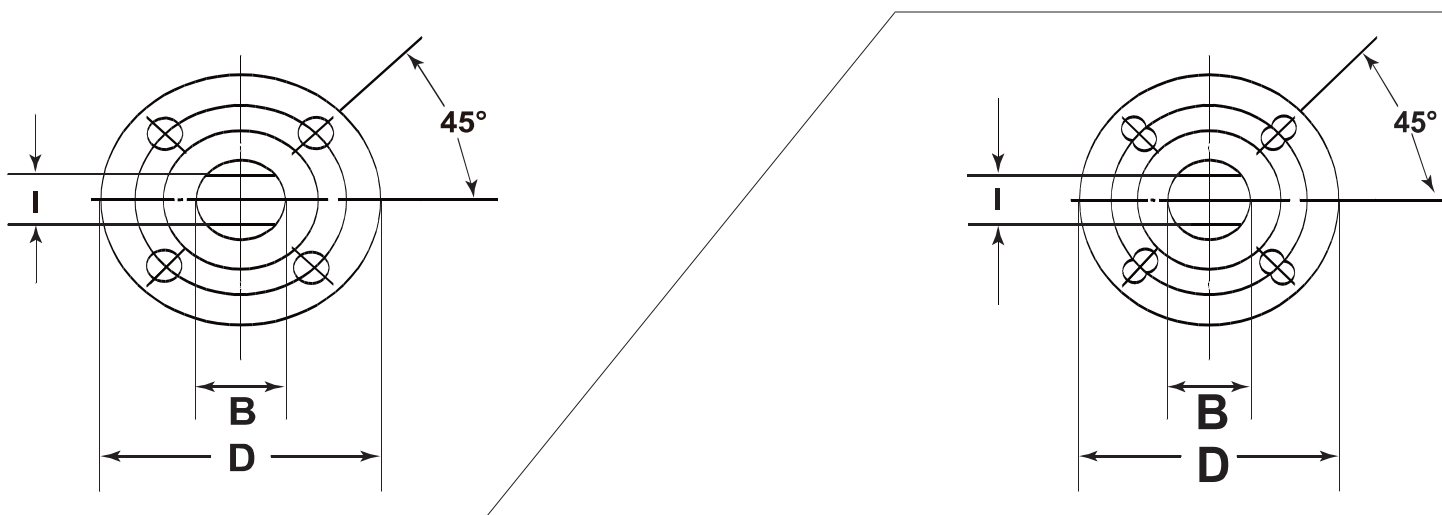
Torque values in/lbs



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 | 4.92 | 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 | 13.54 | 4 |
| 10" | 1.12 | 28.45 | 6.00 | 152.40 | 0.81 | 20.62 | 4.02 | 102.11 | 5.00 | 127.00 | 0.533 | 13.54 | 4 |
| 12" | 1.24 | 31.60 | 6.00 | 152.40 | 0.94 | 24.00 | 4.02 | 102.11 | 5.00 | 127.00 | 0.533 | 13.54 | 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 given as in/lbs, safety factor not included

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 |

Torque values given as in/lbs, safety factor not included

Seat Insert Information

Material: Nitrile

Trade Name: BUNA-N

Temperature Range: (0°F~180°F)

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: (-30°F~250°F)

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: (14°F~300°F)

Information: Fluoroelastomers have a field-proven reputation of providing excellent resistance to a wide range of corrosive chemicals, even when elevated temperatures are present. Fluoroelastomers are not compatible with hot water or steam.

Material: P.T.F.E.

Trade Name: Teflon®

Temperature Range: (-30°F~250°F)

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.

