



- 50 psi bubble tight shut-off
- Long stem design allows for 2" insulation
- Valve face-to-face dimensions comply with API 609 & MSS-SP-67
- Completely assembled and tested, ready for installation

### Application

These valves are designed to meet the needs of HVAC and commercial applications requiring bubble tight shut-off for liquids. Typical applications include chiller isolation, cooling tower isolation, change-over systems, large air handler coil control, bypass and process control applications. The large C<sub>v</sub> values provide for an economical control valve solution for larger flow applications. Designed for use in Victaulic piping systems when mated to Victaulic 41 series flange nipples.

### Jobsite Note

Valves should be stored in a weather protected area prior to construction. Complete installation recommendations can be found in Belimo's Installation and Maintenance Instructions for F6/F7...HD/HDU Butterfly Valves.

| Technical Data                      |  |
|-------------------------------------|--|
| Service                             | chilled, hot water, 60% glycol                         |
| Flow characteristic                 | modified equal percentage                              |
| Action                              | 90° rotation   |
| Sizes                               | 2" to 12"  |
| Type of end fitting                 | for use with ANSI Class 125/150 flanges                |
| Materials                           |  |
| Body                                | ductile iron ASTM A536                                 |
| Body finish                         | epoxy powder coated                                    |
| Disc                                | 304 stainless steel                                    |
| Seat                                | EPDM   |
| Shaft                               | 416 stainless steel                                    |
| O-ring                              | EPDM   |
| Upper bushing                       | RPTFE  |
| Middle bushings                     | RPTFE  |
| Lower bushing                       | RPTFE  |
| Media temperature range             | -22°F to 250°F [-30°C to 120°C]                        |
| Operation ambient temperature range | -22°F to 122°F [-30°C to 50°C]                         |
| Body pressure rating                | ASME/ANSI Class 125/150<br>(232 psi at -30°F to 275°F) |
| Close-off pressure                  | 50 psi   |
| Rangeability                        | 10:1 (for 30° to 70° range)                            |
| Maximum velocity                    | 12 FPS   |

| Valve              |                    | Nominal Size |         | Type     | Suitable Actuators |            |           |
|--------------------|--------------------|--------------|---------|----------|--------------------|------------|-----------|
| C <sub>v</sub> 90° | C <sub>v</sub> 60° | IN           | DN [mm] | 2-way    | Spring             | Non-Spring |           |
| 115                | 44                 | 2"           | 50      | F650HDU  | AF Series          | AM Series  | SY Series |
| 196                | 75                 | 2½"          | 65      | F665HDU  |                    |            |           |
| 302                | 116                | 3"           | 80      | F680HDU  | GM                 |            |           |
| 600                | 230                | 4"           | 100     | F6100HDU |                    |            |           |
| 1022               | 392                | 5"           | 125     | F6125HDU |                    |            |           |
| 1579               | 605                | 6"           | 150     | F6150HDU |                    |            |           |
| 3136               | 1202               | 8"           | 200     | F6200HDU |                    |            |           |
| 5340               | 2047               | 10"          | 250     | F6250HDU |                    |            |           |
| 8250               | 3062               | 12"          | 300     | F6300HDU |                    |            |           |

| Valve    | Size | C <sub>v</sub> | MOD |     |     |      |      |      |      |      | ON/OFF |  |
|----------|------|----------------|-----|-----|-----|------|------|------|------|------|--------|--|
|          |      |                | 10° | 20° | 30° | 40°  | 50°  | 60°  | 70°  | 80°  | 90°    |  |
| F650HDU  | 2"   | 115            | .06 | 3   | 7   | 15   | 27   | 44   | 70   | 105  | 115    |  |
| F665HDU  | 2½"  | 196            | .10 | 6   | 12  | 25   | 45   | 75   | 119  | 178  | 196    |  |
| F680HDU  | 3"   | 302            | .20 | 9   | 18  | 39   | 70   | 116  | 183  | 275  | 302    |  |
| F6100HDU | 4"   | 600            | .30 | 17  | 36  | 78   | 139  | 230  | 364  | 546  | 600    |  |
| F6125HDU | 5"   | 1022           | .50 | 29  | 61  | 133  | 237  | 392  | 620  | 930  | 1022   |  |
| F6150HDU | 6"   | 1579           | .80 | 45  | 95  | 205  | 366  | 605  | 958  | 1437 | 1579   |  |
| F6200HDU | 8"   | 3136           | 2   | 89  | 188 | 408  | 727  | 1202 | 1903 | 2854 | 3136   |  |
| F6250HDU | 10"  | 5340           | 3   | 151 | 320 | 694  | 1237 | 2047 | 3240 | 4859 | 5340   |  |
| F6300HDU | 12"  | 8250           | 4   | 234 | 495 | 1072 | 1911 | 3062 | 5005 | 7507 | 8250   |  |

