

# G6...C(S)(LCS) 2-way Pressure Compensated Flanged Globe Valve



## Application

This valve is typically used in Large Air Handling Units on heating or cooling coils. This valve is suitable for use in a hydronic system with variable flow.

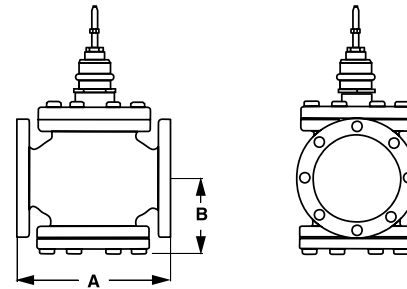
Bronze or stainless steel trim valves can be used for steam applications, depending on actuator and close-off combination.

| C <sub>v</sub> | Valve Nominal Size |           | Suitable Actuators |              |                      |
|----------------|--------------------|-----------|--------------------|--------------|----------------------|
|                | Inches             | Type      | Non-Spring         | Spring       | Electronic Fail-Safe |
| 65             | 2½                 | G665C(S)  | NV                 | AF(X) Series | GK Series            |
| 90             | 3                  | G680C(S)  |                    |              |                      |
| 170            | 4                  | G6100C(S) | GM Series          |              |                      |
| 263            | 5                  | G6125C(S) |                    |              |                      |
| 344            | 6                  | G6150C(S) |                    |              |                      |
| 65             | 2½                 | G665LCS   | NV                 |              |                      |
| 90             | 3                  | G680LCS   |                    |              |                      |
| 170            | 4                  | G6100LCS  | GM Series          | GK Series    |                      |
| 263            | 5                  | G6125LCS  |                    |              |                      |
| 344            | 6                  | G6150LCS  |                    |              |                      |

| Technical Data      |   |   |   |
|---------------------|---|---|---|
|                     | G6...C                                  | G6...CS                                 | G6...LCS                                |
| Service             | chilled or hot water, 60% glycol, steam | chilled or hot water, 60% glycol, steam | chilled or hot water, 60% glycol, steam |
| Flow characteristic | modified equal percentage               |   | linear                                  |
| Action              | stem up - open A to AB                  |   |   |
| Sizes               | 2½" to 6"                               |   |   |
| End fitting         | 125 lb. flanged                         |   |   |
| Materials           |   |   |   |
| Body                | iron                                    | iron                                    | iron                                    |
| Seat                | bronze                                  | stainless steel                         | stainless steel                         |
| Stem                | stainless steel                         | stainless steel                         | stainless steel                         |
| Plug                | bronze                                  | stainless steel                         | stainless steel                         |
| Packing             | NLP (no lip packing)                    | TFE V-ring                              | TFE V-ring                              |
| ANSI class          | ANSI 125                                |   |   |
| Leakage             | Class III                               |   |   |
| Max inlet           |   |   |   |
| Steam               | 35 psi (241kPa)                         | 50 psi (340kPa) - NV                    | 50 psi (340kPa) - NV                    |
| Steam- Rotary       |   | 100 psi (680kPa)                        | 100 psi (680kPa)                        |
| Water               | 150 psi (1034kPa) @ 250°F               | 150 psi (1034kPa) @ 250°F               | 150 psi (1034kPa) @ 250°F               |
| Media temperature   |   |   |   |
| Water               | 32°F to 300°F (0°C to 148°C)            | 32°F to 350°F (0°C to 176°C)            | 32°F to 350°F (0°C to 176°C)            |
| Steam               | 32°F to 280°F (0°C to 138°C)            | 32°F to 338°F (0°C to 170°C)            | 32°F to 338°F (0°C to 170°C)            |
| Maximum ΔP*         |   |   |   |
| Water               | 25 psi (172kPa)                         | 50 psi (340kPa)                         | 50 psi (340kPa)                         |
| Steam               | 15 psi (103kPa)                         | 50 psi (340kPa)                         | 50 psi (340kPa)                         |
| Rangeability        | G665C 85:1<br>G680C 91:1                | G6100C 98:1<br>G6125C 100:1             | G6150C 98:1                             |

