



5-year warranty

Type overview

| Type | DN |
|-------------|----|
| F680-300SHP | 80 |

Technical data

| | | |
|--------------------|--------------------------------|---|
| Functional data | Valve size [mm] | 3" [80] |
| | Fluid | chilled or hot water, up to 60% glycol, steam |
| | Fluid Temp Range (water) | -22...400°F [-30...204°C] |
| | Body Pressure Rating | ANSI Class 300 |
| | Close-off pressure Δps | 285 psi |
| | Flow characteristic | modified equal percentage, unidirectional |
| | Servicing | maintenance-free |
| | Flow Pattern | 2-way |
| | Leakage rate | 0% |
| | Controllable flow range | quarter turn, mechanically limited |
| | Cv | 228 |
| | Maximum Inlet Pressure (Steam) | 50 psi |
| | Maximum Velocity | 32 FPS |
| | Lug threads | 3/4-10 UNC |
| Materials | Valve body | Carbon steel full lug (ASME B16.34) |
| | Stem | 17-4 PH stainless steel |
| | Seat | RPTFE |
| | Pipe connection | ASME/ANSI class 300 flange |
| | Bearing | glass backed PTFE |
| | Disc | 316 stainless steel |
| | Gear operator materials | Gears - hardened steel |
| Suitable actuators | Non-Spring | GMB(X) (2*GMB(X)) PRB(X) |
| | Electrical fail-safe | (2*GKB(X)) PKRB(X) |

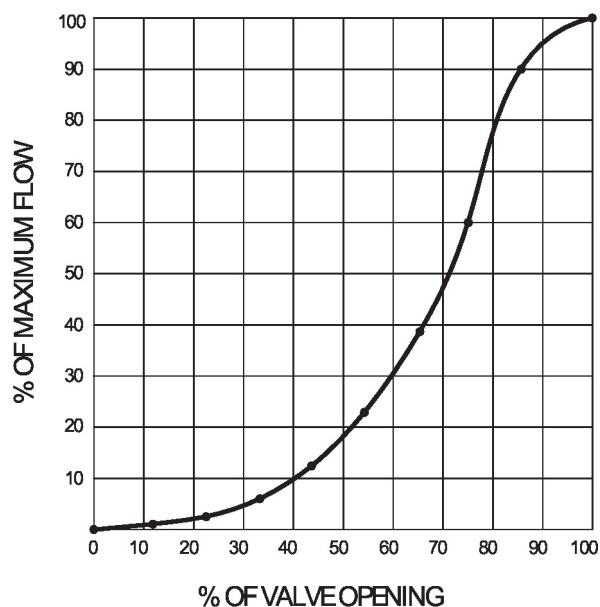
Safety notes



- WARNING: This product can expose you to lead which is known to the State of California to cause cancer and reproductive harm. For more information go to www.p65warnings.ca.gov