# F6...HDU Butterfly Valves 2"-12" Ductile Iron Lug Body Resilient Seat, 304 Stainless Disc



## Maximum Dimensions (Inches)

| Valve    | Size | C <sub>v</sub> 90° | C <sub>v</sub> 60° | A    | B    | C     | D(Max) | BHC   | No. of Holes | Lug Bolt  | Actuator | Close-Off (PSI) |               |
|----------|------|--------------------|--------------------|------|------|-------|--------|-------|--------------|-----------|----------|-----------------|---------------|
| F650HDU  | 2"   | 115                | 44                 | 1.65 | 9.00 | 9.00  | 19.50  | 4.75  | 4            | 5/8-11UNC | AF       | 50              | Fail Safe     |
| F665HDU  | 2½"  | 196                | 75                 | 1.76 | 9.00 | 9.00  | 20.00  | 5.50  | 4            | 5/8-11UNC |          | 50              |               |
| F680HDU  | 3"   | 302                | 116                | 1.78 | 9.00 | 9.00  | 20.50  | 6.00  | 4            | 5/8-11UNC | 2*AF     | 50              |               |
| F6100HDU | 4"   | 600                | 230                | 2.05 | 9.00 | 9.00  | 21.00  | 7.50  | 8            | 5/8-11UNC |          | 50              |               |
| F6125HDU | 5"   | 1022               | 392                | 2.14 | 9.00 | 9.00  | 22.00  | 8.50  | 8            | 3/4-10UNC | 50       |                 |               |
| F650HDU  | 2"   | 115                | 44                 | 1.65 | 7.00 | 7.00  | 15.00  | 4.75  | 4            | 5/8-11UNC | AMB(X)   | 50              |               |
| F665HDU  | 2½"  | 196                | 75                 | 1.76 | 7.00 | 7.00  | 15.50  | 5.50  | 4            | 5/8-11UNC |          | 50              |               |
| F680HDU  | 3"   | 302                | 116                | 1.78 | 7.00 | 7.00  | 16.00  | 6.00  | 4            | 5/8-11UNC |          | 50              |               |
| F6100HDU | 4"   | 600                | 230                | 2.05 | 8.00 | 8.00  | 17.00  | 7.50  | 8            | 5/8-11UNC | GMB(X)   | 50              |               |
| F6125HDU | 5"   | 1022               | 392                | 2.14 | 8.00 | 8.00  | 17.50  | 8.50  | 8            | 3/4-10UNC |          | 50              |               |
| F6150HDU | 6"   | 1579               | 605                | 2.19 | 8.00 | 8.00  | 22.50  | 9.50  | 8            | 3/4-10UNC | GMB(X)   | 50              |               |
| F650HDU  | 2"   | 115                | 44                 | 1.65 | 4.25 | 4.25  | 15.50  | 4.75  | 4            | 5/8-11UNC | SY1...   | 50              | Non-Fail Safe |
| F665HDU  | 2½"  | 196                | 75                 | 1.76 | 4.25 | 4.25  | 16.00  | 5.50  | 4            | 5/8-11UNC |          | 50              |               |
| F680HDU  | 3"   | 302                | 116                | 1.78 | 4.25 | 4.25  | 16.25  | 6.00  | 4            | 5/8-11UNC |          | 50              |               |
| F6100HDU | 4"   | 600                | 230                | 2.05 | 8.00 | 13.00 | 22.00  | 7.50  | 8            | 5/8-11UNC | SY2...   | 50              |               |
| F6125HDU | 5"   | 1022               | 392                | 2.14 | 8.00 | 13.00 | 22.50  | 8.50  | 8            | 3/4-10UNC |          | 50              |               |
| F6150HDU | 6"   | 1579               | 605                | 2.19 | 8.00 | 13.00 | 23.00  | 9.50  | 8            | 3/4-10UNC | 50       |                 |               |
| F6200HDU | 8"   | 3136               | 1202               | 2.37 | 8.00 | 13.00 | 24.25  | 11.75 | 8            | 3/4-10UNC | SY3...   | 50              |               |
| F6250HDU | 10"  | 5340               | 2047               | 2.58 | 8.00 | 13.00 | 25.50  | 14.25 | 12           | 7/8-9UNC  |          | 50              |               |
| F6300HDU | 12"  | 8250               | 3062               | 3.01 | 8.00 | 13.00 | 27.25  | 17.00 | 12           | 7/8-9UNC  |          | 50              |               |