\* (50% or more open)

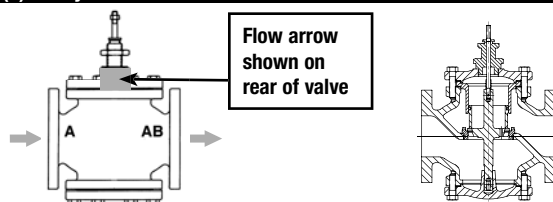
## Dimensions



D166 2/16

| Valve Body | Valve Nominal Size |         | Dimensions (Inches [mm]) |             |
|------------|--------------------|---------|--------------------------|-------------|
|            | Inches             | DN [mm] | A                        | B           |
| G665C(S)   | 2½"                | [65]    | 9" [229]                 | 4.75" [120] |
| G680C(S)   | 3"                 | [80]    | 10" [254]                | 5.37" [137] |
| G6100C(S)  | 4"                 | [100]   | 13" [330]                | 6.87" [175] |
| G6125C(S)  | 5"                 | [125]   | 15.75" [400]             | 7.87" [200] |
| G6150C(S)  | 6"                 | [150]   | 17.75" [75]              | 8.50" [216] |
| G665LCS    | 2½"                | [65]    | 9" [229]                 | 4.75" [120] |
| G680LCS    | 3"                 | [80]    | 10" [254]                | 5.37" [137] |
| G6100LCS   | 4"                 | [100]   | 13" [330]                | 6.87" [175] |
| G6125LCS   | 5"                 | [125]   | 15.75" [400]             | 7.87" [200] |
| G6150LCS   | 6"                 | [150]   | 17.75" [75]              | 8.50" [216] |

## G6...C(S) 2-way Flow Patterns



Flow Pattern is marked on valve.

Stem Up - Open A to AB

## Piping

The valves should be mounted in a weather-protected area in a location that is within the ambient limits of the actuator. Allow sufficient room for valve with actuator and for service. For the NV Series, allow 6" for cover removal and 12" for complete actuator removal. The G6/G7 preferred mounting position of the valve is with the valve stem vertical above the valve body, for maximum life. However, the assemblies can be mounted with valve stem vertical above the valve or up to 45 degrees in relation to the horizontal pipe. The actuators should never be mounted underneath the valve, as condensation can build up and result in a failure of the actuators. Do not reverse flow direction.

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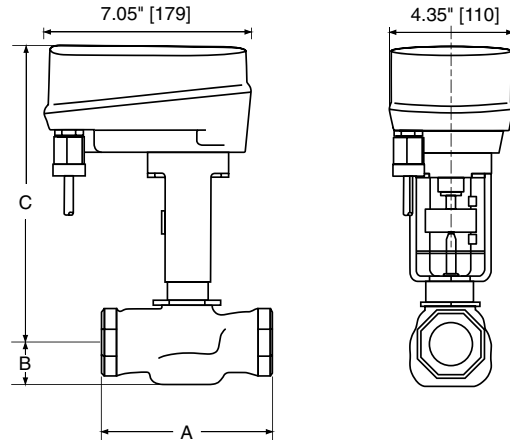
## Models

