

Products Manual

QB

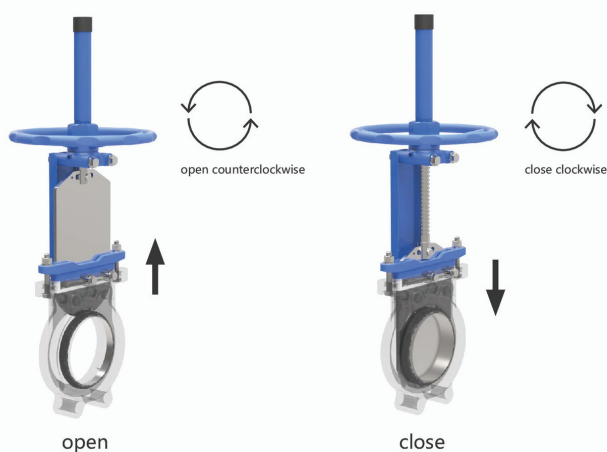


Unidirectional Seal Knife Gate Valve/Light Seat Cover Replaceable

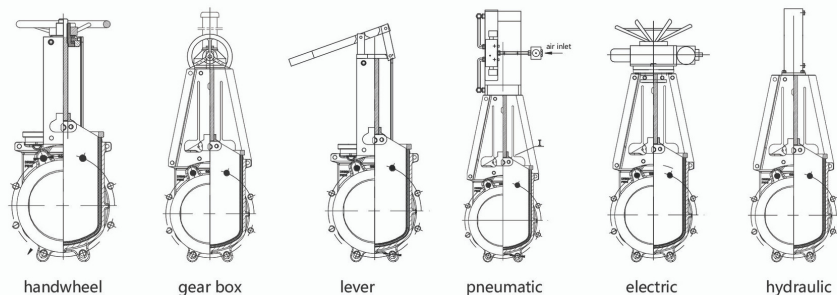
1. General Description

1.1 Description

QB Series Knife gate valve is with replaceable rubber seal knife gate structure, its sealing principle is mainly by closely connection between gate and rubber seals. Its main characters is that the rubber sealing ring is set in seat' groove and is locked by metal seat, which will prevent rubber seal off when opening and closing the valve. If the seal is broken, you can remove the metal sear and replace the rubber seal, which will greatly improve valve' working efficiency. This valve is a cost-effective, high-performance products. The series of knife gate valve can be equipped with pneumatic actuators, in order to meet the requirements of different industrial and mining use.



1.2 Operation:



2.Design standard

2.1 Medium:

| | |
|---------------------------|--|
| Model: | QBZ73X |
| Working Pressure: | DN50-DN100 16bar DN125-DN200 14bar DN250-DN300 12bar DN350-DN400 10bar DN450-DN550 8bar DN600-DN650 5bar DN700-DN750 4bar DN800-DN900 3bar DN1000 2bar |
| Type: | Wafer,Lug,Flange |
| Design Standard: | MSS SP-81 |
| Flange Standard: | PN10/PN16 10K 150LB TD TE |
| Face to Face: | MSS SP-81 |
| Testing Standard: | API-598 |
| Operation: | handwheel, electric, pneumatic, hydraulic, sprocket, electro-hydraulic, gear |
| Main material: | 2205,SS310,CF3M,CF3,CF8M,CF8,WCB,GGG40 |
| Disc material: | SS316L,SS316L,SS304 |
| Sealing material: | NBR,NR,EPDM,FKM,PTFE(leakage not recommend) |
| Packing: | PTFE,high water based, aramid,rubber packing,graphite |
| Applicable medium: | Applicable for coal in power plant, slag discharge, sewage treatment, food, paper making, medicine and chemical industry, water, Oil, steam, gold powder, ores, slag, coal, pulp, wood pulp, tailings, fibers, dust, chemicals, sewage treatment, asphalt, fruit juices, cereals, slaughter plant waste and other media. |

Note:

- Diffrenct size working pressure was diffrent,pls make sure your order working pressure before order.
- Working pressure was diffrent with flange standard pressure.(flange connection was PN10 not means the pipe inside pressure was 10bar)

