# Side-mounted eccentric semi-ball valve

## Product usage

PQ47 eccentric semi-ball valve uses eccentric valve body, eccentric ball and valve seat. When the valve rod is rotating, the valve will be closed more and more tightly in the process of automatic centering on common track, realizing good sealing completely. The valve ball is completely separated from the valve seat, which eliminates the abrasion of the sealing ring and solves the problem of abrasion between traditional ball valve seat and ball sealing surface. Non-metallic elastic material is embedded in the metal seat, so that the valve seat metal face can be protected well. This product is especially suitable for the iron and steel industry, aluminum industry, fiber, small solid particles, paper pulp, coal ash, petroleum gas and other media.

## Product characteristics

1.Its structure adopts the eccentric wedge-caulking principle to achieve the purpose of tightening, regulating and closing through the drive mechanism. The sealing pair adopts metal face band hard-contact sealing. For the double eccentric structure, when it is open, the valve element is located in the ball chamber, so that the flow area is large and the valve will not be flushed; when it is closed, the valve element will not be flushed. When the valve is opened, the valve element moves forward gradually along the valve seat, which can effectively remove scaling obstacles and realize reliable sealing. It is especially effective for the transportation of mixed flow precipitated by two-phase mixed flow easy-scaling solid.

2.The semi-ball of the valve is made of bimetal, and different kinds of alloys are surfaced on the base metal. The valve seat is also treated specially by surfacing, and the sealing surfaces having the functions of anti-corrosion, wear-resistance and high strength are formed, to meet the demands in different occasions.

3.Tight sealing and zero leakage can be realized when delivering harmful gas.

4.The valve element of the sealing pair has compensation, so when the valve seat is worn, the valve can be reliably sealed after the valve seat is slightly rotated when it is closed, which can prolong the service life. In addition, users can remove the compression nut, adjust or replace the valve seat, after that, the valve seat can still be used, which avoids the scrapping of the whole valve in the event of the seal failure of the valve.

Due to the surfacing of different alloys (or combination balls), the selection of bimetal sealing pair can be used for wear-resistance, corrosion-resistance, high-temperature-resistance conditions requiring strict sealing conditions:

**1.General valve:** Model and specification: DN40-1600. Be suitable for occasions with strict requirements, such as sewage treatment, paper pulp and urban heating.

**2.Special valve for oil chemical engineering:** Specification: DN40-1600. Be suitable for crude oil, heavy oil and other kinds of oils, weak corrosion in chemical industry, two-phase mixed flow medium.

**3.Special valve for gas:** Specification: DN40-1600. Be suitable for the transmission control of gas, natural gas and liquefied gas

**4.Special valve for slurry:** Specification: DN40-1600. Be suitable for industrial pipeline transportation with separation by crystallization or scaling due to chemical reaction in liquid or solid two-phase mixed flow or liquid transportation.

**5.Special valve for pulverized coal and ash:** Specification: DN40-1600. Be suitable for the control of power plant, hydraulic slag removal or gas transmission pipeline.

## Executive standard

Design standard: GB/T26146

Flange connection: GB/T17241.6,GB/T9115 (Steel)

Structure length: GB/T9113

## Materials of main parts

| | |
|---|---|
| Valve body | QT450、WCB、ZG20CrMo、ZG1Cr18Ni9Ti |
| Valve shaft | 2Cr13、1Cr13 |
| Valve clack | Alloy nitriding steel, nitriding stainless steel, wear-resistant steel |
| Valve seat | Alloy nitriding steel, nitriding stainless steel, wear-resistant steel |
| Bearing | Aluminum bronze, FZ-1 composite |
| Padding | Polytetrafluoroethylene, flexible graphite |

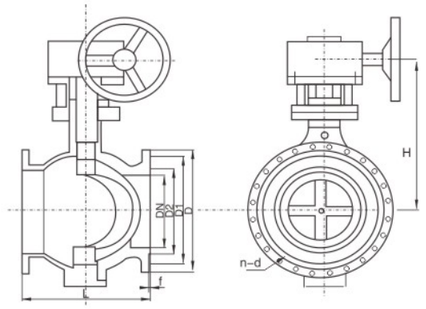
## Main performance parameters

| | | | | | |
|---|---|---|---|---|---|
| Nominal pressure (Mpa) | 0.6 | 1.0 | 1.6 | 2.5 | 4.0 |
| Inside nominal diameter (mm) | 40-1600 | 40-1600 | 40-1200 | 40-600 | 40-600 |
| Sealing test pressure (Mpa) | 0.66 | 1.1 | 1.76 | 2.75 | 4.4 |
| Shell test pressure (Mpa) | 0.9 | 1.5 | 2.4 | 3.75 | 6.0 |
| Applicable temperature (°C) | -29～300、-29～425、-29～540 | | | | |
| Applicable medium | Clean water, sea water, sewage, acid and alkali and other liquid, slurry, steam, gas, oils | | | | |
| Drive mode | Manual, electric, pneumatic | | | | |
| Connection form | Flange connection, clamp connection | | | | |
| Installation method | Vertical installation, horizontal installation | | | | |



Side-mounted eccentric semi-ball valve

Lvdu Valve




## PQ47/347/947H/Y-10 C (WCB/304/316)

| Nominal pressure PN/Mpa | Inside nominal diameter DN/mm | Size (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | L | D | K | d | f | C | n-d | H |
| 1.0 | 40 | 165 | 150 | 110 | 85 | 3 | 16 | 4-Φ18 | 280 |
| | 50 | 178 | 165 | 125 | 100 | | | | |
| | 65 | 190 | 185 | 145 | 120 | | 18 | | |
| | 80 | 203 | 200 | 160 | 135 | | 20 | 8-Φ18 | 320 |
| | 100 | 229 | 220 | 180 | 155 | | | | 370 |
| | 125 | 254 | 250 | 210 | 185 | | 22 | | 430 |
| | 150 | 267 | 285 | 240 | 210 | | 24 | 8-Φ23 | 510 |
| | 200 | 292 | 340 | 295 | 265 | | 26 | 12-Φ23 | 600 |
| | 250 | 330 | 405 | 355 | 320 | | 30 | 12-Φ26 | 690 |
| | 300 | 502 | 460 | 410 | 375 | | | | 760 |
| | 350 | 572 | 520 | 470 | 435 | 4 | 34 | 16-Φ26 | 830 |
| | 400 | 610 | 580 | 525 | 485 | | 36 | 16-Φ30 | 925 |
| | 450 | 660 | 640 | 585 | 545 | | 40 | 20-Φ30 | 1025 |
| | 500 | 700 | 715 | 650 | 608 | | 44 | 20-Φ34 | 1120 |
| | 600 | 813 | 840 | 770 | 718 | 5 | 48 | 20-Φ36 | 1210 |

## PQ47/347/947H/Y-16 C (WCB/304/316)

| Nominal pressure PN/Mpa | Inside nominal diameter DN/mm | Size (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | L | D | K | d | f | C | n-d | H |
| 1.6 | 40 | 165 | 150 | 110 | 85 | 3 | 16 | 4-Φ18 | 280 |
| | 50 | 178 | 165 | 125 | 100 | | | | |
| | 65 | 190 | 185 | 145 | 120 | | 18 | | |
| | 80 | 203 | 200 | 160 | 135 | | 20 | 8-Φ18 | 320 |
| | 100 | 229 | 220 | 180 | 155 | | | | 370 |
| | 125 | 254 | 250 | 210 | 185 | | 22 | | 430 |
| | 150 | 267 | 285 | 240 | 210 | | 24 | 8-Φ23 | 510 |
| | 200 | 292 | 340 | 295 | 265 | | 26 | 12-Φ23 | 600 |
| | 250 | 330 | 405 | 355 | 320 | | 30 | 12-Φ26 | 690 |
| | 300 | 502 | 460 | 410 | 375 | | | | 760 |
| | 350 | 572 | 520 | 470 | 435 | 4 | 34 | 16-Φ26 | 830 |
| | 400 | 610 | 580 | 525 | 485 | | 36 | 16-Φ30 | 925 |
| | 450 | 660 | 640 | 585 | 545 | | 40 | 20-Φ30 | 1025 |
| | 500 | 700 | 715 | 650 | 608 | | 44 | 20-Φ34 | 1120 |
| | 600 | 813 | 840 | 770 | 718 | 5 | 48 | 20-Φ36 | 1210 |

# Top-mounted eccentric semi-ball valve

## Structural characteristics and purpose

1.Low pressure loss: When it is fully opened, the water loss is zero, the channel is completely unblocked, and the medium will not deposit in the cavity of the valve body.

2.Resistance to particle wear: The spherical crown with a V-shaped opening has shearing action with the metal valve seat. During the closing process, the spherical crown only leans against the valve seat at the last moment, without generating friction. The valve seat is made of wear-resistant nickel alloy, which is not easy to be flushed and worn. Therefore, it is suitable for situations containing fiber, fine solid particles, slurry, etc..

3.Suitable for high flow velocity medium: Straight-through channels, robust eccentric crankshaft makes it suitable for high flow velocity and no vibration.

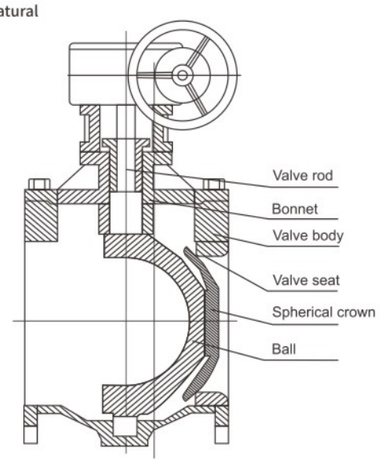
4.Long service life: There are no vulnerable parts. Due to the eccentric effect, there is no friction between sealing surfaces when the valve is opened and closed. Therefore, the service life is long.

5.Easy maintenance: There is no need to remove the valve from the pipeline during maintenance. It can be maintained by opening the bonnet only.

6.It is widely used for water, sewage, micro-solid particles, water, steam, gas, natural gas, oil products.

## Executive standard

1.Design and manufacturing: GB/T26146
2.Inspection and test: GB/T13927
3.Flange connection: GB/T9113GB/T17241-6
4.Structure length: GB/T12221

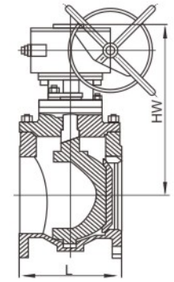

## Materials of main parts

| | | | |
|---|---|---|---|
| Valve body | Gray cast iron | Nodular cast iron | Cast steel |
| Valve rod | Gray cast iron | Nodular cast iron | Cast steel |
| Valve rod | 2Cr13 | 2Crl3 | 2Crl3 |
| Valve seat | Stainless steel | Stainless steel | Stainless steel |
| Semi-ball | Nodular cast iron covered with rubber and stainless steel | Stainless steel | Cast steel covered with rubber and stainless steel |
| Semi-ball | Gray cast iron | Nodular cast iron | Cast steel |