- NVD24-MFT US
- NV24-MFT US
- NVG24-MFT US

| Technical Data        |  |
|-----------------------|--|
| Power supply          | 24 VAC ± 20% 50/60 Hz, 24 VDC ± 10%  |
| Nominal Voltage Range | 19.2...28.8 VAC, 21.6...28.8 VDC   |
| Power consumption     |  |
| NVD24-MFT US          | 3 W  |
| NV24-MFT US           | 3 W  |
| NVG24-MFT US          | 4 W  |
| Transformer sizing    | 5 VA (Class 2 power source)  |
| Electrical connection | 3 ft, 18 GA plenum rated cable<br>½" conduit connector   |
| Overload protection   | electronic throughout stroke   |
| Control               | Multi-Function Technology  |
| Control Signal Y      | 2 to 10 VDC (V-10001 default), PWM available   |
| Operating range       | 2 to 10 VDC<br>4 to 20 mA (w/500 Ω, ¼ W resistor) ZG-R01   |
| Input impedance       | 100k Ω for 2 to 10 VDC (0.1 mA)<br>500 Ω for 4 to 20 mA<br>1500 Ω for PWM, On/Off and Floating Point |
| Feedback output U     | 2 to 10 VDC, 0.5 mA max  |
| Maximum stroke        | ¾" [20mm]  |
| Force                 |  |
| NVD24-3 US            | 90 lbf [400 N]   |
| NV24-3 US             | 225 lbf [1000 N]   |
| NVG24-MFT US          | 360 lbf [1600 N]   |
| Position indication   | stroke indicator on bracket  |
| Manual override       | 3/16" hex, 5mm hex or phillips screwdriver   |
| Running time          | 150 seconds, independent of load   |
| Humidity              | 5 to 95% RH non-condensing   |
| Ambient temperature   | 32°F to 122°F [0°C to 50°C]  |
| Storage temperature   | 20°F to 250°F [-7°C to 120°C]  |
| Housing               | NEMA 2/IP54 with cable entry down  |
| Housing material      | UL94-5V (flammability rating)  |
| Agency listings†      | CE, UL 60730-1, CSA C22.2 No. 139 certified  |
| EMC                   | CE acc. to 89/336/EEC  |
| Software              | Class A to UL 60730-1  |
| Mode of operation     | Type 1 to UL 60730-1   |
| Noise level           | <35 dB(A)  |
| Quality standard      | ISO 9001   |

## Dimensions with G2... Series 2-Way Valve

Assembly using UNV-001 Bracket

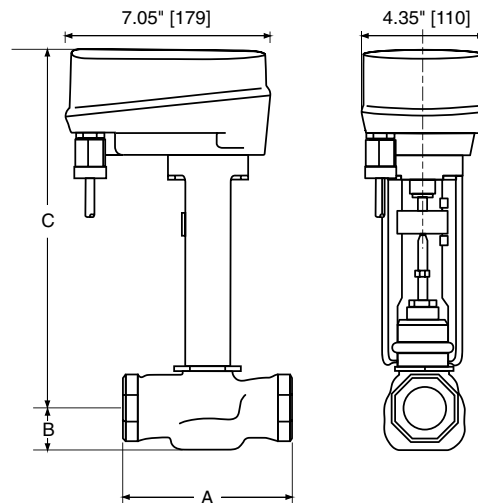


D031

| Valve Body | Valve Nominal Size |         | Dimensions (Inches [mm]) |            |              |
|------------|--------------------|---------|--------------------------|------------|--------------|
|            | Inches             | DN [mm] | A                        | B          | C            |
| G2         | 1/2"               | 15      | 3.00" [76]               | 1.06" [27] | 9.75" [248]  |
| G2         | 3/4"               | 20      | 3.62" [92]               | 1.06" [27] | 9.75" [248]  |
| G2         | 1"                 | 25      | 4.62" [117]              | 1.12" [29] | 10.43" [265] |
| G2         | 1-1/4"             | 32      | 4.62" [117]              | 1.37" [35] | 10.43" [265] |
| G2         | 1-1/2"             | 40      | 5.37" [137]              | 1.50" [38] | 10.50" [267] |
| G2         | 2"                 | 50      | 6.12" [156]              | 1.56" [40] | 10.81" [275] |

