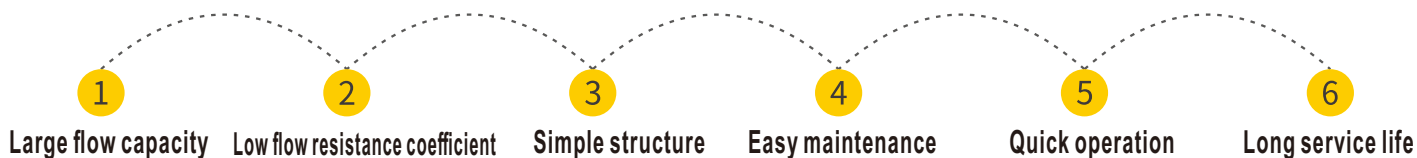


Product Advantages

The G-type fixed ball valve features an innovative design with a fixed ball structure and a full bore ball core. It includes an elastic structure seat and is available in both soft and hard sealing structures. The entire valve is fire-safe and anti-static, meeting API 607 standards, and has SIL safety certification. The complete valve offers the following advantages:



Applicable Industries

2.2

Depending on the working conditions, it can be equipped with pneumatic or electric actuators. It is widely used in petroleum, chemical, power, light textile, pharmaceutical, and paper-making industries. It is particularly suitable for the automatic shut-off control of various medium to high-pressure liquids, gases, slurries, and steam.

Valve Body Section

| | | | | | |
|------------------|---------------------------------|----------------------|---------------------|------------------------|------------------------|
| Type | Ball Valve | Flow Characteristics | Quick Open | Nominal Diameter | DN50~300 (2"~12") |
| Body Type | Fixed Ball | Leakage | V, VI, Zero Leakage | Connection Method | Flange, Welding |
| Nominal Pressure | PN16~PN160, Class 150~Class 900 | | | Applicable Temperature | -29~+320°C, -29~+560°C |

Main Materials

Valve Body

WCB, WC6, WC9, LCB,
CF8, CF8M, CF3, CF3M

Valve Ball

304, 316, 304L, 316L
Above + Hard Chrome Plating
Above + Hard Alloy Hardening Treatment

Packing

PTFE, Graphite

Sealing Ring

PTFE, R.PTFE, PPL, PEEK
304, 316, 304L, 316L
Above + Hard Alloy Hardening Treatment