2. Handling and installation

2.1 Handling:



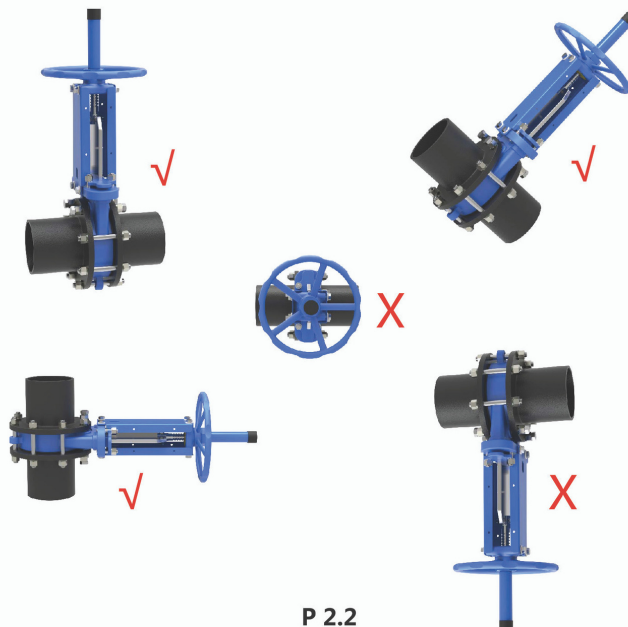
P 2.1

Note:

- It is strongly required to use gloves, helmets and work shoes throughout handling
- It is best to use metal hooks to move the valve
- Do not carry valve with hooks or straps from the yoke

2.Handling and installation

2.2 Installation Direction:



Note:

- It is strongly required to use gloves, helmets and work shoes throughout installation.
- Before installation, select the appropriate bolt, bolt selection, please refer to the data.
- Between the flange and the flange must have a gasket connection.

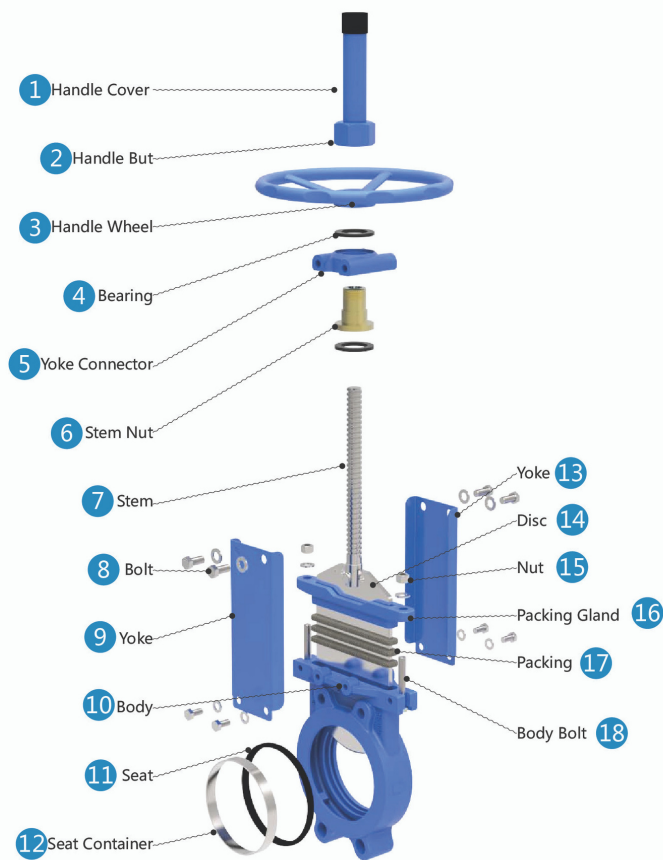
2.3 Installation Guide:

Note:

- Once the valve has been installed, check that all the screws and nuts have been correctly tightened and that the whole valve action system has been correctly adjusted (electrical connections, pneumatic connections, instruments...). Even if the valve has been assembled and tested at CHISUN during the handling and transport the screws on the packing gland tend to come loose and must be re-tightened.