## Dimensions with G2...S Series 2-Way Valve

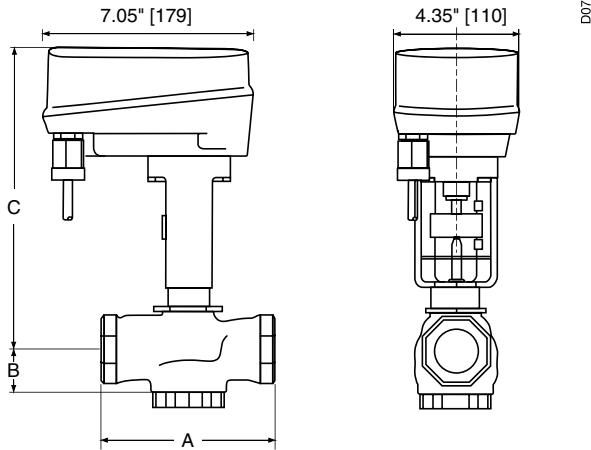
Assembly using UNV-035 Bracket (Bracket is 1.563" longer than UNV-001)



D056

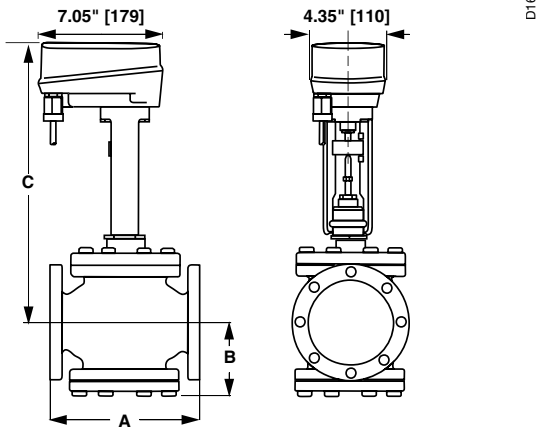
| Valve Body | Valve Nominal Size |         | Dimensions (Inches [mm]) |            |              |
|------------|--------------------|---------|--------------------------|------------|--------------|
|            | Inches             | DN [mm] | A                        | B          | C            |
| G2S        | 1/2"               | 15      | 3.00" [76]               | 1.06" [27] | 11.31" [287] |
| G2S        | 3/4"               | 20      | 3.62" [92]               | 1.06" [27] | 11.31" [287] |
| G2S        | 1"                 | 25      | 4.62" [117]              | 1.12" [29] | 12.00" [305] |
| G2S        | 1-1/4"             | 32      | 4.62" [117]              | 1.37" [35] | 12.00" [305] |
| G2S        | 1-1/2"             | 40      | 5.37" [137]              | 1.50" [38] | 12.06" [306] |
| G2S        | 2"                 | 50      | 6.12" [156]              | 1.56" [40] | 12.37" [314] |

### Dimensions with G3...(D) Series 3-Way Valve



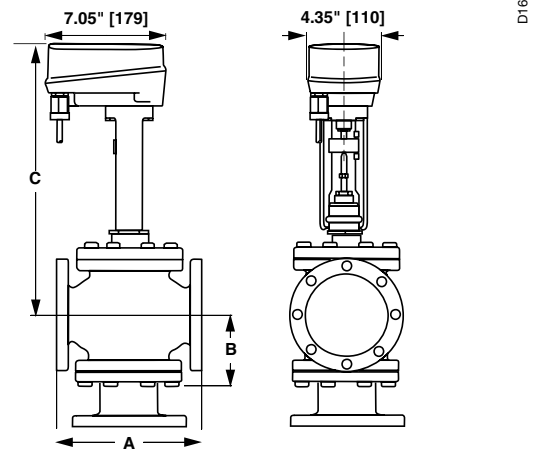
| Valve Body | Valve Nominal Size |         | Dimensions (Inches [mm]) |            |              |
|------------|--------------------|---------|--------------------------|------------|--------------|
|            | Inches             | DN [mm] | A                        | B          | C            |
| G3(D)      | 1/2"               | 15      | 3.00" [76]               | 1.37" [35] | 9.75" [248]  |
| G3(D)      | 1/2"               | 15      | 3.00" [76]               | 1.37" [35] | 9.75" [248]  |
| G3(D)      | 3/4"               | 20      | 3.62" [92]               | 1.68" [43] | 9.75" [248]  |
| G3(D)      | 1"                 | 25      | 4.62" [117]              | 1.56" [40] | 9.81" [249]  |
| G3(D)      | 1-1/4"             | 32      | 4.62" [117]              | 1.62" [41] | 10.06" [256] |
| G3(D)      | 1-1/2"             | 40      | 5.37" [137]              | 1.62" [41] | 9.18" [234]  |
| G3(D)      | 2"                 | 50      | 6.12" [156]              | 1.87" [48] | 9.25" [235]  |