Valve Stem

2Cr13, 3Cr13, 17-4PH, 660, XM-19
304, 316, 304L, 316L

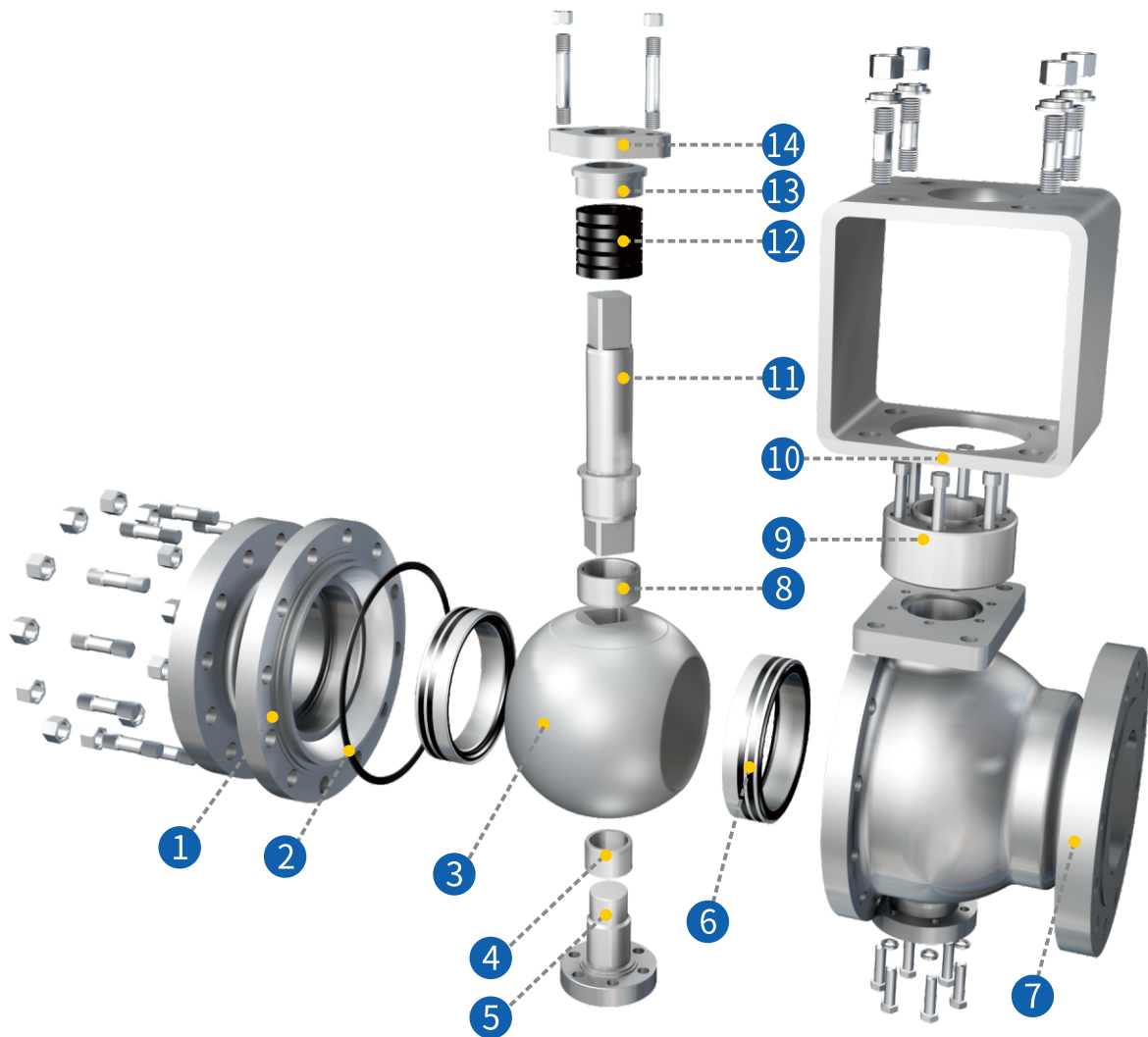
Valve Ball

Copper, Alloy, 304, Composite Material, Hard Alloy

Note: Other materials can be provided upon special request. The specific material models will be subject to the purchase order contract.

G Series Fixed Ball Valve

Product Structure



2.2

| | | | | | | | |
|---|----------------------|---|-----------------|----|-------------|----|-----------------------|
| 1 | Sub Valve Body | 5 | Fixed Shaft | 9 | Packing Box | 13 | Packing Pressing Nail |
| 2 | Middle Flange Gasket | 6 | Seat Assembly | 10 | Yoke | 14 | Packing Plate |
| 3 | Ball | 7 | Main Valve Body | 11 | Stem | | |
| 4 | Lower Guide Sleeve | 8 | Up Guide Sleeve | 12 | Packing | | |

