

**Butterfly Valve with Lug types**

- Disc 304 stainless steel
- Bubble tight shut-off
- Resilient seat
- Valve face-to-face dimensions comply with API 609 & MSS-SP-67
- Completely assembled and tested, ready for installation



5-year warranty

**Type overview**

| Type   | DN |
|--------|----|
| F680HD | 80 |

**Technical data**

|                           |                          |   |
|---------------------------|--------------------------|---|
| <b>Functional data</b>    | Valve size [mm]          | 3" [80]                                     |
|                           | Fluid                    | chilled or hot water, up to 60% glycol      |
|                           | Fluid Temp Range (water) | -22...250°F [-30...120°C]                   |
|                           | Body Pressure Rating     | ANSI Class Consistent with 125, 232 psi CWP |
|                           | Close-off pressure Δps   | 200 psi                                     |
|                           | Flow characteristic      | modified equal percentage                   |
|                           | Leakage rate             | 0% leakage, leakage rate A                  |
|                           | Servicing                | maintenance-free                            |
|                           | Flow Pattern             | 2-way                                       |
|                           | Controllable flow range  | 90° rotation                                |
|                           | Cv                       | 302   |
|                           | Maximum Velocity         | 12 FPS                                      |
|                           | Lug threads              | 5/8-11 UNC                                  |
| <b>Materials</b>          | Valve body               | Ductile cast iron ASTM A536                 |
|                           | Body finish              | epoxy powder coating (blue RAL 5002)        |
|                           | Stem                     | 416 stainless steel                         |
|                           | Stem seal                | EPDM (lubricated)                           |
|                           | Seat                     | EPDM  |
|                           | Pipe connection          | for use with ANSI class 125/150 flanges     |
|                           | Bearing                  | RPTFE                                       |
|                           | Disc                     | 304 stainless steel                         |
| Gear operator materials   | Gears - hardened steel   |   |
| <b>Suitable actuators</b> | Non-Spring               | GRB(X)                                      |
|                           | Spring                   | (2*AFB(X))                                  |
|                           | Electrical fail-safe     | GKRB(X)                                     |

