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Vietnam  
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WELKIN and its global partners are dedicating to build a fast & secure supply network, the international teams stand ready to meet clients' requirement with a local approach.



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Welkin New Energy Material Co., Ltd



北京韦肯新能源技术服务有限公司  
Welkin New Energy Material Co.,Ltd

## ENTERPRISE BRIEF INTRODUCTION

WELKIN Company was founded in 2016 aiming at being international leading Valve manufacturer, committed to providing customers with customized Valve products and reliable Valve solutions.

Our product series includes Gate Valves, Globe Valves, Check Valves, Ball Valves, Butterfly Valves, and functional Valves such as control and filter valves. Raw materials include carbon steel, alloy steel, stainless steel, cast iron, copper nickel alloy, Monel, etc.

Welkin Valves design standards follow ASME, API, ISO, DIN, BS, GOST. Product specification range from DN (1/2 "–120") (15mm–3000mm); Nominal pressure (150 LB–2500LB) (1.0MPa–42MPa); Applied temperature range from (–196°C–850°C);

WELKIN Valves are widely used in petroleum, chemical, water treatment, mining, power industries. Based on different application scenarios and customer needs, we supply optional actuator methods: manual, Gear, Pneumatic, Electric, Hydraulic transmission for choice.

Besides supplying industrial Valves, WELKIN also offers Valves customization and kinds of steel pipes. Since establishment WELKIN has served over 30+ customers in Valve industry. Over ten sales offices and branches worldwide, distributed in Europe, America, Southeast Asia, Middle East, Africa. Customer service team always ready to help solving any problem.

At WELKIN, we appreciate Simple, Quick and Reliable solution. Aiming to be “your convenient Valve store”, WELKIN is dedicated to provide clients NONSTOP service and ONESTOP solution across the globe.





## MANUFACTURE PROCESS FLOW



**1**  
 Sand Moulding  
 Wax moulding



**2**  
 Casting  
 Forging



**3**  
 Raw material inspection  
 Dimension Check of forging



**7**  
 Process inspection



**8**  
 Assembly



**9**  
 Pressure test



**4**  
 Wall thickness test  
 Penetrant test



Magnetic Test  
 Portable spectrum analysis



**5**  
 Spectrum Test



**6**  
 Maching line  
 Precision machining



**10**  
 Painting line



**11**  
 Painting thickness test



**12**  
 Packing & Delivery



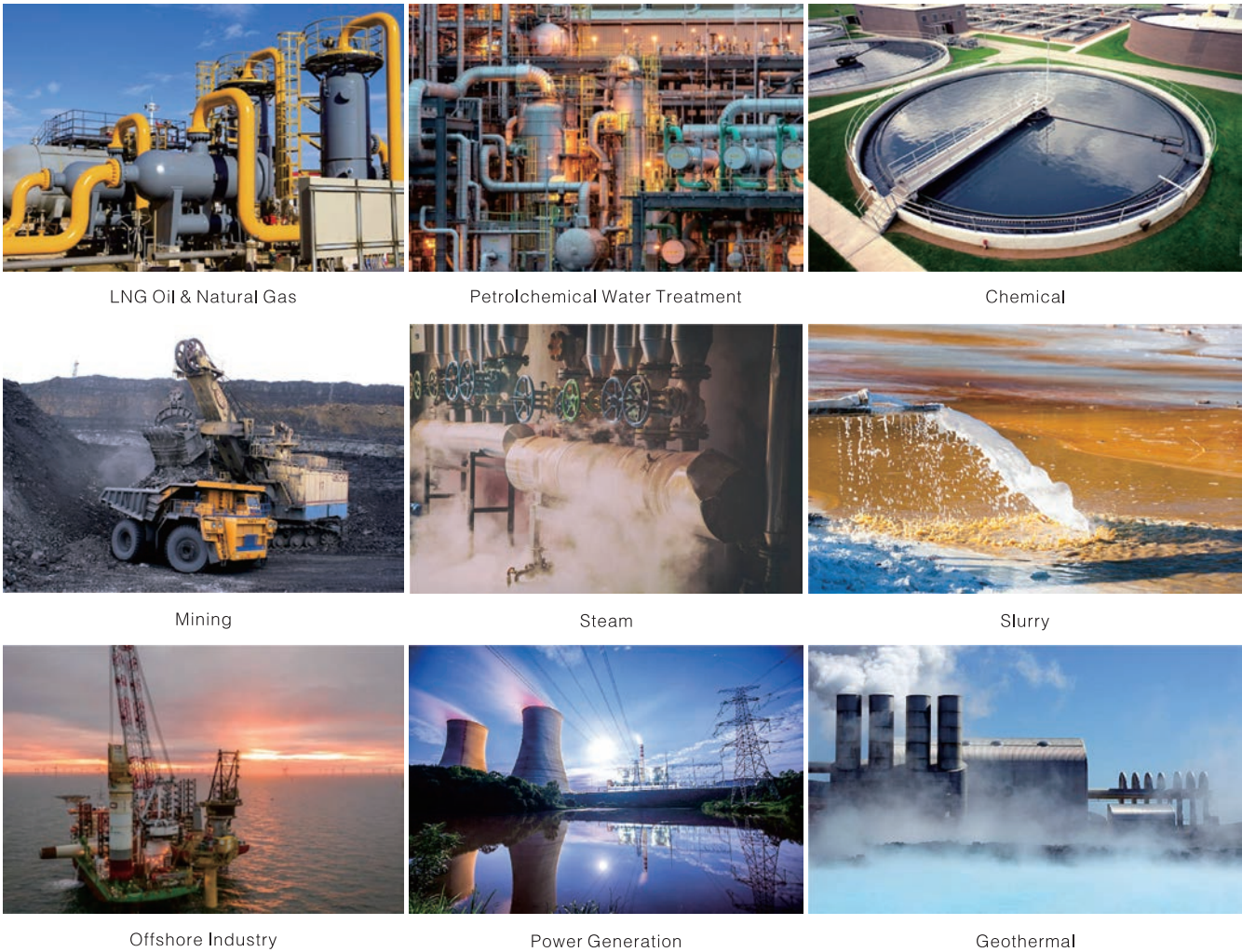
Culture of Welkin:

Professionality, Efficiency, Reliability

Welkin Customer Service:

- ★ Flexible production management
- ★ State of art manufacturing Facilities
- ★ Customized Design upon Request
- ★ Minimized MOQ
- ★ 24H On-duty Onsite service

Industrial Application

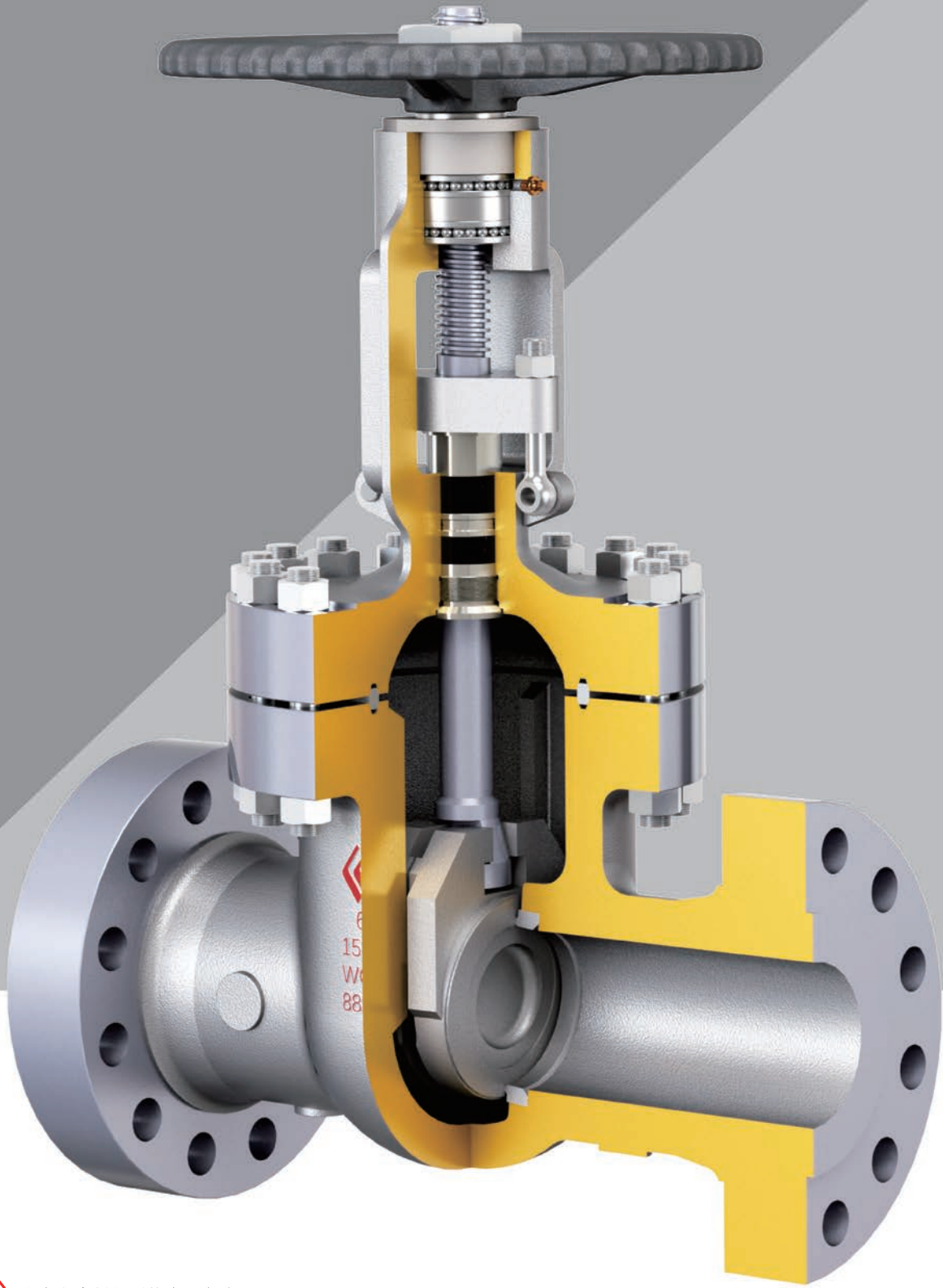


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# Gate Valve Products



## Gate Valve



**Related Standards:**  
Design and Manufacture: API600/ API6D/ API602  
Face to Face and End to End: ASME B16.10  
Flanged End: ASME B16.5/ ASME B16.47  
Butt Welded End: ASME B16.25  
Test & Inspection: API 598

**Design DESCRIPTION**  
Outside Screw & Yoke  
Bolted Bonnet with Yoke  
Renewable Seat Ring upon request  
Flange or butt welding ends  
Solid or split wedge gate  
Flexible Wedge fully guided  
Resistant to corrosion and wear  
Special features according to Customer's requirement

**Body and Bonnet Connection**  
Bolts and Nuts for 150LB~2500LB , Pressure Seal for 600LB~2500LB,  
also optional by application or customer's request.

**Seat Sealing Surface**  
Welkin valve has welded seat, renewable threaded seat and integral seat,  
Spray welded with hard alloy specified sealing surface.  
Optional by application or customer's request.

**Stem**  
Integral forged design and precisely machined surface (Ra 0.8  $\mu$  m), T  
type/ connection of Stem and Disc.

**Packing Seal**  
Molded flexible graphite and PTFE or combined packing material is  
used for packing material, Excellent finish (Ra3.2  $\mu$  m) of packing  
box's internal surface to ensure the reliable tightness of stem and  
packing box

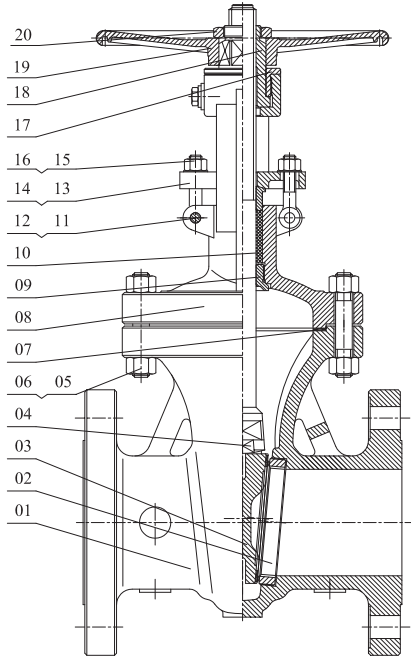
**Back Seat Sealing**  
Renewable back seat (carbon steel gate valve) or welded/ integral  
back seat (Stainless steel globe valve). Optional by application or  
customer' s request

**Cover Flange Gasket**  
Stainless steel + flexible graphite combined gasket (150LB~300LB  
recommended), Stainless steel + flexible, graphite wounded gasket  
(600LB recommended), Ring joint gasket ( $\geq$ 900LB), Optional by  
application or customer' s request

**Driving method**  
Actuators are optional according to customer request.



STANDARD MATERIAL SPECIFICATIONS (ASTM)



TECHNICAL SPECIFICATIONS:



2" –48"



Up to 650℃



Class 150LB–2500LB

Optional Operating Actuator



Handwheel



Gear Box



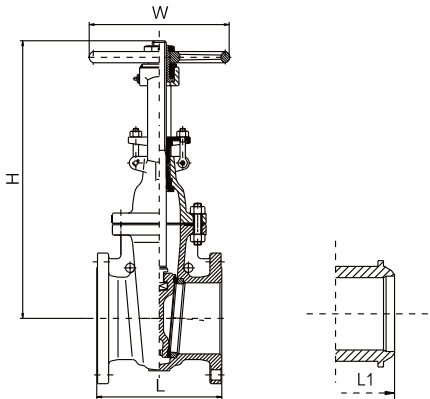
Pneumatic



Electric

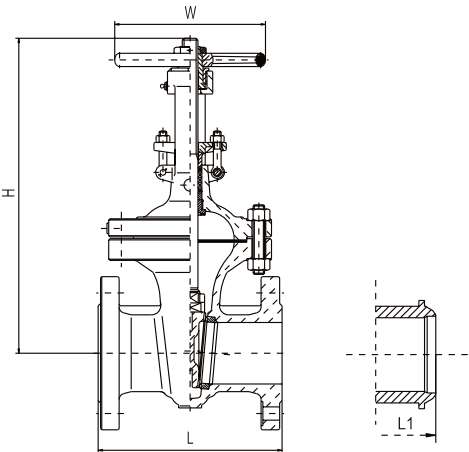
| NO. | Part Name          | ASTM CARBON STEEL                                |           | ASTM ALLOY STEEL |          |         | ASTM STAINLESS STEEL |           |            |            |
|-----|--------------------|--------------------------------------------------|-----------|------------------|----------|---------|----------------------|-----------|------------|------------|
|     |                    | Standard                                         | Cryogenic | High Temperature |          |         | CF8                  | CF8M      | CF3        | CF3M       |
| 1   | Body               | A216 WCB                                         | A352 LCB  | A217 WC6         | A217 WC9 | A217 C5 | A351 CF8             | A351 CF8M | A351CF3    | A351 CF3M  |
| 2   | Seat Ring          | A105                                             | A350 LF2  | A182 F11         | A182 F22 | A182 F5 | A182 F304            | A182 F316 | A182 F304L | A182 F316L |
| 3   | Wedge              | A216 WCB                                         | A352 LCB  | A217 WC6         | A217 WC9 | A217 C5 | A351 CF8             | A351 CF8M | A351CF3    | A351 CF3M  |
| 4   | Stem               | A182 F6                                          | A182 F6   | A182 F304        |          |         | A182 F304            | A182 F316 | A182 F304L | A182 F316L |
| 5   | Bonnet Bolt        | A193 B7                                          | A320 L7   | A193 B16         |          |         | A193 B8              |           |            |            |
| 6   | Bonnet Nut         | A1942H                                           | A194 4    | A194 7           |          |         | A194 8               |           |            |            |
| 7   | Gasket             | SS Spiral Wound/graphite or SS Spiral Wound/PTFE |           |                  |          |         |                      |           |            |            |
| 8   | Bonnet             | A216 WCB                                         | A352 LCB  | A217 WC6         | A217 WC9 | A217 C5 | A351 CF8             | A351 CF8M | A351CF3    | A351 CF3M  |
| 9   | Backseat           | A182 F6                                          | A182 F6   | A182 F304        |          |         | A182 F304            | A182 F316 | A182 F304L | A182 F316L |
| 10  | Stem Packing       | Graphite or PTFE                                 |           |                  |          |         |                      |           |            |            |
| 11  | Lantern Ring       | A182 F6                                          | A182 F6   | A182 F304        |          |         | A182 F304            | A182 F316 | A182 F304L | A182 F316L |
| 12  | Pin                | Carbon steel or Stainless Steel                  |           |                  |          |         |                      |           |            |            |
| 13  | Gland              | A182 F6                                          |           |                  |          |         | A182 F304            | A182 F316 | A182 F304L | A182 F316L |
| 14  | Gland Flange       | A216WCB                                          |           |                  |          |         | A351 CF8             |           |            |            |
| 15  | Gland Eyebolt      | A194 B7                                          |           |                  |          |         | A193B8               |           |            |            |
| 16  | Gland Nut          | A1942H                                           |           |                  |          |         | A194 B               |           |            |            |
| 17  | Stem Nut           | A439 02 or B148–952A                             |           |                  |          |         |                      |           |            |            |
| 18  | Retaining Nut      | Carbon steel                                     |           |                  |          |         |                      |           |            |            |
| 19  | Handwheel          | Ductile Iron or carbon steel                     |           |                  |          |         |                      |           |            |            |
| 20  | Handwheel Lock Nut | Carbon steel                                     |           |                  |          |         |                      |           |            |            |

Note：Different raw materials and trims are available according to application conditions or customer requests



Class 150 Cast Steel Gate Valve

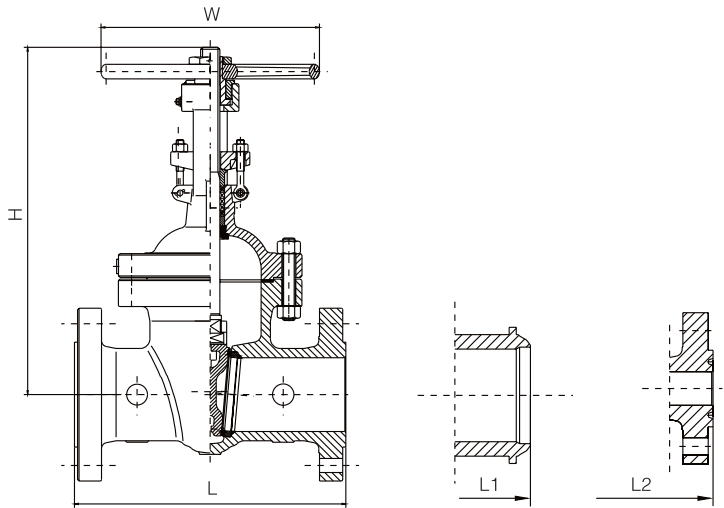
| NPS    | in | 2"    | 2-1/2" | 3"    | 4"    | 5"   | 6"    | 8"   | 10"  | 12"    | 14"  | 16"  | 18"  | 20"  | 24"  | 26"  | 28"  | 30"  | 32"  | 36"  | 40"  | 42"  | 48"  |
|--------|----|-------|--------|-------|-------|------|-------|------|------|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| DN     | mm | 50    | 65     | 80    | 100   | 125  | 150   | 200  | 250  | 300    | 350  | 400  | 450  | 500  | 600  | 650  | 700  | 750  | 800  | 900  | 1000 | 1050 | 1200 |
| L(RF)  | in | 7     | 7.5    | 8     | 9     | 10   | 10.5  | 11.5 | 13   | 14     | 15   | 16   | 17   | 18   | 20   | 22   | 24   | 24   | 26   | 28   | 30   | 31   | 34   |
|        | mm | 178   | 191    | 203   | 229   | 254  | 267   | 292  | 330  | 356    | 381  | 406  | 432  | 457  | 508  | 559  | 610  | 610  | 660  | 711  | 762  | 787  | 864  |
| L1(BW) | in | 8.5   | 9.5    | 11.12 | 12    | 15   | 15.88 | 16.5 | 18   | 19.75  | 22.5 | 24   | 26   | 28   | 32   | 34   | 36   | 36   | 38   | 40   | 42   | 43   | 46   |
|        | mm | 216   | 241    | 283   | 305   | 381  | 403   | 419  | 457  | 502    | 572  | 610  | 660  | 711  | 813  | 864  | 914  | 914  | 965  | 1016 | 1067 | 1092 | 1168 |
| W      | in | 8     | 8      | 10    | 12    | 12   | 12    | 14   | 16   | 18     | 20   | 22   | 24   | 27   | 30   | 24   | 24   | 24   | 24   | 24   | 24   | 32   | 32   |
|        | mm | 200   | 200    | 250   | 300   | 300  | 300   | 350  | 400  | 450    | 500  | 550  | 600  | 680  | 760  | 610  | 610  | 610  | 610  | 610  | 610  | 610  | 610  |
| H      | in | 15.2  | 17.1   | 18.9  | 23    | 26.8 | 30.1  | 37.6 | 45.2 | 53.2   | 59.4 | 67   | 74.5 | 83.4 | 98.4 | 110  | 117  | 124  | 129  | 146  | 157  | 190  | 233  |
|        | mm | 386.5 | 434.5  | 480.5 | 584.5 | 681  | 765   | 956  | 1149 | 1350.5 | 1508 | 1703 | 1892 | 2119 | 2500 | 2806 | 2960 | 3148 | 3281 | 3721 | 3980 | 4820 | 5920 |



Class 300 Cast Steel Gate Valve

| NPS           | in | 2"   | 2-1/2" | 3"    | 4"   | 5"   | 6"    | 8"   | 10"  | 12"   | 14"  | 16"  | 18"  | 20"  | 24"   | 26"   | 28"   | 30"   | 32"   | 36"   | 40"  | 42"   | 48"   |
|---------------|----|------|--------|-------|------|------|-------|------|------|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|------|-------|-------|
| DN            | mm | 50   | 65     | 80    | 100  | 125  | 150   | 200  | 250  | 300   | 350  | 400  | 450  | 500  | 600   | 650   | 700   | 750   | 800   | 900   | 1000 | 1050  | 1200  |
| L-L1 (RF/ BW) | in | 8.5  | 9.5    | 11.12 | 12   | 15   | 15.88 | 16.5 | 18   | 19.75 | 30   | 33   | 36   | 39   | 45    | 49    | 53    | 55    | 60    | 68    | 76   | 78    | 88    |
|               | mm | 216  | 241    | 283   | 305  | 381  | 403   | 419  | 457  | 502   | 762  | 838  | 914  | 991  | 1143  | 1245  | 1346  | 1397  | 1524  | 1727  | 1930 | 1981  | 2235  |
| W             | in | 8    | 8      | 10    | 10   | 12   | 14    | 16   | 18   | 20    | 22   | 24   | 24   | 24   | 24    | 24    | 24    | 24    | 32    | 40    | 40   | 40    | 40    |
|               | mm | 200  | 200    | 250   | 250  | 300  | 350   | 400  | 450  | 500   | 550  | 600  | 610  | 610  | 610   | 610   | 610   | 610   | 810   | 1000  | 1000 | 1000  | 1000  |
| H             | in | 16.1 | 17.8   | 20    | 24.1 | 26.4 | 31.7  | 39.4 | 47.6 | 55.7  | 62.3 | 67.9 | 77.1 | 86.4 | 102.3 | 117.6 | 122.8 | 126.2 | 145.4 | 161.6 | 179  | 186.6 | 211.5 |
|               | mm | 410  | 453    | 509   | 612  | 670  | 805   | 1000 | 1209 | 1416  | 1582 | 1725 | 1959 | 2194 | 2598  | 2986  | 3120  | 3205  | 3692  | 4104  | 4547 | 4739  | 5373  |



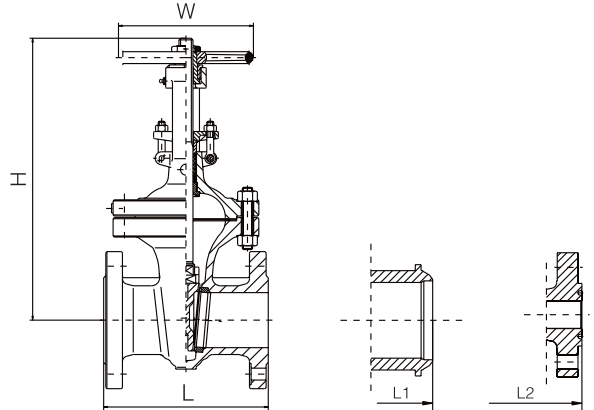


Class 600 Cast Steel Gate Valve

| NPS              | in | 2"    | 2-1/2" | 3"    | 4"    | 5"    | 6"    | 8"    | 10"   | 12"   | 14"   | 16"   | 18"   | 20"   | 24"   | 26"  | 28"  | 30"  | 32"  | 36"  | 40"  | 42"  | 48"  |
|------------------|----|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| DN               | mm | 50    | 65     | 80    | 100   | 125   | 150   | 200   | 250   | 300   | 350   | 400   | 450   | 500   | 600   | 650  | 700  | 750  | 800  | 900  | 1000 | 1050 | 1200 |
| L-L1<br>(RF/ BW) | in | 11.5  | 13     | 14    | 17    | 20    | 22    | 26    | 31    | 33    | 35    | 39    | 43    | 47    | 55    | 57   | 61   | 65   | 70   | 82   | 90   | 96   | 100  |
|                  | mm | 292   | 330    | 356   | 432   | 508   | 559   | 660   | 787   | 838   | 889   | 991   | 1092  | 1194  | 1397  | 1448 | 1549 | 1651 | 1778 | 2082 | 2286 | 2438 | 2540 |
| L2(RTJ)          | in | 11.62 | 13.12  | 14.12 | 17.12 | 20.12 | 22.12 | 26.12 | 31.12 | 33.12 | 35.12 | 39.12 | 43.12 | 47.25 | 55.38 | 57.5 | 61.5 | 65.5 | 70.6 | 82.6 | -    | -    | -    |
|                  | mm | 295   | 333    | 359   | 435   | 511   | 562   | 663   | 790   | 841   | 892   | 994   | 1095  | 1200  | 1407  | 1461 | 1562 | 1664 | 1794 | 2098 | -    | -    | -    |
| W                | in | 8     | 10     | 10    | 12    | 16    | 18    | 20    | 24    | 27    | 24    | 24    | 24    | 24    | 32    | 40   | 40   | 40   | 40   | 42   | 42   | 42   | 42   |
|                  | mm | 200   | 250    | 250   | 300   | 400   | 450   | 500   | 600   | 680   | 610   | 610   | 610   | 610   | 810   | 1000 | 1000 | 1000 | 1000 | 1200 | 1200 | 1200 | 1200 |
| H                | in | 16.5  | 18.7   | 20.4  | 25.4  | 30.3  | 33    | 40.3  | 48.4  | 57.1  | 62    | 70.7  | 76.02 | 86.9  | 102   | 124  | 133  | 140  | 150  | 168  | 184  | 194  | 231  |
|                  | mm | 418   | 476    | 518   | 646   | 770   | 839   | 1024  | 1229  | 1450  | 1574  | 1797  | 1931  | 2207  | 2582  | 3150 | 3362 | 3549 | 3811 | 4260 | 4670 | 4921 | 5876 |

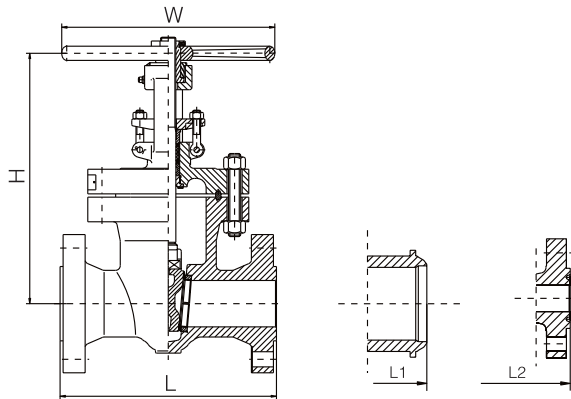
Class 900 Cast Steel Gate Valve

| NPS              | in | 2"    | 2-1/2" | 3"    | 4"    | 5"    | 8"    | 10"   | 12"   | 14"   | 16"   | 18"   | 20"   | 24"   | 26"   | 28"   | 30"  | 32"   | 36"  |
|------------------|----|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|
| DN               | mm | 50    | 65     | 80    | 100   | 125   | 200   | 250   | 300   | 350   | 400   | 450   | 500   | 600   | 650   | 700   | 750  | 800   | 900  |
| L-L1<br>(RF/ BW) | in | 14.5  | 16.5   | 15    | 18    | 24    | 29    | 33    | 38    | 40.5  | 44.5  | 48    | 52    | 61    | 65    | 70    | 74   | 78    | 87   |
|                  | mm | 368   | 419    | 381   | 457   | 610   | 737   | 838   | 965   | 1029  | 1130  | 1219  | 1321  | 1549  | 1664  | 1778  | 1892 | 2004  | 2232 |
| L2(RTJ)          | in | 14.62 | 16.62  | 15.12 | 18.12 | 24.12 | 29.12 | 33.12 | 38.12 | 40.88 | 44.88 | 48.50 | 52.48 | 61.73 | -     | -     | -    | -     | -    |
|                  | mm | 371   | 422    | 384   | 460   | 613   | 740   | 841   | 968   | 1038  | 1140  | 1232  | 1333  | 1568  | -     | -     | -    | -     | -    |
| W                | in | 10    | 10     | 12    | 14    | 20    | 24    | 24    | 24    | 24    | 24    | 32    | 40    | 40    | 40    | 40    | 47   | 47    | 47   |
|                  | mm | 250   | 250    | 300   | 350   | 500   | 600   | 610   | 610   | 610   | 610   | 810   | 1000  | 1000  | 1000  | 1000  | 1200 | 1200  | 1200 |
| H                | in | 19.6  | 21.5   | 22.6  | 26.7  | 35.4  | 43.4  | 53    | 59.8  | 74.9  | 80.7  | 87    | 95    | 108.4 | 111.5 | 114.8 | 118  | 121.4 | 128  |
|                  | mm | 498   | 547    | 573   | 678   | 900   | 1103  | 1345  | 1520  | 1902  | 2051  | 2212  | 2417  | 2750  | 2833  | 2916  | 3000 | 3083  | 3250 |



Class 1500 Cast Steel Gate Valve

| NPS              | in | 2"    | 2-1/2" | 3"    | 4"    | 5"    | 8"    | 10"   | 12"   | 14"   | 16"   | 18"  | 20"  | 24"   | 26"  | 28"    | 30"  |
|------------------|----|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|------|--------|------|
| DN               | mm | 50    | 65     | 80    | 100   | 125   | 200   | 250   | 300   | 350   | 400   | 450  | 500  | 600   | 650  | 700    | 750  |
| L-L1<br>(RF/ BW) | in | 14.5  | 16.5   | 18.5  | 21.5  | 27.75 | 32.75 | 39    | 44.5  | 49.5  | 54.5  | 60.5 | 65.5 | 76.5  | 82   | 87.5   | 93   |
|                  | mm | 368   | 419    | 470   | 546   | 705   | 832   | 991   | 1130  | 1257  | 1384  | 1537 | 1664 | 1943  | 2083 | 2222.5 | 2362 |
| L2(RTJ)          | in | 14.62 | 16.62  | 18.62 | 21.62 | 28.00 | 33.13 | 39.38 | 45.12 | 50.25 | 55.38 | 61.4 | 66.4 | 77.6  | -    | -      | -    |
|                  | mm | 371   | 422    | 473   | 549   | 711   | 842   | 1000  | 1146  | 1276  | 1407  | 1559 | 1686 | 1972  | -    | -      | -    |
| W                | in | 10    | 12     | 14    | 20    | 24    | 18    | 18    | 24    | 24    | 24    | 40   | 40   | 40    | 47   | 47     | 47   |
|                  | mm | 250   | 300    | 350   | 500   | 600   | 458   | 458   | 610   | 610   | 610   | 1000 | 1000 | 1000  | 1200 | 1200   | 1200 |
| H                | in | 19.2  | 22.5   | 23.7  | 27.6  | 38.7  | 45.1  | 54    | 64.3  | 70.8  | 77.3  | 111  | 121  | 140.5 | 151  | 158    | 172  |
|                  | mm | 487   | 572    | 603   | 700   | 984   | 1146  | 1371  | 1633  | 1798  | 1963  | 2812 | 3078 | 3570  | 3836 | 4012   | 4368 |

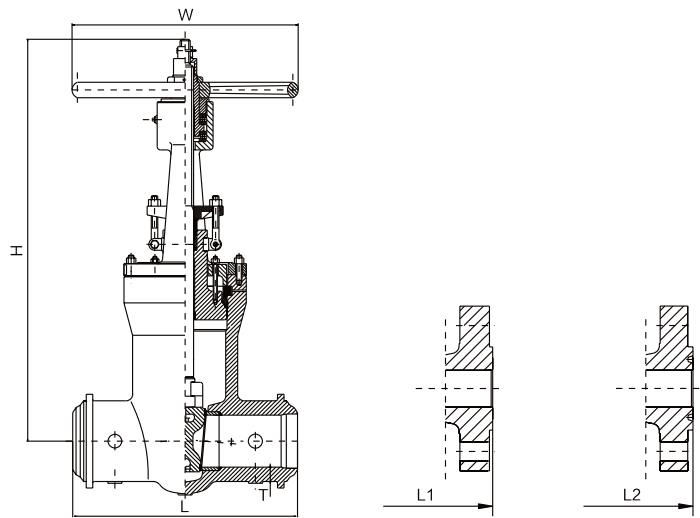


Class 2500 Cast Steel Gate Valve

| NPS              | in | 2"    | 2-1/2" | 3"    | 4"    | 5"    | 8"    | 10"   | 12"   | 14"   | 16"  | 18"   | 20"   | 24"   |
|------------------|----|-------|--------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| DN               | mm | 50    | 65     | 80    | 100   | 125   | 200   | 250   | 300   | 350   | 400  | 450   | 500   | 600   |
| L-L1<br>(RF/ BW) | in | 17.75 | 20     | 22.75 | 26.5  | 36    | 40.25 | 50    | 56    | 62    | 68   | 74    | 80    | 92    |
|                  | mm | 451   | 508    | 578   | 673   | 914   | 1022  | 1270  | 1422  | 1575  | 1727 | 1879  | 2031  | 2335  |
| L2(RTJ)          | in | 17.88 | 20.25  | 23.00 | 26.88 | 36.50 | 40.88 | 50.88 | 56.88 | -     | -    | -     | -     | -     |
|                  | mm | 454   | 514    | 584   | 683   | 927   | 1038  | 1292  | 1445  | -     | -    | -     | -     | -     |
| W                | in | 14    | 18     | 18    | 20    | 24    | 24    | 24    | 24    | 32    | 32   | 40    | 40    | 40    |
|                  | mm | 350   | 450    | 450   | 500   | 610   | 610   | 610   | 610   | 810   | 810  | 1000  | 1000  | 1000  |
| H                | in | 22.2  | 22.2   | 22.9  | 34.3  | 57.1  | 63.4  | 81.7  | 89.8  | 319.7 | 400  | 100.6 | 112.6 | 136.6 |
|                  | mm | 563   | 563    | 582   | 870   | 1450  | 1610  | 2076  | 2281  | 1945  | 2250 | 2555  | 2860  | 3470  |



## Pressure Seal Gate Valve



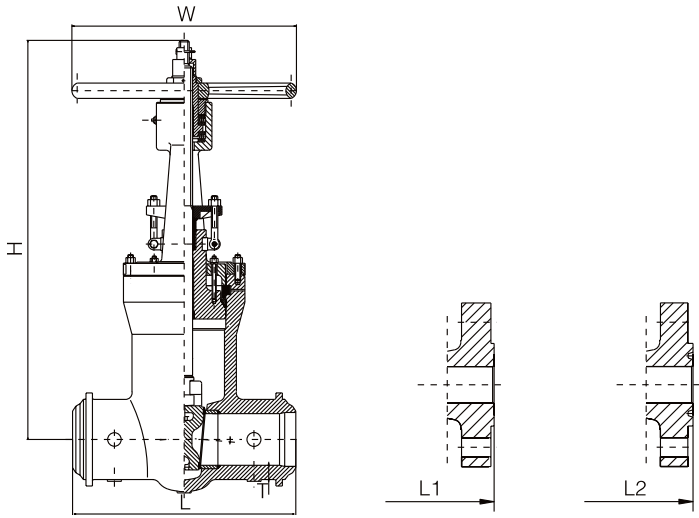
Class 600 Pressure Seal Cast Steel Gate Valve

| NPS             | in | 2"    | 2-1/2" | 3"    | 4"    | 5"    | 6"    | 8"    | 10"   | 12"   | 14"   | 16"   | 18"   | 20"   | 24"    | 26"    | 28"    | 30"   |
|-----------------|----|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|
| DN              | mm | 50    | 65     | 80    | 100   | 125   | 150   | 200   | 250   | 300   | 350   | 400   | 450   | 500   | 600    | 650    | 700    | 750   |
| L-L1<br>(RF-BW) | in | 11.5  | 13     | 14    | 17    | 20    | 22    | 26    | 31    | 33    | 35    | 39    | 43    | 47    | 55     | 57     | 61     | 65    |
|                 | mm | 292   | 330    | 356   | 432   | 508   | 559   | 660   | 787   | 838   | 889   | 991   | 1092  | 1194  | 1397   | 1448   | 1549   | 1651  |
| L2(RTJ)         | in | 11.62 | 13.12  | 14.12 | 17.12 | 20.12 | 22.12 | 26.12 | 31.12 | 33.12 | 35.12 | 39.12 | 43.13 | 47.25 | 55.38  | 57.50  | 61.50  | 65.50 |
|                 | mm | 295   | 333    | 359   | 435   | 511   | 562   | 663   | 790   | 841   | 892   | 994   | 1095  | 1200  | 1407   | 1460.5 | 1562   | 1664  |
| W               | in | 7.9   | 9.8    | 9.8   | 13.8  | 15.7  | 17.7  | 19.7  | 23.6  | 26.8  | 24    | 24    | 24    | 24    | 31.50  | 31.50  | 39.38  | 39.38 |
|                 | mm | 200   | 250    | 250   | 350   | 400   | 450   | 500   | 600   | 680   | 610   | 610   | 610   | 610   | 800    | 800    | 1000   | 1000  |
| H               | in | 23.2  | 24.8   | 26.3  | 36    | 39.4  | 42.5  | 49.9  | 59.5  | 70.5  | 73.1  | 85.1  | 88.63 | 97.25 | 118.13 | 128    | 137.88 | 149   |
|                 | mm | 590   | 629    | 667   | 914   | 1000  | 1080  | 1267  | 1511  | 1791  | 1857  | 2162  | 2251  | 2470  | 3000   | 3251   | 3502   | 3785  |

Class 900 Pressure Seal Cast Steel Gate Valve

| NPS     | in | 2"    | 2-1/2" | 3"    | 4"    | 6"    | 8"    | 10"   | 12"   | 14"   | 16"   | 18"   | 20"    | 24"    | 26"    | 28"   | 30"   |
|---------|----|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|
| DN      | mm | 50    | 65     | 80    | 100   | 150   | 200   | 250   | 300   | 350   | 400   | 450   | 500    | 600    | 650    | 700   | 750   |
| L (BW)  | in | 8.5   | 10     | 12    | 14    | 20    | 26    | 31    | 36    | 39    | 43    | 48    | 52     | 61     | 64.5   | 68    | 71.5  |
|         | mm | 216   | 254    | 305   | 356   | 508   | 660   | 787   | 914   | 991   | 1092  | 1219  | 1321   | 1549   | 1638   | 1727  | 1816  |
| L1 (RF) | in | 14.5  | 16.5   | 15    | 18    | 24    | 29    | 33    | 38    | 40.5  | 44.5  | 48    | 52     | 61     | -      | -     | -     |
|         | mm | 368   | 419    | 381   | 457   | 610   | 737   | 838   | 965   | 1029  | 1130  | 1219  | 1321   | 1549   | -      | -     | -     |
| L2(RTJ) | in | 14.62 | 16.62  | 15.12 | 18.12 | 24.12 | 29.12 | 33.12 | 38.12 | 40.88 | 44.88 | 48.5  | 52.5   | 61.75  | -      | -     | -     |
|         | mm | 371   | 422    | 384   | 460   | 613   | 740   | 841   | 968   | 1038  | 1140  | 1232  | 1333   | 1568   | -      | -     | -     |
| W       | in | 10    | 10     | 12    | 14    | 20    | 24    | 24    | 24    | 24    | 24    | 30.5  | 30.5   | 39.38  | 39.38  | 39.38 | 47.25 |
|         | mm | 250   | 250    | 300   | 350   | 500   | 600   | 610   | 610   | 610   | 610   | 800   | 800    | 1000   | 1000   | 1000  | 1200  |
| H       | in | 23    | 30     | 30    | 34    | 40    | 50    | 61    | 70    | 80    | 89    | 97.25 | 108.25 | 127.62 | 138.25 | 149   | 159.5 |
|         | mm | 594   | 753    | 756   | 864   | 1013  | 1276  | 1543  | 1781  | 2026  | 2261  | 2470  | 2750   | 3242   | 3512   | 3785  | 4051  |

## Pressure Seal Gate Valve



Class 1500 Pressure Seal Cast Steel Gate Valve

| NPS     | in | 2"    | 2-1/2" | 3"    | 4"    | 6"    | 8"    | 10"   | 12"   | 14"   | 16"   | 18"   | 20"   | 24"   |
|---------|----|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| DN      | mm | 50    | 65     | 80    | 100   | 150   | 200   | 250   | 300   | 350   | 400   | 450   | 500   | 600   |
| L (BW)  | in | 8.5   | 10     | 12    | 16    | 22    | 28    | 34    | 39    | 42    | 47    | 53    | 58    | 66    |
|         | mm | 216   | 254    | 3053  | 406   | 559   | 711   | 864   | 991   | 1067  | 1194  | 1346  | 1473  | 1676  |
| L1 (RF) | in | 14.5  | 16.5   | 18.5  | 21.5  | 27.75 | 32.75 | 39    | 44.5  | 49.5  | 54.5  | 60.5  | 65.5  | 76.5  |
|         | mm | 368   | 419    | 470   | 546   | 705   | 832   | 991   | 1130  | 1257  | 1384  | 1537  | 1664  | 1943  |
| L2(RTJ) | in | 14.62 | 16.62  | 18.62 | 21.62 | 28    | 33.13 | 39.87 | 45.15 | 50.25 | 55.38 | 61.38 | 66.38 | 77.63 |
|         | mm | 371   | 422    | 473   | 549   | 711   | 842   | 1000  | 1146  | 1276  | 1407  | 1559  | 1686  | 1972  |
| W       | in | 10    | 12     | 14    | 20    | 24    | 18    | 18    | 24    | 24    | 24    | 40    | 48    | 36    |
|         | mm | 250   | 300    | 350   | 500   | 600   | 460   | 460   | 610   | 610   | 610   | 1000  | 1200  | 900   |
| H       | in | 23    | 30     | 30    | 35    | 39    | 53    | 58.3  | 73.6  | 87    | 92    | 111.2 | 122.2 | 148.3 |
|         | mm | 294   | 753    | 756   | 864   | 994   | 1349  | 1480  | 1870  | 2216  | 2331  | 2823  | 3102  | 3766  |

Class 2500 Pressure Seal Cast Steel Gate Valve

| NPS     | in | 2"    | 2-1/2" | 3"    | 4"    | 6"   | 8"    | 10"   | 12"   | 14"   | 16"   | 18"   | 20"   | 24"   |
|---------|----|-------|--------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| DN      | mm | 50    | 65     | 80    | 100   | 150  | 200   | 250   | 300   | 350   | 400   | 450   | 500   | 600   |
| L (BW)  | in | 11    | 13     | 14.5  | 18    | 24   | 30    | 36    | 41    | 44    | 49    | 55    | 61    | 68    |
|         | mm | 279   | 330    | 368   | 457   | 610  | 762   | 914   | 1041  | 1118  | 1245  | 1397  | 1549  | 1727  |
| L1 (RF) | in | 17.75 | 20     | 22.75 | 26.5  | 36   | 40.25 | 60    | 56    | -     | -     | -     | -     | -     |
|         | mm | 451   | 508    | 578   | 673   | 914  | 1022  | 1270  | 1422  | -     | -     | -     | -     | -     |
| L2(RTJ) | in | 17.88 | 20.25  | 23    | 26.88 | 36.5 | 40.88 | 50.88 | 56.88 | -     | -     | -     | -     | -     |
|         | mm | 454   | 514    | 584   | 683   | 927  | 1038  | 1292  | 1445  | -     | -     | -     | -     | -     |
| W       | in | 14    | 18     | 18    | 20    | 24   | 24    | 24    | 24    | 24    | 24    | 31.5  | 31.5  | 40    |
|         | mm | 350   | 450    | 450   | 500   | 610  | 610   | 610   | 610   | 610   | 610   | 800   | 800   | 1000  |
| H       | in | 23    | 30     | 30    | 34    | 44   | 55    | 69    | 74    | 97.25 | 97.25 | 116.2 | 128.8 | 153.7 |
|         | mm | 594   | 753    | 756   | 870   | 1129 | 1389  | 1748  | 1873  | 2291  | 2470  | 2950  | 3270  | 3902  |

# Globe Valve Products



## Globe Valve



### Related Standards:

Design and Manufacture: API 600& ASME B16.34  
Face to Face and End to End: ASME B16.10  
Flanged End: ASME B16.5/ ASME B16.47  
Butt Welded End: ASME B16.25  
Test & Inspection: API 598

### Design DESCRIPTION

Design DESCRIPTION  
Outside Screw & Yoke  
Bolted Bonnet with Yoke  
Renewable Seat Ring upon request  
Flange or butt welding ends  
Solid or split wedge gate  
Flexible Wedge fully guided  
Resistant to corrosion and wear  
Special features according to Customer's requirement

### Body and Bonnet Connection

Bolts and Nuts for 150LB~900LB, Pressure Seal for 1500LB~2500LB, also optional by application or customer's request.

### Stem

Integral forged design and precisely machined surface (Ra 0.8  $\mu$  m), T type/ connection of Stem and Disc.

### Packing Seal

Molded flexible graphite and PTFE or combined packing material is used for packing material, Excellent finish (Ra3.2  $\mu$  m) of packing box's internal surface to ensure the reliable tightness of stem and packing box.

### Seat Sealing Surface

Welkin valve has welded seat, renewable threaded seat and integral seat, Spray welded with hard alloy specified sealing surface. Optional by application or customer's request.