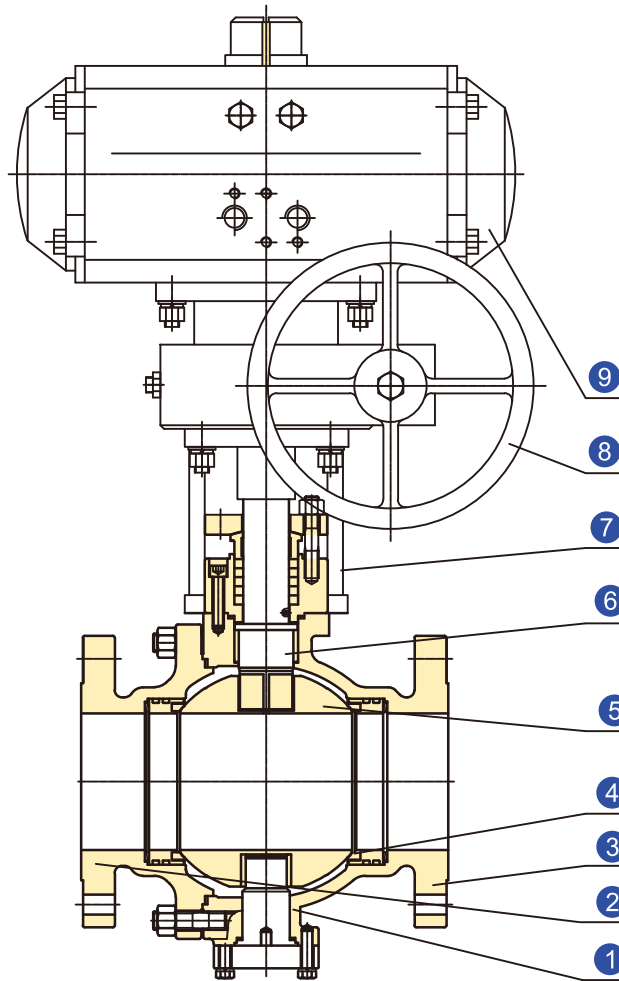


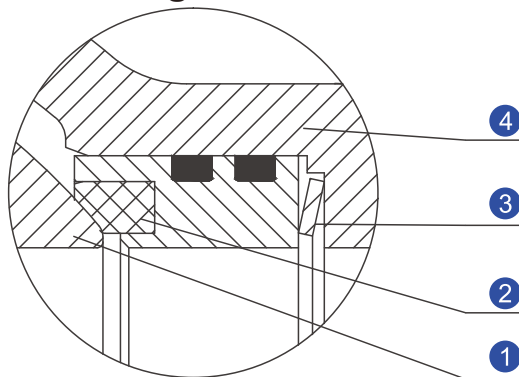
Fig. 1 G Series Fixed Ball Valve (Pneumatic)

- | | | |
|----------------|-------------|-----------------------------|
| ① Fixed Shaft | ② Sub Body | ③ Main Body |
| ④ Sealing Ring | ⑤ Ball | ⑥ Stem |
| ⑦ Yoke | ⑧ Handwheel | ⑨ Pneumatic Piston Actuator |

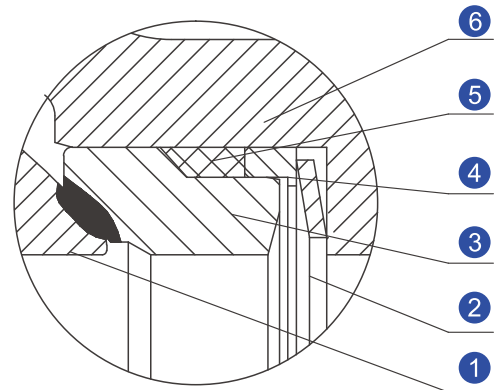
Features

- The valve body adopts a flange connection, featuring a compact structure, small size, and good pressure resistance
- The ball core requires only a 90° rotation around the axis to achieve fully open or fully closed positions, ensuring simple and quick operation.
- The ball core is a full bore fixed ball structure, with an equal diameter straight-through flow path that is almost the same as the inner diameter of the pipeline, resulting in low flow resistance and a simple structure.
- The sealing ring uses a butterfly spring preloading structure, providing excellent sealing performance and automatic compensation function, which extends the valve's service life.
- Soft-seal sealing ring materials include PTFE, R.PTFE, and PPL, with PPL suitable for medium temperature applications below 320°C.
- The hard-sealed ball core and sealing ring are treated with hard alloy hardening, making them suitable for applications ranging from -196°C to 560°C.
- After surface hardening treatment, the ball core is ground and polished, making it smooth and wear-resistant. The hard-sealed ball core and sealing ring are paired and ground using a 360° dead-zone-free grinding process, achieving zero leakage in gas tests.
- The valve stem is designed with an anti-blowout feature, offering better safety and rigidity.
- The entire valve is designed according to API 607 fire safety standards and has obtained the corresponding certification.
- An anti-static structure can be adopted according to user requirements.