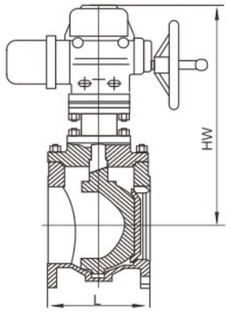


Top-mounted eccentric semi-ball valve

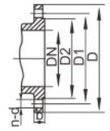
Lvdu Valve


Worm drive




Electric




## Main boundary and connection dimensions

Unit: mm

| DN | L | D | D1 | D2 | b | n-d | Hw | Hd |
|---|---|---|---|---|---|---|---|---|
| PN10 | | | | | | | | |
| 100 | 229 | 215 | 180 | 155 | 22 | 8-Φ18 | 330 | 380 |
| 125 | 254 | 245 | 210 | 185 | 24 | 8-Φ18 | 345 | 405 |
| 150 | 267 | 280 | 240 | 210 | 24 | 8-Φ23 | 370 | 440 |
| 200 | 292 | 335 | 295 | 265 | 24 | 8-2Φ3 | 405 | 470 |
| 250 | 330 | 390 | 350 | 320 | 26 | 12-Φ23 | 480 | 540 |
| 300 | 356 | 440 | 400 | 368 | 28 | 12-Φ23 | 520 | 580 |
| 350 | 430 | 500 | 460 | 428 | 28 | 16-Φ23 | 570 | 630 |
| 400 | 530 | 565 | 515 | 482 | 30 | 16-Φ25 | 630 | 710 |
| 450 | 580 | 615 | 565 | 532 | 30 | 20-Φ25 | 690 | 770 |
| 500 | 660 | 670 | 620 | 585 | 32 | 20-Φ25 | 740 | 820 |
| 600 | 840 | 780 | 725 | 685 | 36 | 20-Φ30 | 840 | 940 |
| 700 | 900 | 895 | 840 | 794 | 34 | 24-Φ30 | 960 | 1040 |
| 800 | 1000 | 1015 | 950 | 901 | 36 | 24-Φ33 | 1080 | 1180 |
| 900 | 1100 | 1115 | 1050 | 1001 | 38 | 28-Φ33 | 1190 | 1280 |
| 1000 | 1200 | 1230 | 1160 | 1112 | 38 | 28-Φ36 | 1310 | 1420 |
| 1200 | 1300 | 1455 | 1380 | 1328 | 44 | 32-Φ39 | 1420 | 1530 |
| 1400 | 1500 | 1675 | 1590 | 1530 | 48 | 36-Φ42 | 1540 | 1650 |
| PN16 | | | | | | | | |
| 100 | 229 | 215 | 180 | 155 | 20 | 8-Φ18 | 330 | 380 |
| 125 | 254 | 245 | 210 | 185 | 22 | 8-Φ18 | 345 | 405 |
| 150 | 267 | 280 | 240 | 210 | 24 | 8-Φ23 | 370 | 440 |
| 200 | 292 | 335 | 295 | 265 | 26 | 12-Φ23 | 405 | 470 |
| 250 | 330 | 405 | 355 | 320 | 30 | 12-Φ25 | 480 | 540 |
| 300 | 356 | 460 | 410 | 375 | 30 | 12-Φ25 | 520 | 580 |
| 350 | 430 | 520 | 470 | 435 | 34 | 16-Φ25 | 570 | 630 |
| 400 | 530 | 580 | 525 | 485 | 36 | 16-Φ30 | 630 | 710 |
| 450 | 580 | 640 | 585 | 545 | 40 | 20-Φ30 | 690 | 770 |
| 500 | 660 | 705 | 650 | 608 | 44 | 20-Φ34 | 740 | 820 |
| 600 | 840 | 840 | 770 | 718 | 48 | 20-Φ41 | 840 | 940 |
| 700 | 900 | 910 | 840 | 788 | 50 | 24-Φ41 | 960 | 1040 |
| 800 | 1000 | 1020 | 950 | 898 | 52 | 24-Φ41 | 1080 | 1180 |
| 900 | 1100 | 1120 | 1050 | 998 | 54 | 28-Φ41 | 1190 | 1280 |
| 1000 | 1200 | 1255 | 1170 | 1110 | 56 | 28-Φ48 | 1310 | 1420 |
| 1200 | 1300 | 1485 | 1390 | 1325 | 58 | 32-Φ54 | 1420 | 1530 |
| 1400 | 1500 | 1685 | 1590 | 1525 | 60 | 36-Φ54 | 1540 | 1650 |

# Welded eccentric semi-ball valve

PQ60Y

## Main purpose of the product

**1.General valve for urban heat supply:** Be suitable for occasions with strict requirements, such as sewage treatment and paper pulp.

**2.Special valve for oil chemical engineering:** Be suitable for crude oil, heavy oil and other kinds of oil, as well as corrosion resistant, two-phase mixed flow media in chemical industry. Temperature resistance is up to 425°C.

**3.Special valve for gas:** Be suitable for the transmission control of gas, natural gas and liquefied gas. The product structure is characterized by different chromium alloys, tight sealing and corrosion resistance of the seal ring surfacing valve.

**4.Special valve for slurry:** Be suitable for industrial pipeline transportation with separation by crystallization or scaling due to chemical reaction in liquid or solid two-phase mixed flow or liquid transportation. The product structure features are different based on different media and temperature required by customers. The ball is surfaced with Cr-Mo and vanadium alloys. The seat is surfaced with Cr-Mo alloy, chromium alloy and stainless steel alloy welding rods, which meet the transportation needs of different slurry.

**5.Special valve for pulverized coal and ash:** Be suitable for the control of power plant, aluminum oxide, hydraulic slag removal or gas conveying pipeline. The product requires wear-resistant performance. The ball adopts composite ball bimetal with relatively high rigidity and very high wear-resistance. The seat adopts surfacing wear-resistant alloy.


## Performance features

**1.No leakage:** On account of that the valve body adopts in-block cast, the processing of the ball is detected with advanced computer detector, and the processing accuracy is very high. The seat adopts floating structure which can automatically guarantee the best sealing position. Therefore, it is highly adaptable to changes in pressure and temperature without any leakage in the marked pressure and temperature range.

**2.Save installation cost and time:** Directly buried welded semi-ball valve can be directly buried underground. The length of the valve body and the height of the valve rod can be adjusted based on the construction and design requirements of pipelines. It only needs to build a small shallow well on the ground rather than building a large valve well, which greatly saves the construction cost and engineering time.

**3.Flexible operation:** Due to the eccentric structure, the ball moves closer to the seat and comes into full contact at the closed position when the valve is closed: When opening, it is completely tripped out when the ball leaves the sealing position. The opening has no friction and small torque.

**4.The sealing surface can realize self-cleaning:** When the ball leaves the seat, the media can flush away the accumulation on the sealing surface. For the easy-to-crystallize media, the ball can remove the medium crystallization in the closing process to achieve the sealing purpose, avoiding the disadvantage that other valves cannot be opened and closed:

**5.Small flow resistance:** Due to the adoption of the straight-through structure, the fluid resistance is reduced, energy-efficient. The eccentric structure makes the ball separate from the valve body when opening. The channel is straight without blocking.

**6.Long service life:** The ball and seat are surfaced with corrosion-resistant and wear-resistant hard alloy. The eccentric structure of the sealing surface enables the spherical surface to automatically compensate for wear and maintain the tightness of the valve: The valve body is made of material the same as that of the pipe, which will not cause uneven stress under direct welding, or deformation due to earthquake or when vehicles passing. Therefore, it has a long service life, up to more than 30 years.

## Product technical parameters

| | | | | | |
|---|---|---|---|---|---|
| Nominal pressure | 0.6MPa | 1.0MPa | 1.6MPa | 2.5MPa | 4.0MPa |
| Inside nominal diameter | 50~1600mm | 50~1600mm | 50~1600mm | 50~1000mm | 50~400mm |
| Sealing test | 0.66MPa | 1.1MPa | 1.76MPa | 2.75MPa | 4.5MPa |
| Shell test | 0.9MPa | 1.5MPa | 2.4MPa | 3.75,Pa | 6.0MPa |
| Applicable temperature | -29—425°C | | | | |
| Applicable medium | Weak corrosive fluids, such as water, oil, steam, granular slurry, ash and sewage. | | | | |
| Drive mode | Handle, turbo-worm drive, electric drive, pneumatic drive, hydraulic drive, etc. | | | | |

## Materials of main components and parts

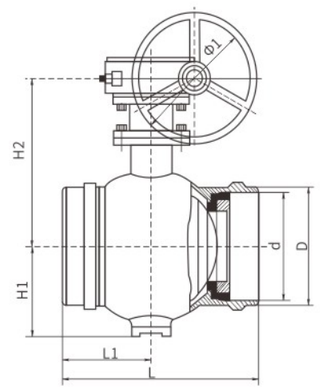
| Part name | Material name | Material code |
|---|---|---|
| Valve body | Cast steel | WCB |
| Valve clack | Cast steel with surfaced hard alloy | WCB-Cr-Mo-V alloy |
| Valve seat | Cast steel with surfaced hard alloy | WCB-Cr-Mo-V alloy |
| Valve rod | Stainless steel | 2Cr13 |



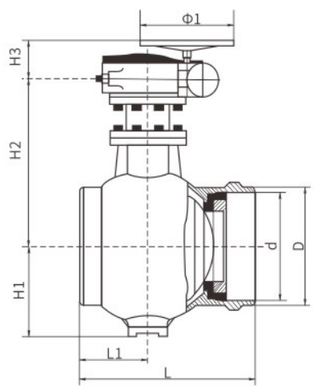
Welded eccentric semi-ball valve



## Boundary dimension (manual)




DN50-500 turbine drive semi-ball valve

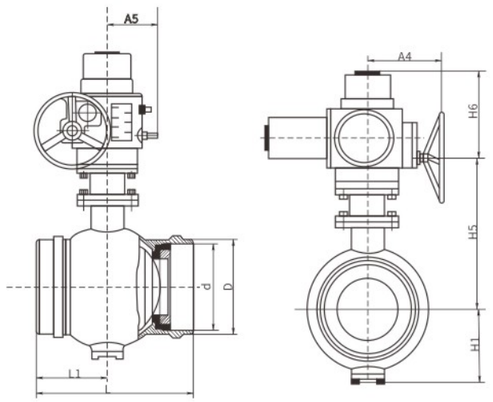



DN600-1200 turbine drive semi-ball valve

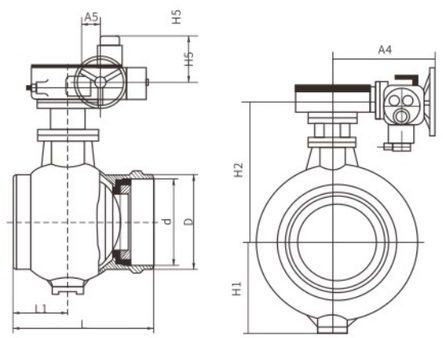
| Nominal diameter / Code / Size | D | d | L | L1 | H1 | H2 | H3 | Φ1 |
|---|---|---|---|---|---|---|---|---|
| 50 | 62 | 50 | 230 | 89 | 60 | 145 | | 120 |
| 65 | 75 | 65 | 241 | 95 | 70 | 165 | | 120 |
| 80 | 91 | 80 | 283 | 101 | 125 | 265 | | 180 |
| 100 | 117 | 100 | 305 | 115 | 135 | 275 | | 240 |
| 125 | 140 | 125 | 381 | 227 | 150 | 290 | | 240 |
| 150 | 172 | 150 | 403 | 134 | 173 | 330 | | 320 |
| 200 | 223 | 200 | 419 | 146 | 195 | 375 | | 320 |
| 250 | 278 | 250 | 500 | 115 | 225 | 432 | | 400 |
| 300 | 329 | 300 | 502 | 205 | 260 | 470 | | 400 |
| 350 | 360 | 350 | 572 | 220 | 300 | 540 | | 500 |
| 400 | 413 | 400 | 610 | 250 | 332 | 575 | | 500 |
| 450 | 480 | 450 | 660 | 280 | 360 | 625 | | 500 |
| 500 | 530 | 500 | 770 | 310 | 400 | 710 | 324 | 600 |
| 600 | 630 | 600 | 920 | 400 | 520 | 682 | 324 | 600 |
| 700 | 720 | 700 | 1000 | 425 | 585 | 732 | 324 | 600 |
| 800 | 820 | 800 | 1100 | 450 | 640 | 800 | 360 | 600 |
| 900 | 920 | 900 | 1250 | 525 | 704 | 895 | 360 | 600 |
| 1000 | 1020 | 1000 | 1500 | 600 | 820 | 1070 | 450 | 720 |
| 1200 | 1220 | 1200 | 1800 | 750 | 978 | 1230 | 450 | 720 |