### Back Seat Sealing

Renewable back seat (carbon steel gate valve) or welded/ integral back seat (Stainless steel globe valve). Optional by application or customer's request

### Cover Flange Gasket

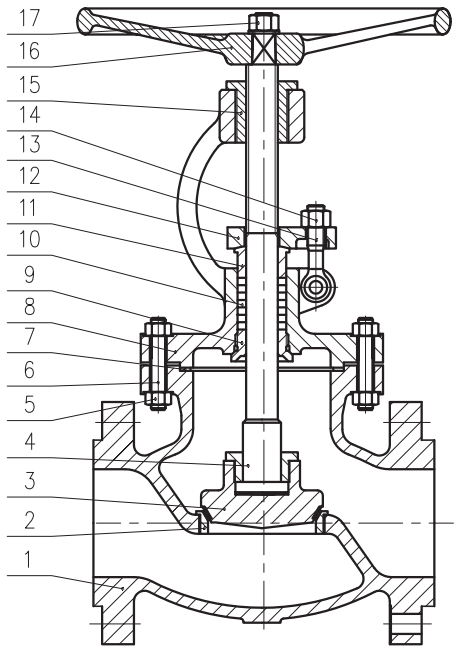
Stainless steel + flexible graphite combined gasket (150LB~300LB recommended), Stainless steel + flexible, graphite wound gasket (600LB recommended), Ring joint gasket ( $\geq$ 900LB), Optional by application or customer's request

### Driving method

Actuators are optional according to customer request.



STANDARD MATERIAL SPECIFICATIONS (ASTM)



TECHNICAL SPECIFICATIONS:



2"-24"



Up to 650°C



Class 150LB-2500LB

Optional Operating Actuator



Handwheel



Gear Box



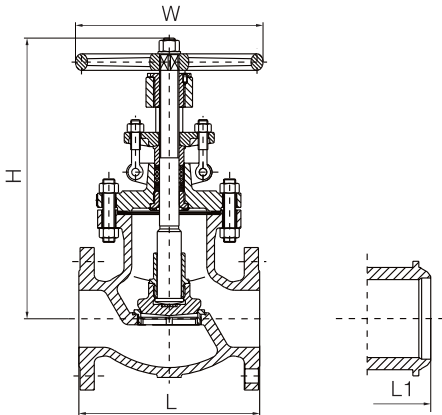
Pneumatic



Electric

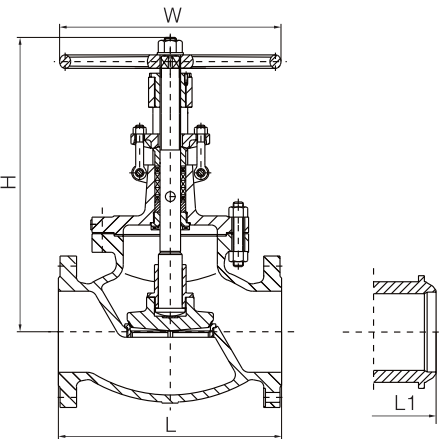
| NO. | Part Name          | ASTM CARBON STEEL                                |           | ASTM ALLOY STEEL |           |         | ASTM STAINLESS STEEL |           |            |            |
|-----|--------------------|--------------------------------------------------|-----------|------------------|-----------|---------|----------------------|-----------|------------|------------|
|     |                    | Standard                                         | Cryogenic | High Temperature |           |         | CF8                  | CF8M      | CF3        | CF3M       |
| 1   | Body               | A216 WCB                                         | A352 LCB  | A217 WC6         | A217 WC9  | A217 C5 | A351CF8              | A351 CF8M | A351CF3    | A351 CF3M  |
| 2   | Seat Ring          | A105                                             | A350 LF2  | A182 F11         | A182 F22  | A182 F5 | A182 F304            | A182 F316 | A182 F304L | A182 F316L |
| 3   | Disc               | A105                                             | A350 LF2  | A182 F11         | A182 F22  | A182 F5 | A351CF8              | A351 CF8M | A351CF3    | A351 CF3M  |
| 4   | Stem               | A182 F6                                          | A182 F6   | A182 F304        |           |         | A182 F304            | A182 F316 | A182 F304L | A182 F316L |
| 5   | Bonnet Bolt        | A193 B7                                          | A320 L7   | A193 B16         |           |         | A193 B8              |           |            |            |
| 6   | Bonnet Nut         | A1942H                                           | A194 4    | A194 7           |           |         | A194 8               |           |            |            |
| 7   | Gasket             | SS Spiral Wound/graphite or SS Spiral Wound/PTFE |           |                  |           |         |                      |           |            |            |
| 8   | Bonnet             | A216 WCB                                         | A352 LCB  | A217 WC6         | A217 WC9  | A217 C5 | A351CF8              | A351 CF8M | A351CF3    | A351 CF3M  |
| 9   | Backseat           | A182 F6                                          | A182 F6   | A182 F304        |           |         | A182 F304            | A182 F316 | A182 F304L | A182 F316L |
| 10  | Stem Packing       | Graphite or PTFE                                 |           |                  |           |         |                      |           |            |            |
| 11  | Gland              | A182 F6                                          |           |                  | A182 F304 |         | A182 F304            | A182 F316 | A182 F304L | A182 F316L |
| 12  | Gland Flange       | A216WCB                                          |           |                  | A351 CF8  |         |                      |           |            |            |
| 13  | Gland Eyebolt      | A194 B7                                          |           |                  | A193B8    |         |                      |           |            |            |
| 14  | Gland Nut          | A1942H                                           |           |                  | A194 B    |         |                      |           |            |            |
| 15  | Stem Nut           | A439 02 or B148–952A                             |           |                  |           |         |                      |           |            |            |
| 16  | Handwheel          | Ductile Iron or carbon steel                     |           |                  |           |         |                      |           |            |            |
| 17  | Handwheel Lock Nut | Carbon steel                                     |           |                  |           |         |                      |           |            |            |

Note: Different raw materials and trims are available according to application conditions or customer requests



Class 150 Cast Steel Globe Valve

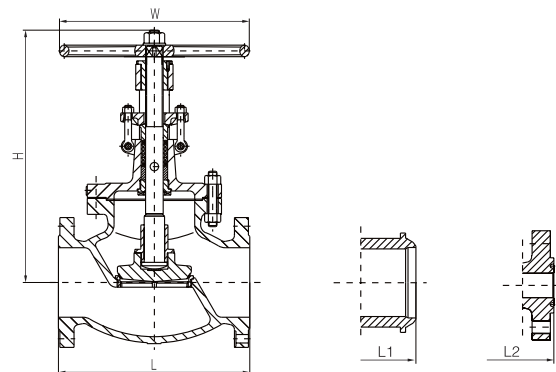
| NPS             | in | 2"   | 2-1/2" | 3"   | 4"   | 5"   | 6"   | 8"   | 10"  | 12"  | 14"  | 16"  | 18"  | 20"  | 24"  |
|-----------------|----|------|--------|------|------|------|------|------|------|------|------|------|------|------|------|
| DN              | mm | 50   | 65     | 80   | 100  | 125  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  | 600  |
| L-L1<br>(RF-BW) | in | 8    | 8.5    | 9.5  | 11.5 | 14   | 16   | 19.5 | 24.5 | 27.5 | 31   | 36   | 38.5 | 38.5 | 51   |
|                 | mm | 203  | 216    | 241  | 292  | 356  | 406  | 495  | 622  | 699  | 787  | 914  | 978  | 978  | 1295 |
| W               | in | 8    | 10     | 10   | 12   | 14   | 14   | 16   | 20   | 20   | 22   | 26   | 24   | 24   | 31.9 |
|                 | mm | 200  | 250    | 250  | 300  | 350  | 350  | 400  | 500  | 500  | 560  | 650  | 610  | 610  | 810  |
| H               | in | 13.3 | 14.7   | 15.6 | 18.7 | 19.6 | 20.6 | 23.1 | 29.1 | 33.9 | 37.4 | 39.2 | 44.9 | 49.7 | 60   |
|                 | mm | 338  | 373    | 396  | 476  | 497  | 524  | 588  | 738  | 862  | 950  | 994  | 1140 | 1262 | 1524 |



Class 300 Cast Steel Globe Valve

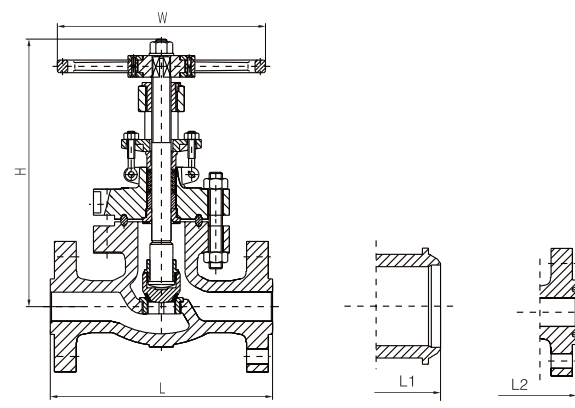
| NPS             | in | 2"    | 2-1/2" | 3"    | 4"    | 5"    | 6"    | 8"    | 10"  | 12"  | 14"  | 16"  | 18"  | 20"  |
|-----------------|----|-------|--------|-------|-------|-------|-------|-------|------|------|------|------|------|------|
| DN              | mm | 50    | 65     | 80    | 100   | 125   | 150   | 200   | 250  | 300  | 350  | 400  | 450  | 500  |
| L-L1<br>(RF-BW) | in | 10.5  | 11.5   | 12.5  | 14    | 15.75 | 17.5  | 22    | 24.5 | 28   | 33   | 34   | 38.5 | 40   |
|                 | mm | 267   | 292    | 318   | 356   | 400   | 445   | 559   | 622  | 711  | 838  | 864  | 978  | 1016 |
| W               | in | 8     | 10     | 10    | 14    | 18    | 20    | 22    | 24   | 26   | 24   | 24   | 38.5 | 40   |
|                 | mm | 200   | 250    | 250   | 350   | 450   | 500   | 560   | 600  | 650  | 610  | 610  | 610  | 810  |
| H               | in | 13.9  | 15.3   | 16.6  | 19.5  | 22.7  | 26.6  | 35.9  | 37.4 | 40.6 | 44.5 | 51.6 | 57.5 | 64.3 |
|                 | mm | 353.5 | 388.5  | 420.5 | 495.5 | 576.5 | 674.5 | 911.5 | 949  | 1032 | 1130 | 1310 | 1460 | 1632 |

# Globe Valve



Class 600 Cast Steel Globe Valve

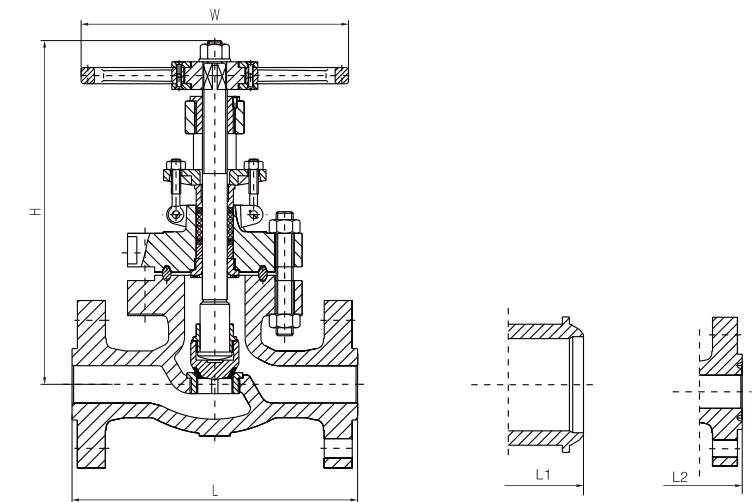
| NPS             | in | 2"    | 2-1/2" | 3"    | 4"    | 5"    | 6"    | 8"    | 10"   | 12"   | 14"   | 16"   | 18"  |
|-----------------|----|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| DN              | mm | 50    | 65     | 80    | 100   | 125   | 150   | 200   | 250   | 300   | 350   | 400   | 450  |
| L-L1<br>(RF-BW) | in | 11.5  | 13     | 14    | 17    | 20    | 22    | 26    | 31    | 33    | 35    | 39    | 43   |
|                 | mm | 292   | 330    | 356   | 432   | 508   | 559   | 660   | 787   | 838   | 889   | 991   | 1092 |
| L2(RTJ)         | in | 11.62 | 13.12  | 14.12 | 17.12 | 20.12 | 22.12 | 26.12 | 31.12 | 33.12 | 35.12 | 39.12 | 43.1 |
|                 | mm | 295   | 333    | 359   | 435   | 511   | 562   | 663   | 790   | 841   | 892   | 994   | 1095 |
| W               | in | 10    | 10     | 14    | 18    | 20    | 22    | 24    | 28    | 24    | 24    | 30    | 32   |
|                 | mm | 250   | 250    | 350   | 450   | 500   | 560   | 600   | 700   | 610   | 610   | 762   | 810  |
| H               | in | 15.6  | 17.6   | 19.5  | 23.6  | 27.6  | 31.1  | 39.9  | 46.5  | 55    | 57.1  | 63.4  | 70.9 |
|                 | mm | 396.5 | 446    | 495.5 | 599   | 700   | 791   | 1014  | 1180  | 1397  | 1450  | 1610  | 1801 |



Class 900 Cast Steel Globe Valve

| NPS             | in | 2"    | 2-1/2" | 3"    | 4"    | 6"    | 8"    | 10"  | 12"  | 14"  | 16"  |
|-----------------|----|-------|--------|-------|-------|-------|-------|------|------|------|------|
| DN              | mm | 50    | 65     | 80    | 100   | 150   | 200   | 250  | 300  | 350  | 400  |
| L-L1<br>(RF-BW) | in | 14.5  | 16.5   | 15    | 18    | 24    | 29    | 33   | 38   | 40.5 | 44.5 |
|                 | mm | 368   | 419    | 381   | 457   | 610   | 737   | 838  | 965  | 1029 | 1130 |
| L2(RTJ)         | in | 14.62 | 16.62  | 15.12 | 18.12 | 24.12 | 29.12 | 33.1 | 38.1 | 40.9 | 44.9 |
|                 | mm | 371   | 422    | 384   | 460   | 613   | 740   | 841  | 968  | 1038 | 1140 |
| W               | in | 14    | 14     | 18    | 20    | 24    | 24    | 24   | 31.9 | 31.9 | 31.9 |
|                 | mm | 350   | 350    | 450   | 500   | 610   | 610   | 610  | 810  | 810  | 810  |
| H               | in | 23.2  | 26     | 27.5  | 31.3  | 43.6  | 46.6  | 58.2 | 69.1 | 76.1 | 87   |
|                 | mm | 590   | 660    | 699   | 795   | 1108  | 1184  | 1479 | 1755 | 1934 | 2210 |

# Globe Valve



Class 1500 Cast Steel Globe Valve

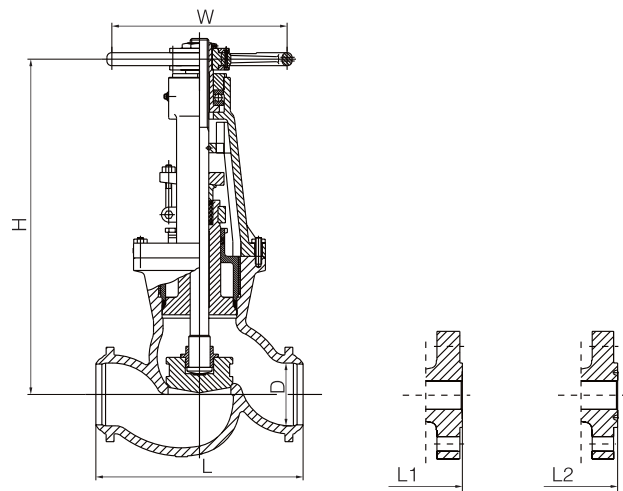
| NPS             | in | 2"    | 2-1/2" | 3"    | 4"    | 6"    | 8"    | 10"  | 12"   |
|-----------------|----|-------|--------|-------|-------|-------|-------|------|-------|
| DN              | mm | 50    | 65     | 80    | 100   | 150   | 200   | 250  | 300   |
| L-L1<br>(RF-BW) | in | 14.5  | 16.5   | 18.5  | 21.5  | 27.75 | 32.75 | 39   | 44.5  |
|                 | mm | 368   | 419    | 470   | 546   | 705   | 832   | 991  | 1130  |
| L2(RTJ)         | in | 14.62 | 16.62  | 18.62 | 21.62 | 28.00 | 33.13 | 39.4 | 45.1  |
|                 | mm | 371   | 422    | 473   | 549   | 711   | 842   | 1000 | 1146  |
| W               | in | 14    | 14     | 20    | 22    | 24    | 24    | 31.9 | 31.9  |
|                 | mm | 350   | 350    | 500   | 560   | 610   | 610   | 810  | 810   |
| H               | in | 21.7  | 22.5   | 22.9  | 31.3  | 50.3  | 77.2  | 96.5 | 114.3 |
|                 | mm | 550   | 572    | 582   | 795   | 1278  | 1960  | 2450 | 2904  |

Class 2500 Cast Steel Globe Valve

| NPS             | in | 2"    | 2-1/2" | 3"    | 4"    | 6"    | 8"    | 10"   |
|-----------------|----|-------|--------|-------|-------|-------|-------|-------|
| DN              | mm | 50    | 65     | 80    | 100   | 150   | 200   | 250   |
| L-L1<br>(RF-BW) | in | 17.75 | 20     | 22.75 | 26.5  | 36    | 40.25 | 50    |
|                 | mm | 451   | 508    | 578   | 673   | 914   | 1022  | 1270  |
| L2(RTJ)         | in | 17.88 | 20.25  | 23.00 | 26.88 | 36.50 | 40.88 | 50.9  |
|                 | mm | 454   | 514    | 584   | 683   | 927   | 1038  | 1292  |
| W               | in | 16    | 20     | 22    | 24    | 24    | 24    | 31.9  |
|                 | mm | 400   | 500    | 560   | 610   | 610   | 610   | 810   |
| H               | in | 28.3  | 31.5   | 34.8  | 49.6  | 75    | 97    | 122.4 |
|                 | mm | 720   | 800    | 885   | 1260  | 1905  | 2465  | 3108  |



# Pressure seal Globe Valve



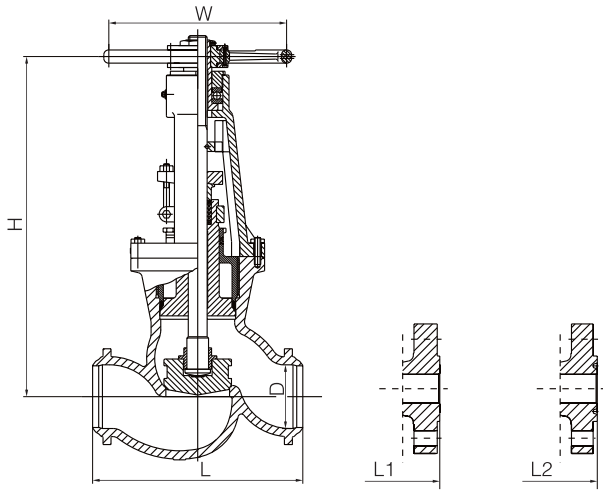
Class 600 Pressure Seal Cast Steel Globe Valve

| NPS             | in | 2"    | 2-1/2" | 3"    | 4"    | 5"    | 6"    | 8"    | 10"   | 12"   | 14"   | 16"   |
|-----------------|----|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| DN              | mm | 50    | 65     | 80    | 100   | 125   | 150   | 200   | 250   | 300   | 350   | 400   |
| L-L1<br>(RF-BW) | in | 11,5  | 13     | 14    | 17    | 20    | 22    | 26    | 31    | 33    | 35    | 39    |
|                 | mm | 292   | 330    | 356   | 432   | 508   | 559   | 660   | 787   | 838   | 889   | 991   |
| L2(RTJ)         | in | 11,62 | 13,12  | 14,12 | 17,12 | 20,12 | 22,12 | 26,12 | 31,12 | 33,12 | 35,12 | 39,12 |
|                 | mm | 295   | 333    | 359   | 435   | 511   | 562   | 663   | 790   | 841   | 892   | 994   |
| W               | in | 9,8   | 11,8   | 13,8  | 17,7  | 19,7  | 22    | 23,6  | 27,6  | 24    | 24    | 29,9  |
|                 | mm | 250   | 300    | 350   | 450   | 500   | 560   | 600   | 700   | 610   | 610   | 760   |
| H               | in | 21,7  | 24,8   | 26,8  | 29,5  | 39,4  | 45,3  | 49,2  | 55,1  | 61    | 70,9  | 85    |
|                 | mm | 550   | 630    | 680   | 750   | 1000  | 1150  | 1250  | 1400  | 1550  | 1800  | 2160  |

Class 900 Pressure Seal Cast Steel Globe Valve

| NPS             | in | 2"    | 2-1/2" | 3"    | 4"    | 6"    | 8"    | 10"   | 12"   | 14"   | 16"   |
|-----------------|----|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| DN              | mm | 50    | 65     | 80    | 100   | 150   | 200   | 250   | 300   | 350   | 400   |
| L-L1<br>(RF-BW) | in | 14,5  | 16,5   | 15    | 18    | 24    | 29    | 33    | 38    | 40,50 | 44,50 |
|                 | mm | 368   | 419    | 381   | 457   | 610   | 737   | 838   | 965   | 1029  | 1130  |
| L2(RTJ)         | in | 14,62 | 16,62  | 15,12 | 18,12 | 24,12 | 29,12 | 33,13 | 38,13 | 40,88 | 44,88 |
|                 | mm | 371   | 422    | 384   | 460   | 613   | 740   | 841   | 968   | 1038  | 1140  |
| W               | in | 14    | 14     | 18    | 20    | 24    | 24    | 24    | 39,38 | 39,38 | 47,25 |
|                 | mm | 350   | 350    | 450   | 500   | 610   | 610   | 610   | 1000  | 1000  | 1200  |
| H               | in | 24,4  | 25,2   | 28,4  | 33,5  | 48,2  | 53,1  | 61    | 68,88 | 78,75 | 91    |
|                 | mm | 619   | 641    | 721   | 850   | 1225  | 1350  | 1550  | 1750  | 2000  | 2310  |

# Pressure seal Globe Valve



Class 1500 Pressure Seal Cast Steel Globe Valve

| NPS             | in | 2"    | 2-1/2" | 3"    | 4"    | 6"    | 8"    | 10"   | 12"   | 14"   |
|-----------------|----|-------|--------|-------|-------|-------|-------|-------|-------|-------|
| DN              | mm | 50    | 65     | 80    | 100   | 150   | 200   | 250   | 300   | 350   |
| L-L1<br>(RF-BW) | in | 14,5  | 16,5   | 18,5  | 21,5  | 27,75 | 32,75 | 39    | 44,5  | 49,5  |
|                 | mm | 368   | 419    | 470   | 546   | 705   | 832   | 991   | 1130  | 1257  |
| L2(RTJ)         | in | 14,62 | 16,62  | 18,62 | 21,62 | 28    | 33,13 | 39,38 | 45,13 | 50,25 |
|                 | mm | 371   | 422    | 473   | 549   | 711   | 842   | 1000  | 1146  | 1276  |
| W               | in | 14    | 14     | 20    | 22    | 24    | 24    | 39,38 | 39,38 | 47,25 |
|                 | mm | 350   | 350    | 500   | 560   | 610   | 610   | 1000  | 1000  | 1200  |
| H               | in | 24,4  | 25,2   | 32,9  | 33,7  | 48,4  | 70,9  | 78,78 | 91    | 106   |
|                 | mm | 619   | 641    | 835   | 857   | 1230  | 1800  | 2000  | 2311  | 2692  |

Class 2500 Pressure Seal Cast Steel Globe Valve

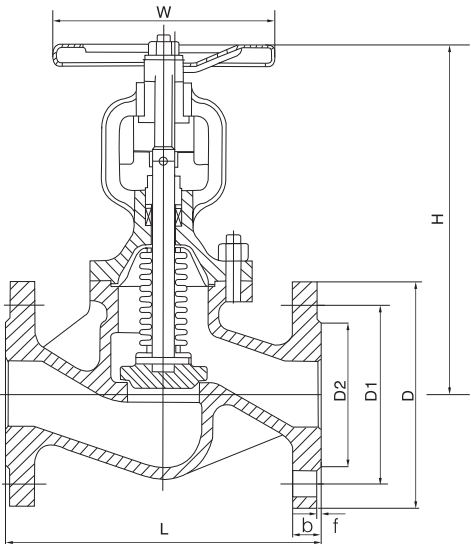
| NPS             | in | 2"    | 2-1/2" | 3"    | 4"    | 6"   | 8"    | 10"   | 12"   |
|-----------------|----|-------|--------|-------|-------|------|-------|-------|-------|
| DN              | mm | 50    | 65     | 80    | 100   | 150  | 200   | 250   | 300   |
| L-L1<br>(RF-BW) | in | 17,75 | 20     | 22,75 | 26,5  | 36   | 40,25 | 50    | 56    |
|                 | mm | 451   | 508    | 578   | 673   | 914  | 1022  | 1270  | 1422  |
| L2(RTJ)         | in | 17,88 | 20,25  | 23    | 26,88 | 36,5 | 40,88 | 50,88 | 56,88 |
|                 | mm | 454   | 511    | 584   | 683   | 927  | 1038  | 1292  | 1445  |
| W               | in | 16    | 20     | 22    | 24    | 24   | 24    | 39,38 | 39,38 |
|                 | mm | 400   | 500    | 560   | 610   | 610  | 610   | 1000  | 1000  |
| H               | in | 24,3  | 30,7   | 31,5  | 51,2  | 53,9 | 85    | 100   | 106   |
|                 | mm | 616   | 781    | 800   | 1300  | 1370 | 2160  | 2540  | 2692  |

Applicable Condition

Hydrogen system, ammonia system, hot oil system, steam system, all kinds of flammable and explosive condition, toxic and harmful gases.

Technical Specifications

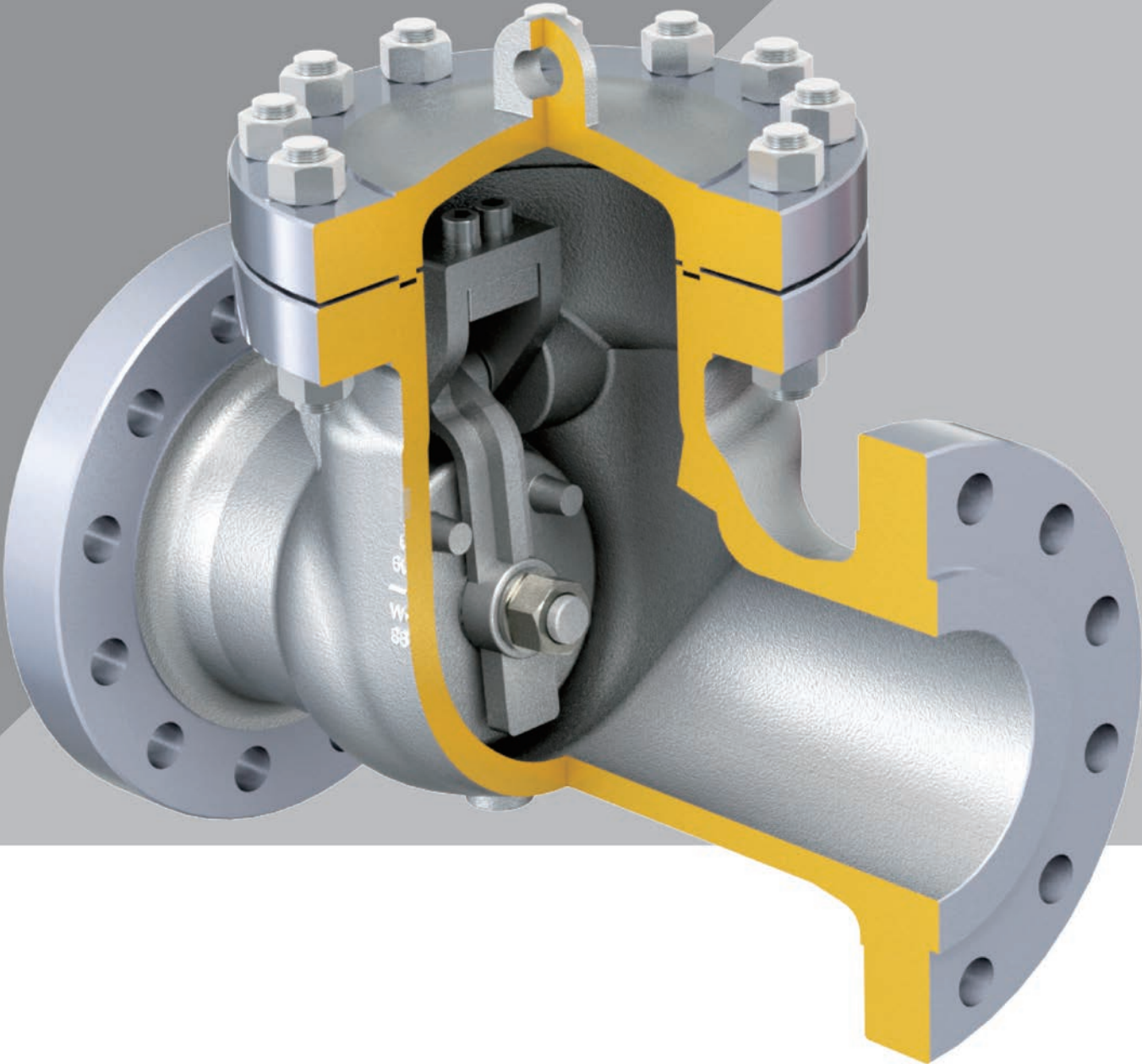
Design standards: ASME B16.34 EN12516  
Structure length: ASME B16.10 EN558  
Connection flange: ASME B16.5 EN1092-1  
Inspection and test: API 598 EN12266



Main Connection Dimensions

| DN    | L   | D   | D1    | D2   | b    | f | n-Φd   | W       | H       |
|-------|-----|-----|-------|------|------|---|--------|---------|---------|
| 150Lb |     |     |       |      |      |   |        |         |         |
| 15    | 108 | 90  | 60.3  | 35   | 10   | 2 | 4-Φ16  | 120     | 240     |
| 20    | 117 | 100 | 69.9  | 43   | 10.9 | 2 | 4-Φ16  | 120     | 240     |
| 25    | 127 | 110 | 79.4  | 51   | 11.6 | 2 | 4-Φ16  | 140     | 256     |
| 32    | 140 | 115 | 88.9  | 63.5 | 13.2 | 2 | 4-Φ16  | 140     | 267     |
| 40    | 165 | 125 | 98.4  | 73   | 14.7 | 2 | 4-Φ16  | 160     | 325     |
| 50    | 203 | 150 | 120.7 | 92   | 16.3 | 2 | 4-Φ19  | 180/220 | 348/315 |
| 65    | 216 | 180 | 139.7 | 105  | 17.9 | 2 | 4-Φ19  | 220     | 330     |
| 80    | 241 | 190 | 152.4 | 127  | 19.5 | 2 | 4-Φ19  | 250     | 380     |
| 100   | 292 | 230 | 190.5 | 157  | 24.3 | 2 | 8-Φ19  | 300     | 405     |
| 125   | 356 | 255 | 215.9 | 186  | 24.3 | 2 | 8-Φ22  | 300     | 455     |
| 150   | 406 | 280 | 241.3 | 216  | 25.9 | 2 | 8-Φ22  | 350     | 513     |
| 200   | 495 | 345 | 298.5 | 270  | 29   | 2 | 8-Φ22  | 400     | 683     |
| 300Lb |     |     |       |      |      |   |        |         |         |
| 15    | 152 | 95  | 66.7  | 35   | 14.7 | 2 | 4-Φ16  | 120     | 240     |
| 20    | 178 | 115 | 82.6  | 43   | 16.3 | 2 | 4-Φ19  | 120     | 240     |
| 25    | 203 | 125 | 88.9  | 51   | 17.9 | 2 | 4-Φ19  | 140     | 256     |
| 32    | 216 | 135 | 98.4  | 63.5 | 19.5 | 2 | 4-Φ19  | 140     | 267     |
| 40    | 229 | 155 | 114.3 | 73   | 21.1 | 2 | 4-Φ22  | 160     | 325     |
| 50    | 267 | 165 | 127   | 92   | 22.7 | 2 | 8-Φ19  | 180/220 | 348/328 |
| 65    | 292 | 190 | 149.2 | 105  | 25.9 | 2 | 8-Φ22  | 220     | 355     |
| 80    | 318 | 210 | 168.3 | 127  | 29   | 2 | 8-Φ22  | 250     | 414     |
| 100   | 356 | 255 | 200   | 157  | 32.2 | 2 | 8-Φ22  | 300     | 433     |
| 125   | 400 | 280 | 235   | 186  | 35.4 | 2 | 8-Φ22  | 350     | 452     |
| 150   | 444 | 320 | 269.9 | 216  | 37   | 2 | 12-Φ22 | 450     | 545     |
| 200   | 559 | 380 | 330.2 | 270  | 41.7 | 2 | 12-Φ26 | 500     | 765     |

Check Valve Products





# Check Valve

### Related Standards:

Design and Manufacture: API 6D (Cast Steel)  
API 602 (forged steel)  
ASME B16.34 BS1868

Face to Face and End to End: ASME B16.10  
Flanged End (RF/ RTJ): ASME B16.5  
Socket welded end (SW): ASME B16.11  
Butt Welded End (BW): ASME B16.25  
Threaded End (NPT): ASME B1.20.1  
Test & Inspection: API 598

### Design DESCRIPTION

Bolted Bonnet (BB)  
Metallic seating surfaces  
Renewable Seat Ring upon request  
Flange or BW/SW ends  
Straight body patten design  
Resistant to corrosion and wear  
Special features according to Customer's requirement

### Product structure characteristics

#### Body and Bonnet Connection

Bolts and Nuts for 150LB~2500LB, Pressure Seal for 900LB,  
also optional by application or customer's request.

#### Yoke

Yoke and Hinge pin installed inside valve body can fully move the valve disc.

#### Packing Seal

Molded flexible graphite and PTFE or combined packing material is used for  
packing material, Excellent finish (Ra3.2 μ m) of packing box's internal surface  
to ensure the reliable tightness of stem and packing box.

#### Seat Sealing Surface

Welkin valve has welded seat, renewable threaded seat and integral seat,  
Spray welded with hard alloy specified sealing surface.  
Optional by application or customer's request.

#### Protrusion for discharge hole

Standard protrusions for opening discharge holes can be reserved at the bottom  
of valve body centerline, position according to customer requirements.

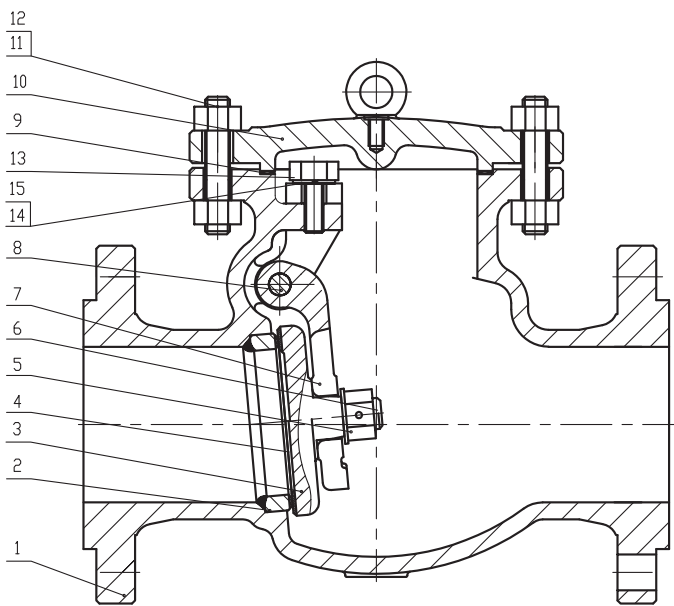
### Driving method

Actuators are optional according to customer request.



# Check Valve

### STANDARD MATERIAL SPECIFICATIONS (ASTM)



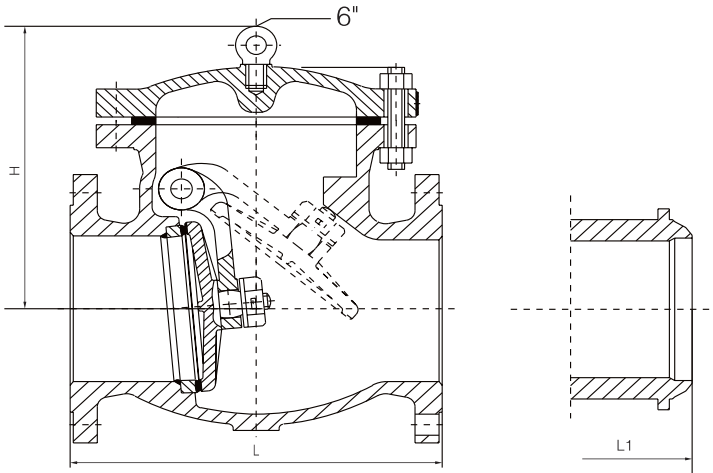
### TECHNICAL SPECIFICATIONS:

|  |                    |
|--|--------------------|
|  | 2" –48"            |
|  | Up to 570°C        |
|  | Class 150LB–2500LB |

| NO.   | Part Name        | ASTM CARBON STEEL                                |           | ASTM ALLOY STEEL |           |         | ASTM STAINLESS STEEL |           |            |            |
|-------|------------------|--------------------------------------------------|-----------|------------------|-----------|---------|----------------------|-----------|------------|------------|
|       |                  | Standard                                         | Cryogenic | High Temperature |           |         | CF8                  | CF8M      | CF3        | CF3M       |
| 1     | Body             | A216 WCB                                         | A352 LCB  | A217 WC6         | A217 WC9  | A217 C5 | A351CF8              | A351 CF8M | A351CF3    | A351 CF3M  |
| 2     | Seat             | A216 WCB                                         | A352 LCB  | A217 WC6         | A217 WC9  | A217 C5 | A351CF8              | A351 CF8M | A351CF3    | A351 CF3M  |
| 3     | Disc             | A216 WCB                                         | A352 LCB  | A217 WC6         | A217 WC9  | A217 C5 | A182 F304            | A182 F316 | A182 F304L | A182 F316L |
| 4     | Disc Washer      |                                                  |           |                  | A182 F304 |         | A351CF8              | A351 CF8M | A351CF3    | A351 CF3M  |
| 5     | Disc Nut         |                                                  |           |                  | A182 F304 |         | A182 F304            | A182 F316 | A182 F304L | A182 F316L |
| 6     | Disc Pin         |                                                  |           |                  | A182 F304 |         | A182 F304            | A182 F316 | A182 F304L | A182 F316L |
| 7     | Hinge            | A216 WCB                                         | A352 LCB  | A217 WC6         | A217 WC9  | A217 C5 | A182 F304            | A182 F316 | A182 F304L | A182 F316L |
| 8     | Hinge Pin        |                                                  |           |                  | A182 F304 |         | A182 F304            | A182 F316 | A182 F304L | A182 F316L |
| 9     | Cover Gasket     | SS Spiral Wound/graphite or SS Spiral Wound/PTFE |           |                  |           |         |                      |           |            |            |
| 10    | Cover            | A216 WCB                                         | A352 LCB  | A217 WC6         | A217 WC9  | A217 C5 | A182 F304            | A182 F316 | A182 F304L | A182 F316L |
| 11    | Stud Bolt        | A194 2H                                          | A1944     | A194 7           |           |         | A194 8               |           |            |            |
| 12    | Nut              | A193B7                                           | A30L7     | A193B16          |           |         | A193B8               |           |            |            |
| 13    | Eyebolt Screw    | Steel                                            |           |                  |           |         |                      |           |            |            |
| 14–15 | Plug Gasket–Plug | SS Spiral Wound/graphite or SS Spiral Wound/PTFE |           |                  |           |         |                      |           |            |            |

Note: Different raw materials and trims are available according to application conditions or customer requests

## Check Valve



Classs 150 Cast Steel Check Valve

| NPS             | in | 2"    | 2-1/2" | 3"  | 4"   | 5"  | 6"    | 8"    | 10"   | 12"   | 14"   | 16"  | 18"  | 20"  | 24"  | 26"  | 28"  | 30"  | 32"  | 36"  | 40"  | 42"  | 48"  |
|-----------------|----|-------|--------|-----|------|-----|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| DN              | mm | 50    | 65     | 80  | 100  | 125 | 150   | 200   | 250   | 300   | 350   | 400  | 450  | 500  | 600  | 650  | 700  | 750  | 800  | 900  | 1000 | 1050 | 1200 |
| L-L1<br>(RF-BW) | in | 8     | 8.5    | 9.5 | 11.5 | 13  | 14    | 19.5  | 24.5  | 27.5  | 31    | 34   | 38.5 | 38.5 | 51   | 51   | 57   | 60   | 68   | 77   | 85   | 89   | 101  |
|                 | mm | 203   | 216    | 241 | 292  | 330 | 356   | 495   | 622   | 699   | 787   | 864  | 978  | 978  | 1295 | 1295 | 1448 | 1524 | 1727 | 1956 | 2159 | 2261 | 2566 |
| H               | in | 5.9   | 6.6    | 6.7 | 8    | 9.1 | 11.7  | 13.8  | 15.3  | 17.2  | 18.8  | 20.7 | 22.9 | 24.7 | 34.6 | 35.8 | 36.8 | 38.2 | 49.2 | 54.2 | 55.5 | 57.8 | 64.6 |
|                 | mm | 150.5 | 168    | 171 | 204  | 230 | 296.5 | 351.5 | 389.5 | 437.5 | 476.5 | 525  | 582  | 627  | 880  | 910  | 935  | 970  | 1250 | 1377 | 1410 | 1468 | 1642 |

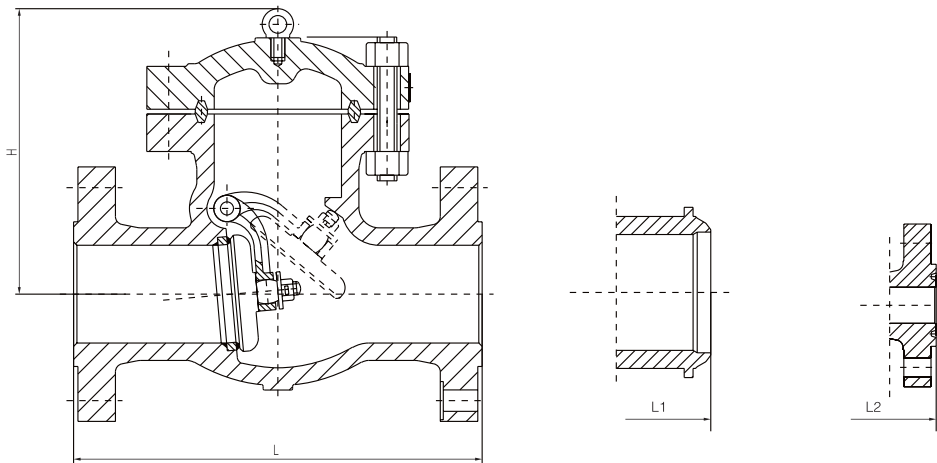
Classs 300 Cast Steel Check Valve

| NPS             | in | 2"   | 2-1/2" | 3"   | 4"   | 5"    | 6"   | 8"  | 10"  | 12"  | 14"  | 16"  | 18"  | 20"  | 24"  | 26"  | 28"  | 30"   | 32"  | 36"  | 40"  |
|-----------------|----|------|--------|------|------|-------|------|-----|------|------|------|------|------|------|------|------|------|-------|------|------|------|
| DN              | mm | 50   | 65     | 80   | 100  | 125   | 150  | 200 | 250  | 300  | 350  | 400  | 450  | 500  | 600  | 650  | 700  | 750   | 800  | 900  | 1000 |
| L-L1<br>(RF-BW) | in | 10.5 | 11.5   | 12.5 | 14   | 15.75 | 17.5 | 21  | 24.5 | 28   | 33   | 34   | 38.5 | 40   | 53   | 53   | 59   | 62.75 | 68   | 82   | 96   |
|                 | mm | 267  | 292    | 318  | 356  | 400   | 445  | 533 | 622  | 711  | 838  | 864  | 978  | 1016 | 1346 | 1346 | 1499 | 1594  | 1727 | 2083 | 2438 |
| H               | in | 6.9  | 7.3    | 8.5  | 10.2 | 12    | 12.5 | 15  | 17.1 | 20.1 | 22.1 | 23.5 | 26.6 | 28.7 | 33.9 | 36.6 | 45.8 | 50    | 50.0 | 59.4 | 68.9 |
|                 | mm | 176  | 185    | 216  | 259  | 304   | 317  | 380 | 434  | 511  | 561  | 596  | 675  | 730  | 860  | 930  | 1163 | 1270  | 1270 | 1510 | 1750 |

Classs 600 Cast Steel Check Valve

| NPS             | in | 2"    | 2-1/2" | 3"    | 4"    | 5"    | 6"    | 8"    | 10"   | 12"   | 14"   | 16"   | 18"   | 20"   | 24"   | 26"  | 28"  | 30"  | 32"  | 36"  | 40"  | 42"  | 48"  |
|-----------------|----|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| DN              | mm | 50    | 65     | 80    | 100   | 125   | 150   | 200   | 250   | 300   | 350   | 400   | 450   | 500   | 600   | 650  | 700  | 750  | 800  | 900  | 1000 | 1050 | 1200 |
| L-L1<br>(RF-BW) | in | 11.5  | 13     | 14    | 17    | 20    | 22    | 26    | 31    | 33    | 35    | 39    | 43    | 47    | 55    | 57   | 63   | 65   | 70   | 82   | 90   | 96   | 100  |
|                 | mm | 292   | 330    | 356   | 432   | 508   | 559   | 660   | 787   | 838   | 889   | 991   | 1092  | 1194  | 1397  | 1448 | 1600 | 1651 | 1778 | 2083 | 2286 | 2438 | 2540 |
| L2 (RTJ)        | in | 11.62 | 13.12  | 14.12 | 17.12 | 20.12 | 22.12 | 26.12 | 31.12 | 33.12 | 35.12 | 39.12 | 43.12 | 47.25 | 55.38 | 57.5 | 63.5 | 65.5 | 70.6 | 82.6 | -    | -    | -    |
|                 | mm | 295   | 333    | 359   | 435   | 511   | 562   | 663   | 790   | 841   | 892   | 994   | 1095  | 1200  | 1407  | 1461 | 1613 | 1664 | 1794 | 2099 | -    | -    | -    |
| H               | in | 7.2   | 8.3    | 9.1   | 10.4  | 11.6  | 14.7  | 16.8  | 20.4  | 22.4  | 24.5  | 26.8  | 29.6  | 38.4  | 43.7  | 43.7 | 46.9 | 52.1 | 53.8 | 60.7 | 67.0 | 70.9 | 85.5 |
|                 | mm | 184   | 210    | 232   | 263   | 295   | 374   | 426   | 517   | 569   | 622   | 680   | 752   | 975   | 1111  | 1110 | 1192 | 1324 | 1367 | 1542 | 1702 | 1800 | 2171 |