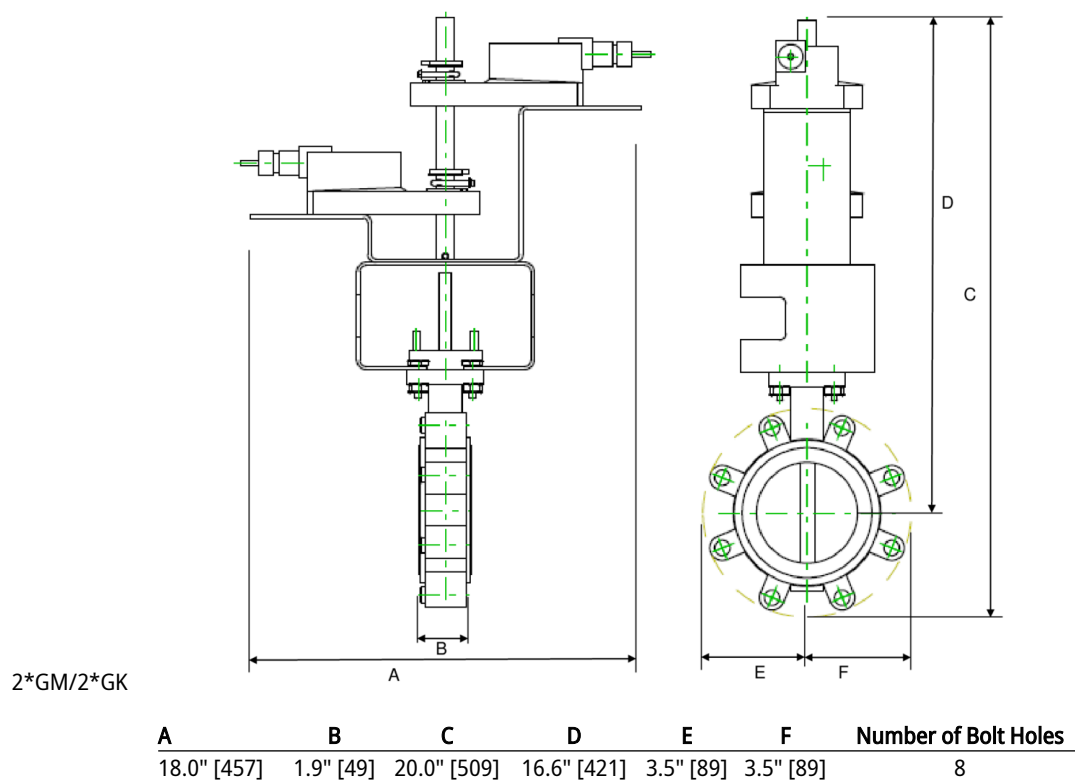
Product features

Flow/Mounting details

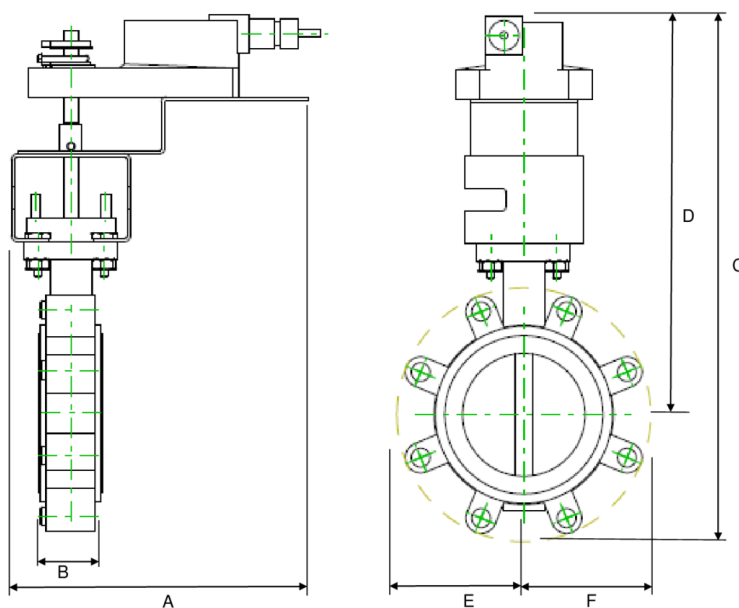


Dimensions

| Type | DN | Weight |
|-------------|----|----------------|
| F680-300SHP | 80 | 16 lb [7.4 kg] |