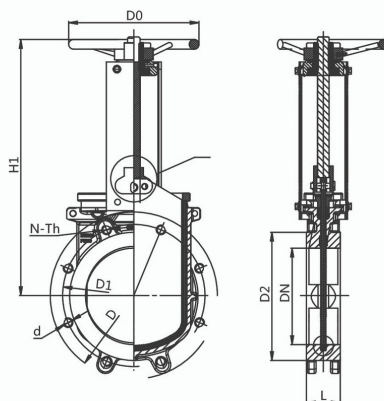
3.Detail drawings and Data

3.1 Detail Drawing:



P 3.1

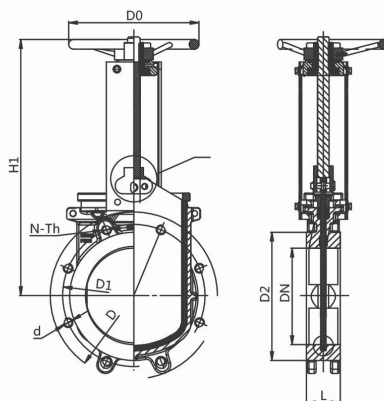
3.2 Detail Data:



unit:mm

| DIN PN10 | | | | | | | | | ANSI 150LB | | | | | | | | |
|----------|-----|------|------|------|-----|--------|-----|------|------------|-----|------|------|------|-----|-----------|-----|------|
| DN | L | D | D1 | D2 | D0 | N-Th | d | H1 | DN | L | D | D1 | D2 | D0 | N-Th | d | H1 |
| 50 | 48 | 165 | 125 | 99 | 180 | 4-M16 | Ø18 | 290 | 2" | 48 | 152 | 121 | 92 | 180 | 4-5/8" | Ø19 | 260 |
| 65 | 48 | 185 | 145 | 118 | 200 | 4-M16 | Ø18 | 330 | 2-1/2" | 48 | 178 | 140 | 105 | 200 | 4-5/8" | Ø19 | 292 |
| 80 | 51 | 200 | 160 | 132 | 200 | 8-M16 | Ø18 | 358 | 3" | 51 | 191 | 153 | 127 | 200 | 4-5/8" | Ø19 | 320 |
| 100 | 51 | 220 | 180 | 156 | 240 | 8-M16 | Ø18 | 378 | 4" | 51 | 229 | 191 | 157 | 240 | 8-5/8" | Ø19 | 358 |
| 125 | 57 | 250 | 210 | 184 | 260 | 8-M16 | Ø18 | 428 | 5" | 57 | 254 | 216 | 186 | 260 | 8-3/4" | Ø22 | 395 |
| 150 | 57 | 285 | 240 | 211 | 280 | 8-M20 | Ø23 | 490 | 6" | 57 | 279 | 242 | 216 | 280 | 8-3/4" | Ø22 | 450 |
| 200 | 70 | 340 | 295 | 266 | 300 | 8-M20 | Ø23 | 588 | 8" | 70 | 343 | 299 | 270 | 300 | 8-3/4" | Ø22 | 532 |
| 250 | 70 | 395 | 350 | 319 | 320 | 12-M20 | Ø23 | 690 | 10" | 70 | 406 | 362 | 324 | 320 | 12-7/8" | Ø25 | 670 |
| 300 | 76 | 445 | 400 | 370 | 350 | 12-M20 | Ø23 | 815 | 12" | 76 | 483 | 432 | 381 | 350 | 12-7/8" | Ø25 | 758 |
| 350 | 76 | 505 | 460 | 429 | 400 | 16-M20 | Ø23 | 890 | 14" | 76 | 533 | 476 | 413 | 400 | 12-1" | Ø29 | 857 |
| 400 | 89 | 565 | 515 | 480 | 450 | 16-M24 | Ø27 | 980 | 16" | 89 | 597 | 540 | 470 | 450 | 16-1" | Ø29 | 946 |
| 450 | 89 | 615 | 565 | 530 | 500 | 20-M24 | Ø27 | 1025 | 18" | 89 | 635 | 578 | 533 | 500 | 16-1 1/8" | Ø32 | 1023 |
| 500 | 114 | 670 | 620 | 582 | 500 | 20-M24 | Ø27 | 1230 | 20" | 114 | 699 | 635 | 584 | 500 | 20-1 1/8" | Ø32 | Gear |
| 550 | 114 | 725 | 680 | 638 | - | 20-M27 | Ø30 | 1344 | 22" | 114 | 750 | 692 | 641 | - | 20-1 1/4" | Ø35 | Gear |
| 600 | 114 | 780 | 725 | 682 | - | 20-M27 | Ø30 | 1390 | 24" | 114 | 813 | 750 | 691 | - | 20-1 1/4" | Ø35 | Gear |
| 700 | 127 | 895 | 840 | 794 | - | 24-M27 | Ø30 | 1720 | 28" | 127 | 927 | 864 | 800 | - | 28-1 1/4" | Ø35 | Gear |
| 800 | 127 | 1015 | 950 | 901 | - | 24-M30 | Ø33 | 1862 | 32" | 127 | 1060 | 978 | 914 | - | 28-1 1/2" | Ø41 | Gear |
| 900 | 127 | 1115 | 1050 | 1001 | - | 28-M30 | Ø33 | 1910 | 36" | 127 | 1170 | 1086 | 1022 | - | 32-1 1/2" | Ø41 | Gear |
| 1000 | 149 | 1230 | 1160 | 1112 | - | 28-M33 | Ø36 | Gear | 40" | 149 | 1290 | 1200 | 1124 | - | 36-1 1/2" | Ø41 | Gear |
| 1100 | 149 | 1340 | 1260 | 1220 | - | 28-M33 | Ø36 | Gear | 44" | 149 | 1405 | 1314 | 1245 | - | 40-1 1/2" | Ø41 | Gear |
| 1200 | 156 | 1455 | 1380 | 1328 | - | 32-M36 | Ø39 | Gear | 48" | 156 | 1510 | 1422 | 1359 | - | 44-1 1/2" | Ø41 | Gear |