Dimension "A" is compressed, add .125" for relaxed state.

AF, AM and GM maximum actuator ambient temperature is 122°F.

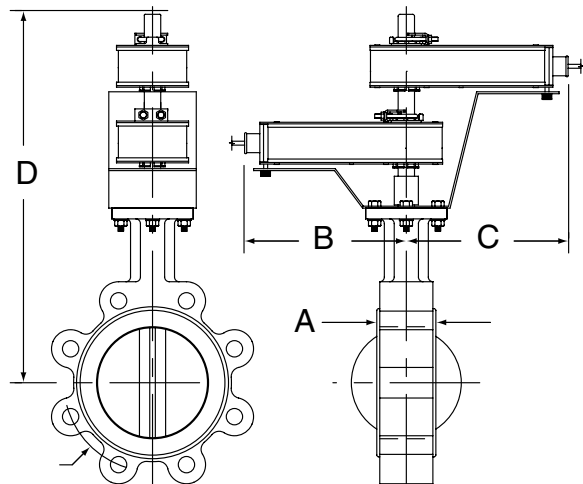
SY maximum actuator ambient temperature is 150°F.

Model SY1... does not have handwheel - override is via 8mm wrench on bottom side of actuator.

### Application Notes

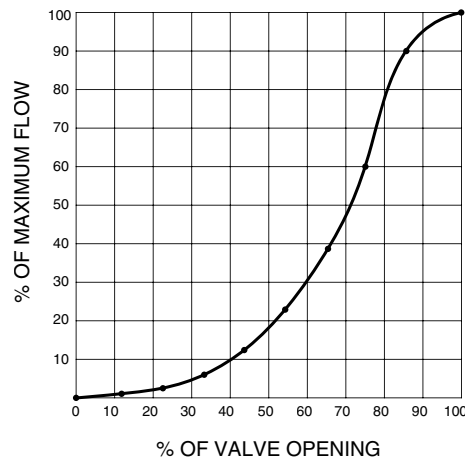
1. Valves are rated at 50 psi differential pressure in the closed position.
2. Valves are furnished with lugs tapped for use with ANSI Class 125/150 flanges. Installation flanges and hardware are not included.
3. 2-way assemblies are furnished assembled and tested, ready for installation.
4. Dimension "D" allows for actuator removal without the need to remove the valve from the pipe.
5. Weather shields are available, dimensional data upon request.
6. Dual actuated valves have actuators mounted on a common valve shaft.
7. Belimo SY Series actuators are NEMA 4X rated.

### Dimensions



BF2WUDIM

### Flow Pattern



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- 232 psi (2" to 12") and 150 psi (14"-30") bubble tight shut-off
- Long stem design allows for 2" insulation
- Valve face-to-face dimensions comply with API 609 & MSS-SP-67
- Completely assembled and tested, ready for installation

### Application

These valves are designed to meet the needs of HVAC and commercial applications requiring bubble tight shut-off for liquids. Typical applications include chiller isolation, cooling tower isolation, change-over systems, large air handler coil control, bypass and process control applications. The large  $C_v$  values provide for an economical control valve solution for larger flow applications. Designed for use in Victaulic piping systems when mated to Victaulic 41 series flange nipples.