Seat Sealing



① Ball ② Sealing Ring ③ Disc Spring
④ Valve Body
Soft Seal



① Ball ② Disc Spring ③ Sealing Ring
④ Compression Ring ⑤ Sealing Ring ⑥ Valve Body
Hard Seal

Fig. 2 Seat Sealing Type

Pneumatic Actuated

Double Acting

When there is a gas supply failure, the valve remains in the fail position. It has no return spring, provides high thrust, and is the preferred choice for cylinder type actuators.

Air to Close (FO)

When there is a gas supply failure, the actuator spring will open the valve.

Single Acting

When there is a gas supply failure, the actuator spring will return the valve to its original extreme position (fully open or fully closed). There are air-to-open and air-to-close types.

Air to Open (FC)

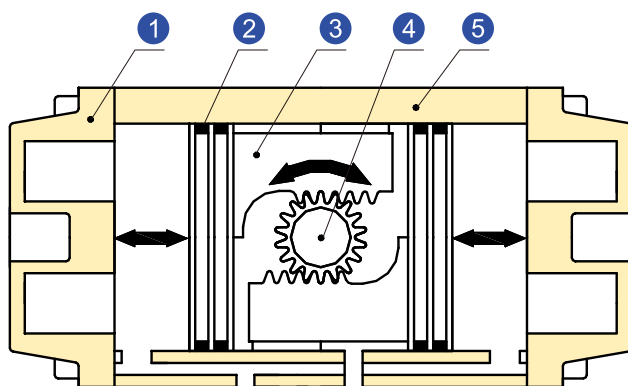
When there is a gas supply failure, the actuator spring will close the valve.

Electric Actuated

Close When Energized (FO)

Piston Actuator

Double Acting

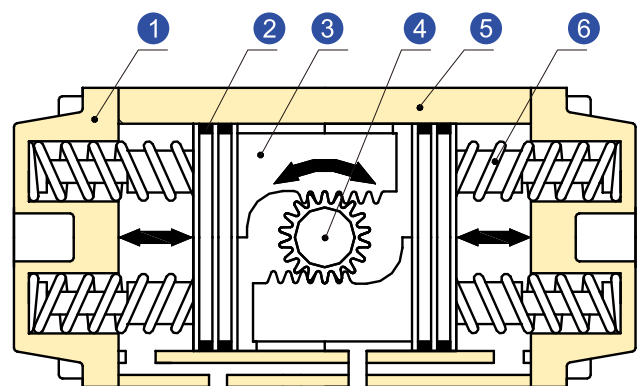


Air Supply A Air Supply B

① Cylinder Head ② Sealing Ring ③ Piston ④ Output Shaft ⑤ Cylinder Body ⑥ Spring

Open When Energized (FC)

Single Acting



Air Supply

Fig. 3 Piston Pneumatic Actuator

The pneumatic piston actuator adopts a double-piston rack-and-pinion structure, featuring a compact design, large output force, precise operation, and strong interchangeability between single-acting and double-acting functions.