# Welded eccentric semi-ball valve

## Boundary dimension (electric)




Appearance of part-turn electric semi-ball valve




Appearance of multi-turn electric semi-ball valve

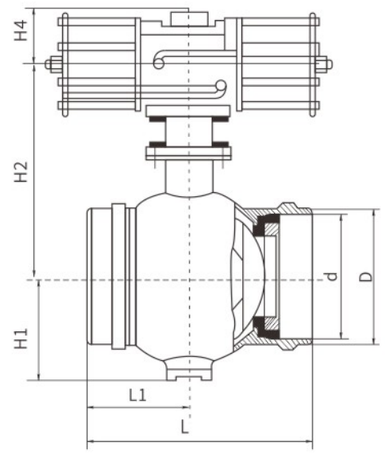
| Size / Code / Nominal diameter | D | d | L | L1 | H1 | H2 | H5 | H6 | A4 | AS |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 62 | 50 | 230 | 89 | 60 | 145 | 168 | 190 | 126 | 168 |
| 65 | 75 | 65 | 241 | 95 | 70 | 165 | 188 | 190 | 126 | 168 |
| 80 | 91 | 80 | 283 | 101 | 125 | 265 | 253 | 190 | 175 | 250 |
| 100 | 117 | 100 | 305 | 115 | 135 | 275 | 315 | 190 | 175 | 250 |
| 125 | 140 | 125 | 381 | 227 | 150 | 290 | 335 | 190 | 175 | 250 |
| 150 | 172 | 150 | 403 | 134 | 173 | 330 | 398 | 202 | 168 | 290 |
| 200 | 223 | 200 | 419 | 146 | 195 | 375 | 443 | 202 | 168 | 290 |
| 250 | 278 | 250 | 500 | 115 | 225 | 432 | 527 | 202 | 168 | 290 |
| 300 | 329 | 300 | 502 | 205 | 260 | 470 | 565 | 202 | 168 | 290 |
| 350 | 360 | 350 | 572 | 220 | 300 | 540 | 655 | 205 | 460 | 305 |
| 400 | 413 | 400 | 610 | 250 | 332 | 575 | 680 | 205 | 460 | 305 |
| 450 | 480 | 450 | 660 | 280 | 360 | 625 | 705 | 205 | 460 | 305 |
| 500 | 530 | 500 | 750 | 310 | 400 | 710 | 710 | 260 | 610 | 385 |
| 600 | 630 | 600 | 920 | 400 | 520 | 682 | 682 | 260 | 610 | 385 |
| 700 | 720 | 700 | 1000 | 425 | 585 | 732 | 732 | 260 | 610 | 385 |
| 800 | 820 | 800 | 1100 | 450 | 640 | 800 | 800 | 260 | 650 | 410 |
| 900 | 920 | 900 | 1250 | 525 | 704 | 895 | 895 | 260 | 650 | 410 |
| 1000 | 1020 | 1000 | 1500 | 600 | 820 | 1070 | 985 | 280 | 745 | 535 |
| 1200 | 1220 | 1200 | 1800 | 750 | 978 | 1230 | 1230 | 280 | 745 | 535 |

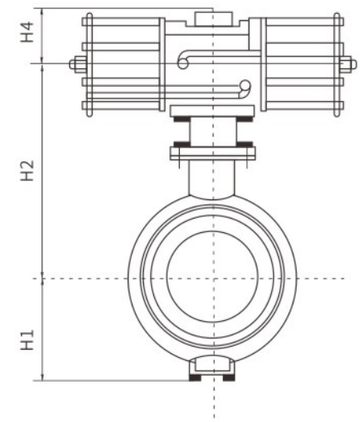


Welded eccentric semi-ball valve

Lvdu Valve

## Boundary dimension (pneumatic)




| Size / Code / Nominal diameter | D | d | L | L1 | H1 | H2 | H3 |
|---|---|---|---|---|---|---|---|
| 50 | 62 | 50 | 230 | 89 | 60 | 240 | 157 |
| 65 | 75 | 65 | 241 | 95 | 70 | 260 | 157 |
| 80 | 91 | 80 | 283 | 101 | 125 | 305 | 157 |
| 100 | 117 | 100 | 305 | 115 | 135 | 315 | 157 |
| 125 | 140 | 125 | 381 | 227 | 150 | 365 | 209 |
| 150 | 172 | 150 | 403 | 134 | 173 | 380 | 209 |
| 200 | 223 | 200 | 419 | 146 | 195 | 450 | 244 |
| 250 | 278 | 250 | 500 | 115 | 225 | 492 | 244 |
| 300 | 329 | 300 | 502 | 205 | 260 | 530 | 244 |
| 350 | 360 | 350 | 572 | 220 | 300 | 620 | 244 |
| 400 | 413 | 400 | 610 | 250 | 332 | 680 | 305 |
| 450 | 480 | 450 | 660 | 280 | 360 | 705 | 305 |
| 500 | 530 | 500 | 750 | 310 | 400 | 775 | 305 |
| 600 | 630 | 600 | 920 | 400 | 520 | 825 | 305 |

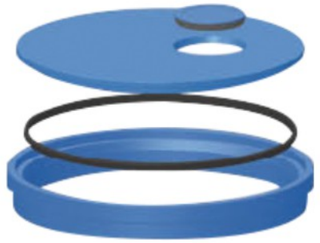
# Welded eccentric semi-ball valve

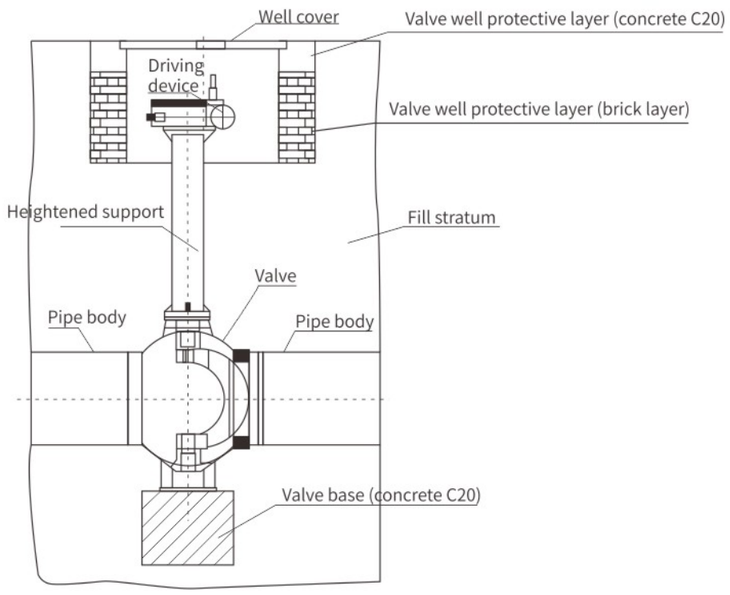
## Welded eccentric semi-ball valve (directly buried

In recent years, the company has found through market research that when installing and maintaining conventional flange semi-ball valves, large valve well is required, with large installation work amount and high cost. It also forms dangerous closed space in the operation area, which is not conducive to safe operation. At the same time, the valve body and the bolted connection part of the valve body and the pipeline will be subject to corrosion, affecting the service life of the valve. In order to solve the above problems, the company developed a new generation of products - welded eccentric semi-ball valve (directly buried).

The connecting part of the welded eccentric semi-ball valve (directly buried) basically has no leakage. It only needs to build a small shallow well on the ground to reduce construction space and greatly save construction cost and engineering time. The extension rod of different length can be selected according to the actual situation. The actuator can be directly installed above the ground or at the height close to the ground, therefore, the operator can operate on the ground rather than underground, which is very safe and convenient. The good technical characteristics of welded eccentric semi-ball valve (directly buried) make the whole pipeline (all welded) as a whole, which enhances the overall stress resistance, resistance to geological disasters (such as geological collapse) of the pipeline (including the valves), and reduces the possibility of medium leakage. The valve reliability is increased, its service life is extended and the installation and maintenance are very convenient.

## The installation of welded eccentric semi-ball valve (directly buried) is shown as follows:



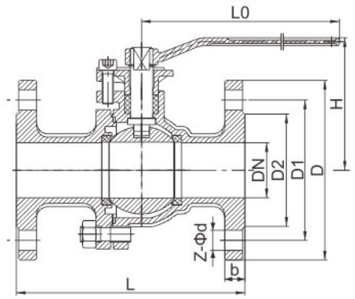








# Floating ball valve




Q41F stainless steel ball valve is mainly used for conditions with corrosion, and high pressure and sanitary environment requirements. Stainless steel ball valve is a new kind of valve widely used in recent years.

## Product characteristics

1.The fluid resistance is low. The fluid resistance coefficient is equal to that of the pipe section with the same length.
2.Simple structure, small volume and light weight.
3.Tightness and reliability, at present, plastic is widely used as sealing surface material of ball valve due to its good sealing. Plastic is also widely used in the vacuum system.
4.Easy operation, open and close quickly, with only rotation of 90° from full open to fully closed status, convenient for remote control.
5.Easy maintenance and simple ball valve structure, the seal ring is generally moveable, with convenient disassembly and replacement.
6.In full open or fully closed status, the sealing surface between the ball valve and the seat is isolated from the medium. When the medium passing, it will not cause the erosion of valve sealing surface.
7.It has wide application range. It can be applied to the bore from mm to m, from high vacuum to high pressure.

## Materials of main components and parts

| Product materials | | 304 | 304L | 316 | 316L | 321 |
|---|---|---|---|---|---|---|
| Materials of main parts | Valve body and valve cover | CF8(304) | CF8(304L) | CF8(316) | CF3M(316L) | 0Cr18Ni10Ti |
| | Ball and valve rod | 304 | 304L | 316 | 316L | 321 |
| | Bolt | A193-B8 | A193-B8 | A193-B8 | A193-B8 | A193-B8 |
| | Nut | A194-8M | A194-8M | A194-8M | A194-8M | A194-8M |
| | Seal ring | Teflon polyphenylene | | | | |
| | Padding and gasket | Teflon polyphenylene | | | | |
| Applicable working conditions | Suitable medium | Nitric acid corrosive medium | | Acetic acid corrosive medium | | |
| | Applicable temperature | ⩽200°C | | | | |
| Application specification | Flange dimension | GB/T9113, HG/T20592, SH3406 | | | | |
| | Inspection test | GB/T26480, JB/T9092 | | | | |
| | Nominal pressure (PN) | 1.0~10.0MPa | | | | |
| Drive mode | | Manual, pneumatic, electric, hydraulic and so on | | | | |

# Floating ball valve

## Main connection dimension and boundary dimension

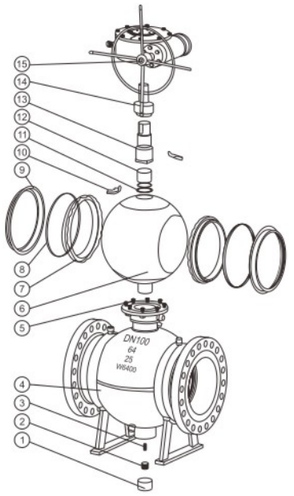
| DN | L | D | D1 | D2 | b | Z-Φd | H | L0 |
|---|---|---|---|---|---|---|---|---|
| PN16 | | | | | | | | |
| 15 | 130 | 95 | 65 | 45 | 14 | 4-Φ14 | 78 | 140 |
| 20 | 130 | 105 | 75 | 55 | 14 | 4-Φ14 | 84 | 160 |
| 25 | 140 | 115 | 85 | 65 | 14 | 4-Φ14 | 95 | 180 |
| 32 | 165 | 135 | 100 | 78 | 16 | 4-Φ18 | 150 | 250 |
| 40 | 165 | 145 | 110 | 85 | 16 | 4-Φ18 | 150 | 300 |
| 50 | 203 | 160 | 125 | 100 | 16 | 4-Φ18 | 170 | 350 |
| 65 | 222 | 180 | 145 | 120 | 18 | 4-Φ18 | 195 | 350 |
| 80 | 241 | 195 | 160 | 135 | 20 | 8-Φ18 | 215 | 400 |
| 100 | 305 | 215 | 180 | 155 | 20 | 8-Φ18 | 250 | 500 |
| 125 | 356 | 245 | 210 | 185 | 22 | 8-Φ18 | 265 | 600 |
| 150 | 394 | 280 | 240 | 210 | 24 | 8-Φ23 | 270 | 800 |
| 200 | 457 | 335 | 295 | 265 | 24 | 12-Φ23 | 330 | 800 |
| 250 | 533 | 405 | 355 | 320 | 26 | 12-Φ25 | 450 | 1300 |