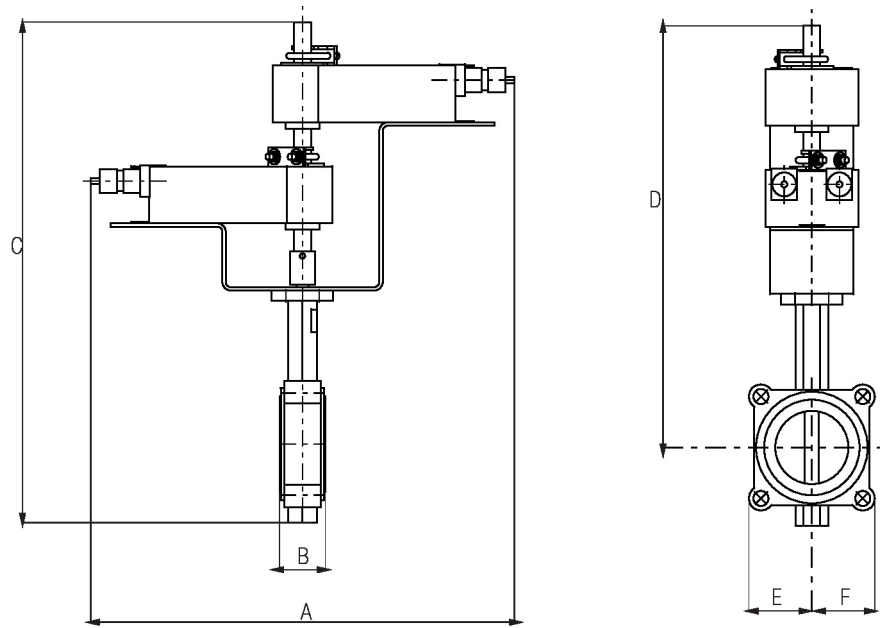
Product features

Flow/Mounting details



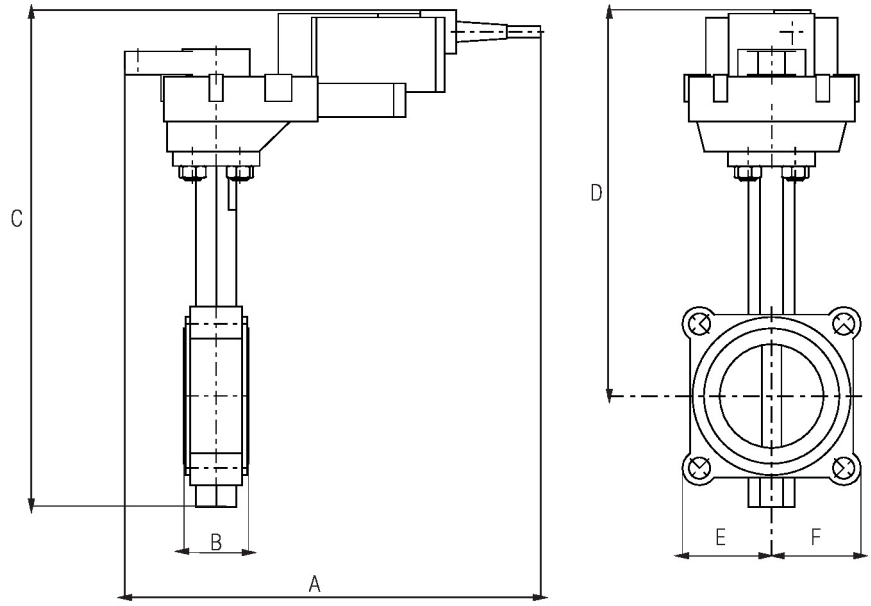
Dimensions

| Type   | DN | Weight          |
|--------|----|-----------------|
| F680HD | 80 | 6.9 lb [3.1 kg] |



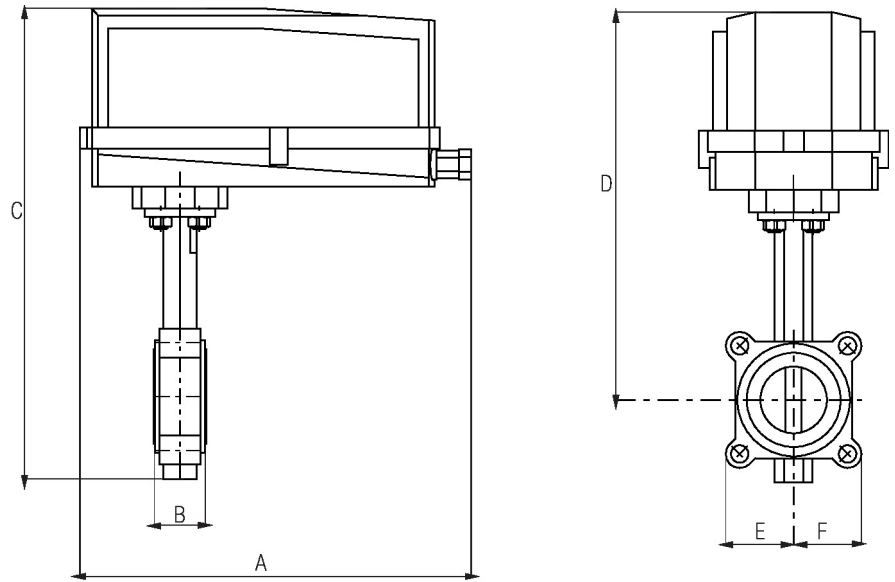
Valve with 2\*AF Actuator

| A           | B         | C           | D           | E         | F         | Number of Bolt Holes |
|-------------|-----------|-------------|-------------|-----------|-----------|----------------------|
| 17.6" [448] | 1.9" [49] | 21.4" [544] | 18.0" [457] | 3.5" [89] | 3.5" [89] | 4                    |



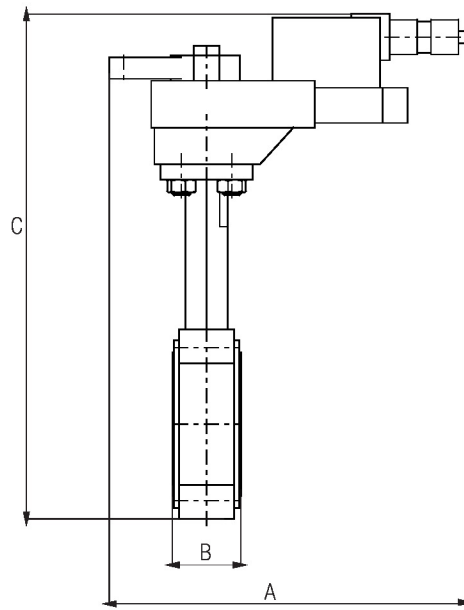
Valve with GK Actuator

| A           | B         | C           | D           | E         | F         | Number of Bolt Holes |
|-------------|-----------|-------------|-------------|-----------|-----------|----------------------|
| 10.9" [277] | 1.9" [49] | 16.5" [419] | 13.1" [334] | 3.5" [89] | 3.5" [89] | 4                    |