Specifications

Table. 1

| | | | | | | | | | | |
|-----------------------------|---------------|--|-----|-----|-----|------|------|------|------|------|
| Nominal Diameter/ mm | | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300 |
| Flow Capacity Kv | | 270 | 380 | 510 | 940 | 1400 | 2200 | 3500 | 4800 | 8500 |
| Nominal Pressure | | PN16~PN160, Class 150~Class 900 | | | | | | | | |
| Flow Characteristic | | Quick Open | | | | | | | | |
| Rated Stroke/ ° | | 90 | | | | | | | | |
| Torque | Single Acting | Seen in Fig. 2 Valve Torque Diagram | | | | | | | | |
| | Double Acting | | | | | | | | | |
| | Electrical | | | | | | | | | |
| Supply pressure/ MPa | | 0.4-0.6 | | | | | | | | |
| Power supply | | 220V.AC or 380V.AC | | | | | | | | |
| Input Signal | | On/off electric signal or pneumatic signal | | | | | | | | |

Note: The data in the table represents our company's standard configuration and can be customized according to user requirements.

Stroke Time

Table. 2

Unit: sec

| Model | RT160 | RT255 | RT435 | RT665 | RT1000 | RT1200 | RT1800 | RT2700 | RT3800 | |
|--------------------------------|--------------|-------|-------|-------|--------|--------|--------|--------|--------|-----|
| Cylinder Diameter/ mm | 105 | 125 | 140 | 160 | 190 | 210 | 240 | 270 | 300 | |
| Double Acting | 0.9 | 1.1 | 1.5 | 1.8 | 2.5 | 3.1 | 3.8 | 5.1 | 6.6 | |
| Single Acting | Open | 1.1 | 1.8 | 2.2 | 2.6 | 4.0 | 4.5 | 6.2 | 7.7 | 8.8 |
| | Close | 0.9 | 1.2 | 1.8 | 2.2 | 2.6 | 4.0 | 4.5 | 6.2 | 7.7 |
| Cylinder Volume/ L/time | 1.83 | 3.0 | 4.7 | 6.9 | 11.3 | 14.9 | 20.0 | 31.0 | 53.3 | |

Note: 1, Test conditions: Solenoid valve with a bore diameter of 4mm, air supply of 0.5MPa clean air, no load.

2, If one or more parameters differ in field use, the action time will change.

3, For electric actuator stroke speed, please refer to the relevant electric actuator manual.

G Series Fixed Ball Valve



Various Materials, Temperature Range and Leakage

Table. 3

| | | | |
|-----------------------------|-------------------------------|---------------------|------------------------------|
| Nominal Diameter/ mm | | 50~300(2"~12") | |
| Body Material | | WCB、LCB、WC6、WC9 | ZG1Cr18Ni9、CF8、CF8M、CF3、CF3M |
| Temperature Rang | | | |
| Valve Body | | -29 ~ +425 °C | -196~ +560 °C |
| Sealing Material | PTFE | -29 ~ +160 °C | |
| | R.PTFE | -29 ~ +200 °C | |
| | PPL | -29 ~ +320 °C | |
| | PEEK | -29 ~ +260 °C | |
| | Stainless Steel+STL, Ni60, WC | -196 ~ +560 °C | |
| Packing | PTFE | -40 ~ +200 °C | |
| | Graphite | -196 ~ +560 °C | |
| Gasket | PTFE | -60 ~ +200 °C | |
| | Stainless Steel+Graphite | -196 ~ +560 °C | |
| Leakage | | | |
| Sealing Ring | PTFE | Zero Leakage | |
| | R.PTFE | Zero Leakage | |
| | PPL | VI, Zero Leakage | |
| | PEEK | V, VI, Zero Leakage | |
| | Hard Seal | V, VI | |

Note: 1, For the number of bubbles, see ASME B16.104. 2, The data in the table represents our company's standard configuration and can be customized according to user requirements.

Special Requirements

Special Inspections,
Complete degreasing and dehydration treatment,
Copper-free treatment,
Special interfaces and piping,

Use under vacuum conditions,
Special media (e.g., oxygen),
Use of stainless steel fittings,
Specified coating color.