| DN | L | D | D1 | D2 | b | Y | Z-Φd | H | L0 |
|---|---|---|---|---|---|---|---|---|---|
| PN25 | | | | | | | | | |
| 15 | 130 | 95 | 65 | 45 | 16 | - | 4-Φ14 | 103 | 100 |
| 20 | 140 | 105 | 75 | 55 | 16 | - | 4-Φ14 | 112 | 160 |
| 25 | 150 | 115 | 85 | 65 | 16 | - | 4-Φ14 | 123 | 160 |
| 32 | 165 | 135 | 100 | 78 | 18 | - | 4-Φ18 | 150 | 250 |
| 40 | 180 | 145 | 110 | 85 | 18 | - | 4-Φ18 | 156 | 250 |
| 50 | 200 | 160 | 125 | 100 | 20 | - | 4-Φ18 | 172 | 350 |
| 65 | 220 | 180 | 145 | 120 | 22 | - | 8-Φ18 | 197 | 350 |
| 80 | 250 | 195 | 160 | 135 | 22 | - | 8-Φ18 | 222 | 450 |
| 100 | 280 | 230 | 190 | 160 | 24 | - | 8-Φ23 | 253 | 450 |
| 125 | 320 | 270 | 220 | 188 | 28 | - | 8-Φ25 | 275 | 600 |
| 150 | 360 | 300 | 250 | 218 | 30 | - | 8-Φ25 | 286 | 800 |
| 200 | 400 | 360 | 310 | 278 | 34 | - | 12-Φ25 | 340 | 1200 |
| 250 | 530 | 425 | 370 | 332 | 36 | - | 12-Φ30 | 470 | 1400 |
| PN40 | | | | | | | | | |
| 15 | 140 | 95 | 65 | 45 | 16 | 40 | 4-Φ14 | 103 | 100 |
| 20 | 152 | 105 | 75 | 55 | 16 | 51 | 4-Φ14 | 112 | 160 |
| 25 | 165 | 115 | 85 | 65 | 16 | 58 | 4-Φ14 | 123 | 160 |
| 32 | 178 | 135 | 100 | 78 | 18 | 66 | 4-Φ18 | 150 | 250 |
| 40 | 190 | 145 | 110 | 85 | 18 | 76 | 4-Φ18 | 156 | 250 |
| 50 | 216 | 160 | 125 | 100 | 20 | 88 | 4-Φ18 | 172 | 350 |
| 65 | 241 | 180 | 145 | 120 | 22 | 110 | 8-Φ18 | 197 | 350 |
| 80 | 283 | 195 | 160 | 135 | 22 | 121 | 8-Φ18 | 222 | 450 |
| 100 | 305 | 230 | 190 | 160 | 24 | 150 | 8-Φ23 | 253 | 450 |
| 125 | 381 | 270 | 220 | 188 | 28 | 176 | 8-Φ25 | 275 | 600 |
| 150 | 403 | 300 | 250 | 218 | 30 | 204 | 8-Φ25 | 286 | 800 |
| 200 | 502 | 375 | 320 | 282 | 38 | 260 | 12-Φ30 | 340 | 1200 |
| 250 | 568 | 445 | 385 | 345 | 42 | 313 | 12-Φ34 | 470 | 1400 |





# Fixed ball valve




## Application specification

1.Design standard: API6D, GB/T12237, GB/T196722
2.Structure length: API6D, ASMEB16.10, GB/T12221
3.Connection dimension: ASMEB16.5, ASMEB16.47, GB/T9113, HG20592
4.Test and inspection: API598, API6D, JB/T9092, GB/T19672, GB/T26480

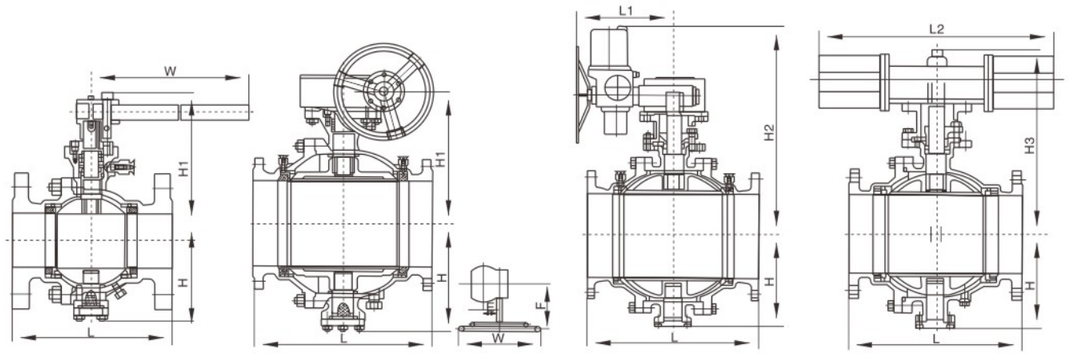
Note: 1. The dimension of the connecting flange end of this series of valve shall be designed and manufactured according to the requirements of users.
2.The design standard of DN>1000 (40") valves shall be Technical Conditions for Valves of Long-distance Transport Pipelines

## Materials of main components and parts

| Serial No. | Parts | GB | ASTM |
|---|---|---|---|
| 1 | Lining | PTFE & tin bronze | PTFE & tin bronze |
| 2 | Screw | 25 | A105 |
| 3 | Spring | 60Si2Mn | Inconel×-750 |
| 4 | Valve body | 25 | A105 |
| 5 | Stud | 35CrMoA | A193-B7 |
| 6 | Ball | WCB+ENP | WCB+ENP |
| 7 | Valve seat | 25 | A105 |
| 8 | Seal ring | PTFE | PTFE |
| 9 | Disc spring | 60Si2Mn | AISI9260 |
| 10 | Rotary driving device of seat | Assembling unit | |
| 11 | Valve rod seal ring | PTFE | PTFE |
| 12 | Lining | PTFE & tin bronze | PTFE & tin bronze |
| 13 | Upper valve rod | 1Cr13 | A182-F6a |
| 14 | Connecting sleeve | 45 | AISIC1045 |
| 15 | Driving mechanism | Assembling unit | |

Note: For the sulfur-resistant valve, the material of the part is ASTM (A276-321);
For the sulfur-resistant valve, the material of the part is ASTM (A182-304, CF8+Ni.P); The materials of main components and parts and the sealing surface of this series of valve can be designed and selected based on the actual working conditions or special requirements of users.

# Fixed ball valve



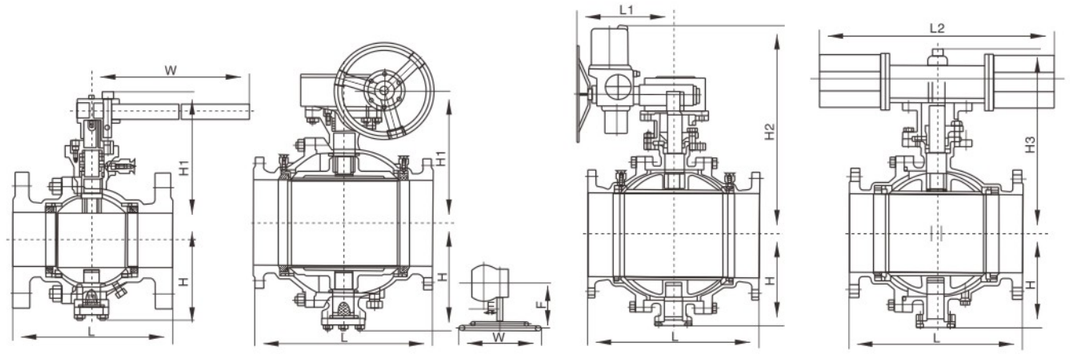

## Main connection dimension and boundary dimension

| Inside nominal diameter DN | d1 | L | H | Manual | | | | Electric | | Pneumatic | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | H1 | E | F | W | H2 | L1 | H3 | L2 |
| PN16 | | | | | | | | | | | |
| 25 | 25 | 165 | 50 | 75 | - | - | 160 | - | - | 215 | 200 |
| 32 | 32 | 180 | 55 | 85 | - | - | 160 | - | - | 240 | 270 |
| 40 | 40 | 190 | 80 | 95 | - | - | 230 | - | - | 264 | 270 |
| 50 | 50 | 216 | 102 | 107 | - | - | 230 | - | - | 274 | 270 |
| 65 | 65 | 241 | 114 | 125 | - | - | 400 | - | - | 379 | 405 |
| 80 | 80 | 283 | 127 | 152 | - | - | 400 | - | - | 389 | 405 |
| 100 | 100 | 305 | 152 | 178 | - | - | 650 | - | - | 479 | 405 |
| 125 | 125 | 356 | 184 | 300 | - | - | 1050 | - | - | 552 | 576 |
| 150 | 150 | 394 | 219 | 330 | - | - | 1050 | 554 | 235 | 666 | 776 |
| 200 | 200 | 457 | 273 | 398 | 116 | 350 | 600 | 600 | 235 | 736 | 776 |
| 250 | 250 | 533 | 360 | 495 | 116 | 350 | 600 | 652 | 235 | 926 | 776 |
| 300 | 300 | 610 | 395 | 580 | 171 | 400 | 800 | 760 | 259 | 1059 | 1060 |
| 350 | 337 | 686 | 430 | 625 | 171 | 420 | 800 | 770 | 400 | 1127 | 1060 |
| 400 | 387 | 762 | 470 | 670 | 257 | 400 | 800 | 830 | 400 | 1393 | 1360 |
| 450 | 438 | 864 | 550 | 698 | 257 | 420 | 800 | - | - | 1468 | 1360 |
| 500 | 489 | 914 | 580 | 840 | 257 | 400 | 800 | 940 | 410 | 1538 | 1360 |
| 600 | 591 | 1067 | 700 | 1050 | 150 | 410 | 800 | 940 | 410 | 1538 | 1360 |
| 700 | 686 | 1245 | 800 | 1100 | 83 | 650 | 800 | 1115 | 410 | 1450 | 2840 |
| PN25 | | | | | | | | | | | |
| 25 | 25 | 165 | 50 | 75 | - | - | 160 | - | - | 215 | 200 |
| 32 | 32 | 180 | 55 | 85 | - | - | 160 | - | - | 240 | 270 |
| 40 | 40 | 190 | 80 | 95 | - | - | 230 | - | - | 264 | 270 |
| 50 | 50 | 216 | 102 | 107 | - | - | 230 | - | - | 340 | 405 |
| 65 | 65 | 241 | 114 | 125 | - | - | 400 | - | - | 379 | 405 |
| 80 | 80 | 283 | 127 | 152 | - | - | 400 | - | - | 452 | 574 |
| 100 | 100 | 305 | 152 | 178 | - | - | 650 | - | - | 479 | 574 |
| 125 | 125 | 381 | 184 | 300 | - | - | 1050 | - | - | 646 | 756 |
| 150 | 150 | 403 | 219 | 330 | - | - | 1050 | 235 | 74 | 666 | 756 |
| 200 | 200 | 502 | 273 | 398 | 116 | 350 | 600 | 235 | 350 | 814 | 1060 |
| 250 | 250 | 533 | 360 | 495 | 116 | 350 | 800 | 400 | 350 | 1002 | 1060 |
| 300 | 300 | 610 | 395 | 580 | 171 | 420 | 800 | 400 | 420 | 1059 | 1060 |
| 350 | 337 | 686 | 430 | 625 | 171 | 420 | 600 | 410 | 420 | 1150 | 1360 |
| 400 | 387 | 838 | 470 | 670 | 257 | 400 | 800 | 410 | 400 | 1205 | 1360 |
| 450 | 438 | 814 | 550 | 698 | 257 | 400 | 800 | - | - | 1250 | 2840 |
| 500 | 489 | 991 | 580 | 840 | 257 | 400 | 800 | 420 | 400 | 1295 | 2840 |
| 600 | 591 | 1143 | 700 | 1050 | 150 | 410 | 800 | 690 | 410 | 1390 | 3300 |
| 700 | 686 | 1346 | 800 | 1100 | 83 | 650 | 800 | 690 | 650 | 1470 | 3300 |