3.2 Detail Data:



unit:mm

| JIS 10K | | | | | | | | | | Table E | | | | | | | |
|---------|-----|------|------|------|-----|--------|-----|------|-----|---------|-----|-----|-------|-----|-------------|-----|------|
| DN | L | D | D1 | D2 | D0 | N-Th | d | H1 | DN | L | D | D1 | D2 | D0 | N-Th | d | H1 |
| 50 | 48 | 155 | 120 | 96 | 180 | 4-M16 | Ø19 | 290 | 50 | 48 | 152 | 114 | 89 | 180 | 4-M5/8-11 | Ø19 | 290 |
| 65 | 48 | 175 | 140 | 116 | 200 | 4-M16 | Ø19 | 330 | 65 | 48 | 165 | 127 | 102 | 200 | 4-M5/8-11 | Ø19 | 330 |
| 80 | 51 | 185 | 150 | 126 | 200 | 8-M16 | Ø19 | 358 | 80 | 51 | 184 | 146 | 121 | 200 | 4-M5/8-11 | Ø19 | 358 |
| 100 | 51 | 210 | 175 | 151 | 240 | 8-M16 | Ø19 | 378 | 100 | 51 | 216 | 178 | 153 | 240 | 4-M5/8-11 | Ø19 | 378 |
| 125 | 57 | 250 | 210 | 182 | 260 | 8-M20 | Ø23 | 428 | 125 | 57 | 254 | 210 | 184.5 | 260 | 8-M5/8-11 | Ø19 | 428 |
| 150 | 57 | 280 | 240 | 212 | 280 | 8-M20 | Ø23 | 490 | 150 | 57 | 279 | 235 | 210 | 280 | 8-M5/8-11 | Ø19 | 490 |
| 200 | 70 | 330 | 290 | 262 | 300 | 12-M20 | Ø23 | 588 | 200 | 70 | 337 | 292 | 267 | 300 | 8-M5/8-11 | Ø19 | 588 |
| 250 | 70 | 400 | 355 | 324 | 320 | 12-M22 | Ø25 | 690 | 250 | 70 | 406 | 356 | 328 | 320 | 12-M3/4-10 | Ø22 | 690 |
| 300 | 76 | 445 | 400 | 368 | 350 | 16-M22 | Ø25 | 815 | 300 | 76 | 457 | 406 | 378 | 350 | 12-M3/4-10 | Ø22 | 815 |
| 350 | 76 | 490 | 445 | 413 | 400 | 16-M22 | Ø25 | 890 | 350 | 76 | 525 | 470 | 439 | 400 | 12-M7/8-9 | Ø26 | 890 |
| 400 | 89 | 560 | 510 | 475 | 450 | 16-M24 | Ø27 | 980 | 400 | 89 | 578 | 521 | 489 | 450 | 12-M7/8-9 | Ø26 | 980 |
| 450 | 89 | 620 | 565 | 530 | 500 | 20-M24 | Ø27 | 1025 | 450 | 89 | 640 | 584 | 553 | 500 | 16-M7/8-9 | Ø26 | 1025 |
| 500 | 114 | 675 | 620 | 585 | 500 | 20-M24 | Ø27 | 1230 | 500 | 114 | 705 | 641 | 610 | 500 | 16-M7/8-9 | Ø26 | 1230 |
| 550 | 114 | 745 | 680 | 640 | - | 20-M30 | Ø33 | 1344 | 550 | 114 | 762 | 698 | 663 | - | 16-M1-8 | Ø30 | 1344 |