Valve Torque

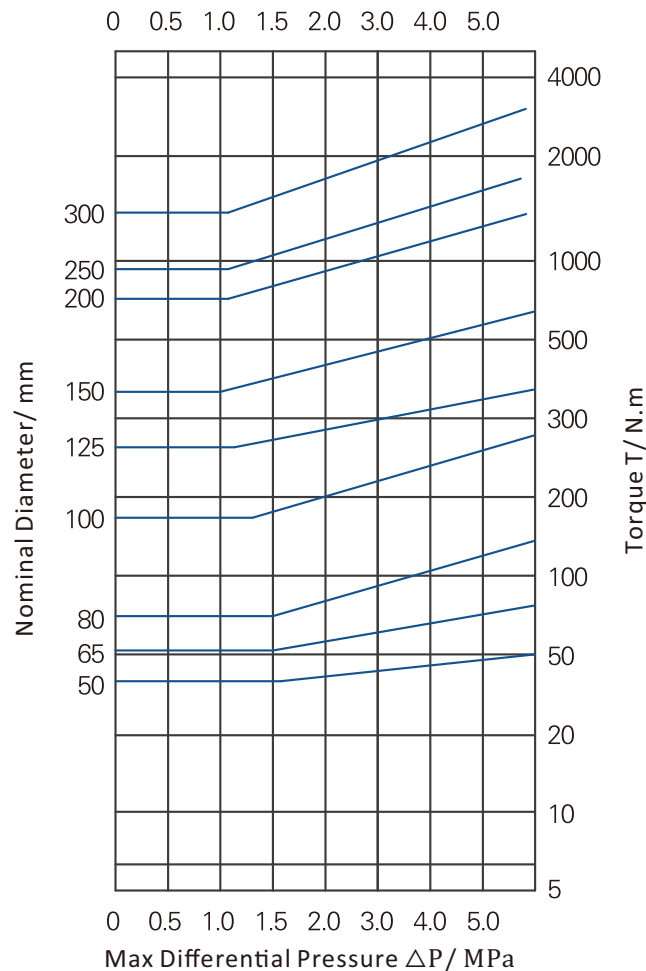


Fig. 2 Valve Torque Diagram (PTFE Sealing Ring)

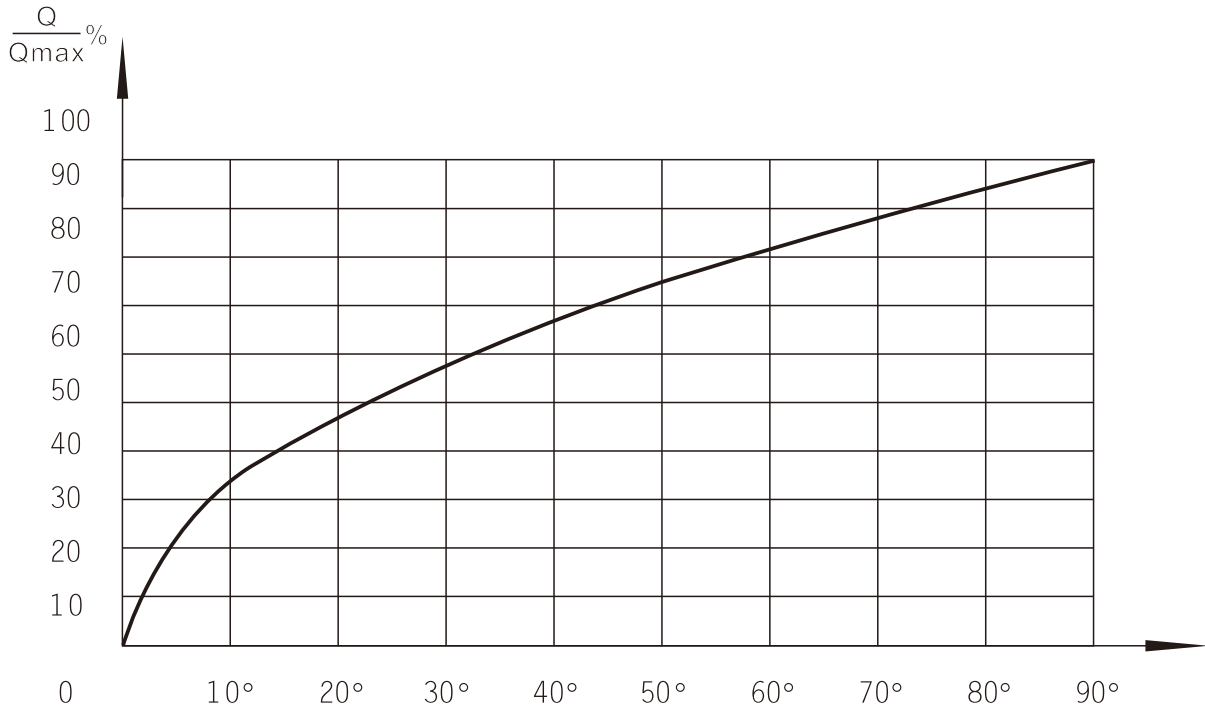
The torque in the above diagram is for reference when selecting actuators. Adjustments need to be made based on the characteristics of the medium, internal materials, and valve operating frequency. The data in the table is based on water as the medium:

