



Featuring the  
KE Series actuator for  
electric automation on  
butterfly valves up to 4"



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Resilient Seated Butterfly Valves | pg 2

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Dead-End Service Butterfly Valves | pg 20



Canada Registration  
Numbers (CRN)



VALVE  
NSF/ANSI 61  
ALSO CERTIFIED TO  
NSF/ANSI 372  
<SDZ0>



TYPE APPROVED PRODUCT

# Series ES RESILIENT SEATED BUTTERFLY

## Series ES

### General Purpose

Manual and Automated Butterfly Valves  
Lug or Wafer body, ANSI 125/150 flanges

- Bi-directional, bubble tight shutoff for full pressure differential
- Cartridge rubber seat design
- ASTM A395 DI & A351 CF8M body materials
- Multiple seat and disc materials available
- Square stems and ISO 5211 mounting pad for direct mounting
- Cover a wide range of industries from General Purpose to Chemical, Food and Beverage, Pulp and Paper, Waste Water applications and more.

#### STANDARDS

|                        |                                                                                              |
|------------------------|----------------------------------------------------------------------------------------------|
| DESIGN                 | API 609, ASME B16.34,<br>ASME B16.42, MSS SP-67                                              |
| PRESSURE TESTING       | API 598                                                                                      |
| END CONNECTION         | ASME B16.5 Class 150, EN1092-2<br>PN 10/16, JIS B2220 10K,<br>ASME B16.47 Series A Class 150 |
| FACE TO FACE           | API 609 (EN558-1 for sizes not<br>provided in API 609)                                       |
| MOUNTING               | ISO 5211                                                                                     |
| MATERIAL CERTIFICATION | EN 10204-3.1 MTR                                                                             |
| QUALITY ASSURANCE      | ISO 9001:2015                                                                                |
| MARKINGS               | API 609, ASME B16.34, MSS SP-25                                                              |

#### CERTIFICATIONS

|                     |               |
|---------------------|---------------|
| CANADA REGISTRATION | CRN OC22405.5 |
| ABS TYPE APPROVAL   |               |



### Page Reference: ES Series Resilient Butterfly Valves

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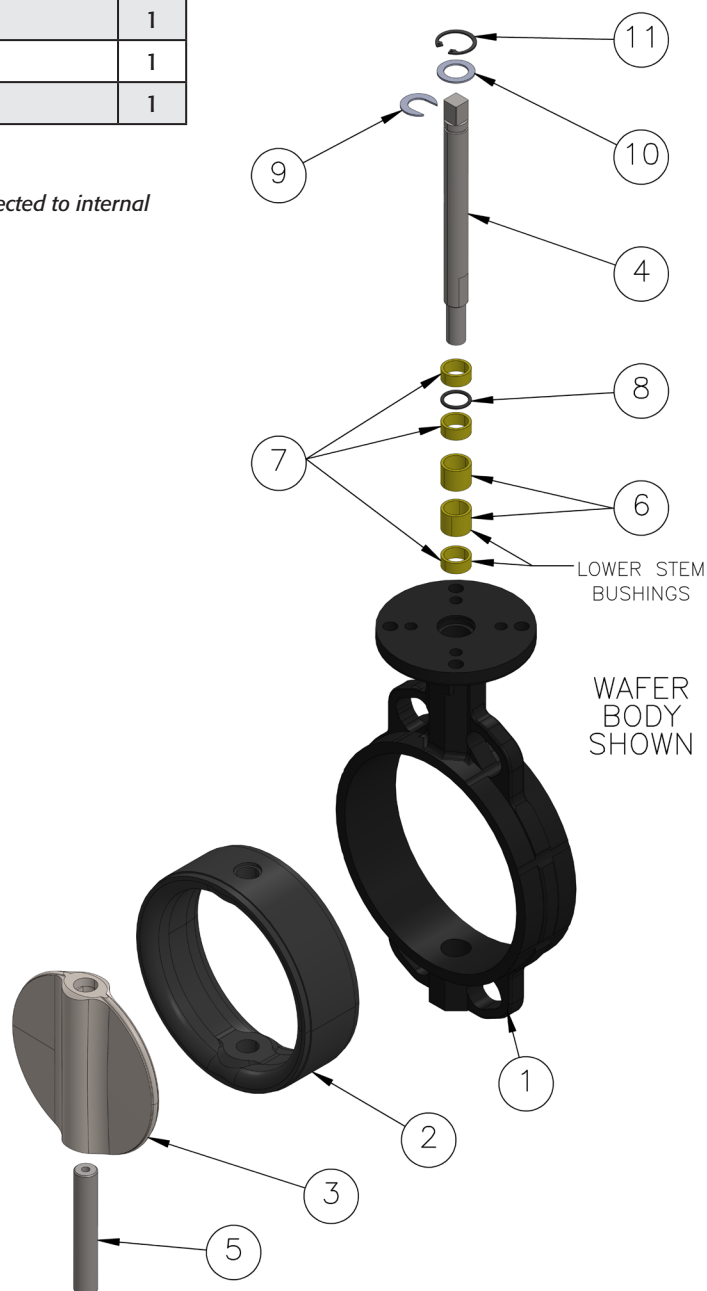
### Bill of Materials (1-1/2"-14")

| ITEM | DESCRIPTION   | MATERIAL                                                                                 | QTY. |
|------|---------------|------------------------------------------------------------------------------------------|------|
| 1    | Body          | ASTM A395 / A351 CF8M                                                                    | 1    |
| 2    | Seat          | EPDM / Buna-N / (FKM / Viton®) / PTFE over EPDM / White Food Grade EPDM (up to 12" only) | 1    |
| 3    | Disc          | A351 CF8M / Nylon Coated DI / Aluminum Bronze / Nickel Plated DI                         | 1    |
| 4    | Upper Stem*   | ASTM A276 431 / 17-4 PH®                                                                 | 1    |
| 5    | Lower Stem*   | ASTM A276 431 / 17-4 PH®                                                                 | 1    |
| 6    | Long Bushing  | FRP #                                                                                    | 2    |
| 7    | Short Bushing | FRP #                                                                                    | 3**  |
| 8    | O-Ring        | Buna-N #                                                                                 | 1    |
| 9    | Stem Retainer | ASTM A276 304                                                                            | 1    |
| 10   | Thrust Washer | ASTM A276 304                                                                            | 1    |
| 11   | Snap Ring     | SK7 Steel                                                                                | 1    |

\* 1-1/2"-3" valves have a one-piece stem.

\*\*1-1/2" & 10" valves only have qty 2 (not in lower stem area).

# Under normal operation, the O-Ring and bushings are not subjected to internal media & pressure.



# Series ES RESILIENT SEATED BUTTERFLY

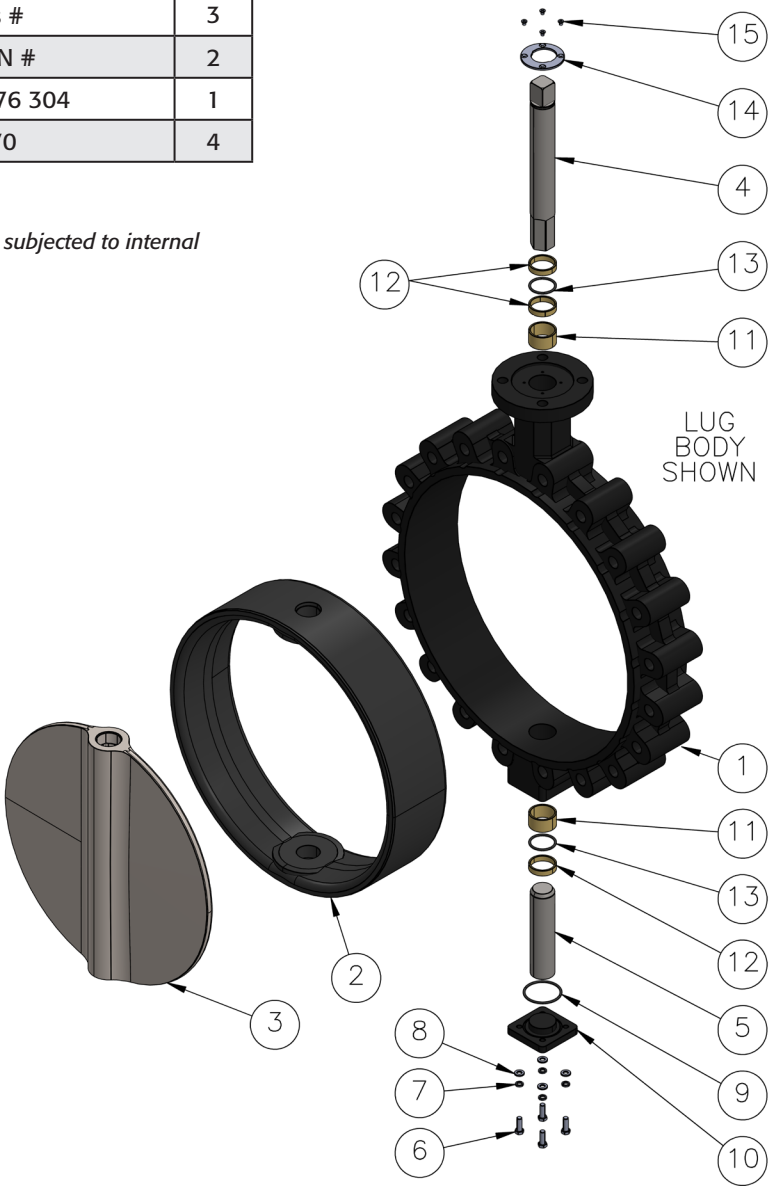
## Bill of Materials (16"-24")

| ITEM | DESCRIPTION              | MATERIAL                                                         | QTY. |
|------|--------------------------|------------------------------------------------------------------|------|
| 1    | Body                     | ASTM A395 / A351 CF8M                                            | 1    |
| 2    | Seat                     | EPDM / Buna-N / (FKM / Viton®) / PTFE over EPDM                  | 1    |
| 3    | Disc                     | A351 CF8M / Nylon Coated DI / Aluminum Bronze / Nickel Plated DI | 1    |
| 4    | Upper Stem               | ASTM A276 431 / 17-4 PH®                                         | 1    |
| 5    | Lower Stem               | ASTM A276 431 / 17-4 PH®                                         | 1    |
| 6    | Bottom Cover Bolt        | A2-70                                                            | 2/4* |
| 7    | Bottom Cover Lock Washer | ASTM A276 304                                                    | 2/4* |
| 8    | Bottom Cover Flat Washer | ASTM A276 304                                                    | 2/4* |
| 9    | Bottom Cover O-Ring      | Buna-N #                                                         | 1    |
| 10   | Bottom Cover             | ASTM A395 / A351 CF8M                                            | 1    |
| 11   | Long Bushing             | Brass #                                                          | 2    |
| 12   | Short Bushing            | Brass #                                                          | 3    |
| 13   | O-Ring                   | Buna-N #                                                         | 2    |
| 14   | Stem Retainer            | ASTM A276 304                                                    | 1    |
| 15   | Stem Retainer Bolt       | A2-70                                                            | 4    |

\* Wafer: 16"-18" - qty 2, 20"-24" - qty 4.

\*Lug: 16"-24" - qty 4.

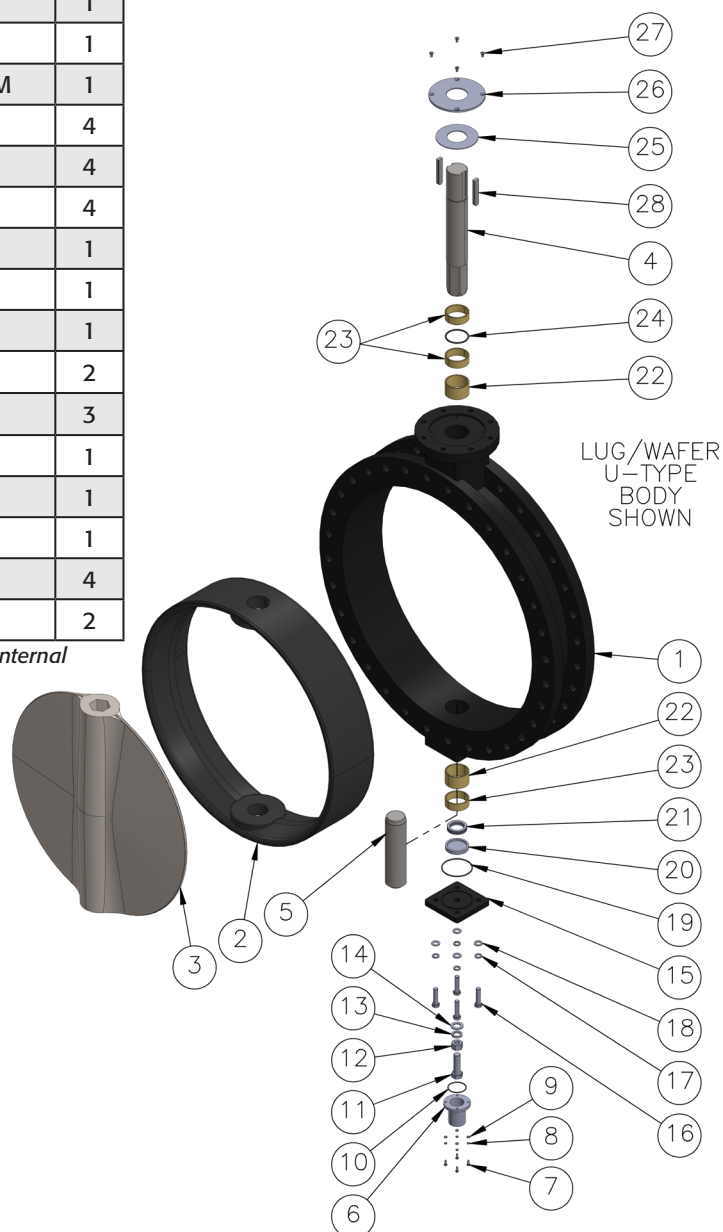
# Under normal operation, the O-Ring and bushings are not subjected to internal media & pressure.



### Bill of Materials (28"-48")

| ITEM | DESCRIPTION                 | MATERIAL                                                         | QTY. |
|------|-----------------------------|------------------------------------------------------------------|------|
| 1    | Body                        | ASTM A395 / A351 CF8M                                            | 1    |
| 2    | Seat                        | EPDM / Buna-N / (FKM / Viton®)                                   | 1    |
| 3    | Disc                        | A351 CF8M / Nylon Coated DI / Aluminum Bronze / Nickel Plated DI | 1    |
| 4    | Upper Stem                  | ASTM A276 431 / 17-4 PH®                                         | 1    |
| 5    | Lower Stem                  | ASTM A276 431 / 17-4 PH®                                         | 1    |
| 6    | Adjust Bolt Cap             | ASTM A276 304                                                    | 1    |
| 7    | Adjust Bolt Cap Bolt        | A2-70                                                            | 4    |
| 8    | Adjust Bolt Cap Lock Washer | ASTM A276 304                                                    | 4    |
| 9    | Adjust Bolt Cap Flat Washer | ASTM A276 304                                                    | 4    |
| 10   | Adjust Bolt Cap O-Ring      | Buna-N #                                                         | 1    |
| 11   | Adjust Bolt                 | A2-70                                                            | 1    |
| 12   | Adjust Bolt Nut             | A2-70                                                            | 1    |
| 13   | Adjust Bolt Lock Washer     | ASTM A276 304                                                    | 1    |
| 14   | Adjust Bolt Flat Washer     | ASTM A276 304                                                    | 1    |
| 15   | Bottom Cover                | ASTM A395 / A351 CF8M                                            | 1    |
| 16   | Bottom Cover Bolt           | A2-70                                                            | 4    |
| 17   | Bottom Cover Lock Washer    | ASTM A276 304                                                    | 4    |
| 18   | Bottom Cover Flat Washer    | ASTM A276 304                                                    | 4    |
| 19   | Bottom Cover O-Ring         | Buna-N #                                                         | 1    |
| 20   | Adjust Bearing Housing      | ASTM A276 304                                                    | 1    |
| 21   | Thrust Bearing              | ASTM A295 E52100                                                 | 1    |
| 22   | Long Bushing                | Brass #                                                          | 2    |
| 23   | Short Bushing               | Brass #                                                          | 3    |
| 24   | O-Ring                      | Buna-N #                                                         | 1    |
| 25   | Stem Retainer               | ASTM A276 304                                                    | 1    |
| 26   | Gland                       | ASTM A276 304                                                    | 1    |
| 27   | Gland Bolt                  | A2-70                                                            | 4    |
| 28   | Key                         | ASTM A29 1045                                                    | 2    |

# Under normal operation, the O-Ring and bushings are not subjected to internal media & pressure.



# Series ES

RESILIENT SEATED BUTTERFLY

## ES Series Butterfly Valve Cv Values (US-GPM @ 1 Δ P) - Rated Flow Coeffecients

### Disc Angle

| Valve Size     | 10°  | 20°   | 30°    | 40°    | 50°    | 60°    | 70°    | 80°     | 90°     |
|----------------|------|-------|--------|--------|--------|--------|--------|---------|---------|
| 1-1/2"         | 0.05 | 3     | 7      | 11     | 19     | 29     | 44     | 57      | 70      |
| 2"             | 0.1  | 5     | 12     | 24     | 45     | 64     | 90     | 125     | 135     |
| 2-1/2"         | 1    | 8     | 20     | 37     | 65     | 98     | 144    | 204     | 220     |
| 3"             | 2    | 12    | 22     | 39     | 70     | 116    | 183    | 275     | 302     |
| 4"             | 3    | 17    | 36     | 78     | 139    | 230    | 364    | 546     | 600     |
| 5"             | 5    | 29    | 61     | 133    | 237    | 392    | 620    | 930     | 1,022   |
| 6"             | 8    | 45    | 95     | 205    | 366    | 605    | 958    | 1,437   | 1,579   |
| 8"             | 13   | 89    | 188    | 408    | 727    | 1,202  | 1,903  | 2,854   | 3,136   |
| 10"            | 21   | 151   | 320    | 694    | 1,237  | 2,047  | 3,240  | 4,859   | 5,340   |
| 12"            | 30   | 234   | 495    | 1,072  | 1,911  | 3,162  | 5,005  | 7,507   | 8,250   |
| 14"            | 40   | 338   | 715    | 1,549  | 2,761  | 4,568  | 7,230  | 10,844  | 11,917  |
| 16"            | 50   | 464   | 983    | 2,130  | 3,797  | 6,282  | 9,942  | 14,913  | 16,388  |
| 18"            | 72   | 615   | 1,302  | 2,822  | 5,028  | 8,320  | 13,168 | 19,752  | 21,705  |
| 20"            | 86   | 971   | 1,674  | 3,628  | 6,465  | 10,698 | 16,931 | 25,396  | 27,908  |
| 24"            | 256  | 1,222 | 2,587  | 5,605  | 9,989  | 16,528 | 26,157 | 39,236  | 43,116  |
| 28"            | 289  | 1,633 | 3,522  | 7,630  | 12,599 | 20,036 | 30,482 | 46,899  | 58,696  |
| 30"            | 325  | 2,086 | 4,559  | 8,415  | 13,159 | 20,289 | 31,250 | 44,520  | 65,150  |
| 32"            | 365  | 2,387 | 4,791  | 8,736  | 13,786 | 20,613 | 31,395 | 48,117  | 68,250  |
| 36"            | 450  | 3,021 | 6,063  | 11,055 | 17,449 | 26,086 | 39,731 | 60,895  | 86,375  |
| 40"            | 512  | 4,183 | 8,395  | 15,307 | 24,159 | 36,166 | 55,084 | 84,425  | 119,750 |
| 48"            | 598  | 4,651 | 10,365 | 17,010 | 27,242 | 43,853 | 70,431 | 108,968 | 132,888 |
| F <sub>L</sub> | 0.79 | 0.81  | 0.79   | 0.79   | 0.75   | 0.71   | 0.66   | 0.6     | 0.53    |
| x <sub>T</sub> | 0.5  | 0.53  | 0.52   | 0.49   | 0.46   | 0.4    | 0.34   | 0.27    | 0.23    |
| F <sub>d</sub> | 0.09 | 0.17  | 0.26   | 0.34   | 0.42   | 0.49   | 0.57   | 0.64    | 0.7     |