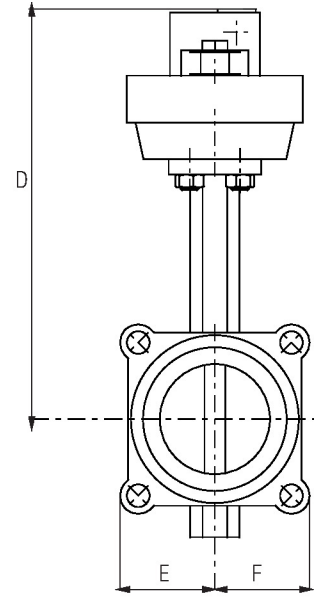


Valve with GR/GK..N4 Actuator

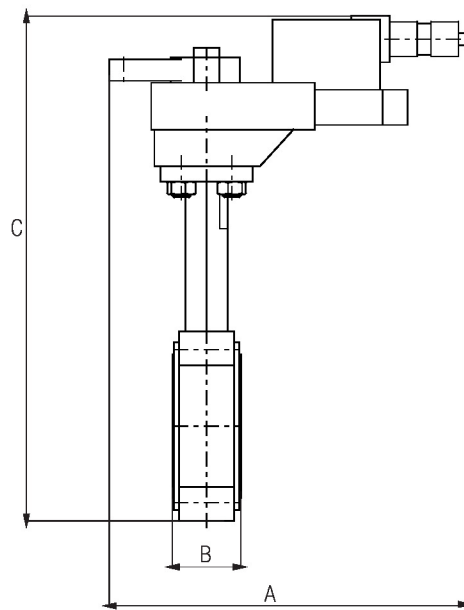
| A           | B         | C           | D           | E         | F         | Number of Bolt Holes |
|-------------|-----------|-------------|-------------|-----------|-----------|----------------------|
| 14.1" [358] | 1.9" [49] | 17.8" [451] | 14.3" [363] | 3.7" [95] | 3.7" [95] | 4                    |