| 600 | 114 | 795 | 730 | 690 | - | 24-M30 | Ø33 | 1390 | 600 | 114 | 825 | 756 | 721 | - | 16-M1-8 | Ø30 | 1390 |
| 650 | 114 | 845 | 780 | 740 | - | 24-M30 | Ø33 | 1595 | 700 | 127 | 895 | 840 | 794 | - | 16-M1-8 | Ø30 | 1595 |
| 700 | 127 | 905 | 840 | 800 | - | 24-M30 | Ø33 | 1720 | 750 | 127 | 996 | 927 | 889 | - | 20-M1 1-8-7 | Ø32 | 1720 |
| 750 | 127 | 970 | 900 | 855 | - | 24-M30 | Ø33 | 1862 | | | | | | | | | |
| 800 | 127 | 1020 | 950 | 905 | - | 28-M30 | Ø33 | 1910 | | | | | | | | | |
| 850 | 127 | 1070 | 1000 | 955 | - | 28-M30 | Ø33 | - | | | | | | | | | |
| 900 | 127 | 1120 | 1050 | 1005 | - | 28-M30 | Ø33 | - | | | | | | | | | |
| 1000 | 149 | 1235 | 1160 | 1110 | - | 28-M30 | Ø33 | - | | | | | | | | | |
| 1100 | 149 | 1345 | 1270 | 1220 | - | 28-M36 | Ø33 | - | | | | | | | | | |
| 1200 | 156 | 1465 | 1380 | 1325 | - | 32-M36 | Ø39 | - | | | | | | | | | |

4. Maintain and replace accessories

4.1 Maintain:

4.1.1 In the valve open state, regularly to the stem ⑥ and disc ⑭ oil, regularly tight bolts, make sure pipe flange position no leaking, make sure During the opening and closing of the valve, the Yoke ⑨ is not loose

4.1.2 Maintenance in use, every 30-40 day (According to the actual conditions to increase and shorten the interval time In the valve open state oil between knife and packing gland, also the stem oil.

4.1.3 about storage: 1. Store in an indoor or top-of-the-box building at the appropriate temperature. (-10°C~40°C)
2. Recommended to store the valve in full or closed state.
3. Do not store in a sunny environment



4.2 Replace accessories:

4.2 Step 1

counterclockwise turning the wrench to disassemble the stem nut.



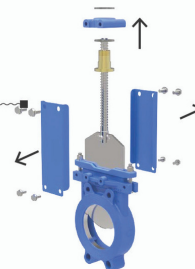
4.2 Step 2

Remove the handwheel ④ and the positioning plate in the direction of the arrow



4.2 Step 3

Remove the Yoke ⑨ Stem ⑦ Yoke head ⑤ Nut Bearing ④ and Disc ⑭ in the direction of the arrow



4. Maintain and replace accessories

4.2 Step 4

Move out Packing gland 12 and Disc 14 washer and nut from the top of the valve body.