## Check Valve



Classs 900 Cast Steel Check Valve

| NPS             | in | 2"    | 2-1/2" | 3"    | 4"    | 6"    | 8"    | 10"   | 12"   | 14"   | 16"   | 18"  | 20"  | 24"  | 26"  | 28"  | 30"  | 32"  | 36"  |
|-----------------|----|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| DN              | mm | 50    | 65     | 80    | 100   | 150   | 200   | 250   | 300   | 350   | 400   | 450  | 500  | 600  | 650  | 700  | 750  | 800  | 900  |
| L-L1<br>(RF-BW) | in | 14.5  | 16.5   | 15    | 18    | 24    | 29    | 33    | 38    | 40.5  | 44.5  | 48.0 | 52.0 | 61.0 | 65.0 | 69.0 | 73.0 | 77.0 | 84.9 |
|                 | mm | 368   | 419    | 381   | 457   | 610   | 737   | 838   | 965   | 1029  | 1130  | 1219 | 1321 | 1549 | 1651 | 1753 | 1854 | 1956 | 2156 |
| L2 (RTJ)        | in | 14.62 | 16.62  | 15.12 | 18.12 | 24.12 | 29.12 | 33.12 | 38.12 | 40.88 | 44.88 | 48.5 | 52.5 | 61.7 | 65.9 | 69.9 | 73.9 | -    | -    |
|                 | mm | 371   | 422    | 384   | 460   | 613   | 740   | 841   | 968   | 1038  | 1140  | 1232 | 1333 | 1568 | 1673 | 1775 | 1876 | -    | -    |
| H               | in | 11.7  | 11.8   | 11.8  | 12.9  | 17.4  | 19.8  | 26.1  | 30.5  | 30.8  | 33    | 33.0 | 36.7 | 36.4 | 44.1 | 54.0 | 59.9 | 65.8 | 71.7 |
|                 | mm | 296   | 300    | 300   | 327   | 441   | 502   | 664   | 775   | 782   | 838   | 839  | 932  | 924  | 1121 | 1372 | 1521 | 1671 | 1821 |

Classs 1500 Cast Steel Check Valve

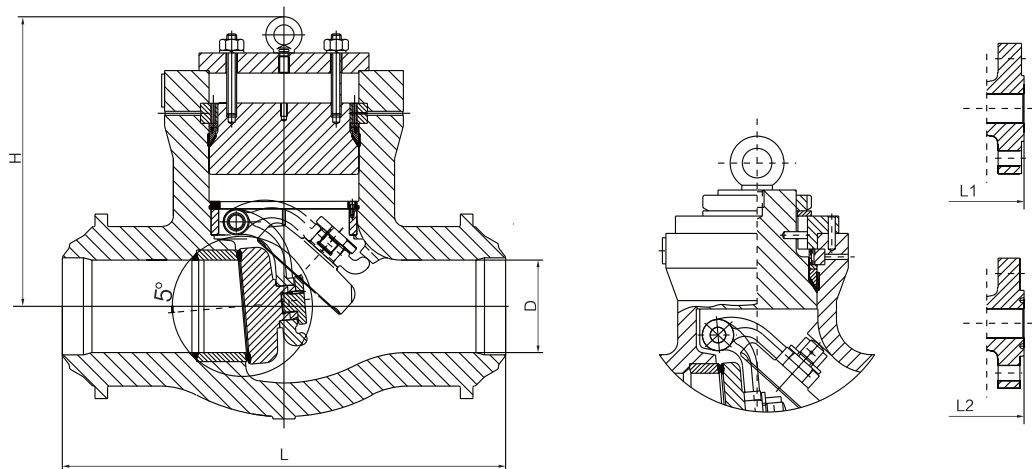
| NPS             | in | 2"    | 2-1/2" | 3"    | 4"    | 6"    | 8"    | 10"   | 12"   | 14"   | 16"   | 18"  | 20"  | 24"  | 26"  | 28"    | 30"  |
|-----------------|----|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|--------|------|
| DN              | mm | 50    | 65     | 80    | 100   | 150   | 200   | 250   | 300   | 350   | 400   | 450  | 500  | 600  | 650  | 700    | 750  |
| L-L1<br>(RF-BW) | in | 14.5  | 16.5   | 18.5  | 21.5  | 27.75 | 32.75 | 39    | 44.5  | 49.5  | 54.5  | 60.5 | 65.5 | 76.5 | 82.0 | 87.5   | 93.0 |
|                 | mm | 368   | 419    | 470   | 546   | 705   | 832   | 991   | 1130  | 1257  | 1384  | 1537 | 1664 | 1943 | 2083 | 2222.5 | 2362 |
| L2 (RTJ)        | in | 14.62 | 16.62  | 18.62 | 21.62 | 28.00 | 33.13 | 39.38 | 45.12 | 50.25 | 55.38 | 61.4 | 66.4 | 77.6 | -    | -      | -    |
|                 | mm | 371   | 422    | 473   | 549   | 711   | 842   | 1000  | 1146  | 1276  | 1407  | 1559 | 1686 | 1972 | -    | -      | -    |
| H               | in | 11.7  | 11.8   | 13.4  | 16.2  | 20.1  | 26.8  | 29.8  | 33.7  | 37.4  | 40.1  | 45.2 | 50.6 | 60.6 | 70.6 | 80.7   | 90.7 |
|                 | mm | 296   | 300    | 341   | 412   | 511   | 680   | 756   | 857   | 950   | 1020  | 1147 | 1284 | 1539 | 1794 | 2049   | 2304 |

Classs 2500 Cast Steel Check Valve

| NPS             | in | 2"    | 2-1/2" | 3"    | 4"    | 6"    | 8"    | 10"   | 12"   | 14"  | 16"  | 18"  | 20"  | 24"  |
|-----------------|----|-------|--------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|
| DN              | mm | 50    | 65     | 80    | 100   | 150   | 200   | 250   | 300   | 350  | 400  | 450  | 500  | 600  |
| L-L1<br>(RF-BW) | in | 17.75 | 20     | 22.75 | 26.5  | 36    | 40.25 | 50    | 56    | 62.0 | 68.0 | 73.9 | 79.9 | 91.9 |
|                 | mm | 451   | 508    | 578   | 673   | 914   | 1022  | 1270  | 1422  | 1575 | 1727 | 1877 | 2029 | 2334 |
| L2 (RTJ)        | in | 17.87 | 20.25  | 23.00 | 26.88 | 36.50 | 40.87 | 50.88 | 56.88 | -    | -    | -    | -    | -    |
|                 | mm | 454   | 514    | 584   | 683   | 927   | 1038  | 1292  | 1445  | -    | -    | -    | -    | -    |
| H               | in | 16.4  | 16.5   | 17.4  | 18.9  | 20.1  | 28    | 33.5  | 39.4  | 47.2 | 51.2 | 55.1 | 59.1 | 63.0 |
|                 | mm | 416   | 419    | 441   | 479   | 511   | 711   | 851   | 1000  | 1200 | 1300 | 1400 | 1500 | 1600 |



Pressure Seal Check Valve



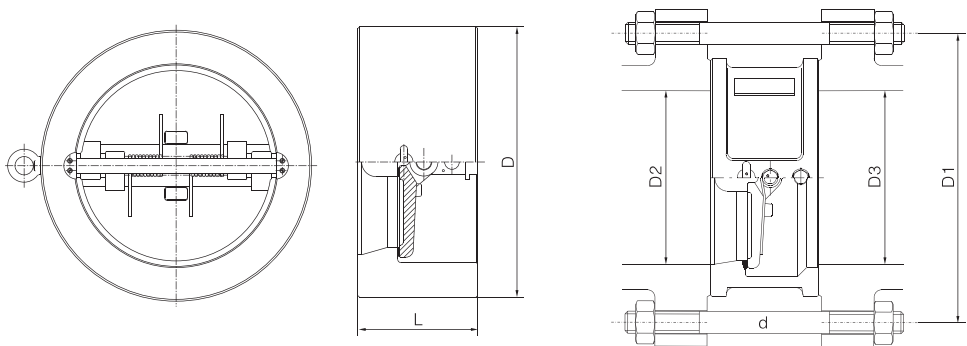
Classs 600 Pressure Seal Cast Steel Check Valve

| NPS             | in | 2"    | 2-1/2" | 3"    | 4"    | 5"    | 6"    | 8"    | 10"   | 12"   | 14"   | 16"   | 18"   | 20"   | 24"   | 26"   | 28"   | 30"   |
|-----------------|----|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| DN              | mm | 50    | 65     | 80    | 100   | 125   | 150   | 200   | 250   | 300   | 350   | 400   | 450   | 500   | 600   | 650   | 700   | 750   |
| L-L1<br>(RF-BW) | in | 11.5  | 13     | 14    | 17    | 20    | 22    | 26    | 31    | 33    | 35    | 39    | 43    | 47    | 55    | 57    | 63    | 65    |
|                 | mm | 292   | 330    | 356   | 432   | 508   | 559   | 660   | 787   | 838   | 889   | 991   | 1092  | 1194  | 1397  | 1448  | 1600  | 1651  |
| L2 (RTJ)        | in | 11.62 | 13.12  | 14.12 | 17.12 | 20.12 | 22.12 | 26.12 | 31.12 | 33.12 | 35.12 | 39.12 | 43.13 | 47.25 | 55.38 | 57.5  | 63.5  | 65.5  |
|                 | mm | 295   | 333    | 359   | 435   | 511   | 562   | 663   | 790   | 841   | 892   | 994   | 1095  | 1200  | 1407  | 1461  | 1613  | 1664  |
| H               | in | 9.5   | 10.4   | 10.6  | 12.5  | 15.7  | 15.7  | 23.1  | 23.9  | 27.4  | 29.5  | 28.7  | 28.75 | 32.25 | 37.38 | 39.38 | 43.25 | 47.25 |
|                 | mm | 241   | 264    | 270   | 318   | 400   | 400   | 587   | 606   | 695   | 749   | 730   | 730   | 819   | 949   | 1000  | 1099  | 1200  |

Classs 900 Pressure Seal Cast Steel Check Valve

| NPS      | in | 2"   | 2-1/2" | 3"   | 4"   | 6"   | 8"   | 10"  | 12"  | 14"  | 16"  | 18"   | 20"  | 24"   | 26"   | 28"   | 30"   |
|----------|----|------|--------|------|------|------|------|------|------|------|------|-------|------|-------|-------|-------|-------|
| DN       | mm | 50   | 65     | 80   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450   | 500  | 600   | 650   | 700   | 750   |
| L (BW)   | in | 8.5  | 10     | 12   | 14   | 20   | 26   | 31   | 36   | 39   | 43   | 48    | 52   | 61    | 63    | 67    | 71    |
|          | mm | 216  | 254    | 305  | 356  | 508  | 660  | 787  | 914  | 991  | 1092 | 1219  | 1321 | 1549  | 1600  | 1702  | 1803  |
| L1 (RF)  | in | 14.5 | 16.5   | 15   | 18   | 24   | 29   | 33   | 38   | 40.5 | 44.5 | 48    | 52   | 61    | 65    | 69    | 73    |
|          | mm | 368  | 419    | 381  | 457  | 610  | 737  | 838  | 965  | 1029 | 1130 | 1219  | 1321 | 1549  | 1651  | 1753  | 1854  |
| L2 (RTJ) | in | 14.6 | 16.1   | 15.1 | 18.1 | 24.1 | 29.1 | 33.1 | 38.1 | 40.9 | 44.9 | 48.5  | 52.5 | 61.75 | 65.88 | 69.88 | 73.88 |
|          | mm | 371  | 422    | 384  | 460  | 613  | 740  | 841  | 968  | 1038 | 1140 | 1232  | 1333 | 1568  | 1673  | 1775  | 1876  |
| H        | in | 9.5  | 10.4   | 10.6 | 12.5 | 15.7 | 23.1 | 23.9 | 27.4 | 29.5 | 28.7 | 33.50 | 34   | 37.75 | 39.38 | 45.25 | 55.13 |
|          | mm | 241  | 264    | 270  | 318  | 400  | 587  | 606  | 695  | 749  | 730  | 851   | 864  | 959   | 1000  | 1149  | 1400  |

Wafer Type Dual plate check valve



Classs 150\300 Wafer type Check Vale

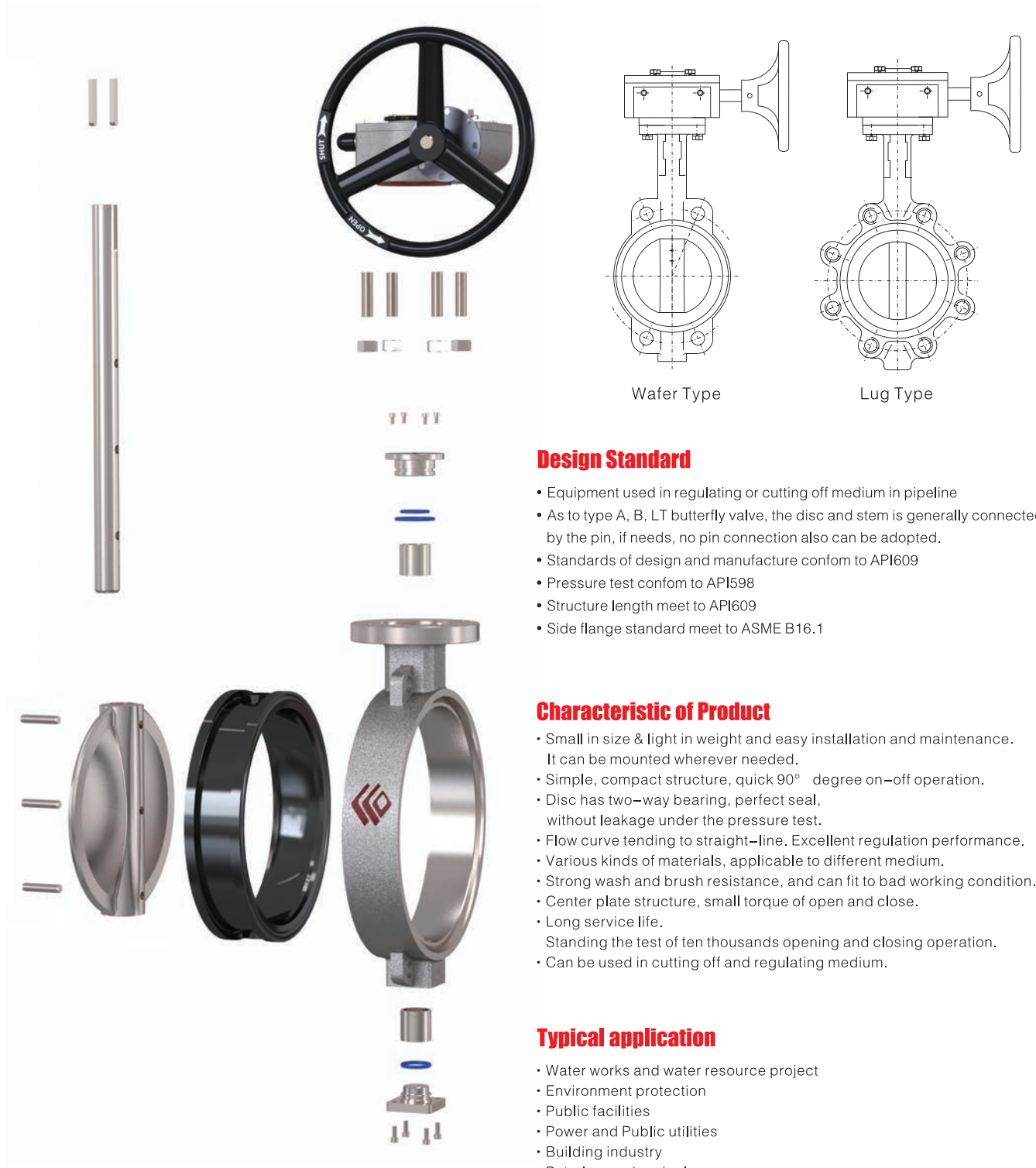
| Class | Size  |      | Dimensions (mm) |      |      |      | Pipeline flanges |                 |       |      |      |     |
|-------|-------|------|-----------------|------|------|------|------------------|-----------------|-------|------|------|-----|
|       | NPS   | DN   | L               | D    | D2   | D3   | D1               | Number of bolts | d     |      | L1   |     |
|       |       |      |                 |      |      |      |                  |                 | In    | mm   | RF   | RTJ |
| 150   | 2     | 50   | 60              | 103  | 51   | 56   | 120.5            | 4               | 5/8   | M16  | 140  | 155 |
|       | 2 1/2 | 65   | 67              | 122  | 65   | 73   | 139.5            | 4               | 5/8   | M16  | 150  | 165 |
|       | 3     | 80   | 73              | 135  | 80   | 88   | 152.5            | 4               | 5/8   | M16  | 160  | 175 |
|       | 4     | 100  | 73              | 173  | 102  | 108  | 190.5            | 8               | 5/8   | M16  | 170  | 185 |
|       | 5     | 125  | 86              | 195  | 127  | 132  | 216.0            | 8               | 3/4   | M20  | 190  | 205 |
|       | 6     | 150  | 98              | 220  | 152  | 160  | 241.5            | 8               | 3/4   | M20  | 205  | 220 |
|       | 8     | 200  | 127             | 277  | 203  | 210  | 298.5            | 8               | 3/4   | M20  | 240  | 255 |
|       | 10    | 250  | 146             | 337  | 254  | 266  | 362.0            | 12              | 7/8   | M24  | 270  | 285 |
|       | 12    | 300  | 181             | 407  | 305  | 310  | 432.0            | 12              | 7/8   | M24  | 310  | 325 |
|       | 14    | 350  | 184             | 448  | 350  | 355  | 476.0            | 12              | 1     | M27  | 325  | 340 |
|       | 16    | 400  | 191             | 512  | 400  | 405  | 540.0            | 16              | 1     | M27  | 340  | 355 |
|       | 18    | 450  | 203             | 547  | 450  | 455  | 578.0            | 16              | 1 1/8 | M30  | 365  | 380 |
|       | 20    | 500  | 219             | 604  | 500  | 505  | 635.0            | 20              | 1 1/8 | M30  | 385  | 400 |
|       | 24    | 600  | 222             | 715  | 600  | 605  | 749.5            | 20              | 1 1/4 | M33  | 405  | 420 |
|       | 28    | 700  | 305             | 773  | 700  | 700  | 795.5            | 40              | 3/4   | M20  | 455  | -   |
|       | 30    | 750  | 305             | 824  | 746  | 750  | 846.0            | 44              | 3/4   | M20  | 455  | -   |
|       | 32    | 800  | 305             | 878  | 796  | 800  | 900.0            | 48              | 3/4   | M20  | 460  | -   |
|       | 36    | 900  | 368             | 983  | 898  | 910  | 1009.5           | 44              | 7/8   | M24  | 540  | -   |
| 300   | 42    | 1050 | 432             | 1142 | 1050 | 1055 | 1171.5           | 48              | 1     | M27  | 625  | -   |
|       | 48    | 1200 | 524             | 1302 | 1200 | 1205 | 1335.0           | 44              | 1 1/8 | M30  | 740  | -   |
|       | 2     | 50   | 60              | 110  | 51   | 58   | 127.0            | 8               | 5/8   | M16  | 155  | 175 |
|       | 2 1/2 | 65   | 67              | 128  | 65   | 73   | 149.0            | 8               | 3/4   | M20  | 175  | 195 |
|       | 3     | 80   | 73              | 147  | 80   | 88   | 168.5            | 8               | 3/4   | M20  | 190  | 210 |
|       | 4     | 100  | 73              | 179  | 102  | 108  | 200.0            | 8               | 3/4   | M20. | 195  | 215 |
|       | 5     | 125  | 86              | 214  | 127  | 132  | 235.0            | 8               | 3/4   | M20  | 215  | 235 |
|       | 6     | 150  | 98              | 249  | 152  | 160  | 270.0            | 12              | 3/4   | M20  | 230  | 250 |
|       | 8     | 200  | 127             | 305  | 203  | 210  | 330.0            | 12              | 7/8   | M24  | 280  | 300 |
|       | 10    | 250  | 146             | 359  | 254  | 266  | 387.5            | 16              | 1     | M27  | 315  | 335 |
|       | 12    | 300  | 181             | 420  | 305  | 310  | 451.0            | 16              | 1 1/8 | M30  | 365  | 385 |
|       | 14    | 350  | 222             | 483  | 350  | 355  | 514.5            | 20              | 1 1/8 | M30  | 410  | 430 |
|       | 16    | 400  | 232             | 537  | 400  | 405  | 571.5            | 20              | 1 1/4 | M33  | 435  | 455 |
|       | 18    | 450  | 264             | 594  | 450  | 455  | 628.5            | 24              | 1 1/4 | M33  | 475  | 495 |
|       | 20    | 500  | 292             | 652  | 500  | 505  | 686.0            | 24              | 1 1/4 | M33  | 510  | 535 |
|       | 24    | 600  | 318             | 772  | 600  | 608  | 813.0            | 24              | 1 1/2 | M39  | 560  | 585 |
|       | 30    | 750  | 368             | 882  | 735  | 740  | 921.0            | 36              | 13/8  | M36  | 650  | -   |
|       | 36    | 900  | 483             | 1044 | 873  | 880  | 1089.0           | 32              | 15/8  | M42  | 800  | -   |
|       | 42    | 1050 | 568             | 1196 | 1035 | 1045 | 1244.5           | 36              | 13/4  | M45  | 920  | -   |
|       | 48    | 1200 | 629             | 1365 | 1179 | 1190 | 1416.0           | 40              | 17/8  | M48  | 1010 | -   |

# Concentric Butterfly Valve

## Products



# Concentric Butterfly Valve



### Design Standard

- Equipment used in regulating or cutting off medium in pipeline
- As to type A, B, LT butterfly valve, the disc and stem is generally connected by the pin, if needs, no pin connection also can be adopted.
- Standards of design and manufacture conform to API609
- Pressure test conform to API598
- Structure length meet to API609
- Side flange standard meet to ASME B16.1

### Characteristic of Product

- Small in size & light in weight and easy installation and maintenance. It can be mounted wherever needed.
- Simple, compact structure, quick 90° degree on-off operation.
- Disc has two-way bearing, perfect seal, without leakage under the pressure test.
- Flow curve tending to straight-line. Excellent regulation performance.
- Various kinds of materials, applicable to different medium.
- Strong wash and brush resistance, and can fit to bad working condition.
- Center plate structure, small torque of open and close.
- Long service life. Standing the test of ten thousands opening and closing operation.
- Can be used in cutting off and regulating medium.

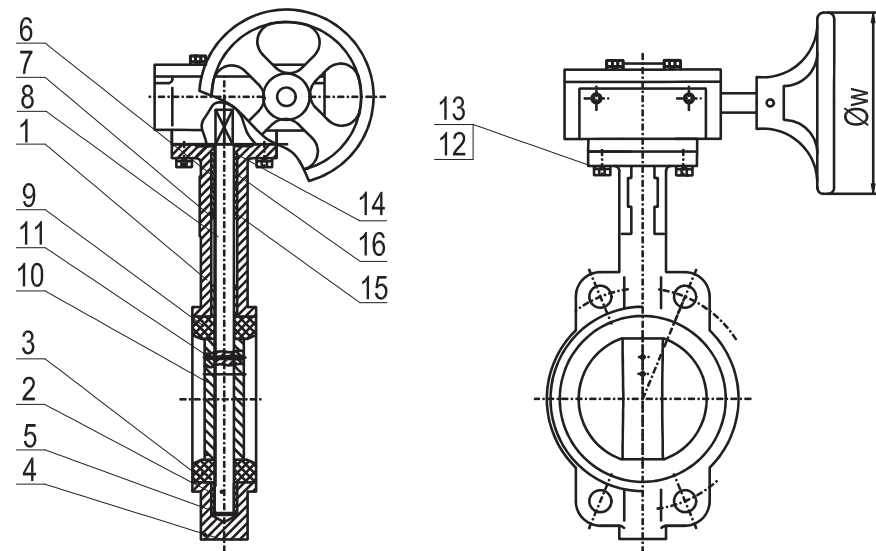
### Typical application

- Water works and water resource project
- Environment protection
- Public facilities
- Power and Public utilities
- Building industry
- Petroleum, chemical
- Steel, metallurgy
- Paper making industry
- Foods, Beverage



## Concentric Butterfly Valve

### STANDARD MATERIAL SPECIFICATIONS



### TECHNICAL SPECIFICATIONS:

|                                                                                    |                   |
|------------------------------------------------------------------------------------|-------------------|
|  | 2"–48"            |
|  | UP to 260℃        |
|  | Class 150LB–600LB |

### Optional Operating Actuator

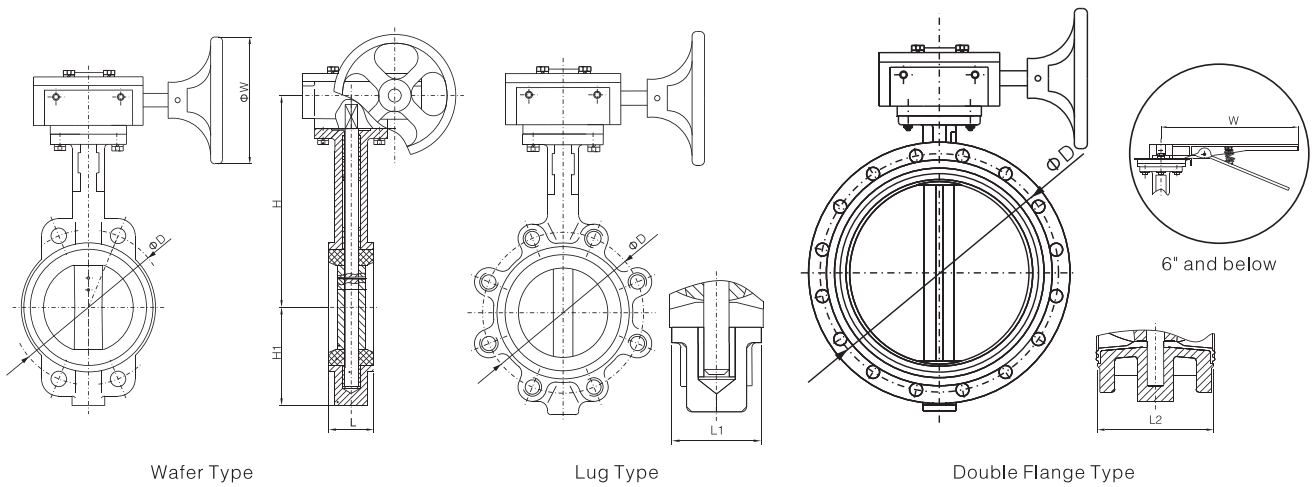
|                                                                                     |                                                                                     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |
| Handwheel                                                                           | Gear Box                                                                            |
|  |  |
| Pneumatic                                                                           | Electric                                                                            |

### WAFER/ LUG/ FLANGE TYPE

| NO. | Part Name     | Elastic seal                    | Metal seal                      |
|-----|---------------|---------------------------------|---------------------------------|
| 1   | Body          | WCB LCB CF8 CF8M CF3 CF3M MONEL | WCB LCB CF8 CF8M CF3 CF3M MONEL |
| 2   | Bushing       | PTFE                            | PTFE                            |
| 3   | Lock Plate    | WCB LCB CF8 CF8M CF3 CF3M MONEL | WCB LCB CF8 CF8M CF3 CF3M MONEL |
| 4   | End Cover     | WCB LCB CF8 CF8M CF3 CF3M MONEL | WCB LCB CF8 CF8M CF3 CF3M MONEL |
| 5   | Spring Planet | Spring Steel                    | Spring Steel                    |
| 6   | Stem Bush     | SS410 SS431 SS306 SS316 17–4PH  | SS410 SS431 SS306 SS316 17–4PH  |
| 7   | Retainer Ring | Stainless steel                 | Stainless steel                 |
| 8   | Stem          | SS410 SS431 SS306 SS316 17–4PH  | SS410 SS431 SS306 SS316 17–4PH  |
| 9   | Body Seat     | PTFE/NBR/EPDM                   | 13Cr+STL S306 S316 17–4PH       |
| 10  | Disc          | WCB LCB CF8 CF8M CF3 CF3M MONEL | WCB LCB CF8 CF8M CF3 CF3M MONEL |
| 11  | O ring        | PTFE/NBR/EPDM                   | PTFE/NBR/EPDM                   |
| 12  | Spring Planet | Spring Steel                    | Spring Steel                    |
| 13  | Screw         | Stainless steel                 | Stainless steel                 |
| 14  | Gland         | Stainless steel                 | Stainless steel                 |
| 15  | Seal Ring     | Alloy steel/ Stainless steel    | Stainless steel                 |
| 16  | Packaging     | Flexible graphite PTFE          | Flexible graphite PTFE          |

Note: Different raw materials and trims are available according to application conditions or customer requests

## Concentric Butterfly Valve

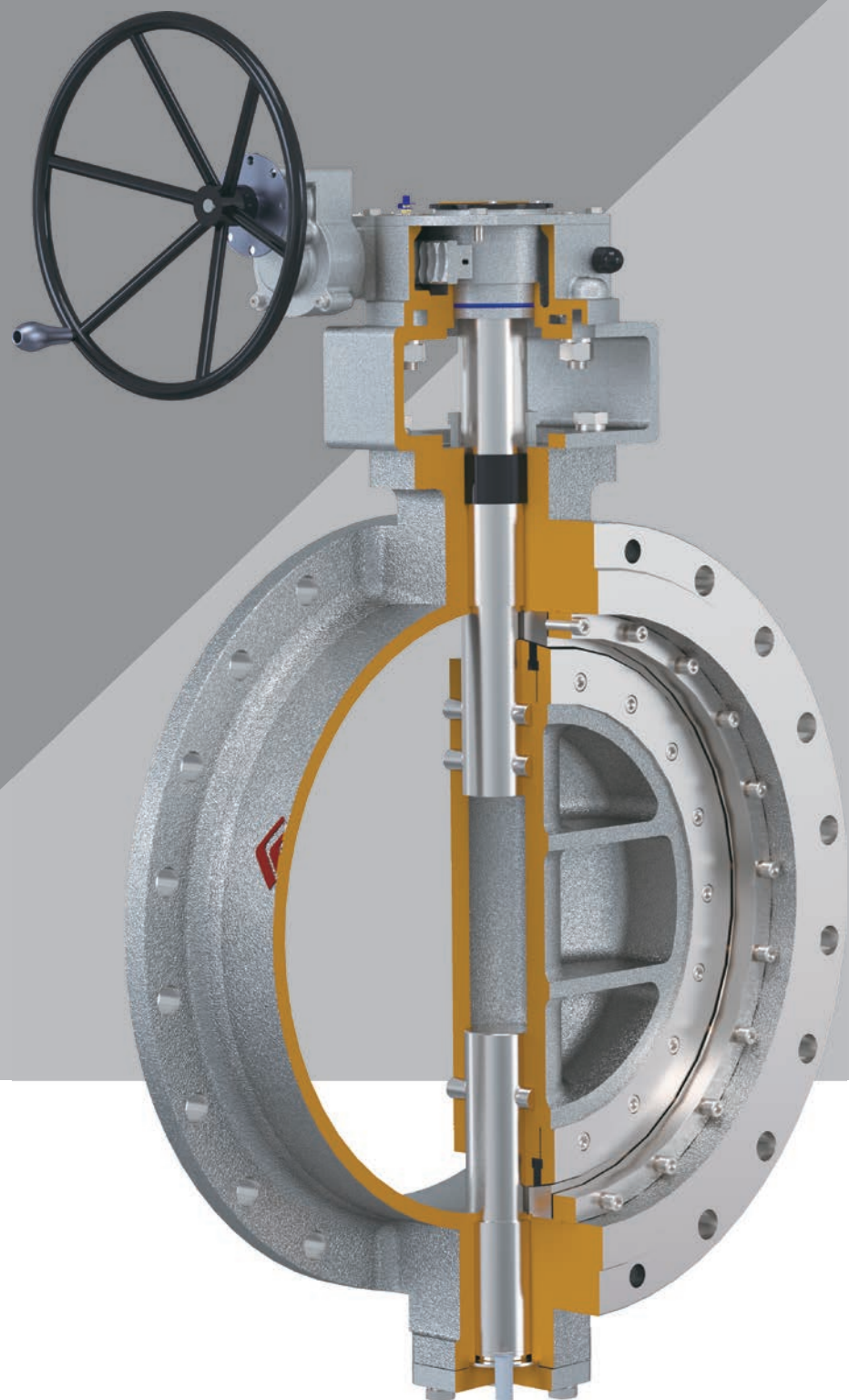


### Class 150 Concentric Butterfly Valve

| Size   |      | D     |      | H     |     | H1    |     | W     |      | L/L1  |     | L2    |     | t    |    |
|--------|------|-------|------|-------|-----|-------|-----|-------|------|-------|-----|-------|-----|------|----|
| in     | mm   | in    | mm   | in    | mm  | in    | mm  | in    | mm   | in    | mm  | in    | mm  | in   | mm |
| 2"     | 50   | 4.80  | 121  | 6.50  | 165 | 3.20  | 82  | 10.80 | 275  | 1.70  | 43  | 4.25  | 108 | 0.20 | 6  |
| 2 1/2" | 65   | 5.50  | 140  | 6.90  | 175 | 3.50  | 88  | 10.80 | 275  | 1.80  | 46  | 4.41  | 112 | 0.20 | 6  |
| 3"     | 80   | 6.00  | 152  | 7.10  | 180 | 3.80  | 97  | 10.80 | 275  | 1.80  | 46  | 4.49  | 114 | 0.20 | 6  |
| 4"     | 100  | 7.50  | 191  | 7.90  | 200 | 4.50  | 114 | 11.00 | 280  | 2.00  | 52  | 5.00  | 127 | 0.30 | 7  |
| 6"     | 150  | 9.50  | 241  | 9.30  | 235 | 5.50  | 140 | 11.40 | 290  | 2.20  | 56  | 5.51  | 140 | 0.30 | 7  |
| 8"     | 200  | 11.80 | 299  | 11.00 | 280 | 6.90  | 174 | 11.81 | *300 | 2.40  | 60  | 5.98  | 152 | 0.30 | 8  |
| 10"    | 250  | 14.30 | 362  | 10.80 | 275 | 7.90  | 200 | 11.81 | *300 | 2.70  | 68  | 6.50  | 165 | 0.30 | 9  |
| 12"    | 300  | 17.00 | 432  | 12.60 | 320 | 8.90  | 225 | 11.81 | *300 | 3.10  | 78  | 7.01  | 178 | 0.40 | 10 |
| 14"    | 350  | 18.80 | 476  | 14.20 | 360 | 9.40  | 240 | 13.78 | *350 | 3.10  | 78  | 7.48  | 190 | 0.40 | 10 |
| 16"    | 400  | 21.30 | 540  | 16.10 | 410 | 11.80 | 300 | 19.68 | *500 | 4.00  | 102 | 8.50  | 216 | 0.40 | 11 |
| 18"    | 450  | 22.80 | 578  | 17.90 | 455 | 12.80 | 325 | 19.68 | *500 | 4.50  | 114 | 8.74  | 222 | 0.50 | 12 |
| 20"    | 500  | 25.00 | 635  | 20.10 | 510 | 14.20 | 360 | 23.62 | *600 | 5.00  | 127 | 9.02  | 229 | 0.50 | 13 |
| 24"    | 600  | 29.50 | 749  | 21.10 | 535 | 16.90 | 430 | 23.62 | *600 | 6.10  | 154 | 10.51 | 267 | 0.60 | 15 |
| 30"    | 750  | 36.00 | 914  | 25.40 | 645 | 20.50 | 520 | 27.56 | *700 | 6.50  | 165 | 12.52 | 318 | 0.70 | 17 |
| 36"    | 900  | 42.70 | 1086 | 29.90 | 760 | 23.60 | 600 | 27.56 | *700 | 7.90  | 200 | 12.99 | 330 | 0.80 | 19 |
| 42"    | 1050 | 49.50 | 1257 | 31.90 | 810 | 27.60 | 700 | 31.50 | *800 | 9.90  | 251 | 16.14 | 410 | 0.90 | 22 |
| 48"    | 1200 | 56.00 | 1422 | 36.60 | 930 | 31.10 | 790 | 31.50 | *800 | 10.90 | 276 | 18.50 | 470 | 1.00 | 24 |

# Double Eccentric Butterfly Valve

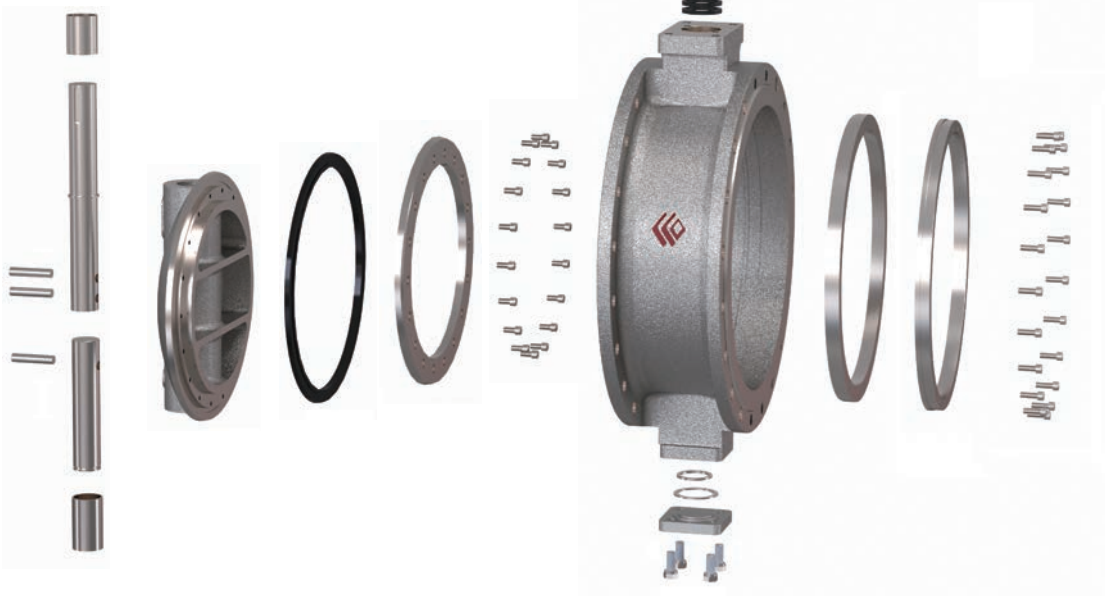
## Products



## Double Eccentric Butterfly Valve

### SUMMARY

- Pressure Rating: PN10, PN16, 150–900LB
- Size Range: DN50–DN1200(2"–48")
- Body Material: Carbon Steel, Stainless Steel, Duplex S.S., Bronze and Special Alloy
- Seat Material: Standard with RPTFE (energized), Optional with metal seated or fire safe tested design
- Mounting Pad & Stem: ISO 5211
- Standard Lockable Hand leve.
- Temperature Range: –30 to 260°C
- Design: API 609; ASME B16.34
- Valve Inspection & Testing: Standard: API 598
- Shutoff Rating: Bi-directional sealing
- Blowout Proof Stem
- Fire Safe Tested Design (optional design)r

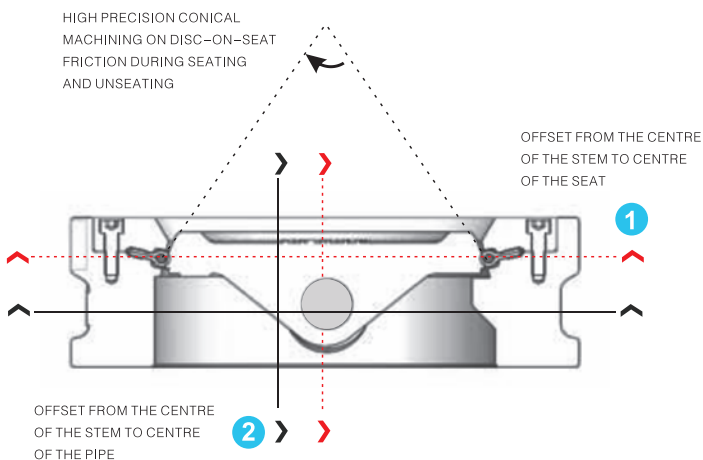


### FEATURES

The WELKIN double offset butterfly valve is a high performance valve that offers superior service life and is trouble-free to maintain. The second offset in the design promotes effortless operation by virtually eliminating disc-on-seat friction during seating and unseating. The disc lifts quickly out of the seat in the first few degrees of travel, and does not make contact with the seat again until it is nearly closed, reducing seat wear and the overall operating torque of the valve. The integrally cast disc travel stop perfectly locates the disc and seat, preventing over-travel and consequent seat damage. This design promotes the self-alignment of the disc and seat, and therefore compensates for change in pressures and temperatures always ensuring of the disc and seat, and therefore compensates for change in pressures and temperatures always ensuring bi-directional bubble tight shutoff. Its double offset design minimizes the wear points at the top and bottom seat. It has performed 100,000 mechanical cycle type testing and met with zero leakage with high pressure air.

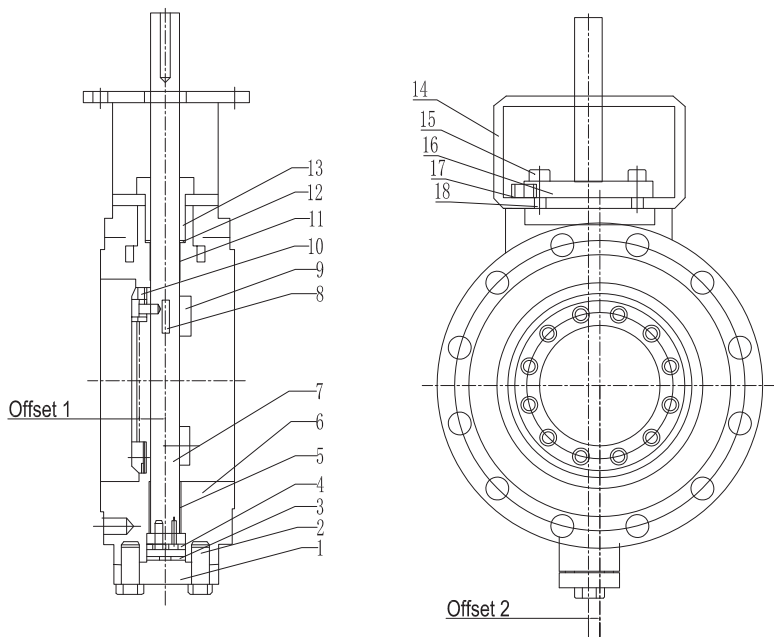
### Adjustable Stem Packing

WELKIN has a raised mounting pad allowing for the packing to be adjusted with the operator in place and preventing fugitive emissions into the operator in case of a leak. There utilizes a premium PTEE Chevron packing system as standard on resilient seated valves, and a graphite packing system on fire safe & metal seated valves. All packing systems have a pH range of 0–14.