### Approximate Operating Torque (In·lbs)

| Valve Size | 50 PSID |         |           | 100 PSID |         |           | 150 PSID |         |           | 225 PSID |       |
|------------|---------|---------|-----------|----------|---------|-----------|----------|---------|-----------|----------|-------|
|            | WET     | DRY     | PTFE Seat | WET      | DRY     | PTFE Seat | WET      | DRY     | PTFE Seat | WET      | DRY   |
| 1-1/2"     | 90      | 146     | 190       | 95       | 153     | 199       | 106      | 165     | 215       | 116      | 170   |
| 2"         | 105     | 175     | 228       | 115      | 184     | 239       | 126      | 198     | 257       | 140      | 205   |
| 2-1/2"     | 112     | 219     | 285       | 134      | 235     | 306       | 138      | 265     | 345       | 154      | 285   |
| 3"         | 170     | 333     | 433       | 176      | 363     | 472       | 201      | 365     | 475       | 221      | 387   |
| 4"         | 275     | 506     | 658       | 303      | 585     | 761       | 345      | 610     | 793       | 365      | 635   |
| 5"         | 433     | 755     | 982       | 482      | 830     | 1,079     | 532      | 889     | 1,156     | 556      | 899   |
| 6"         | 680     | 1,189   | 1,546     | 754      | 1,317   | 1,712     | 886      | 1,465   | 1,905     | 1,065    | 1,512 |
| 8"         | 1,215   | 2,089   | 2,716     | 1,365    | 2,398   | 3,117     | 1,592    | 2,636   | 3,427     | 1,947    | 2,730 |
| 10"        | 1,903   | 3,263   | 4,242     | 2,204    | 3,864   | 5,023     | 2,532    | 4,312   | 5,606     | 2,920    | 4,642 |
| 12"        | 2,784   | 4,535   | 5,896     | 3,285    | 5,454   | 7,090     | 3,813    | 6,185   | 8,041     | 4,602    | 6,480 |
| 14"        | 3,658   | 5,366   | 6,976     | 4,212    | 6,218   | 8,083     | 4,872    | 7,409   | 9,632     | -        | -     |
| 16"        | 4,516   | 6,655   | 8,652     | 5,914    | 8,390   | 10,907    | 6,855    | 10,120  | 13,156    | -        | -     |
| 18"        | 5,832   | 8,679   | 11,283    | 7,758    | 11,215  | 14,580    | 9,524    | 13,450  | 17,485    | -        | -     |
| 20"        | 7,632   | 11,226  | 14,594    | 10,620   | 14,890  | 19,357    | 13,650   | 18,560  | 24,128    | -        | -     |
| 24"        | 12,340  | 17,980  | 23,374    | 15,340   | 22,290  | 28,977    | 19,870   | 28,160  | 36,608    | -        | -     |
| 28"        | 20,745  | 31,117  | -         | 29,636   | 44,454  | -         | 32,818   | 49,227  | -         | -        | -     |
| 30"        | 21,636  | 32,454  | -         | 30,909   | 46,363  | -         | 33,920   | 50,880  | -         | -        | -     |
| 32"        | 26,090  | 39,135  | -         | 37,272   | 55,908  | -         | 49,090   | 73,635  | -         | -        | -     |
| 36"        | 42,000  | 63,000  | -         | 60,000   | 90,000  | -         | 68,181   | 102,271 | -         | -        | -     |
| 40"        | 51,545  | 77,317  | -         | 73,636   | 110,454 | -         | 89,090   | 133,635 | -         | -        | -     |
| 48"        | 89,090  | 133,635 | -         | 127,272  | 190,908 | -         | 145,454  | 218,181 | -         | -        | -     |

## Seat Temperature Ratings

| Seat            | Temperature °F | 1-1/2" - 12" Pressure (PSIG) | 14" - 48" Pressure (PSIG) |
|-----------------|----------------|------------------------------|---------------------------|
| EPDM            | -20            | 225                          | 150                       |
|                 | 100            | 225                          | 150                       |
|                 | 200            | 225                          | 150                       |
|                 | 250            | 75                           | 75                        |
|                 | 300            | 50                           | 50                        |
| Buna-N          | 0              | 225                          | 150                       |
|                 | 100            | 225                          | 150                       |
|                 | 180            | 225                          | 150                       |
|                 | 200            | 75                           | 75                        |
|                 | 220            | 50                           | 50                        |
| FKM / Viton®    | -10            | 225                          | 150                       |
|                 | 100            | 225                          | 150                       |
|                 | 250            | 225                          | 150                       |
|                 | 325            | 100                          | 100                       |
|                 | 360            | 50                           | 50                        |
| PTFE over EPDM* | 0              | 150                          | 90                        |
|                 | 75             | 150                          | 90                        |
|                 | 185            | 150                          | 90                        |
|                 | 200            | 75                           | 75                        |
|                 | 300            | 25                           | 25                        |
| Food Grade EPDM | -20            | 225                          | -                         |
|                 | 100            | 225                          | -                         |
|                 | 200            | 225                          | -                         |
|                 | 250            | 75                           | -                         |

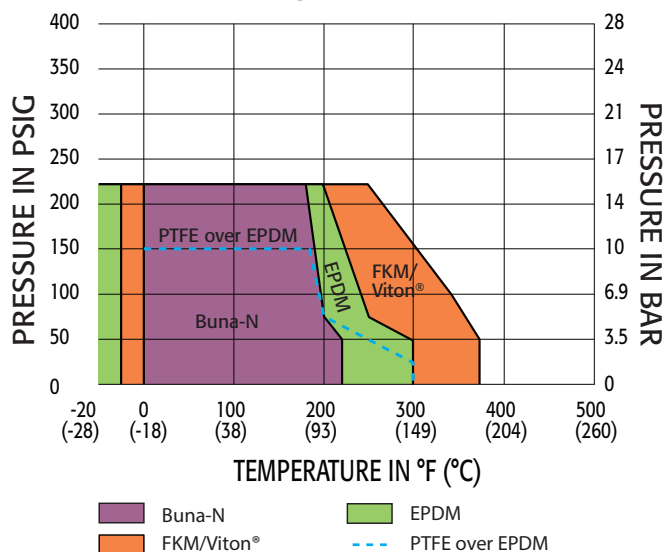
\*PTFE only up to 24"

Nylon Coated DI disc limited to 300°F.

## Torque (In·lbs) - Undercut Disc

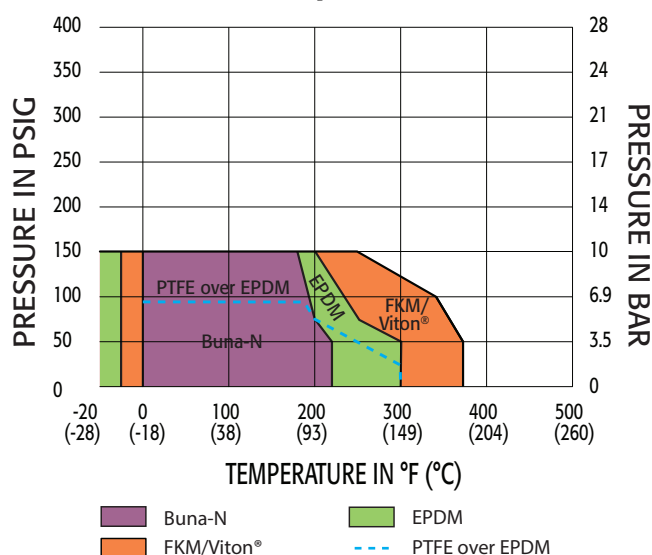
| Valve Size | 75 PSID |        |           |
|------------|---------|--------|-----------|
|            | WET     | DRY    | PTFE Seat |
| 6"         | 426     | 749    | 974       |
| 8"         | 772     | 1,328  | 1,726     |
| 10"        | 1,231   | 2,092  | 2,720     |
| 12"        | 1,820   | 2,966  | 3,856     |
| 14"        | 2,699   | 4,588  | 5,964     |
| 16"        | 3,938   | 6,100  | 7,930     |
| 18"        | 5,480   | 8,460  | 10,998    |
| 20"        | 7,250   | 10,500 | 13,650    |
| 24"        | 11,327  | 16,990 | 22,087    |

**Pressure vs. Temperature Chart for ES Butterfly Valves 1-1/2"-12"**



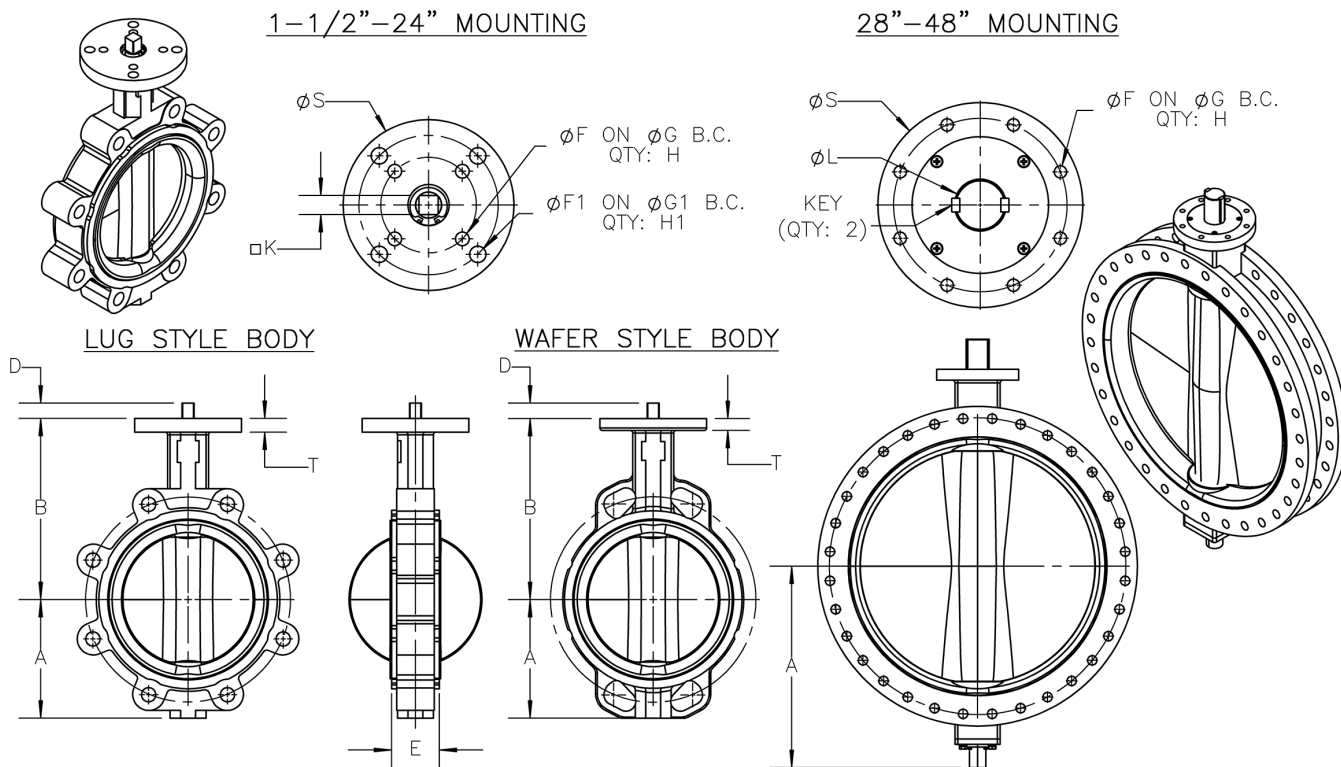
Note: Food Grade EPDM follows the EPDM curve but stops at 250°F.

**Pressure vs. Temperature Chart for ES Butterfly Valves 14"-48"**



# Series ES RESILIENT SEATED BUTTERFLY

Dimensions | 1-1/2"-48"



## Valve Overall & Mounting Pad Dimensions

| Valve Size | A     | B       | D    | E     | ØF   | ØG           | H | ØF1  | ØG1         | H1 | K     | ØL    | Key (mm) | ØS    | T    | Lug (lbs) | Wafer (lbs) |
|------------|-------|---------|------|-------|------|--------------|---|------|-------------|----|-------|-------|----------|-------|------|-----------|-------------|
| 1-1/2"     | 2.56  | 4.72    | 0.63 | 1.30  | 0.39 | 2.756 (F07)  | 4 | -    | -           | -  | 0.354 | -     | -        | 3.54  | 0.47 | 4         | 4           |
| 2"         | 3.15  | 5.51    | 0.63 | 1.69  | 0.39 | 2.756 (F07)  | 4 | -    | -           | -  | 0.354 | -     | -        | 3.54  | 0.55 | 7         | 6           |
| 2-1/2"     | 3.50  | 5.91    | 0.63 | 1.81  | 0.39 | 2.756 (F07)  | 4 | -    | -           | -  | 0.354 | -     | -        | 3.54  | 0.55 | 7         | 7           |
| 3"         | 3.74  | 6.22    | 0.63 | 1.81  | 0.39 | 2.756 (F07)  | 4 | -    | -           | -  | 0.354 | -     | -        | 3.54  | 0.55 | 9         | 7           |
| 4"         | 4.49  | 6.93    | 0.63 | 2.05  | 0.39 | 2.756 (F07)  | 4 | -    | -           | -  | 0.433 | -     | -        | 3.54  | 0.55 | 16        | 10          |
| 5"         | 5.00  | 7.48    | 0.71 | 2.20  | 0.39 | 2.756 (F07)  | 4 | -    | -           | -  | 0.551 | -     | -        | 3.54  | 0.55 | 21        | 14          |
| 6"         | 5.47  | 8.35    | 0.71 | 2.20  | 0.39 | 2.756 (F07)  | 4 | 0.47 | 4.016 (F10) | 4  | 0.551 | -     | -        | 4.92  | 0.55 | 25        | 17          |
| 8"         | 6.85  | 9.29    | 0.71 | 2.36  | 0.47 | 4.016 (F10)  | 4 | 0.71 | 5.512 (F14) | 4  | 0.669 | -     | -        | 6.89  | 0.59 | 36        | 27          |
| 10"        | 7.99  | 10.43   | 0.94 | 2.68  | 0.47 | 4.016 (F10)  | 4 | 0.71 | 5.512 (F14) | 4  | 0.866 | -     | -        | 6.89  | 0.67 | 57        | 40          |
| 12"        | 9.53  | 12.01   | 0.94 | 3.07  | 0.47 | 4.016 (F10)  | 4 | 0.71 | 5.512 (F14) | 4  | 0.866 | -     | -        | 6.89  | 0.67 | 88        | 62          |
| 14"        | 10.51 | 14.49   | 0.94 | 3.07  | 0.47 | 4.016 (F10)  | 4 | 0.71 | 5.512 (F14) | 4  | 0.866 | -     | -        | 6.89  | 0.79 | 146       | 79          |
| 16"        | 13.20 | 15.75   | 1.42 | 4.02  | 0.71 | 5.512 (F14)  | 4 | 0.87 | 6.496 (F16) | 4  | 1.063 | -     | -        | 8.27  | 0.87 | 216       | 137         |
| 18"        | 14.42 | 16.61   | 1.42 | 4.49  | 0.71 | 5.512 (F14)  | 4 | 0.87 | 6.496 (F16) | 4  | 1.063 | -     | -        | 8.27  | 0.98 | 304       | 166         |
| 20"        | 15.28 | 17.91 # | 1.42 | 5.00  | 0.71 | 5.512 (F14)  | 4 | 0.87 | 6.496 (F16) | 4  | 1.417 | -     | -        | 8.27  | 1.06 | 353       | 220         |
| 24"        | 18.83 | 22.24   | 1.81 | 6.06  | 0.87 | 6.496 (F16)  | 4 | -    | -           | -  | 1.417 | -     | -        | 8.27  | 1.26 | 507       | 414         |
| 28"        | 24.25 | 24.57   | 4.33 | 6.50  | 0.71 | 10.000 (F25) | 8 | -    | -           | -  | -     | 2.494 | 18x11    | 11.81 | 1.38 | 728       | 728         |
| 30"        | 25.39 | 25.59   | 4.33 | 6.50  | 0.71 | 10.000 (F25) | 8 | -    | -           | -  | -     | 2.494 | 18x11    | 11.81 | 1.38 | 860       | 860         |
| 32"        | 26.97 | 26.38   | 4.33 | 7.48  | 0.71 | 10.000 (F25) | 8 | -    | -           | -  | -     | 2.494 | 18x11    | 11.81 | 1.38 | 902       | 902         |
| 36"        | 29.13 | 28.35   | 4.33 | 7.87  | 0.71 | 10.000 (F25) | 8 | -    | -           | -  | -     | 2.953 | 20x12    | 11.81 | 1.77 | 1082      | 1082        |
| 40"        | 32.28 | 31.69   | 4.33 | 8.50  | 0.71 | 10.000 (F25) | 8 | -    | -           | -  | -     | 3.346 | 22x14    | 11.81 | 1.77 | 1642      | 1642        |
| 48"        | 38.54 | 37.40   | 5.12 | 10.87 | 0.87 | 11.732 (F30) | 8 | -    | -           | -  | -     | 4.134 | 28x16    | 13.78 | 1.77 | 2571      | 2571        |