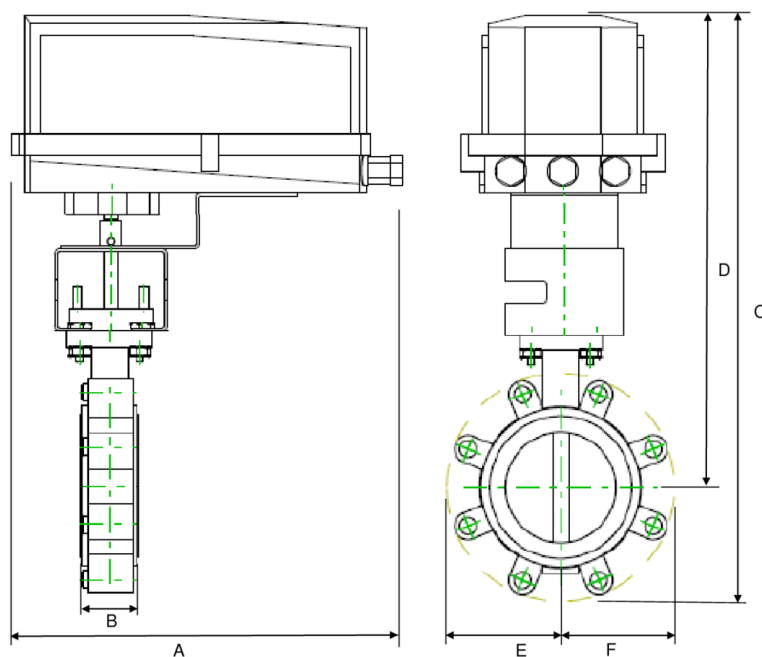


GM/GK

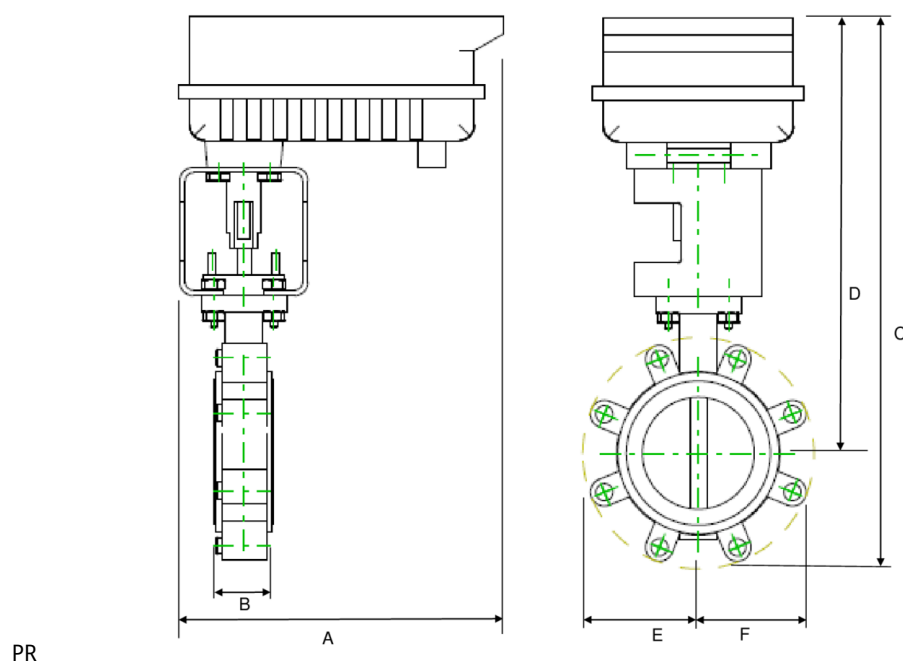


| A | B | C | D | E | F | Number of Bolt Holes |
|-------------|-----------|-------------|-------------|------------|------------|----------------------|
| 15.3" [388] | 1.9" [49] | 16.1" [409] | 12.2" [310] | 3.9" [100] | 3.9" [100] | 8 |

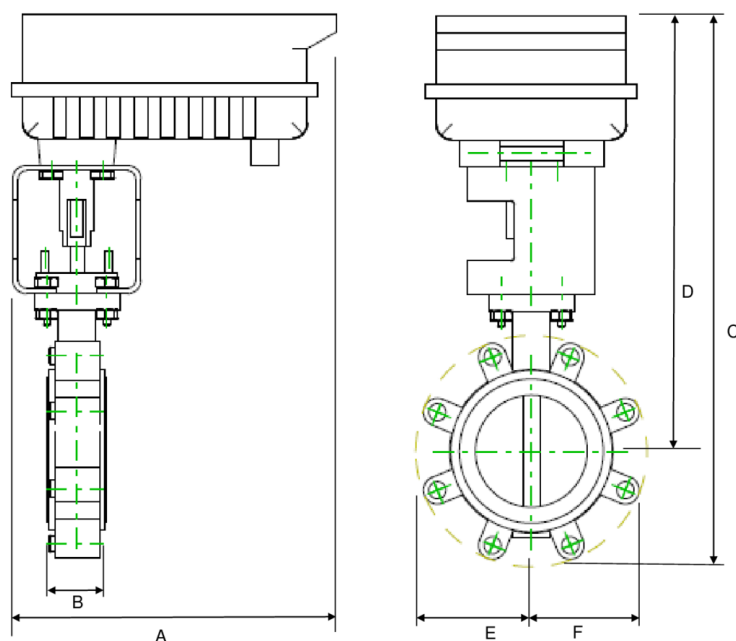
GK/GM N4



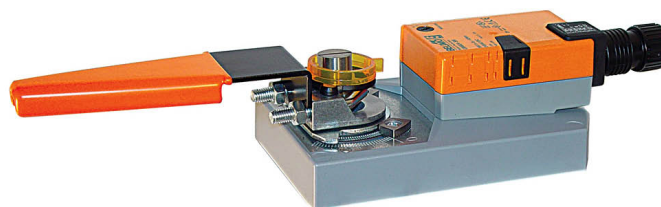
| A | B | C | D | E | F | Number of Bolt Holes |
|-------------|-----------|-------------|-------------|------------|------------|----------------------|
| 10.9" [277] | 1.9" [49] | 17.9" [454] | 13.2" [336] | 4.9" [124] | 4.9" [125] | 8 |