Lvdu Valve

Fixed ball valve




## Main connection dimension and boundary dimension

| Inside nominal diameter DN | d1 | L | H | Manual | | | | Electric | | Pneumatic | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | H1 | E | F | W | H2 | L1 | H3 | L2 |
| PN64 | | | | | | | | | | | |
| 25 | 25 | 165 | 50 | 75 | - | - | 160 | - | - | 215 | 200 |
| 32 | 32 | 180 | 55 | 85 | - | - | 160 | - | - | 240 | 270 |
| 40 | 40 | 190 | 80 | 95 | - | - | 230 | - | - | 264 | 270 |
| 50 | 50 | 216 | 102 | 107 | - | - | 230 | - | - | 274 | 270 |
| 65 | 65 | 241 | 114 | 125 | - | - | 400 | - | - | 379 | 405 |
| 80 | 80 | 283 | 127 | 152 | - | - | 400 | - | - | 389 | 405 |
| 100 | 100 | 305 | 152 | 178 | - | - | 650 | - | - | 479 | 405 |
| 125 | 125 | 356 | 184 | 300 | - | - | 1050 | - | - | 552 | 576 |
| 150 | 150 | 394 | 219 | 330 | - | - | 1050 | 554 | 235 | 666 | 776 |
| 200 | 200 | 457 | 273 | 398 | 116 | 350 | 600 | 600 | 235 | 736 | 776 |
| 250 | 250 | 533 | 360 | 495 | 116 | 350 | 600 | 652 | 235 | 926 | 776 |
| 300 | 300 | 610 | 395 | 580 | 171 | 400 | 800 | 760 | 259 | 1059 | 1060 |
| 350 | 337 | 686 | 430 | 625 | 171 | 420 | 800 | 770 | 400 | 1127 | 1060 |
| 400 | 387 | 762 | 470 | 670 | 257 | 400 | 800 | 830 | 400 | 1393 | 1360 |
| 450 | 438 | 864 | 550 | 698 | 257 | 420 | 800 | - | - | 1468 | 1360 |
| 500 | 489 | 914 | 580 | 840 | 257 | 400 | 800 | 940 | 410 | 1538 | 1360 |
| 600 | 591 | 1067 | 700 | 1050 | 150 | 410 | 800 | 940 | 410 | 1538 | 1360 |
| 700 | 686 | 1245 | 800 | 1100 | 83 | 650 | 800 | 1115 | 410 | 1450 | 2840 |
| PN100 | | | | | | | | | | | |
| 25 | 25 | 165 | 50 | 75 | - | - | 160 | - | - | 215 | 200 |
| 32 | 32 | 180 | 55 | 85 | - | - | 160 | - | - | 240 | 270 |
| 40 | 40 | 190 | 80 | 95 | - | - | 230 | - | - | 264 | 270 |
| 50 | 50 | 216 | 102 | 107 | - | - | 230 | - | - | 340 | 405 |
| 65 | 65 | 241 | 114 | 125 | - | - | 400 | - | - | 379 | 405 |
| 80 | 80 | 283 | 127 | 152 | - | - | 400 | - | - | 452 | 574 |
| 100 | 100 | 305 | 152 | 178 | - | - | 650 | - | - | 479 | 574 |
| 125 | 125 | 381 | 184 | 300 | - | - | 1050 | - | - | 646 | 756 |
| 150 | 150 | 403 | 219 | 330 | - | - | 1050 | 235 | 74 | 666 | 756 |
| 200 | 200 | 502 | 273 | 398 | 116 | 350 | 600 | 235 | 350 | 814 | 1060 |
| 250 | 250 | 533 | 360 | 495 | 116 | 350 | 800 | 400 | 350 | 1002 | 1060 |
| 300 | 300 | 610 | 395 | 580 | 171 | 420 | 800 | 400 | 420 | 1059 | 1060 |
| 350 | 337 | 686 | 430 | 625 | 171 | 420 | 600 | 410 | 420 | 1150 | 1360 |
| 400 | 387 | 838 | 470 | 670 | 257 | 400 | 800 | 410 | 400 | 1205 | 1360 |
| 450 | 438 | 814 | 550 | 698 | 257 | 400 | 800 | - | - | 1250 | 2840 |
| 500 | 489 | 991 | 580 | 840 | 257 | 400 | 800 | 420 | 400 | 1295 | 2840 |
| 600 | 591 | 1143 | 700 | 1050 | 150 | 410 | 800 | 690 | 410 | 1390 | 3300 |
| 700 | 686 | 1346 | 800 | 1100 | 83 | 650 | 800 | 690 | 650 | 1470 | 3300 |

# All-welded ball valve

## Purpose:

**Urban gas:** Gas output pipelines, main lines, supply pipelines of each branch line, etc.

**Centralized heat supply:** Output pipelines, main lines and branch lines of large heat supply equipment.

**Heat exchanger:** Open and close of pipelines and all circuits.

**Steel plant:** Various fluid pipelines, exhaust pipelines, gas and heat supply pipelines and fuel supply pipelines.

**Various industrial equipment:** Various heat treatment pipelines, various pipelines for industrial gas and heat.

## Installation

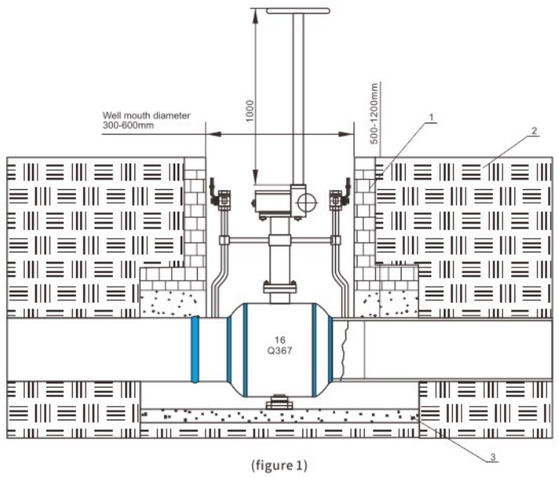
The welding of the ends of all steel ball valves shall be electric welding or manual welding. The valve chamber overheating shall be avoided. The distance of the welding end shall be sufficient, to ensure that heat generated during welding will not damage the sealing material.

The valve shall be fully opened during installation.

## Characteristics:

One-piece welded ball valve has no external leakage and other phenomena.

Since the seat is made of carbon fiber reinforced Teflon seal ring and disc spring, it has strong adaptive capacity to changes of pressure and temperature, to ensure that it will not have any leakage within the marked pressure and temperature range. On account of that the processing of the ball is detected with advanced computer detector, therefore the ball has high processing accuracy. The valve body is made of material the same as that of the pipe, which will not cause uneven stress, or deformation due to earthquake or when vehicles passing, and the pipeline is aging resistant. The seal ring is made of RPTFE material with 20%Carbon, which can ensure no leakage (0%). Directly buried welded ball valve can be directly buried underground. It only needs to build small shallow well on the ground rather than large valve well, which can significantly save construction cost and engineering time. The length of the valve body and the height of the valve rod can be adjusted based on the construction and design requirements of pipelines. The processing accuracy of the ball is very high. The valve is easy to be operated without bad interference. The use of advanced raw materials can guarantee the pressure above PN25. Compared with products of the same specification in the same industry, the valve body is small and beautiful in appearance. The service life is more than 15 years under the condition of normal operation and use of the valve.




(figure 1)

All-welded directly-buried ball valve Installation diagram

1.Brick block

2.Soil

3.Concrete

## Features of all-welded valve:

1.Domestic leading technology, maintenance-free, long service life.
2.Unique welding process, without pore and sand hole, high pressure-bearing, no leakage of valve body.
3.Adopt high-quality stainless steel ball, double layer support seal structure, and scientific and reasonable ball support.
4.The gasket is made of Teflon, nickel, graphite and other materials, and is carbonized.
5.The valve well has low cost and can be conveniently opened and operated.
6.The valve body length of the directly-buried welded ball valve can be determined according to the buried depth.
7.It is equipped with a grease injection port of check valve type which can prevent the backflow of the lubricating sealant under high pressure.
8.According to the needs of medium of the pipeline system, the valve is equipped with the device for releasing, discharging and preventing.
9.CNC production equipment, strong technical support, reasonable hardware and software collocation.



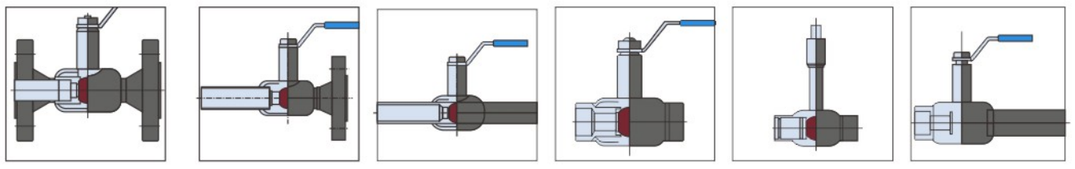
All-welded ball valve



## Technical specification

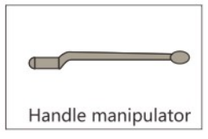
| | | |
|---|---|---|
| Design and manufacturing | | API 6D, ASME B76.34, API 608, MSS-SP-72 |
| Structure length | | In accordance with the standards of the factory |
| Connecting end | Flange connection | ASME B16.5 |
| | Butt welding connection | ASME B16.25 |
| Test and inspection | | AP1598. AP16D |
| Fire test | | AP1607. AP16FA |

Note: The dimension of the connecting end to the welding end of the valve shall be designed and manufactured according to the requirements of users.

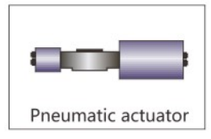


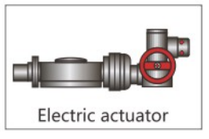
## Various operation modes

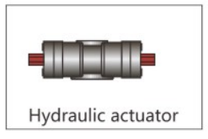
Various types of valve actuators are available: Manual, pneumatic, electric, hydraulic, pneumatic-hydraulic. Specific model shall be based on the valve torque.


Handle manipulator


Turbine manipulator

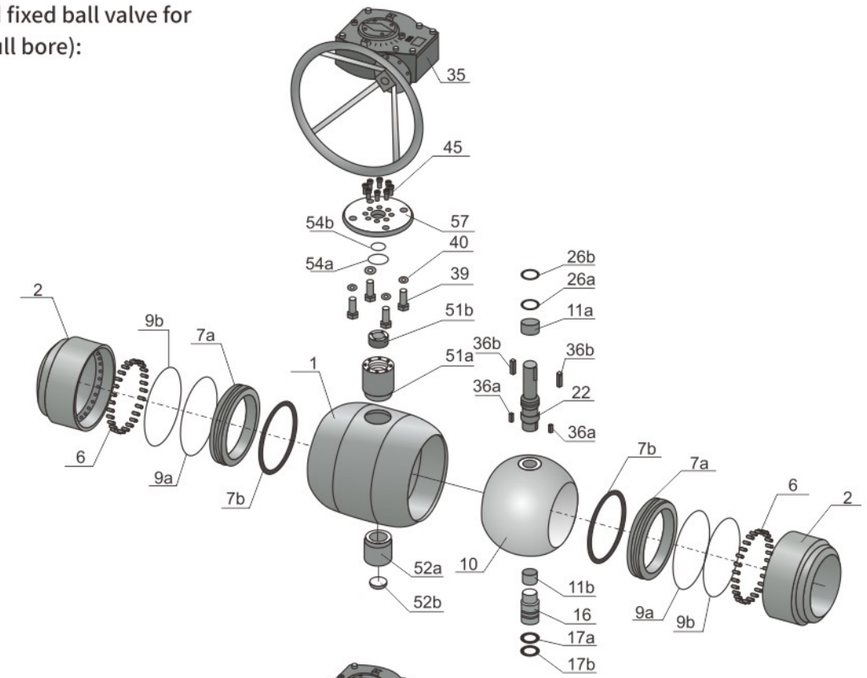

Pneumatic actuator


Electric actuator

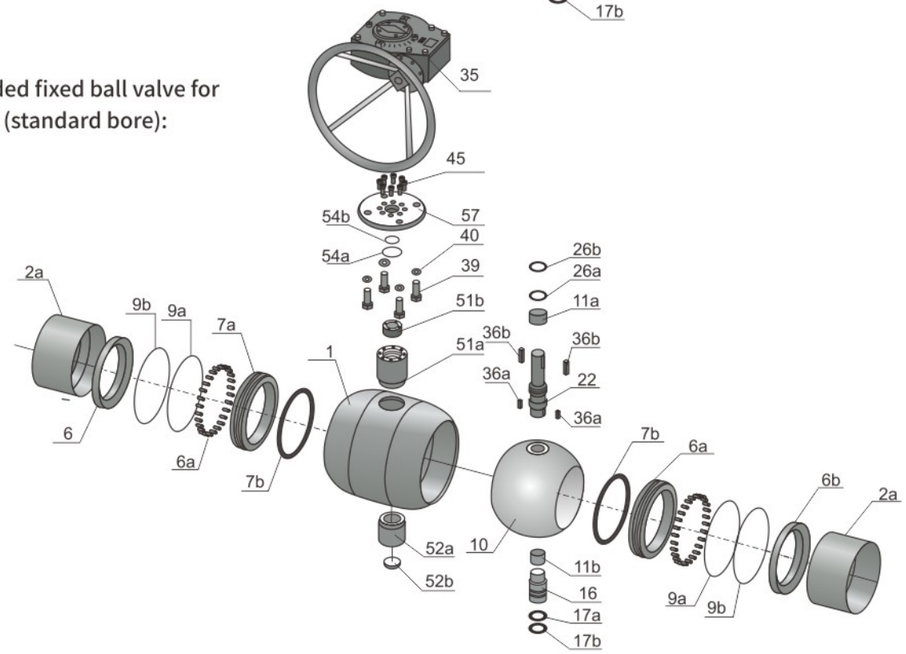

Hydraulic actuator

# All-welded ball valve (for heat supply only)

All-welded fixed ball valve for heating (full bore):