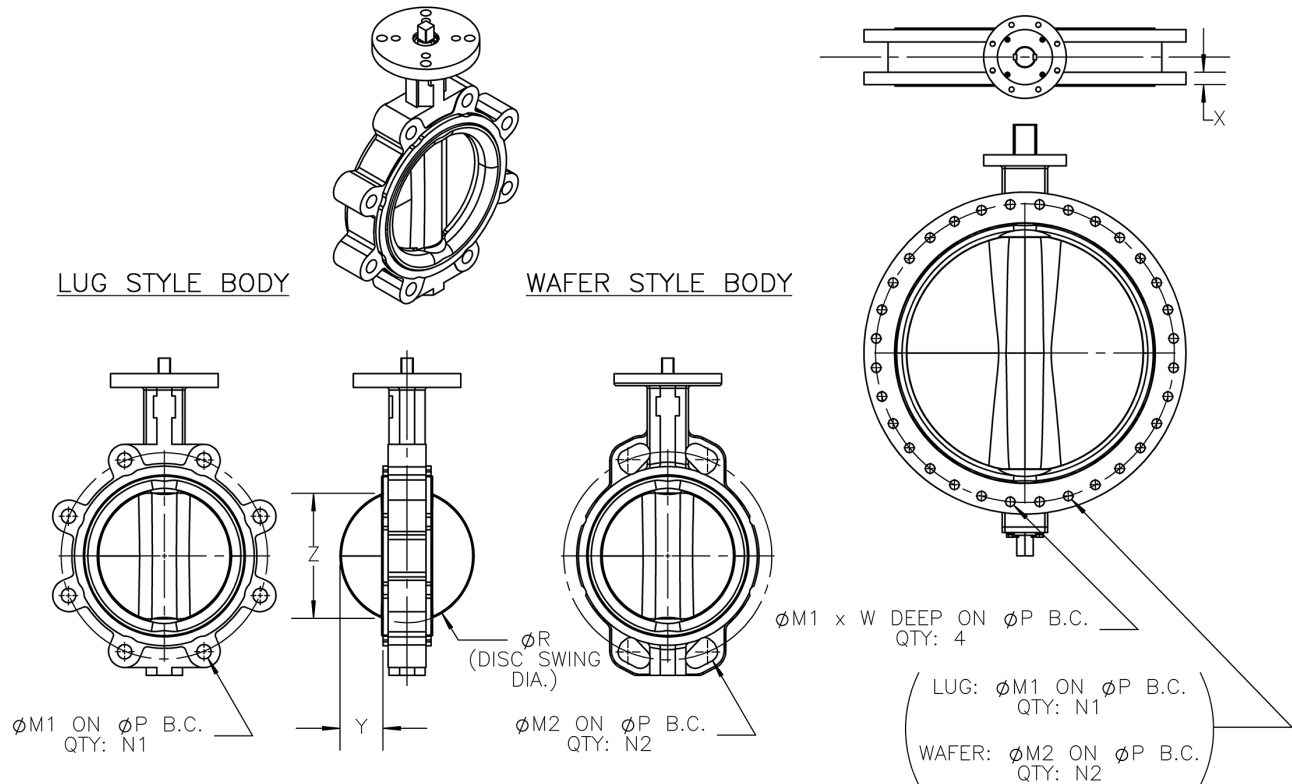
Note:

- Unless otherwise specified, all dimensions are in inches.
- # 20" Wafer: B - 17.32 (dimension in table applies to 20" lug valve).
- Face-To-Face dimensions (E) are across the body flats (metal-to-metal). Approximately 1/16" to 1/8" of the rubber seat protrudes from each side for flange sealing.

## Dimensions | 1-1/2"-48"

### 1-1/2"-24" LUG & WAFER BODY

### 28"-48" U-TYPE BODY



### Valve End Connection & Additional Dimensions

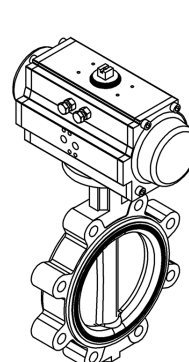
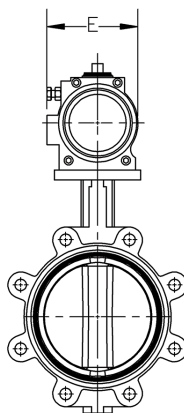
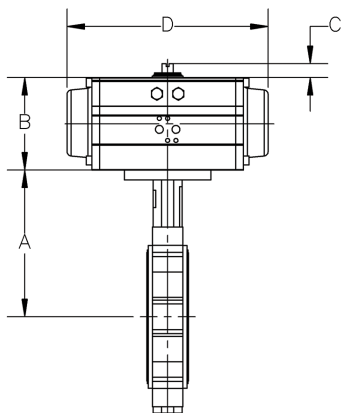
| Valve Size | ØM1       | N1   | Class 150 | PN 10 (mm) | PN 16 (mm) | JIS 10K (mm) | Class 150 | PN 10 | PN 16 | JIS 10K | Class 150 | PN 10 (mm) | PN 16 (mm) | JIS 10K (mm) | ØR    | W    | X    | Y     | Z     |
|------------|-----------|------|-----------|------------|------------|--------------|-----------|-------|-------|---------|-----------|------------|------------|--------------|-------|------|------|-------|-------|
| 1-1/2"     | 1/2 - 13  | 4    | 0.63      | 19         | 19         | 19           | 4         | 4     | 4     | 4       | 3.87      | 110        | 110        | 105          | 1.69  | -    | -    | 0.20  | 1.09  |
| 2"         | 5/8 - 11  | 4    | 0.79      | 19         | 19         | 19           | 4         | 4     | 4     | 4       | 4.75      | 125        | 125        | 120          | 2.08  | -    | -    | 0.19  | 1.21  |
| 2-1/2"     | 5/8 - 11  | 4    | 0.79      | 19         | 19         | 19           | 4         | 4     | 4     | 4       | 5.50      | 145        | 145        | 140          | 2.54  | -    | -    | 0.36  | 1.78  |
| 3"         | 5/8 - 11  | 4    | 0.79      | 19         | 19         | 19           | 4         | 4     | 4     | 4       | 6.00      | 160        | 160        | 150          | 3.11  | -    | -    | 0.65  | 2.53  |
| 4"         | 5/8 - 11  | 8    | 0.79      | 19         | 19         | 19           | 4         | 4     | 4     | 4       | 7.50      | 180        | 180        | 175          | 4.11  | -    | -    | 1.03  | 3.56  |
| 5"         | 3/4 - 10  | 8    | 0.91      | 19         | 19         | 23           | 4         | 4     | 4     | 4       | 8.50      | 210        | 210        | 210          | 4.87  | -    | -    | 1.33  | 4.35  |
| 6"         | 3/4 - 10  | 8    | 0.91      | 23         | 23         | 23           | 4         | 4     | 4     | 4       | 9.50      | 240        | 240        | 240          | 6.14  | -    | -    | 1.97  | 5.73  |
| 8"         | 3/4 - 10  | 8    | 0.91      | 23         | 23         | 23           | 4         | 4     | 4     | 4       | 11.75     | 295        | 295        | 290          | 7.98  | -    | -    | 2.81  | 7.63  |
| 10"        | 7/8 - 9   | 12   | 1.02      | 23         | 28         | 25           | 4         | 4     | 4     | 4       | 14.25     | 350        | 355        | 355          | 9.87  | -    | -    | 3.60  | 9.50  |
| 12"        | 7/8 - 9   | 12   | 1.02      | 23         | 28         | 25           | 4         | 4     | 4     | 4       | 17.00     | 400        | 410        | 400          | 11.88 | -    | -    | 4.41  | 11.48 |
| 14"        | 1 - 8     | 12   | 1.14      | -          | -          | -            | 4         | -     | -     | -       | 18.75     | -          | -          | -            | 13.15 | -    | -    | 5.04  | 12.79 |
| 16"        | 1 - 8     | 16   | 1.14      | -          | -          | -            | 4         | -     | -     | -       | 21.25     | -          | -          | -            | 15.39 | -    | -    | 5.69  | 14.86 |
| 18"        | 1-1/8 - 7 | 16   | 1.26      | -          | -          | -            | 4         | -     | -     | -       | 22.75     | -          | -          | -            | 17.36 | -    | -    | 6.44  | 16.77 |
| 20"        | 1-1/8 - 7 | 20   | 1.26      | -          | -          | -            | 4         | -     | -     | -       | 25.00     | -          | -          | -            | 19.41 | -    | -    | 7.20  | 18.75 |
| 24"        | 1-1/4 - 7 | 20   | 1.38      | -          | -          | -            | 20        | -     | -     | -       | 29.50     | -          | -          | -            | 23.39 | -    | -    | 8.66  | 22.59 |
| 28"        | 1-1/4 - 7 | 28** | 1.38      | -          | -          | -            | 24*       | -     | -     | -       | 34.00     | -          | -          | -            | 27.36 | 1.26 | 1.44 | 10.43 | 26.58 |
| 30"        | 1-1/4 - 7 | 28** | 1.38      | -          | -          | -            | 24*       | -     | -     | -       | 36.00     | -          | -          | -            | 29.33 | 1.26 | 1.44 | 11.42 | 28.60 |
| 32"        | 1-1/2 - 6 | 28** | 1.65      | -          | -          | -            | 24*       | -     | -     | -       | 38.50     | -          | -          | -            | 31.34 | 1.54 | 1.57 | 11.93 | 30.43 |
| 36"        | 1-1/2 - 6 | 32** | 1.65      | -          | -          | -            | 28*       | -     | -     | -       | 42.75     | -          | -          | -            | 34.06 | 1.54 | 1.71 | 13.09 | 33.13 |
| 40"        | 1-1/2 - 6 | 36** | 1.65      | -          | -          | -            | 32*       | -     | -     | -       | 47.25     | -          | -          | -            | 37.99 | 1.54 | 1.85 | 14.74 | 37.03 |
| 48"        | 1-1/2 - 6 | 44** | 1.65      | -          | -          | -            | 40*       | -     | -     | -       | 56.00     | -          | -          | -            | 45.67 | 1.54 | 2.13 | 17.40 | 44.36 |

Note:  
 • Unless otherwise specified, all dimensions are in inches.  
 • Nominal radial clearances given in Table D.1 in Annex D of API 609 Eighth Edition, February 2016 shall be followed for proper installation (disc chord length dimension Z and disc projection dimension Y).  
 End Connections  
 Wafer: • 1-1/2" - 12" conform to ASME B16.5 Class 150, EN1092-2 PN10/16, and JIS B2220 10K. • 14" - 24" conform to ASME B16.5 Class 150. • 28"-48" conform to ASME B16.47 Series A Class 150.  
 Lug: • 1-1/2" - 24" conform to ASME B16.5 Class 150. • 28"-48" conform to ASME B16.47 Series A Class 150.  
 • \*28" - 48" Wafer valves have 4 additional ØM1 x W deep threaded holes at the top and bottom, all others are clearance holes all the way through the u-type flange. N2 represents the clearance hole quantity (quantity 4 threaded holes not included).  
 • \*\* 28" - 48" Lug valves have 4 ØM1 x W deep threaded holes at the top and bottom, all others are threaded all the way through the u-type flange. N1 represents the total hole quantity.  
 A-T Controls reserves the right to change product designs and technical/dimensional specifications without notice. See website for updates.

# Series ES RESILIENT SEATED BUTTERFLY

## Valve Dimensions

| Valve Size | A     |
|------------|-------|
| 1-1/2"     | 4.72  |
| 2"         | 5.51  |
| 2-1/2"     | 5.91  |
| 3"         | 6.22  |
| 4"         | 6.93  |
| 5"         | 7.48  |
| 6"         | 8.35  |
| 8"         | 9.29  |
| 10"        | 10.43 |
| 12"        | 12.01 |



## Dimensions Double Acting Actuator

| Actuator Size | B    | C     | D     | E    |
|---------------|------|-------|-------|------|
| 3R40DA        | 3.47 | 0.787 | 7.60  | 3.35 |
| 3R80DA        | 4.30 | 0.787 | 9.29  | 4.18 |
| 3R130DA       | 4.61 | 0.787 | 11.02 | 4.27 |
| 3R200DA       | 5.28 | 0.787 | 11.50 | 4.78 |
| 3R300DA       | 6.14 | 0.787 | 13.39 | 5.59 |
| 3R500DA       | 6.81 | 1.181 | 15.35 | 5.98 |
| 3R700DA       | 7.36 | 1.181 | 16.89 | 6.38 |
| 3R850DA       | 7.82 | 1.181 | 19.37 | 6.85 |
| 3R1200DA      | 9.06 | 1.181 | 22.36 | 8.11 |

For more actuator information, please see the complete actuator catalog.

## Dimensions Spring Return Actuator

| Actuator Size | B     | C     | D     | E     |
|---------------|-------|-------|-------|-------|
| 3R40SR        | 3.47  | 0.787 | 7.60  | 3.35  |
| 3R80SR        | 4.30  | 0.787 | 9.29  | 4.18  |
| 3R130SR       | 4.61  | 0.787 | 11.02 | 4.27  |
| 3R200SR       | 5.28  | 0.787 | 11.50 | 4.78  |
| 3R300SR       | 6.14  | 0.787 | 13.39 | 5.59  |
| 3R500SR       | 6.81  | 1.181 | 15.35 | 5.98  |
| 3R700SR       | 7.36  | 1.181 | 16.89 | 6.38  |
| 3R850SR       | 7.82  | 1.181 | 19.37 | 6.85  |
| 3R1200SR      | 9.06  | 1.181 | 22.36 | 8.11  |
| 3R1750SR      | 10.08 | 1.181 | 23.54 | 8.90  |
| 3R2400SR      | 11.46 | 1.181 | 24.80 | 10.24 |

For more actuator information, please see the complete actuator catalog.

## Pneumatic Double Acting Actuator Sizing

| ES         | WET     |          |          |          | DRY     |          |          |          |
|------------|---------|----------|----------|----------|---------|----------|----------|----------|
| Valve Size | 50 PSID | 100 PSID | 150 PSID | 225 PSID | 50 PSID | 100 PSID | 150 PSID | 225 PSID |
| 1-1/2"     | 3R40DA  | 3R40DA   | 3R40DA   | 3R40DA   | 3R40DA  | 3R40DA   | 3R40DA   | 3R40DA   |
| 2"         | 3R40DA  | 3R40DA   | 3R40DA   | 3R40DA   | 3R40DA  | 3R40DA   | 3R40DA   | 3R40DA   |
| 2-1/2"     | 3R40DA  | 3R40DA   | 3R40DA   | 3R40DA   | 3R40DA  | 3R40DA   | 3R40DA   | 3R40DA   |
| 3"         | 3R40DA  | 3R40DA   | 3R40DA   | 3R40DA   | 3R80DA  | 3R80DA   | 3R80DA   | 3R80DA   |
| 4"         | 3R40DA  | 3R80DA   | 3R80DA   | 3R80DA   | 3R80DA  | 3R80DA   | 3R80DA   | 3R80DA   |
| 5"         | 3R80DA  | 3R80DA   | 3R80DA   | 3R80DA   | 3R130DA | 3R130DA  | 3R130DA  | 3R130DA  |
| 6"         | 3R130DA | 3R130DA  | 3R130DA  | 3R200DA  | 3R200DA | 3R200DA  | 3R300DA  | 3R300DA  |
| 8"         | 3R200DA | 3R300DA  | 3R300DA  | 3R300DA  | 3R300DA | 3R500DA  | 3R500DA  | 3R500DA  |
| 10"        | 3R300DA | 3R500DA  | 3R500DA  | 3R500DA  | 3R500DA | 3R700DA  | 3R850DA  | 3R850DA  |
| 12"        | 3R500DA | 3R500DA  | 3R700DA  | 3R850DA  | 3R850DA | 3R850DA  | 3R1200DA | 3R1200DA |

Pneumatic Double Acting actuators above are sized with 80 PSIG supply. Consult factory for actuator sizing on valves larger than 12".

Automated sizing is not applicable to PTFE seats. Please see the PTFE seat torques in the catalog torque table.

## Pneumatic Spring Return Actuator Sizing

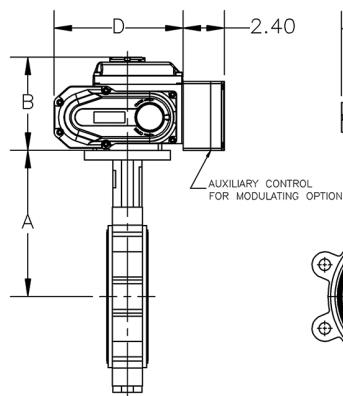
| ES         | WET      |          |          |             | DRY         |             |             |             |
|------------|----------|----------|----------|-------------|-------------|-------------|-------------|-------------|
| Valve Size | 50 PSID  | 100 PSID | 150 PSID | 225 PSID    | 50 PSID     | 100 PSID    | 150 PSID    | 225 PSID    |
| 1-1/2"     | 3R40SR   | 3R40SR   | 3R80SR   | 3R80SR      | 3R80SR      | 3R80SR      | 3R80SR      | 3R80SR      |
| 2"         | 3R80SR   | 3R80SR   | 3R80SR   | 3R80SR      | 3R80SR      | 3R80SR      | 3R80SR      | 3R80SR      |
| 2-1/2"     | 3R80SR   | 3R80SR   | 3R80SR   | 3R80SR      | 3R80SR      | 3R130SR     | 3R130SR     | 3R130SR     |
| 3"         | 3R80SR   | 3R80SR   | 3R80SR   | 3R80SR      | 3R200SR     | 3R200SR     | 3R200SR     | 3R200SR     |
| 4"         | 3R130SR  | 3R130SR  | 3R200SR  | 3R200SR     | 3R300SR     | 3R300SR     | 3R300SR     | 3R300SR     |
| 5"         | 3R200SR  | 3R300SR  | 3R300SR  | 3R300SR     | 3R300SR     | 3R300SR     | 3R500SR **  | 3R500SR **  |
| 6"         | 3R300SR  | 3R300SR  | 3R500SR  | 3R500SR     | 3R500SR     | 3R700SR     | 3R700SR     | 3R700SR     |
| 8"         | 3R500SR  | 3R700SR  | 3R850SR  | 3R850SR     | 3R1200SR    | 3R1200SR    | 3R1200SR    | 3R1200SR    |
| 10"        | 3R850SR  | 3R1200SR | 3R1200SR | 3R1750SR    | 3R1750SR    | 3R2400SR ** | 3R2400SR ** | 3R2400SR ** |
| 12"        | 3R1200SR | 3R1750SR | 3R1750SR | 3R2400SR ** | 3R2400SR ** | 3R2400SR ** | 3R2400SR ** | 3R2400SR ** |

\*\* Not a direct mount. The assembly uses a bracket & coupler.

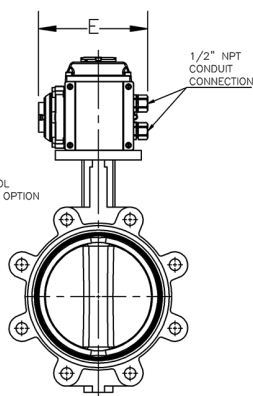
Pneumatic Spring Return Actuators above are sized with 5 springs per side, fail-close.

Consult Factory for actuator sizing on valves larger than 12".