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 | 0.06 |
| 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 | 17085 | 11390 | 7157 | 4340 | 2441 | 1126 | 532 | 10 |
| 20" | 24140 | 21968 | 14645 | 9254 | 5592 | 3138 | 1448 | 684 | 12 |
| 24" | 37295 | 33930 | 22623 | 14297 | 8640 | 4848 | 2238 | 1057 | 19 |

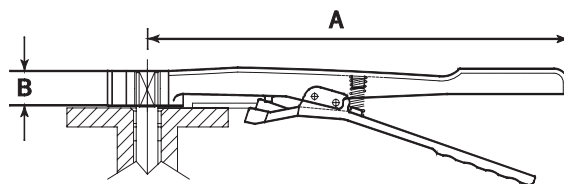
LR, LG, & LN200 Flow Coefficient

| 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 |

Manual Actuators

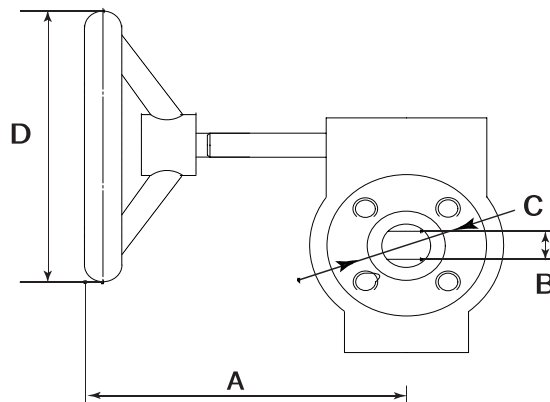
Lever Dimensional Data

| Size | 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 |



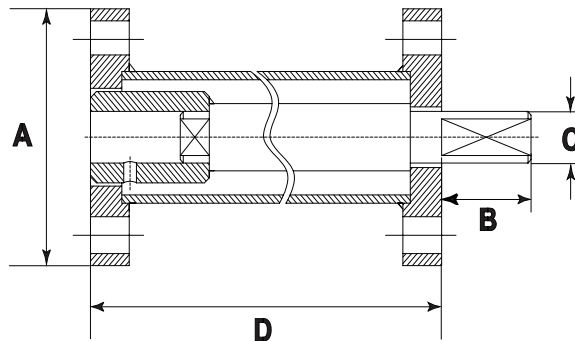
Gear Dimensional Data

| Size | 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 | 24.18 | 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

| Size | 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" |



Note: Call factory for extension weights

Note: Extensions are supplied in 12" length increments. However, custom lengths are available on request.

Installation Guide

Installation 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" | 636 - 900 in-lb | 24"~30" | 2580 - 3600 in-lb |
| 12" | 960 - 1320 in-lb | | |

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"~11UNC | 4 | 8 | 4" | 5" | 1 & 1/4" |
| 2.5" | 5/8"~11UNC | 4 | 8 | 4 & 1/4" | 5 & 1/4" | 1 & 1/2" |
| 3" | 5/8"~11UNC | 4 | 8 | 4 & 1/2" | 5 & 1/4" | 1 & 1/2" |
| 4" | 5/8"~11UNC | 8 | 16 | 5" | 6" | 1 & 3/4" |
| 5" | 3/4"~10UNC | 8 | 16 | 5 & 1/2" | 6 & 1/2" | 1 & 3/4" |
| 6" | 3/4"~10UNC | 8 | 16 | 5 & 1/2" | 6 & 3/4" | 2" |
| 8" | 3/4"~10UNC | 8 | 16 | 6" | 7" | 2 & 1/4" |
| 10" | 7/8"~9UNC | 12 | 24 | 6 & 3/4" | 8" | 2 & 1/4" |
| 12" | 7/8"~9UNC | 12 | 24 | 7" | 8 & 1/4" | 2 & 1/2" |
| 14" | 1"~8UNC | 12 | 24 | 7 & 1/2" | 8 & 1/2" | 2 & 3/4" |
| 16" | 1"~8UNC | 16 | 32 | 8" | 9 & 1/2" | 3 & 1/4" |
| 18" | 1 & 1/8"~7UNC | 16 | 32 | 9" | 10 & 1/2" | 3 & 1/2" |
| 20" | 1 & 1/8"~7UNC | 20 | 40 | 9 & 1/2" | 11" | 4" |
| 24" | 1 & 1/4"~7UNC | 20 | 40 | 11" | 12 & 1/2" | 4 & 3/4" |

Figure 2

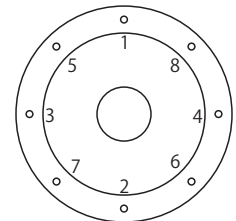


Fig. A

Wafer Pattern Stud Bolt w/ Nut

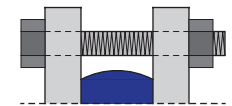


Fig. B

Lug Pattern All-thread w/ Nuts

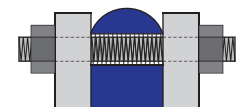
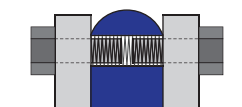


Fig. C

Lug Pattern w/ Cap Screws



TERMS & CONDITIONS

Note: C & C Industries Inc. will hereafter be referred to as "Seller". The person, company, or entity that purchased product from C & C Industries Inc. will hereafter be referred to as "Buyer".