- For clean lubricating mediums, torque can be reduced by 20%.
- For harsh mediums, such as slurry or semi-particles, torque needs to be increased by 15-30%.
- For special mediums, such as oxygen, torque needs to be increased by 20-35%.
- When using high-temperature resistant materials (PPL) for the sealing ring, torque increases by 20-40% compared to using PTFE sealing rings.
- Values are limited by nominal pressure and the pressure-temperature chart.
- For hard-seal torque configuration, please inquire.

G Series Fixed Ball Valve



Flow Characteristic Curve



2.2

Stroke and Relating Flow Rate

Table. 4

| Stroke/° | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|------------------------|---|------|------|------|------|------|------|------|------|-----|
| Q/Q _{max} (%) | 0 | 33.3 | 47.2 | 57.7 | 66.6 | 74.5 | 81.6 | 88.2 | 94.2 | 100 |

Connection and Standard

Connection Method: Flange Type

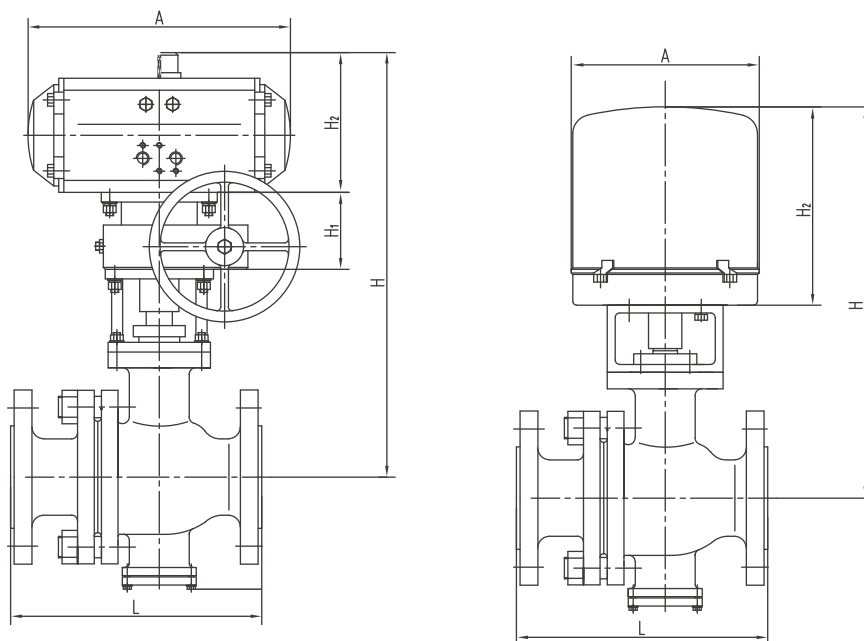
Flange Standard: PN16, 25, 40, 64, 100, 160 steel flanges according to GB/T9113 or other flange standard