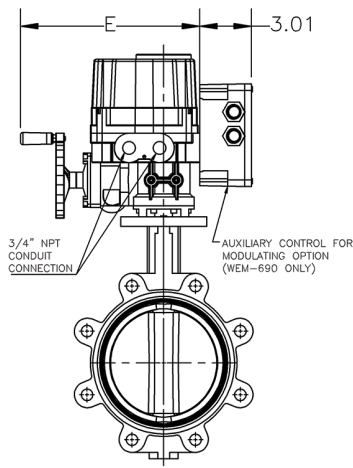
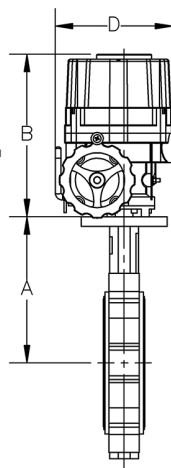
Automated sizing is not applicable to PTFE seats. Please see the PTFE seat torques in the catalog torque table.



KE SERIES ELECTRIC



WE SERIES ELECTRIC



Valve Dimensions

| Valve Size | A     |
|------------|-------|
| 1-1/2"     | 4.72  |
| 2"         | 5.51  |
| 2-1/2"     | 5.91  |
| 3"         | 6.22  |
| 4"         | 6.93  |
| 5"         | 7.48  |
| 6"         | 8.35  |
| 8"         | 9.29  |
| 10"        | 10.43 |
| 12"        | 12.01 |

Dimensions Electric Actuator

| Actuator Size | B     | D     | E     |
|---------------|-------|-------|-------|
| KE-440        | 5.14  | 6.74  | 5.44  |
| KE-880        | 5.31  | 7.69  | 6.24  |
| WE-690        | 9.25  | 6.69  | 10.16 |
| WE-1350       | 10.55 | 9.02  | 13.31 |
| WE-1700       | 10.55 | 9.02  | 13.31 |
| WE-2640       | 11.42 | 10.2  | 14.49 |
| WE-4400       | 11.97 | 10.2  | 14.49 |
| WE-5200       | 11.97 | 10.2  | 14.49 |
| WE-6900       | 12.99 | 11.69 | 16.14 |
| WE-10500      | 12.99 | 11.69 | 16.14 |

For more actuator information, please see the complete actuator catalog

## Electric (On/Off) Actuator Sizing

| ES         | WET     |          |          |          | DRY     |          |          |          |
|------------|---------|----------|----------|----------|---------|----------|----------|----------|
| Valve Size | 50 PSID | 100 PSID | 150 PSID | 225 PSID | 50 PSID | 100 PSID | 150 PSID | 225 PSID |
| 1-1/2"     | KE-440  | KE-440   | KE-440   | KE-440   | KE-440  | KE-440   | KE-440   | KE-440   |
| 2"         | KE-440  | KE-440   | KE-440   | KE-440   | KE-440  | KE-440   | KE-440   | KE-440   |
| 2-1/2"     | KE-440  | KE-440   | KE-440   | KE-440   | KE-440  | KE-440   | KE-440   | KE-440   |
| 3"         | KE-440  | KE-440   | KE-440   | KE-440   | KE-440  | KE-440   | KE-440   | KE-440   |
| 4"         | KE-440  | KE-440   | KE-440   | KE-440   | KE-880  | KE-880   | KE-880   | KE-880   |
| 5"         | WE-690  | WE-690   | WE-690   | WE-690   | WE-1350 | WE-1350  | WE-1350  | WE-1350  |
| 6"         | WE-1350 | WE-1350  | WE-1350  | WE-1350  | WE-1350 | WE-1700  | WE-1700  | WE-1700  |
| 8"         | WE-1350 | WE-1700  | WE-1700  | WE-2640  | WE-2640 | WE-2640  | WE-4400  | WE-4400  |
| 10"        | WE-2640 | WE-2640  | WE-4400  | WE-4400  | WE-4400 | WE-4400  | WE-5200  | WE-5200  |
| 12"        | WE-4400 | WE-4400  | WE-4400  | WE-5200  | WE-5200 | WE-6900  | WE-6900  | WE-6900  |

Consult Factory for actuator sizing on valves larger than 12".

Automated sizing is not applicable to PTFE seats. Please see the PTFE seat torques in the catalog torque table.

## Electric (Modulating) Actuator Sizing

| ES         | WET      |          |          |          | DRY      |          |           |           |
|------------|----------|----------|----------|----------|----------|----------|-----------|-----------|
| Valve Size | 50 PSID  | 100 PSID | 150 PSID | 225 PSID | 50 PSID  | 100 PSID | 150 PSID  | 225 PSID  |
| 1-1/2"     | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440   | KEM-440   |
| 2"         | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440   | KEM-440   |
| 2-1/2"     | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440   | KEM-440   |
| 3"         | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-880  | KEM-880   | KEM-880   |
| 4"         | KEM-440  | KEM-440  | KEM-440  | KEM-880  | KEM-880  | KEM-880  | KEM-880   | KEM-880   |
| 5"         | WEM-690  | WEM-690  | WEM-690  | WEM-1350 | WEM-1350 | WEM-1350 | WEM-1350  | WEM-1350  |
| 6"         | WEM-1350 | WEM-1350 | WEM-1350 | WEM-1350 | WEM-1700 | WEM-1700 | WEM-2640  | WEM-2640  |
| 8"         | WEM-1700 | WEM-2640 | WEM-2640 | WEM-2640 | WEM-2640 | WEM-4400 | WEM-4400  | WEM-4400  |
| 10"        | WEM-2640 | WEM-4400 | WEM-4400 | WEM-4400 | WEM-4400 | WEM-5200 | WEM-6900  | WEM-6900  |
| 12"        | WEM-4400 | WEM-4400 | WEM-5200 | WEM-6900 | WEM-6900 | WEM-6900 | WEM-10500 | WEM-10500 |

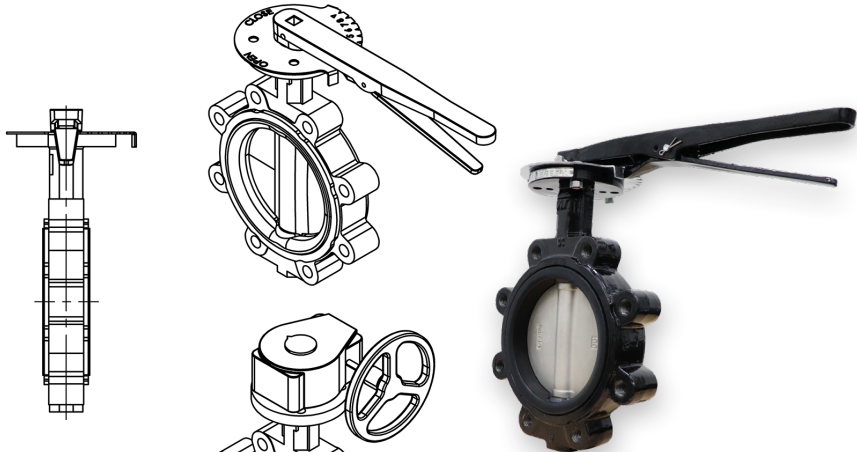
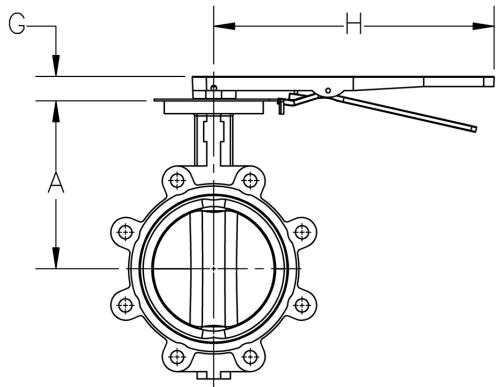
Consult Factory for actuator sizing on valves larger than 12".

Automated sizing is not applicable to PTFE seats. Please see the PTFE seat torques in the catalog torque table.

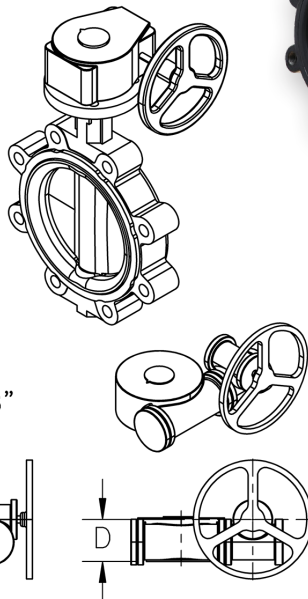
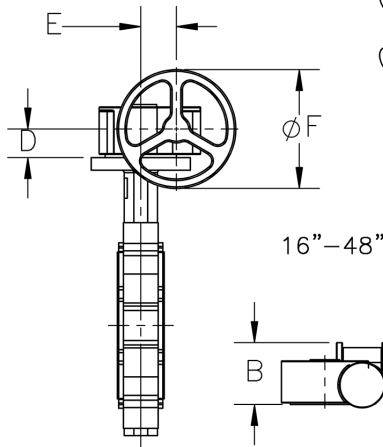
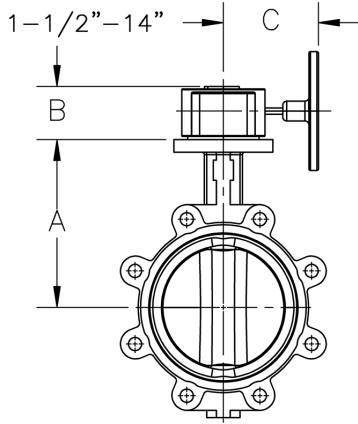
# Series ES RESILIENT SEATED BUTTERFLY

## Handle and Gear Operator Sizing

HANDLE (UP TO 12")



GEAR OPERATOR



## Gear and Handle Dimensions

| Valve Size | A       | GEAR OPERATOR |       |      |       |       | HANDLE |       |
|------------|---------|---------------|-------|------|-------|-------|--------|-------|
|            |         | B             | C     | D    | E     | ØF    | G      | H     |
| 1-1/2"     | 4.72    | 2.64          | 4.74  | 1.42 | 1.78  | 6.00  | 1.05   | 10.24 |
| 2"         | 5.51    |               |       |      |       |       |        |       |
| 2-1/2"     | 5.91    |               |       |      |       |       |        |       |
| 3"         | 6.22    |               |       |      |       |       |        |       |
| 4"         | 6.93    |               |       |      |       |       | 1.05   | 10.24 |
| 5"         | 7.48    |               |       |      |       |       | 1.05   | 10.24 |
| 6"         | 8.35    | 3.27          | 7.09  | 1.81 | 2.48  | 12.00 | 1.25   | 14.17 |
| 8"         | 9.29    |               |       |      |       |       | 1.50   | 22.00 |
| 10"        | 10.43   |               |       |      |       |       |        |       |
| 12"        | 12.01   |               |       |      |       |       |        |       |
| 14"        | 14.49   |               |       |      |       |       | -      | -     |
| 16"        | 15.75   | 6.14          | 7.80  | 4.17 | 7.13  | 12.00 | -      | -     |
| 18"        | 16.61   |               |       |      |       |       | -      | -     |
| 20"        | 17.91 # |               |       |      |       |       | -      | -     |
| 24"        | 22.24   |               |       |      |       |       | -      | -     |
| 28"        | 24.57   | 8.98          | 12.99 | 6.42 | 8.78  | 18.00 | -      | -     |
| 30"        | 25.59   |               |       |      |       |       | -      | -     |
| 32"        | 26.38   |               |       |      |       |       | -      | -     |
| 36"        | 28.35   |               |       |      |       |       | -      | -     |
| 40"        | 31.69   |               |       |      |       |       | -      | -     |
| 48"        | 37.40   | 11.06         | 18.35 | 8.11 | 12.20 | 18.00 | -      | -     |

# 20" Wafer: A - 17.32 (dimension in table applies to 20" lug valve).

## Part Number Matrix for

A-T Controls **ES Series Resilient Seated** Butterfly Valves

| 1  | Valve Series                       |
|----|------------------------------------|
| ES | A-T Cartridge Seat Butterfly Valve |

| 2     | Body Material                         |
|-------|---------------------------------------|
| Blank | A351 CF8M ( <i>No Designation</i> )   |
| P     | A395 Ductile Iron ( <i>Standard</i> ) |

| 3                                                                                          | End Connection |
|--------------------------------------------------------------------------------------------|----------------|
| L1                                                                                         | 125/150# Lug   |
| W1                                                                                         | 125/150# Wafer |
| Note: 28"-48" utilize a u-type body. See valve drawings & dimensions for more information. |                |

| 4 Valve Size |        |      |     |
|--------------|--------|------|-----|
| 0150         | 1-1/2" | 1600 | 16" |
| 0200         | 2"     | 1800 | 18" |
| 0250         | 2-1/2" | 2000 | 20" |
| 0300         | 3"     | 2400 | 24" |
| 0400         | 4"     | 2800 | 28" |
| 0500         | 5"     | 3000 | 30" |
| 0600         | 6"     | 3200 | 32" |
| 0800         | 8"     | 3600 | 36" |
| 1000         | 10"    | 4000 | 40" |
| 1200         | 12"    | 4800 | 48" |
| 1400         | 14"    |      |     |

| 5 | Seat Material/Style                                             |
|---|-----------------------------------------------------------------|
| B | Buna-N                                                          |
| E | EPDM                                                            |
| V | FKM / Viton®                                                    |
| P | PTFE over EPDM ( <i>up to 24" only</i> )                        |
| F | White Food Grade (FDA compliant) EPDM ( <i>up to 12" only</i> ) |

| 6 | Disc Material/Style                           |
|---|-----------------------------------------------|
| N | Nylon Coated Ductile Iron                     |
| S | A351 CF8M                                     |
| B | Aluminum Bronze                               |
| D | Nickel Plated Ductile Iron                    |
| W | Polished A351 CF8M                            |
| U | Undercut Aluminum Bronze ( <i>6"-24"</i> )    |
| Y | Undercut Polished A351 CF8M ( <i>6"-24"</i> ) |
| Z | Undercut A351 CF8M ( <i>6"-24"</i> )          |

| 7 | Stem Bushing                               |
|---|--------------------------------------------|
| F | FRP ( <i>Standard up to 14"</i> )          |
| B | Brass ( <i>Standard 16" &amp; Larger</i> ) |

| 8 | Operator Designation                                 |
|---|------------------------------------------------------|
| X | Bare Stem                                            |
| S | Stainless Steel 10 Point Handle ( <i>up to 12"</i> ) |
| L | Locking Handle -10 Position ( <i>up to 12"</i> )     |
| I | Infinite Adjustment Handle ( <i>up to 12"</i> )      |
| G | Gear Operator                                        |

| 9 | Stem                        |
|---|-----------------------------|
| F | 431 SST ( <i>standard</i> ) |
| A | 17-4 PH®                    |

### How To ORDER MANUAL RESILIENT SEATED BUTTERFLY VALVES

1 2 - 3 - 4 - 5 6 7 - 8 9  
 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓  
 ESP - L1 - 0400 - E S F - X F

### How To ORDER AUTOMATED RESILIENT SEATED BUTTERFLY VALVES

1 2 - 3 - 4 - 5 6 7 - 8 9 / actuator size - options  
 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓  
 ES P - W1 - 0400 - B N F - X F / 3RJS - XX  
 (see Actuator Size Legend)

#### EXAMPLE:

#### ES-L1-0400-ESF-XF

4" ES Series RSBFV, Class 125/150 Lug Style, A351 CF8M Body, EPDM Seat, A351 CF8M Disc, FRP Stem Bushing, 431 SST Stem, Bare Stem.

#### ESP-W1-0400-BNF-LF

4" ES Series RSBFV, Class 125/150 Wafer Style, A395 Ductile Iron Body, Buna-N Seat, Nylon Coated Ductile Iron Disc, FRP Stem Bushings, 431 SST Stem, Locking Handle -10 Position.





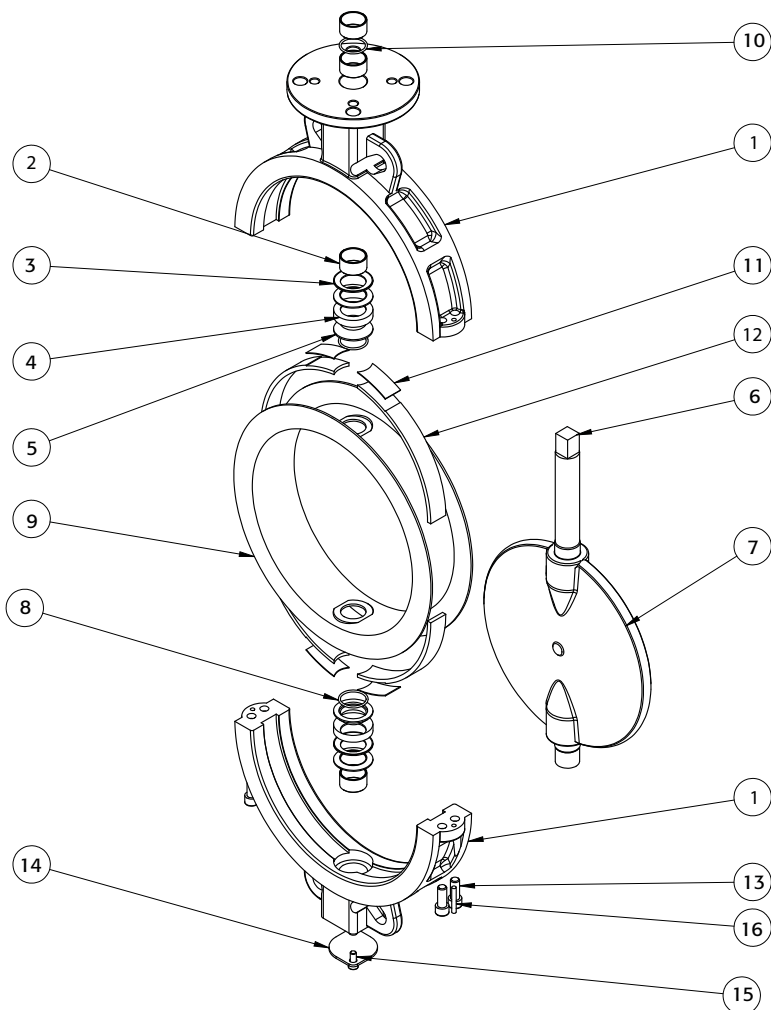
**AS Series butterfly valves** are PFA lined (encapsulated) for superior corrosion resistance against severe chemicals and corrosive services.