1. Warranty: All of Seller's products are guaranteed to be free from manufacturing defects. Product will qualify for warranty replacement at no cost to Buyer if the following criteria have been met:

- a.) Product was installed, used, and maintained in accordance with approved installation, operation and maintenance procedures.
- b.) Product failure was in fact caused by a defect in materials or workmanship, and not caused by damage in transit, damage by corrosive or abrasive flow media, and/or other wear normally expected to occur during use of product.
- c.) Written notice must be delivered to Seller within one year of shipping date.

Seller is liable for cost of product only, and no labor or other expense liability will be assumed. THIS EXPRESS WARRANTY IS IN LIEU AND EXCLUDES ALL OTHER WARRANTIES, GUARANTEES, AND/OR REPRESENTATIONS, EITHER EXPRESS OR IMPLIED. THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

2. Buyer's Remedies: the Buyer's remedies with respect to any product furnished by Seller hereunder that is found not to be in conformity with the terms and conditions of the contract because of breach of contract, breach of express or implied warranty or negligence shall be limited exclusively to the right of replacement of product, or, at Seller's option, repayment of the sale price of the product. In no event shall Seller be liable for claims (based on breach of contract, breach of express or implied warranty, negligence or any other reason) for any other damages, whether direct, immediate, foreseeable, consequential and/or special or for any expenses incurred by reason of the use, misuse, sale, and/or fabrication which do or do not conform to the terms and conditions of the contract.

3. Acceptance of Orders: All orders are subject to acceptance by Seller. No assignment of the Buyer's rights may be made without the written consent of Seller.

4. Remittances: all accounts are payable in United States currency, free of exchange, collection, or any other charges. If, at Seller's sole discretion, the financial condition of the Buyer at any time so requires, Seller retains the right to require full or partial payment in advance.

5. Partial Shipments and Payments: Seller reserves the right to make partial shipments from time to time, and to render invoices therefore which shall be due and payable as provided in said invoice in the paragraphs above titled "Remittances" and "Terms of Payment" overleaf. If the Buyer becomes overdue in any such partial payment, Seller shall be entitled to suspend work and/or avail itself of other legal remedies.

6. Taxes: Unless otherwise specifically noted, the amount of any sales, occupancy, or excise, or tax of any nature, federal, state, and/or local, for which Seller is legally liable, either initially or through failure of payment by Buyer, shall be in addition to the price quoted and Buyer agrees to pay the same to Seller.

7. Shortage and/or Damage in Transit: All claims for lost, damaged, or missing goods must be made in writing within 5 business days of the discovery of said loss. Goods that are lost or damaged in transit are the responsibility of the carrier.

8. Delays: All promises of shipment are estimated as closely as possible, and Seller will use its best efforts to ship material within the promised delivery schedule, but Seller does not guarantee to do so, and Seller assumes no liability for not doing so. Materials quoted as "Stock" are subject to prior sale.

9. Changes, Cancellation, and/or Suspension: The order or contract are subject to change, cancellation, and/or instruction to suspend or delay work or delivery only upon written notification from Buyer and is subject to the approval of Seller. Items on special order may be changed and/or canceled only upon receipt of written instruction from Buyer and with a tacit understanding and agreement to make payment for work already performed and material used. Items quoted as "Non Cancelable/Non-Returnable" are not subject to the preceding statement, and orders for placed based on such quotes may not be canceled, amended, or returned (except under warranty terms stated above).