### Dimensions with G6/G6C ANSI 125 and G6 ANSI 250 Series 2-Way Valve



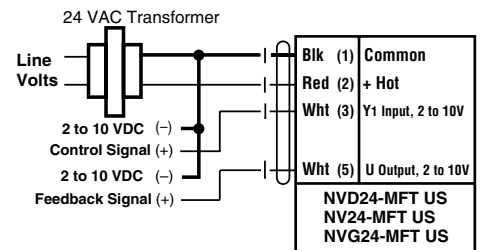
| Valve Body      | Valve Nominal Size |         | Dimensions (Inches [mm]) |             |              |
|-----------------|--------------------|---------|--------------------------|-------------|--------------|
|                 | Inches             | DN [mm] | A                        | B           | C            |
| G6/G6C ANSI 125 | 2-1/2"             | 65      | 9.00" [229]              | 4.75" [120] | 15.00" [381] |
| G6/G6C ANSI 125 | 3"                 | 80      | 10.00" [254]             | 5.37" [137] | 15.43" [392] |
| G6 ANSI 250     | 2-1/2"             | 65      | 9.62" [244]              | 4.75" [120] | 15.00" [381] |
| G6 ANSI 250     | 3"                 | 80      | 10.75" [273]             | 5.37" [137] | 15.43" [392] |

### Dimensions with G7 and G7D ANSI 125/250 Series 3-Way Valve

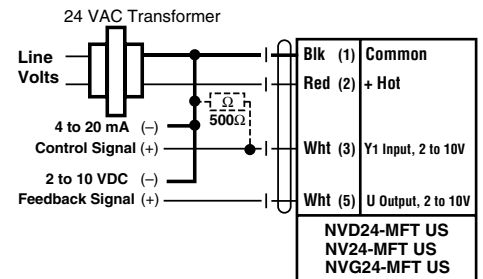


| Valve Body   | Valve Nominal Size |         | Dimensions (Inches [mm]) |              |              |
|--------------|--------------------|---------|--------------------------|--------------|--------------|
|              | Inches             | DN [mm] | A                        | B            | C            |
| G7 ANSI 125  | 2-1/2"             | 65      | 9.00" [229]              | 7.12" [181]  | 15.37" [391] |
| G7 ANSI 125  | 3"                 | 80      | 10.00" [254]             | 8.00" [203]  | 15.93" [405] |
| G7D ANSI 125 | 2-1/2"             | 65      | 9.00" [229]              | 7.12" [181]  | 15.12" [384] |
| G7D ANSI 125 | 3"                 | 80      | 10.00" [254]             | 8.00" [203]  | 15.93" [405] |
| G7D ANSI 125 | 4"                 | 100     | 13.00" [330]             | 9.87" [251]  | 16.75" [425] |
| G7 ANSI 250  | 2-1/2"             | 65      | 9.62" [244]              | 7.37" [187]  | 15.50" [394] |
| G7 ANSI 250  | 3"                 | 80      | 10.75" [273]             | 8.37" [213]  | 16.12" [410] |
| G7D ANSI 250 | 2-1/2"             | 65      | 9.62" [244]              | 7.37" [187]  | 15.25" [387] |
| G7D ANSI 250 | 3"                 | 80      | 10.75" [273]             | 8.37" [213]  | 16.06" [408] |
| G7D ANSI 250 | 4"                 | 100     | 13.62" [346]             | 10.25" [260] | 16.87" [429] |