4.2 Step 5

Take out the Packing 13



4.2 Step 6

Take out the Seat Container 12 and Seat 11



4.2 Step 6

Install replacement Seat 6 and Packing 13. Reinstall other components.

Repeat the above steps

5.Operation

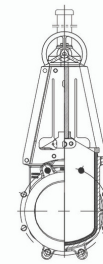
5.1 Handwheel operation

Handwheel operation is one of the most commonly used valve opening methods. Usually used in small size valves(DN50-DN450).Turn the handwheel counterclockwise to turn on and turn it clockwise



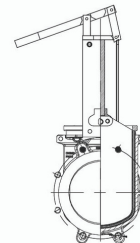
5.2 Gear box operation

Gear box operation is one of the most commonly used valve opening methods. Usually used in big size valves(DN500 and bigger).Turn the handwheel counterclockwise to turn on and turn it clockwise,torque was smaller than handwheel.but turn on and off speed was slow.



5.3 Lever operation

Gear box operation is one of the most commonly used valve opening methods. Usually used in big size valves(DN500 and bigger).Turn the handwheel counterclockwise to turn on and turn it clockwise,torque was smaller than handwheel.but turn on and off speed was slow.



5.4 Pneumatic actuator

The default pneumatic actuator is a double acting actuator,Pneumatic actuators open and close pressure was 6bar-8bar:before use,open and close the actuators more than 2time.Gas source,The air supply requires clean and dry

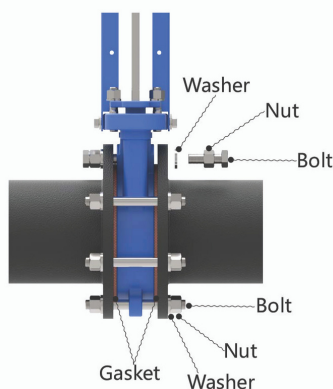


5.5 Electric actuator

According to customer requirement,we supply diffrent type and brand.

6. Flange installation Instructions

6.1 Flange installation:



Note:

- Recommended to install as shown above picture, thread hole use washer-nut-bolt assembly, normal hole as washer-nut-bolt assembly.
- Do not install bolts with less quantity.

6.2 Assemble Direction :



1. Before installation on the pipe, pls be very careful the installation direction, The direction of the fluid must be the same as the direction indicated by the arrow of the valve body

2. If the medium is dry powder, dry coal slag, dry slag, etc., can also be installed in reverse (It must be supervised by the engineer on site)

6.3 Torque data:

| | DN50 | DN65 | dn80 | DN100 | DN125 | DN150 | DN200 | DN250 | DN300 | DN350 | DN400 | DN450 | DN500 | DN600 | DN700 |
|-------------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Torque(N.M) | 3 | 3 | 3 | 4 | 4 | 6 | 7 | 15 | 29 | 57 | 60 | 73 | 171 | 172 | 180 |
| Thrust(N.M) | | | | | | | | | | | | | | | |

7. Sealing material selection table

| | A-excellent | B- good | C-ordinary | X-bad | | | | |
|-----------------------------------|----------------|-------------------|--------------------------|----------------------------------|--------|--------------|--------------|--|
| name | natural rubber | Styrene Butadiene | Nitrile Butadiene Rubber | Ethylene-Propylene-Diene Monomer | Silica | fluororubber | polyurethane | |
| code | NR | SBR | NBR | EPDM | Si | FKM | PU | |
| Min °C | -75 | -55 | -40 | -55 | -110 | -30 | -30 | |
| max °C | 70 | 70 | 100 | 125 | 225 | 250 | 100 | |
| hard(shore A) | 30~90 | 40~90 | 40~90 | 40~90 | 40~80 | 55~90 | 50~80 | |
| tensile(kgf/cm ²) max | 35 | 25 | 25 | 20 | 15 | 20 | 20 | |
| mineral oil | X | X | A | X | B | A | A | |
| sulfuric acid | C | C | C | A | X | A | C | |
| toluene | X | X | X | X | X | A | A | |
| alcohol | B | B | A | A | X | A | X | |
| Ether | X | X | C | X | X | X | C | |

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