10. Return of Material: No product of Seller may be returned without Seller's written consent. Returned product, except those items returned under the warranty terms stated above, must be unused and in working condition. Seller reserves the right to refuse to issue credit for any reason deemed reasonable and/or necessary by Seller. All returned goods are subject to a "Restocking Fee" plus freight in both directions, unless otherwise specified in writing by Seller.

11. Governing Law: Sellers terms and conditions, and/or any contract or agreement between Seller and Buyer, shall be governed by, construed, and enforced in accordance with the laws of the State of Texas.

12. No Waiver: The failure of Seller to insist, in any one or more instance, upon the performance of any of the terms, covenants or conditions of these Terms and Conditions or to exercise any right thereunder shall not be construed as a waiver or relinquishment of the future performance of any such term, condition, and/or the exercise of any other rights under these "Terms and Conditions".

13. Purchaser's Acceptance of Above Conditions: C & C INDUSTRIES, INC. IS NOT BOUND BY ANY TERMS ON THE BUYERS ORDER FORM OR ANY OTHER DOCUMENT EMANATING FROM THE BUYER WHICH ATTEMPTS TO IMPOSE ANY CONDITION AT VARIANCE WITH THE SELLER'S TERMS AND CONDITIONS OF SALE WHICH ARE INCLUDED HEREIN AND/OR STATED ON THE SELLERS WEB SITE, PACKING LIST, INVOICES, AND/OR TECHNICAL DATA SHEETS. SELLER'S FAILURE TO OBJECT TO PROVISIONS CONTAINED IN THE AFOREMENTIONED FORMS OF THE BUYER SHALL NOT BE DEEMED A WAIVER OF THE PROVISIONS OF SELLER'S TERMS AND CONDITIONS OF SALE WHICH SHALL CONSTITUTE THE ENTIRE CONTRACT BETWEEN SELLER AND BUYER. NO WAIVER, ALTERATION, AND/OR MODIFICATION OF THESE TERMS AND CONDITIONS SHALL BE BINDING UNLESS AGREED TO IN WRITING AND SIGNED BY AN AUTHORIZED REPRESENTATIVE OF SELL. STENOGRAPHIC, TYPOGRAPHIC, AND/OR CLERICAL ERRORS ARE SUBJECT TO CORRECTION.

14. Freight Policy: All prices and shipments are given as F.O.B. Houston, Texas. Seller's responsibility ceases after Seller makes the delivery to the carrier. All claims for goods lost, damaged, or delayed in transit should be made to the freight carrier. Full freight allowance (U.S.A. destinations only, excluding Alaska & Hawaii) will be made on orders of 1000 lbs (460Kg) or more. Individual orders less than 1000lbs and orders with discounted items will not qualify for freight allowance. Allowances are based on the lowest published rates for rail or motor freight to all rail or highway points listed in published tariffs. Freight allowances do not include delivery to building sites beyond these rail or highway points. Freight allowances do not include special delivery services, including but not limited to: lift gate service, residential delivery, after hours delivery, expedited delivery charges, airfreight charges, etc. Whenever a buyer specifies a more expensive method of shipment, the difference in transportation cost is the responsibility of the Buyer.

TRADEMARK REFERENCES:

This document contains references to registered trademarks or product designations which are not owned by C & C Industries. These trademarked product designations are used for reference purposes only.

Trademark Name Owner

| | |
|----------|----------------------------------|
| VITON | E.I. DuPont De Nemours & Company |
| TEFLON | E.I. DuPont De Nemours & Company |
| NEOPRENE | E.I. DuPont De Nemours & Company |
| HYPALON | E.I. DuPont De Nemours & Company |
| MONEL | INCO Alloys International, Inc. |

OTHER C & C PRODUCTS

Threaded Oilfield Ball Valves



1000 PSI



1500 PSI



2000 PSI



3000 PSI



5000 PSI

Threaded Commodity Ball Valves



600 PSI BRASS



2000 PSI R/P



2000 PSI F/P SS



3000 PSI 3 PC



2000 PSI F/P

Oilfield Hammer Unions



FIGURE 100



FIGURE 200



OCTAGON UNION



FIGURE CGC



FIGURE 1002

Grooved End Products



FLEX COUPLING



LEVER COUPLING



1000 PSI BALL VALVE



300 PSI CHECK VALVE



INDUSTRIES



Other valves available