#### STANDARDS

|                              |                   |
|------------------------------|-------------------|
| Design                       | API 609           |
| Pressure Testing             | API 598           |
| End Connections              | ANSI/ASME B16.5   |
| Face to Face Dimensions      | ANSI/ASME B16.10  |
| Mounting Dimensions          | ISO 5211          |
| Material Certification       | EN 10204-3.1 MTR  |
| Quality Assurance            | ISO 9001:2015     |
| Marine/Offshore Applications | ABS Type Approval |

- Bi-directional, bubble tight shut-off
- Rated to 150 psi
- Live Loaded packing
- Blow out proof stem
- 2-piece wafer or lug bodies are epoxy coated
- Resilient back up liner
- Multiple safety seals
- Operating Temp: -20°F to 355°F
- Sizes 2" - 24"



| ITEM NO. | PART NUMBER       | QTY. | MATERIAL                                    |
|----------|-------------------|------|---------------------------------------------|
| 1        | BODY              | 1    | ASTM A216 GRADE WCB<br>ASTM A351 GRADE CF8M |
| 2        | BUSHING           | 4    | PTFE/CS BUSHING                             |
| 3        | BELLEVILLE WASHER | 4    | AISI 304                                    |
| 4        | V-SEAL GLAND      | 2    | AISI 304                                    |
| 5        | V-SEAL RING       | 2    | PTFE                                        |
| 6        | STEM              | 1    | 17-4® PH                                    |
| 7        | DISC              | 1    | PFA/ASTM A351 GRADE CF8                     |
| 8        | LOWER O-RING      | 2    | VITON® (non-wetted part)                    |
| 9        | SEAT              | 1    | PTFE                                        |
| 10       | UPPER O-RING      | 1    | VITON® (non-wetted part)                    |
| 11       | PAD ENERGIZER     | 4    | COMPOSITE                                   |
| 12       | RESILIENT PAD     | 4    | SILICONE RUBBER                             |
| 13       | BODY BOLT         | *    | ISO 3506-1 A2-70                            |
| 14       | COVER**           | 1    | ASTM A1020 CARBON STEEL                     |
| 15       | COVER BOLT**      | 2    | ISO 3506-1 A2-70                            |
| 16       | PIN***            | 2    | CARBON STEEL                                |

\*QTY 2 FOR 2" - 5" VALVES; QTY 4 FOR 6" - 12" VALVES

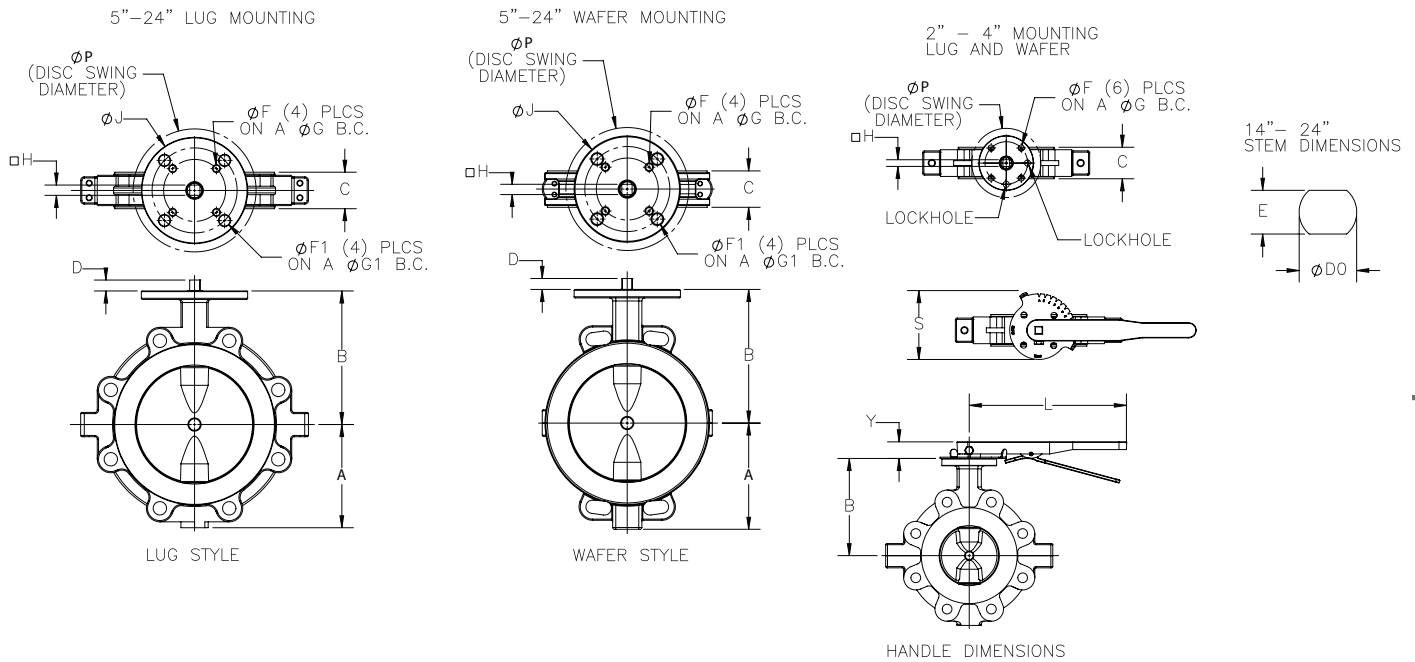
\*\*ONLY PRESENT ON 10" AND 12" VALVES, AND 8" LUG VALVE

\*\*\*ONLY PRESENT ON 12" WAFER VALVE



| SIZE   | OPERATING TORQUE<br>In-lbs (150 PSIG Air) | C <sub>v</sub><br>(Fully Open) |
|--------|-------------------------------------------|--------------------------------|
| 2"     | 166                                       | 210                            |
| 2-1/2" | 228                                       | 210                            |
| 3"     | 332                                       | 410                            |
| 4"     | 531                                       | 710                            |
| 5"     | 597                                       | 1,150                          |
| 6"     | 863                                       | 1,750                          |
| 8"     | 1,195                                     | 3,550                          |
| 10"    | 2,655                                     | 5,100                          |
| 12"    | 4,049                                     | 8,870                          |
| 14"    | 7,523                                     | 9,200                          |
| 16"    | 10,356                                    | 14,500                         |
| 18"    | 13,808                                    | 20,100                         |
| 20"    | 16,109                                    | 22,000                         |
| 24"    | 26,465                                    | 31,000                         |

Torques include 15% safety.

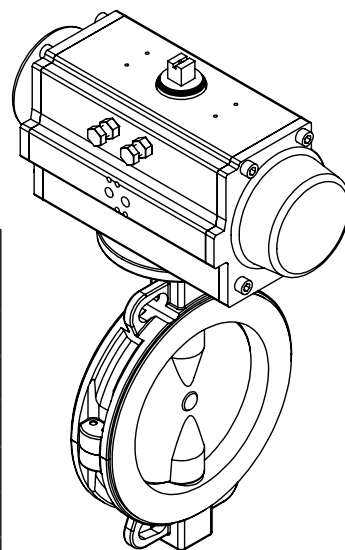
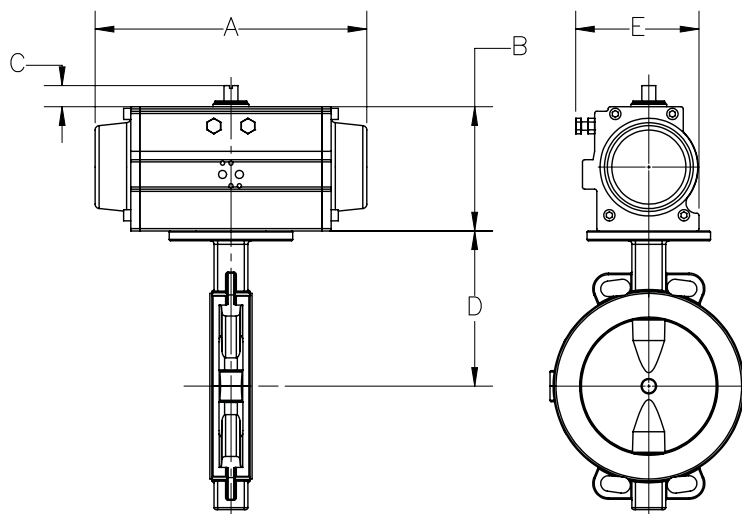


| SIZE | A      | B      | C    | D    | ØD0   | E     | ØF   | ØF1  | ØG    | ØG1   | □H    | ØJ   | L     | ØP    | S    | Y    | END CONNECTIONS      | ISO 5211 | Lug (lbs) | Wafer (lbs) |
|------|--------|--------|------|------|-------|-------|------|------|-------|-------|-------|------|-------|-------|------|------|----------------------|----------|-----------|-------------|
| 2"   | 2.76*  | 4.53   | 1.75 | 0.67 | N/A   | N/A   | 0.38 | N/A  | 2.756 | N/A   | 0.433 | 3.54 | 10.51 | 2.45  | 4.45 | 1.18 | ANSI B16.5 CLASS 150 | F07      | 13.89     | 4.85        |
| 2½"  | 2.95*  | 4.53   | 1.75 | 0.67 | N/A   | N/A   | 0.38 | N/A  | 2.756 | N/A   | 0.433 | 3.54 | 10.51 | 2.45  | 4.45 | 1.18 | ANSI B16.5 CLASS 150 | F07      | 15.43     | 4.85        |
| 3"   | 3.15** | 5.22** | 1.81 | 0.67 | N/A   | N/A   | 0.38 | N/A  | 2.756 | N/A   | 0.433 | 3.54 | 10.51 | 3.23  | 4.45 | 1.18 | ANSI B16.5 CLASS 150 | F07      | 18.74     | 9.26        |
| 4"   | 4.53   | 6.30   | 2.10 | 0.67 | N/A   | N/A   | 0.38 | N/A  | 2.756 | N/A   | 0.433 | 3.54 | 10.51 | 4.06  | 4.45 | 1.18 | ANSI B16.5 CLASS 150 | F07      | 28.66     | 14.10       |
| 5"   | 5.12   | 6.89   | 2.23 | 0.71 | N/A   | N/A   | 0.38 | N/A  | 2.756 | N/A   | 0.551 | 3.54 | CF    | 5.01  | CF   | CF   | ANSI B16.5 CLASS 150 | F07      | 37.48     | 17.42       |
| 6"   | 5.71   | 7.56   | 2.25 | 0.71 | N/A   | N/A   | 0.38 | 0.44 | 2.756 | 4.016 | 0.551 | 4.92 | CF    | 6.03  | CF   | CF   | ANSI B16.5 CLASS 150 | F07/F10  | 50.04     | 22.93       |
| 8"   | 6.89   | 8.66   | 2.50 | 0.71 | N/A   | N/A   | 0.44 | 0.71 | 4.016 | 5.512 | 0.669 | 6.88 | CF    | 7.94  | CF   | CF   | ANSI B16.5 CLASS 150 | F10/F14  | 67.24     | 37.48       |
| 10"  | 8.46   | 10.83  | 2.75 | 1.02 | N/A   | N/A   | 0.44 | 0.71 | 4.016 | 5.512 | 0.748 | 6.88 | CF    | 9.83  | CF   | CF   | ANSI B16.5 CLASS 150 | F10/F14  | 113.54    | 55.12       |
| 12"  | 9.84   | 12.20  | 3.13 | 1.18 | N/A   | N/A   | 0.44 | 0.71 | 4.016 | 5.512 | 0.866 | 6.88 | CF    | 11.95 | CF   | CF   | ANSI B16.5 CLASS 150 | F10/F14  | 140.21    | 76.06       |
| 14"  | 11.22  | 14.17  | 3.07 | 1.77 | 1.244 | 0.945 | 0.71 | N/A  | 5.512 | N/A   | N/A   | 6.88 | N/A   | 13.78 | N/A  | N/A  | ANSI B16.5 CLASS 150 | F14      | CF        | CF          |
| 16"  | 12.60  | 15.55  | 4.02 | 2.02 | 1.305 | 1.063 | 0.71 | N/A  | 5.512 | N/A   | N/A   | 6.88 | N/A   | 15.59 | N/A  | N/A  | ANSI B16.5 CLASS 150 | F14      | CF        | CF          |
| 18"  | 14.17  | 17.13  | 4.49 | 2.02 | 1.494 | 1.063 | 0.71 | N/A  | 5.512 | N/A   | N/A   | 6.88 | N/A   | 17.64 | N/A  | N/A  | ANSI B16.5 CLASS 150 | F14      | CF        | CF          |
| 20"  | 15.16  | 17.91  | 5.00 | 2.53 | 1.619 | 1.260 | 0.71 | N/A  | 5.512 | N/A   | N/A   | 6.88 | N/A   | 19.25 | N/A  | N/A  | ANSI B16.5 CLASS 150 | F14      | CF        | CF          |
| 24"  | 17.52  | 20.67  | 6.06 | 2.76 | 1.993 | 1.417 | 0.87 | N/A  | 6.496 | N/A   | N/A   | 8.27 | N/A   | 23.23 | N/A  | N/A  | ANSI B16.5 CLASS 150 | F16      | CF        | CF          |

\* Dimension A is 2.36 for Wafer Valves, size 2" and 2½"

\*\* For 3" Wafer valves, dimension A is 3.39 and dimension B is 5.91

A-T Controls reserves the right to change product designs and technical/dimensional specifications without notice. See website for updates.



## DIMENSIONS - AS Series Double Acting Package

| SIZE   | A     | B    | C     | D     | E    | Actuator Size |
|--------|-------|------|-------|-------|------|---------------|
| 2"     | 7.60  | 3.47 | 0.787 | 4.53  | 3.35 | 3R40DA        |
| 2-1/2" | 7.60  | 3.47 | 0.787 | 4.53  | 3.35 | 3R40DA        |
| 3"     | 9.29  | 4.30 | 0.787 | 5.22* | 4.18 | 3R80DA        |
| 4"     | 9.29  | 4.30 | 0.787 | 6.30  | 4.18 | 3R80DA        |
| 5"     | 9.29  | 4.30 | 0.787 | 6.89  | 4.18 | 3R80DA        |
| 6"     | 11.02 | 4.61 | 0.787 | 7.56  | 4.27 | 3R130DA       |
| 8"     | 11.50 | 5.28 | 0.787 | 8.66  | 4.78 | 3R200DA       |
| 10"    | 15.35 | 6.81 | 1.181 | 10.83 | 5.98 | 3R500DA       |
| 12"    | 16.89 | 7.36 | 1.181 | 12.20 | 6.38 | 3R700DA       |

Pneumatic Double Acting Actuators above are sized with 80 PSIG supply.  
Consult Factory for actuator sizing on valves larger than 12".

\*Dimension D is 5.91 for Wafer Valves, size 3".

For more actuator information, please see the complete actuator catalog.

## DIMENSIONS - AS Series Spring Return Package

| SIZE   | A     | B     | C     | D     | E     | Actuator Size |
|--------|-------|-------|-------|-------|-------|---------------|
| 2"     | 9.29  | 4.30  | 0.787 | 4.53  | 4.18  | 3R80SR        |
| 2-1/2" | 11.02 | 4.61  | 0.787 | 4.53  | 4.27  | 3R130SR       |
| 3"     | 11.50 | 5.28  | 0.787 | 5.22* | 4.78  | 3R200SR       |
| 4"     | 13.39 | 6.14  | 0.787 | 6.30  | 5.59  | 3R300SR       |
| 5"     | 13.39 | 6.14  | 0.787 | 6.89  | 5.59  | 3R300SR       |
| 6"     | 15.35 | 6.81  | 1.181 | 7.56  | 5.98  | 3R500SR       |
| 8"     | 15.35 | 6.81  | 1.181 | 8.66  | 5.98  | 3R500SR       |
| 10"    | 22.36 | 9.06  | 1.181 | 10.83 | 8.11  | 3R1200SR      |
| 12"    | 24.80 | 11.46 | 1.181 | 12.20 | 10.24 | 3R2400SR **   |

\*\* Not a direct mount. The assembly uses a bracket & coupler.

Pneumatic Spring Return Actuators above are sized with 5 springs per side, fail-close.  
Consult Factory for actuator sizing on valves larger than 12".

\*Dimension D is 5.91 for Wafer Valves, size 3".

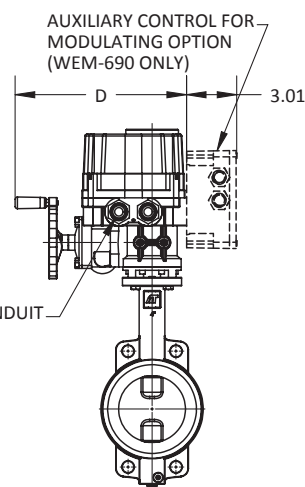
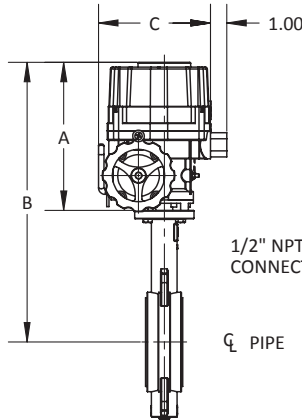
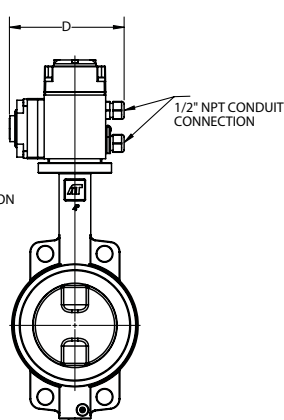
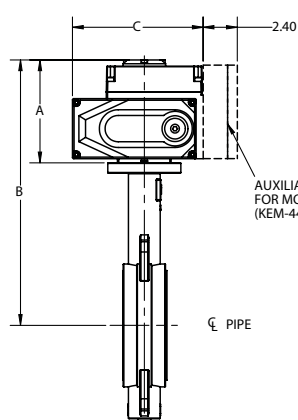
For more actuator information, please see the complete actuator catalog.