### Jobsite Note

Valves should be stored in a weather protected area prior to construction. Complete installation recommendations can be found in Belimo's Installation and Maintenance Instructions for F6/F7...HD/HDU Butterfly Valves.

| Technical Data                      |  |
|-------------------------------------|--|
| Service                             | chilled, hot water, 60% glycol                         |
| Flow characteristic                 | modified equal percentage                              |
| Action                              | 90° rotation   |
| Sizes                               | 2" to 30"  |
| Type of end fitting                 | for use with ANSI 125/150 flanges                      |
| Materials                           |  |
| Body                                | ductile iron ASTM A536                                 |
| Body finish                         | epoxy powder coated                                    |
| Disc                                | 304 stainless steel                                    |
| Seat                                | EPDM standard  |
| Shaft                               | 416 stainless steel                                    |
| O-ring                              | EPDM   |
| Upper bushing                       | RPTFE  |
| Middle bushings                     | RPTFE  |
| Lower bushing                       | RPTFE  |
| Media temperature range             | -22°F to 250°F [-30°C to 120°C]                        |
| Operation ambient temperature range | -22°F to 122°F [-30°C to 50°C]                         |
| Body pressure rating                | ASME/ANSI Class 125/150<br>(232 psi at -30°F to 275°F) |
| Close-off pressure                  | 200 psi (2"-12"), 150 psi (14"-30")                    |
| Rangeability                        | 10:1 (for 30° to 70° range)                            |
| Maximum velocity                    | 12 FPS   |

| Valve     |           | Nominal Size |         | Type    | Suitable Actuators |            |
|-----------|-----------|--------------|---------|---------|--------------------|------------|
| $C_v$ 90° | $C_v$ 60° | IN           | DN [mm] | 2-way   | Spring             | Non-Spring |
| 115       | 44        | 2"           | 50      | F650HD  | AF Series          | AM         |
| 196       | 75        | 2½"          | 65      | F665HD  |                    |            |
| 302       | 116       | 3"           | 80      | F680HD  |                    | GM         |
| 600       | 230       | 4"           | 100     | F6100HD |                    |            |
| 1022      | 392       | 5"           | 125     | F6125HD |                    | SY Series  |
| 1579      | 605       | 6"           | 150     | F6150HD |                    |            |
| 3136      | 1202      | 8"           | 200     | F6200HD |                    |            |
| 5340      | 2047      | 10"          | 250     | F6250HD |                    |            |
| 8250      | 3062      | 12"          | 300     | F6300HD |                    |            |
| 11917     | 4568      | 14"          | 350     | F6350HD |                    |            |
| 16388     | 6282      | 16"          | 400     | F6400HD |                    |            |
| 21705     | 8320      | 18"          | 450     | F6450HD |                    |            |
| 27908     | 10698     | 20"          | 500     | F6500HD |                    |            |
| 43116     | 16528     | 24"          | 600     | F6600HD |                    |            |
| 73426     | 28146     | 30"          | 750     | F6750HD |                    |            |

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| Valve   | Size   | $C_v$ | MOD |      |      |      |       |       |       |       |       | ON/OFF |
|---------|--------|-------|-----|------|------|------|-------|-------|-------|-------|-------|--------|
|         |        |       | 10° | 20°  | 30°  | 40°  | 50°   | 60°   | 70°   | 80°   | 90°   |        |
| F650HD  | 2"     | 115   | .06 | 3    | 7    | 15   | 27    | 44    | 70    | 105   | 115   | 115    |
| F665HD  | 2-1/2" | 196   | .10 | 6    | 12   | 25   | 45    | 75    | 119   | 178   | 196   | 196    |
| F680HD  | 3"     | 302   | .20 | 9    | 18   | 39   | 70    | 116   | 183   | 275   | 302   | 302    |
| F6100HD | 4"     | 600   | .30 | 17   | 36   | 78   | 139   | 230   | 364   | 546   | 600   | 600    |
| F6125HD | 5"     | 1022  | .50 | 29   | 61   | 133  | 237   | 392   | 620   | 930   | 1022  | 1022   |
| F6150HD | 6"     | 1579  | .80 | 45   | 95   | 205  | 366   | 605   | 958   | 1437  | 1579  | 1579   |
| F6200HD | 8"     | 3136  | 2   | 89   | 188  | 408  | 727   | 1202  | 1903  | 2854  | 3136  | 3136   |
| F6250HD | 10"    | 5340  | 3   | 151  | 320  | 694  | 1237  | 2047  | 3240  | 4859  | 5340  | 5340   |
| F6300HD | 12"    | 8250  | 4   | 234  | 495  | 1072 | 1911  | 3062  | 5005  | 7507  | 8250  | 8250   |
| F6350HD | 14"    | 11917 | 6   | 338  | 715  | 1549 | 2761  | 4568  | 7230  | 10844 | 11917 | 11917  |
| F6400HD | 16"    | 16388 | 8   | 464  | 983  | 2130 | 3797  | 6282  | 9942  | 14913 | 16388 | 16388  |
| F6450HD | 18"    | 21705 | 11  | 615  | 1302 | 2822 | 5028  | 8320  | 13168 | 19752 | 21705 | 21705  |
| F6500HD | 20"    | 27908 | 14  | 791  | 1674 | 3628 | 6465  | 10698 | 16931 | 25396 | 27908 | 27908  |
| F6600HD | 24"    | 43116 | 22  | 1222 | 2587 | 5605 | 9989  | 16528 | 26157 | 39236 | 43116 | 43116  |
| F6750HD | 30"    | 73426 | 37  | 2081 | 4405 | 9545 | 17011 | 28146 | 44545 | 66818 | 73426 | 73426  |