### Wiring Diagrams



### 2 to 10 VDC Control Signal



### 4 to 20 mA Control Signal

|                                     | Non-Spring Return |     |     |        | Spring Return |     |       |     |         | Electronic Fail-Safe |
|-------------------------------------|-------------------|-----|-----|--------|---------------|-----|-------|-----|---------|----------------------|
|                                     | NV                | NVG | GM  | 2 x GM | NVF           | AF  | 2x AF | AFX | 2 x AFX | GK                   |
| <b>2-way ANSI 125</b>               |                   |     |     |        |               |     |       |     |         |                      |
| G665, G665S                         |                   | 62  | 113 | 150    |               | 36  | 59    | 51  | 82      | 113                  |
| G680, G680S                         |                   | 42  | 78  | 121    |               | 24  | 40    | 34  | 56      | 78                   |
| <b>2-way Pressure Comp</b>          |                   |     |     |        |               |     |       |     |         |                      |
| G665C, G665CS, G665LCS              | 150               |     |     |        | 150           | 150 |       | 150 |         |                      |
| G680C, G680CS, G680LCS              | 150               |     |     |        | 136           | 150 |       | 150 |         |                      |
| G6100C, G6100CS, G6100LCS           |                   |     | 150 |        |               |     | 132   |     | 150     | 150                  |
| G6125C, G6125CS, G6125LCS           |                   |     | 150 |        |               |     | 87    |     | 150     | 150                  |
| G6150C, G6150CS, G6150LCS           |                   |     | 150 |        |               |     | 50    |     | 150     | 150                  |
| <b>2-way ANSI 250</b>               |                   |     |     |        |               |     |       |     |         |                      |
| G665-250, G665S-250                 |                   | 62  | 113 | 176    |               | 36  | 59    | 51  | 82      | 113                  |
| G680-250, G680S-250                 |                   | 42  | 78  | 121    |               | 24  | 40    | 34  | 56      | 78                   |
| <b>3-way ANSI 125 Mixing</b>        |                   |     |     |        |               |     |       |     |         |                      |
| G765, G765S                         |                   | 62  | 113 | 150    |               | 36  | 59    | 51  | 82      | 114                  |
| G780, G780S                         |                   | 42  | 78  | 121    |               | 24  | 40    | 34  | 56      | 78                   |
| G7100, G7100S                       |                   |     | 19  | 31     |               |     |       |     | 13      | 19                   |
| G7125, G7125S                       |                   |     |     | 19     |               |     |       |     |         |                      |
| G7150, G7150S                       |                   |     |     | 13     |               |     |       |     |         |                      |
| <b>3-way ANSI 250 Mixing</b>        |                   |     |     |        |               |     |       |     |         |                      |
| G765-250, G765S-250                 |                   | 62  | 113 | 176    |               | 35  | 58    | 40  | 114     | 114                  |
| G780-250, G780S-250                 |                   | 42  | 78  | 121    |               | 23  | 40    | 25  | 77      | 78                   |
| G7100-250, G7100S-250               |                   |     |     | 31     |               |     |       |     | 24      | 19                   |
| G7125-250, G7125S-250               |                   |     |     | 19     |               |     |       |     |         |                      |
| G7150-250, G7150S-250               |                   |     |     | 13     |               |     |       |     |         |                      |
| <b>3-way ANSI 125/250 Diverting</b> |                   |     |     |        |               |     |       |     |         |                      |
| G765D, G765DS, G765DS-250           |                   | 100 | 100 |        |               | 100 |       | 100 |         | 100                  |
| G780D, G780DS, G780DS-250           |                   | 100 | 100 |        |               | 100 |       | 100 |         | 100                  |
| G7100D, G7100DS, G7100DS-250        |                   | 100 | 100 |        |               | 100 |       | 100 |         | 100                  |
| G7125D, G7125DS, G7125DS-250        |                   |     | 100 |        |               |     | 100   |     | 100     | 100                  |
| G7150D, G7150DS, G7150DS-250        |                   |     | 100 |        |               |     | 100   |     | 100     | 100                  |

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