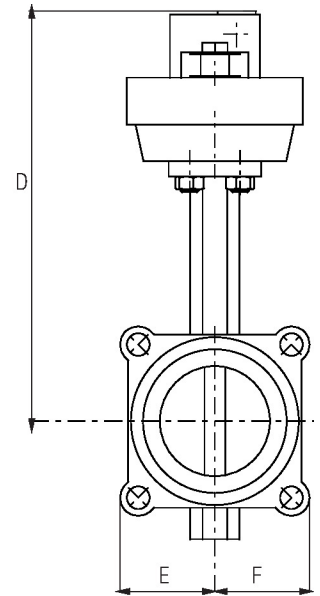
Valve with GR Actuator



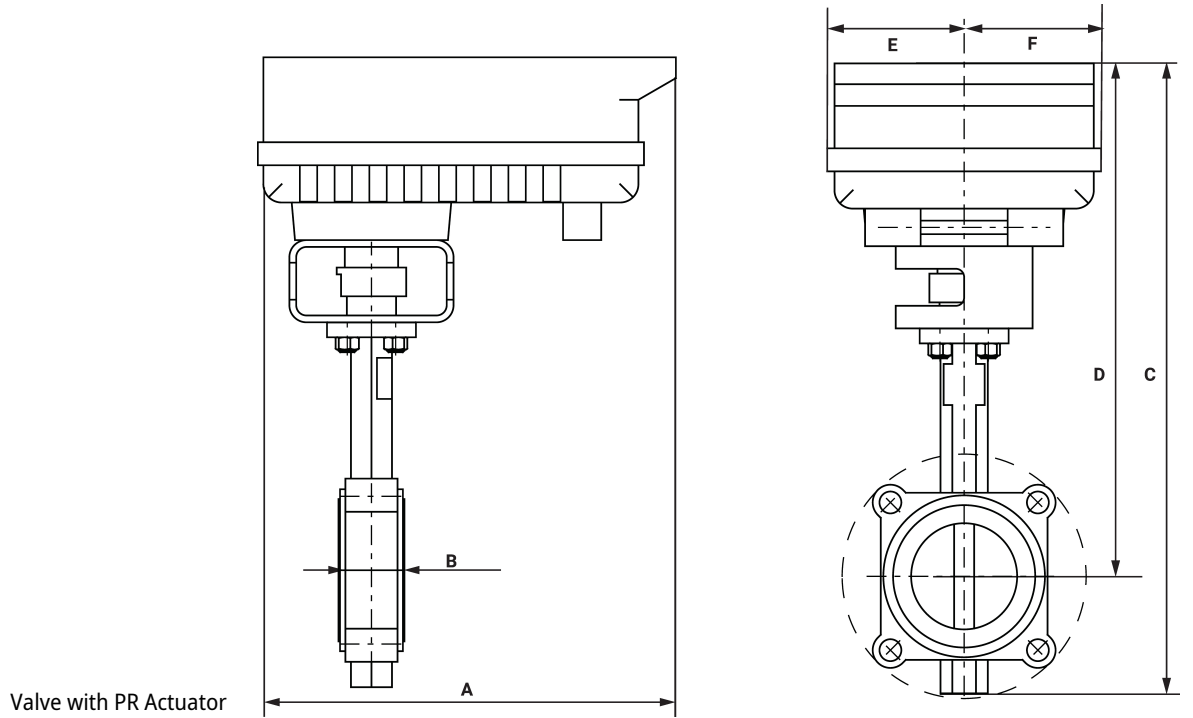
| A           | B         | C           | D           | E         | F         | Number of Bolt Holes |
|-------------|-----------|-------------|-------------|-----------|-----------|----------------------|
| 10.8" [275] | 1.9" [49] | 14.3" [362] | 11.0" [279] | 3.5" [89] | 3.5" [89] | 4                    |