# F6...HD Butterfly Valves 2"-30" Ductile Iron Lug Body Resilient Seat, 304 Stainless Disc



## Maximum Dimensions (Inches)

| Valve   | Size | C <sub>v</sub> 90° | C <sub>v</sub> 60° | A      | B       | C       | D(Max) | BHC   | No. of Holes | Lug Bolt   | Actuator | Close-Off (PSI) |               |
|---------|------|--------------------|--------------------|--------|---------|---------|--------|-------|--------------|------------|----------|-----------------|---------------|
| F650HD  | 2"   | 115                | 44                 | 1.65   | 9.00    | 9.00    | 19.50  | 4.75  | 4            | 5/8-11UNC  | AF       | 200             | Fail Safe     |
| F665HD  | 2½"  | 196                | 75                 | 1.76   | 9.00    | 9.00    | 20.00  | 5.50  | 4            | 5/8-11UNC  | 2*AF     | 200             |               |
| F680HD  | 3"   | 302                | 116                | 1.78   | 9.00    | 9.00    | 20.50  | 6.00  | 4            | 5/8-11UNC  | 2*AF     | 200             |               |
| F650HD  | 2"   | 115                | 44                 | 1.65   | 7.00    | 7.00    | 15.00  | 4.75  | 4            | 5/8-11UNC  | AMB(X)   | 200             | Non-Fail Safe |
| F665HD  | 2½"  | 196                | 75                 | 1.76   | 7.00    | 7.00    | 15.50  | 5.50  | 4            | 5/8-11UNC  | AMB(X)   | 200             |               |
| F680HD  | 3"   | 302                | 116                | 1.78   | 8.00    | 8.00    | 16.00  | 6.00  | 4            | 5/8-11UNC  | GMB(X)   | 200             |               |
| F6100HD | 4"   | 600                | 230                | 2.05   | 8.00    | 8.00    | 21.00  | 7.50  | 8            | 5/8-11UNC  | 2*GMB(X) | 200             | Non-Fail Safe |
| Valve   | Size | C <sub>v</sub> 90° | C <sub>v</sub> 60° | A(Max) | B (Max) | C (Max) | D(Max) | BHC   | No. of Holes | Lug Bolt   | Actuator | Close-Off (PSI) |               |
| F650HD  | 2"   | 115                | 44                 | 1.65   | 8.00    | 13.00   | 20.25  | 4.75  | 4            | 5/8-11UNC  | SY2...   | 200             | Non-Fail Safe |
| F665HD  | 2½"  | 196                | 75                 | 1.76   | 8.00    | 13.00   | 20.75  | 5.50  | 4            | 5/8-11UNC  |          | 200             |               |
| F680HD  | 3"   | 302                | 116                | 1.78   | 8.00    | 13.00   | 21.00  | 6.00  | 4            | 5/8-11UNC  |          | 200             |               |
| F6100HD | 4"   | 600                | 230                | 2.05   | 8.00    | 13.00   | 21.75  | 7.50  | 8            | 5/8-11UNC  | 200      |                 |               |
| F6125HD | 5"   | 1022               | 392                | 2.14   | 8.00    | 13.00   | 22.25  | 8.50  | 8            | 3/4-10UNC  | 200      |                 |               |
| F6150HD | 6"   | 1579               | 605                | 2.19   | 8.00    | 13.00   | 22.75  | 9.50  | 8            | 3/4-10UNC  | SY3...   | 200             |               |
| F6200HD | 8"   | 3136               | 1202               | 2.37   | 12.00   | 15.00   | 29.00  | 11.75 | 8            | 3/4-10UNC  | SY4...   | 200             |               |
| F6250HD | 10"  | 5340               | 2047               | 2.58   | 12.00   | 15.00   | 30.00  | 14.25 | 12           | 7/8-9UNC   |          | 200             |               |
| F6300HD | 12"  | 8250               | 3062               | 3.01   | 12.00   | 15.00   | 32.00  | 17.00 | 12           | 7/8-9UNC   |          | 200             |               |
| F6350HD | 14"  | 11917              | 4568               | 3.02   | 12.00   | 15.00   | 33.00  | 18.75 | 12           | 1-8UNC     | SY5...   | 150             |               |
| F6400HD | 16"  | 16388              | 6282               | 3.39   | 12.00   | 15.00   | 34.50  | 21.25 | 16           | 1-8UNC     | SY6...†  | 150             |               |
| F6450HD | 18"  | 21705              | 8320               | 4.13   | 14.00   | 21.00   | 39.25  | 22.75 | 16           | 1 1/8-7UNC | SY8...†  | 150             |               |
| F6500HD | 20"  | 27908              | 10698              | 5.00   | 14.00   | 21.00   | 41.50  | 25.00 | 20           | 1 1/8-7UNC |          | 150             |               |
| F6600HD | 24"  | 43116              | 16528              | 5.94   | 14.00   | 22.00   | 53.25  | 29.50 | 20           | 1 1/4-7UNC |          | SY11...†        | 150           |
| F6750HD | 30"  | 73426              | 28146              | 6.57   | 14.00   | 22.00   | 57.50  | 36.00 | 28           | 1 1/4-7UNC | SY12...† | 150             |               |