| A | B | C | D | E | F | Number of Bolt Holes |
|------------|-----------|-------------|-------------|------------|------------|----------------------|
| 9.1" [231] | 1.9" [49] | 13.9" [354] | 10.0" [254] | 3.9" [100] | 3.9" [100] | 8 |



| A | B | C | D | E | F | Number of Bolt Holes |
|-------------|-----------|-------------|-------------|------------|------------|----------------------|
| 14.1" [358] | 1.9" [49] | 19.8" [502] | 14.5" [368] | 5.2" [133] | 5.2" [133] | 8 |
| A | B | C | D | E | F | Number of Bolt Holes |
| 12.0" [304] | 1.9" [49] | 22.4" [570] | 17.5" [445] | 4.9" [124] | 4.9" [125] | 8 |



5-year warranty



Technical data

| | | |
|-----------------|------------------------------------|--|
| Electrical data | Nominal voltage | AC/DC 24 V |
| | Nominal voltage frequency | 50/60 Hz |
| | Nominal voltage range | AC 19.2...28.8 V / DC 21.6...28.8 V |
| | Power consumption in operation | 4.5 W |
| | Power consumption in rest position | 1.5 W |
| | Transformer sizing | 7 VA |
| | Electrical Connection | 18 GA plenum cable, 1 m, with 1/2" NPT conduit connector (3 m and 5 m available) |
| | Overload Protection | electronic throughout 0...95° rotation |
| Functional data | Torque motor | 40 Nm |
| | Operating range Y | 2...10 V |
| | Operating range Y note | 4...20 mA w/ ZG-R01 (500 Ω, 1/4 W resistor) |
| | Input impedance | 100 kΩ for 2...10 V (0.1 mA), 500 Ω for 4...20 mA, 1500 Ω for PWM, On/Off and Floating point |
| | Operating range Y variable | Start point 0.5...30 V End point 2.5...32 V |
| | Operating modes optional | variable (VDC, on/off, floating point) |
| | Position feedback U | 2...10 V |
| | Position feedback U note | Max. 0.5 mA |
| | Position feedback U variable | VDC variable |
| | Direction of motion motor | selectable with switch 0/1 |
| | Manual override | external push button |
| | Angle of rotation | Max. 95° |
| | Angle of rotation note | adjustable with mechanical stop |
| | Running Time (Motor) | 150 s / 90° |
| | Running time motor variable | 90...150 s |
| | Noise level, motor | 45 dB(A) |
| | Position indication | Mechanical, 30...65 mm stroke |
| Safety data | Power source UL | Class 2 Supply |
| | Degree of protection IEC/EN | IP54 |
| | Degree of protection NEMA/UL | NEMA 2 |
| | Enclosure | UL Enclosure Type 2 |
| | Agency Listing | cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02 CE acc. to 2014/30/EU and 2014/35/EU |
| | Quality Standard | ISO 9001 |
| | UL 2043 Compliant | Suitable for use in air plenums per Section 300.22(C) of the NEC and Section 602 of the IMC |
| | Ambient humidity | Max. 95% RH, non-condensing |
| | Ambient temperature | -22...122°F [-30...50°C] |
| | Storage temperature | -40...176°F [-40...80°C] |
| | | |

| | | |
|--------------------|---|--------------------------------------|
| Safety data | Servicing | maintenance-free |
| Weight | Weight | 3.4 lb [1.5 kg] |
| Materials | Housing material | Galvanized steel and plastic housing |
| Footnotes | †Rated Impulse Voltage 800V, Type action 1, Control Pollution Degree 3. | |

Accessories

| Electrical accessories | Description | Type |
|------------------------|---|----------|
| | Battery backup system, for non-spring return models | NSV24 US |
| | Battery, 12 V, 1.2 Ah (two required) | NSV-BAT |
| | Service tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices | ZTH US |