# Double Eccentric Butterfly Valve



## TECHNICAL SPECIFICATIONS:

- 2"–48"
- Up to 500°C ( Metal Seated )  
260°C ( Soft Seated )
- Class 150LB–600LB

## Optional Operating Actuator

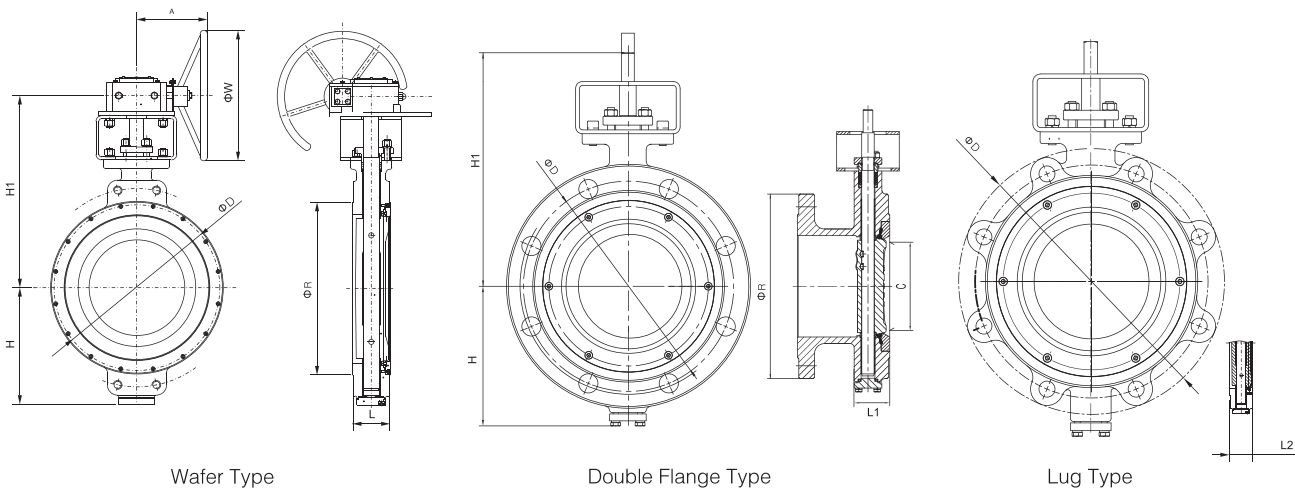
- Handwheel
- Gear Box
- Pneumatic
- Electric

## Material List

| No. | Part          | Standard       | Low Temperature | Stainless Steel | Sour Service     |
|-----|---------------|----------------|-----------------|-----------------|------------------|
| 1   | Bottom Cover  | ASTM A105N     | ASTM A350 Lf2   | ASTM A182 F316  | ASTM A105N       |
| 2   | Bolt          | ASTM A193 B7   | ASTM A320 L7    | ASTM A193 B8    | ASTM A193 B7M    |
| 3   | Gland Bush    | PTFE           | PCTFE           | PTFE            | PTFE             |
| 4   | Locating ring | SS304          | SS316           | SS316           | SS316            |
| 5   | Axle sleeve   | SS304+PTFE     | SS316+PTFE      | SS316+PTFE      | SS316+PTFE       |
| 6   | Body          | ASTM A216 WCB  | ASTM A352 LCB   | ASTM A351 CF8M  | ASTM A216 WCB    |
| 7   | Stem          | ASTM A564 630  | ASTM A182 F316  | ASTM A564 630   | ASTM A182 F6a NC |
| 8   | Bevel pin     | ASTM A564 630  | ASTM A182 F316  | ASTM A564 630   | ASTM A182 F6a NC |
| 9   | Disc          | ASTM A351 CF8M | ASTM A352 LCB   | ASTM A351 CF8M  | ASTM A216 WCB    |
| 10  | Seat ring     | PTFE           | PCTFE           | PTFE            | PTFE             |
| 10a | Seat retainer | ASTM A105N     | ASTM A350 LF2   | ASTM A182 F316  | ASTM A105N       |
| 11  | Bearing bush  | SS304+PTFE     | SS316+PTFE      | SS316+PTFE      | SS316+PTFE       |
| 12  | Stem Packing  | SS304          | SS316           | SS316           | SS316            |
| 13  | Gasket        | PTFE           | PCTFE           | PTFE            | PTFE             |
| 14  | Bracket       | AISI 1020      | AISI 1020       | AISI 1020       | AISI 1020        |
| 15  | Nut           | ASTM A194 2H   | ASTM A194 4     | ASTM A194 8     | ASTM A194 2HM    |
| 16  | Plate         | ASTM A216 WCB  | ASTM A352 LCB   | ASTM A351 CF8M  | ASTM A216 WCB    |
| 17  | Nut           | ASTM A194 2H   | ASTM A194 4     | ASTMA1948       | ASTM A194 2HM    |
| 18  | Bolt          | ASTM A193 B7   | ASTM A320 L7    | ASTM A193 B8    | ASTM A193 B7M    |

Note： Different raw materials and trims are available according to application conditions or customer requests

# Double Eccentric Butterfly Valve



## Class 150 Double Eccentric Butterfly Valve

| Size |     | R     |      | D     |      | W     |      | L/L2 |     | L1    |     | H     |     | H1    |     | A     |     |
|------|-----|-------|------|-------|------|-------|------|------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
| in   | mm  | in    | mm   | in    | mm   | in    | mm   | in   | mm  | in    | mm  | in    | mm  | in    | mm  | in    | mm  |
| 2"   | 50  | 3.60  | 92   | 4.80  | 121  | 8.00  | 203  | 1.70 | 43  | 4.30  | 108 | 2.52  | 64  | 7.70  | 195 | 7.10  | 180 |
| 3"   | 80  | 5.00  | 127  | 6.00  | 152  | 8.00  | 203  | 1.90 | 48  | 4.50  | 114 | 3.35  | 85  | 8.50  | 215 | 7.10  | 180 |
| 4"   | 100 | 6.20  | 157  | 7.50  | 191  | 8.00  | 203  | 2.10 | 54  | 5.00  | 127 | 3.62  | 92  | 9.50  | 242 | 7.10  | 180 |
| 6"   | 150 | 8.50  | 216  | 9.50  | 241  | 11.81 | *300 | 2.20 | 57  | 5.50  | 140 | 5.79  | 147 | 12.00 | 305 | 7.30  | 185 |
| 8"   | 200 | 10.60 | 270  | 11.80 | 299  | 11.81 | *300 | 2.50 | 64  | 6.00  | 152 | 7.28  | 185 | 13.80 | 350 | 7.30  | 185 |
| 10"  | 250 | 12.80 | 324  | 14.30 | 362  | 11.81 | *300 | 2.80 | 71  | 6.50  | 165 | 7.87  | 200 | 14.60 | 370 | 8.50  | 215 |
| 12"  | 300 | 15.00 | 381  | 17.00 | 432  | 15.75 | *400 | 3.20 | 81  | 7.00  | 178 | 8.74  | 222 | 16.70 | 425 | 8.50  | 215 |
| 14"  | 350 | 16.30 | 413  | 18.80 | 476  | 15.75 | *400 | 3.60 | 92  | 7.50  | 190 | 9.72  | 247 | 18.10 | 460 | 8.50  | 215 |
| 16"  | 400 | 18.50 | 470  | 21.30 | 540  | 19.68 | *500 | 4.00 | 102 | 8.50  | 216 | 12.44 | 316 | 20.10 | 510 | 9.60  | 245 |
| 18"  | 450 | 21.00 | 533  | 22.80 | 578  | 19.68 | *500 | 4.50 | 114 | 8.70  | 222 | 13.46 | 342 | 21.50 | 545 | 9.60  | 245 |
| 20"  | 500 | 23.00 | 584  | 25.00 | 635  | 23.62 | *600 | 5.00 | 127 | 9.00  | 229 | 14.65 | 372 | 22.20 | 565 | 9.60  | 245 |
| 24"  | 600 | 27.30 | 692  | 29.50 | 749  | 23.62 | *600 | 6.10 | 154 | 10.50 | 267 | 17.32 | 440 | 26.60 | 675 | 15.40 | 390 |
| 28"  | 700 | 31.50 | 800  | 34.00 | 864  | 27.56 | *700 | 6.50 | 165 | 11.50 | 292 | 19.88 | 505 | 30.30 | 770 | 15.40 | 390 |
| 32"  | 800 | 36.00 | 914  | 38.50 | 978  | 27.56 | *700 | 7.50 | 190 | 12.50 | 318 | 23.62 | 600 | 33.30 | 845 | 16.80 | 427 |
| 36"  | 900 | 40.30 | 1022 | 42.80 | 1086 | 27.56 | *700 | 8.00 | 203 | 13.00 | 330 | 25.39 | 645 | 34.40 | 875 | 16.80 | 427 |

Double Eccentric Butterfly Valve

Class 300 Double Eccentric Butterfly Valve

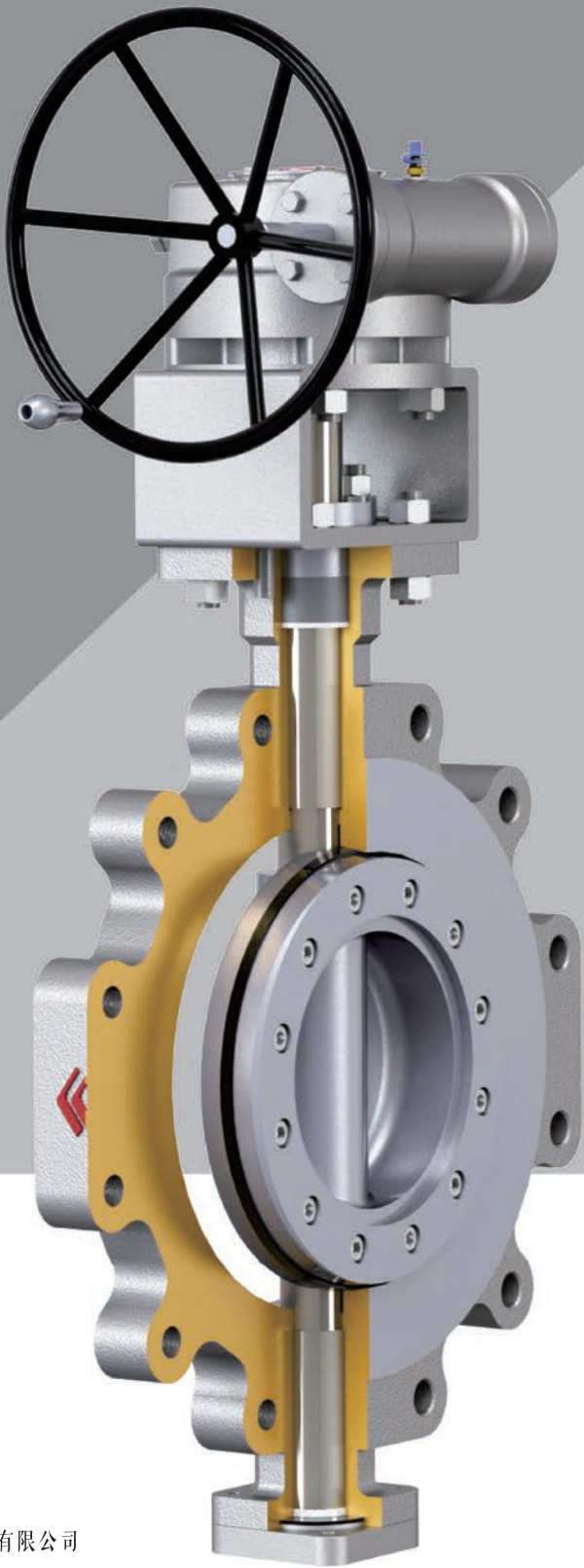
| Size |     | R     |     | D     |     | W     |      | L/L2 |     | L1    |     | H     |     | H1    |     | A     |     |
|------|-----|-------|-----|-------|-----|-------|------|------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
| in   | mm  | in    | mm  | in    | mm  | in    | mm   | in   | mm  | in    | mm  | in    | mm  | in    | mm  | in    | mm  |
| 2"   | 50  | 3.60  | 92  | 5.00  | 127 | 8.00  | 203  | 1.70 | 43  | 4.30  | 108 | 2.50  | 64  | 7.70  | 195 | 7.10  | 180 |
| 3"   | 80  | 5.00  | 127 | 6.60  | 168 | 8.00  | 203  | 1.90 | 48  | 4.50  | 114 | 3.30  | 85  | 8.50  | 215 | 7.10  | 180 |
| 4"   | 100 | 6.20  | 157 | 7.90  | 200 | 8.00  | 203  | 2.10 | 54  | 5.00  | 127 | 3.60  | 92  | 9.50  | 242 | 7.10  | 180 |
| 6"   | 150 | 8.50  | 216 | 10.60 | 270 | 11.81 | *300 | 2.30 | 59  | 5.50  | 140 | 7.00  | 178 | 12.60 | 320 | 7.30  | 185 |
| 8"   | 200 | 10.60 | 270 | 13.00 | 330 | 11.81 | *300 | 2.90 | 73  | 6.00  | 152 | 8.30  | 210 | 14.40 | 365 | 7.30  | 185 |
| 10"  | 250 | 12.80 | 324 | 15.30 | 387 | 11.81 | *300 | 3.30 | 83  | 6.50  | 165 | 9.30  | 235 | 16.90 | 430 | 8.50  | 215 |
| 12"  | 300 | 15.00 | 381 | 17.80 | 451 | 15.75 | *400 | 3.60 | 92  | 7.00  | 178 | 11.10 | 282 | 18.50 | 470 | 8.50  | 215 |
| 14"  | 350 | 16.30 | 413 | 20.30 | 514 | 15.75 | *400 | 4.60 | 117 | 7.50  | 190 | 12.30 | 312 | 21.50 | 545 | 8.50  | 215 |
| 16"  | 400 | 18.50 | 470 | 22.50 | 572 | 19.68 | *500 | 5.20 | 133 | 8.50  | 216 | 13.70 | 349 | 22.80 | 580 | 9.60  | 245 |
| 18"  | 450 | 21.00 | 533 | 24.80 | 629 | 19.68 | *500 | 5.90 | 149 | 8.70  | 222 | 15.20 | 386 | 24.40 | 620 | 9.60  | 245 |
| 20"  | 500 | 23.00 | 584 | 27.00 | 686 | 23.62 | *600 | 6.30 | 159 | 9.00  | 229 | 16.10 | 410 | 26.40 | 670 | 9.60  | 245 |
| 24"  | 600 | 27.30 | 692 | 32.00 | 813 | 23.62 | *600 | 7.10 | 181 | 10.50 | 267 | 18.90 | 480 | 28.10 | 715 | 15.40 | 390 |

Class 600 Double Eccentric Butterfly Valve

| Size |     | R     |     | D     |     | W     |      | L/L2 |     | L1    |     | H     |     | H1    |     | A     |     |
|------|-----|-------|-----|-------|-----|-------|------|------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
| in   | mm  | in    | mm  | in    | mm  | in    | mm   | in   | mm  | in    | mm  | in    | mm  | in    | mm  | in    | mm  |
| 3"   | 80  | 5.00  | 127 | 6.60  | 168 | 8.00  | 203  | 2.10 | 54  | 7.10  | 180 | 4.10  | 105 | 10.80 | 275 | 7.10  | 180 |
| 4"   | 100 | 6.20  | 157 | 8.50  | 216 | 11.81 | *300 | 2.50 | 64  | 7.50  | 190 | 5.40  | 138 | 10.80 | 275 | 7.10  | 180 |
| 6"   | 150 | 8.50  | 216 | 11.50 | 292 | 15.75 | *400 | 3.10 | 78  | 8.30  | 210 | 7.90  | 200 | 15.20 | 385 | 7.30  | 185 |
| 8"   | 200 | 10.60 | 270 | 13.80 | 349 | 15.75 | *400 | 4.00 | 102 | 9.10  | 230 | 9.10  | 232 | 17.10 | 435 | 7.30  | 185 |
| 10"  | 250 | 12.80 | 324 | 17.00 | 432 | 19.68 | *500 | 4.60 | 117 | 9.80  | 250 | 10.90 | 277 | 20.10 | 510 | 8.50  | 215 |
| 12"  | 300 | 15.00 | 381 | 19.30 | 489 | 19.68 | *500 | 5.50 | 140 | 10.60 | 270 | 11.90 | 302 | 21.10 | 535 | 8.50  | 215 |
| 14"  | 350 | 16.30 | 413 | 20.80 | 527 | 23.62 | *600 | 6.10 | 155 | 11.40 | 290 | 13.00 | 329 | 24.30 | 617 | 8.50  | 215 |
| 16"  | 400 | 18.50 | 470 | 23.80 | 603 | 23.62 | *600 | 7.00 | 178 | 12.20 | 310 | 17.00 | 432 | 26.20 | 665 | 9.60  | 245 |
| 18"  | 450 | 21.00 | 533 | 25.80 | 654 | 23.62 | *600 | 7.90 | 200 | 13.00 | 330 | 18.20 | 463 | 28.10 | 715 | 9.60  | 245 |
| 20"  | 500 | 23.00 | 584 | 28.50 | 724 | 23.62 | *600 | 8.50 | 216 | 13.80 | 350 | 19.40 | 492 | 28.70 | 730 | 9.60  | 245 |
| 24"  | 600 | 27.30 | 692 | 33.00 | 838 | 27.56 | *700 | 9.10 | 232 | 15.40 | 390 | 20.70 | 525 | 35.20 | 895 | 15.40 | 390 |

\*Gear box  
Note:900 lb size data can be supplied according to customer requirements.

Triple Eccentric Butterfly Valve  
Products





## Triple Eccentric Butterfly Valve

### Related Standards:

Design and Manufacture: API 609 ASME B31.3  
Face to Face and End to End: ASME B16.10  
Flanged End (RF/ RTJ): ASME B16.5  
Socket welded end (SW): ASME B16.11  
Butt Welded End (BW): ASME B16.25  
Threaded End (NPT): ASME B1.20.1  
Test & Inspection: API 598

### Design DESCRIPTION

Bi-directional sealing  
Integral and blow-out proof stem design  
Maintenance-free Bushing  
Fire proof structure optional  
Low torque characteristics & long service life  
Special features according to Customer's requirement

### Packing Seal

Packing box designed with a pressure plate to adjust the preload to reach low leakage. Soft seals use PTFE V-type packing, and fire protection structure or metal seal structure use graphite packing. All packing material meet PH 0 to 4 with high corrosion resistance. Readjust packing without seat loaded.

### Renewable Seat and Seal ring

The design of renewable seat and seal ring could avoid the valve damage caused by the wear of seal ring and reduce the cost of use.

### Metal to metal sealing

The design of fully metal to metal sealing, The sealing surface adopts the technology of overlaying stellite alloy, which solves the problem of poor butterfly valve sealing performance under the harsh conditions of high pressure, high temperature and low temperature effectively.

### Disc optimum design

Based on principle of fluid mechanics, the optimum design of the airfoil butterfly maximizes the flow coefficient of the valve. The disc sealing surface is designed with a polished finish for a zero leakage seal and reduced seat wear.

### Driving method

Actuators are optional according to customer request.



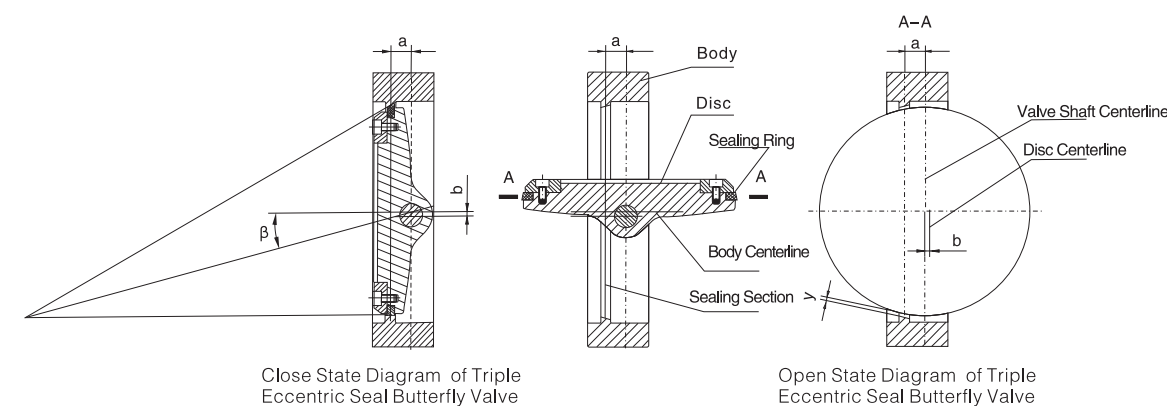
## Triple Eccentric Butterfly Valve

### Sealing Principle of Triple Eccentric Seal Butterfly Valve

A B eccentric is formed up between the centerline of seat and the centerline of body on the base of double eccentric butterfly valve, making disc sealing face immediately disengaged from seat sealing face upon the opening of butterfly valve, and in close contact with the seat sealing face upon closing. When fully opened, a gap 'Y', which is the same as that in double eccentric seal butterfly valve, is formed up between the two sealing faces. The design of this type of valves has thoroughly eliminated the mechanical wear and scratch between the two sealing faces, making the sealing performance and service life of butterfly valves greatly improved. When valve is closed, with sealing ring under the extrusion of body sealing face and disc, two upward elastic deformations are produced. the sealing face is fallen under outward tension at long shaft and inward compressive stress at short shaft The long and short shafts produce elastic deformation of different directions, thus to maximizing the sealing force between the sealing faces of valve.

This distinctive eccentric combination not only uses cam effect, but also eliminates friction completely, thus to ensure no friction between seat and sealing ring on disc during the 90° stroke of valve, a perfect solution to clear away the possibilities of abrasion and leakage.

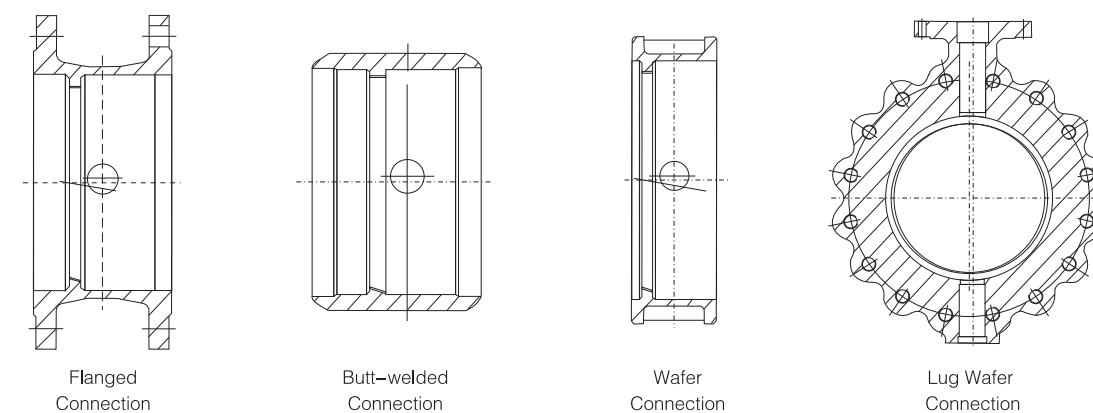
Butterfly valves are used to open and close(seal type)or adjust the medium flow in pipes in the fields of foodstuff, drinks, chemical, industrial water treatment, high-rise constructions, water supply and drainage etc, They are mainly structured as following:



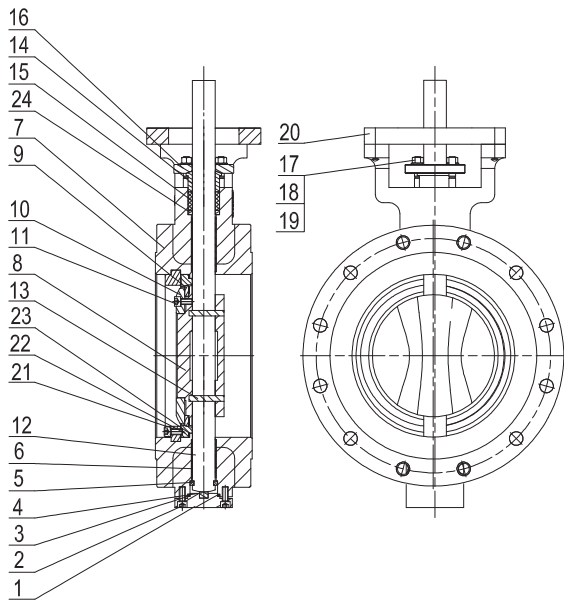
From the principle and structure of the triple eccentric butterfly valve, it has the following advantages:

- 1)The sealing performance and reliability of the system are improved.
- 2)Low friction and the valve opening and closing flexibly.
- 3)The valve service life is longer and it could switch repeatedly.
- 4)The resistance of pressure and high temperature is improved, and the range of applications is wide.

The highest pressure of Welkin triple eccentric butterfly valve could reach up to 2500 LB, and the temperature range is -196 up to 650°C. The sealing performance could be zero leakage.



## Triple Eccentric Butterfly Valve



### TECHNICAL SPECIFICATIONS:



2"–48"



Up to –196–650℃



Class 150LB–2500LB

### Optional Operating Actuator



Handwheel



Gear Box



Pneumatic



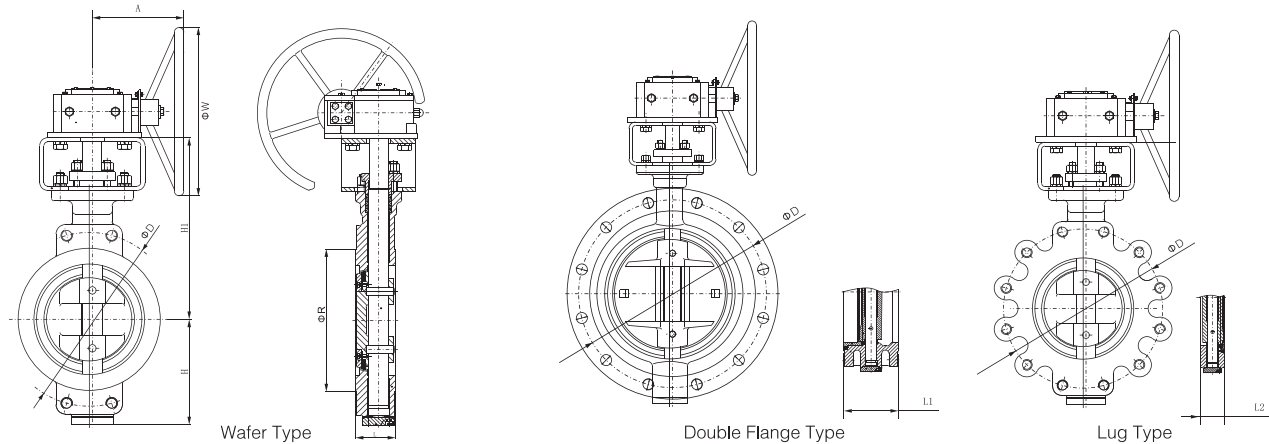
Electric

### Material List

| No | Part               | Standard                 | Low Temperature          | Stainless Steel          | Sour Service             |
|----|--------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1  | Bottom Cover       | ASTM A105N               | ASTM A350 LF2            | ASTM A182 F316           | ASTM A105N               |
| 2  | Hexagon Bolt       | ASTM A193 B7             | ASTM A320 L7             | ASTM A193 B8             | ASTM A193 B7M            |
| 3  | Gasket             | Graphite                 | Graphite                 | Graphite                 | Graphite                 |
| 4  | Spacer             | ASTM A182 F304           | ASTM A182 F304           | ASTM A182 F304           | ASTM A182 F304           |
| 5  | Seat Ring          | ASTM A182 F304           | ASTM A182 F304           | ASTM A182 F304           | ASTM A182 F304           |
| 6  | Down Bushing       | ASTM A216–WCB            | ASTM A352 LCB            | ASTM A351 CF8M           | ASTM A216 WCB            |
| 7  | Body               | ASTM A216–WCB            | ASTM A352 LCB            | ASTM A351 CF8M           | ASTM A216 WCB            |
| 8  | Disc Cover         | ASTM A182 F316           | ASTM A182 F316           | ASTM A182 F316           | ASTM A182 F316           |
| 9  | Bolt               | ASTM A193 B7             | ASTM A320 L7             | ASTM A193 B8             | ASTM A193 B7M            |
| 10 | Stem               | ASTM A182 F6a            | ASTM A182 F316           | ASTM A182 F316           | ASTM A182 F6a NC         |
| 11 | Pin                | ASTM A182 F6a            | ASTM A182 F316           | ASTM A182 F316           | ASTM A182 F6a NC         |
| 12 | Up Bearing Bushing | Self–lubricating bearing | Self–lubricating bearing | Self–lubricating bearing | Self–lubricating bearing |
| 13 | Packing            | Graphite                 | Graphite                 | Graphite                 | Graphite                 |
| 14 | Packing Bush       | ASTM A182 F304+Nitirde   | ASTM A182 F304+Nitirde   | ASTM A182 F304+Nitirde   | ASTM A182 F304+Nitirde   |
| 15 | Hexagon Nut        | ASTM A194 2H             | ASTM A194 7              | ASTM A194 8              | ASTM A194 2HM            |
| 16 | Spring Gasket      | AISI 1566                | AISI 1566                | Stainless Steel          | AISI 1566                |
| 17 | Stud               | ASTM A193 B7             | ASTM A320 L7             | ASTM A193 B8             | ASTM A193 B7M            |
| 18 | Support            | AISI 1020                | AISI 1020                | Stainless Steel          | AISI 1020                |
| 19 | Hexagon Nut        | ASTM A194 2H             | ASTM A1947               | ASTM A194 8              | ASTM A194 2HM            |
| 20 | Spring Gasket      | AISI 1566                | AISI 1566                | Stainless Steel          | AISI 1566                |
| 21 | Fixed Ring         | ASTM A182 F304           | ASTM A182 F304           | ASTM A182 F304           | ASTM A182 F304           |
| 22 | Seat               | ASTM A182 F304+STL       |                          |                          |                          |
| 23 | Body sealing       | ASTM A182 F304+Graphit   |                          |                          |                          |
| 24 | Packing Gasket     | ASTM A182 F304+Graphit   |                          |                          |                          |

Note: Different raw materials and trims are available according to application conditions or customer requests

## Triple Eccentric Butterfly Valve



### Class 150 Triple Eccentric Butterfly Valve

| Size |     | R    |       | D    |       | W     |      | L/L2 |     | L1   |     | H    |     | H1   |     | A    |     | t   |      |
|------|-----|------|-------|------|-------|-------|------|------|-----|------|-----|------|-----|------|-----|------|-----|-----|------|
| in   | mm  | in   | mm    | in   | mm    | in    | mm   | in   | mm  | in   | mm  | in   | mm  | in   | mm  | in   | mm  | in  | mm   |
| 3"   | 80  | 5    | 127   | 6    | 152.4 | 11.81 | *300 | 1.9  | 48  | 4.5  | 114 | 3.7  | 95  | 9.1  | 230 | 7.1  | 180 | 0.2 | 6    |
| 4"   | 100 | 6.2  | 157.2 | 7.5  | 190.5 | 11.81 | *300 | 2.1  | 54  | 5    | 127 | 4.5  | 115 | 9.4  | 240 | 7.1  | 180 | 0.3 | 6.5  |
| 6"   | 150 | 8.5  | 215.9 | 9.5  | 241.3 | 15.75 | *400 | 2.2  | 57  | 5.5  | 140 | 5.8  | 147 | 12.2 | 310 | 7.3  | 185 | 0.3 | 7.1  |
| 8"   | 200 | 10.6 | 269.7 | 11.8 | 298.5 | 15.75 | *400 | 2.5  | 64  | 6    | 152 | 7.3  | 185 | 13.8 | 350 | 7.3  | 185 | 0.3 | 8    |
| 10"  | 250 | 12.8 | 323.9 | 14.3 | 362   | 15.75 | *400 | 2.8  | 71  | 6.5  | 165 | 8.5  | 215 | 15.8 | 402 | 8.5  | 215 | 0.3 | 8.8  |
| 12"  | 300 | 15   | 381   | 17   | 431.8 | 19.68 | *500 | 3.2  | 81  | 7    | 178 | 9.9  | 252 | 17.9 | 455 | 8.5  | 215 | 0.4 | 9.6  |
| 14"  | 350 | 16.3 | 412.8 | 18.8 | 476.3 | 19.68 | *500 | 3.6  | 92  | 7.5  | 190 | 11.3 | 287 | 19.9 | 505 | 8.5  | 215 | 0.4 | 10.4 |
| 16"  | 400 | 18.5 | 469.9 | 21.3 | 539.8 | 23.62 | *600 | 4    | 102 | 8.5  | 216 | 12.5 | 317 | 22   | 560 | 9.6  | 245 | 0.4 | 11.2 |
| 18"  | 450 | 21   | 533.4 | 22.8 | 577.9 | 23.62 | *600 | 4.5  | 114 | 8.7  | 222 | 13.5 | 342 | 22.2 | 565 | 9.6  | 245 | 0.5 | 12   |
| 20"  | 500 | 23   | 584.2 | 25   | 635   | 27.56 | *700 | 5    | 127 | 9    | 229 | 14.6 | 372 | 23.8 | 605 | 9.6  | 245 | 0.5 | 12.9 |
| 24"  | 600 | 27.3 | 692.2 | 29.5 | 749.3 | 27.56 | *700 | 6.1  | 154 | 10.5 | 267 | 17.3 | 440 | 26.6 | 675 | 15.4 | 390 | 0.6 | 14.5 |

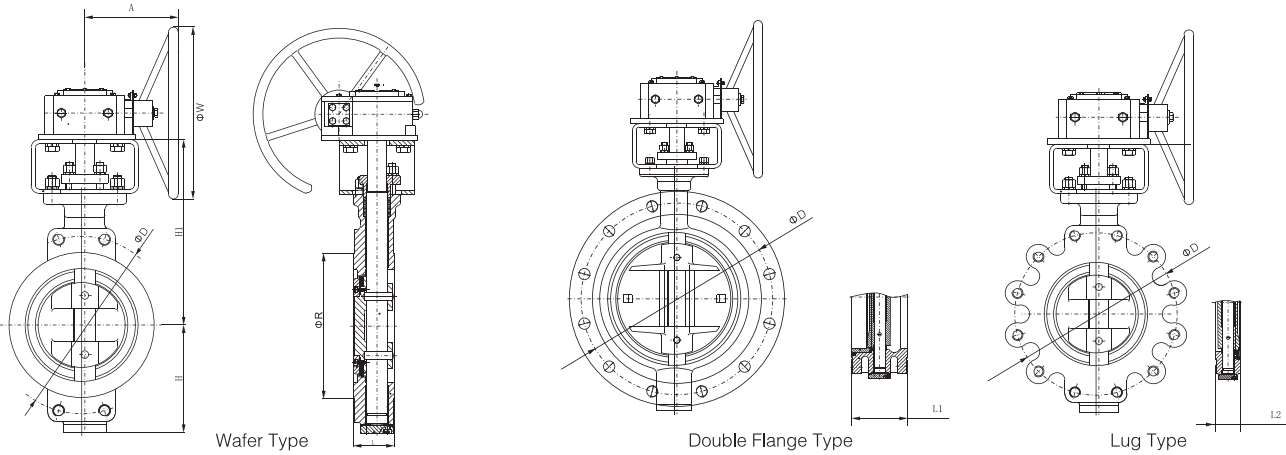
### Class 300 Triple Eccentric Butterfly Valve

| Size |     | R    |       | D    |       | W     |      | L/L2 |     | L1   |     | H    |       | H1   |     | A    |     | t   |      |
|------|-----|------|-------|------|-------|-------|------|------|-----|------|-----|------|-------|------|-----|------|-----|-----|------|
| in   | mm  | in   | mm    | in   | mm    | in    | mm   | in   | mm  | in   | mm  | in   | mm    | in   | mm  | in   | mm  | in  | mm   |
| 3"   | 80  | 5    | 127   | 6.6  | 168.1 | 11.81 | *300 | 1.9  | 48  | 4.5  | 114 | 4.1  | 105   | 9.4  | 240 | 7.1  | 180 | 0.3 | 6.9  |
| 4"   | 100 | 6.2  | 157.2 | 7.9  | 200.2 | 11.81 | *300 | 2.1  | 54  | 5    | 127 | 5    | 127.5 | 10   | 255 | 7.1  | 180 | 0.3 | 7.7  |
| 6"   | 150 | 8.5  | 215.9 | 10.6 | 269.7 | 15.75 | *400 | 2.3  | 59  | 5.5  | 140 | 7    | 178   | 13.6 | 345 | 7.3  | 185 | 0.4 | 9.4  |
| 8"   | 200 | 10.6 | 269.7 | 13   | 330.2 | 19.68 | *500 | 2.9  | 73  | 6    | 152 | 8.5  | 216   | 15.7 | 400 | 8.5  | 215 | 0.4 | 11   |
| 10"  | 250 | 12.8 | 323.9 | 15.3 | 387.4 | 19.68 | *500 | 3.3  | 83  | 6.5  | 165 | 9.7  | 247   | 17.9 | 455 | 8.5  | 215 | 0.5 | 12.7 |
| 12"  | 300 | 15   | 381   | 17.8 | 450.9 | 23.62 | *600 | 3.6  | 92  | 7    | 178 | 11.1 | 282   | 19.5 | 495 | 8.5  | 215 | 0.6 | 14.3 |
| 14"  | 350 | 16.3 | 412.8 | 20.3 | 514.4 | 23.62 | *600 | 4.6  | 117 | 7.5  | 190 | 12.3 | 312   | 21.9 | 555 | 9.6  | 245 | 0.6 | 16   |
| 16"  | 400 | 18.5 | 469.9 | 22.5 | 571.5 | 27.56 | *700 | 5.2  | 133 | 8.5  | 216 | 13.7 | 349   | 22.8 | 580 | 9.6  | 245 | 0.7 | 17.6 |
| 18"  | 450 | 21   | 533.4 | 24.8 | 628.7 | 27.56 | *700 | 5.9  | 149 | 8.7  | 222 | 15.2 | 386   | 24.4 | 620 | 9.6  | 245 | 0.8 | 19.3 |
| 20"  | 500 | 23   | 584.2 | 27   | 685.8 | 31.50 | *800 | 6.3  | 159 | 9    | 229 | 16.1 | 410   | 26.4 | 670 | 15.4 | 390 | 0.8 | 20.9 |
| 24"  | 600 | 27.3 | 692.2 | 32   | 812.8 | 31.50 | *800 | 7.1  | 181 | 10.5 | 267 | 19.3 | 491   | 29.9 | 760 | 15.4 | 390 | 1   | 24.2 |

### Class 600 Triple Eccentric Butterfly Valve

| Size |     | R    |       | D    |       | W     |      | L/L2 |     | L1   |     | H    |       | H1   |     | A    |     | t   |      |
|------|-----|------|-------|------|-------|-------|------|------|-----|------|-----|------|-------|------|-----|------|-----|-----|------|
| in   | mm  | in   | mm    | in   | mm    | in    | mm   | in   | mm  | in   | mm  | in   | mm    | in   | mm  | in   | mm  | in  | mm   |
| 3"   | 80  | 5    | 127   | 6.6  | 168.1 | 11.81 | *300 | 2.1  | 54  | 7.1  | 180 | 4.1  | 105   | 10.8 | 275 | 7.1  | 180 | 0.3 | 7.9  |
| 4"   | 100 | 6.2  | 157.2 | 8.5  | 215.9 | 11.81 | *300 | 2.5  | 64  | 7.5  | 190 | 5.4  | 137.5 | 10.8 | 275 | 7.1  | 180 | 0.4 | 9.5  |
| 6"   | 150 | 8.5  | 215.9 | 11.5 | 292.1 | 15.75 | *400 | 3.1  | 78  | 8.3  | 210 | 7.9  | 200   | 15.2 | 385 | 7.3  | 185 | 0.5 | 12.9 |
| 8"   | 200 | 10.6 | 269.7 | 13.8 | 349.3 | 19.68 | *500 | 4    | 102 | 9.1  | 230 | 9.1  | 232   | 17.1 | 435 | 8.5  | 215 | 0.6 | 16.3 |
| 10"  | 250 | 12.8 | 323.9 | 17   | 431.8 | 19.68 | *500 | 4.6  | 117 | 9.8  | 250 | 10.9 | 277   | 20.1 | 510 | 8.5  | 215 | 0.8 | 19.7 |
| 12"  | 300 | 15   | 381   | 19.3 | 489   | 23.62 | *600 | 5.5  | 140 | 10.6 | 270 | 11.9 | 302   | 21.1 | 535 | 8.5  | 215 | 0.9 | 23   |
| 14"  | 350 | 16.3 | 412.8 | 20.8 | 527.1 | 23.62 | *600 | 6.1  | 155 | 11.4 | 290 | 13   | 329   | 24.3 | 617 | 9.6  | 245 | 1.2 | 26.4 |
| 16"  | 400 | 18.5 | 469.9 | 23.8 | 603.3 | 27.56 | *700 | 7    | 178 | 12.2 | 310 | 17   | 432   | 26.2 | 665 | 9.6  | 245 | 1.3 | 29.8 |
| 18"  | 450 | 21   | 533.4 | 25.8 | 654.1 | 27.56 | *700 | 7.9  | 200 | 13   | 330 | 18.2 | 463   | 28.1 | 715 | 9.6  | 245 | 1.4 | 33.2 |
| 20"  | 500 | 23   | 584.2 | 28.5 | 723.9 | 31.50 | *800 | 8.5  | 216 | 13.8 | 350 | 19.4 | 492   | 28.7 | 730 | 15.4 | 390 | 1.7 | 36.5 |
| 24"  | 600 | 27.3 | 692.2 | 33   | 838.2 | 31.50 | *800 | 9.1  | 232 | 15.4 | 390 | 20.7 | 525   | 35.2 | 895 | 15.4 | 390 | 1.7 | 43.3 |





Class 900 Triple Eccentric Butterfly Valve

| Size |     | R    |       | D    |       | W    |     | L/L2 |     | L1   |     | H    |     | H1   |     | A    |     | t   |      |
|------|-----|------|-------|------|-------|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|-----|------|
| in   | mm  | in   | mm    | in   | mm    | in   | mm  | in   | mm  | in   | mm  | in   | mm  | in   | mm  | in   | mm  | in  | mm   |
| 4"   | 100 | 6.2  | 157.2 | 9.3  | 235.0 | 11.8 | 300 | 3.1  | 80  | 9.3  | 235 | 7.1  | 181 | 9.4  | 240 | 7.1  | 180 | 0.5 | 13.0 |
| 6"   | 150 | 8.5  | 215.9 | 12.5 | 317.5 | 15.7 | 400 | 4.1  | 104 | 9.8  | 250 | 9.4  | 238 | 12.4 | 315 | 7.3  | 185 | 0.7 | 18.2 |
| 8"   | 200 | 10.6 | 269.9 | 15.5 | 393.7 | 19.7 | 500 | 4.4  | 112 | 12.2 | 310 | 11.1 | 281 | 14.2 | 360 | 7.3  | 185 | 0.9 | 23.4 |
| 10"  | 250 | 12.7 | 323.8 | 18.5 | 469.9 | 19.7 | 500 | 5.3  | 135 | 13.8 | 350 | 14.1 | 358 | 16.2 | 412 | 8.5  | 215 | 1.1 | 28.7 |
| 12"  | 300 | 15.0 | 381.0 | 21.0 | 533.4 | 23.6 | 600 | 6.7  | 170 | 15.0 | 380 | 15.1 | 383 | 18.7 | 475 | 8.5  | 215 | 1.3 | 33.9 |
| 14"  | 350 | 16.3 | 412.8 | 22.0 | 558.8 | 23.6 | 600 | 6.8  | 173 | 15.7 | 400 | 16.5 | 419 | 20.2 | 512 | 8.5  | 215 | 1.5 | 39.1 |
| 16"  | 400 | 18.5 | 469.9 | 24.3 | 616.0 | 27.6 | 700 | 8.3  | 210 | 16.9 | 430 | 17.9 | 455 | 24.0 | 610 | 9.6  | 245 | 1.7 | 44.3 |
| 18"  | 450 | 21.0 | 533.4 | 27.0 | 685.8 | 27.6 | 700 | 9.0  | 228 | 18.1 | 460 | 19.8 | 503 | 26.0 | 660 | 9.6  | 245 | 2.0 | 49.6 |
| 20"  | 500 | 23.0 | 584.2 | 29.5 | 749.3 | 31.5 | 800 | 9.8  | 250 | 19.3 | 490 | 21.7 | 550 | 27.0 | 685 | 9.6  | 245 | 2.2 | 54.8 |
| 24"  | 600 | 27.3 | 692.2 | 35.5 | 901.7 | 31.5 | 800 | 10.8 | 275 | 20.9 | 530 | 25.8 | 656 | 31.1 | 790 | 15.4 | 390 | 2.6 | 65.2 |

Class 1500 Triple Eccentric Butterfly Valve

| Size |     | R    |       | D    |       | W    |     | L/L2 |     | L1   |     | H    |     | H1   |     | A    |     | t   |       |
|------|-----|------|-------|------|-------|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|-----|-------|
| in   | mm  | in   | mm    | in   | mm    | in   | mm  | in   | mm  | in   | mm  | in   | mm  | in   | mm  | in   | mm  | in  | mm    |
| 6"   | 150 | 8.5  | 215.9 | 12.5 | 317.5 | 15.7 | 400 | 6.3  | 160 | 11.4 | 290 | 10.1 | 257 | 13.7 | 347 | 7.3  | 185 | 1.2 | 30.2  |
| 8"   | 200 | 10.6 | 269.9 | 15.5 | 393.7 | 19.7 | 500 | 7.1  | 180 | 13.0 | 330 | 12.1 | 307 | 15.9 | 405 | 8.5  | 215 | 1.6 | 39.4  |
| 10"  | 250 | 12.7 | 323.8 | 19.0 | 482.6 | 19.7 | 500 | 7.9  | 200 | 15.4 | 390 | 14.6 | 371 | 20.1 | 510 | 8.5  | 215 | 1.9 | 48.6  |
| 12"  | 300 | 15.0 | 381.0 | 22.5 | 571.5 | 23.6 | 600 | 9.1  | 230 | 16.9 | 430 | 16.3 | 414 | 21.5 | 545 | 9.6  | 245 | 2.3 | 57.9  |
| 14"  | 350 | 16.3 | 412.8 | 25.0 | 635.0 | 23.6 | 600 | 9.8  | 250 | 18.5 | 470 | 19.4 | 493 | 24.0 | 610 | 9.6  | 245 | 2.6 | 67.1  |
| 16"  | 400 | 18.5 | 469.9 | 27.7 | 704.8 | 27.6 | 700 | 10.4 | 265 | 20.1 | 510 | 20.9 | 530 | 25.8 | 655 | 10.8 | 275 | 3.0 | 76.3  |
| 18"  | 450 | 21.0 | 533.4 | 30.5 | 774.7 | 27.6 | 700 | 11.8 | 300 | 21.7 | 550 | 23.3 | 591 | 29.5 | 750 | 10.8 | 275 | 3.4 | 85.5  |
| 20"  | 500 | 23.0 | 584.2 | 32.7 | 831.8 | 31.5 | 800 | 13.4 | 340 | 24.8 | 630 | 26.1 | 664 | 31.9 | 810 | 15.4 | 390 | 3.7 | 94.8  |
| 24"  | 600 | 27.3 | 692.2 | 39.0 | 990.6 | 31.5 | 800 | 15.7 | 400 | 28.0 | 710 | 30.7 | 780 | 37.4 | 950 | 15.4 | 390 | 4.5 | 113.2 |

Operating Torque Flow Coefficient (Cv value) Concentric Butterfly Valve

| Size | 125LB (1.0MPa) |                       |               |     |        | 150LB (2.0MPa) |                       |               |     |        |
|------|----------------|-----------------------|---------------|-----|--------|----------------|-----------------------|---------------|-----|--------|
|      | N.M            | ISO5211<br>Top Flange | Stem Diameter |     | Cv     | N.M            | ISO5211<br>Top Flange | Stem Diameter |     | Cv     |
|      |                |                       | Wafer         | RF  |        |                |                       | Wafer         | RF  |        |
| 2"   | 10             | F07                   | 43            | 108 | 130    | 10             | F07                   | 43            | 108 | 130    |
| 2.5" | 18             | F07                   | 46            | 112 | 230    | 18             | F07                   | 46            | 112 | 230    |
| 3"   | 25             | F07                   | 46            | 114 | 340    | 25             | F07                   | 46            | 114 | 340    |
| 4"   | 30             | F07                   | 52            | 127 | 648    | 30             | F07                   | 52            | 127 | 648    |
| 6"   | 110            | F10                   | 56            | 140 | 1830   | 110            | F10                   | 56            | 140 | 1830   |
| 8"   | 190            | F10                   | 60            | 152 | 3400   | 190            | F10                   | 60            | 152 | 3400   |
| 10"  | 360            | F10                   | 68            | 165 | 5270   | 360            | F10                   | 68            | 165 | 5270   |
| 12"  | 760            | F12                   | 78            | 178 | 7590   | 760            | F12                   | 78            | 178 | 7590   |
| 14"  | 820            | F12                   | 78            | 190 | 10332  | 820            | F12                   | 78            | 190 | 10332  |
| 16"  | 1180           | F14                   | 102           | 216 | 13727  | 1180           | F14                   | 102           | 216 | 13727  |
| 18"  | 1320           | F16                   | 114           | 222 | 17372  | 1320           | F16                   | 114           | 222 | 17372  |
| 20"  | 2077           | F16                   | 127           | 229 | 21447  | 2077           | F16                   | 127           | 229 | 21447  |
| 24"  | 4200           | F16                   | 154           | 267 | 30884  | 4200           | F16                   | 154           | 267 | 30884  |
| 28"  | 4800           | F25                   | 165           | 292 | 42038  | 4800           | F25                   | 165           | 292 | 42038  |
| 30"  | 6200           | F25                   | 190           | 318 | 48258  | 6200           | F25                   | 190           | 318 | 48258  |
| 32"  | 8000           | F25                   | 190           | 318 | 54900  | 8000           | F25                   | 190           | 318 | 54900  |
| 36"  | 11000          | F25                   | 203           | 330 | 69490  | 11000          | F25                   | 203           | 330 | 69490  |
| 40"  | 13800          | F25                   | 216           | 410 | 80420  | 13800          | F25                   | 216           | 410 | 80420  |
| 48"  | 18920          | F30                   | 254           | 470 | 123600 | 18920          | F30                   | 254           | 470 | 123600 |

Operating Torque Flow Coefficient (Cv value) Double Offset Butterfly Valve

| Size | 150LB (2.0MPa)     |                  |               |               |     |       | 300LB (5MPa)       |                  |               |               |     |       | 600LB (10.0MPa)    |                  |               |               |     |       |
|------|--------------------|------------------|---------------|---------------|-----|-------|--------------------|------------------|---------------|---------------|-----|-------|--------------------|------------------|---------------|---------------|-----|-------|
|      | N.M                |                  | Flange<br>No. | Stem Diameter |     | Cv    | N.M                |                  | Flange<br>No. | Stem Diameter |     | Cv    | N.M                |                  | Flange<br>No. | Stem Diameter |     | Cv    |
|      | Stem<br>Downstream | Stem<br>Upstream |               | Wafer         | RF  |       | Stem<br>Downstream | Stem<br>Upstream |               | Wafer         | RF  |       | Stem<br>Downstream | Stem<br>Upstream |               | Wafer         | RF  |       |
| 2"   | 21                 | 30               | F07           | 43            | 108 | 65    | /                  | /                | F07           | 43            | 108 | 65    | /                  | /                | F07           | 54            | 150 | 48    |
| 2.5" | 24                 | 34               | F07           | 46            | 112 | 113   | 53                 | 76               | F07           | 46            | 112 | 113   | 78                 | 88               | F07           | 54            | 170 | 86    |
| 3"   | 26                 | 36               | F07           | 48            | 114 | 172   | 55                 | 78               | F07           | 48            | 114 | 172   | 113                | 164              | F07           | 54            | 180 | 132   |
| 4"   | 36                 | 52               | F07           | 54            | 127 | 385   | 79                 | 113              | F07           | 54            | 127 | 385   | 215                | 305              | F07           | 64            | 190 | 270   |
| 6"   | 95                 | 136              | F07&F10       | 57            | 140 | 1050  | 237                | 339              | F10           | 59            | 140 | 1050  | 463                | 655              | F12           | 78            | 210 | 850   |
| 8"   | 177                | 237              | F07&F10       | 64            | 152 | 2180  | 418                | 599              | F12           | 73            | 152 | 1895  | 1107               | 1582             | F14           | 102           | 230 | 1400  |
| 10"  | 324                | 463              | F10or F14     | 71            | 165 | 3280  | 791                | 1130             | F14           | 83            | 165 | 3050  | 1898               | 2712             | F16           | 114           | 250 | 2010  |
| 12"  | 514                | 735              | F12           | 81            | 178 | 5100  | 1186               | 1695             | F16           | 92            | 178 | 4800  | 2373               | 3390             | F25           | 140           | 270 | 2980  |
| 14"  | 751                | 1074             | F14           | 92            | 190 | 5800  | 1740               | 2486             | F16           | 117           | 190 | 5395  | 3390               | 4858             | F25           | 155           | 290 | 3900  |
| 16"  | 1187               | 1480             | F16           | 102           | 216 | 9287  | 3005               | 4293             | F25           | 133           | 216 | 7900  | 5141               | 7344             | F25           | 178           | 310 | 5000  |
| 18"  | 1740               | 2486             | F16           | 114           | 222 | 11400 | 3559               | 5084             | F25           | 149           | 222 | 10086 | 7276               | 10390            | F25           | 200           | 330 | 6000  |
| 20"  | 2136               | 3051             | F16&F25       | 127           | 229 | 13800 | 4824               | 6892             | F25           | 159           | 229 | 11300 | 9830               | 14010            | F30           | 216           | 350 | 8000  |
| 24"  | 3480               | 4972             | F16&F25       | 154           | 267 | 21600 | 7513               | 10734            | F25           | 181           | 267 | 16980 | 13897              | 19772            | F30           | 232           | 390 | 11000 |
| 26"  | 4580               | 5980             | F25&F30       | 154           | 267 | 21600 | /                  | /                | F25           | 181           | 267 | 16980 | /                  | /                | F30           | 232           | 390 | 11000 |
| 28"  | 5029               | 7176             | F25&F30       | 165           | 292 | 28080 | /                  | /                | F30           | 229           | 292 | 2300  | /                  | /                | F35           | 292           | 430 | 13000 |
| 30"  | 5933               | 8475             | F25&F30       | 190           | 318 | 38740 | 16609              | 23727            | F35           | 229           | 318 | 26520 | 24518              | 35025            | F35           | 318           | 450 | 15400 |
| 32"  | 6644               | 9492             | F25&F30       | 190           | 318 | 44070 | /                  | /                | F35           | 241           | 318 | 31200 | /                  | /                | F40           | 318           | 470 | 17500 |
| 36"  | 8701               | 12430            | F25&F30       | 203           | 330 | 55800 | 22936              | 32766            | F35           | 241           | 330 | 39450 | /                  | /                | F48           | 330           | 510 | 22360 |

Note:

- Above Torque value are calculated based on room temperature, if other size torque required, please contact with WELKIN Valves ( Whatapp/ Tel.: +86 150 1068 2092 ) .
- When sizing the actuator, please consider safety factor 1.2–1.5.
- For more details, the valve torque will be changed under different working temperature and different seat materials. To know more information please contact with WELKIN.
- Cv value is based on 90° disc open angle.

