

Colonial 311N Series Butterfly valves are ideal for use as throttling valves. With the 10-position index plate, it is easy to repeat consistent flow conditions. Compact in design, this valve is used when space is at a premium.

This valve is ideally suited for the most demanding industrial, commercial, agricultural and irrigation environments.

**FEATURES AND BENEFITS**

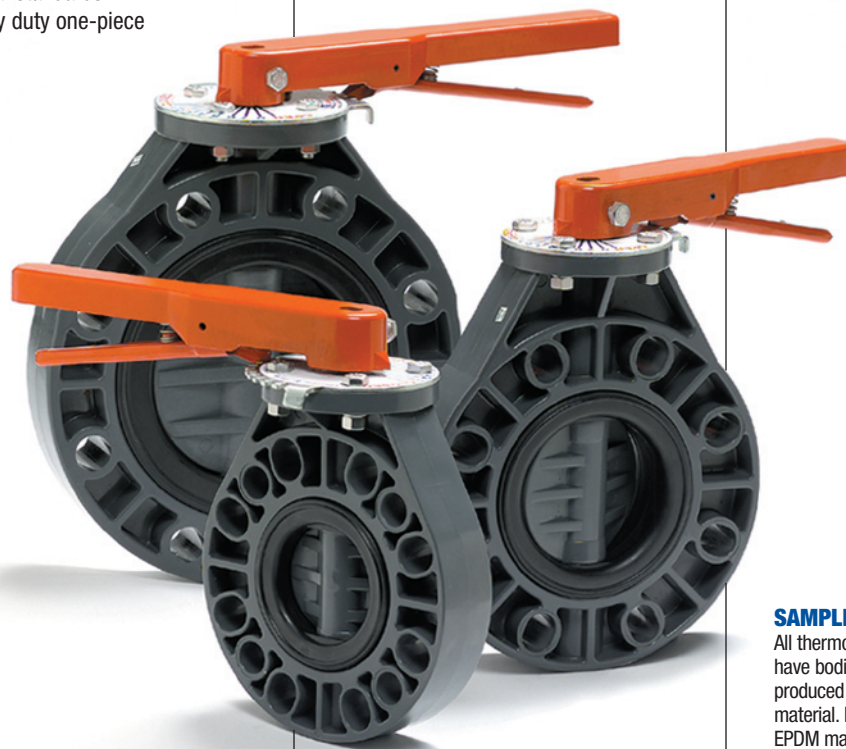
- Corrosion-resistant thermoplastic body and disc.
- 100% bubble-tight seal.
- Stainless steel index plate and hardware.
- Bolt pattern meets ANSI, DIN specifications and AWWA dimensional standards.
- Extra heavy duty one-piece PVC body.

- Triple seal design for maximum reliability.
- Pressure rated at 150 psi, non-shock water at 73°F.
- Corrosion-resistant stainless steel stem is heat treated for maximum strength.
- Rugged, corrosion-resistant coated metal handle.
- Up to 50% lighter in weight than metal valves.
- PVC disc with optimized strength/Cv performance.
- Direct retrofit with many cast iron valves.
- Integral boot seal (flange gaskets not required).

- Lay length, stem diameter and top works dimensions are compatible with Keystone Figure 100 butterfly valves.

**ACCESSORIES**

Stem extensions, handle lock-out, gear operator, handwheel, chain, or 2" operating nut are available. The stem extensions are ideally suited for buried or insulated piping applications and can be tailored to meet specific lengths. Please contact customer service for information.



**SAMPLE ENGINEERING SPECIFICATIONS**

All thermoplastic butterfly valves (3 through 6") shall have bodies of one piece, full-face construction produced of PVC type 1, cell classification 12454 material. Elastomeric liner and o-rings shall be EPDM material. Elastomeric liner shall have an integrally molded flange face seal. Valve bolt pattern shall meet ANSI B16.5, Class 150 and AWWA Dimensional Standards. Valve disc shall be produced of PVC type 1, cell classification 12454 material. Valve stem and index plate shall be stainless steel. Valve stem shall be of blow-out proof design. Operations shall be by lever handle, gear operator, or electric or pneumatic actuation. Valves shall be pressure rated at 150 psi, non-shock water at 73°F.