Valve with GM Actuator

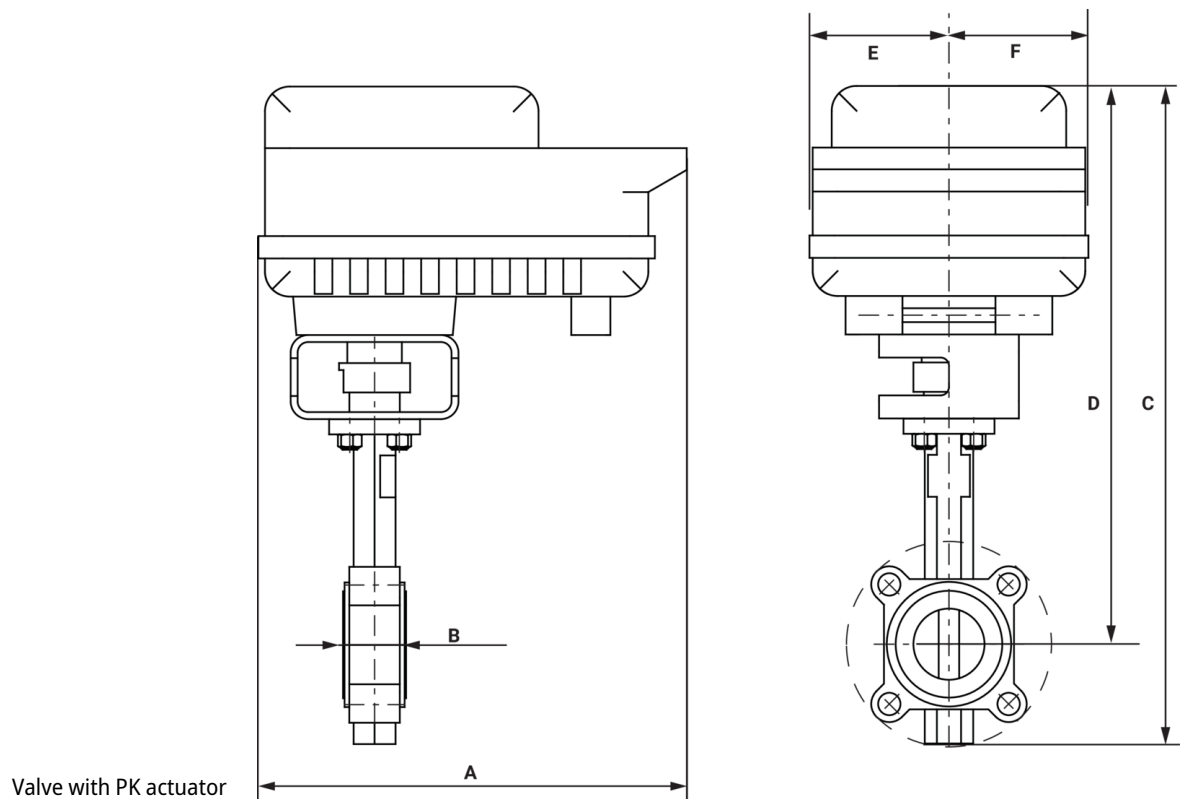


| A          | B         | C           | D           | E         | F         | Number of Bolt Holes |
|------------|-----------|-------------|-------------|-----------|-----------|----------------------|
| 9.1" [231] | 1.9" [49] | 16.5" [419] | 13.1" [334] | 3.5" [89] | 3.5" [89] | 4                    |



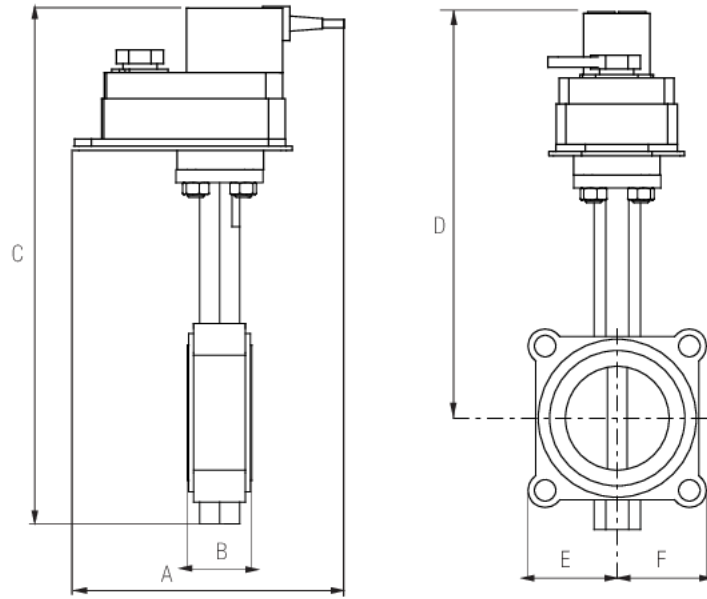
Valve with PR Actuator

| A           | B         | C           | D           | E          | F          | Number of Bolt Holes |
|-------------|-----------|-------------|-------------|------------|------------|----------------------|
| 12.0" [304] | 1.9" [49] | 18.2" [463] | 14.7" [374] | 3.9" [100] | 3.9" [100] | 4                    |



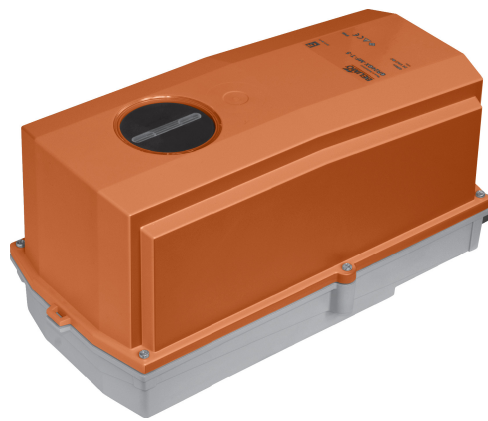
Valve with PK actuator

| A           | B         | C           | D           | E          | F          | Number of Bolt Holes |
|-------------|-----------|-------------|-------------|------------|------------|----------------------|
| 12.0" [304] | 1.9" [49] | 19.8" [502] | 16.5" [419] | 3.9" [100] | 3.9" [100] | 4                    |



Valve with DR actuator

| A           | B         | C           | D           | E         | F         | Number of Bolt Holes |
|-------------|-----------|-------------|-------------|-----------|-----------|----------------------|
| 11.3" [286] | 1.9" [49] | 15.6" [397] | 12.4" [315] | 3.5" [89] | 3.5" [89] | 4                    |