All-welded fixed ball valve for heating (standard bore):






All-welded ball valve (for heat supply only)

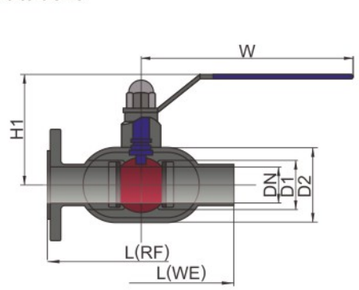
Lvdu Valve

**Materials of main components and part**

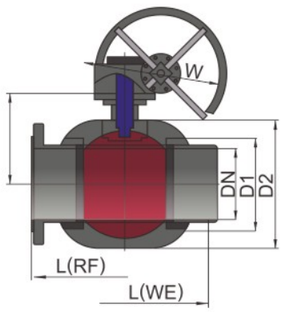
| No. | Part name | Material |
|---|---|---|
| 1 | Mid-body | 20# |
| 2a | Connecting pipe | 20# |
| 2b | Flange | A105 |
| 6a | Belleville spring | 60Si2Mn |
| 6b | Baffle | A105 |
| 7a | Valve seat support ring | A105 |
| 7b | Seal ring | PTFE+25%C |
| 9a | O-type seal ring | VITON |
| 9b | O-type seal ring | VITON |
| 10 | Ball | 20#+HCr |
| 11a | Sliding bearing | 20#+PTFE |
| 11b | Sliding bearing | 20#+PTFE |
| 16 | Fixed axle | A105 |
| 17a | O-type seal ring | VITON |
| 17b | O-type seal ring | VITON |
| 22 | Valve rod | 2Cr13 |
| 26a | O-type seal ring | VITON |
| 26b | O-type seal ring | VITON |
| 35 | Manual manipulator | 组合件 |
| 36 | Key | 45# |
| 39 | Spring washer | 65Mn |
| 40 | Hexagon head bolt | A193-B7 |
| 45 | Inner hexagon screw | A193-B7 |
| 51a | Valve rod joint | 20# |
| 51b | Thread gland | 20# |
| 52a | Fixed shaft sleeve | 20# |
| 52b | Cover | 20# |
| 54a | O-type seal ring | VITON |
| 54b | O-type seal ring | VITON |
| 57 | Connecting disc | 20" |

# All-welded ball valve (for heat supply only)

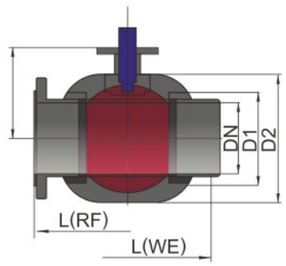
**Full bore**




Handle operation




Worm drive operation




Polished rod with panel, BSMP

**Main boundary and connection dimensions**

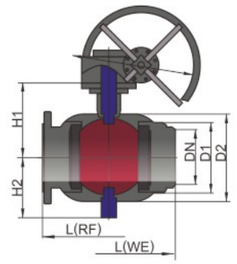
Unit: mm

| DN | L(RF) | L(WE) | D1 | D2 | H1(handle) | H1(worm gear) | W(handle) | W(worm gear) |
|---|---|---|---|---|---|---|---|---|
| Q61F/Q361F-Q41F/Q341F PN16/PN25/PN40 | | | | | | | | |
| 15 | 150 | 210 | 27 | 48 | 64 | | 129 | |
| 20 | 160 | 230 | 34 | 60 | 76 | | 159 | |
| 25 | 180 | 230 | 42 | 76 | 85 | | 159 | |
| 32 | 200 | 260 | 48 | 89 | 95 | | 245 | |
| 40 | 230 | 300 | 60 | 89 | 124 | | 245 | |
| 50 | 270 | 300 | 76 | 114 | 162 | | 320 | |
| 65 | 280 | 300 | 89 | 140 | 175 | | 320 | |
| 80 | 300 | 325 | 114 | 168 | 192 | 169 | 450 | |
| 100 | 350 | 325 | 141 | 203 | 205 | 183 | 450 | 230 |
| 125 | 350 | 350 | 168 | 219 | 225 | 203 | 450 | 230 |
| 150 | 400 | 400 | 219 | 273 | 245 | 224 | 1000 | 230 |
| 200 | 502 | 521 | 273 | 351 | 285 | 262 | 1000 | 320 |
| 250 | 568 | 560 | 325 | 426 | 348 | 322 | 1500 | 350 |
| 300 | 648 | 635 | 377 | 508 | | 355 | | 350 |

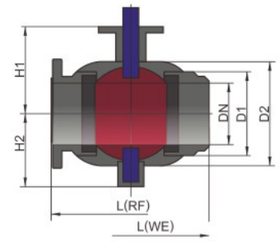


All-welded ball valve (for heat supply only)

**Full bore**




Worm drive operation



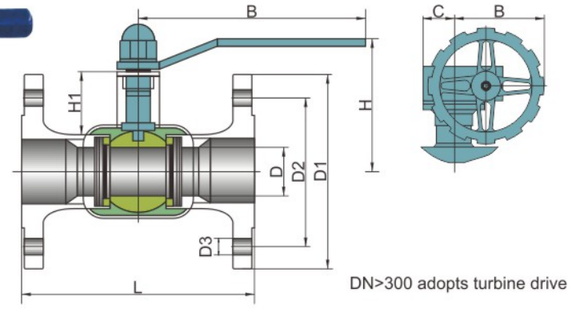

Polished rod with panel, BSM

**Main boundary and connection dimensions**

Unit: mm

| DN | L(RF) | L(WE) | D1 | D2 | H1 | H2 | W |
|---|---|---|---|---|---|---|---|
| Q367F/Q347F PN16/PN25/PN40 | | | | | | | |
| 150 | 403 | 457 | 219 | 273 | 246 | 193 | 280 |
| 200 | 502 | 521 | 273 | 351 | 285 | 238 | 320 |
| 250 | 568 | 560 | 325 | 426 | 323 | 278 | 320 |
| 300 | 648 | 635 | 377 | 508 | 365 | 315 | 400 |
| 350 | 762 | 762 | 426 | 580 | 410 | 370 | 400 |
| 400 | 838 | 838 | 480 | 675 | 457 | 425 | 450 |
| 450 | 914 | 914 | 530 | 740 | 495 | 465 | 450 |
| 500 | 991 | 991 | 630 | 805 | 540 | 495 | 500 |
| 600 | 1143 | 1143 | 735 | 975 | 640 | 580 | 500 |
| 700 | 1346 | 1346 | 830 | 1130 | 715 | 660 | 500 |
| 800 | 1524 | 1524 | 930 | 1270 | 785 | 730 | 500 |
| 900 | 1727 | 1727 | 1036 | 1425 | 860 | 820 | 800 |
| 1000 | 1900 | 1840 | 1236 | 1625 | 970 | 920 | 800 |
| 1200 | 2200 | 2100 | 1600 | 1950 | 1350 | 1150 | 1000 |

# All-welded ball valve (flange type, for heat supply only)


DN>300 adopts turbine drive

**Main boundary and connection dimensions**

Unit: mm

| DN | PN | L | D | D1 | D2 | H | B | C | H1 | Torque (N.M) |
|---|---|---|---|---|---|---|---|---|---|---|
| PN25/PN40 | | | | | | | | | | |
| 15 | 40 | 130 | 10 | 95 | 14 | 98 | 145 | - | 22 | 1-2 |
| 20 | 40 | 150 | 15 | 105 | 14 | 103 | 145 | - | 23 | 3-4 |
| 25 | 40 | 160 | 20 | 115 | 14 | 118 | 145 | - | 34 | 5-7 |
| 32 | 40 | 180 | 25 | 140 | 18 | 121 | 145 | - | 34 | 8-11 |
| 40 | 40 | 200 | 32 | 150 | 18 | 120 | 190 | - | 43 | 12-18 |
| 50 | 40 | 230 | 40 | 165 | 18 | 127 | 190 | - | 44 | 25-32 |
| 65 | 25 | 270 | 50 | 185 | 18 | 170 | 280 | - | 71 | 38-45 |
| 80 | 25 | 280 | 65 | 200 | 18 | 185 | 280 | - | 77 | 55-65 |
| 100 | 25 | 300 | 80 | 235 | 22 | 210 | 280 | - | 102 | 110-120 |
| 125 | 25 | 325 | 100 | 270 | 26 | 253 | 400 | - | 102 | 200-250 |
| 150 | 25 | 350 | 125 | 300 | 26 | 273 | 600 | - | 107 | 300-340 |
| 200 | 25 | 400 | 150 | 360 | 26 | 300 | 900 | - | 123 | 450-480 |
| 250 | 25 | 530 | 200 | 425 | 30 | 345 | 1200 | - | 122 | 750-800 |
| 300 | 25 | 630 | 250 | 485 | 30 | 572 | 280 | 193 | 155 | 900-950 |
| 350 | 25 | 690 | 300 | 555 | 33 | 697 | 325 | 150 | 187 | 1200-1300 |
| 400 | 25 | 762 | 350 | 620 | 36 | 764 | 466 | 175 | 221 | 1900-2000 |



# All-welded ball valve (cylindrical, fixed)



## Features

The manufacturing process of cylindrical valve body structure is simple, which is convenient for assembly and positioning. The mold needed for manufacturing the blank is simple and it is convenient to fix the ball with the support plate.

## Group welding form of cylindrical body

The three bodies are welded through two symmetric longitudinal welds or the two bodies are welded through a longitudinal weld.

**Features:** The structure has good manufacturability, which facilitates the installation of the valve rod and is particularly suitable for large-caliber all-welded ball valve. (Two-body is suitable for small-caliber all-welded ball valve. Three-body is suitable for large-caliber all-welded ball valve)

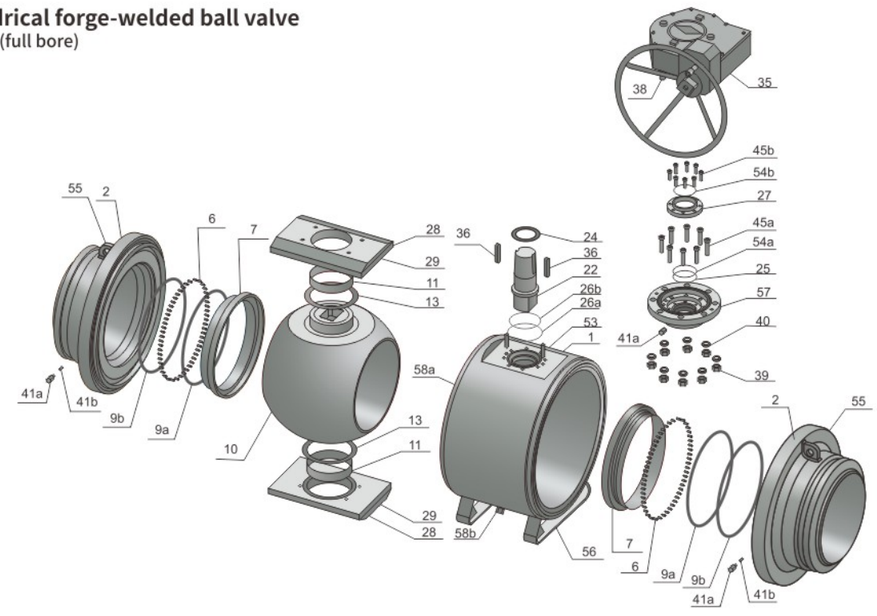

**Technical specification**

| | | | | | |
|---|---|---|---|---|---|
| Design basis | | GB | | API | ASME |
| Design standard | | GB/T 12237 | GB/T 19672 | API 6D | ASME B 16.34 |
| Structure length | | GB/T 12221 | GB/T 19672 | API 6D | ASME B 16.10 |
| Connecting end | Flange connection | GB/T 9113 | | ASME B16.5/MSS SP-44/ASME B 16.47[a] | |
| | Butt welding connection | GB/T 12224 | | ASME B16.25 | |
| Material requirements | | NACE MR0175 | | | |
| Test and inspection | | JB/T 9092 GB/T26480 | GB/T 19672 | API 598 | API 6D / ASME B 16.34 |
| Fire test | | JB/T 6899 | | API 6FA/API 607 | |

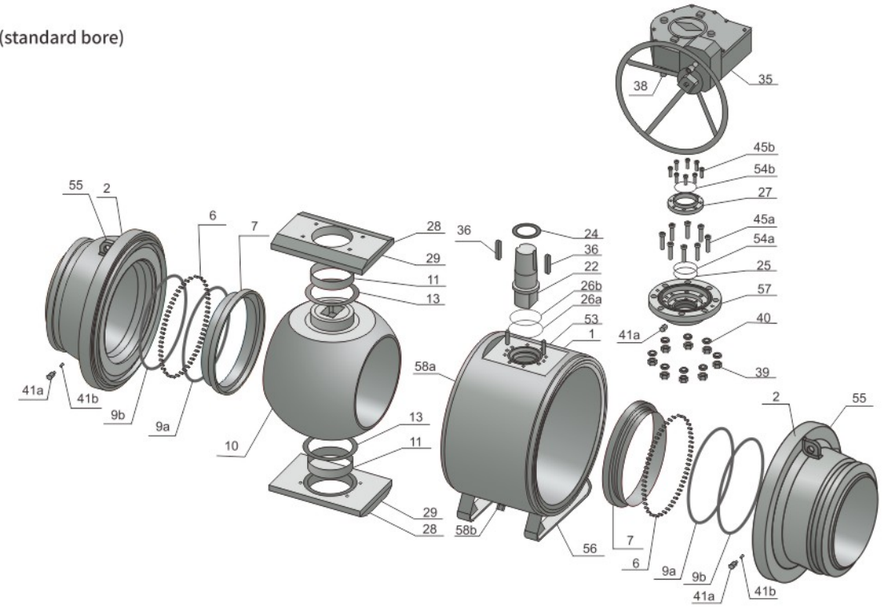
The dimension of the connecting end to the welding end of the valve shall be designed and manufactured according to the requirements of users.