## DIMENSIONS - AS Series Electric Automated Package

| SIZE   | A     | B       | C     | D     | On-Off Actuator | Modulating Actuator |
|--------|-------|---------|-------|-------|-----------------|---------------------|
| 2"     | 5.14  | 9.67    | 6.46  | 5.47  | KE-440*         | KEM-440*            |
| 2-1/2" | 5.14  | 9.67    | 6.46  | 5.47  | KE-440*         | KEM-440*            |
| 3"     | 5.14  | 10.36** | 6.46  | 5.47  | KE-440*         | KEM-440*            |
| 4"     | 8.66  | 14.96   | 6.69  | 10.16 | WE-690          | WEM-690             |
| 5"     | 8.66  | 15.55   | 6.69  | 10.16 | WE-690          | WEM-690             |
| 6"     | 10.24 | 17.80   | 9.02  | 13.31 | WE-1350         | WEM-1350            |
| 8"     | 10.24 | 18.90   | 9.02  | 13.31 | WE-1350         | WEM-1700            |
| 10"    | 11.42 | 21.85   | 10.20 | 14.49 | WE-4400         | WEM-4400            |
| 12"    | 11.42 | 23.62   | 10.20 | 14.49 | WE-4400         | WEM-5200            |

\*\* Dimension B is 11.05 for Wafer Valves, size 3"

\* MAY BE SUBSTITUTED WITH WE-500  
DIMENSIONS BASED UPON ON/OFF APPLICATIONS



## Triac KE Series Actuators

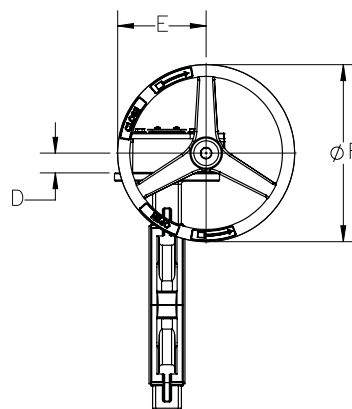
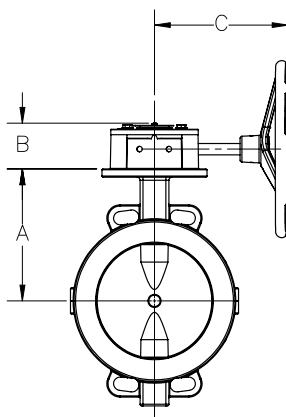
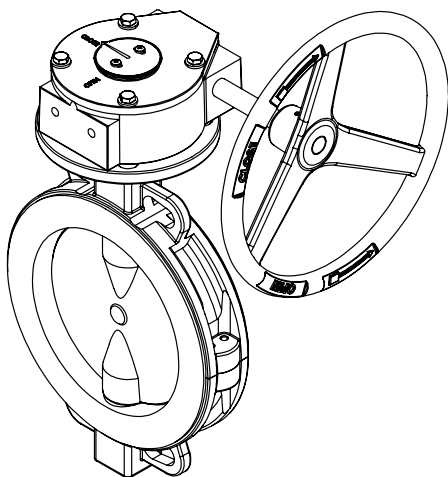
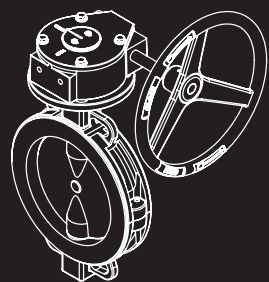
The Triac KE Series electric actuators are the perfect match for resilient or high-performance butterfly valves and dampers because of the self-locking worm drive. The KE Series actuators are used to control rotary valves, such as butterfly valves, ball valves, plug valves, etc. Widely used in applications such as petroleum, chemical, water treatment, ship, paper, power stations, heating supply, building automation, light industry etc.

### Standard Features

- Convex lens visual position indicator makes it easier to observe without water collecting on the surface of the indicator
- Anti-condensation heater and thermostat
- Two auxiliary limit switches
- Self-locking gear train
- Manual override with wrench
- Available motor voltages: 12VDC, 24VDC, 120VAC & 220VAC
- Optional 4-20mA & 0-10 VDC proportional control



Unique low profile actuator,  
ideal for tight spaces



### DIMENSIONS - Gear Operator with AS Series valve

| SIZE | A     | B    | C    | D    | E    | F     |
|------|-------|------|------|------|------|-------|
| 2"   | 4.53  | 2.79 | 6.00 | 1.48 | 1.77 | 5.87  |
| 2½"  | 4.53  | 2.79 | 6.00 | 1.48 | 1.77 | 5.87  |
| 3"   | 5.22* | 2.79 | 6.00 | 1.48 | 1.77 | 5.87  |
| 4"   | 6.30  | 2.79 | 6.00 | 1.48 | 1.77 | 5.87  |
| 5"   | 6.89  | 2.79 | 6.00 | 1.48 | 1.77 | 5.87  |
| 6"   | 7.56  | 2.79 | 6.00 | 1.48 | 1.77 | 5.87  |
| 8"   | 8.66  | 3.30 | 8.75 | 1.57 | 2.60 | 11.62 |
| 10"  | 10.83 | 3.30 | 8.75 | 1.57 | 2.60 | 11.62 |
| 12"  | 12.20 | 3.30 | 8.75 | 1.57 | 3.01 | 11.62 |

\* Dimension A is 5.91 for Wafer Valves, size 3"  
Consult factory for gear actuator sizing on valves larger than 12"

## Part Number Matrix for

A-T Controls **AS Series Lined Resilient Seated** Butterfly Valves

| 1  | Valve Series                         |
|----|--------------------------------------|
| AS | A-T Split Body Lined Butterfly Valve |

| 2     | Body Material                               |
|-------|---------------------------------------------|
| Blank | (No Designation) Stainless Steel (SST) Body |
| C     | Carbon Steel (ASTM A216 Grade WCB)          |

| 3  | End Connection |
|----|----------------|
| L1 | 125/150# Lug   |
| W1 | 125/150# Wafer |

| 4    | Valve Size      |
|------|-----------------|
| 0150 | 1-1/2" 1400 14" |
| 0200 | 2" 1600 16"     |
| 0250 | 2-1/2" 1800 18" |
| 0300 | 3" 2000 20"     |
| 0400 | 4" 2400 24"     |
| 0500 | 5"              |
| 0600 | 6"              |
| 0800 | 8"              |
| 1000 | 10"             |
| 1200 | 12"             |

| 5 | Seat Material/Style |
|---|---------------------|
| P | PTFE                |

| 6 | Disc Material/Style                                    |
|---|--------------------------------------------------------|
| F | PFA Encapsulated over 304 SST (standard with WCB body) |
| M | PFA Encapsulated over 316 SST (standard with SST body) |

| 7 | Stem Bushing |
|---|--------------|
| R | PTFE         |

| 8 | Operator Designation            |
|---|---------------------------------|
| X | Bare Stem                       |
| H | Standard 10 Point Handle        |
| S | Stainless Steel 10 Point Handle |
| G | Gear Operator                   |

| 9 | Stem          |
|---|---------------|
| A | 17-4 PH® Stem |

### How To ORDER MANUAL AS SERIES BUTTERFLY VALVES

1 2 - 3 - 4 - 5 6 7 - 8 9  
 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓  
 ASC - L1 - 0600 - P F R - X A

EXAMPLE:

#### ASC-L1-0600-PFR-XA

6" A-T Controls Split Body Lined Butterfly Valve, ASTM A216 Grade WCB Body, 150# Lug Style, PTFE Seat, PFA Encapsulated over 304 SST Disc, PTFE Stem Bushing, 17-4 PH Stem.

Series NS

NSF 61 & 372 rated, Dead-End Service  
Manual and Automated Butterfly Valves  
Lug or Wafer body, ANSI 125/150 flanges

- Bi-directional, bubble tight shutoff for full pressure differential
- Vulcanized Molded rubber seat design
- ASTM A395 DI & A351 CF8M body materials
- Multiple seat and disc materials available
- Square stems and ISO 5211 mounting pad for direct mounting

STANDARDS

|                        |                                                  |
|------------------------|--------------------------------------------------|
| DESIGN                 | API 609, ASME B16.34,<br>ASME B16.42, MSS SP-67  |
| FACE TO FACE           | API 609                                          |
| END CONNECTION         | ASME B16.5 (Class 150),<br>PN 10/16 (Wafer only) |
| PRESSURE TESTING       | API 598                                          |
| MOUNTING               | ISO 5211                                         |
| MARKINGS               | API 609, ASME B16.34, MSS SP-25                  |
| MATERIAL CERTIFICATION | EN 10204-3.1 MTR                                 |
| QUALITY ASSURANCE      | ISO 9001:2015                                    |

CERTIFICATIONS

|                                  |                                                    |
|----------------------------------|----------------------------------------------------|
| DRINKING WATER SYSTEM COMPONENTS | NSF/ANSI 61 & 372<br>Health Effects & Lead Content |
| CANADA REGISTRATION              | CRN OC20682.5                                      |
| ABS TYPE APPROVAL                |                                                    |



Page Reference: NS Series Resilient Butterfly Valves

Page 20.....Product Details and Standards

Page 21 .....Bill of Materials 2"-14" and 16"-24"

Page 22.....Cv Values, Operating Torques and Pressure & Temperature Ratings

Page 23.....Dimensions 2"-24"

Page 24.....Automated Pneumatic NS Series Sizing

Page 25.....Automated Electric NS Series Sizing

Page 26.....Handles and Gear Operator Sizing

Page 27 .....How To Order: NS Series Part Number Matrix



### Bill of Materials (2"-14")

| ITEM | DESCRIPTION    | MATERIAL                                                                     | QTY. |
|------|----------------|------------------------------------------------------------------------------|------|
| 1    | Body           | ASTM A395 / A351 CF8M                                                        | 1    |
| 2    | Seat           | EPDM (NSF) / Buna-N / (FKM/Viton®)                                           | 1    |
| 3    | Disc           | A351 CF8M (NSF) / Nylon Coated DI (NSF) / Nickel Plated DI / Aluminum Bronze | 1    |
| 4    | Upper Stem*    | 17-4 PH®                                                                     | 1    |
| 5    | Lower Stem*    | 17-4 PH®                                                                     | 1    |
| 6    | Flange Bushing | Brass #                                                                      | 2    |
| 7    | Bushing        | Brass #                                                                      | 3**  |
| 8    | O-Ring         | Buna-N #                                                                     | 1    |
| 9    | X-Ring         | Buna-N #                                                                     | 1    |
| 10   | Bushing        | PTFE #                                                                       | 1    |
| 11   | Stem Retainer  | ASTM A276 304                                                                | 1    |
| 12   | Thrust Washer  | ASTM A276 304                                                                | 1    |
| 13   | Snap Ring      | SK7 Steel                                                                    | 1    |

\*2"-3" valves have a one-piece stem

\*\*one bushing(7) is not shown; it is located below lower stem flange bushing(6)

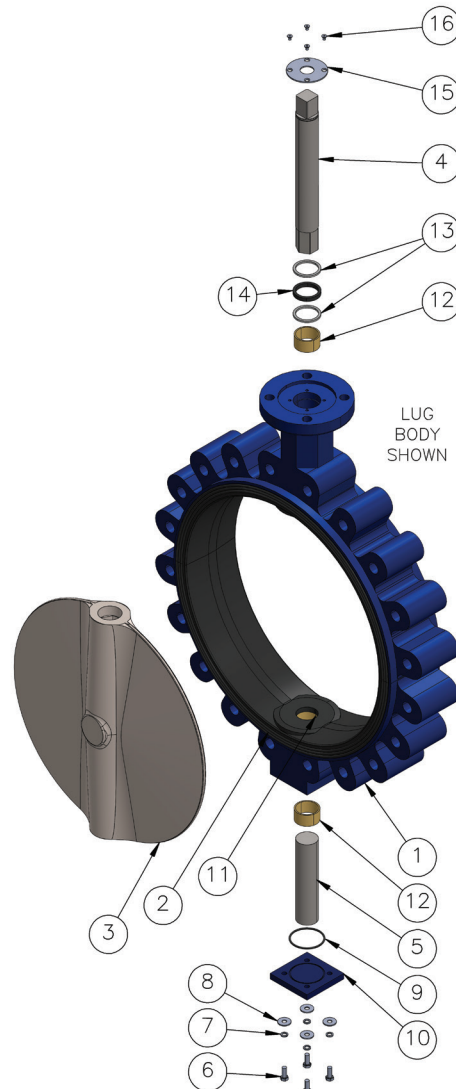
# Under normal operation, the O-Ring and bushings are not subjected to internal media & pressure.

### Bill of Materials (16"-24")

| ITEM | DESCRIPTION              | MATERIAL                                                                     | QTY. |
|------|--------------------------|------------------------------------------------------------------------------|------|
| 1    | Body                     | ASTM A395 / A351 CF8M                                                        | 1    |
| 2    | Seat                     | EPDM (NSF) / Buna-N / (FKM/Viton®)                                           | 1    |
| 3    | Disc                     | A351 CF8M (NSF) / Nylon Coated DI (NSF) / Nickel Plated DI / Aluminum Bronze | 1    |
| 4    | Upper Stem               | 17-4 PH®                                                                     | 1    |
| 5    | Lower Stem               | 17-4 PH®                                                                     | 1    |
| 6    | Bottom Cover Bolt        | A2-70                                                                        | 4*   |
| 7    | Bottom Cover Lock Washer | ASTM A276 304                                                                | 4*   |
| 8    | Bottom Cover Flat Washer | ASTM A276 304                                                                | 4*   |
| 9    | Bottom Cover O-Ring      | Buna-N #                                                                     | 1    |
| 10   | Bottom Cover             | ASTM A395 / A351 CF8M                                                        | 1    |
| 11   | Flange Bushing           | Brass #                                                                      | 2    |
| 12   | Long Bushing             | Brass #                                                                      | 2    |
| 13   | Short Bushing            | PTFE #                                                                       | 2    |
| 14   | Packing                  | Buna-N #                                                                     | 1    |
| 15   | Gland                    | WCB / ASTM A276 316                                                          | 1    |
| 16   | Gland Bolt               | ASTM A276 304                                                                | 4    |

\*16"-20" valves have quantity 2

# Under normal operation, the O-Ring and bushings are not subjected to internal media & pressure.



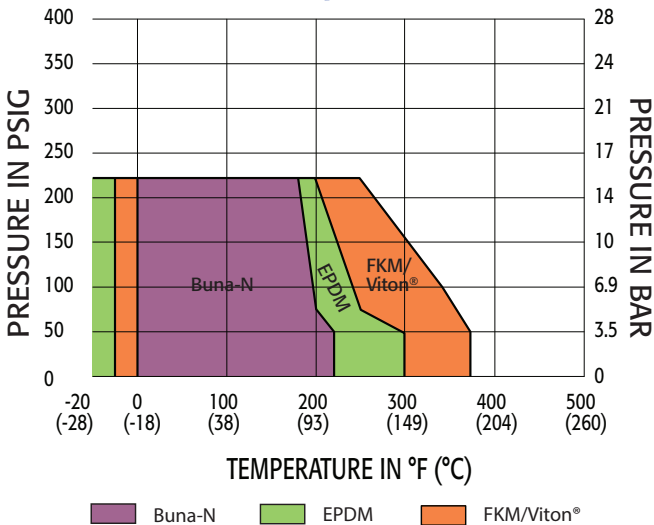
# Series NS RESILIENT SEATED BUTTERFLY

## NS Series Butterfly Valve Cv Values (US-GPM @ 1 Δ P) - Rated Flow Coeffecients

### Disc Angle

| Valve Size     | 10°  | 20°   | 30°   | 40°   | 50°   | 60°    | 70°    | 80°    | 90°    |
|----------------|------|-------|-------|-------|-------|--------|--------|--------|--------|
| 2"             | 0.1  | 5     | 12    | 24    | 45    | 64     | 90     | 125    | 135    |
| 2-1/2"         | 1    | 8     | 20    | 37    | 65    | 98     | 144    | 204    | 220    |
| 3"             | 2    | 12    | 22    | 39    | 70    | 116    | 183    | 275    | 302    |
| 4"             | 3    | 17    | 36    | 78    | 139   | 230    | 364    | 546    | 600    |
| 5"             | 5    | 29    | 61    | 133   | 237   | 392    | 620    | 930    | 1,022  |
| 6"             | 8    | 45    | 95    | 205   | 366   | 605    | 958    | 1,437  | 1,579  |
| 8"             | 13   | 89    | 188   | 408   | 727   | 1,202  | 1,903  | 2,854  | 3,136  |
| 10"            | 21   | 151   | 320   | 694   | 1,237 | 2,047  | 3,240  | 4,859  | 5,340  |
| 12"            | 30   | 234   | 495   | 1,072 | 1,911 | 3,162  | 5,005  | 7,507  | 8,250  |
| 14"            | 40   | 338   | 715   | 1,549 | 2,761 | 4,568  | 7,230  | 10,844 | 11,917 |
| 16"            | 50   | 464   | 983   | 2,130 | 3,797 | 6,282  | 9,942  | 14,913 | 16,388 |
| 18"            | 72   | 615   | 1,302 | 2,822 | 5,028 | 8,320  | 13,168 | 19,752 | 21,705 |
| 20"            | 86   | 971   | 1,674 | 3,628 | 6,465 | 10,698 | 16,931 | 25,396 | 27,908 |
| 24"            | 256  | 1,222 | 2,587 | 5,605 | 9,989 | 16,528 | 26,157 | 39,236 | 43,116 |
| F <sub>L</sub> | 0.79 | 0.81  | 0.79  | 0.79  | 0.75  | 0.71   | 0.66   | 0.6    | 0.53   |
| x <sub>r</sub> | 0.5  | 0.53  | 0.52  | 0.49  | 0.46  | 0.4    | 0.34   | 0.27   | 0.23   |
| F <sub>d</sub> | 0.09 | 0.17  | 0.26  | 0.34  | 0.42  | 0.49   | 0.57   | 0.64   | 0.7    |

Pressure vs. Temperature Chart  
for NS Butterfly Valves 2"-12"



### Approximate Operating Torque (In·lbs)

| SIZE   | 50 PSID |        | 100 PSID |        | 150 PSID |        | 225 PSID |       |
|--------|---------|--------|----------|--------|----------|--------|----------|-------|
|        | WET     | DRY    | WET      | DRY    | WET      | DRY    | WET      | DRY   |
| 2"     | 105     | 175    | 115      | 184    | 126      | 198    | 140      | 205   |
| 2-1/2" | 112     | 219    | 134      | 235    | 138      | 265    | 154      | 285   |
| 3"     | 170     | 333    | 176      | 363    | 201      | 365    | 221      | 387   |
| 4"     | 275     | 506    | 303      | 585    | 345      | 610    | 365      | 635   |
| 5"     | 433     | 755    | 482      | 830    | 532      | 889    | 556      | 899   |
| 6"     | 680     | 1,189  | 754      | 1,317  | 886      | 1,465  | 1,065    | 1,512 |
| 8"     | 1,215   | 2,089  | 1,365    | 2,398  | 1,592    | 2,636  | 1,947    | 2,730 |
| 10"    | 1,903   | 3,263  | 2,204    | 3,864  | 2,532    | 4,312  | 2,920    | 4,642 |
| 12"    | 2,784   | 4,535  | 3,285    | 5,454  | 3,813    | 6,185  | 4,602    | 6,480 |
| 14"    | 3,658   | 5,366  | 4,212    | 6,218  | 4,872    | 7,409  | -        | -     |
| 16"    | 4,516   | 6,655  | 5,914    | 8,390  | 6,855    | 10,120 | -        | -     |
| 18"    | 5,832   | 8,679  | 7,758    | 11,215 | 9,524    | 13,450 | -        | -     |
| 20"    | 7,632   | 11,226 | 10,620   | 14,890 | 13,650   | 18,560 | -        | -     |
| 24"    | 12,340  | 17,980 | 15,340   | 22,290 | 19,870   | 28,160 | -        | -     |

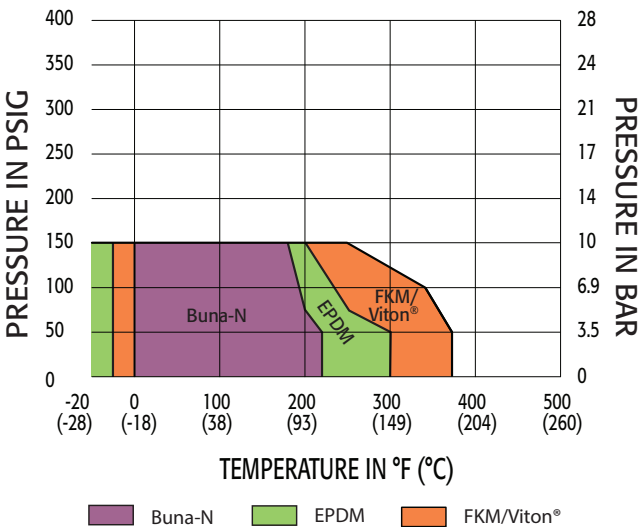
Note: Refer to the ES Series for undercut disc torques.