Sealing Surface Type: PN16, 25: Raised Face (RF), PN40, 64, 100, 160: Male-Female Face, valve body is female

Face to face dimension: GB/T 12221 or ASME B16.10

*Connection method, valve body flange, and flange end face distance can be manufactured according to user-specified standards, such as HG, ANSI, DIN, JIS, etc.

Dimension and Weight



2.2

Table. 5 Dimension and Weight

Unit: mm

| Nominal Diameter | | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300 | |
|------------------|------|---------------|-----|-----|-----|-----|-----|-----|------|------|------|
| L | PN16 | 203 | 222 | 241 | 305 | 356 | 394 | 457 | 533 | 610 | |
| | PN40 | 216 | 241 | 282 | 305 | 381 | 403 | 502 | 568 | 648 | |
| A | PN16 | Single Acting | 388 | 460 | 527 | 541 | 600 | 720 | 870 | 930 | 1610 |
| | | Double Acting | 301 | 338 | 460 | 527 | 541 | 600 | 700 | 870 | 1140 |
| | | Electrical | 255 | 330 | 330 | 330 | 470 | 470 | 470 | 470 | 470 |
| | PN40 | Single Acting | 460 | 527 | 527 | 541 | 720 | 770 | 930 | 2515 | 2515 |
| | | Double Acting | 388 | 460 | 460 | 527 | 600 | 720 | 770 | 1870 | 1870 |
| | | Electrical | 330 | 330 | 330 | 330 | 470 | 470 | 470 | 470 | 470 |
| H | PN16 | Single Acting | 556 | 590 | 728 | 818 | 874 | 943 | 1118 | 1019 | 856 |
| | | Double Acting | 538 | 565 | 655 | 793 | 838 | 904 | 993 | 963 | 856 |
| | | Electrical | 471 | 520 | 585 | 650 | 595 | 625 | 675 | 715 | 740 |
| | PN40 | Single Acting | 581 | 633 | 698 | 818 | 913 | 967 | 1129 | 887 | 912 |
| | | Double Acting | 556 | 590 | 655 | 793 | 874 | 943 | 1017 | 887 | 912 |
| | | Electrical | 511 | 520 | 585 | 650 | 595 | 925 | 675 | 715 | 740 |
| H ₁ | PN16 | Single Acting | 118 | 118 | 148 | 148 | 150 | 150 | 195 | - | - |
| | | Double Acting | 117 | 118 | 118 | 148 | 148 | 150 | 150 | - | - |
| | PN40 | Single Acting | 118 | 118 | 118 | 148 | 150 | 150 | 150 | - | - |
| | | Double Acting | 118 | 118 | 118 | 148 | 150 | 150 | 150 | - | - |
| H ₂ | PN16 | Single Acting | 192 | 217 | 260 | 285 | 319 | 358 | 438 | 494 | 306 |
| | | Double Acting | 175 | 192 | 217 | 260 | 285 | 319 | 358 | 438 | 306 |
| | | Electrical | 225 | 265 | 265 | 265 | 190 | 190 | 190 | 190 | 190 |
| | PN40 | Single Acting | 217 | 260 | 260 | 285 | 358 | 382 | 494 | 362 | 362 |
| | | Double Acting | 192 | 217 | 217 | 260 | 319 | 358 | 382 | 362 | 362 |
| | | Electrical | 265 | 265 | 265 | 265 | 190 | 190 | 190 | 190 | 190 |

Note: Piston actuator are based on RT, and electric actuators are based on 341. The above dimensions are based on PN16. For PN40, please inquire.