Dimension "A" is compressed, add .125" for relaxed state.

†SY6 and larger available in 110/220 VAC versions only.

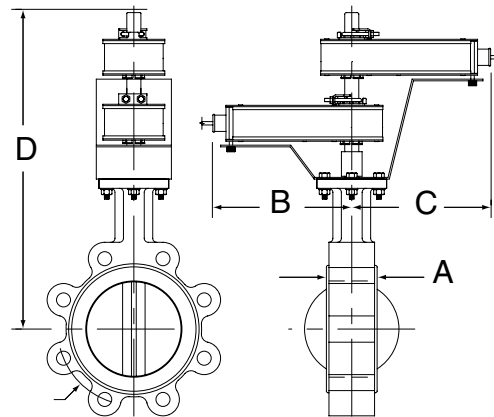
AF, AM and GM maximum actuator ambient temperature is 122°F.

SY... maximum actuator ambient temperature is 150°F.

### Application Notes

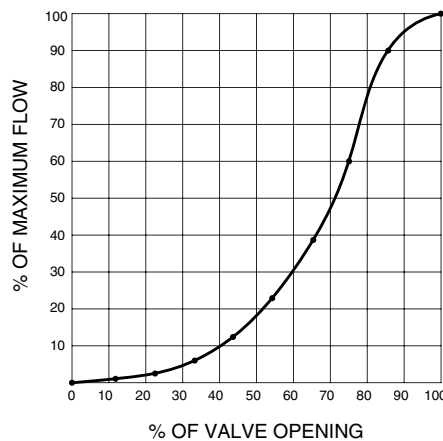
1. Valves are rated at 200 psi differential pressure in the closed position (SY... 150 psi 14"+).
2. Valves are furnished with lugs tapped for use with ANSI Class 125/150 flanges. Installation flanges and hardware are not included.
3. 2-way assemblies are furnished assembled and tested, ready for installation.
4. Dimension "D" allows for actuator removal without the need to remove the valve from the pipe.
5. Weather shields are available, dimensional data upon request.
6. Dual actuated valves have actuators mounted on a common valve shaft.
7. Belimo SY Series actuators are NEMA 4X rated.