5-year warranty



## Technical data

|                        |                                    |   |
|------------------------|------------------------------------|---|
| <b>Electrical data</b> | 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     | 12 W  |
|                        | Power consumption in rest position | 3 W   |
|                        | Transformer sizing                 | 21 VA   |
|                        | Electrical Connection              | Terminal blocks                                 |
|                        | Overload Protection                | electronic throughout 0...90° rotation          |
| <b>Functional data</b> | Torque motor                       | 90 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 (0.1 mA), 500 Ω, 1000 Ω (on/off)         |
|                        | Operating range Y variable         | Start point 0.5...30 V<br>End point 2.5...32 V  |
|                        | Operating modes optional           | variable (VDC, PWM, 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                      |
|                        | Direction of motion fail-safe      | reversible with switch                          |
|                        | Manual override                    | under cover                                     |
|                        | Running Time (Motor)               | 150 s / 90°                                     |
|                        | Running time motor variable        | 95...150 s                                      |
|                        | Running time fail-safe             | <35 s   |
|                        | Noise level, motor                 | 45 dB(A)  |
| Noise level, fail-safe | 60 dB(A)                           |   |
| Position indication    | Mechanically, 5...20 mm stroke     |   |
| <b>Safety data</b>     | Power source UL                    | Class 2 Supply                                  |
|                        | Degree of protection IEC/EN        | IP66/67   |
|                        | Degree of protection NEMA/UL       | NEMA 4X   |
|                        | Enclosure                          | UL Enclosure Type 4X                            |
|                        | Quality Standard                   | ISO 9001  |
|                        | Ambient humidity                   | Max. 100% RH                                    |
|                        | Ambient temperature                | -22...122°F [-30...50°C]                        |
|                        | Ambient temperature note           | -40...50°C for actuator with integrated heating |
|                        | Storage temperature                | -40...176°F [-40...80°C]                        |
|                        | Servicing                          | maintenance-free                                |
| <b>Weight</b>          | Weight                             | 7.6 lb [3.5 kg]                                 |

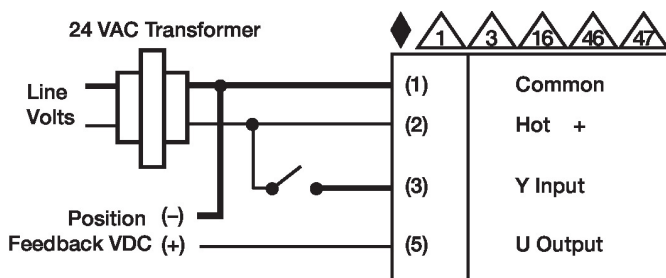
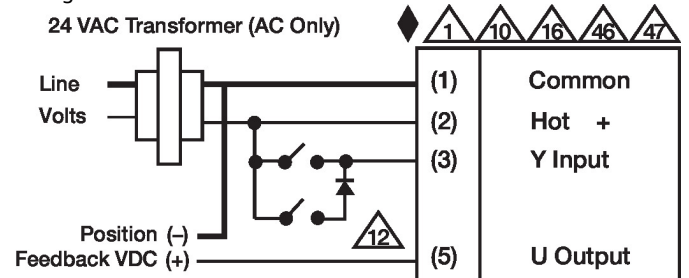
**Materials** Housing material Die cast aluminium and plastic casing

**Accessories**

|                                   | Description   | Type                      |
|-----------------------------------|---|---------------------------|
| <b>Gateways</b>                   | Gateway MP to BACnet MS/TP  | UK24BAC                   |
|                                   | Gateway MP to Modbus RTU  | UK24MOD                   |
|                                   | Gateway MP to LonWorks  | UK24LON                   |
| <b>Electrical accessories</b>     | <b>Description</b>  | <b>Type</b>               |
|                                   | Service Tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices | ZTH US                    |
| <b>Tools</b>                      | <b>Description</b>  | <b>Type</b>               |
|                                   | Connection cable 10 ft [3 m], A: RJ11 6/4 ZTH EU, B: 3-pin Weidmüller and supply connection   | ZK4-GEN                   |
|                                   | Service Tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices | ZTH US                    |
| <b>Factory add-on option only</b> | <b>Description</b>  | <b>Type</b>               |
|                                   | Heater, with adjustable thermostat  | N4 Heater Add-on 24V (-H) |

**Electrical installation**
**INSTALLATION NOTES**

- Provide overload protection and disconnect as required.
- Actuators may also be powered by DC 24 V.
- Only connect common to negative (-) leg of control circuits.
- A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.
- 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.
- IN4004 or IN4007 diode. (IN4007 supplied, Belimo part number 40155).
- Actuators are provided with a numbered screw terminal strip instead of a cable.
- 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**

**Floating Point**




VDC/mA Control