Note: For material choices of CPVC, PVC, PP with Viton® or EPDM, please see the Colonial 411N Series. For sizes 8, 10, and 12" with gear operator, see the Colonial 411NG Series.

Revised 10/07

# 311N SERIES BUTTERFLY VALVE (3, 4, AND 6")



Colonial Butterfly valve are tested under high pressure for structural integrity and low pressure for a bubble-tight seal.

### TEMPERATURE DE-RATING FOR VALVES & UNIONS (ABOVE 73° F)

| Temp (°F) | PVC  | Temp (°F) | PVC |
|-----------|------|-----------|-----|
| 73        | 1.00 | 150       | NR  |
| 80        | .88  | 160       | NR  |
| 90        | .75  | 170       | NR  |
| 100       | .62  | 180       | NR  |
| 110       | .50  | 200       | NR  |
| 120       | .40  | 210       | NR  |
| 130       | .30  | 240       | NR  |
| 140       | .22  | 280       | NR  |

NR: Not Recommended

Caution: Colonial recommends a minimum installation distance of 10 X the pipe diameter from a pump or other sources of turbulence.



### 311ND SERIES: DIRECT-MOUNT READY BUTTERFLY VALVES

The specifications for the 311ND Series are exactly the same as the 311N Series with the following exceptions:

- Exposed top section of stem is ISO 5211 Square pattern 11mm, .433"
- Top plate is drilled for ISO 5211 bolthole pattern\* for direct mount.
- When actuator is securely mounted, the valve stem is blowout-proof.

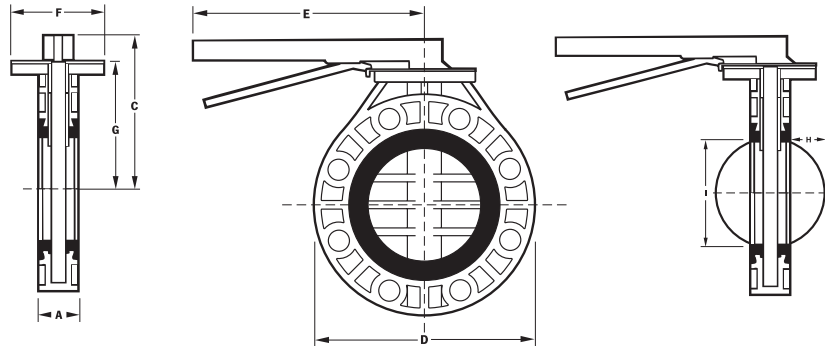
#### \*ISO Patterns

| Part No. |         |          |
|----------|---------|----------|
| 3" Valve | F05/F07 | V30311ND |
| 4" Valve | F07     | V40311ND |
| 6" Valve | F07     | V60311ND |



### 311NG BUTTERFLY VALVES WITH GEAR OPERATOR

High strength corrosion resistant Coated Aluminum Alloy housing with coated cast iron handwheel and Nitrotec® treated steel output shaft, 40:1 ratio worm gear, 10 turns to close, mounted to 311N series butterfly valve.