Operating Torque Flow Coefficient (Cv value)

Triple Offset Butterfly Valve

| Size | 150LB (2.0MPa) |                       |               |     |        | 300LB (5MPa) |                       |               |     |        |
|------|----------------|-----------------------|---------------|-----|--------|--------------|-----------------------|---------------|-----|--------|
|      | N.M            | ISO5211<br>Top Flange | Stem Diameter |     | Cv     | N.M          | ISO5211<br>Top Flange | Stem Diameter |     | Cv     |
|      |                |                       | Wafer         | RF  |        |              |                       | Wafer         | RF  |        |
| 2"   | 26             | F07                   | 43            | 108 | 58     | 78           | F07                   | 43            | 108 | 58     |
| 2.5" | 32             | F07                   | 46            | 112 | 109    | 88           | F07                   | 46            | 112 | 109    |
| 3"   | 80             | F07                   | 48            | 114 | 165    | 144          | F07                   | 48            | 114 | 165    |
| 4"   | 142            | F07                   | 54            | 127 | 318    | 258          | F07                   | 54            | 127 | 318    |
| 6"   | 362            | F10                   | 57            | 140 | 932    | 798          | F12                   | 59            | 140 | 682    |
| 8"   | 785            | F12                   | 64            | 152 | 1970   | 1960         | F14                   | 73            | 152 | 1230   |
| 10"  | 1080           | F14                   | 71            | 165 | 2689   | 2270         | F16                   | 83            | 165 | 2370   |
| 12"  | 1510           | F14                   | 81            | 178 | 3930   | 2780         | F16                   | 92            | 178 | 3520   |
| 14"  | 2458           | F16                   | 92            | 190 | 5290   | 5680         | F25                   | 117           | 190 | 4782   |
| 16"  | 2850           | F25                   | 102           | 216 | 7726   | 6835         | F25                   | 133           | 216 | 6280   |
| 18"  | 4536           | F25                   | 114           | 222 | 9856   | 7358         | F30                   | 149           | 222 | 7980   |
| 20"  | 5474           | F25                   | 127           | 229 | 12180  | 10518        | F30                   | 159           | 229 | 10800  |
| 24"  | 8240           | F25                   | 154           | 267 | 19800  | 18393        | F30                   | 181           | 267 | 16180  |
| 28"  | 11682          | F30                   | 165           | 292 | 27600  | 27478        | F35                   | 229           | 292 | 22410  |
| 30"  | 14340          | F30                   | 190           | 318 | 33700  | 32971        | F35                   | 229           | 318 | 27090  |
| 32"  | 17856          | F30                   | 190           | 318 | 35800  | 41150        | F40                   | 241           | 318 | 33050  |
| 36"  | 23345          | F30                   | 203           | 330 | 45600  | 53700        | F40                   | 241           | 330 | 42090  |
| 40   | 28200          | F35                   | 216           | 410 | 65320  | 68370        | F40                   | 300           | 410 | 48964  |
| 48   | 44400          | F40                   | 254           | 470 | 96000  | 92970        | F48                   | 350           | 470 | 69350  |
| 56"  | 64240          | F40                   | 318           | 530 | 139700 | 141600       | F48                   | 390           | 530 | 94390  |
| 60   | 73520          | F40                   | 318           | 530 | 160380 | 128000       | F48                   | 440           | 530 | 108400 |

Triple Offset Butterfly Valve

| Size | 600LB (10.0MPa) |                       |               |     |       | 900LB (15.0MPa) |                       |               |     |       |
|------|-----------------|-----------------------|---------------|-----|-------|-----------------|-----------------------|---------------|-----|-------|
|      | N.M             | ISO5211<br>Top Flange | Stem Diameter |     | Cv    | N.M             | ISO5211<br>Top Flange | Stem Diameter |     | Cv    |
|      |                 |                       | Wafer         | RF  |       |                 |                       | Wafer         | RF  |       |
| 2"   | 162             | F07                   | 54            | 150 | 42    | 265             | F10                   | 56            | 118 | 95    |
| 2.5" | 208             | F07                   | 54            | 170 | 72    | 380             | F12                   | 65            | 153 | 120   |
| 3"   | 340             | F10                   | 54            | 180 | 107   | 560             | F12                   | 71            | 195 | 150   |
| 4"   | 633             | F12                   | 64            | 190 | 250   | 836             | F14                   | 92            | 229 | 210   |
| 6"   | 1630            | F16                   | 78            | 210 | 600   | 2180            | F16                   | 102           | 267 | 500   |
| 8"   | 3540            | F16                   | 102           | 230 | 1079  | 4692            | F16                   | 140           | 292 | 923   |
| 10"  | 5462            | F25                   | 114           | 250 | 1708  | 6596            | F25                   | 155           | 330 | 1430  |
| 12"  | 6018            | F25                   | 140           | 270 | 2620  | 7955            | F30                   | 178           | 356 | 2148  |
| 14"  | 10913           | F25                   | 155           | 290 | 4062  | 17838           | F30                   | 290           | 381 | 3025  |
| 16"  | 15757           | F30                   | 178           | 310 | 5292  | 23600           | F35                   | 310           | 406 | 4230  |
| 18"  | 19805           | F35                   | 200           | 330 | 7395  | 33734           | F35                   | 330           | 432 | 5692  |
| 20"  | 25808           | F35                   | 216           | 350 | 9320  | 44707           | F40                   | 350           | 457 | 7430  |
| 24"  | 44799           | F40                   | 232           | 390 | 13578 | 67240           | F40                   | 350           | 508 | 10700 |
| 28"  | 66593           | F40                   | 292           | 430 | 20326 | 124700          | F48                   | 390           | 548 | 14165 |
| 30"  | 79506           | F48                   | 318           | 450 | 23400 | 158845          | F60                   | 410           | 570 | 19370 |
| 32"  | 90160           | F48                   | 318           | 470 | 26370 | 179855          | F60                   | 425           | 580 | 25520 |
| 36"  | 117500          | F48                   | 330           | 510 | 32816 | 214580          | F60                   | 440           | 615 | 32610 |
| 40   | 155240          | F60                   | 410           | 550 | 40518 | 314630          | F60                   | 465           | 640 | 40105 |
| 48   | 227000          | F60                   | 470           | 630 | 57460 | 426875          |                       |               |     |       |
| 56"  | 278000          | F60                   | 530           | 710 | 78210 | 506785          |                       |               |     |       |
| 60   | 314000          | F60                   | 600           | 710 | 89786 | 637890          |                       |               |     |       |

Note:  
1.Above Torque value are calculated based on room temperature, if other size torque required, please contact with WELKIN Valves ( Whatapp/ Tel.: +86 150 1068 2092 ) .  
2. When sizing the actuator, please consider safety factor 1.2–1.5.  
3. For more details, the valve torque will be changed under different working temperature and different seat materials. To know more information please contact with WELKIN.  
4. Cv value is based on 90° disc open angle.

CV Values of Butterfly Valves at Different Openings

| Size   |      | CV Values of Butterfly Valves at Different Openings |       |       |       |       |       |       |       |
|--------|------|-----------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| inch   | mm   | 10°                                                 | 20°   | 30°   | 40°   | 50°   | 60°   | 70°   | 80°   |
| 2"     | 50   | 1.5                                                 | 4.2   | 10    | 12    | 16    | 20    | 41    | 80    |
| 2 1/2" | 65   | 5.0                                                 | 19.6  | 39    | 62    | 85    | 100   | 112   | 121   |
| 3"     | 80   | 5.6                                                 | 34    | 67    | 103   | 138   | 172   | 185   | 188   |
| 4"     | 100  | 9.1                                                 | 31    | 70    | 119   | 176   | 231   | 274   | 285   |
| 5"     | 125  | 28.5                                                | 90    | 166   | 251   | 343   | 439   | 516   | 546   |
| 6"     | 150  | 14                                                  | 70    | 146   | 252   | 394   | 554   | 692   | 781   |
| 8"     | 200  | 57                                                  | 157   | 284   | 492   | 767   | 1053  | 1337  | 1586  |
| 10"    | 250  | 90                                                  | 274   | 485   | 769   | 1183  | 1781  | 2517  | 3139  |
| 12"    | 300  | 129                                                 | 373   | 662   | 1109  | 1719  | 2472  | 3252  | 3829  |
| 14"    | 350  | 219                                                 | 552   | 970   | 1578  | 2395  | 3406  | 4419  | 5209  |
| 16"    | 400  | 263                                                 | 660   | 1203  | 2009  | 3089  | 4425  | 5821  | 6894  |
| 18"    | 450  | 384                                                 | 893   | 1578  | 2622  | 4047  | 5830  | 7630  | 9241  |
| 20"    | 500  | 520                                                 | 1068  | 1872  | 3112  | 4896  | 7195  | 9842  | 12103 |
| 24"    | 600  | 579                                                 | 1379  | 2594  | 4416  | 7083  | 10617 | 15019 | 18347 |
| 28"    | 700  | 836                                                 | 1887  | 3478  | 5932  | 9437  | 14275 | 20091 | 25395 |
| 32"    | 800  | 1250                                                | 2751  | 5088  | 8611  | 13695 | 20774 | 28747 | 35652 |
| 36"    | 900  | 1166                                                | 2775  | 5493  | 9650  | 15681 | 24181 | 34260 | 43229 |
| 40"    | 1000 | 1463                                                | 3455  | 6816  | 11803 | 19299 | 29498 | 42837 | 56229 |
| 48"    | 1200 | 5030                                                | 16384 | 19720 | 24950 | 28834 | 35524 | 43980 | 50340 |

Note: For Reference Only.

Pressure Temperature Chart

Notes

1. All the sizes are in full port.

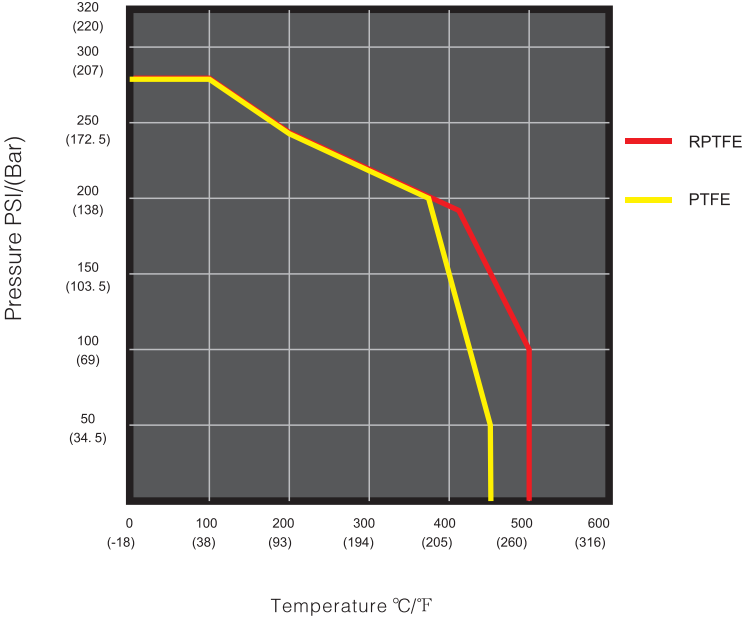
2. Pressure Ratings are according to B 16.34.

Method of Calculating Flow

The Flow Coefficient Cv of a value is the flow rate of water (gallons/minute)Through a fully opened valve, with a pressure drop of 1 psi across the valve. To find the flow of liquid through the valve from the Cv, use the following formulas:

Liquid Flow:  
 $QL=Cv(P/G)1/2$   
QL=Flow rate of liquid (gal./min)  
P=Differential pressure across the valve  
G=Specific gravity of liquid (for water, G=1)

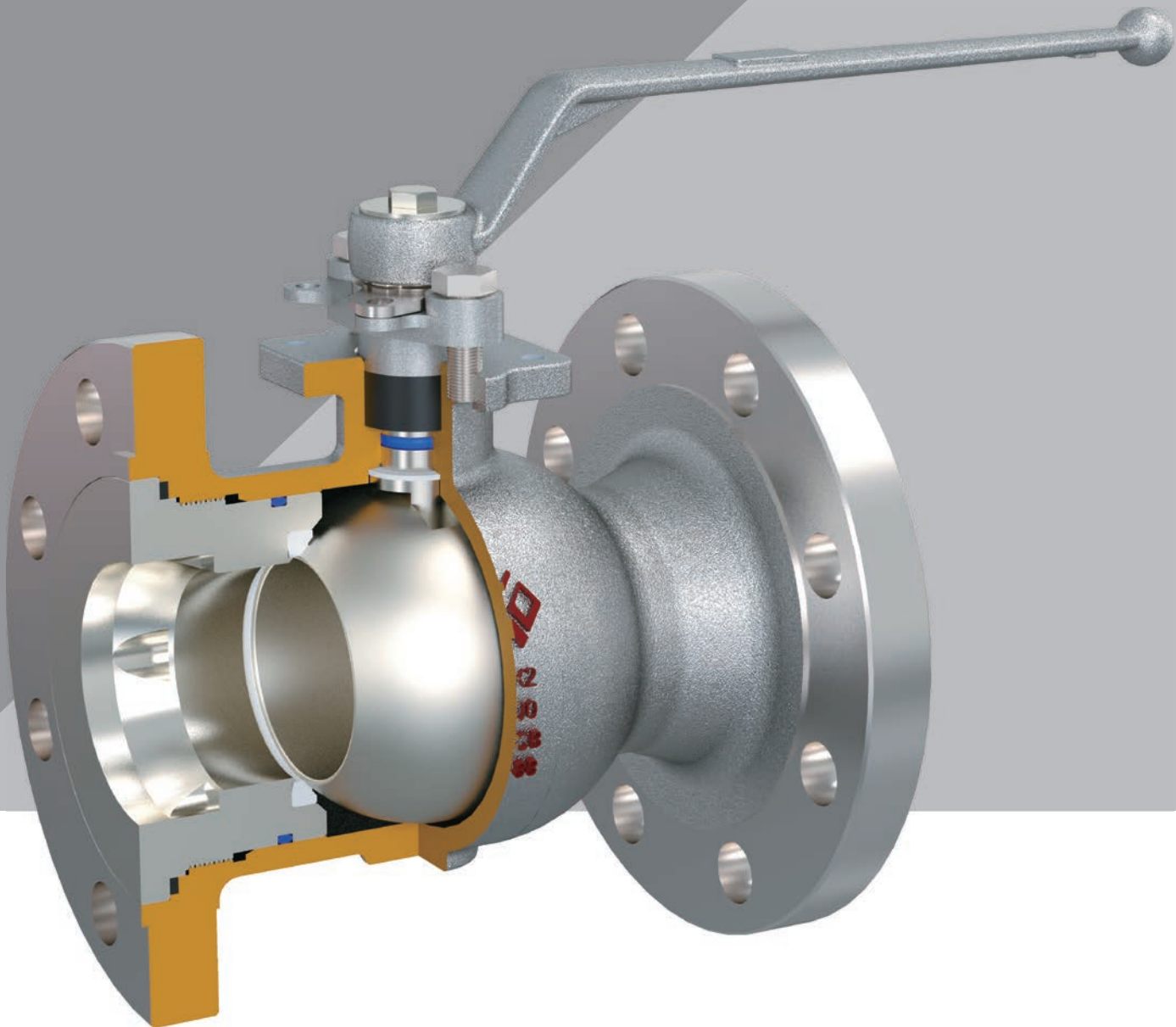
Gas Flow:  
 $Qg=61Cv(P2P/g)1/2$   
(For non—critical flow, P/P<1.0)  
QL=Flow rate of gas (CFH at STP)  
P2=Outlet pressure(psia)  
G=specific gravity of gas (for air, g=1.0)





# 1-piece floating ball valve

## Products



## 1 PIECE FLOATING BALL VALVE

### General features

- Floating ball.
- End entry.
- Reduced bore.
- Soft seat.
- Bidirectional.
- Anti Blow out proof stem.
- Auto adjustable packing.
- Anti static device.
- Self-cavity pressure relief.

### Official approvals

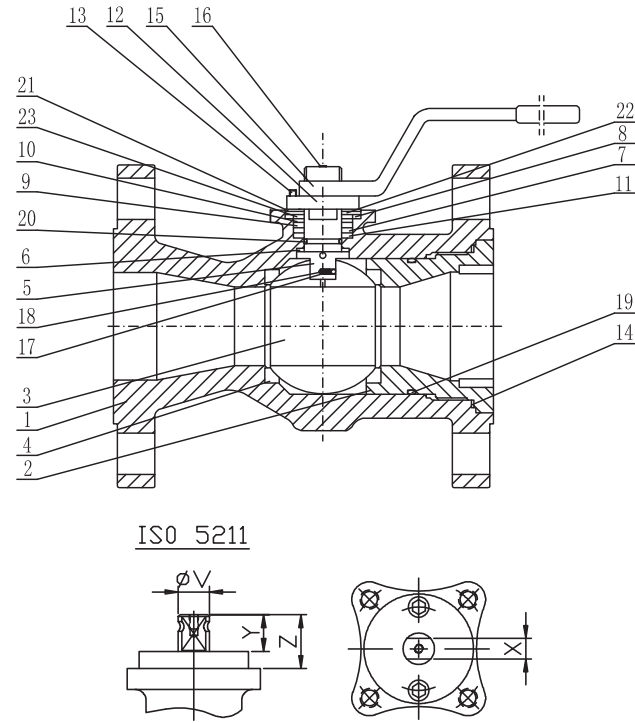
- CERTIFICATE FIRE SAFE
- TA-LUFT VDI 2440
- ISO 15848-1
- API 6D.
- ATEX 2014/34/EU
- PED 2014/68/EU
- SIL 3 CAPABLE
- EN 161/EN ISO 23553-1

### Related Standard

- Design standard: ASME 16.34 /API 608/API 6D
- Inspection standard: API 598
- Top flange: ISO 5211
- Flange end: ASME B16.5
- Face to face length: ASME B16.10
- Fire-proof test: API 607/API 6FA
- Special requirements: NACEMR0175



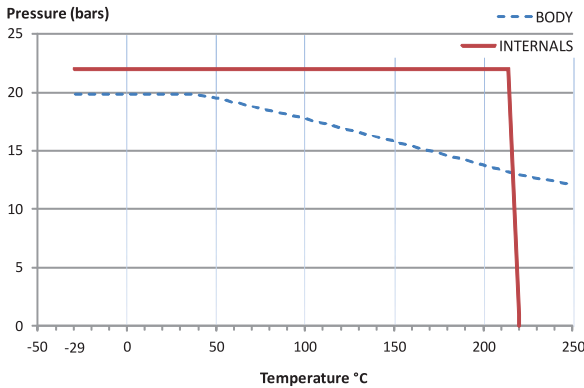
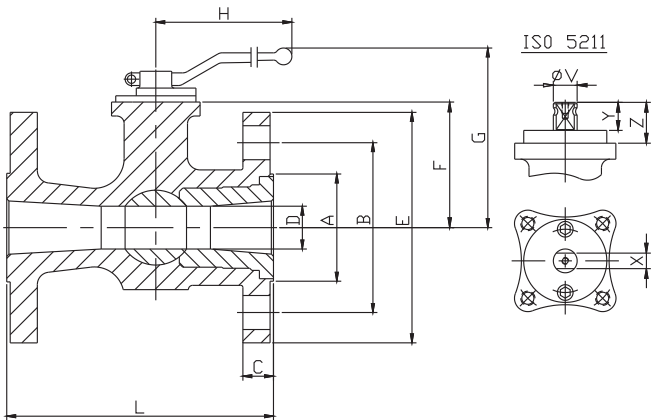
### Material List



| No | Part                 | Standard               |
|----|----------------------|------------------------|
| 1  | Body                 | C.S. A216 WCC          |
| 2  | Adapter              | C.S. A-105             |
| 3  | Ball                 | S.S. A351 CF8M         |
| 4  | Seat                 | PTFE (modified)        |
| 5  | Stem                 | S.S. AISI 316          |
| 6  | Stem seal            | PTFE (modified)+FG     |
| 7  | Stem Packing         | PTFE (modified)        |
| 8  | Gland packing 1      | S.S. AISI 316          |
| 9  | Stem Packing 2       | Graphite               |
| 10 | Gland packing 2      | S.S. AISI 301          |
| 11 | Spring washer        | S.S. AISI 301          |
| 12 | Cover                | S.S. AISI 301          |
| 13 | Cover bolt           | S.S. (316)             |
| 14 | Body seal 1          | Graphite               |
| 15 | Handle               | WCB                    |
| 16 | Handle bolt          | 1.045(8.8)             |
| 17 | Spring               | S.S. AISI 316          |
| 18 | Antistatic Ball      | S.S. AISI 316          |
| 19 | Body seal 2          | FKM                    |
| 20 | O ring stem          | FKM                    |
| 21 | Subjection ring      | S.S. AISI 420          |
| 22 | Subjection ring seal | S.S. AISI 316 Nitrided |
| 23 | Stem bearing         | PTFE (modified)+FG     |

1 PIECE FLOATING BALL VALVE

DIMENSIONS



1 piece floating ball valve-150LB

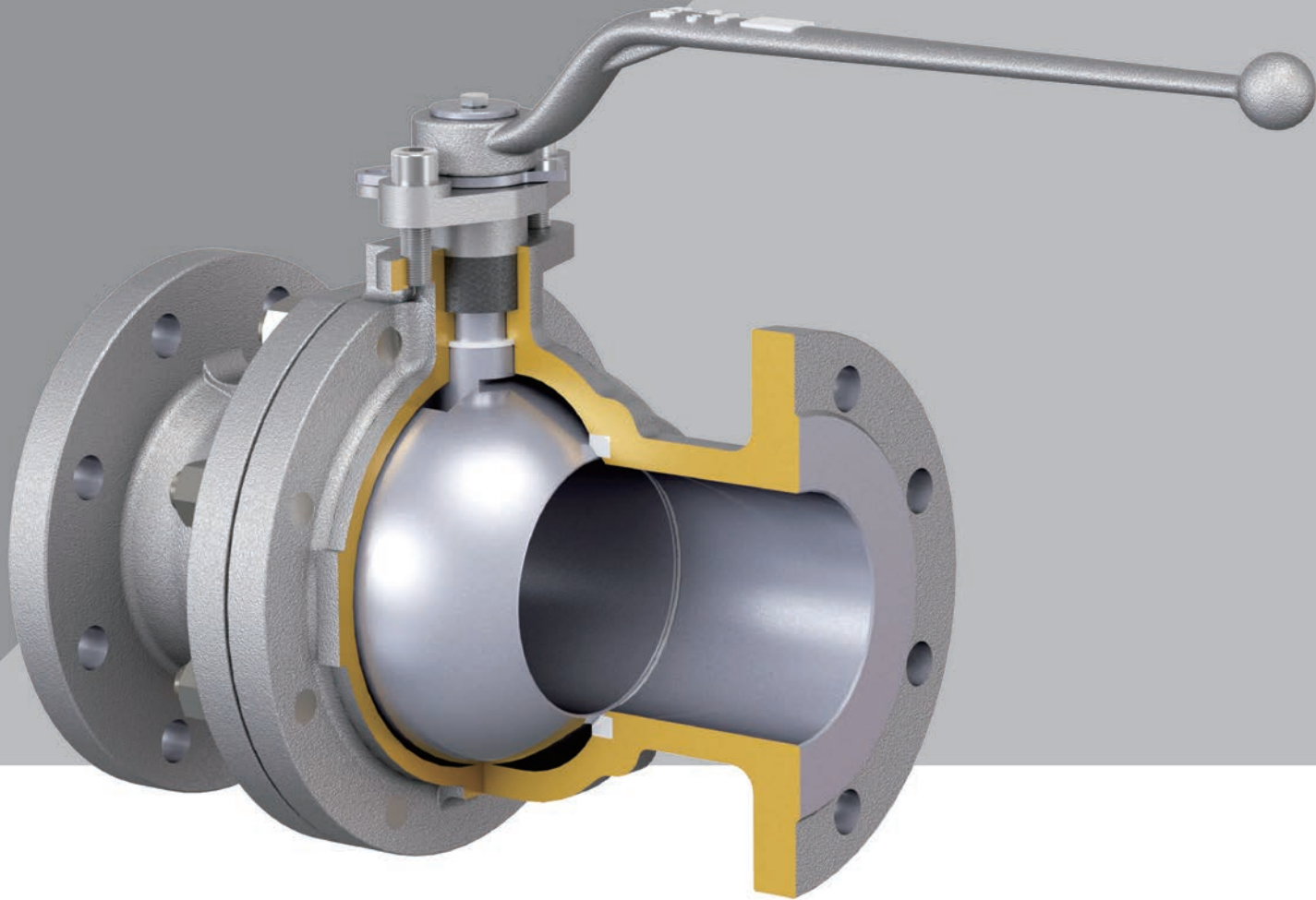
| DN     | CL  | D   | L   | E   | A   | B   | C  | F   | H   | G   | V  | X  | Y  | Z    | nxl     | ISO 5211 | Torque | MAST |
|--------|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|----|----|----|------|---------|----------|--------|------|
| 1"     | 150 | 20  | 127 | 110 | 51  | 79  | 13 | 47  | 185 | 110 | 14 | 11 | 11 | 13.5 | 4 × 16  | F05      | 11     | 42   |
| 1 1/2" | 150 | 32  | 165 | 125 | 73  | 98  | 16 | 57  | 185 | 120 | 18 | 14 | 17 | 19.5 | 4 × 16  | F05      | 23     | 92   |
| 2"     | 150 | 40  | 178 | 150 | 92  | 121 | 17 | 75  | 293 | 147 | 22 | 17 | 20 | 30   | 4 × 19  | F07      | 32     | 244  |
| 3"     | 150 | 65  | 203 | 190 | 127 | 152 | 21 | 96  | 293 | 168 | 22 | 17 | 20 | 30   | 4 × 19  | F07      | 62     | 244  |
| 4"     | 150 | 80  | 229 | 230 | 157 | 191 | 25 | 114 | 450 | 204 | 28 | 22 | 22 | 40   | 8 × 19  | F10      | 103    | 510  |
| 6"     | 150 | 100 | 267 | 280 | 216 | 241 | 26 | 149 | 740 | 261 | 36 | 27 | 35 | 50   | 8 × 22  | F12      | 264    | 1047 |
| 8"     | 150 | 144 | 292 | 345 | 270 | 299 | 30 | 173 | 740 | 285 | 36 | 27 | 35 | 50   | 8 × 22  | F12      | 400    | 1047 |
| 10"    | 150 | 187 | 330 | 405 | 324 | 362 | 32 | 237 | 336 | 634 | 48 | 36 | 40 | 63   | 12 × 25 | F14      | 720    | 2482 |
| 12"    | 150 | 235 | 356 | 485 | 381 | 432 | 33 | 266 | 336 | 663 | 48 | 36 | 40 | 63   | 12 × 25 | F14      | 1160   | 2482 |

1 piece floating ball valve-300LB

| DN     | CL  | D   | L   | E   | A   | B   | C  | F   | H   | G   | V  | X  | Y  | Z    | nxl     | ISO 5211 | Torque | MAST |
|--------|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|----|----|----|------|---------|----------|--------|------|
| 1"     | 300 | 20  | 165 | 125 | 51  | 89  | 18 | 54  | 185 | 102 | 14 | 11 | 11 | 13.5 | 4 × 19  | F05      | 11     | 42   |
| 1 1/2" | 300 | 32  | 190 | 155 | 73  | 114 | 22 | 65  | 185 | 115 | 18 | 14 | 17 | 19.5 | 4 × 22  | F05      | 23     | 92   |
| 2"     | 300 | 40  | 216 | 165 | 92  | 127 | 23 | 75  | 293 | 129 | 22 | 17 | 20 | 30   | 8 × 19  | F07      | 32     | 244  |
| 3"     | 300 | 65  | 283 | 210 | 127 | 168 | 29 | 96  | 293 | 150 | 22 | 17 | 20 | 30   | 8 × 22  | F07      | 62     | 244  |
| 4"     | 300 | 80  | 305 | 255 | 157 | 200 | 32 | 114 | 350 | 187 | 28 | 22 | 22 | 40   | 8 × 25  | F10      | 103    | 509  |
| 6"     | 300 | 111 | 403 | 320 | 216 | 270 | 37 | 148 | 680 | 237 | 36 | 27 | 35 | 50   | 12 × 22 | F12      | 264    | 1047 |

\*\*Depending on service conditions. • Dimensions are in mm. • Torque & MAST are in Nm • Weight is in Kilograms  
\* Torque values have been measured AP at maximum rating at room temperature

2-Piece Floating Ball Valve  
Products





## 2-Piece Floating Ball Valve

### Related Standards:

Design and Manufacture: API 6D, BS5351, ASME B16.34

API 608, MSS-SP-72

Face To Face Dimension: ASME B16.10

Flange Connection Dimension: ASME B16.5

BW Connection Dimension: ASME B16.25

Test And Inspection: API 598

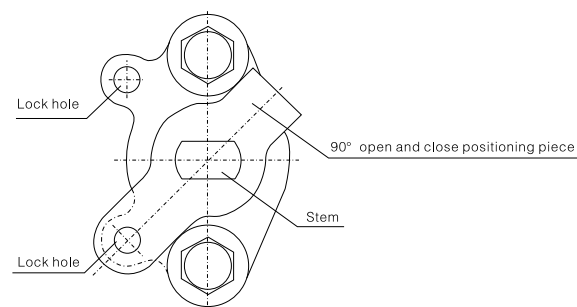
Fire-safe Design: API 607

Anti-static Design&Anti Blow-out Stem

### Wrong operation prevention

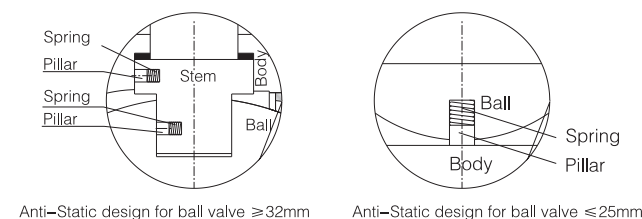
To prevent the ball valve from wrong operation, the keylock with 90° of open and close positioning pad has been provided, Which can be lockable as required. At the stem head, where the lever fixes, a flat is designed so that the valve opens with the lever in parallel to piping, and with the lever right-angled to the piping, the valve is closed. So, it is ensured that the valve indicator of open and close can never make mistake.

Lock And Misoperation Prevention Structure



### Anti-static feature

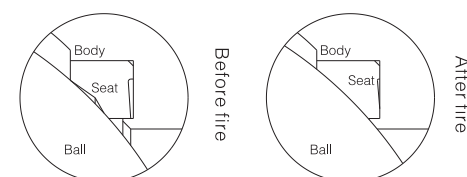
The traditional packing flange design has been improved to be of two piece structure, i.e., being as a packing flange plate and a follower, the latter contacts the flange plate with spherical surface. Thus, the follower remains vertical always, and is lined internally with a PTFE bush to prevent the galling against and friction between the stem, which can also reduce the operation torque of the valve.



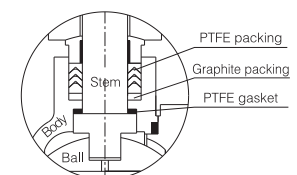
## 2-Piece Floating Ball Valve

### Fire safe design

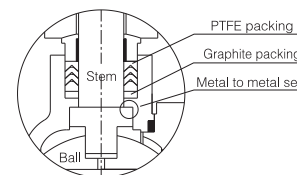
With the valve heated in a fire application, the non-metal material parts such as seat sealing ring of PTFE, stem back seat gasket, gland packing, and the sealing gasket between body and bonnet might disintegrate or be damaged due to high temperature. Our company specially designed structure of auxiliary metal to metal seal is provided to effectively prevent both internal and external leakage of the valve. As required by customers, Our company floating ball valves with design can meet the requirement of API 607.



Fire safe design of seat

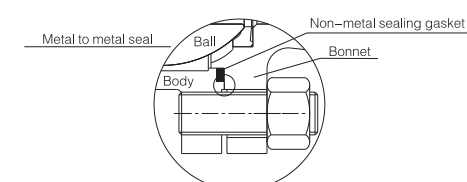


Before fire



After fire

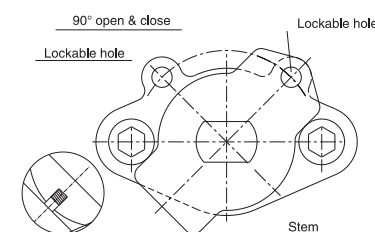
Fire safe design of stem



Fire safe design of valve body and bonnet flanges

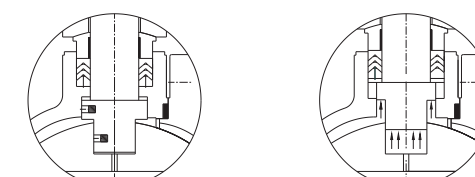
### Mounting pad provided

Our company has provided for floating ball valve with a mounting pad, through which it is easy to fix the actuators, such as worm gear, pneumatic and electric actuators.



### Reliable stem seal

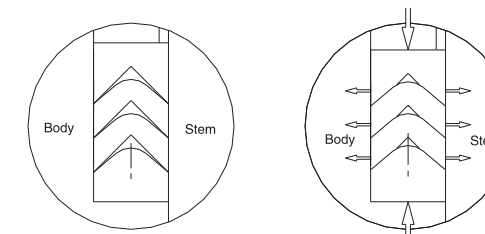
The blow-out proof design has been adopted for the stem to ensure that even if the pressure in the body cavity is risen accidentally and the packing flange becomes invalid, the stem may not be blown out by medium. The stem features the design with a backseat, being assembled from underneath. The sealing force against the backseat gets higher as the medium pressure becomes higher. So the reliable seal of the stem can be assured under variable medium pressure.



Stem assembled from underneath may not be blown out by medium

Stem assembled downward may be blown out

V type packing structure has been employed to effectively transform the pushing force of the gland flange and the medium pressure into the sealing force against the stem.



Packing before pressed

Packing after pressed

### Reliable seat seal

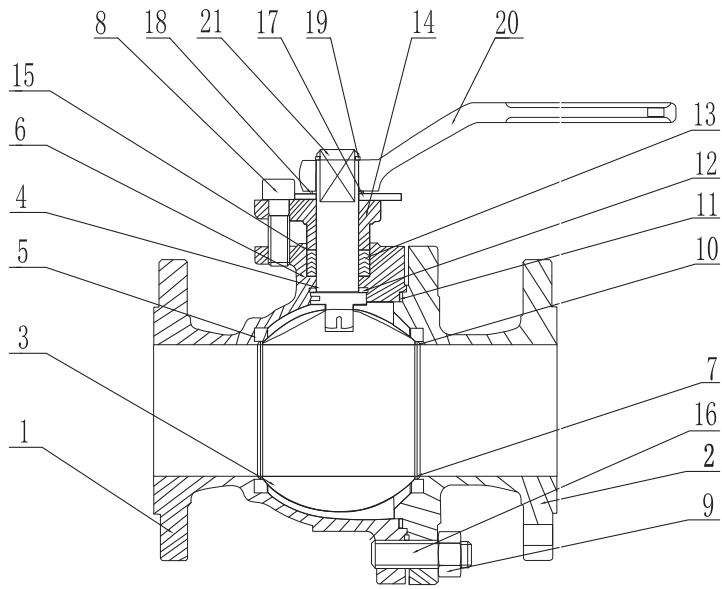
The structure design of elastic sealing ring has been adopted for floating ball valves. This seat design features a bigger sealing pressure ratio between the ring surface and the ball when medium pressure gets lower, where the contacting area is smaller. Thus, the reliable seal is ensured. When the medium pressure gets higher, the contacting area between seat ring and ball becomes bigger as the sealing ring transforms elastically to undertake the bigger force pushed by the medium without any damage.

### Application

Floating ball valves are suitable for various kinds of pipelines of Class 150 to Class 600, to turn on or off the pipeline medium, of which the operation types include manual, worm gear and pneumatic or electric actuators.



## 2-Piece Floating Ball Valve



### TECHNICAL SPECIFICATIONS:



1/2" – 10"



Up to 260℃



Class 150LB–600LB

### Optional Operating Actuator



Handwheel



Gear Box



Pneumatic

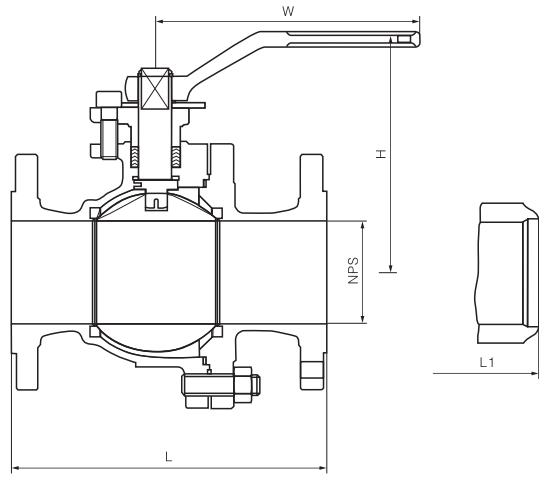


Electric

### ASTM Material list of floating ball valve

| No | Part Name         | Carbon Steel to ASTM       |           | Stainless Steel to ASTM |           |                  |            |
|----|-------------------|----------------------------|-----------|-------------------------|-----------|------------------|------------|
| 1  | Body              | A216 WCB                   | A352 LCB  | A351 CF8                | A351 CF8M | A351 CF3         | A351 CF3M  |
| 2  | Bonnet            | A216 WCB                   | A352 LCB  | A351 CF8                | A351 CF8M | A351 CF3         | A351 CF3M  |
| 3  | Ball              | SS304                      | SS304     | SS304                   | SS316     | SS304L           | SS316L     |
| 4  | Stem              | A182 F6a                   | A182 F304 | A182 F304               | A182 F316 | A182 F304L       | A182 F316L |
| 5  | Seat ring         | PTFE, RPTFE, PEEK, DEVLON  |           |                         |           |                  |            |
| 6  | Gasket            | SS304/SS316+Graphite, PTFE |           |                         |           |                  |            |
| 7  | O-ring            | Fluoro Rubber              |           |                         |           |                  |            |
| 8  | Bolt              | A193 B7                    | A193 L7   | A193 B8/B8M             |           |                  |            |
| 9  | Nut               | A194 2H                    | A194 7    | A194 8/8M               |           |                  |            |
| 10 | Small spring      |                            |           |                         |           | SS304/SS316      |            |
| 11 | Small ball        | SS304/SS316                |           |                         |           |                  |            |
| 12 | Thrust washer     | PTFE                       |           |                         |           |                  |            |
| 13 | Stem packing      | Flexible Graphite/PTFE     |           |                         |           |                  |            |
| 14 | Packing gland     | A216 WCB                   | A352 LCB  | A351 CF8                | A351 CF8M | A351 CF3         | A351 CF8M  |
| 15 | Shaft sleeve      | PTFE                       |           |                         |           |                  |            |
| 16 | Screw             | A193 B7                    | A320 L7   | A193 B8/B8M             |           |                  |            |
| 17 | Positioning plate |                            |           |                         |           | Galvanized Steel |            |
| 18 | Retaining ring    |                            |           |                         |           | Carbon Steel     |            |
| 19 | Lever             |                            |           |                         |           | Carbon Steel     |            |
| 20 | Gasket            |                            |           |                         |           | Carbon Steel     |            |
| 21 | Screw             |                            |           |                         |           | Carbon Steel     |            |

## 2-Piece Floating Ball Valve



### 150LB Main size of outside & weight

| Size    | in | 1/2  | 3/4  | 1    | 1 1/2 | 2    | 2 1/2 | 3     | 4     | 6     | 8     | 10    |
|---------|----|------|------|------|-------|------|-------|-------|-------|-------|-------|-------|
|         | mm | 15   | 20   | 25   | 40    | 50   | 65    | 80    | 100   | 150   | 200   | 250   |
| L (RF)  | in | 4.25 | 4.62 | 5.00 | 6.50  | 7.00 | 7.50  | 8.00  | 9.00  | 15.50 | 18.00 | 21.00 |
|         | mm | 108  | 117  | 127  | 165   | 178  | 190   | 203   | 229   | 394   | 457   | 533   |
| L1 (BW) | in | 5.50 | 6.00 | 6.50 | 7.50  | 8.50 | 9.50  | 11.12 | 12.00 | 18.00 | 20.50 | 22.00 |
|         | mm | 140  | 152  | 165  | 190   | 216  | 241   | 283   | 305   | 457   | 521   | 559   |
| H       | in | 2.12 | 2.12 | 2.75 | 3.50  | 4.12 | 6.12  | 7.25  | 8.00  | 10.00 | 11.00 | 13.50 |
|         | mm | 55   | 55   | 70   | 90    | 105  | 155   | 185   | 205   | 255   | 280   | 345   |
| WT (Kg) | RF | 2.3  | 3    | 4.5  | 7     | 15   | 20    | 25    | 40    | 97    | 160   | 225   |
|         | BW | 2    | 2.5  | 3.8  | 5.8   | 12   | 17    | 21    | 36    | 92.8  | 154   | 200   |

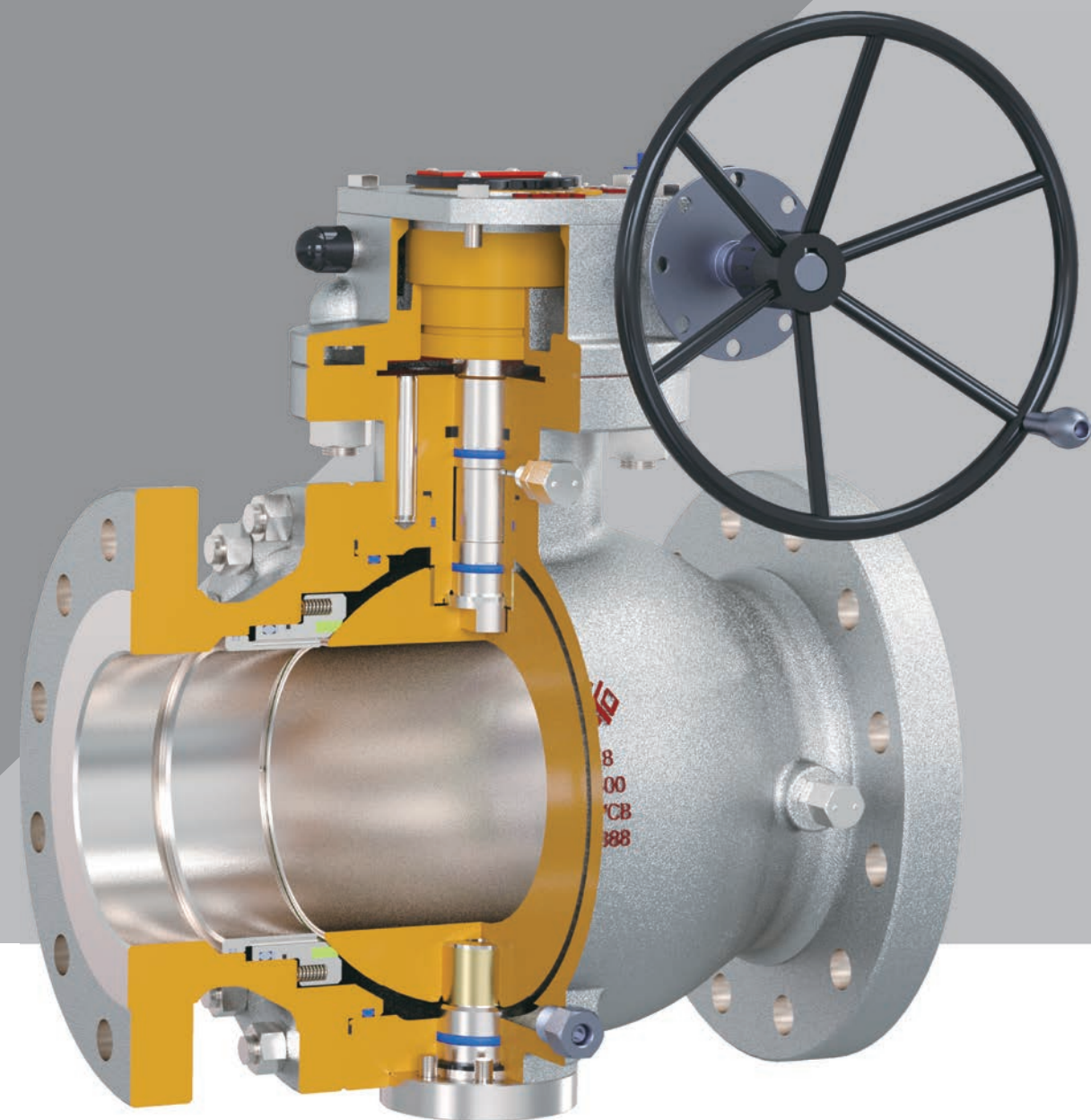
### 300LB Main size of outside & weight

| Size    | in | 1/2  | 3/4  | 1    | 1 1/2 | 2    | 2 1/2 | 3     | 4     | 6     | 8     |
|---------|----|------|------|------|-------|------|-------|-------|-------|-------|-------|
|         | mm | 15   | 20   | 25   | 40    | 50   | 65    | 80    | 100   | 150   | 200   |
| L (RF)  | in | 5.50 | 6.00 | 6.50 | 7.50  | 8.50 | 9.50  | 11.12 | 12.00 | 15.88 | 19.75 |
|         | mm | 140  | 152  | 165  | 190   | 216  | 241   | 283   | 305   | 403   | 502   |
| L1 (BW) | in | 5.50 | 6.00 | 6.50 | 7.50  | 8.50 | 9.50  | 11.12 | 12.00 | 18.00 | 20.50 |
|         | mm | 140  | 152  | 165  | 190   | 216  | 241   | 283   | 305   | 457   | 521   |
| H       | in | 2.12 | 2.12 | 2.75 | 3.50  | 4.12 | 6.12  | 7.25  | 8.00  | 10.00 | 11.00 |
|         | mm | 55   | 55   | 70   | 90    | 105  | 153   | 187   | 206   | 255   | 280   |
| WT (Kg) | RF | 2.5  | 3.5  | 5.5  | 10.5  | 20   | 25    | 31    | 52    | 118   | 200   |
|         | BW | 2.1  | 3    | 4.8  | 8.7   | 17   | 22    | 28    | 48    | 105   | 180   |

### 600LB Main size of outside & weight

| Size         | in     | 1/2  | 3/4  | 1    | 1 1/2 | 2     | 2 1/2 | 3     | 4     |
|--------------|--------|------|------|------|-------|-------|-------|-------|-------|
|              | mm     | 15   | 20   | 25   | 40    | 50    | 65    | 80    | 100   |
| L/L1 (RF/BW) | in     | 6.50 | 7.50 | 8.50 | 9.50  | 11.50 | 13.00 | 14.00 | 17.00 |
|              | mm     | 165  | 190  | 216  | 241   | 292   | 330   | 356   | 432   |
| L2 (RTJ)     | in     | –    | –    | –    | –     | 11.62 | 13.12 | 14.12 | 17.12 |
|              | mm     | –    | –    | –    | –     | 295   | 333   | 359   | 435   |
| H            | in     | 2.38 | 2.38 | 3.00 | 4.00  | 4.75  | 6.88  | 8.38  | 9.25  |
|              | mm     | 61.5 | 61.5 | 78   | 101   | 120   | 174   | 212   | 234   |
| WT (Kg)      | RF/RTJ | 3.3  | 4.5  | 7.2  | 13.5  | 19    | 31    | 39    | 71    |
|              | BW     | 2.6  | 3.1  | 4.8  | 8     | 13    | 22    | 27    | 53    |

# 2-Piece Trunnion Mounted Ball Valve Products



## 2-Piece Trunnion Mounted Ball Valve

### Standards

Design and Manufacture: API 6D, BS5351, ASME B16.34

API 608, MSS-SP-72

Face To Face Dimension: ASME B16.10

End flange dimension: ASME B16.5(for NPS≤24); ASME B16.47 series B, ASME B16.47 series A, MSS SP-44(for NPS > 24).