Electrical installation

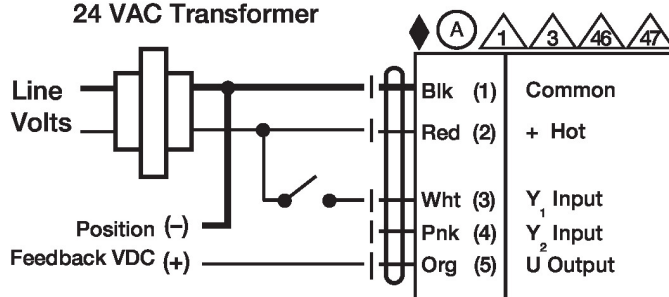
✂ INSTALLATION NOTES

- Ⓐ Actuators with appliance cables are numbered.
- 1 Provide overload protection and disconnect as required.
- 3 Actuators may also be powered by DC 24 V.
- 5 Only connect common to negative (-) leg of control circuits.
- 7 A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.
- 8 Control signal may be pulsed from either the Hot (Source) or Common (Sink) 24 V line.
- 10 For triac sink the Common connection from the actuator must be connected to the Hot connection of the controller. Position feedback cannot be used with a triac sink controller; the actuator internal common reference is not compatible.
- 12 IN4004 or IN4007 diode. (IN4007 supplied, Belimo part number 40155).
- 46 Actuators may be controlled in parallel. Current draw and input impedance must be observed.
- 47 Master-Slave wiring required for piggy-back applications. Feedback from Master to control input(s) of Slave(s).
- ◆ Meets cULus requirements without the need of an electrical ground connection.
- ⚠ **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.

Wiring diagrams

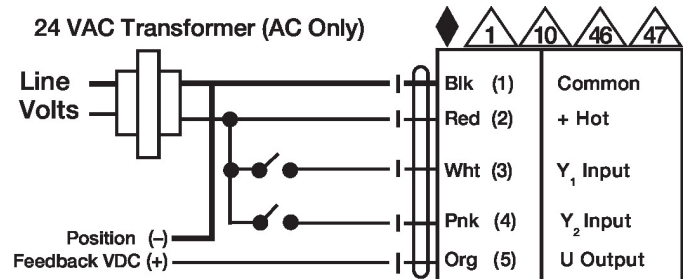
On/Off

24 VAC Transformer

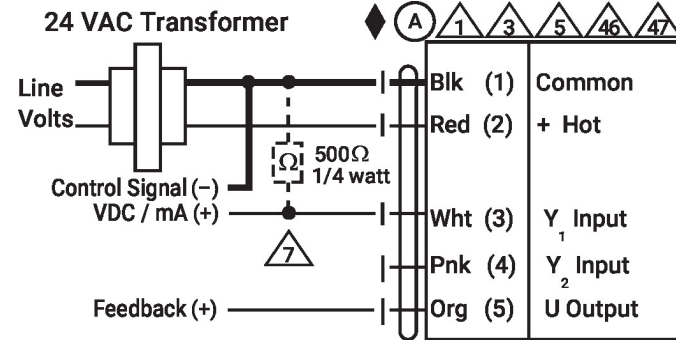


Floating Point

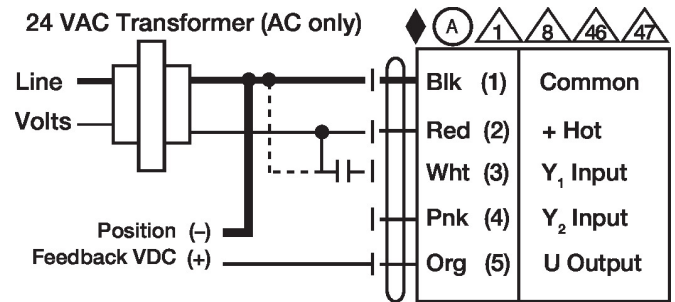
24 VAC Transformer (AC Only)



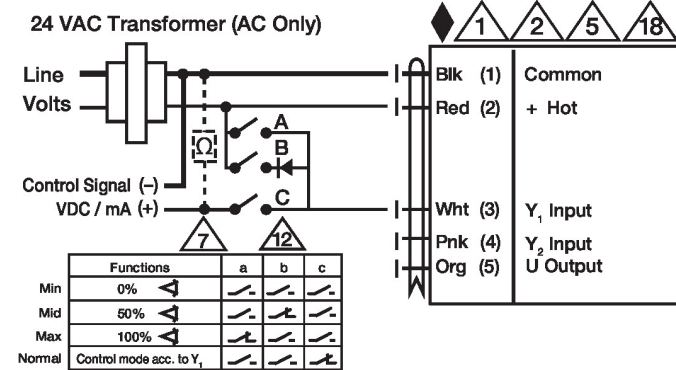
VDC/mA Control



PWM Control



Override Control



Primary - Secondary