# All-welded ball valve (cylindrical, fixed)

**Cylindrical forge-welded ball valve**
HQ67X (full bore)




HQ67X (standard bore)






All-welded ball valve (cylindrical, fixed)

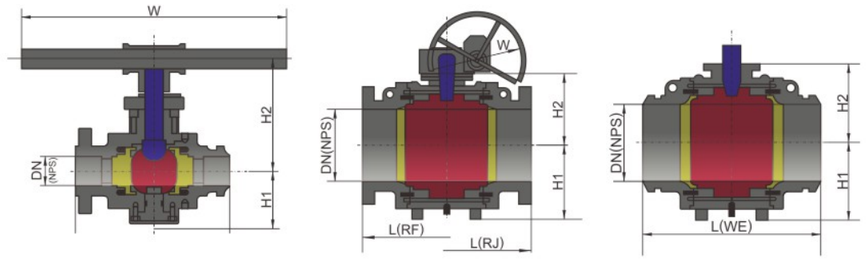
Lvdu Valve

**Materials of main components and parts**

| Serial No. | Part name | Carbon steel series | Low-temperature steel series | Stainless steel series |
|---|---|---|---|---|
| 1 | Mid-body | ASTM A105 | ASTM A350-LF2/LF3 | ASTM A182-F304/F316 |
| 2 | Left and right bodies | ASTM A105 | ASTM A350-LF2/LF3 | ASTM A182-F304/F316 |
| 6 | Spiral spring | Cr-Ni-Fe alloy X-750 | Cr-Ni-Fe alloy X-750 | Cr-Ni-Fe alloy X-750 |
| 7a | Valve seat support ring | ASTM A105 + ENP | ASTM A350-LF2/LF3 + ENP | ASTM A182 F304/F316 |
| 7b | Seal ring | Standard: Anti-explosion fluoro-rubber/ nylon<br>Special: DEVLON/PEEK | Standard: Anti-explosion fluoro-rubber/ nylon<br>Special: DEVLON/PEEK | Standard: Anti-explosion fluoro-rubber/ nylon<br>Special: DEVLON/PEEK |
| 9a | O-type seal ring | Anti-explosion fluoro-rubber | Anti-explosion fluoro-rubber | Anti-explosion fluoro-rubber |
| 9b | Fire-protection ring | Graphite | Graphite | Graphite |
| 10 | Ball | ASTM A105+ENP | ASTM A350—LF2/LF3 + ENP | ASTM A182 F304/F316 |
| 11 | Sliding bearing | 304+PTFE | 304+PTFE | 304+PTFE |
| 13 | Ball thrust bearing | 304+PTFE | 304+PTFE | 304+PTFE |
| 14 | Electrostatic spring | 316SS | 316SS | 316SS |
| 22 | Upper valve rod | ASTM A4140+ENP | ASTM A182 F304/F316 | ASTM A182 F304/F316 |
| 24 | Valve rod thrust bearing | 304+PTFE | 304+PTFE | 304+PTFE |
| 25 | O-type seal ring | Anti-explosion fluoro-rubber | Anti-explosion fluoro-rubber | Anti-explosion fluoro-rubber |
| 26 | O-type seal ring | Anti-explosion fluoro-rubber | Anti-explosion fluoro-rubber | Anti-explosion fluoro-rubber |
| 27 | Gland | ASTM A105 | ASTM A350-LF2/LF3 | ASTM A182 F304/F316 |
| 28 | Lining plate | ASTM A105 | ASTM A350-LF2/LF3 | ASTM A182 F304/F316 |
| 29 | Lining plate pin | ASTM A276—410 | ASTM A276-304 | ASTM A276-316 |
| 30 | Padding | Graphite | Graphite | Graphite |
| 35 | Manual manipulator | Assembling unit | Assembling unit | Assembling unit |
| 36 | Key | ANSI 1045 | ASTM A276-410 | ASTM A276—304 |
| 38 | Stud | ASTM A193-B7/B7M | ASTM A320L7 | ASTM A320-B8/B8M |
| 39 | Nut | ASTM A194-2H/2HM | ASTM A194 4 | ASTM A194-8/8M |
| 40 | Spring washer | 65Mn | 304SS | 304SS |
| 41a | Grease injection valve | Carbon steel | Carbon steel | Stainless steel |
| 41b | Check valve | Carbon steel | Carbon steel | Stainless steel |
| 45a | Screw | ASTM A193-B7/B7M | ASTM A320L7 | ASTM A320-B8/B8M |
| 45b | Screw | ASTM A193-B7/B7M | ASTM A320L7 | ASTM A320-B8/B8M |
| 53 | Locating pin | ANSI 1045 | ASTM A276-410 | ASTM A276-304 |
| 54 | O-type seal ring | Anti-explosion fluoro-rubber | Anti-explosion fluoro-rubber | Anti-explosion fluoro-rubber |
| 55 | Hanger plate | Carbon steel | Carbon steel | Carbon steel |
| 56 | Base | Carbon steel | Carbon steel | Carbon steel |
| 57 | Connecting disc | ASTM A105 | ASTM A350—LF2/LF3 | ASTM A182F304/F316 |
| 58 | Blowdown valve / air release valve | Carbon steel | Carbon steel | Stainless steel |

# All-welded ball valve (cylindrical, fixed)

## Full bore




Handle operation | Worm drive operation | Polished rod with panel, BSMP

## Main boundary and connection dimensions

Unit: mm

| DN | NPS | L | | | H1 | H2 | W | Torque (N.M) |
|---|---|---|---|---|---|---|---|---|
| | | RF | WE | RJ | | | | |
| PN16/PN20/Class 150 | | | | | | | | |
| 50 | 2 | 178 | 216 | 191 | 99 | 210 | 300 | 42 |
| 65 | 2½ | 191 | 241 | 203 | 110 | 215 | 350 | 68 |
| 80 | 3 | 203 | 283 | 216 | 120 | 225 | 400 | 92 |
| 100 | 4 | 229 | 305 | 241 | 148 | 255 | 650 | 145 |
| 150 | 6 | 394 | 457 | 406 | 218 | 237 | 460 | 210 |
| 200 | 8 | 457 | 521 | 470 | 260 | 290 | 600 | 625 |
| 250 | 10 | 533 | 559 | 546 | 292.5 | 323.5 | 600 | 835 |
| 300 | 12 | 610 | 635 | 622 | 327.5 | 359.5 | 600 | 1150 |
| 350 | 14 | 686 | 762 | 699 | 365 | 395 | 750 | 1560 |
| 400 | 16 | 762 | 838 | 775 | 437.5 | 436.5 | 750 | 2375 |
| 450 | 18 | 864 | 914 | 876 | 485 | 487.5 | 750 | 2850 |
| 500 | 20 | 914 | 991 | 927 | 522.5 | 525 | 750 | 3580 |
| 550 | 22 | 991 | 1092 | 1004 | 575.5 | 560 | 750 | 4275 |
| 600 | 24 | 1067 | 1143 | 1080 | 607.5 | 617.5 | 750 | 5650 |
| 650 | 26 | 1143 | 1245 | 1156 | 640 | 632.5 | 750 | 6520 |
| 700 | 28 | 1245 | 1346 | 1285 | 670 | 682.5 | 750 | 7380 |
| 750 | 30 | 1295 | 1397 | 1308 | 710 | 760 | 750 | 8380 |
| 800 | 32 | 1372 | 1524 | 1385 | 730 | 780 | 750 | 9370 |
| 850 | 34 | 1473 | 1626 | 1486 | 780 | 830 | 750 | 12065 |
| 900 | 36 | 1524 | 1727 | 1537 | 830 | 880 | 750 | 14760 |
| 1000 | 40 | 1753 | 1956 | 1985 | 875 | 920 | 750 | 18465 |
| 1050 | 42 | 1829 | 2083 | 2115 | 910 | 945 | 750 | 29210 |
| 1200 | 48 | 2032 | 2388 | 2418 | 1070 | 1085 | 750 | 44500 |



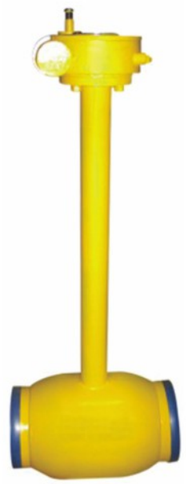
All-welded ball valve (cylindrical, fixed)