BW Connection Dimension: ASME B16.25

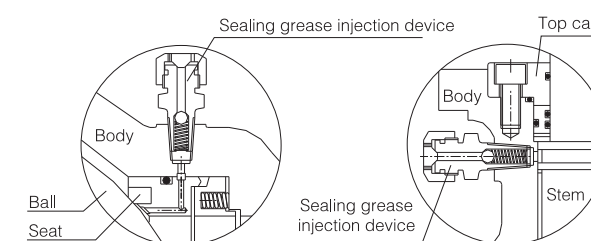
Test And Inspection: API 598

Fire-safe Design: API 607

Anti-static Design&Anti Blow-out Stem

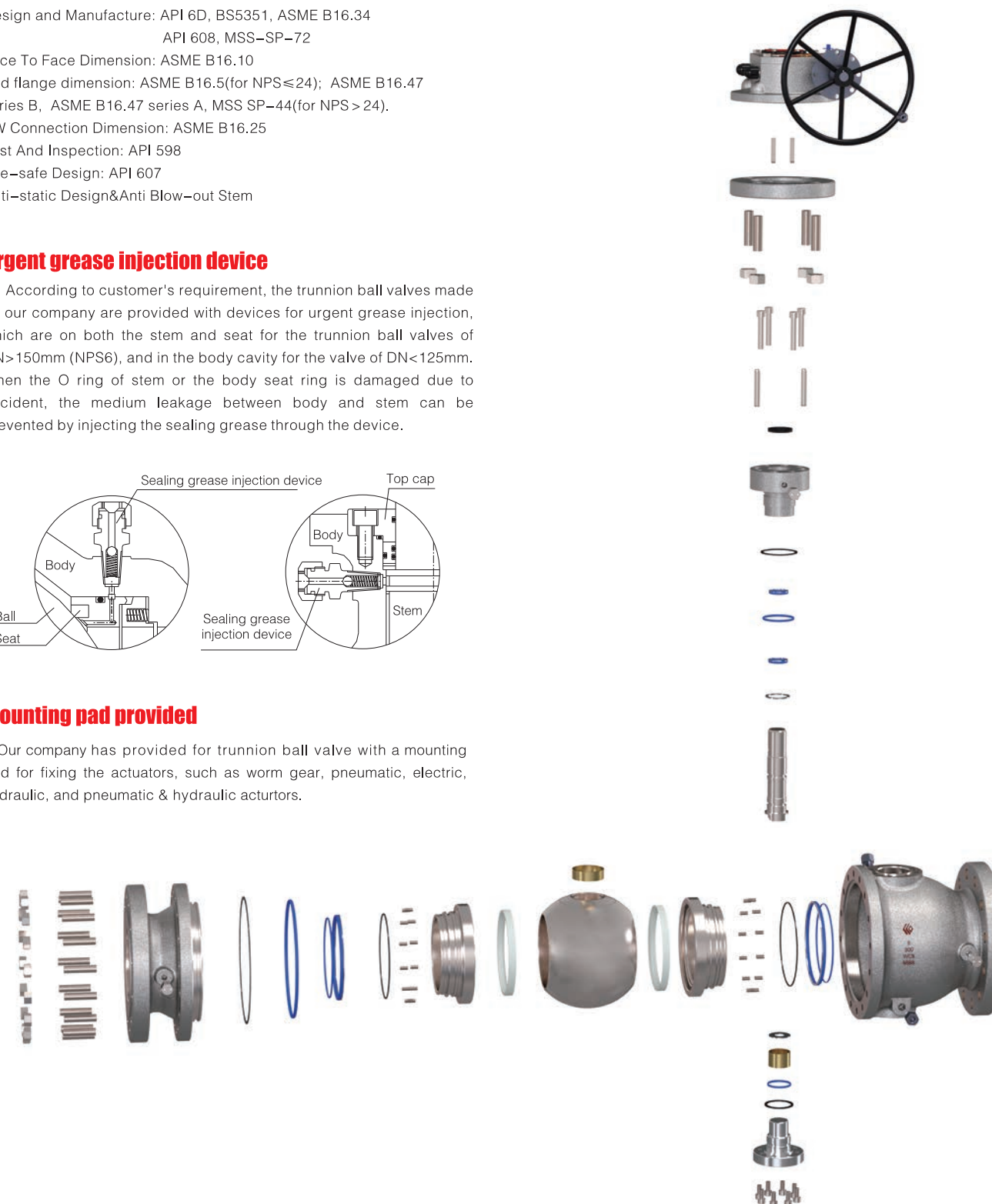
### Urgent grease injection device

According to customer's requirement, the trunnion ball valves made by our company are provided with devices for urgent grease injection, which are on both the stem and seat for the trunnion ball valves of DN>150mm (NPS6), and in the body cavity for the valve of DN<125mm. When the O ring of stem or the body seat ring is damaged due to accident, the medium leakage between body and stem can be prevented by injecting the sealing grease through the device.



### Mounting pad provided

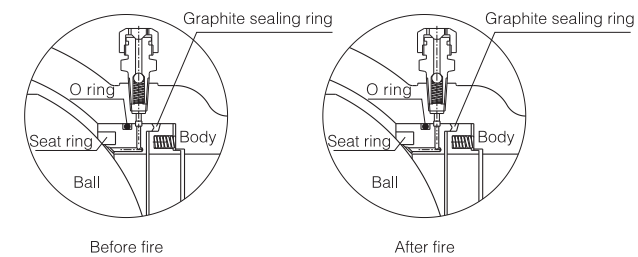
Our company has provided for trunnion ball valve with a mounting pad for fixing the actuators, such as worm gear, pneumatic, electric, hydraulic, and pneumatic & hydraulic actuators.



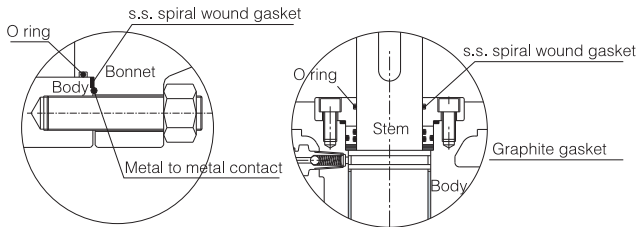
## 2-Piece Trunnion Mounted Ball Valve

### Fire safe design

With the valve heated in a fire application, the non-metal material parts such as seat sealing ring of PTFE, O ring for the stem, and sealing gasket for body and bonnet, might be damaged due to high temperature. Our company special design of auxiliary metal to metal or the graphite seal is provided for the trunnion ball valve to effectively prevent both internal and external leakage of the valve. As required by customers, our company fire safe design for the trunnion ball valve meets the requirement of API 607, API 6Fa, BS 6755.



Fire safe design of seat

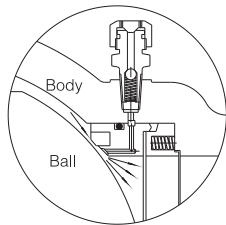


Fire safe design of valve body and bonnet flanges

Fire safe design of stem

### Self-relief in the body cavity

As the liquid medium left in the body cavity gasifies due to increased temperature, the pressure in the body cavity becomes abnormally higher when the medium itself in the cavity would propel the seat and self-relieves the pressure to ensure the safety of valve.

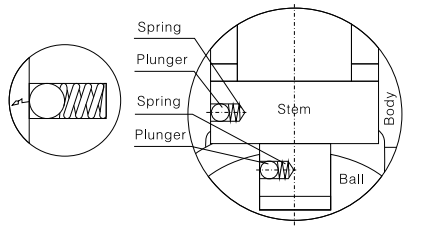


### Blow-out proof stem

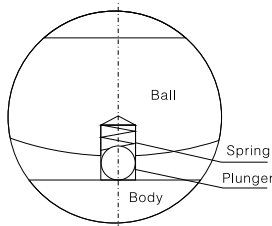
Blow-out proof structure is provided with for the stem, which is positioned by the up-end cap and screw, being guaranteed not to be blown-out by the medium even if at abnormal risen pressure in the cavity.

### Anti-static Structure

The ball valve is provided with the anti-static structure and adopts the static electricity discharge device to directly form a static channel between the ball and body or form a static channel between the ball and body through the stem, so as to discharge the static electricity produced due to friction during the opening and closing of ball and seat through the pipeline, avoiding fire or explosion that may be caused by static spark and ensuring system safety.



Anti-static structure design of ball valve with DN ≥ 32



Anti-static structure design of ball valve with DN ≥ 25

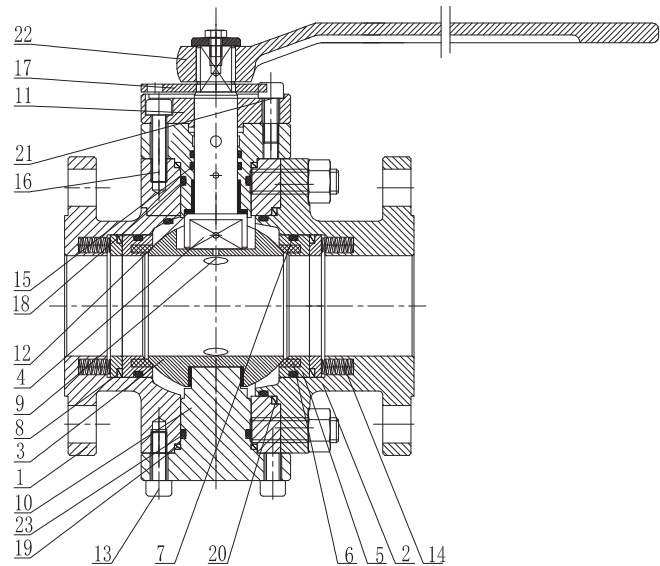
### Anti-static Structure

The ball valve is provided with the anti-static structure and adopts the static electricity discharge device to directly form a static channel between the ball and body or form a static channel between the ball and body through the stem, so as to discharge the static electricity produced due to friction during the opening and closing of ball and seat through the pipeline, avoiding fire or explosion that may be caused by static spark and ensuring system safety.

### Typical application

- Water works and water resource project
- Environment protection
- Public facilities
- Power and Public utilities
- Building industry
- Petroleum, chemical
- Steel, metallurgy
- Paper making industry
- Foods, Beverage

## 2-Piece Trunnion Mounted Ball Valve



### TECHNICAL SPECIFICATIONS:

2" – 18"

Up to 260°C

Class 150LB – 600LB

### Optional Operating Actuator

Handwheel

Gear Box

Pneumatic

Electric

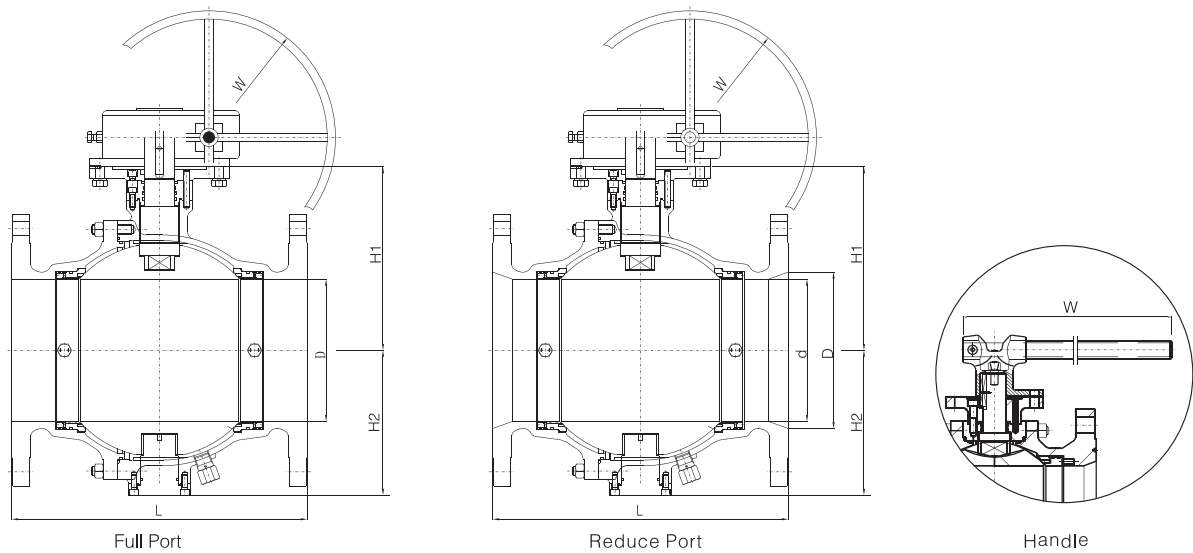
### Material List

| No | Part             | Carbon Steel       |                    | Stainless Steel    |                    |
|----|------------------|--------------------|--------------------|--------------------|--------------------|
|    |                  | A216 WCB           | A352 LCB           | A351 CF8M          | A351 CF8           |
| 1  | Body             | ASTM A216 WCB      | ASTM A352 LCB      | ASTM A351 CF8M     | ASTM A351 CF8      |
| 2  | Body End         | ASTM A216 WCB      | ASTM A352 LCB      | ASTM A351 CF8M     | ASTM A351 CF8      |
| 3  | Ball             | ASTMA105N+ENP      | ASTM A350 LF2+ENP  | ASTMA182 F316      | ASTM A182 F304     |
| 4  | Stem             | ASTMA105N+ENP      | ASTM A350 LF2+ENP  | ASTMA182 F316      | ASTM A182 F304     |
| 5  | Seat Ring        | ASTMA105N+ENP      | ASTM A350 LF2+ENP  | ASTMA182 F316      | ASTM A182 F304     |
| 6  | Seat insert      | PTFE               | PTFE               | PTFE               | PTFE               |
| 7  | O–Ring           | VITON              | VITON              | VITON              | VITON              |
| 8  | Fire Safe Seal   | Graphite           | Graphite           | Graphite           | Graphite           |
| 9  | Grounding Spring | SS304              | SS304              | SS316              | SS304              |
| 10 | Lower Trunnion   | ASTM A105N         | ASTM A350 LF2      | ASTM A182 F316     | ASTM A182 F304     |
| 11 | Gland Cap        | ASTM A105N         | ASTM A350 LF2      | ASTM A182 F316     | ASTM A182 F304     |
| 12 | Gasket           | SS+Graphite        | SS+Graphite        | SS+Graphite        | SS+Graphite        |
| 13 | Buttom Screw     | ASTMA193 B7        | ASTM A320 L7       | ASTM A193 B8       | ASTM A182 F304     |
| 14 | Spring           | Inconel X–750      | Inconel X–750      | Inconel X–750      | InconelX–750       |
| 15 | Fire Safe Gasket | Graphite           | Graphite           | Graphite           | Graphite           |
| 16 | Screw            | ASTMA193 B7        | ASTM A320 L7       | ASTM A193 B8       | ASTM A193 B8       |
| 17 | Top Flange       | ASTM A105N         | ASTM A350 LF2      | ASTM A182 F316     | ASTM A182 F304     |
| 18 | Key              | Viton A            | Viton A            | Viton A            | Viton A            |
| 19 | Injection        | A105               | SS 304             | SS316              | SS 304             |
| 20 | Drain Valve      | SS 304+Graphit     | SS 304+Graphit     | SS 304+Graphit     | SS 304+Graphit     |
| 21 | Vent Valve       | ASTM A193 GR. B7   | ASTM A193 GR. B7   | ASTM A193 GR. B7   | ASTM A193 GR. B7   |
| 22 | Operator         | Handle or Gear box | Handle or Gear box | Handle or Gear box | Handle or Gear box |
| 23 | O ring           | Viton A            | Viton A            | Viton A            | Viton A            |

Note: Different raw materials and trims are available according to application conditions or customer requests



2-Piece Trunnion Mounted Ball Valve



150LB Full Port

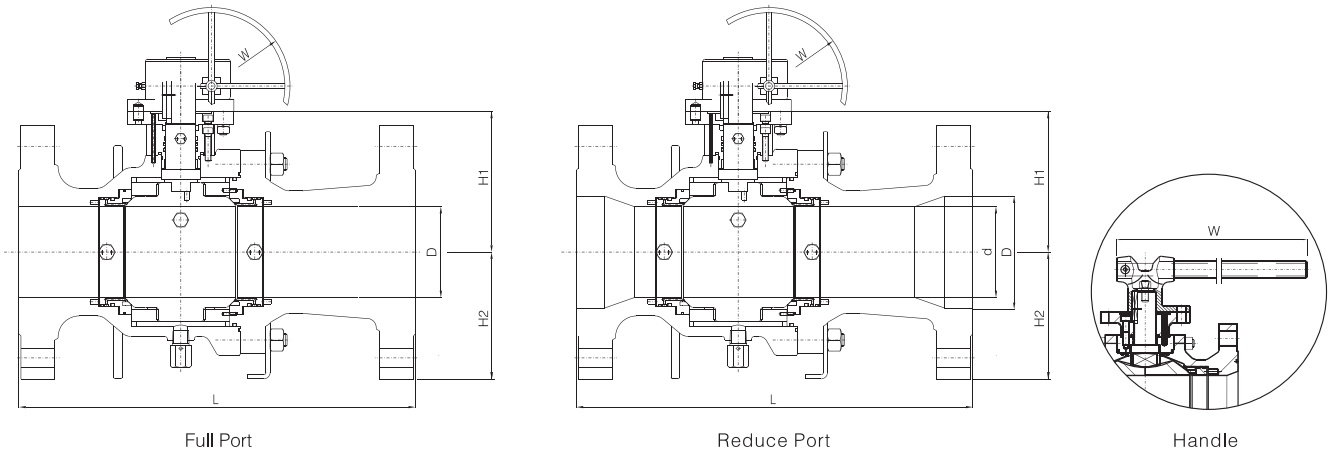
| Size |     | D     |     | L     |     | H1    |     | H2    |     | W     |      |
|------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|------|
| in   | mm  | in    | mm  | in    | mm  | in    | mm  | in    | mm  | in    | mm   |
| 2    | 50  | 2.01  | 51  | 7.01  | 178 | 7.87  | 200 | 4.33  | 110 | 10.43 | 265  |
| 3    | 80  | 2.99  | 76  | 7.99  | 203 | 11.81 | 300 | 4.96  | 126 | 11.22 | 285  |
| 4    | 100 | 4.02  | 102 | 9.02  | 229 | 12.40 | 315 | 6.50  | 165 | 11.22 | 285  |
| 6    | 150 | 5.98  | 152 | 15.51 | 394 | 13.19 | 335 | 6.50  | 165 | 11.81 | *300 |
| 8    | 200 | 7.99  | 203 | 17.99 | 457 | 15.94 | 405 | 7.87  | 200 | 11.81 | *300 |
| 10   | 250 | 10.00 | 254 | 21.02 | 534 | 16.81 | 427 | 8.66  | 220 | 11.81 | *300 |
| 12   | 300 | 12.01 | 305 | 24.02 | 610 | 18.31 | 465 | 10.31 | 262 | 19.69 | *500 |
| 14   | 350 | 13.27 | 337 | 27.01 | 686 | 19.92 | 506 | 11.54 | 293 | 23.62 | *600 |
| 16   | 400 | 15.24 | 387 | 30.00 | 762 | 24.49 | 622 | 13.43 | 341 | 23.62 | *600 |

150LB Reduce Port

| Size  |         | d     |     | D     |     | L     |     | H1    |     | H2    |     | W     |      |
|-------|---------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|------|
| in    | mm      | in    | mm  | in    | mm  | in    | mm  | in    | mm  | in    | mm  | in    | mm   |
| 3*2   | 80*50   | 2.01  | 51  | 2.99  | 76  | 7.99  | 203 | 7.87  | 200 | 4.33  | 110 | 10.43 | 265  |
| 4*3   | 100*80  | 2.99  | 76  | 4.02  | 102 | 9.02  | 229 | 11.81 | 300 | 4.96  | 126 | 11.22 | 285  |
| 6*4   | 150*100 | 4.02  | 102 | 5.98  | 152 | 15.51 | 394 | 12.40 | 315 | 6.50  | 165 | 11.22 | 285  |
| 8*6   | 200*150 | 5.98  | 152 | 7.99  | 203 | 17.99 | 457 | 13.19 | 335 | 6.69  | 170 | 11.81 | *300 |
| 10*8  | 250*200 | 7.99  | 203 | 10.00 | 254 | 21.02 | 534 | 15.94 | 405 | 7.87  | 200 | 11.81 | *300 |
| 12*10 | 300*250 | 10.00 | 254 | 12.01 | 305 | 24.02 | 610 | 16.81 | 427 | 8.66  | 220 | 1181  | *300 |
| 14*10 | 350*250 | 12.01 | 305 | 13.27 | 337 | 27.01 | 686 | 16.81 | 427 | 8.66  | 220 | 1181  | *300 |
| 16*12 | 400*300 | 13.27 | 337 | 15.24 | 387 | 30.00 | 762 | 18.31 | 465 | 10.31 | 262 | 19.69 | *500 |
| 18*14 | 450*350 | 15.24 | 387 | 17.24 | 438 | 34.02 | 864 | 19.92 | 506 | 11.54 | 293 | 23.62 | *600 |

\*Gear box

2-Piece Trunnion Mounted Ball Valve



300LB Full Port

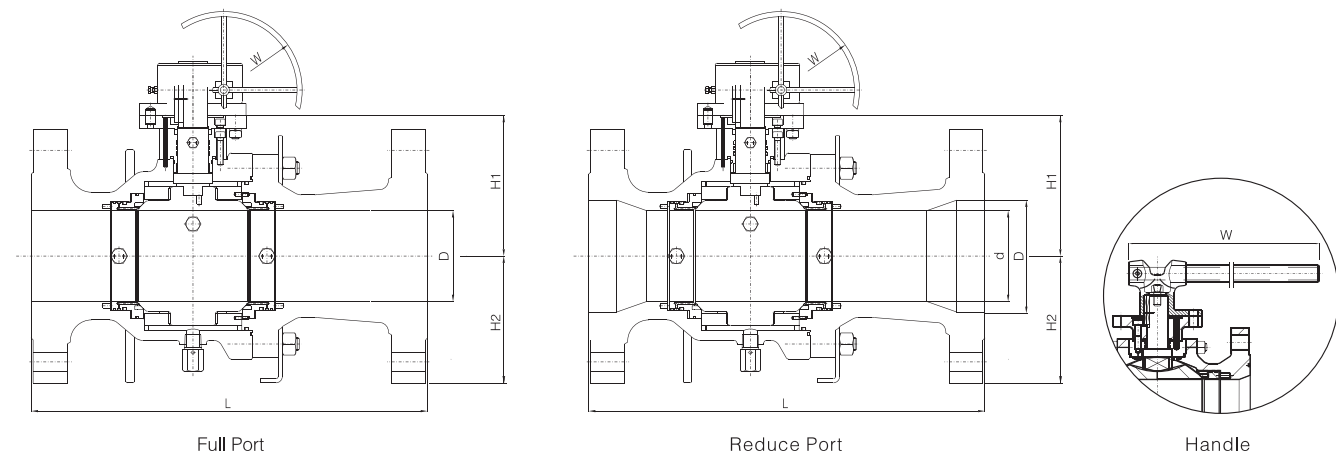
| Size |     | D     |     | L     |     | H1    |     | H2    |     | W     |      |
|------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|------|
| in   | mm  | in    | mm  | in    | mm  | in    | mm  | in    | mm  | in    | mm   |
| 2    | 50  | 2.01  | 51  | 8.50  | 216 | 8.11  | 206 | 4.45  | 113 | 10.43 | 265  |
| 3    | 80  | 2.99  | 76  | 11.14 | 283 | 12.40 | 315 | 5.08  | 129 | 15.75 | 400  |
| 4    | 100 | 4.02  | 102 | 12.01 | 305 | 12.99 | 330 | 6.65  | 169 | 29.53 | 750  |
| 6    | 150 | 5.98  | 152 | 15.87 | 403 | 13.58 | 345 | 5.83  | 148 | 11.81 | *300 |
| 8    | 200 | 7.99  | 203 | 19.76 | 502 | 16.34 | 415 | 7.28  | 185 | 11.81 | *300 |
| 10   | 250 | 10.00 | 254 | 22.36 | 568 | 16.81 | 427 | 8.90  | 226 | 15.75 | *400 |
| 12   | 300 | 12.01 | 305 | 25.51 | 648 | 18.31 | 465 | 10.59 | 269 | 19.69 | *500 |
| 14   | 350 | 13.27 | 337 | 30.00 | 762 | 20.43 | 519 | 11.81 | 300 | 23.62 | *600 |
| 16   | 400 | 15.24 | 387 | 32.99 | 838 | 25.12 | 638 | 13.78 | 350 | 23.62 | *600 |

300LB Reduce Port

| Size  |         | d     |     | D     |     | L     |     | H1    |     | H2    |      | W     |     |
|-------|---------|-------|-----|-------|-----|-------|-----|-------|-----|-------|------|-------|-----|
| in    | mm      | in    | mm  | in    | mm  | in    | mm  | in    | mm  | in    | mm   | in    | mm  |
| 3*2   | 80*50   | 2.01  | 51  | 2.99  | 76  | 11.14 | 283 | 8.11  | 206 | 4.45  | 113  | 10.43 | 265 |
| 4*3   | 100*80  | 2.99  | 76  | 4.02  | 102 | 12.01 | 305 | 12.40 | 315 | 5.08  | 129  | 15.75 | 400 |
| 6*4   | 150*100 | 4.02  | 102 | 5.98  | 152 | 15.87 | 403 | 12.99 | 330 | 6.65  | 169  | 29.53 | 750 |
| 8*6   | 200*150 | 5.98  | 152 | 7.99  | 203 | 19.76 | 502 | 13.58 | 345 | 5.83  | 148  | 11.81 | 300 |
| 10*8  | 250*200 | 7.99  | 203 | 10.00 | 254 | 22.36 | 568 | 16.34 | 15  | 7.28  | 35   | 11.81 | 00  |
| 12*10 | 300*250 | 10.00 | 254 | 12.01 | 305 | 25.51 | 648 | 16.81 | 427 | 8.90  | 226  | 19.69 | 500 |
| 14*10 | 350*250 | 12.01 | 305 | 13.27 | 337 | 30.00 | 762 | 16.81 | 427 | 8.90  | 226  | 19.69 | 500 |
| 16*12 | 400*300 | 13.27 | 337 | 15.24 | 387 | 32.99 | 838 | 18.31 | 465 | 10.59 | 269  | 23.62 | 600 |
| 18*14 | 450*350 | 15.24 | 387 | 17.24 | 438 | 35.98 | 914 | 20.43 | 519 | 11.81 | 1300 | 23.62 | 600 |

\*Gear box

## 2-Piece Trunnion Mounted Ball Valve



### 600LB Full Port

| Size |     | D     |     | L     |     | H1    |     | H2    |     | W     |      |
|------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|------|
| in   | mm  | in    | mm  | in    | mm  | in    | mm  | in    | mm  | in    | mm   |
| 2    | 50  | 2.01  | 51  | 11.5  | 292 | 7.87  | 200 | 4.33  | 110 | 10.43 | 265  |
| 3    | 80  | 2.99  | 76  | 14.2  | 356 | 11.81 | 300 | 4.96  | 126 | 11.22 | 285  |
| 4    | 100 | 4.02  | 102 | 17.01 | 432 | 12.40 | 315 | 6.50  | 165 | 11.22 | 285  |
| 6    | 150 | 5.98  | 152 | 22.01 | 559 | 13.19 | 335 | 6.50  | 165 | 11.81 | *300 |
| 8    | 200 | 7.99  | 203 | 25.98 | 660 | 15.94 | 405 | 7.87  | 200 | 11.81 | 300  |
| 10   | 250 | 10.00 | 254 | 30.98 | 787 | 16.81 | 427 | 8.66  | 220 | 11.81 | *300 |
| 12   | 300 | 12.01 | 305 | 32.99 | 838 | 18.31 | 465 | 10.31 | 262 | 19.69 | *500 |
| 14   | 350 | 13.27 | 337 | 35.00 | 889 | 19.92 | 506 | 11.54 | 293 | 23.62 | *600 |
| 16   | 400 | 15.24 | 387 | 39.02 | 991 | 24.49 | 622 | 13.43 | 341 | 23.62 | 600  |

### 600LB Reduce Port

| Size  |         | d     |     | D     |     | L     |      | H1    |     | H2    |     | W     |      |
|-------|---------|-------|-----|-------|-----|-------|------|-------|-----|-------|-----|-------|------|
| in    | mm      | in    | mm  | in    | mm  | in    | mm   | in    | mm  | in    | mm  | in    | mm   |
| 3*2   | 80*50   | 2.01  | 51  | 2.99  | 76  | 14.20 | 356  | 8.11  | 206 | 4.45  | 113 | 15.75 | 400  |
| 4*3   | 100*80  | 2.99  | 76  | 4.02  | 102 | 17.01 | 432  | 12.40 | 315 | 4.45  | 113 | 15.75 | 400  |
| 6*4   | 150*100 | 4.02  | 102 | 5.98  | 152 | 22.01 | 559  | 12.99 | 330 | 5.08  | 129 | 29.53 | 750  |
| 8*6   | 200*150 | 5.98  | 152 | 7.99  | 203 | 25.98 | 660  | 13.58 | 345 | 6.65  | 169 | 39.37 | 1000 |
| 10*8  | 250*200 | 7.99  | 203 | 10.00 | 254 | 30.98 | 787  | 16.34 | 415 | 5.83  | 148 | 11.81 | *300 |
| 12*10 | 300*250 | 10.00 | 254 | 12.01 | 305 | 32.99 | 838  | 16.81 | 427 | 7.28  | 185 | 11.81 | *300 |
| 14*10 | 350*250 | 12.01 | 305 | 13.27 | 337 | 35.00 | 889  | 16.81 | 427 | 7.28  | 185 | 11.81 | *300 |
| 16*12 | 400*300 | 13.27 | 337 | 15.24 | 387 | 39.02 | 991  | 18.31 | 465 | 8.90  | 226 | 19.69 | *500 |
| 18*14 | 450*350 | 15.24 | 387 | 17.24 | 438 | 42.99 | 1092 | 20.43 | 519 | 10.59 | 269 | 23.62 | *600 |

\*Gear box

# 3-Piece Trunnion Mounted Ball Valve Products



## 3-Piece Trunnion Mounted Ball Valve

### Standards

Design and Manufacture: API 6D, BS5351, ASME B16.34

API 608, MSS-SP-72

Face To Face Dimension: ASME B16.10

End flange dimension: ASME B16.5(for NPS≤24); ASME B16.47

series B, ASME B16.47 series A, MSS SP-44(for NPS>24).

BW Connection Dimension: ASME B16.25

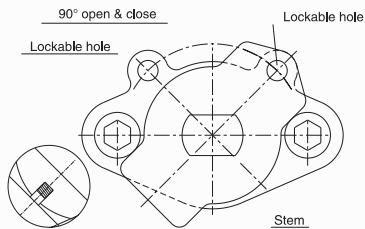
Test And Inspection: API 598

Fire-safe Design: API 607

Anti-static Design&Anti Blow-out Stem

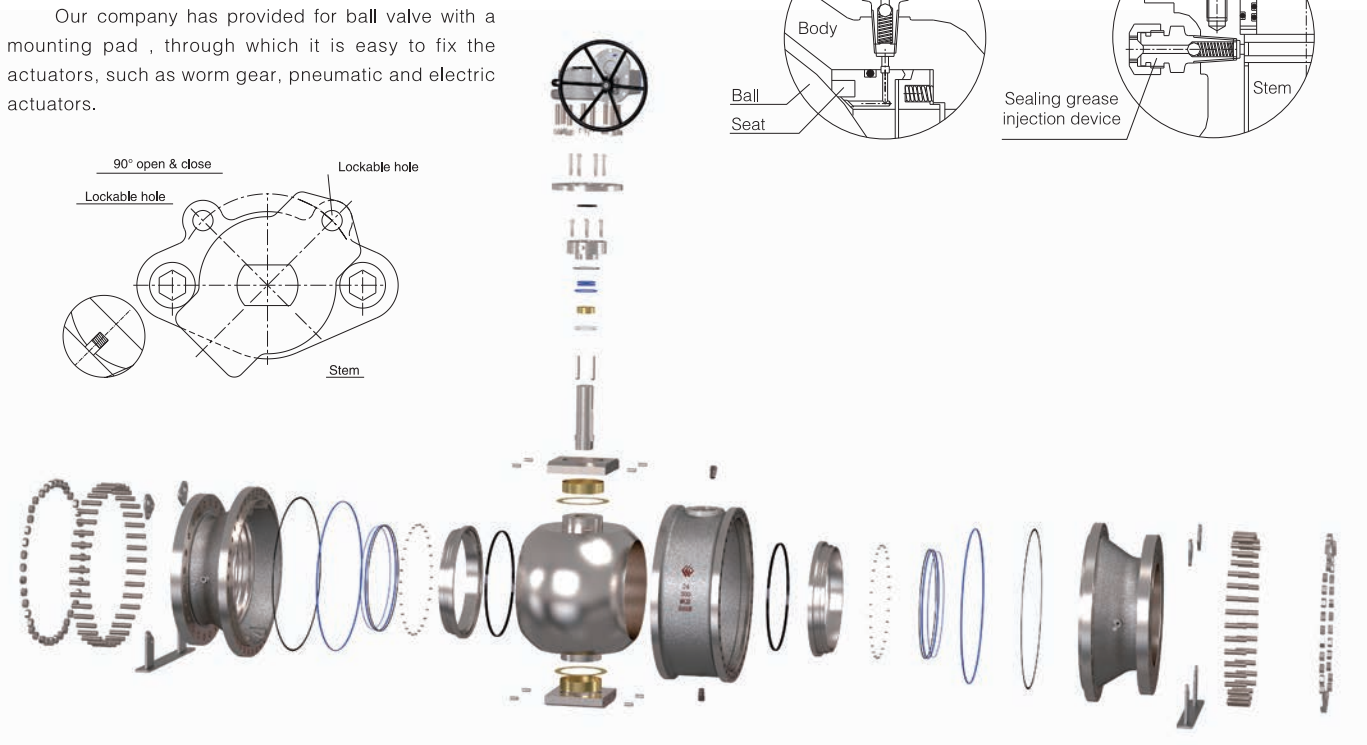
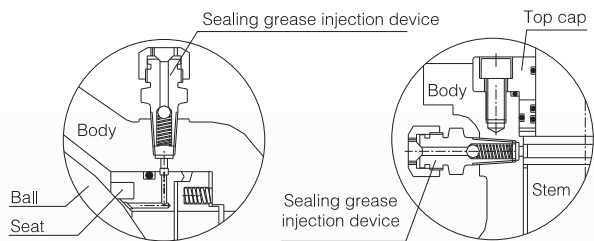
### Mounting pad provided

Our company has provided for ball valve with a mounting pad , through which it is easy to fix the actuators, such as worm gear, pneumatic and electric actuators.



### Urgent grease injection device

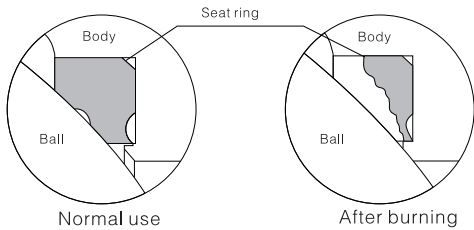
According to customer's requirement, the trunnion ball valves made by our company are provided with devices for urgent grease injection, which are on both the stem and seat for the trunnion ball valves of DN>150mm (NPS6), and in the body cavity for the valve of DN<125mm. When the O ring of stem or the body seat ring is damaged due to accident, the medium leakage between body and stem can be prevented by injecting the sealing grease through the device.



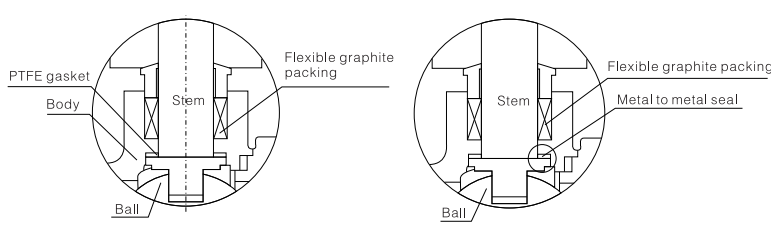
### Fireproof Structure Design

In case of fire during use of valve, the seat ring made of PTFE or other non-metal materials will be decomposed or damaged under high temperature and cause higher leakage. The fireproof seal ring is set between ball and seat so that after the valve seat is burnt, the medium will push the ball rapidly towards the downstream metal seal ring to form the auxiliary metal to metal sealing structure, which can effectively control valve leakage. The fireproof structure design conforms to requirements in API 607, API 6FA, BS 6755 and other standards.