### Seat Temperature Ratings

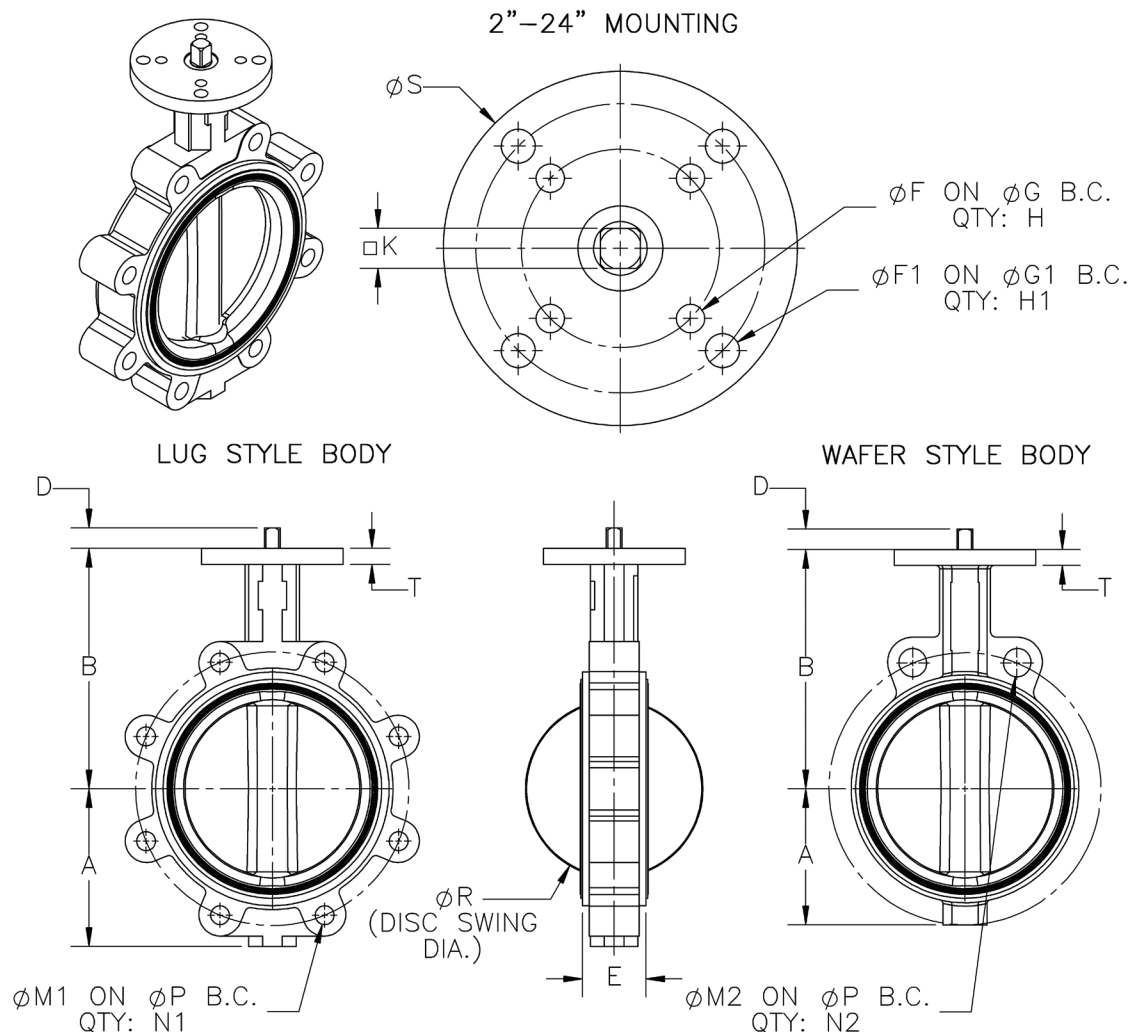
| Seat       | Temperature °F | 2" - 12" Pressure (PSIG) | 14" - 24" Pressure (PSIG) |
|------------|----------------|--------------------------|---------------------------|
| EPDM       | -20°           | 225                      | 150                       |
|            | 100°           | 225                      | 150                       |
|            | 200°           | 225                      | 150                       |
|            | 250°           | 75                       | 75                        |
|            | 300°           | 50                       | 50                        |
| Buna-N     | 0°             | 225                      | 150                       |
|            | 100°           | 225                      | 150                       |
|            | 180°           | 225                      | 150                       |
|            | 200°           | 75                       | 75                        |
|            | 220°           | 50                       | 50                        |
| FKM/Viton® | -10°           | 225                      | 150                       |
|            | 100°           | 225                      | 150                       |
|            | 250°           | 225                      | 150                       |
|            | 325°           | 100                      | 100                       |
|            | 360°           | 50                       | 50                        |

Nylon Coated DI disc limited to 300°F.

Pressure vs. Temperature Chart  
for NS Butterfly Valves 14"-24"



## Dimensions | 2" - 24"



Dimensions: NS Series

### ANSI/ASME Class 150

| Size   | A     |       | B     |       | D    | E    | ØF   | ØG          | H | ØF1  | ØG1         | H1 | K     | ØM1       | N1 | ØM2       |            |            | N2        |       |       | ØP        |            |            | ØR    | ØS   | T    | Lug (lbs) | Wafer (lbs) |
|--------|-------|-------|-------|-------|------|------|------|-------------|---|------|-------------|----|-------|-----------|----|-----------|------------|------------|-----------|-------|-------|-----------|------------|------------|-------|------|------|-----------|-------------|
|        | Lug   | Wafer | Lug   | Wafer |      |      |      |             |   |      |             |    |       |           |    | Class 150 | PN 10 (mm) | PN 16 (mm) | Class 150 | PN 10 | PN 16 | Class 150 | PN 10 (mm) | PN 16 (mm) |       |      |      |           |             |
| 2"     | 3.15  | 2.40  | 5.51  | 5.51  | 0.63 | 1.69 | 0.39 | 2.756 (F07) | 4 | -    | -           | -  | 0.354 | 5/8 - 11  | 4  | 0.79      | 19         | 19         | 2         | 2     | 2     | 4.75      | 125        | 125        | 2.08  | 3.54 | 0.51 | 8         | 6           |
| 2-1/2" | 3.50  | 2.68  | 5.91  | 5.91  | 0.63 | 1.81 | 0.39 | 2.756 (F07) | 4 | -    | -           | -  | 0.354 | 5/8 - 11  | 4  | 0.79      | 19         | 19         | 2         | 2     | 2     | 5.50      | 145        | 145        | 2.54  | 3.54 | 0.51 | 9         | 7           |
| 3"     | 3.74  | 2.99  | 6.22  | 6.22  | 0.63 | 1.81 | 0.39 | 2.756 (F07) | 4 | -    | -           | -  | 0.354 | 5/8 - 11  | 4  | 0.79      | 19         | 19         | 2         | 2     | 2     | 6.00      | 160        | 160        | 3.11  | 3.54 | 0.51 | 11        | 8           |
| 4"     | 4.49  | 3.62  | 6.93  | 6.93  | 0.63 | 2.05 | 0.39 | 2.756 (F07) | 4 | -    | -           | -  | 0.433 | 5/8 - 11  | 8  | 0.79      | 19         | 19         | 2         | 2     | 2     | 7.50      | 180        | 180        | 4.11  | 3.54 | 0.55 | 19        | 12          |
| 5"     | 5.00  | 4.21  | 7.48  | 7.48  | 0.71 | 2.20 | 0.39 | 2.756 (F07) | 4 | -    | -           | -  | 0.551 | 3/4 - 10  | 8  | 0.91      | 19         | 19         | 2         | 2     | 2     | 8.50      | 210        | 210        | 4.87  | 3.54 | 0.55 | 25        | 16          |
| 6"     | 5.47  | 4.72  | 8.35  | 8.31  | 0.71 | 2.20 | 0.39 | 2.756 (F07) | 4 | 0.47 | 4.016 (F10) | 4  | 0.551 | 3/4 - 10  | 8  | 0.91      | 23         | 23         | 2         | 2     | 2     | 9.50      | 240        | 240        | 6.14  | 4.92 | 0.55 | 30        | 18          |
| 8"     | 6.85  | 5.94  | 9.29  | 9.25  | 0.71 | 2.36 | 0.47 | 4.016 (F10) | 4 | 0.71 | 5.512 (F14) | 4  | 0.669 | 3/4 - 10  | 8  | 0.91      | 23         | 23         | 2         | 2     | 2     | 11.75     | 295        | 295        | 7.98  | 6.89 | 0.63 | 45        | 31          |
| 10"    | 7.99  | 7.32  | 10.43 | 10.43 | 0.94 | 2.68 | 0.47 | 4.016 (F10) | 4 | 0.71 | 5.512 (F14) | 4  | 0.866 | 7/8 - 9   | 12 | 1.02      | 23         | 28         | 2         | 2     | 2     | 14.25     | 350        | 355        | 9.87  | 6.89 | 0.63 | 69        | 49          |
| 12"    | 9.53  | 8.31  | 12.01 | 12.01 | 0.94 | 3.07 | 0.47 | 4.016 (F10) | 4 | 0.71 | 5.512 (F14) | 4  | 0.866 | 7/8 - 9   | 12 | 1.02      | 23         | 28         | 2         | 2     | 2     | 17.00     | 400        | 410        | 11.88 | 6.89 | 0.71 | 102       | 69          |
| 14"    | 10.51 | 10.63 | 14.49 | 14.49 | 0.94 | 3.07 | 0.47 | 4.016 (F10) | 4 | 0.71 | 5.512 (F14) | 4  | 0.866 | 1 - 8     | 12 | 1.14      | 23         | 28         | 4         | 4     | 4     | 18.75     | 460        | 470        | 13.15 | 6.89 | 0.79 | 128       | 85          |
| 16"    | 13.10 | 13.10 | 15.75 | 15.75 | 1.42 | 4.02 | 0.71 | 5.512 (F14) | 4 | 0.87 | 6.496 (F16) | 4  | 1.063 | 1 - 8     | 16 | 1.14      | 28         | 31         | 4         | 4     | 4     | 21.25     | 515        | 525        | 15.39 | 8.27 | 0.87 | 210       | 139         |
| 18"    | 14.28 | 14.28 | 16.61 | 16.61 | 1.42 | 4.49 | 0.71 | 5.512 (F14) | 4 | 0.87 | 6.496 (F16) | 4  | 1.063 | 1-1/8 - 7 | 16 | 1.26      | 28         | 31         | 4         | 4     | 4     | 22.75     | 565        | 585        | 17.36 | 8.27 | 0.98 | 231       | 163         |
| 20"    | 15.26 | 15.26 | 17.91 | 17.40 | 1.42 | 5.00 | 0.71 | 5.512 (F14) | 4 | 0.87 | 6.496 (F16) | 4  | 1.417 | 1-1/8 - 7 | 20 | 1.26      | 28         | 34         | 4         | 4     | 4     | 25.00     | 620        | 650        | 19.41 | 8.27 | 1.06 | 344       | 231         |
| 24"    | 18.69 | 18.80 | 22.24 | 22.24 | 1.81 | 6.06 | 0.87 | 6.496 (F16) | 4 | -    | -           | -  | 1.417 | 1-1/4 - 7 | 20 | 1.38      | 31         | 37         | 4         | 4     | 4     | 29.50     | 725        | 770        | 23.39 | 8.27 | 1.26 | 485       | 412         |

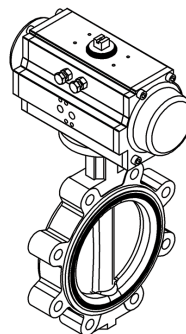
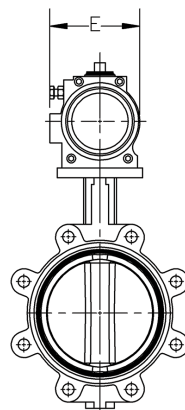
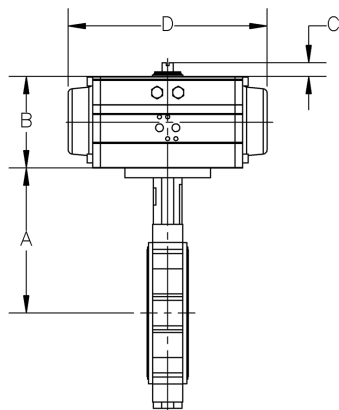
- Unless otherwise specified, all dimensions are in inches.
- Face-To-Face dimensions (E) are across the body flats (metal-to-metal). Approximately 1/16" of the rubber seat protrudes from each side for flange sealing.
- 2" - 24" Lug valve end connections conform to ANSI B16.5 Class 150, Wafer valve end connections conform to ANSI B16.5 Class 150 and EN1092-2 PN 10/16.
- Refer to the ES Series dimension table for disc projection (Y) and disc chord length (Z).

A-T Controls reserves the right to change product designs and technical/dimensional specifications without notice. See website for updates.

# Series NS RESILIENT SEATED BUTTERFLY

## Valve Dimensions

| Valve Size | A     |       |
|------------|-------|-------|
|            | LUG   | WAFER |
| 2"         | 5.51  | 5.51  |
| 2-1/2"     | 5.91  | 5.91  |
| 3"         | 6.22  | 6.22  |
| 4"         | 6.93  | 6.93  |
| 5"         | 7.48  | 7.48  |
| 6"         | 8.35  | 8.31  |
| 8"         | 9.29  | 9.25  |
| 10"        | 10.43 | 10.43 |
| 12"        | 12.01 | 12.01 |



## Dimensions Double Acting Actuator Dimensions Spring Return Actuator

| Actuator Size | B    | C     | D     | E    |
|---------------|------|-------|-------|------|
| 3R40DA        | 3.47 | 0.787 | 7.60  | 3.35 |
| 3R80DA        | 4.30 | 0.787 | 9.29  | 4.18 |
| 3R130DA       | 4.61 | 0.787 | 11.02 | 4.27 |
| 3R200DA       | 5.28 | 0.787 | 11.50 | 4.78 |
| 3R300DA       | 6.14 | 0.787 | 13.39 | 5.59 |
| 3R500DA       | 6.81 | 1.181 | 15.35 | 5.98 |
| 3R700DA       | 7.36 | 1.181 | 16.89 | 6.38 |
| 3R850DA       | 7.82 | 1.181 | 19.37 | 6.85 |
| 3R1200DA      | 9.06 | 1.181 | 22.36 | 8.11 |

For more actuator information, please see the complete actuator catalog

| Actuator Size | B     | C     | D     | E     |
|---------------|-------|-------|-------|-------|
| 3R40SR        | 3.47  | 0.787 | 7.60  | 3.35  |
| 3R80SR        | 4.30  | 0.787 | 9.29  | 4.18  |
| 3R130SR       | 4.61  | 0.787 | 11.02 | 4.27  |
| 3R200SR       | 5.28  | 0.787 | 11.50 | 4.78  |
| 3R300SR       | 6.14  | 0.787 | 13.39 | 5.59  |
| 3R500SR       | 6.81  | 1.181 | 15.35 | 5.98  |
| 3R700SR       | 7.36  | 1.181 | 16.89 | 6.38  |
| 3R850SR       | 7.82  | 1.181 | 19.37 | 6.85  |
| 3R1200SR      | 9.06  | 1.181 | 22.36 | 8.11  |
| 3R1750SR      | 10.08 | 1.181 | 23.54 | 8.90  |
| 3R2400SR      | 11.46 | 1.181 | 24.80 | 10.24 |

For more actuator information, please see the complete actuator catalog

## Pneumatic Double Acting Actuator Sizing

| NS         | WET     |          |          |          | DRY     |          |          |          |
|------------|---------|----------|----------|----------|---------|----------|----------|----------|
| Valve Size | 50 PSID | 100 PSID | 150 PSID | 225 PSID | 50 PSID | 100 PSID | 150 PSID | 225 PSID |
| 2"         | 3R40DA  | 3R40DA   | 3R40DA   | 3R40DA   | 3R40DA  | 3R40DA   | 3R40DA   | 3R40DA   |
| 2-1/2"     | 3R40DA  | 3R40DA   | 3R40DA   | 3R40DA   | 3R40DA  | 3R40DA   | 3R40DA   | 3R40DA   |
| 3"         | 3R40DA  | 3R40DA   | 3R40DA   | 3R40DA   | 3R80DA  | 3R80DA   | 3R80DA   | 3R80DA   |
| 4"         | 3R40DA  | 3R80DA   | 3R80DA   | 3R80DA   | 3R80DA  | 3R80DA   | 3R80DA   | 3R80DA   |
| 5"         | 3R80DA  | 3R80DA   | 3R80DA   | 3R80DA   | 3R130DA | 3R130DA  | 3R130DA  | 3R130DA  |
| 6"         | 3R130DA | 3R130DA  | 3R130DA  | 3R200DA  | 3R200DA | 3R200DA  | 3R300DA  | 3R300DA  |
| 8"         | 3R200DA | 3R300DA  | 3R300DA  | 3R300DA  | 3R300DA | 3R500DA  | 3R500DA  | 3R500DA  |
| 10"        | 3R300DA | 3R500DA  | 3R500DA  | 3R500DA  | 3R500DA | 3R700DA  | 3R850DA  | 3R850DA  |
| 12"        | 3R500DA | 3R500DA  | 3R700DA  | 3R850DA  | 3R850DA | 3R850DA  | 3R1200DA | 3R1200DA |

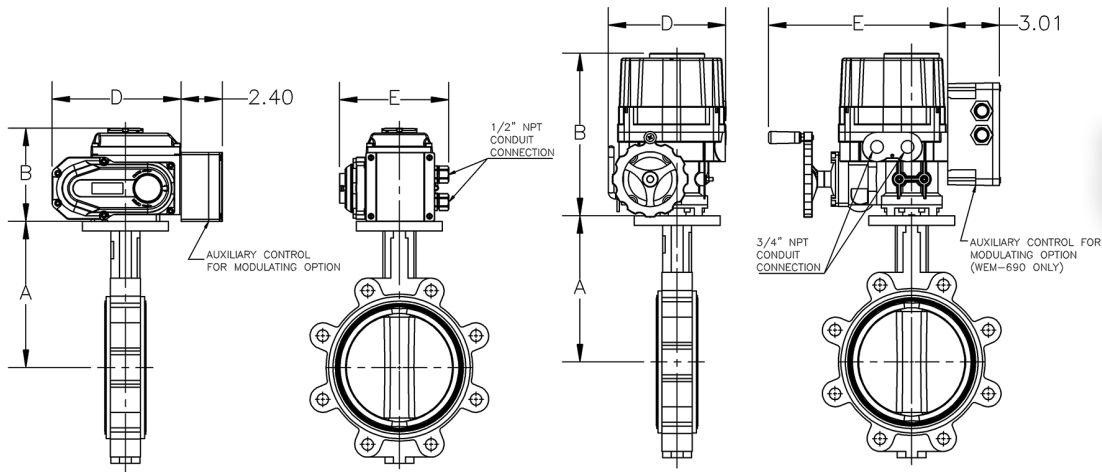
Pneumatic Double Acting actuators above are sized with 80 PSIG supply.  
Consult factory for actuator sizing on valves larger than 12".