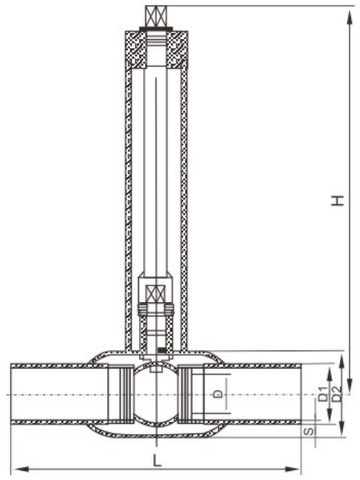
Lvdu Valve Since 1989

## Full bore

| DN | NPS | L | | | H1 | H2 | W | Torque (N.M) |
|---|---|---|---|---|---|---|---|---|
| | | RF | WE | RJ | | | | |
| PN25/PN40/PN50/CLASS 300 | | | | | | | | |
| 50 | 2 | 216 | 216 | 232 | 99 | 210 | 300 | 75 |
| 65 | 2 1/2 | 241 | 241 | 257 | 110 | 215 | 350 | 117 |
| 80 | 3 | 283 | 283 | 298 | 120 | 225 | 400 | 159 |
| 100 | 4 | 305 | 305 | 321 | 148 | 255 | 650 | 250 |
| 150 | 6 | 403 | 457 | 419 | 218 | 237 | 460 | 410 |
| 200 | 8 | 502 | 521 | 518 | 260 | 290 | 600 | 935 |
| 250 | 10 | 568 | 559 | 584 | 292.5 | 323.5 | 600 | 1300 |
| 300 | 12 | 648 | 635 | 664 | 327.5 | 359.5 | 600 | 1790 |
| 350 | 14 | 762 | 762 | 778 | 365 | 395 | 750 | 2415 |
| 400 | 16 | 838 | 838 | 854 | 437.5 | 436.5 | 750 | 3850 |
| 450 | 18 | 914 | 914 | 930 | 485 | 487.5 | 750 | 4645 |
| 500 | 20 | 991 | 991 | 1010 | 522.5 | 525 | 750 | 5870 |
| 550 | 22 | 1092 | 1092 | 1114 | 575.5 | 560 | 750 | 7970 |
| 600 | 24 | 1143 | 1143 | 1165 | 607.5 | 617.5 | 750 | 9718 |
| 650 | 26 | 1245 | 1245 | 1270 | 640 | 632.5 | 750 | 10795 |
| 700 | 28 | 1346 | 1346 | 1372 | 670 | 682.5 | 750 | 11715 |
| 750 | 30 | 1397 | 1397 | 1422 | 710 | 760 | 750 | 14025 |
| 800 | 32 | 1524 | 1524 | 1553 | 730 | 780 | 750 | 15775 |
| 850 | 34 | 1626 | 1626 | 1654 | 780 | 830 | 750 | 20075 |
| 900 | 36 | 1727 | 1727 | 1756 | 830 | 880 | 750 | 24375 |
| 1000 | 40 | 1956 | 1956 | 1985 | 875 | 920 | 750 | 29625 |
| 1050 | 42 | 2083 | 2083 | 2115 | 910 | 945 | 750 | 44130 |
| 1200 | 48 | 2388 | 2388 | 2418 | 1070 | 1085 | 750 | 67140 |
| PN63/PN64/CLASS400 | | | | | | | | |
| 50 | 2 | 292 | 292 | 295 | 99 | 210 | 300 | 110 |
| 65 | 2 1/2 | 330 | 330 | 333 | 110 | 215 | 350 | 148 |
| 80 | 3 | 356 | 356 | 359 | 120 | 225 | 400 | 185 |
| 100 | 4 | 406 | 406 | 410 | 148 | 255 | 650 | 350 |
| 150 | 6 | 495 | 495 | 498 | 218 | 237 | 460 | 485 |
| 200 | 8 | 597 | 597 | 600 | 260 | 290 | 600 | 1235 |
| 250 | 10 | 673 | 673 | 676 | 292.5 | 323.5 | 600 | 1980 |
| 300 | 12 | 762 | 762 | 765 | 327.5 | 359.5 | 600 | 2195 |
| 350 | 14 | 826 | 826 | 829 | 365 | 395 | 750 | 2980 |
| 400 | 16 | 902 | 902 | 905 | 437.5 | 436.5 | 750 | 4735 |
| 450 | 18 | 978 | 978 | 981 | 485 | 487.5 | 750 | 5710 |
| 500 | 20 | 1054 | 1054 | 1060 | 522.5 | 525 | 750 | 7215 |
| 550 | 22 | 1143 | 1143 | 1153 | 575.5 | 560 | 750 | 8735 |
| 600 | 24 | 1232 | 1232 | 1241 | 607.5 | 617.5 | 750 | 11925 |
| 650 | 26 | 1308 | 1308 | 1321 | 640 | 632.5 | 750 | 13295 |
| 700 | 28 | 1397 | 1397 | 1410 | 670 | 682.5 | 750 | 15136 |
| 750 | 30 | 1524 | 1524 | 1537 | 710 | 760 | 750 | 17315 |
| 800 | 32 | 1651 | 1651 | 1667 | 730 | 780 | 750 | 19485 |
| 850 | 34 | 1778 | 1778 | 1794 | 780 | 830 | 750 | 27460 |
| 900 | 36 | 1880 | 1880 | 1895 | 830 | 880 | 750 | 35435 |
| 1000 | 40 | 2250 | 2250 | 2265 | 875 | 920 | 750 | 44210 |
| 1050 | 42 | 2439 | 2439 | 2467 | 910 | 945 | 750 | 53325 |
| 1200 | 48 | 2540 | 2540 | 2540 | 1070 | 1085 | 750 | 64285 |

# All-welded ball valve (directly buried with pre-thermal insulation)






**Scope of application**

Regional heat supply, refrigeration and heating systems, urban gas

**Medium**

Water, air, oil and other fluids that do not react with carbon steel

**Main boundary and connection dimensions**

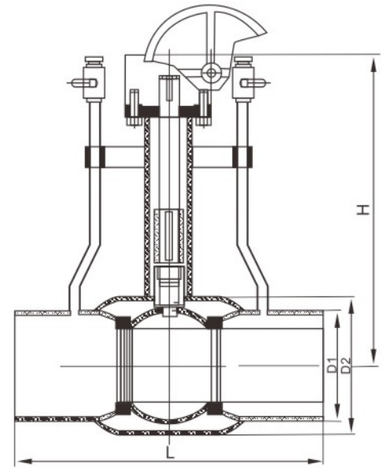
Unit: mm

| DN | D | D1 | D2 | L | |
|---|---|---|---|---|---|
| | | A/B | | S | L |
| PN25 | | | | | |
| 50 | 40 | 60.3/57 | 89 | 300 | 1000 |
| 65 | 50 | 76.1/76 | 114 | 300 | 1000 |
| 80 | 65 | 88.9/89 | 140 | 300 | 1000 |
| 100 | 80 | 114.3/108 | 165 | 325 | 1000 |
| 150 | 125 | 168.3/159 | 219 | 350 | 1000 |
| 200 | 150 | 219.1/219 | 267 | 400 | 1000 |
| 250 | 200 | 273.1/273 | 355 | 560 | 1000 |
| 300 | 250 | 323.9/325 | 457 | 635 | 1100 |
| 400 | 337 | 406.4/426 | 558 | 760 | 1360 |
| 500 | 387 | 508.0/530 | 660 | 910 | 1510 |
| 600 | 489 | 609.6/630 | 812 | 1065 | 1660 |





# All-welded ball valve (directly buried, released)




**Scope of application**

Natural gas pipeline, urban gas

**Medium**

Natural gas, coal gas, fuel gas and other fluids that do not react with carbon steel

**Main boundary and connection dimensions**

Unit: mm

| DN | A | D | D1 | D2 | L |
|---|---|---|---|---|---|
| | | | A/B | | |
| PN25 | | | | | |
| 50 | 300 | 40 | 60.3/57 | 89 | 600 |
| 65 | 300 | 50 | 76./76 | 114 | 600 |
| 80 | 300 | 65 | 88.9/89 | 140 | 600 |
| 100 | 340 | 80 | 114.3/108 | 165 | 600 |
| 125 | 400 | 100 | 139.7/133 | 216 | 600 |
| 150 | 400 | 125 | 168.3/159 | 219 | 800 |
| 200 | 400 | 150 | 219.1/219 | 267 | 800 |
| 250 | 400 | 200 | 273.1/273 | 355 | 800 |
| 300 | 500 | 250 | 323.9/325 | 457 | 800 |
| 350 | 500 | 300 | 355.6/377 | 508 | 800 |
| 400 | 500 | 337 | 406.4/426 | 558 | 1200 |
| 450 | 500 | 337 | 457.2/480 | 558 | 1200 |
| 500 | 600 | 387 | 508.0/530 | 660 | 1200 |
| 600 | 650 | 489 | 609.6/630 | 812 | 1200 |

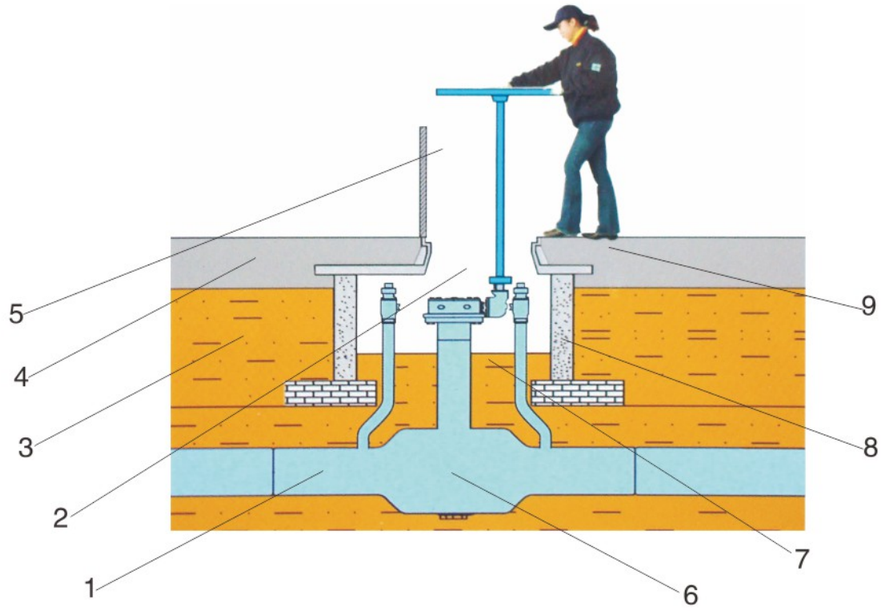
# All-welded Ball Valve (Directly Buried)

## Construction Drawing

The vehicles and pedestrians in the modern city are intensive, and the road situation is very complicated. Therefore, the requirement for construction time and construction safety is very high in the construction and maintenance process of gas supply pipeline and heat supply pipeline.

The all-welded ball valve is used and directly deeply-buried underground this time. The construction energy of the latest engineering technological method can greatly reduce the space of valve control, and save the construction cost and engineering time.

When the directly-buried ball valve drives, the operator can operate on the ground instead of going underground, so it can effectively prevent the danger of gas explosion, and it is also safe and convenient.




| No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Part name | Buried pipeline | Valve chamber | Buried medium | Cement casting area | Well cover and ring | Valve | Bleeder | Drilling wall | Pavement |

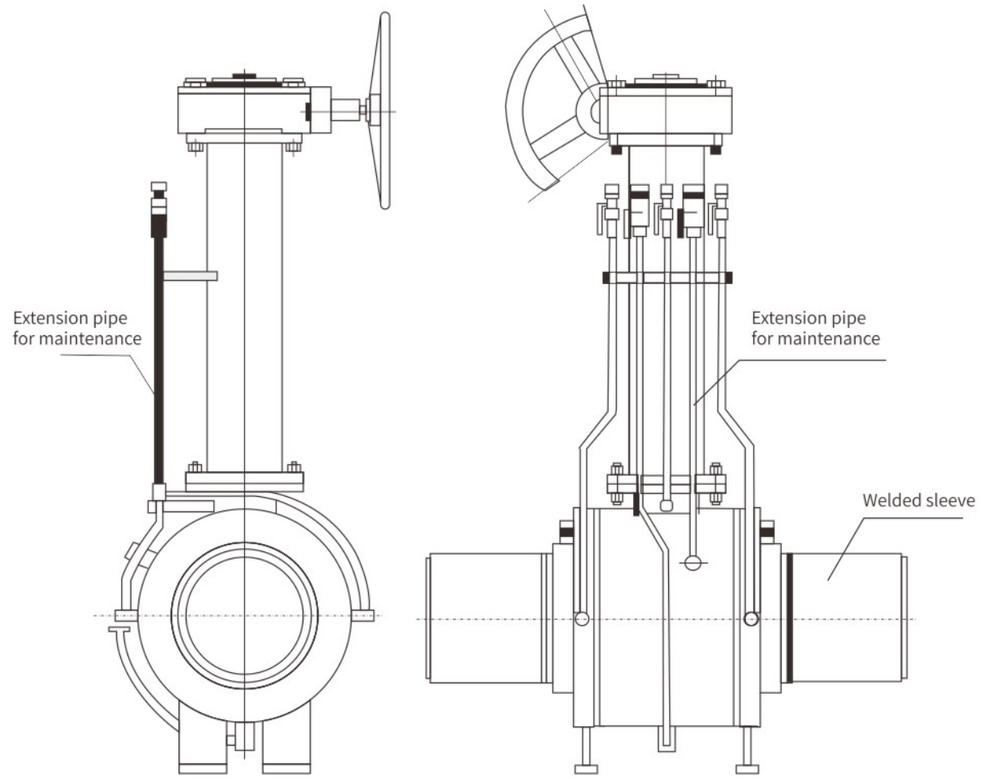
The expense for design of a valve well of an ordinary valve is far higher than the price of the valve

## Design of burying working condition

The valve for burying working condition is set with the valve extension rod, extension pipe for maintenance (vent pipe of channel at both sides + grease pipe of valve seat at both sides + blowdown pipe at the bottom of valve body) and control valve, so that the operating position of valve is convenient for operation above the ground. The valve surface is protected by anti-corrosive asphalt coating or epoxy resin, on-site pipeline bridging and cathode so as to adapt to the burying operating environment.

## Features

The manufacturing process of cylindrical valve body structure is simple, which is convenient for assembly and positioning. The mold needed for manufacturing the blank is simple and it is convenient to fix the ball with the support plate.




## Group Welding Form Of Cylindrical Body

The three-body is welded through two symmetric longitudinal welds or the two-body is welded through a longitudinal weld.

## Features

The structure has good manufacturability, which facilitates the installation of the valve rod and is particularly suitable for large-caliber all-welded ball valve. (Two-body is suitable for small-caliber all-welded ball valve. Three-body is suitable for large-caliber all-welded ball valve)