### Dimensions



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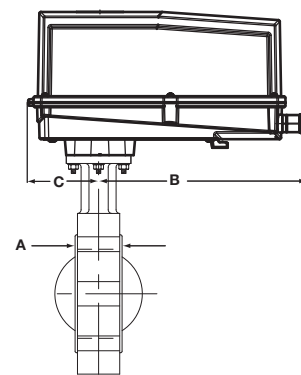
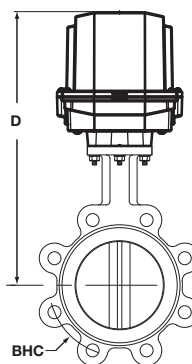
### Flow Pattern



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### Dimensions with 2-Way Valve



GF\_NEMA\_4\_LineDrawing

## Models

GRCB24-3-T N4 w/terminal block

### Technical Data

|                       |  |
|-----------------------|--|
| Control               | on/off, floating point   |
| Power supply          | 24 VAC ± 20% 50/60 Hz<br>24 VDC ± 10%  |
| Power consumption     | running 8W<br>holding 2.5W   |
| Transformer sizing    | 11 VA (class 2 power source)   |
| Electrical connection | screw terminal (for 22 to 12 AWG wire)   |
| Overload protection   | electronic throughout 0° to 90° rotation   |
| Input impedance       | 1000 Ω at control input  |
| Angle of rotation     | 90°, adjustable with mechanical stop   |
| Position indication   | visual pointer   |
| Manual override       | internal push button (UL Type 4)   |
| Running time          | 35 seconds (default)   |
| Humidity              | 5 to 100% RH (UL Type 4)   |
| Ambient temperature   | -22°F to 122°F [-30°C to 50°C]   |
| Storage temperature   | -40°F to 176°F [-40°C to 80°C]   |
| Housing type          | UL Type 4/NEMA 4/IP66  |
| Housing material      | Polycarbonate  |
| Agency listings       | cULus according to UL 60730-1A, UL 60730-2-14 and CAN/CSA E60730-1;<br>Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 |
| EMC                   | CE according to 2004/108/EC  |
| Quality standard      | ISO 9001   |

### Valve Nominal Size Dimensions (Inches [mm])

| Valve Body | Inches | DN [mm] | A           | B           | C         | D           | FLG |
|------------|--------|---------|-------------|-------------|-----------|-------------|-----|
| F650HD/HDU | 2"     | 50      | 1.65 [41.9] | 10.49 [266] | 3.62 [92] | 18.94 [481] | F05 |
| F665HD/HDU | 2.5"   | 65      | 1.76 [44.7] | 10.49 [266] | 3.62 [92] | 19.49 [495] | F05 |
| F680HD/HDU | 3"     | 80      | 1.78 [45.2] | 10.49 [266] | 3.62 [92] | 19.73 [501] | F05 |
| F6100HDU   | 4"     | 100     | 2.05 [52.1] | 10.49 [266] | 3.62 [92] | 20.47 [520] | F07 |
| F6125HDU   | 5"     | 125     | 2.14 [54.4] | 10.49 [266] | 3.62 [92] | 20.99 [533] | F07 |

# GRCB24-3-T N4 NEMA 4 Actuators, On/Off, Floating Point



## Wiring Diagrams

### INSTALLATION NOTES

- CAUTION Equipment damage!**  
Actuators may be connected in parallel.  
Power consumption and input impedance must be observed.
- Actuators may also be powered by 24 VDC.
- Actuators with plenum rated cable do not have numbers on wires; use color codes instead. Actuators with appliance cables are numbered.

### APPLICATION NOTES

Meets cULus or UL and CSA requirements without the need of an electrical ground connection. Use suitable flexible metallic conduit or its equivalent with the conduit fitting.

**WARNING Live Electrical Components!**  
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

**WARNING Mechanical Precautions**  
The mechanical end stops cannot be moved or repositioned. Doing so will adversely effect the operation of the valve.  
The directional switch cannot be moved. Maintain Factory Settings