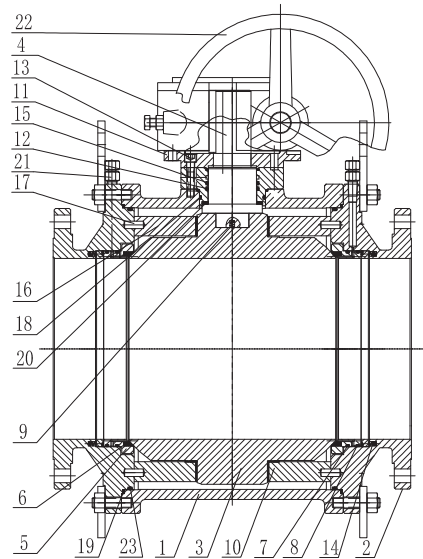
Fireproof Structure Design Of Seat



Fireproof Structure Design Of Stem



## 3-Piece Trunnion Mounted Ball Valve



### TECHNICAL SPECIFICATIONS:

2" – 18"

Up to 350℃

Class 150LB–600LB

### Optional Operating Actuator

Handwheel

Gear Box

Pneumatic

Electric

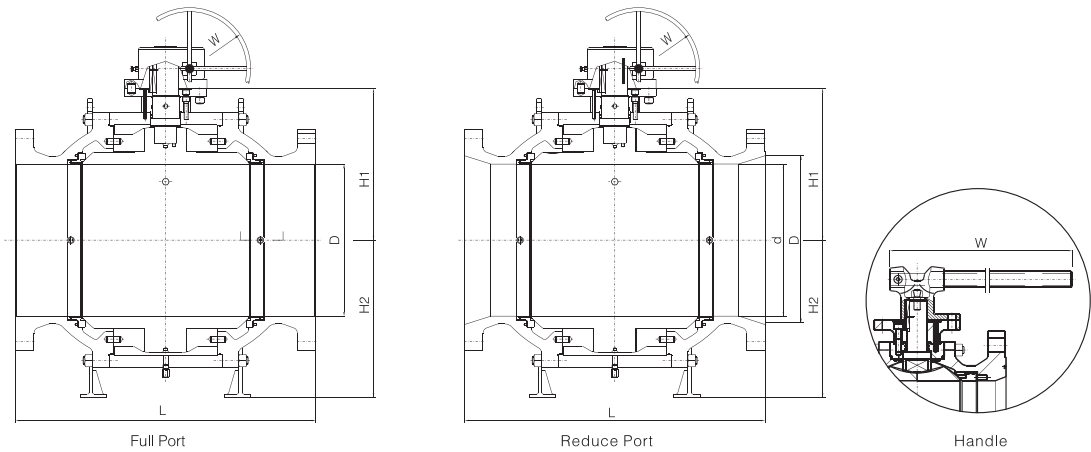
### Material List

| No | Part             | Carbon Steel       |                    | Stainless Steel    |                    |
|----|------------------|--------------------|--------------------|--------------------|--------------------|
|    |                  | A216 WCB           | A352 LCB           | A351 CF8M          | A351 CF8           |
| 1  | Body             | ASTM A216 WCB      | ASTM A352 LCB      | ASTM A351 CF8M     | ASTM A351 CF8      |
| 2  | Body End         | ASTM A216 WCB      | ASTM A352 LCB      | ASTM A351 CF8M     | ASTM A351 CF8      |
| 3  | Ball             | ASTMA105N+ENP      | ASTM A350 LF2+ENP  | ASTMA182 F316      | ASTM A182 F304     |
| 4  | Stem             | ASTMA105N+ENP      | ASTM A350 LF2+ENP  | ASTMA182 F316      | ASTM A182 F304     |
| 5  | Seat Ring        | ASTMA105N+ENP      | ASTM A350 LF2+ENP  | ASTMA182 F316      | ASTM A182 F304     |
| 6  | Seat insert      | PTFE               | PTFE               | PTFE               | PTFE               |
| 7  | O-Ring           | VITON              | VITON              | VITON              | VITON              |
| 8  | Fire Safe Seal   | Graphite           | Graphite           | Graphite           | Graphite           |
| 9  | Grounding Spring | SS304              | SS304              | SS316              | SS304              |
| 10 | Lower Trunnion   | ASTM A105N         | ASTM A350 LF2      | ASTM A182 F316     | ASTM A182 F304     |
| 11 | Gland Cap        | ASTM A105N         | ASTM A350 LF2      | ASTM A182 F316     | ASTM A182 F304     |
| 12 | Gasket           | SS+Graphite        | SS+Graphite        | SS+Graphite        | SS+Graphite        |
| 13 | Buttom Screw     | ASTMA193 B7        | ASTM A320 L7       | ASTM A193 B8       | ASTM A193 B8       |
| 14 | Spring           | Inconel X-750      | Inconel X-750      | Inconel X-750      | InconelX-750       |
| 15 | Fire Safe Gasket | Graphite           | Graphite           | Graphite           | Graphite           |
| 16 | Screw            | ASTMA193 B7        | ASTM A320 L7       | ASTM A193 B8       | ASTM A193 B8       |
| 17 | Position Plate   | ASTM A105N         | ASTM A350 LF2      | ASTM A182 F316     | ASTM A182 F304     |
| 18 | O ring           | Viton A            | Viton A            | Viton A            | Viton A            |
| 19 | Gasket           | SS 304+Graphit     | SS 304+Graphit     | SS 304+Graphit     | SS 304+Graphit     |
| 20 | O ring           | Viton A            | Viton A            | Viton A            | Viton A            |
| 21 | Bolt             | ASTM A193 GR. B7   | ASTM A193 GR. B7   | ASTM A193 GR. B7   | ASTM A193 GR. B7   |
| 22 | Operator         | Handle or Gear box | Handle or Gear box | Handle or Gear box | Handle or Gear box |
| 23 | O ring           | Viton A            | Viton A            | Viton A            | Viton A            |

Note: Different raw materials and trims are available according to application conditions or customer requests



### 3-Piece Trunnion Mounted Ball Valve



150LB Full Port

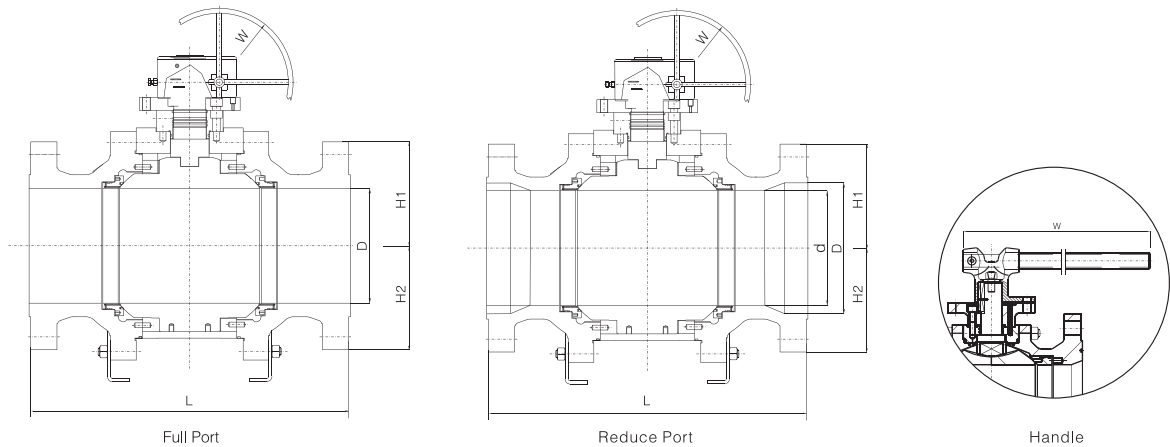
| Size |      | D     |      | L     |      | H1    |      | H2    |      | W     |      |
|------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| in   | mm   | in    | mm   | in    | mm   | in    | mm   | in    | mm   | in    | mm   |
| 16   | 400  | 15.24 | 387  | 30.00 | 762  | 24.49 | 622  | 13.43 | 341  | 23.62 | *600 |
| 18   | 450  | 17.24 | 438  | 34.02 | 864  | 26.22 | 666  | 16.22 | 412  | 23.62 | *600 |
| 20   | 500  | 19.25 | 489  | 35.98 | 914  | 28.74 | 730  | 17.13 | 435  | 23.62 | *600 |
| 22   | 550  | 21.26 | 540  | 39.02 | 991  | 32.80 | 833  | 18.90 | 480  | 23.62 | *600 |
| 24   | 600  | 23.27 | 591  | 42.01 | 1067 | 35.24 | 895  | 20.39 | 518  | 31.50 | *800 |
| 26   | 650  | 25.00 | 635  | 45.00 | 1143 | 35.43 | 900  | 21.06 | 535  | 31.50 | *800 |
| 28   | 700  | 27.01 | 686  | 49.02 | 1245 | 36.81 | 935  | 21.34 | 542  | 31.50 | *800 |
| 30   | 750  | 29.02 | 737  | 50.98 | 1295 | 39.76 | 1010 | 23.82 | 605  | 31.50 | *800 |
| 32   | 800  | 30.75 | 781  | 54.02 | 1372 | 41.73 | 1060 | 25.59 | 650  | 31.50 | *800 |
| 34   | 850  | 32.76 | 832  | 57.99 | 1473 | 42.40 | 1077 | 25.59 | 650  | 31.50 | *800 |
| 36   | 900  | 34.49 | 876  | 60.00 | 1524 | 43.90 | 1115 | 27.56 | 700  | 31.50 | *800 |
| 40   | 1000 | 38.50 | 978  | 67.99 | 1727 | 55.12 | 1400 | 34.06 | 865  | 31.50 | *800 |
| 42   | 1050 | 40.24 | 1022 | 78.23 | 1987 | 62.91 | 1598 | 35.43 | 900  | 31.50 | *800 |
| 48   | 1200 | 45.98 | 1168 | 83.46 | 2120 | 67.80 | 1722 | 41.02 | 1042 | 31.50 | *800 |

150LB Reduce Port

| Size  |           | d     |     | D     |      | L     |      | H1    |      | H2    |     | W     |      |
|-------|-----------|-------|-----|-------|------|-------|------|-------|------|-------|-----|-------|------|
| in    | mm        | in    | mm  | in    | mm   | in    | mm   | in    | mm   | in    | mm  | in    | mm   |
| 18*14 | 450*350   | 13.27 | 337 | 17.24 | 438  | 34.02 | 864  | 19.92 | 506  | 11.54 | 293 | 23.62 | *600 |
| 20*16 | 500*400   | 15.24 | 387 | 19.25 | 489  | 35.98 | 914  | 24.49 | 622  | 13.43 | 341 | 23.62 | *600 |
| 22*18 | 550*450   | 17.24 | 438 | 21.26 | 540  | 39.02 | 991  | 26.22 | 666  | 15.43 | 392 | 23.62 | *600 |
| 24*20 | 600*500   | 19.25 | 489 | 23.27 | 591  | 42.01 | 1067 | 28.74 | 730  | 17.13 | 435 | 23.62 | *600 |
| 26*22 | 650*550   | 21.26 | 540 | 25.00 | 635  | 45.00 | 1143 | 32.80 | 833  | 18.90 | 480 | 23.62 | *800 |
| 28*24 | 700*600   | 23.27 | 591 | 27.01 | 686  | 49.02 | 1245 | 35.24 | 895  | 20.39 | 518 | 31.50 | *800 |
| 30*24 | 750*600   | 23.27 | 591 | 29.02 | 737  | 50.98 | 1295 | 35.24 | 895  | 20.39 | 518 | 31.50 | *800 |
| 32*26 | 800*650   | 25.00 | 635 | 30.75 | 781  | 54.02 | 1372 | 35.43 | 900  | 21.06 | 535 | 31.50 | *800 |
| 34*28 | 850*700   | 27.01 | 686 | 32.76 | 832  | 57.99 | 1473 | 36.81 | 935  | 21.34 | 542 | 31.50 | *800 |
| 36*30 | 900*750   | 29.02 | 737 | 34.49 | 876  | 60.00 | 1524 | 39.76 | 1010 | 23.82 | 605 | 31.50 | *800 |
| 40*34 | 1000*850  | 32.76 | 832 | 38.50 | 978  | 67.99 | 1727 | 42.40 | 1077 | 25.59 | 650 | 31.50 | *800 |
| 42*36 | 1050*900  | 34.49 | 876 | 40.24 | 1022 | 78.23 | 1987 | 43.90 | 1115 | 27.56 | 700 | 31.50 | *800 |
| 48*40 | 1200*1000 | 38.50 | 978 | 45.98 | 1168 | 83.46 | 2120 | 55.12 | 1400 | 34.06 | 865 | 31.50 | *800 |

\*Gear box

### 3-Piece Trunnion Mounted Ball Valve



300LB Full Port

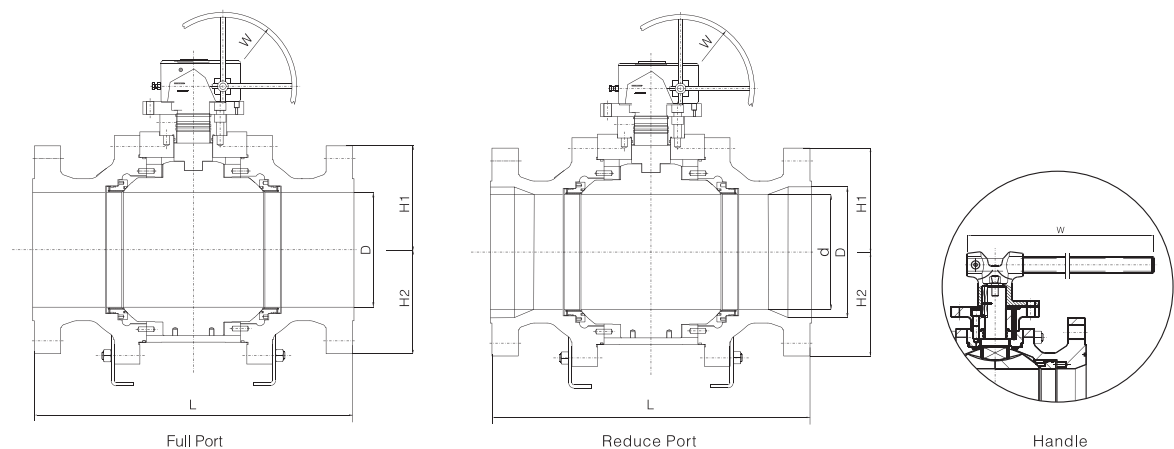
| Size |      | D     |      | L     |      | H1    |      | H2    |      | W     |      |
|------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| in   | mm   | in    | mm   | in    | mm   | in    | mm   | in    | mm   | in    | mm   |
| 16   | 400  | 15.24 | 387  | 32.99 | 838  | 25.12 | 638  | 13.78 | 350  | 23.62 | *600 |
| 18   | 450  | 17.24 | 438  | 35.98 | 914  | 26.89 | 683  | 15.83 | 402  | 23.62 | *600 |
| 20   | 500  | 19.25 | 489  | 39.02 | 991  | 29.45 | 748  | 17.56 | 446  | 23.62 | *600 |
| 22   | 550  | 21.26 | 540  | 42.99 | 1092 | 33.62 | 854  | 19.37 | 492  | 23.62 | *600 |
| 24   | 600  | 23.27 | 591  | 45.00 | 1143 | 36.10 | 91   | 20.91 | 531  | 31.5  | *800 |
| 28   | 700  | 27.01 | 686  | 52.99 | 1346 | 37.72 | 958  | 21.89 | 556  | 31.5  | *800 |
| 30   | 750  | 29.02 | 737  | 55.00 | 1397 | 40.75 | 1035 | 24.41 | 620  | 31.5  | *800 |
| 32   | 800  | 30.75 | 781  | 60.00 | 1524 | 42.80 | 1087 | 26.22 | 666  | 31.5  | *800 |
| 34   | 850  | 32.76 | 832  | 64.02 | 1626 | 43.46 | 1104 | 26.22 | 666  | 31.5  | *800 |
| 36   | 900  | 34.49 | 876  | 67.99 | 1727 | 45.00 | 1143 | 28.27 | 718  | 31.5  | *800 |
| 40   | 1000 | 38.50 | 978  | 75.98 | 1930 | 56.50 | 1435 | 34.92 | 887  | 31.5  | *800 |
| 42   | 1050 | 40.24 | 1022 | 80.00 | 2032 | 64.49 | 1638 | 36.34 | 923  | 31.5  | *800 |
| 48   | 1200 | 45.98 | 1168 | 85.43 | 2170 | 69.49 | 1765 | 42.05 | 1068 | 31.5  | *800 |

300LB Reduce Port

| Size  |           | d     |     | D     |      | L     |      | H1    |      | H2    |     | W     |      |
|-------|-----------|-------|-----|-------|------|-------|------|-------|------|-------|-----|-------|------|
| in    | mm        | in    | mm  | in    | mm   | in    | mm   | in    | mm   | in    | mm  | in    | mm   |
| 16*14 | 400*350   | 13.27 | 337 | 15.24 | 387  | 32.99 | 838  | 20.43 | 519  | 11.81 | 300 | 23.62 | *600 |
| 18*16 | 450*400   | 15.24 | 387 | 17.24 | 438  | 35.98 | 914  | 25.12 | 638  | 13.78 | 350 | 23.62 | *600 |
| 20*18 | 500*450   | 17.24 | 438 | 19.25 | 489  | 39.02 | 991  | 26.89 | 683  | 15.83 | 402 | 23.62 | *600 |
| 22*18 | 550*450   | 17.24 | 438 | 21.26 | 540  | 42.99 | 1092 | 26    | 683  | 15.83 | 402 | 23.62 | *600 |
| 24*20 | 600*500   | 19.25 | 489 | 23.27 | 591  | 45.00 | 1143 | 89    | 748  | 17.56 | 446 | 23.62 | *600 |
| 28*24 | 700*600   | 23.27 | 589 | 27.01 | 686  | 52.99 | 1346 | 33.62 | 854  | 19.37 | 492 | 23.62 | *600 |
| 30*24 | 750*600   | 23.27 | 589 | 29.02 | 737  | 55.00 | 1397 | 36.10 | 917  | 20.91 | 531 | 31.5  | *800 |
| 34*28 | 850*700   | 27.01 | 686 | 32.76 | 832  | 64.02 | 1626 | 37.72 | 958  | 21.89 | 556 | 31.5  | *800 |
| 36*30 | 900*750   | 29.02 | 737 | 34.49 | 876  | 67.99 | 1727 | 40.75 | 1035 | 24.41 | 620 | 31.5  | *800 |
| 40*34 | 1000*850  | 32.76 | 832 | 38.50 | 978  | 75.98 | 1930 | 43.46 | 1104 | 26.22 | 666 | 31.5  | *800 |
| 42*36 | 1050*900  | 34.49 | 876 | 40.24 | 1022 | 80.00 | 2032 | 45.00 | 1143 | 28.27 | 718 | 31.5  | *800 |
| 48*40 | 1200*1000 | 38.50 | 978 | 45.98 | 1168 | 85.43 | 2170 | 56.50 | 1435 | 34.92 | 887 | 31.5  | *800 |

\*Gear box

3-Piece Trunnion Mounted Ball Valve



600LB Full Port

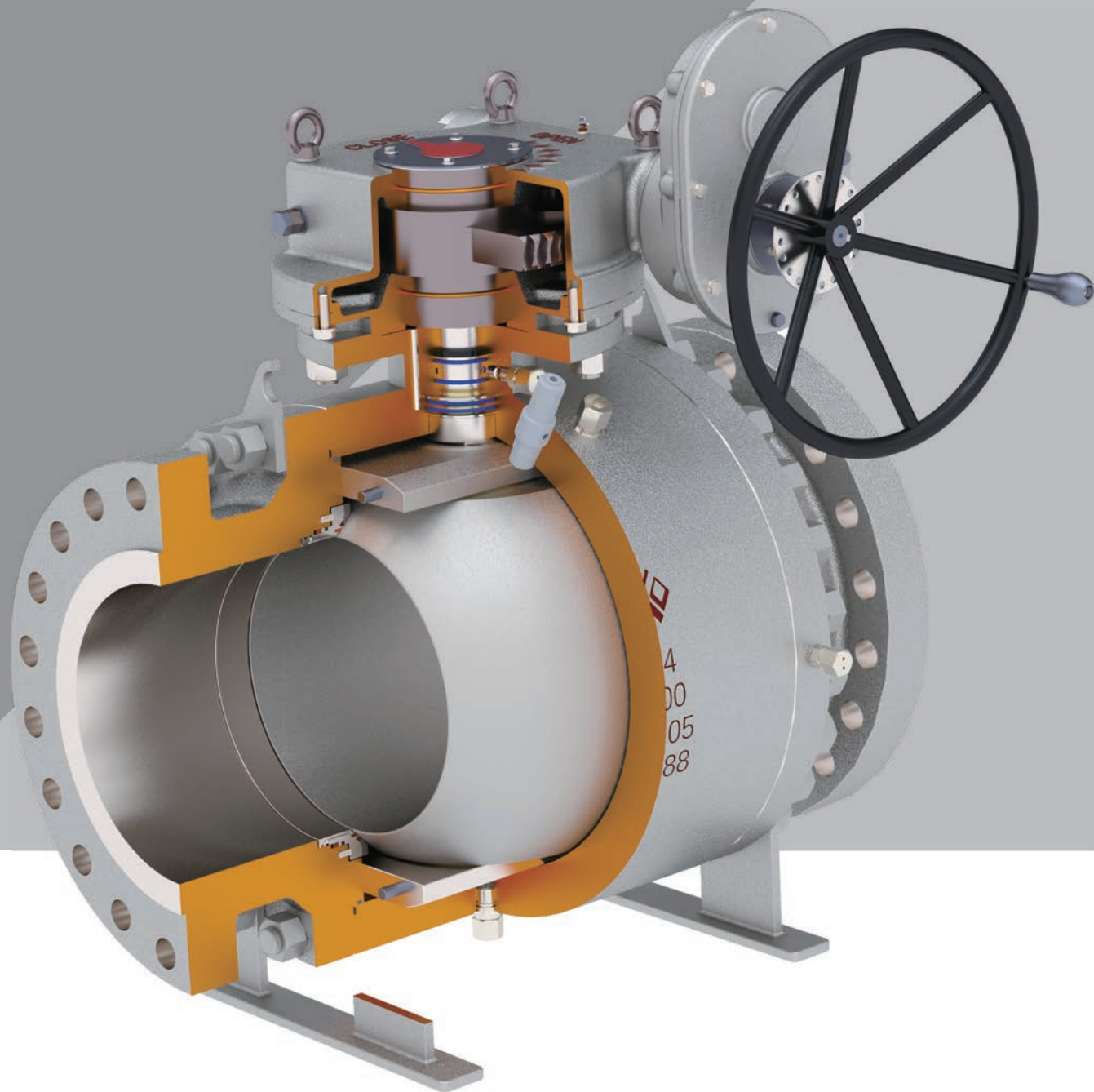
| Size |      | D     |      | L     |      | H1    |      | H2    |      | W     |      |
|------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| in   | mm   | in    | mm   | in    | mm   | in    | mm   | in    | mm   | in    | mm   |
| 16   | 400  | 15    | 387  | 39.02 | 991  | 25.12 | 638  | 13.78 | 350  | 23.62 | *600 |
| 18   | 450  | 17.24 | 438  | 42.99 | 1092 | 26.89 | 683  | 15.83 | 402  | 23.62 | *600 |
| 20   | 500  | 19.25 | 489  | 47.01 | 1194 | 29.45 | 748  | 17.56 | 446  | 23.62 | *600 |
| 22   | 550  | 21.26 | 540  | 50.98 | 1295 | 33.62 | 854  | 19.37 | 492  | 31.5  | *800 |
| 24   | 600  | 23.27 | 591  | 55.00 | 1397 | 36.10 | 917  | 20.91 | 531  | 31.5  | *800 |
| 28   | 700  | 27.01 | 635  | 60.98 | 1549 | 37.72 | 958  | 21.89 | 556  | 31.5  | *800 |
| 30   | 750  | 29.02 | 737  | 65.00 | 1651 | 40.75 | 1035 | 24.41 | 620  | 31.5  | *800 |
| 32   | 800  | 30.75 | 781  | 70.00 | 1778 | 42.80 | 1035 | 26.22 | 666  | 31.5  | *800 |
| 34   | 850  | 32.76 | 832  | 75.98 | 1930 | 43.46 | 1104 | 26.22 | 666  | 31.5  | *800 |
| 36   | 900  | 34.49 | 876  | 82.01 | 2083 | 45.00 | 1143 | 28.27 | 718  | 31.5  | *800 |
| 40   | 1000 | 38.50 | 978  | 85.00 | 2159 | 56.50 | 1435 | 34.92 | 887  | 31.5  | *800 |
| 42   | 1050 | 40.24 | 1022 | 85.63 | 2175 | 64.49 | 1638 | 36.34 | 923  | 31.5  | *800 |
| 48   | 1200 | 45.98 | 1168 | 95.87 | 2435 | 69.49 | 1765 | 42.05 | 1068 | 31.5  | *800 |

600LB Reduce Port

| Size  |           | d     |     | D     |      | L     |      | H1    |      | H2    |     | W     |      |
|-------|-----------|-------|-----|-------|------|-------|------|-------|------|-------|-----|-------|------|
| in    | mm        | in    | mm  | in    | mm   | in    | mm   | in    | mm   | in    | mm  | in    | mm   |
| 16*14 | 400*350   | 13.27 | 337 | 15.24 | 387  | 39.02 | 991  | 20.43 | 519  | 11.81 | 300 | 23.62 | *600 |
| 18*16 | 450*400   | 15.24 | 387 | 17.24 | 438  | 42.99 | 1092 | 25.12 | 638  | 13.78 | 350 | 23.62 | *600 |
| 20*18 | 500*450   | 17.24 | 438 | 19.25 | 489  | 47.01 | 1194 | 26.89 | 683  | 15.83 | 402 | 23.62 | *600 |
| 22*18 | 550*450   | 17.24 | 438 | 21.26 | 540  | 50.98 | 1295 | 26.89 | 683  | 15.83 | 402 | 23.62 | *600 |
| 24*20 | 600*500   | 19.25 | 489 | 23.27 | 591  | 55.00 | 1397 | 29.45 | 748  | 17.56 | 446 | 23.62 | *600 |
| 28*24 | 700*600   | 23.27 | 591 | 27.01 | 686  | 60.98 | 1549 | 33.62 | 854  | 19.37 | 492 | 31.50 | *800 |
| 30*24 | 750*600   | 23.27 | 591 | 29.02 | 737  | 65.00 | 1651 | 36.10 | 917  | 20.91 | 531 | 31.50 | *800 |
| 34*28 | 850*700   | 27.01 | 686 | 32.76 | 832  | 75.98 | 1930 | 37.72 | 958  | 21.89 | 556 | 31.50 | *800 |
| 36*30 | 900*750   | 29.02 | 737 | 34.49 | 876  | 82.01 | 2083 | 40.75 | 1035 | 24.41 | 620 | 31.50 | *800 |
| 40*34 | 1000*850  | 32.76 | 832 | 38.50 | 978  | 85.00 | 2159 | 43.46 | 1104 | 26.22 | 666 | 31.50 | *800 |
| 42*36 | 1050*900  | 34.49 | 876 | 40.24 | 1022 | 85.63 | 2175 | 45.00 | 1143 | 28.27 | 718 | 31.50 | *800 |
| 48*40 | 1200*1000 | 38.50 | 978 | 45.98 | 1168 | 95.87 | 2435 | 56.50 | 1435 | 34.92 | 887 | 31.50 | *800 |

\*Gear box

Forged Steel Trunnion Mounted Ball Valve Products



## Forged Steel Trunnion Mounted Ball Valve

### Standards

Design and Manufacture: API 6D, BS5351, ASME B16.34

API 608, MSS-SP-72

Face To Face Dimension: ASME B16.10

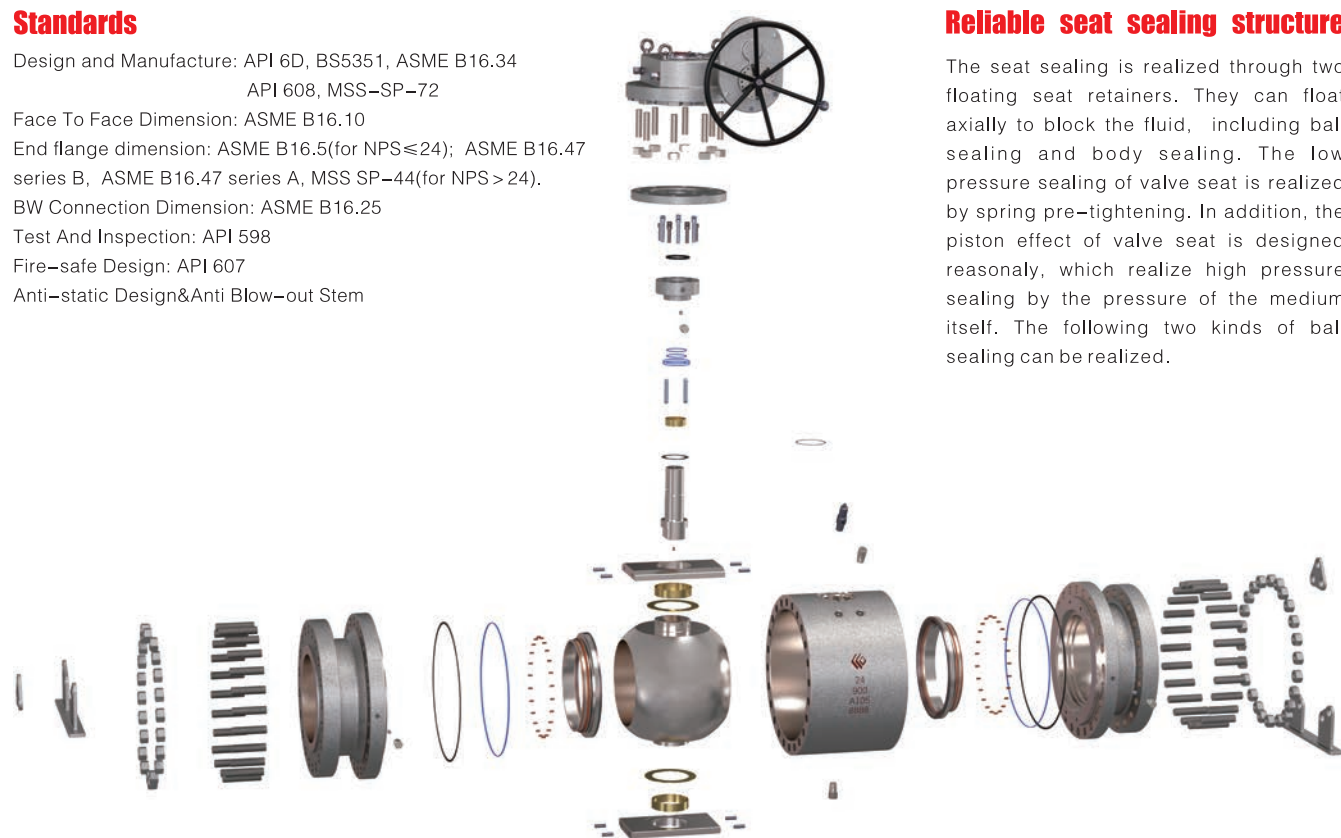
End flange dimension: ASME B16.5(for NPS≤24); ASME B16.47 series B, ASME B16.47 series A, MSS SP-44(for NPS>24).

BW Connection Dimension: ASME B16.25

Test And Inspection: API 598

Fire-safe Design: API 607

Anti-static Design&Anti Blow-out Stem



### Reliable seat sealing structure

The seat sealing is realized through two floating seat retainers. They can float axially to block the fluid, including ball sealing and body sealing. The low pressure sealing of valve seat is realized by spring pre-tightening. In addition, the piston effect of valve seat is designed reasonably, which realize high pressure sealing by the pressure of the medium itself. The following two kinds of ball sealing can be realized.

### Low Operating Torque

The trunnion pipeline ball valve adopts the trunnion ball structure and floating valve seat, so as to achieve lower torque under operating pressure. It uses self lubricating PTFE and metal sliding bearing to reduce the friction coefficient to the lowest in conjunction with the high intensity and high fineness stem.

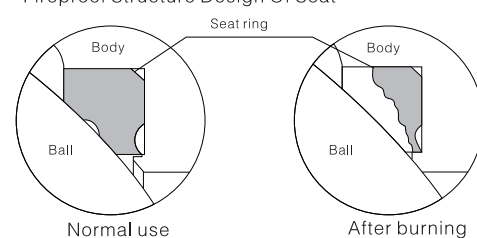
### Emergency Sealing Device

The ball valves with the diameter more than or equal to 6"(DN150) are all designed with sealant injection device on stem and seat. When the seat ring or stem O ring is damaged due to accident, the corresponding sealant can be injected by the sealant injection device to avoid medium leakage on seat ring and stem. If necessary, the auxiliary sealing system can be used for washing and lubricating the seat to maintain its cleanlined.

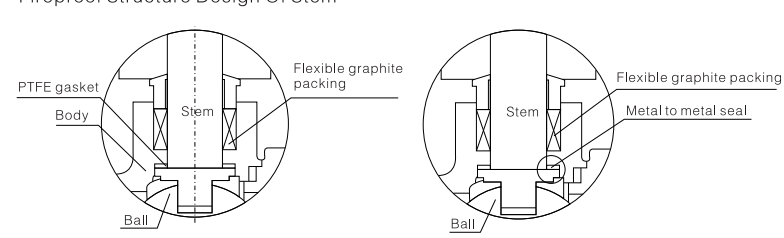
### Fireproof Structure Design

In case of fire during use of valve, the seat ring made of PTFE or other non-metal materials will be decomposed or damaged under high temperature and cause higher leakage. The fireproof seal ring is set between ball and seat so that after the valve seat is burnt, the medium will push the ball rapidly towards the downstream metal seal ring to form the auxiliary metal to metal sealing structure, which can effectively control valve leakage. The fireproof structure design conforms to requirements in API 607, API 6FA, BS 6755 and other standards.

Fireproof Structure Design Of Seat



Fireproof Structure Design Of Stem



## Forged Steel Trunnion Mounted Ball Valve

### Blow-out Proof Stem

The Stem adopts the blow-out proof structure. The stem is designed with the footstep at its bottom so that with the positioning of upper end cover and screw, the stem will not be blown out by the medium even in case of abnormal pressure rise in the valve cavity.

### Corrosion Resistance And Sulfide Stress Resistance

Certain corrosion allowance is left for the body wall thickness. The carbon steel stem, fixed shaft, ball, seat and seat ring are subjected to chemical nickel plating according to ASTM B733 and B656. In addition, various corrosion resistant materials are available for users to select. According to customer requirements, the valve materials can be selected according to NACE MR 0175/ISO 15156 or NACE MR 0103, and strict quality control and quality inspection should be carried out during the manufacturing so as to fully meet the requirements in the standards and meet the service conditions in sulfurization environment.

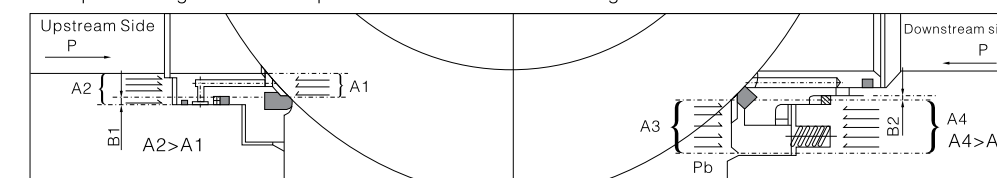
### Extension Stem

As for the embedded valves, the extension stem can be supplied if ground operation is needed. The extension stem is composed of stem, sealant injection valve, and drainage valve that can be extended to the top for the convenience of operation. Users should indicate the extension stem requirements and length when placing orders. For ball valves driven through electric, pneumatic and pneumatic-hydraulic operations, the extension stem length should be from the centre of pipeline to top flange.

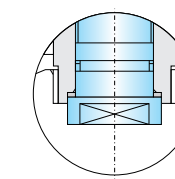
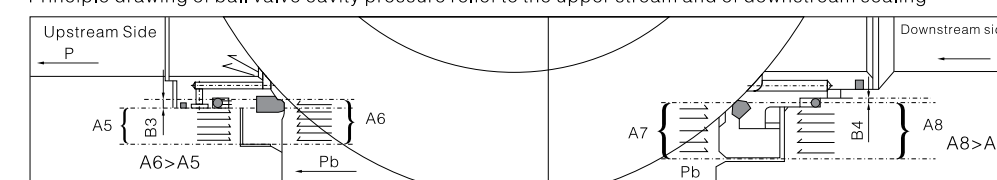
### Secure Structure Of Automatic Pressure Relief Towards Upper Stream

As the ball valve is designed with the advanced primary and secondary sealing that has double piston effect, and the middle cavity cannot realize automatic pressure relief, the ball valve with the special structure is recommended to meet the requirement of automatic pressure relief and ensure no pollution to the environment. In the structure, the upper stream adopts primary sealing and the lower stream adopts primary and secondary sealing. When the ball valve is closed, the pressure in the valve cavity can realize automatic pressure relief to the upper stream, so as to avoid the danger caused by cavity pressure. When the primary seat is damaged and leaks, the secondary seat can also play the function of sealing. But special attention shall be paid to the flow direction of the ball valve. During the installation, note the upstream and downstream directions. Refer to the following drawings for sealing principle of the valve with the special structure.

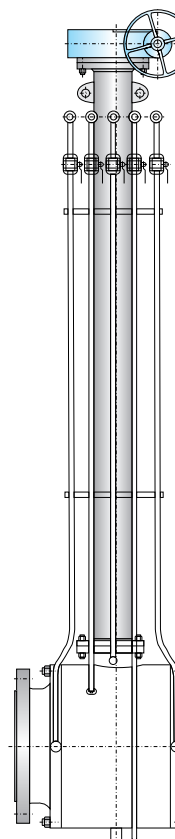
Principle drawing of ball valve upstream and downstream sealing



Principle drawing of ball valve cavity pressure relief to the upper stream and of downstream sealing



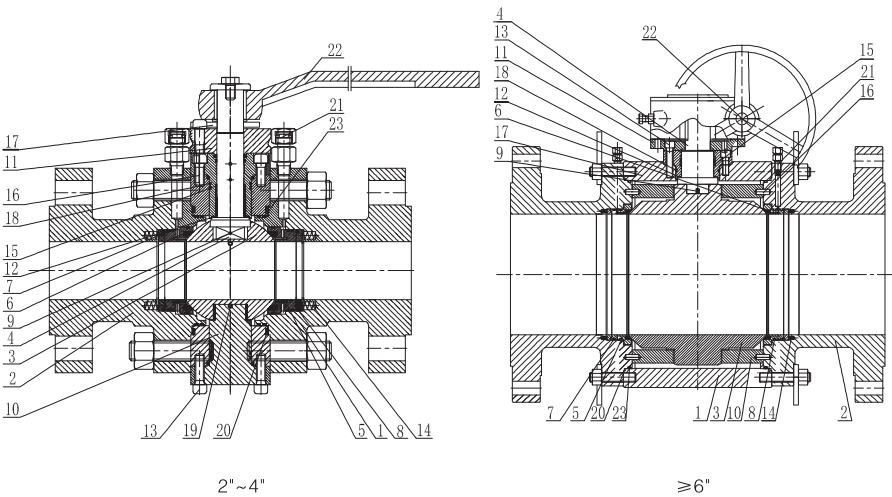
Blow-out proof stem



Schematic diagram of extension stem



## Forged Steel Trunnion Mounted Ball Valve



### TECHNICAL SPECIFICATIONS:



2" – 18"



Up to 350°C



Class 150LB–600LB

### Optional Operating Actuator



Handwheel



Gear Box



Pneumatic



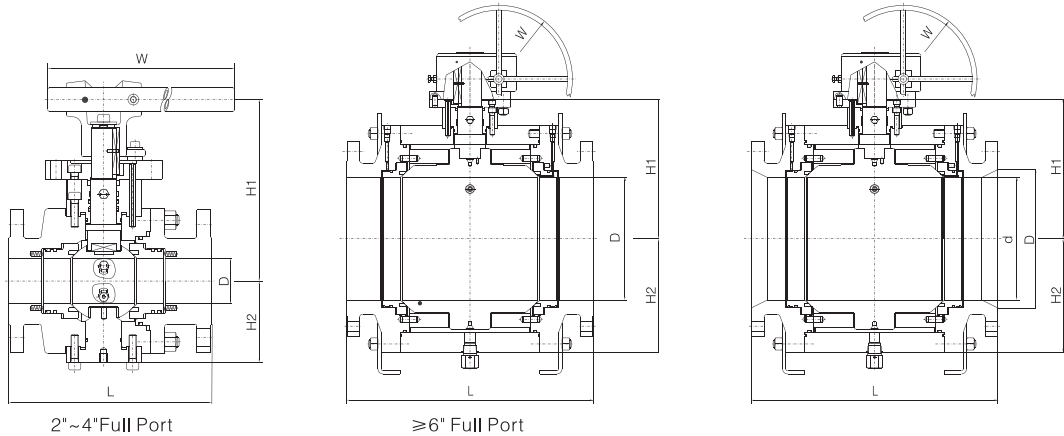
Electric

### Material List

| No | Part             | Carbon Steel       |                    | Stainless Steel    |                    |
|----|------------------|--------------------|--------------------|--------------------|--------------------|
|    |                  | ASTM A105          | ASTM LF2           | A182 F316          | A182 F304          |
| 1  | Body             | ASTM A105N         | ASTM A 350 LF2     | ASTMA182 F316      | ASTM A182 F304     |
| 2  | Body End         | ASTM A105N         | ASTM A350 LF2      | ASTMA182 F316      | ASTM A182 F304     |
| 3  | Ball             | ASTM A105N+ENP     | ASTM A350–LF2+ENP  | ASTM A182–F316     | ASTM A182 F304     |
| 4  | Stem             | ASTM A105N+ENP     | ASTM A350–LF2+ENP  | ASTM A182–F316     | ASTM A182 F304     |
| 5  | Seat Ring        | ASTM A105N+ENP     | ASTM A350–LF2+ENP  | ASTM A182–F316     | ASTM A182 F304     |
| 6  | Seat Insert      | PTFE               | PTFE               | PTFE               | PTFE               |
| 7  | O–ring           | VITON              | VITON              | VITON              | VITON              |
| 8  | Fire Safe Seal   | Graphite           | Graphite           | Graphite           | Graphite           |
| 9  | Grounding Spring | SS304              | SS304              | SS316              | SS316              |
| 10 | Lower Trunnion   | ASTM A105N         | ASTM A350 LF2      | ASTM A182 F316     | ASTM A182 F304     |
| 11 | Gland Cap        | ASTM A105N         | ASTM A350 LF2      | ASTM A182 F316     | ASTM A182 F304     |
| 12 | Gasket           | SS+Graphite        | SS+Graphite        | SS+Graphite        | SS+Graphite        |
| 13 | Buttom Screw     | ASTM A193 B7       | ASTM A320 L7       | ASTM A193 B8       | ASTM A193 B8       |
| 14 | Spring           | Inconel X–750      | Inconel X–750      | Inconel X–750      | Inconel X–750      |
| 15 | Fire Safe Gasket | Graphite           | Graphite           | Graphite           | Graphite           |
| 16 | Screw            | ASTM A193 B7       | ASTM A320 L7       | ASTM A193 B8       | ASTM A193 B8       |
| 17 | Position Plate   | ASTM A105N         | ASTM A350 LF2      | ASTM A182 F316     | ASTM A182 F304     |
| 18 | O ring           | Viton A            | Viton A            | Viton A            | Viton A            |
| 19 | Plug             | A105               | SS304              | SS316              | SS304              |
| 20 | Gasket           | SS 304+Graphit     | SS 304+Graphit     | SS 304+Graphit     | SS 304+Graphit     |
| 21 | Bolt             | ASTM A193 GR. B7   | ASTM A193 GR. B7   | ASTM A193 GR. B7   | ASTM A193 GR. B7   |
| 22 | Operator         | Handle or Gear box | Handle or Gear box | Handle or Gear box | Handle or Gear box |
| 23 | O ring           | Viton A            | Viton A            | Viton A            | Viton A            |

Note: Different raw materials and trims are available according to application conditions or customer requests

## Forged Steel Trunnion Mounted Ball Valve



### 150LB Full Port

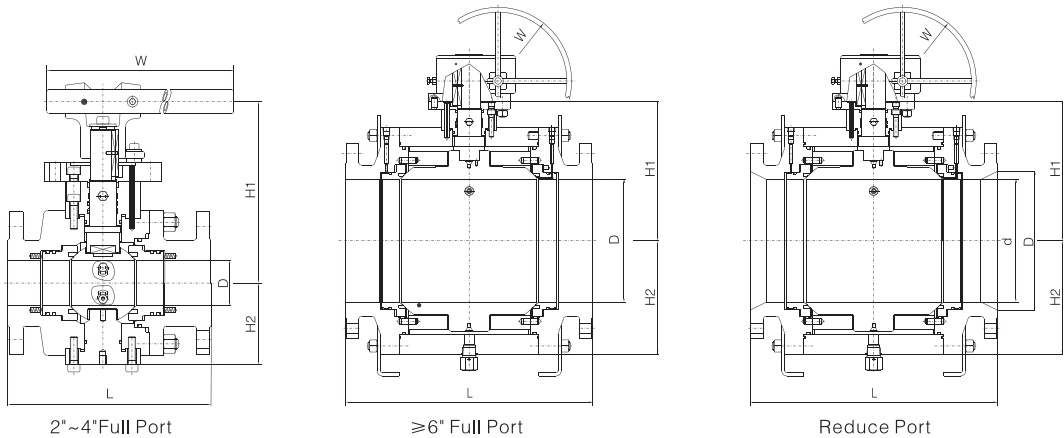
| Nominal diameter |      | D     |      | L     |      | H1    |      | H2    |      | W     |      |
|------------------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| in               | mm   | in    | mm   | in    | mm   | in    | mm   | in    | mm   | in    | mm   |
| 2                | 50   | 2.01  | 51   | 7.01  | 178  | 7.87  | 200  | 4.33  | 110  | 10.43 | 265  |
| 3                | 80   | 2.99  | 76   | 7.99  | 203  | 11.81 | 300  | 4.96  | 126  | 11.22 | 285  |
| 4                | 100  | 4.02  | 102  | 9.02  | 229  | 12.40 | 315  | 6.50  | 165  | 11.22 | 285  |
| 6                | 150  | 5.98  | 152  | 15.51 | 394  | 13.19 | 335  | 6.50  | 165  | 11.81 | *300 |
| 8                | 200  | 7.99  | 203  | 17.99 | 457  | 15.94 | 405  | 7.87  | 200  | 11.81 | *300 |
| 10               | 250  | 10.00 | 254  | 21.02 | 534  | 16.81 | 427  | 8.66  | 220  | 11.81 | *300 |
| 12               | 300  | 12.01 | 305  | 24.02 | 610  | 18.31 | 465  | 10.31 | 262  | 19.69 | *500 |
| 14               | 350  | 13.27 | 337  | 27.01 | 686  | 19.92 | 506  | 11.54 | 293  | 23.62 | *600 |
| 16               | 400  | 15.24 | 387  | 30.00 | 762  | 24.49 | 622  | 13.43 | 341  | 23.62 | *600 |
| 18               | 450  | 17.24 | 438  | 34.02 | 864  | 26.22 | 666  | 16.22 | 412  | 23.62 | *600 |
| 20               | 500  | 19.25 | 489  | 35.98 | 914  | 28.74 | 730  | 17.13 | 435  | 23.62 | *600 |
| 22               | 550  | 21.26 | 540  | 39.02 | 991  | 32.80 | 833  | 18.90 | 480  | 23.62 | *600 |
| 24               | 600  | 23.27 | 591  | 42.01 | 1067 | 35.24 | 895  | 20.39 | 518  | 31.50 | *800 |
| 26               | 650  | 25.00 | 635  | 45.00 | 1143 | 35.43 | 900  | 21.06 | 535  | 31.50 | *800 |
| 28               | 700  | 27.01 | 686  | 49.02 | 1245 | 36.81 | 935  | 21.34 | 542  | 31.50 | *800 |
| 30               | 750  | 29.02 | 737  | 50.98 | 1295 | 39.76 | 1010 | 23.82 | 605  | 31.50 | *800 |
| 32               | 800  | 30.75 | 781  | 54.02 | 1372 | 41.73 | 1060 | 25.59 | 650  | 31.50 | *800 |
| 34               | 850  | 32.76 | 832  | 57.99 | 1473 | 42.40 | 1077 | 25.59 | 650  | 31.50 | *800 |
| 36               | 900  | 34.49 | 876  | 60.00 | 1524 | 43.90 | 1115 | 27.56 | 700  | 31.50 | *800 |
| 40               | 1050 | 38.50 | 978  | 67.99 | 1727 | 55.12 | 1400 | 34.06 | 865  | 31.50 | *800 |
| 42               | 1050 | 40.24 | 1022 | 78.23 | 1987 | 62.91 | 1598 | 35.43 | 900  | 31.50 | *800 |
| 48               | 1200 | 45.98 | 1168 | 83.46 | 2120 | 67.80 | 1722 | 41.02 | 1042 | 31.50 | *800 |

### 150LB Reduce Port

| Nominal diameter |           | d     |     | D     |      | L     |      | H1    |      | H2    |     | W     |      |
|------------------|-----------|-------|-----|-------|------|-------|------|-------|------|-------|-----|-------|------|
| in               | mm        | in    | mm  | in    | mm   | in    | mm   | in    | mm   | in    | mm  | in    | mm   |
| 3*2              | 80*50     | 2.01  | 51  | 2.99  | 76   | 7.99  | 203  | 7.87  | 200  | 4.33  | 110 | 10.43 | *265 |
| 4*3              | 100*80    | 2.99  | 76  | 4.02  | 102  | 9.02  | 229  | 11.81 | 300  | 4.96  | 126 | 11.22 | *285 |
| 6*4              | 150*100   | 4.02  | 102 | 5.98  | 152  | 15.51 | 394  | 12.40 | 315  | 6.50  | 165 | 11.22 | *285 |
| 8*6              | 200*150   | 5.98  | 152 | 7.99  | 203  | 17.99 | 457  | 13.19 | 335  | 6.50  | 165 | 11.81 | *300 |
| 10*8             | 250*200   | 7.99  | 203 | 10.00 | 254  | 21.02 | 534  | 15.94 | 405  | 7.87  | 200 | 11.81 | *300 |
| 12*10            | 300*250   | 10.00 | 254 | 12.01 | 305  | 24.02 | 610  | 16.81 | 427  | 8.66  | 220 | 11.81 | *300 |
| 14*12            | 350*300   | 12.01 | 305 | 13.27 | 337  | 27.01 | 686  | 18.31 | 465  | 10.31 | 262 | 19.69 | *500 |
| 16*14            | 400*350   | 13.27 | 337 | 15.24 | 387  | 30.00 | 762  | 19.92 | 506  | 11.54 | 293 | 23.62 | *600 |
| 18*16            | 450*400   | 15.24 | 387 | 17.24 | 438  | 34.02 | 864  | 24.49 | 622  | 13.43 | 341 | 23.62 | *600 |
| 20*18            | 500*450   | 17.24 | 438 | 19.25 | 489  | 35.98 | 914  | 26.22 | 666  | 16.22 | 412 | 23.62 | *600 |
| 24*20            | 600*500   | 19.25 | 489 | 23.27 | 591  | 42.01 | 1067 | 28.74 | 730  | 17.13 | 435 | 23.62 | *600 |
| 28*24            | 700*600   | 23.27 | 591 | 27.00 | 686  | 49.02 | 1245 | 35.24 | 895  | 20.39 | 518 | 31.50 | *800 |
| 30*24            | 750*600   | 23.27 | 591 | 29.02 | 737  | 50.98 | 1295 | 35.43 | 900  | 21.06 | 535 | 31.50 | *800 |
| 32*26            | 800*650   | 25.00 | 635 | 30.75 | 781  | 54.02 | 1372 | 36.81 | 935  | 21.34 | 542 | 31.50 | *800 |
| 34*28            | 850*700   | 7.01  | 686 | 32.76 | 832  | 57.99 | 1473 | 39.76 | 1010 | 23.82 | 605 | 31.50 | *800 |
| 36*30            | 900*750   | 29.02 | 737 | 34.49 | 876  | 57.99 | 1524 | 41.73 | 1060 | 25.59 | 650 | 31.50 | *800 |
| 40*34            | 1000*850  | 32.76 | 832 | 38.50 | 878  | 67.99 | 1727 | 42.40 | 1077 | 25.59 | 650 | 31.50 | *800 |
| 42*36            | 1050*900  | 34.49 | 876 | 40.24 | 1022 | 78.23 | 1987 | 43.90 | 1115 | 27.56 | 700 | 31.50 | *800 |
| 48*40            | 1200*1000 | 38.50 | 978 | 45.98 | 1168 | 83.46 | 2120 | 55.12 | 1400 | 34.06 | 865 | 31.50 | *800 |