## Pneumatic Spring Return Actuator Sizing

| NS         | WET      |          |          |             | DRY         |             |             |             |
|------------|----------|----------|----------|-------------|-------------|-------------|-------------|-------------|
| Valve Size | 50 PSID  | 100 PSID | 150 PSID | 225 PSID    | 50 PSID     | 100 PSID    | 150 PSID    | 225 PSID    |
| 2"         | 3R80SR   | 3R80SR   | 3R80SR   | 3R80SR      | 3R80SR      | 3R80SR      | 3R80SR      | 3R80SR      |
| 2-1/2"     | 3R80SR   | 3R80SR   | 3R80SR   | 3R80SR      | 3R80SR      | 3R130SR     | 3R130SR     | 3R130SR     |
| 3"         | 3R80SR   | 3R80SR   | 3R80SR   | 3R80SR      | 3R200SR     | 3R200SR     | 3R200SR     | 3R200SR     |
| 4"         | 3R130SR  | 3R130SR  | 3R200SR  | 3R200SR     | 3R300SR     | 3R300SR     | 3R300SR     | 3R300SR     |
| 5"         | 3R200SR  | 3R300SR  | 3R300SR  | 3R300SR     | 3R300SR     | 3R300SR     | 3R500SR **  | 3R500SR **  |
| 6"         | 3R300SR  | 3R300SR  | 3R500SR  | 3R500SR     | 3R500SR     | 3R700SR     | 3R700SR     | 3R700SR     |
| 8"         | 3R500SR  | 3R700SR  | 3R850SR  | 3R850SR     | 3R1200SR    | 3R1200SR    | 3R1200SR    | 3R1200SR    |
| 10"        | 3R850SR  | 3R1200SR | 3R1200SR | 3R1750SR    | 3R1750SR    | 3R2400SR ** | 3R2400SR ** | 3R2400SR ** |
| 12"        | 3R1200SR | 3R1750SR | 3R1750SR | 3R2400SR ** | 3R2400SR ** | 3R2400SR ** | 3R2400SR ** | 3R2400SR ** |

\*\*Not a direct mount. The assembly uses a bracket & coupler.  
Pneumatic Spring Return actuators above are sized with 5 springs per side, fail close.  
Consult factory for actuator sizing on valves larger than 12".





KE SERIES ELECTRIC

WE SERIES ELECTRIC



## Valve Dimensions

| Valve Size | A     |       |
|------------|-------|-------|
|            | LUG   | WAFER |
| 2"         | 5.51  | 5.51  |
| 2-1/2"     | 5.91  | 5.91  |
| 3"         | 6.22  | 6.22  |
| 4"         | 6.93  | 6.93  |
| 5"         | 7.48  | 7.48  |
| 6"         | 8.35  | 8.31  |
| 8"         | 9.29  | 9.25  |
| 10"        | 10.43 | 10.43 |
| 12"        | 12.01 | 12.01 |

## Dimensions **Electric** Actuator

| Actuator Size | B     | D     | E     |
|---------------|-------|-------|-------|
| KE-440        | 5.14  | 6.74  | 5.44  |
| KE-880        | 5.31  | 7.69  | 6.24  |
| WE-690        | 9.25  | 6.69  | 10.16 |
| WE-1350       | 10.55 | 9.02  | 13.31 |
| WE-1700       | 10.55 | 9.02  | 13.31 |
| WE-2640       | 11.42 | 10.2  | 14.49 |
| WE-4400       | 11.97 | 10.2  | 14.49 |
| WE-5200       | 11.97 | 10.2  | 14.49 |
| WE-6900       | 12.99 | 11.69 | 16.14 |
| WE-10500      | 12.99 | 11.69 | 16.14 |

For more actuator information, please see the complete actuator catalog

## Electric (On/Off) Actuator Sizing

| NS         | WET     |          |          |          | DRY     |          |          |          |
|------------|---------|----------|----------|----------|---------|----------|----------|----------|
| Valve Size | 50 PSID | 100 PSID | 150 PSID | 225 PSID | 50 PSID | 100 PSID | 150 PSID | 225 PSID |
| 2"         | KE-440  | KE-440   | KE-440   | KE-440   | KE-440  | KE-440   | KE-440   | KE-440   |
| 2-1/2"     | KE-440  | KE-440   | KE-440   | KE-440   | KE-440  | KE-440   | KE-440   | KE-440   |
| 3"         | KE-440  | KE-440   | KE-440   | KE-440   | KE-440  | KE-440   | KE-440   | KE-440   |
| 4"         | KE-440  | KE-440   | KE-440   | KE-440   | KE-880  | KE-880   | KE-880   | KE-880   |
| 5"         | WE-690  | WE-690   | WE-690   | WE-690   | WE-1350 | WE-1350  | WE-1350  | WE-1350  |
| 6"         | WE-1350 | WE-1350  | WE-1350  | WE-1350  | WE-1350 | WE-1700  | WE-1700  | WE-1700  |
| 8"         | WE-1350 | WE-1700  | WE-1700  | WE-2640  | WE-2640 | WE-2640  | WE-4400  | WE-4400  |
| 10"        | WE-2640 | WE-2640  | WE-4400  | WE-4400  | WE-4400 | WE-4400  | WE-5200  | WE-5200  |
| 12"        | WE-4400 | WE-4400  | WE-4400  | WE-5200  | WE-5200 | WE-6900  | WE-6900  | WE-6900  |

Consult factory for actuator sizing larger than 12".

## Electric (Modulating) Actuator Sizing

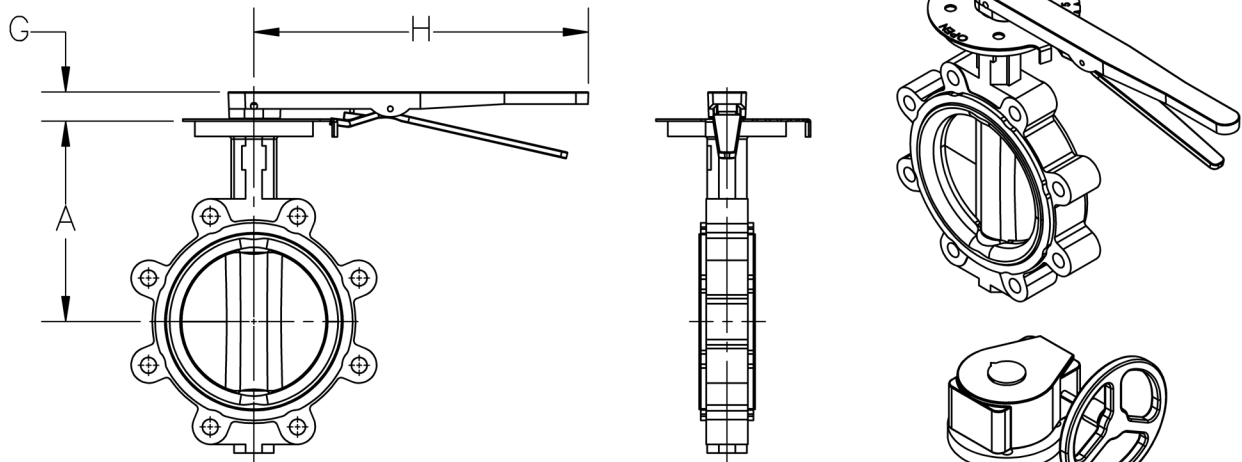
| NS         | WET      |          |          |          | DRY      |          |           |           |
|------------|----------|----------|----------|----------|----------|----------|-----------|-----------|
| Valve Size | 50 PSID  | 100 PSID | 150 PSID | 225 PSID | 50 PSID  | 100 PSID | 150 PSID  | 225 PSID  |
| 2"         | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440   | KEM-440   |
| 2-1/2"     | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440   | KEM-440   |
| 3"         | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-440  | KEM-880  | KEM-880   | KEM-880   |
| 4"         | KEM-440  | KEM-440  | KEM-440  | KEM-880  | KEM-880  | KEM-880  | KEM-880   | KEM-880   |
| 5"         | WEM-690  | WEM-690  | WEM-690  | WEM-1350 | WEM-1350 | WEM-1350 | WEM-1350  | WEM-1350  |
| 6"         | WEM-1350 | WEM-1350 | WEM-1350 | WEM-1350 | WEM-1700 | WEM-1700 | WEM-2640  | WEM-2640  |
| 8"         | WEM-1700 | WEM-2640 | WEM-2640 | WEM-2640 | WEM-2640 | WEM-4400 | WEM-4400  | WEM-4400  |
| 10"        | WEM-2640 | WEM-4400 | WEM-4400 | WEM-4400 | WEM-4400 | WEM-5200 | WEM-6900  | WEM-6900  |
| 12"        | WEM-4400 | WEM-4400 | WEM-5200 | WEM-6900 | WEM-6900 | WEM-6900 | WEM-10500 | WEM-10500 |

Consult factory for actuator sizing larger than 12".

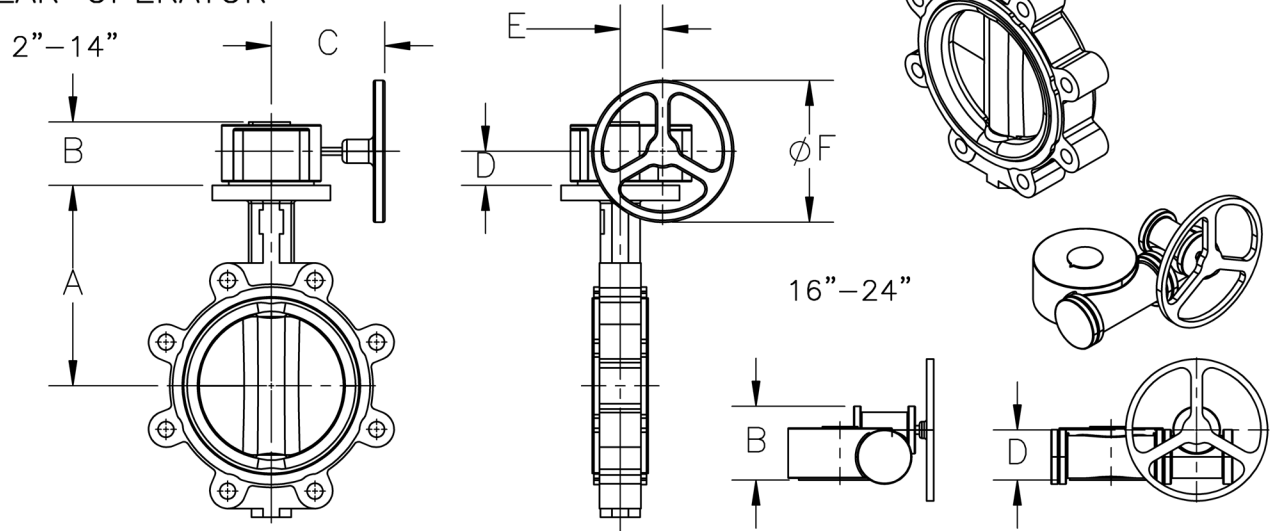
# Series NS RESILIENT SEATED BUTTERFLY

## Handle and Gear Operator Sizing

HANDLE (UP TO 12")



GEAR OPERATOR



| SIZE   | A     |       | GEAR OPERATOR |       |      |      |       | HANDLE |       |
|--------|-------|-------|---------------|-------|------|------|-------|--------|-------|
|        | Lug   | Wafer | B             | C     | D    | E    | ØF    | G      | H     |
| 2"     | 5.51  | 5.51  | 2.64          | 4.74  | 1.42 | 1.78 | 6.00  | 1.05   | 10.24 |
| 2-1/2" | 5.91  | 5.91  |               |       |      |      |       | 1.05   | 10.24 |
| 3"     | 6.22  | 6.22  |               |       |      |      |       | 1.05   | 10.24 |
| 4"     | 6.93  | 6.93  |               |       |      |      |       | 1.25   | 14.17 |
| 5"     | 7.48  | 7.48  |               |       |      |      |       | 1.50   | 22.00 |
| 6"     | 8.35  | 8.31  | 3.27          | 7.09  | 1.81 | 2.48 | 12.00 | -      | -     |
| 8"     | 9.29  | 9.25  |               |       |      |      |       | -      | -     |
| 10"    | 10.43 | 10.43 |               |       |      |      |       | -      | -     |
| 12"    | 12.01 | 12.01 |               |       |      |      |       | -      | -     |
| 14"    | 14.49 | 14.49 | 6.14          | 7.80  | 4.17 | 7.13 | 12.00 | -      | -     |
| 16"    | 15.75 | 15.75 |               |       |      |      |       | -      | -     |
| 18"    | 16.61 | 16.61 |               |       |      |      |       | -      | -     |
| 20"    | 17.91 | 17.40 |               |       |      |      |       | -      | -     |
| 24"    | 22.24 | 22.24 | 7.21          | 11.85 | 5.04 | 7.87 | 12.00 | -      | -     |

## Part Number Matrix for

A-T Controls **Dead-End Service** and **NSF/ANSI 61 & 372 Certified** Valves

| 1  | Valve Series                                        |
|----|-----------------------------------------------------|
| NS | A-T NSF 61 & 372 / Dead-End Service Butterfly Valve |

| 2     | Body Material                         |
|-------|---------------------------------------|
| Blank | A351 CF8M ( <i>No Designation</i> )   |
| P     | A395 Ductile Iron ( <i>Standard</i> ) |

| 3  | End Connection |
|----|----------------|
| L1 | 125/150# Lug   |
| W1 | 125/150# Wafer |

| 4    | Valve Size |      |     |
|------|------------|------|-----|
| 0200 | 2"         | 1400 | 14" |
| 0250 | 2-1/2"     | 1600 | 16" |
| 0300 | 3"         | 1800 | 18" |
| 0400 | 4"         | 2000 | 20" |
| 0500 | 5"         | 2400 | 24" |
| 0600 | 6"         |      |     |
| 0800 | 8"         |      |     |
| 1000 | 10"        |      |     |
| 1200 | 12"        |      |     |

| 5 | Seat Material/Style                                   |
|---|-------------------------------------------------------|
| B | Buna-N ( <i>Dead-End Service only</i> )               |
| N | EPDM ( <i>NSF 61 &amp; 372 and Dead-End Service</i> ) |
| V | FKM/Viton® ( <i>Dead-End Service only</i> )           |

| 6 | Disc Material/Style                      |
|---|------------------------------------------|
| N | Nylon Coated Ductile Iron (NSF 61 & 372) |
| S | A351 CF8M (NSF 61 & 372)                 |
| B | Aluminum Bronze                          |
| D | Nickel Plated Ductile Iron               |
| W | Polished A351 CF8M                       |
| U | Undercut Aluminum Bronze (6"-24")        |
| Y | Undercut Polished A351 CF8M (6"-24")     |
| Z | Undercut A351 CF8M (6"-24")              |

| How To Order MANUAL<br>NS SERIES BUTTERFLY VALVES |   |   |    |   |      |   |   |   |         |
|---------------------------------------------------|---|---|----|---|------|---|---|---|---------|
| 1                                                 | 2 | - | 3  | - | 4    | - | 5 | 6 | 7 - 8 9 |
| ↓                                                 | ↓ |   | ↓  |   | ↓    |   | ↓ | ↓ | ↓       |
| N                                                 | S | - | L1 | - | 0400 | - | N | B | R - X A |



| 7 | Stem Bushing |
|---|--------------|
| R | PTFE/Brass   |

| 8 | Operator Designation                                 |
|---|------------------------------------------------------|
| X | Bare Stem                                            |
| S | Stainless Steel 10 Point Handle ( <i>up to 12"</i> ) |
| L | Locking Handle -10 Position ( <i>up to 12"</i> )     |
| I | Infinite Adjustment Handle ( <i>up to 12"</i> )      |
| G | Gear Operator                                        |

| 9 | Stem          |
|---|---------------|
| A | 17-4 PH® Stem |

**NOTE:** In order for a complete valve to be NSF 61 & 372 rated, it must have a NSF 61 & 372 rated seat and a NSF 61 & 372 disc.

### EXAMPLE:

**NS-L1-0400-NBR-XA**

4" NS Series RSBFV, Class 125/150 Lug Style, A351 CF8M Body, EPDM Dead-End Service Seat, Aluminum Bronze Disc, PTFE Stem Bushing, 17-4 PH Square Stem, Bare Stem.

**NS-L1-0400-NSR-XA**

NSF 61 & 372 Approved 4" NS Series RSBFV, Class 125/150 Lug Style, A351 CF8M Body, EPDM Dead-End Service Seat, A351 CF8M Disc, PTFE Stem Bushing, 17-4 PH Square Stem, Bare Stem.



# Automated Tee Assemblies

## Butterfly Valve Tee Assemblies

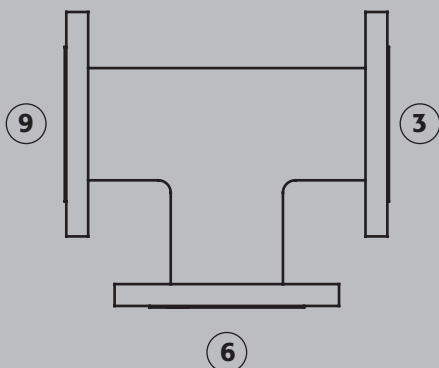


A-T Controls' Butterfly Valve Tee Assemblies provide a cost-effective, alternative to a 3-way valve solution. Available for lug style butterfly valves, these unique tee assemblies can be customized to fit your application. Consult factory for valve selection and assembly options.

- Sizes 2" - 36"
- Lug style Ductile Iron body

- Various Seat Options for special applications

When ordering please specify actuator and valve position:



Choose position:

Actuator (Primary):

☐ 3 ☐ 6 ☐ 9

Valve (Secondary) Location:

☐ 3 ☐ 6 ☐ 9

Valve Position:

- ☐ Primary Closed (CW) - Secondary Open (CCW)
- ☐ Primary Open (CCW) - Secondary Closed (CW)
- ☐ Primary Open (CCW) - Secondary Open (CCW)
- ☐ Primary Closed (CW) - Secondary Closed (CW)

### Example:

Actuator (Primary): Position 3, Closed

Valve (Secondary): Position 6, Open

Flange bolting is the responsibility of the customer. Temporary flange bolts are supplied for shipping purposes only.



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