### TORQUE VALUES (IN-LBS)

| Valve Size | Opening | Closing |
|------------|---------|---------|
| 3"         | 255     | 200     |
| 4"         | 325     | 300     |
| 6"         | 520     | 480     |

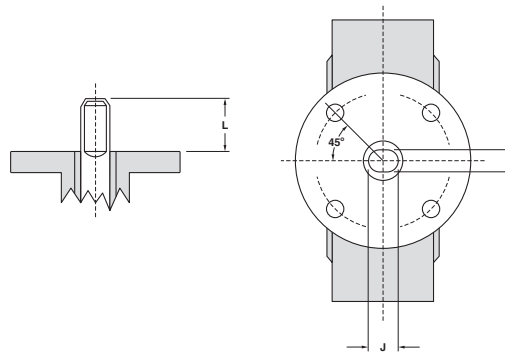
### VALVE SIZES

| Valve Size | Lever Handle | with Gear Operator |
|------------|--------------|--------------------|
| 3"         | V30311N      | V30311NG           |
| 4"         | V40311N      | V40311NG           |
| 6"         | V60311N      | V60311NG           |

### DIMENSIONS

| Size | Valve Closed |         |          |         |         |         | Valve 90° Open |        |
|------|--------------|---------|----------|---------|---------|---------|----------------|--------|
|      | A            | C       | D        | E       | F       | G       | H              | I      |
| 3"   | 1-3/4"       | 6-5/16" | 7-1/2"   | 9-1/2"  | 4-3/16" | 4-7/8"  | 5/8"           | 2-3/8" |
| 4"   | 2"           | 7-3/4"  | 9"       | 9-1/2"  | 4-3/16" | 6-9/32" | 1"             | 3-3/8" |
| 6"   | 2-3/16"      | 8-3/8"  | 11-7/32" | 11-3/4" | 5-1/32" | 7"      | 1-31/32"       | 5-1/2" |

### KEYSTONE FIGURE 100 STEM & TOP PLATE



**COMPRESSED AIR WARNING**

The products in this document are only intended for use in transferring or storing chemically compatible pressurized liquids. Do not test or use products in this document with compressed air or other gases. Doing so is dangerous and could cause injury or great bodily harm should a system fail under compressed air. Only use products that are specifically designed for compressed air/gas service. Call Colonial technical service for more information.

### DIMENSIONS

| Size | L      | J     | K     | Top Plate Drilling |           |            |
|------|--------|-------|-------|--------------------|-----------|------------|
|      |        |       |       | Bolt Circle        | No. Holes | Hole Diam. |
| 3"   | 1-1/4" | 9/16" | 3/8"  | 3-1/4"             | 4"        | 7/16"      |
| 4"   | 1-1/4" | 5/8"  | 7/16" | 3-1/4"             | 4"        | 7/16"      |
| 6"   | 1-1/4" | 5/8"  | 7/16" | 3-1/4"             | 4"        | 7/16"      |

### BOLT SPECIFICATIONS

| Pipe Size | Number Flange Holes | USS Std. Hex Head Bolt Diameter | USS Std. Hex Nut Size | SAE Std. Flat Washer Size | Rec. Torque (ft-lbs) |
|-----------|---------------------|---------------------------------|-----------------------|---------------------------|----------------------|
| 3"        | 4/8                 | 5/8"                            | 5/8"                  | 5/8" 5/16" O.D.           | 20-30                |
| 4"        | 8                   | 5/8"                            | 5/8"                  | 5/8" 1-5/16"              | 20-30                |
| 6"        | 8                   | 3/4"                            | 3/4"                  | 3/4" 1-1/2"               | 35-50                |

### FLUID FLOW COEFFICIENT Cv\*

\* Gallons per minute @ 1 psi pressure drop

| Valve Size | Degrees / Open |     |     |     |     |     |     |       |       |
|------------|----------------|-----|-----|-----|-----|-----|-----|-------|-------|
|            | 10°            | 20° | 30° | 40° | 50° | 60° | 70° | 80°   | 90°   |
| 3"         | 4.3            | 16  | 35  | 62  | 94  | 135 | 180 | 235   | 290   |
| 4"         | 8.6            | 34  | 76  | 137 | 215 | 310 | 420 | 550   | 690   |
| 6"         | 17.5           | 67  | 200 | 265 | 410 | 580 | 790 | 1,040 | 1,340 |