\*Gear box drive

## Forged Steel Trunnion Mounted Ball Valve



### 300LB Full Port

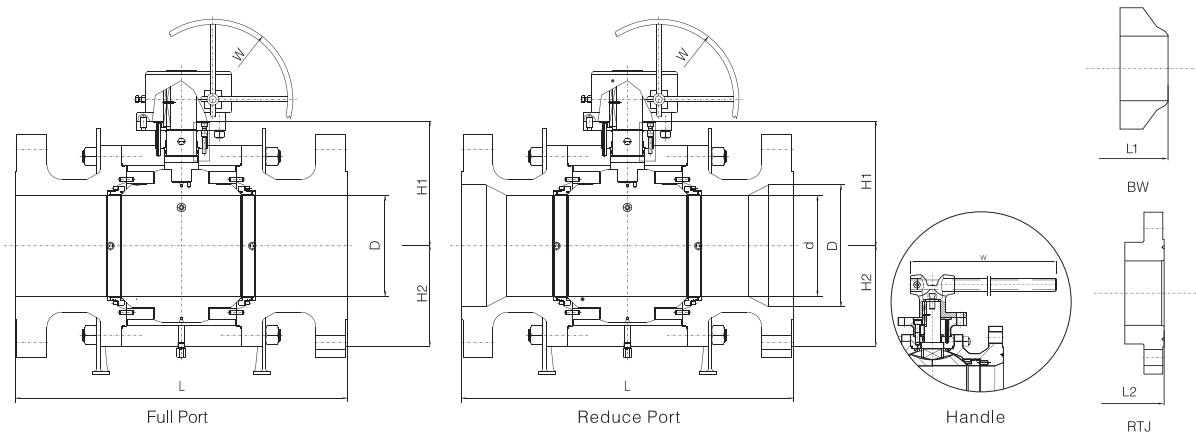
| Nominal diameter |      | D     |      | L     |      | H1    |      | H2    |      | W     |      |
|------------------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| in               | mm   | in    | mm   | in    | mm   | in    | mm   | in    | mm   | in    | mm   |
| 2                | 50   | 2.01  | 51   | 8.5   | 216  | 8.11  | 206  | 4.45  | 113  | 10.43 | 265  |
| 3                | 80   | 2.99  | 76   | 11.14 | 283  | 12.4  | 315  | 5.08  | 129  | 15.75 | 400  |
| 4                | 100  | 4.02  | 102  | 12.01 | 305  | 12.99 | 330  | 6.65  | 169  | 29.53 | 750  |
| 6                | 150  | 5.98  | 152  | 15.87 | 403  | 13.58 | 345  | 5.83  | 148  | 11.81 | *300 |
| 8                | 200  | 7.99  | 203  | 19.76 | 502  | 16.34 | 415  | 7.28  | 185  | 11.81 | *300 |
| 10               | 250  | 10.00 | 254  | 22.36 | 568  | 16.81 | 427  | 8.9   | 226  | 15.75 | *400 |
| 12               | 300  | 12.01 | 305  | 25.51 | 648  | 18.31 | 465  | 10.59 | 269  | 19.69 | *500 |
| 14               | 350  | 13.27 | 337  | 30.00 | 762  | 20.43 | 519  | 11.81 | 300  | 23.62 | *600 |
| 16               | 400  | 15.24 | 387  | 32.99 | 838  | 25.12 | 638  | 13.78 | 350  | 23.62 | *600 |
| 18               | 450  | 17.24 | 438  | 35.98 | 914  | 26.89 | 683  | 15.83 | 402  | 23.62 | *600 |
| 20               | 500  | 19.25 | 489  | 39.02 | 991  | 29.45 | 748  | 17.56 | 446  | 23.62 | *600 |
| 22               | 550  | 21.26 | 540  | 42.99 | 1092 | 33.62 | 854  | 19.37 | 492  | 23.62 | *600 |
| 24               | 650  | 23.27 | 591  | 45.00 | 1143 | 36.1  | 917  | 20.91 | 531  | 31.5  | *800 |
| 28               | 700  | 27.01 | 686  | 52.99 | 1346 | 37.72 | 958  | 21.89 | 556  | 31.5  | *800 |
| 30               | 750  | 29.02 | 737  | 55.00 | 1397 | 40.75 | 1035 | 24.41 | 620  | 31.5  | *800 |
| 32               | 800  | 30.75 | 781  | 60.00 | 1524 | 42.8  | 1087 | 26.22 | 666  | 31.5  | *800 |
| 34               | 850  | 32.76 | 832  | 64.02 | 1626 | 43.46 | 1104 | 26.22 | 666  | 31.5  | *800 |
| 36               | 900  | 34.49 | 876  | 67.99 | 1727 | 45    | 1143 | 28.27 | 718  | 31.5  | *800 |
| 40               | 1050 | 38.50 | 978  | 75.98 | 1930 | 56.5  | 1435 | 34.92 | 887  | 31.5  | *800 |
| 42               | 1050 | 40.24 | 1022 | 80.00 | 2032 | 64.49 | 1638 | 36.34 | 923  | 31.5  | *800 |
| 48               | 1200 | 45.98 | 1168 | 85.43 | 2170 | 69.49 | 1765 | 42.05 | 1068 | 31.5  | *800 |

### 300LB Reduce Port

| Nominal diameter |           | d     |     | D     |      | L     |      | H1    |      | H2    |     | W     |      |
|------------------|-----------|-------|-----|-------|------|-------|------|-------|------|-------|-----|-------|------|
| in               | mm        | in    | mm  | in    | mm   | in    | mm   | in    | mm   | in    | mm  | in    | mm   |
| 3*2              | 80*50     | 2.01  | 51  | 2.99  | 76   | 11.14 | 283  | 8.11  | 206  | 4.45  | 113 | 10.43 | 265  |
| 4*3              | 100*80    | 2.99  | 76  | 4.02  | 102  | 12.01 | 305  | 12.40 | 315  | 5.08  | 129 | 15.75 | 400  |
| 6*4              | 150*100   | 4.02  | 102 | 5.98  | 152  | 15.87 | 403  | 12.99 | 330  | 6.65  | 169 | 29.53 | 750  |
| 8*6              | 200*150   | 5.98  | 152 | 7.99  | 203  | 19.76 | 502  | 13.58 | 345  | 5.83  | 148 | 11.81 | *300 |
| 10*8             | 250*200   | 7.99  | 203 | 10.00 | 254  | 22.36 | 568  | 16.34 | 415  | 7.28  | 185 | 11.81 | *300 |
| 12*10            | 300*250   | 10    | 254 | 12.01 | 305  | 25.51 | 648  | 16.81 | 427  | 8.90  | 226 | 15.75 | *400 |
| 14*12            | 350*300   | 12.01 | 305 | 13.27 | 337  | 30.00 | 762  | 19.31 | 465  | 10.59 | 269 | 19.69 | *500 |
| 16*14            | 400*350   | 13.27 | 337 | 15.24 | 387  | 32.99 | 838  | 20.43 | 519  | 11.81 | 300 | 23.62 | *600 |
| 18*16            | 450*400   | 15.24 | 387 | 17.24 | 438  | 35.98 | 914  | 25.12 | 638  | 13.78 | 350 | 23.62 | *600 |
| 20*18            | 500*450   | 17.24 | 438 | 19.25 | 489  | 39.02 | 991  | 26.89 | 683  | 15.83 | 402 | 23.62 | *600 |
| 22*18            | 550*450   | 17.24 | 438 | 21.26 | 540  | 42.99 | 1092 | 26.89 | 683  | 15.83 | 402 | 23.62 | *600 |
| 24*20            | 600*500   | 19.25 | 489 | 23.27 | 591  | 45.00 | 1143 | 29.45 | 748  | 17.56 | 446 | 23.62 | *600 |
| 28*24            | 700*600   | 23.27 | 591 | 27.01 | 686  | 52.99 | 1346 | 33.62 | 854  | 19.37 | 492 | 23.62 | *600 |
| 30*24            | 750*600   | 23.27 | 591 | 29.02 | 737  | 55.00 | 1397 | 36.10 | 917  | 20.91 | 531 | 31.50 | *800 |
| 34*28            | 850*700   | 27.01 | 686 | 32.76 | 832  | 64.02 | 1626 | 37.72 | 958  | 21.89 | 556 | 31.50 | *800 |
| 36*30            | 900*750   | 29.02 | 737 | 34.49 | 876  | 67.99 | 1727 | 40.75 | 1035 | 24.41 | 620 | 31.50 | *800 |
| 40*34            | 1000*850  | 32.76 | 832 | 38.50 | 978  | 75.98 | 1930 | 43.46 | 1104 | 26.22 | 666 | 31.50 | *800 |
| 42*36            | 1050*900  | 34.49 | 876 | 40.24 | 1022 | 80.00 | 2032 | 45.00 | 1143 | 28.27 | 718 | 31.50 | *800 |
| 48*40            | 1200*1000 | 38.5  | 978 | 45.98 | 1168 | 85.43 | 2170 | 56.50 | 1435 | 34.92 | 887 | 31.50 | *800 |

\*Gear box drive

## Forged Steel Trunnion Mounted Ball Valve



### 600LB Full Port

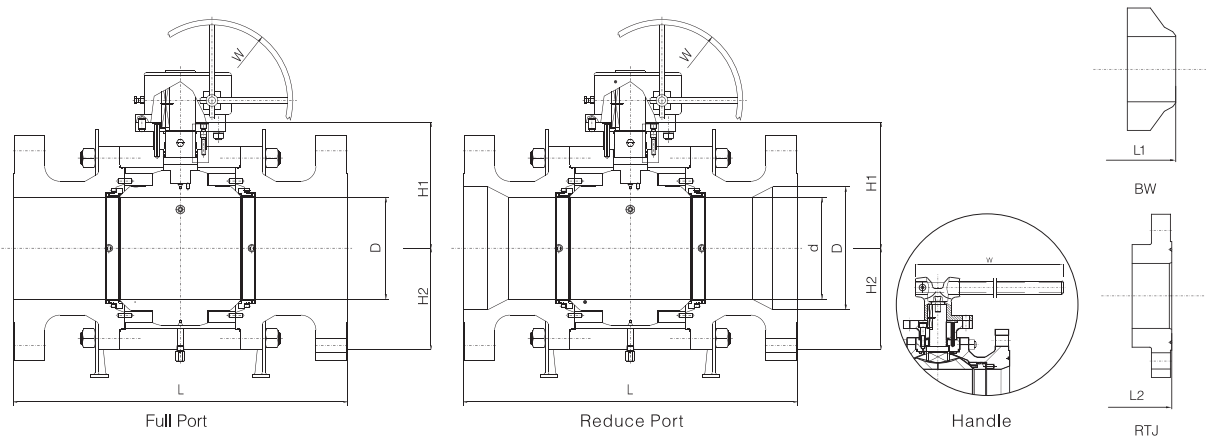
| Nominal diameter |      | D     |      | L     |      | H1    |      | H2    |      | W     |      |
|------------------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| in               | mm   | in    | mm   | in    | mm   | in    | mm   | in    | mm   | in    | mm   |
| 2                | 50   | 2.01  | 51   | 11.50 | 292  | 8.11  | 206  | 4.45  | 113  | 15.75 | 400  |
| 3                | 80   | 2.99  | 76   | 14.02 | 356  | 12.40 | 315  | 5.08  | 129  | 29.53 | 750  |
| 4                | 100  | 4.02  | 102  | 17.01 | 432  | 12.99 | 330  | 6.65  | 169  | 39.37 | 1000 |
| 6                | 150  | 5.98  | 152  | 22.01 | 559  | 13.58 | 345  | 5.83  | 148  | 11.81 | *300 |
| 8                | 200  | 7.99  | 203  | 25.98 | 660  | 16.34 | 415  | 7.28  | 185  | 11.81 | *300 |
| 10               | 250  | 10.00 | 254  | 30.98 | 787  | 16.81 | 427  | 8.9   | 226  | 19.69 | *500 |
| 12               | 300  | 12.01 | 305  | 32.99 | 838  | 18.31 | 465  | 10.59 | 269  | 23.62 | *600 |
| 14               | 350  | 13.27 | 337  | 35.00 | 889  | 20.43 | 519  | 11.81 | 300  | 23.62 | *600 |
| 16               | 400  | 15.24 | 387  | 39.02 | 991  | 25.12 | 638  | 13.78 | 350  | 23.62 | *600 |
| 18               | 450  | 17.24 | 438  | 42.99 | 1092 | 26.89 | 683  | 15.83 | 402  | 23.62 | *600 |
| 20               | 500  | 19.25 | 489  | 47.01 | 1194 | 29.45 | 748  | 17.56 | 446  | 23.62 | *600 |
| 22               | 550  | 21.26 | 540  | 50.98 | 1295 | 33.62 | 854  | 19.37 | 492  | 31.5  | *800 |
| 24               | 600  | 23.27 | 591  | 55.00 | 1397 | 36.10 | 917  | 20.91 | 531  | 31.5  | *800 |
| 28               | 700  | 27.01 | 686  | 60.98 | 1549 | 37.72 | 958  | 21.89 | 556  | 31.5  | *800 |
| 30               | 750  | 29.02 | 737  | 65.00 | 1651 | 40.75 | 1035 | 24.41 | 620  | 31.5  | *800 |
| 32               | 800  | 30.75 | 781  | 70.00 | 1778 | 42.80 | 1087 | 26.22 | 666  | 31.5  | *800 |
| 34               | 850  | 32.76 | 832  | 75.98 | 1930 | 43.46 | 1104 | 26.22 | 666  | 31.5  | *800 |
| 36               | 900  | 34.49 | 876  | 82.01 | 2083 | 45.00 | 1143 | 28.27 | 718  | 31.5  | *800 |
| 40               | 1000 | 38.50 | 978  | 85.00 | 2159 | 56.50 | 1435 | 34.92 | 887  | 31.5  | *800 |
| 42               | 1050 | 40.24 | 1022 | 85.63 | 2175 | 64.49 | 1638 | 36.34 | 923  | 31.5  | *800 |
| 48               | 1200 | 45.98 | 1168 | 95.87 | 2435 | 69.49 | 1765 | 42.05 | 1068 | 31.5  | *800 |

### 600LB Reduce Port

| Nominal diameter |           | d     |     | D     |      | L     |      | H1    |      | H2    |     | W     |      |
|------------------|-----------|-------|-----|-------|------|-------|------|-------|------|-------|-----|-------|------|
| in               | mm        | in    | mm  | in    | mm   | in    | mm   | in    | mm   | in    | mm  | in    | mm   |
| 3*2              | 80*50     | 2.01  | 51  | 2.99  | 76   | 14.20 | 356  | 8.11  | 206  | 4.45  | 113 | 15.75 | 400  |
| 4*3              | 100*80    | 2.99  | 76  | 4.02  | 102  | 17.01 | 432  | 12.40 | 315  | 5.08  | 129 | 29.53 | 750  |
| 6*4              | 150*100   | 4.02  | 102 | 5.98  | 152  | 22.01 | 559  | 12.99 | 330  | 6.65  | 169 | 39.37 | 1000 |
| 8*6              | 200*150   | 5.98  | 152 | 7.99  | 203  | 25.98 | 660  | 13.58 | 345  | 5.83  | 148 | 11.81 | *300 |
| 10*8             | 250*200   | 7.99  | 203 | 10.00 | 254  | 30.98 | 787  | 16.34 | 415  | 7.28  | 185 | 11.81 | *300 |
| 12*10            | 300*250   | 10.00 | 254 | 12.01 | 305  | 32.99 | 838  | 16.81 | 427  | 8.90  | 226 | 19.69 | *500 |
| 14*10            | 350*250   | 10.00 | 254 | 13.27 | 337  | 35.00 | 889  | 18.31 | 465  | 10.59 | 269 | 23.62 | *600 |
| 16*12            | 400*300   | 12.01 | 305 | 15.24 | 387  | 39.02 | 991  | 20.43 | 519  | 11.81 | 300 | 23.62 | *600 |
| 18*14            | 450*350   | 13.27 | 337 | 17.24 | 438  | 42.99 | 1092 | 25.12 | 638  | 13.78 | 350 | 23.62 | *600 |
| 20*16            | 500*400   | 15.24 | 387 | 19.25 | 489  | 47.01 | 1194 | 26.89 | 683  | 15.83 | 402 | 23.62 | *600 |
| 24*20            | 600*500   | 19.25 | 489 | 23.27 | 591  | 55.00 | 1397 | 33.62 | 854  | 19.37 | 492 | 31.50 | *800 |
| 28*24            | 700*600   | 23.27 | 591 | 27.01 | 686  | 60.98 | 1549 | 36.10 | 917  | 20.91 | 531 | 31.50 | *800 |
| 30*24            | 750*600   | 23.27 | 591 | 29.02 | 737  | 65.00 | 1651 | 36.10 | 917  | 20.91 | 531 | 31.50 | *800 |
| 34*28            | 850*700   | 27.01 | 686 | 32.76 | 832  | 75.98 | 1930 | 37.72 | 958  | 21.89 | 556 | 31.50 | *800 |
| 36*30            | 900*750   | 29.02 | 737 | 34.49 | 876  | 82.01 | 2083 | 40.75 | 1035 | 24.41 | 620 | 31.50 | *800 |
| 40*34            | 1000*850  | 32.76 | 832 | 38.50 | 978  | 85.00 | 2159 | 43.46 | 1104 | 26.22 | 666 | 31.50 | *800 |
| 42*36            | 1050*900  | 34.49 | 876 | 40.24 | 1022 | 85.63 | 2175 | 45.00 | 1143 | 28.27 | 718 | 31.50 | *800 |
| 48*40            | 1200*1000 | 38.50 | 978 | 45.98 | 1168 | 95.87 | 2435 | 56.50 | 1435 | 34.92 | 887 | 31.50 | *800 |

\*Gear box drive

## Forged Steel Trunnion Mounted Ball Valve



### 900LB Full Port

| Nominal diameter |     | D     |        | L     |         | H1    |        | H2    |        | W     |      |
|------------------|-----|-------|--------|-------|---------|-------|--------|-------|--------|-------|------|
| in               | mm  | in    | mm     | in    | mm      | in    | mm     | in    | mm     | in    | mm   |
| 2                | 50  | 2.01  | 51.00  | 14.49 | 368.00  | 4.69  | 119.00 | 4.69  | 119.00 | 25.59 | 650  |
| 3                | 80  | 2.99  | 76.00  | 15.00 | 381.00  | 5.24  | 133.00 | 5.24  | 133.00 | 39.37 | 1000 |
| 4                | 100 | 4.02  | 102.00 | 17.99 | 457.00  | 6.93  | 176.00 | 6.93  | 176.00 | 59.06 | 1500 |
| 6                | 150 | 5.98  | 152.00 | 24.02 | 610.00  | 6.02  | 153.00 | 6.02  | 153.00 | 11.81 | *300 |
| 8                | 200 | 7.99  | 203.00 | 29.02 | 737.00  | 7.60  | 193.00 | 7.60  | 193.00 | 15.75 | *400 |
| 10               | 250 | 10.00 | 254.00 | 32.99 | 838.00  | 9.25  | 235.00 | 9.25  | 235.00 | 19.69 | *500 |
| 12               | 300 | 12.01 | 305.00 | 37.99 | 965.00  | 11.02 | 280.00 | 11.02 | 280.00 | 23.62 | *600 |
| 14               | 350 | 12.76 | 324.00 | 40.51 | 1029.00 | 12.28 | 312.00 | 12.28 | 312.00 | 23.62 | *600 |
| 16               | 400 | 14.76 | 375.00 | 44.49 | 1130.00 | 14.37 | 365.00 | 14.37 | 365.00 | 23.62 | *600 |
| 18               | 450 | 16.73 | 425.00 | 47.99 | 1219.00 | 16.30 | 414.00 | 16.30 | 414.00 | 23.62 | *600 |
| 20               | 500 | 18.62 | 473.00 | 52.01 | 1321.00 | 18.07 | 459.00 | 18.07 | 459.00 | 23.62 | *600 |
| 22               | 550 | 20.63 | 524.00 | 55.98 | 1422.00 | 19.96 | 507.00 | 19.96 | 507.00 | 31.50 | *800 |
| 24               | 650 | 22.52 | 572.00 | 60.98 | 1549.00 | 21.54 | 547.00 | 21.54 | 547.00 | 31.50 | *800 |
| 28               | 700 | 26.26 | 667.00 | 69.02 | 1753.00 | 22.56 | 573.00 | 22.56 | 573.00 | 31.50 | *800 |
| 30               | 750 | 28.11 | 714.00 | 74.02 | 1880.00 | 25.12 | 638.00 | 25.12 | 638.00 | 31.50 | *800 |
| 32               | 800 | 30.00 | 762.00 | 80.00 | 2032.00 | 27.01 | 686.00 | 27.01 | 686.00 | 31.50 | *800 |
| 34               | 850 | 31.89 | 810.00 | 85.00 | 2159.00 | 27.09 | 688.00 | 27.09 | 688.00 | 31.50 | *800 |
| 36               | 900 | 33.74 | 857.00 | 90.00 | 2286.00 | 29.09 | 739.00 | 29.09 | 739.00 | 31.50 | *800 |

### 900LB Reduce Port

| Nominal diameter |         | d     |        | D     |        | L     |         | H1    |        | H2    |        | W     |      |
|------------------|---------|-------|--------|-------|--------|-------|---------|-------|--------|-------|--------|-------|------|
| in               | mm      | in    | mm     | in    | mm     | in    | mm      | in    | mm     | in    | mm     | in    | mm   |
| 3*2              | 80*50   | 2.01  | 51.00  | 2.99  | 76.00  | 15.00 | 381.00  | 4.69  | 119.00 | 4.69  | 119.00 | 18.11 | 460  |
| 4*3              | 100*80  | 2.99  | 76.00  | 4.02  | 102.00 | 17.99 | 457.00  | 5.24  | 133.00 | 5.24  | 133.00 | 39.37 | 1000 |
| 6*4              | 150*100 | 4.02  | 102.00 | 5.98  | 152.00 | 24.02 | 610.00  | 6.93  | 176.00 | 6.93  | 176.00 | 59.06 | 1500 |
| 8*6              | 200*150 | 5.98  | 152.00 | 7.99  | 203.00 | 29.02 | 737.00  | 6.02  | 153.00 | 6.02  | 153.00 | 11.81 | *300 |
| 10*8             | 250*200 | 7.99  | 203.00 | 10.00 | 254.00 | 32.99 | 838.00  | 7.60  | 193.00 | 7.60  | 193.00 | 15.75 | *400 |
| 12*10            | 300*250 | 10.00 | 254.00 | 12.01 | 305.00 | 37.99 | 965.00  | 9.25  | 235.00 | 9.25  | 235.00 | 19.69 | *500 |
| 14*12            | 350*300 | 12.01 | 305.00 | 12.76 | 324.00 | 40.51 | 1029.00 | 11.02 | 280.00 | 11.02 | 280.00 | 23.62 | *600 |
| 16*14            | 400*350 | 12.76 | 324.00 | 14.76 | 375.00 | 44.49 | 1130.00 | 12.28 | 312.00 | 12.28 | 312.00 | 23.62 | *600 |
| 18*16            | 450*400 | 14.76 | 375.00 | 16.73 | 425.00 | 47.99 | 1219.00 | 14.37 | 365.00 | 14.37 | 365.00 | 23.62 | *600 |
| 20*18            | 500*450 | 16.73 | 425.00 | 18.62 | 473.00 | 52.01 | 1321.00 | 16.30 | 414.00 | 16.30 | 414.00 | 23.62 | *600 |
| 22*18            | 550*450 | 16.73 | 425.00 | 20.63 | 524.00 | 55.98 | 1422.00 | 18.07 | 459.00 | 18.07 | 459.00 | 23.62 | *600 |
| 24*20            | 600*500 | 18.62 | 473.00 | 22.52 | 572.00 | 60.98 | 1549.00 | 19.96 | 507.00 | 19.96 | 507.00 | 31.50 | *800 |
| 28*24            | 700*600 | 22.52 | 572.00 | 26.26 | 667.00 | 69.02 | 1753.00 | 21.54 | 547.00 | 21.54 | 547.00 | 31.50 | *800 |
| 30*24            | 750*600 | 22.52 | 572.00 | 28.11 | 714.00 | 74.02 | 1880.00 | 21.54 | 547.00 | 21.54 | 547.00 | 31.50 | *800 |
| 34*28            | 850*700 | 26.26 | 667.00 | 31.89 | 810.00 | 85.00 | 2159.00 | 22.56 | 573.00 | 22.56 | 573.00 | 31.50 | *800 |
| 36*30            | 900*750 | 28.11 | 714.00 | 33.74 | 857.00 | 90.00 | 2286.00 | 25.12 | 638.00 | 25.12 | 638.00 | 31.50 | *800 |

\*Gear box drive

## Forged Steel Trunnion Mounted Ball Valve

### 1500LB Full Port

| Nominal diameter |     | D     |     | L     |      | H1    |     | H2    |     | W     |      |
|------------------|-----|-------|-----|-------|------|-------|-----|-------|-----|-------|------|
| in               | mm  | in    | mm  | in    | mm   | in    | mm  | in    | mm  | in    | mm   |
| 2                | 50  | 1.93  | 49  | 14.49 | 368  | 5.31  | 135 | 5.31  | 135 | 25.59 | 650  |
| 3                | 75  | 2.91  | 74  | 18.5  | 470  | 5.71  | 145 | 5.71  | 145 | 39.37 | 1000 |
| 4                | 100 | 4.02  | 102 | 21.5  | 546  | 6.54  | 166 | 6.54  | 166 | 11.81 | *300 |
| 6                | 150 | 5.75  | 146 | 27.76 | 705  | 7.56  | 192 | 7.56  | 192 | 15.75 | 400  |
| 8                | 200 | 7.64  | 194 | 32.76 | 832  | 9.37  | 238 | 9.37  | 238 | 19.69 | *500 |
| 10               | 250 | 9.41  | 239 | 39.02 | 991  | 10.79 | 274 | 10.79 | 274 | 23.62 | *600 |
| 12               | 300 | 11.38 | 289 | 44.49 | 1130 | 12.52 | 318 | 12.52 | 318 | 23.62 | *600 |
| 14               | 350 | 12.52 | 318 | 49.49 | 1257 | 19.02 | 483 | 19.02 | 483 | 23.62 | *600 |
| 16               | 400 | 14.25 | 362 | 54.49 | 1384 | 21.02 | 534 | 21.02 | 534 | 23.62 | *600 |
| 18               | 450 | 16.02 | 407 | 60.51 | 1537 | 23.86 | 606 | 23.86 | 606 | 23.62 | *600 |
| 20               | 500 | 17.99 | 457 | 65.51 | 1664 | 27.01 | 686 | 27.01 | 686 | 31.5  | *800 |
| 22               | 550 | 19.69 | 500 | 71.5  | 1816 | 28.78 | 731 | 28.78 | 731 | 31.5  | *800 |
| 24               | 600 | 21.5  | 546 | 80.43 | 2043 | 30.51 | 775 | 30.51 | 775 | 31,5  | *800 |

### 1500LB Reduce Port

| Nominal diameter |         | d     |     | D     |     | L     |      | H1    |     | H2    |     | W     |      |
|------------------|---------|-------|-----|-------|-----|-------|------|-------|-----|-------|-----|-------|------|
| in               | mm      | in    | mm  | in    | mm  | in    | mm   | in    | mm  | in    | mm  | in    | mm   |
| 3*2              | 75*50   | 1.93  | 49  | 2.91  | 74  | 18.5  | 470  | 5.31  | 135 | 5.31  | 135 | 25.59 | 650  |
| 4*3              | 100*75  | 2.91  | 74  | 4.02  | 102 | 21.5  | 546  | 5.71  | 145 | 5.71  | 145 | 39.37 | 1000 |
| 6*4              | 150*100 | 4.02  | 102 | 5.75  | 146 | 27.76 | 705  | 6.54  | 166 | 6.54  | 166 | 11.81 | *300 |
| 8*6              | 200*150 | 5.75  | 146 | 7.64  | 194 | 32.76 | 832  | 7.56  | 192 | 7.56  | 192 | 15.75 | *400 |
| 10*8             | 250*200 | 7.64  | 194 | 9.49  | 241 | 39.02 | 991  | 9.37  | 238 | 9.37  | 238 | 19.69 | *500 |
| 12*10            | 300*250 | 9.49  | 241 | 11.38 | 289 | 44.49 | 1130 | 10.79 | 274 | 10.79 | 274 | 23.62 | *600 |
| 14*12            | 350*300 | 11.38 | 289 | 12.52 | 318 | 49.49 | 1257 | 12.52 | 318 | 12.52 | 318 | 23.62 | *600 |
| 16*14            | 400*350 | 12.52 | 318 | 14.25 | 362 | 54.49 | 1384 | 19.02 | 483 | 19.02 | 483 | 23.62 | *600 |
| 18*16            | 450*400 | 14.25 | 362 | 15.98 | 406 | 60.51 | 1537 | 21.02 | 534 | 21.02 | 534 | 23.62 | *600 |
| 20*18            | 500*450 | 16.02 | 407 | 17.76 | 451 | 65.51 | 1664 | 23.86 | 606 | 23.86 | 606 | 23.62 | *600 |
| 22*18            | 550*450 | 16.02 | 407 | 19.49 | 495 | 71.5  | 1816 | 23.86 | 606 | 23.86 | 606 | 23.62 | *600 |
| 24*20            | 600*500 | 17.99 | 457 | 20.98 | 533 | 80.43 | 2043 | 27.01 | 686 | 27.01 | 686 | 31.5  | *800 |

### 2500LB Full Port

| Nominal diameter |     | D     |     | L-L1(RF-BW) |      | L2(RTJ) |      | H1    |     | H2    |     | W     |      |
|------------------|-----|-------|-----|-------------|------|---------|------|-------|-----|-------|-----|-------|------|
| in               | mm  | in    | mm  | in          | mm   | in      | mm   | in    | mm  | in    | mm  | in    | mm   |
| 2                | 50  | 1.73  | 44  | 17.76       | 451  | 17.87   | 454  | 9.41  | 239 | 5.63  | 143 | 15.75 | *400 |
| 3                | 80  | 2.52  | 64  | 22.76       | 578  | 22.99   | 584  | 10.43 | 265 | 7.52  | 191 | 19.69 | *500 |
| 4                | 100 | 3.5   | 89  | 26.5        | 673  | 26.89   | 683  | 11.1  | 282 | 7.83  | 199 | 19.69 | *500 |
| 6                | 150 | 5.24  | 133 | 35.98       | 914  | 36.5    | 927  | 20.59 | 523 | 11.77 | 299 | 23.62 | *600 |
| 8                | 200 | 7.13  | 181 | 40.24       | 1022 | 40.87   | 1038 | 24.21 | 615 | 14.88 | 378 | 27.56 | *700 |
| 10               | 250 | 8.86  | 225 | 50          | 1270 | 50.87   | 1292 | 23.03 | 585 | 17.13 | 435 | 29.92 | *760 |
| 12               | 300 | 10.51 | 267 | 55.98       | 1422 | 56.85   | 1444 | 27.72 | 704 | 21.26 | 540 | 29.92 | *760 |

### 2500LB Reduce Port

| Nominal diameter |         | d    |     | D     |     | L-L1(RF-BW) |      | L2(RTJ) |      | H1    |     | H2    |     | W     |      |
|------------------|---------|------|-----|-------|-----|-------------|------|---------|------|-------|-----|-------|-----|-------|------|
| in               | mm      | in   | mm  | in    | mm  | in          | mm   | in      | mm   | in    | mm  | in    | mm  | in    | mm   |
| 3*2              | 80*50   | 1.73 | 44  | 2.52  | 64  | 22.76       | 578  | 22.99   | 584  | 9.41  | 239 | 5.63  | 143 | 15.75 | *400 |
| 4*3              | 100*80  | 2.52 | 64  | 3.5   | 89  | 26.5        | 673  | 26.89   | 683  | 10.43 | 265 | 7.52  | 191 | 19.69 | *500 |
| 6*4              | 150*100 | 3.5  | 89  | 5.24  | 133 | 35.98       | 914  | 36.5    | 927  | 11.1  | 282 | 7.83  | 199 | 19.69 | *500 |
| 8*6              | 200*150 | 5.24 | 133 | 7.13  | 181 | 40.24       | 1022 | 40.87   | 1038 | 20.59 | 523 | 11.77 | 299 | 23.62 | *600 |
| 10*8             | 250*200 | 7.13 | 181 | 8.86  | 225 | 50          | 1270 | 50.87   | 1292 | 24.21 | 615 | 14.88 | 378 | 27.56 | *700 |
| 12*10            | 300*250 | 8.86 | 225 | 10.51 | 267 | 55.98       | 1422 | 56.85   | 1444 | 23.03 | 585 | 17.13 | 435 | 29.92 | *760 |

\*Gear box drive



Operating Torque

| Size  | 150LB (2.0MPa) |            |              | 300LB (5.0MPa) |            |              | 600LB (10.0MPa) |            |              |
|-------|----------------|------------|--------------|----------------|------------|--------------|-----------------|------------|--------------|
| in    | N.M            | Flange No. | Stem Diamete | N.M            | Flange No. | Stem Diamete | N.M             | Flange No. | Stem Diamete |
| 11/2" | 50             | F10        | 22           |                | F10        | 22           | 90              | F10        | 22           |
| 2"    | 80             | F10        | 27           | 130            | F10        | 27           | 150             | F10        | 27           |
| 3"    | 110            | F12        | 36           | 160            | F12        | 36           | 250             | F12        | 36           |
| 4"    | 160            | F12        | 36           | 240            | F12        | 36           | 480             | F14        | 40           |
| 5"    | 300            | F14        | 48           | 450            | F14        | 48           | 800             | F14        | 48           |
| 8"    | 800            | F14        | 48           | 1200           | F14        | 48           | 2000            | F16        | 58           |
| 10"   | 1000           | F16        | 58           | 1700           | F16        | 58           | 3000            | F25        | 75           |
| 12"   | 1800           | F16        | 58           | 2700           | F16        | 58           | 3800            | F25        | 75           |
| 14"   | 2500           | F25        | 75           | 3700           | F25        | 75           | 5800            | F30        | 98           |
| 16"   | 3500           | F25        | 75           | 4500           | F25        | 75           | 9500            | F30        | 98           |
| 18"   | 4500           | F30        | 98           | 5350           | F30        | 98           | 14000           | F30        | 105          |
| 20"   | 5500           | F30        | 98           | 8500           | F30        | 98           | 18000           | F30        | 115          |
| 22"   | 7150           | F30        | 98           | 10500          | F30        | 98           | 20000           | F30        | 115          |
| 24"   | 9500           | F30        | 98           | 15500          | F30        | 115          | 25000           | F35        | 130          |
| 26"   | 10800          | F30        | 115          | 18500          | F30        | 115          | 30000           | F35        | 130          |
| 28"   | 12800          | F30        | 120          | 27300          | F30        | 120          | 35000           | F35        | 130          |
| 30"   | 16500          | F30        | 120          | 30500          | F30        | 120          | 41500           | F40        | 160          |
| 32"   | 20500          | F30        | 120          | 36000          | F30        | 120          | 48000           | F40        | 160          |
| 34"   | 24000          | F30        | 120          | 42000          | F30        | 120          | 53000           | F40        | 160          |
| 36"   | 36000          | F30        | 120          | 51000          | F40        | 160          | 58000           | F40        | 160          |
| 40"   |                |            |              |                |            |              | 67000           | F48        | 180          |

| Size | 900LB (16.0MPa) |            |              | 1500LB (25.0MPa) |            |              | 2500LB (42.0MPa) |            |              |
|------|-----------------|------------|--------------|------------------|------------|--------------|------------------|------------|--------------|
| in   | N.M             | Flange No. | Stem Diamete | N.M              | Flange No. | Stem Diamete | N.M              | Flange No. | Stem Diamete |
| 2"   | 200             | F10        | 27           | 220              | F10        | 27           | 400              | F12        | 36           |
| 3"   | 450             | F12        | 36           | 550              | F12        | 36           | 1000             | F14        | 40           |
| 4"   | 850             | F14        | 40           | 1000             | F14        | 40           | 1900             | F16        | 48           |
| 5"   | 1500            | F16        | 48           | 2500             | F16        | 48           | 4800             | F16        | 58           |
| 8"   | 3500            | F16        | 58           | 5000             | F16        | 58           | 5500             | F25        | 75           |
| 10"  | 5200            | F25        | 75           | 8000             | F25        | 75           | 9200             | F25        | 85           |
| 12"  | 7000            | F25        | 75           | 12000            | F25        | 85           | 20000            | F30        | 98           |
| 14"  | 11000           | F30        | 98           | 18000            | F30        | 105          |                  |            |              |
| 16"  | 15500           | F30        | 105          | 22000            | F30        | 115          |                  |            |              |
| 18"  | 22500           | F30        | 115          | 31500            | F35        | 130          |                  |            |              |
| 20"  | 27000           | F30        | 115          | 40000            | F35        | 130          |                  |            |              |
| 22"  | 31000           | F35        | 130          | 48000            | F40        | 150          |                  |            |              |
| 24"  | 38000           | F35        | 130          | 65000            | F40        | 155          |                  |            |              |

Note: 1. Above Torque value are calculated based on room temperature, if other size torque required, please contact with WELKIN Valves.  
2. When sizing the actuator, please consider safety fact 1.2–1.5.  
3. For more details, the valve torque will be changed under different working temperature, and the torque will be changed for different seat materials.  
please contact with WELKIN Valves.

Flow Coefficient (CV Value)

| SIZE(inch) | 150LB  | 300LB  | 600LB | 900LB | 1500LB | 2500LB |
|------------|--------|--------|-------|-------|--------|--------|
| 1/2        | 25     | 25     | 25    | 25    | 25     | 25     |
| 3/4        | 53     | 53     | 53    | 53    | 53     | 53     |
| 1–1/2      | 92     | 92     | 92    | 92    | 92     | 92     |
| 1          | 213    | 213    | 213   | 213   | 213    | 213    |
| 2          | 500    | 430    | 370   | 320   | 320    | 260    |
| 3          | 1360   | 1100   | 1020  | 920   | 820    | 567    |
| 4          | 2500   | 2000   | 1850  | 1760  | 1600   | 1117   |
| 6          | 5300   | 5250   | 4400  | 4300  | 4150   | 2532   |
| 8          | 10750  | 10100  | 8450  | 8475  | 8010   | 4728   |
| 10         | 17500  | 16820  | 14250 | 14160 | 13220  | 7338   |
| 12         | 26750  | 25950  | 22550 | 21200 | 18800  | 10363  |
| 44         | 31850  | 30900  | 28500 | 26700 | 24180  | 12582  |
| 16         | 44000  | 42600  | 38150 | 36600 | 33150  | 16363  |
| 18         | 58000  | 55870  | 51150 | 4900  | 45703  | 20641  |
| 20         | 75500  | 72500  | 68500 | 64600 | 60750  | 25906  |
| 22         | 91770  | 86850  | 80150 |       |        |        |
| 24         | 113400 | 109340 | 98860 |       |        |        |

\*Other elastomer materials are available upon request.

Notes

1. All the sizes are in full port.

2. Pressure Ratings are according to B 16.34.

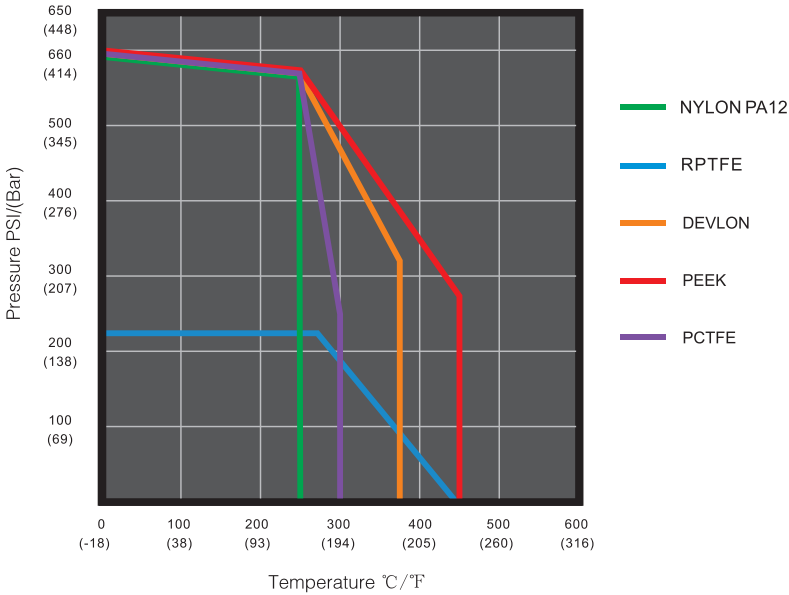
Method of Calculating Flow

The Flow Coefficient Cv of a value is the flow rate of water (gallons/minute)Through a fully opened valve, with a pressure drop of 1 psi across the valve. To find the flow of liquid through the valve from the Cv, use the following formulas:

Liquid Flow:  
 $QL=Cv(P/G)^{1/2}$   
QL=Flow rate of liquid (gal./min)  
P=Differential pressure across the valve  
G=Specific gravity of liquid (for water, G=1)

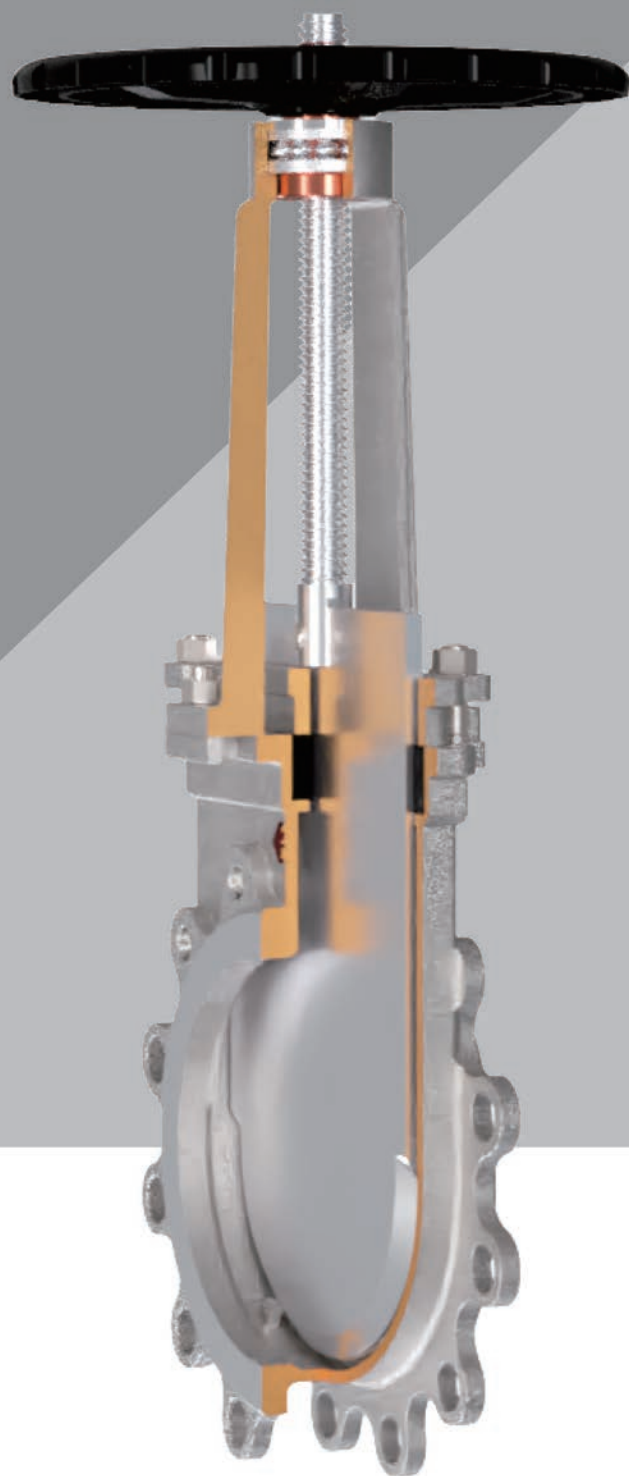
Gas Flow:  
 $Qg=61Cv(P2P/g)^{1/2}$   
(For non–critical flow, P/P<1.0)  
QL=Flow rate of gas (CFH at STP)  
P2=Outlet pressure(psia)  
G=specific gravity of gas (for air, g=1.0)

Pressure Temperature Chart



# Knife Gate Valve

## Products



# Knife Gate Valve

### General features

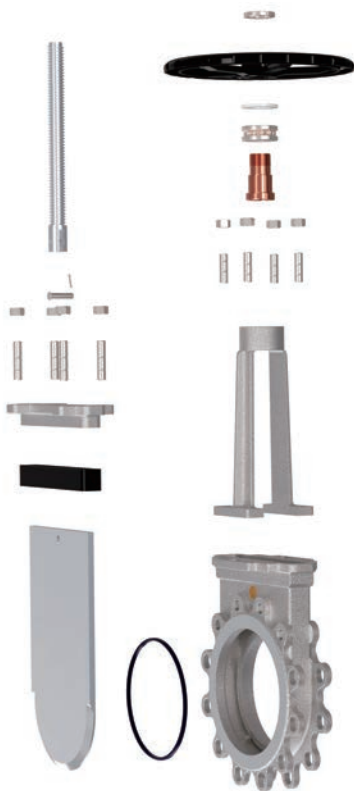
Bi-Directional  
Soft/ Metal Seal  
Limit Nut Protecting Gate Blade  
Auto adjustable Packing

### Related Standard

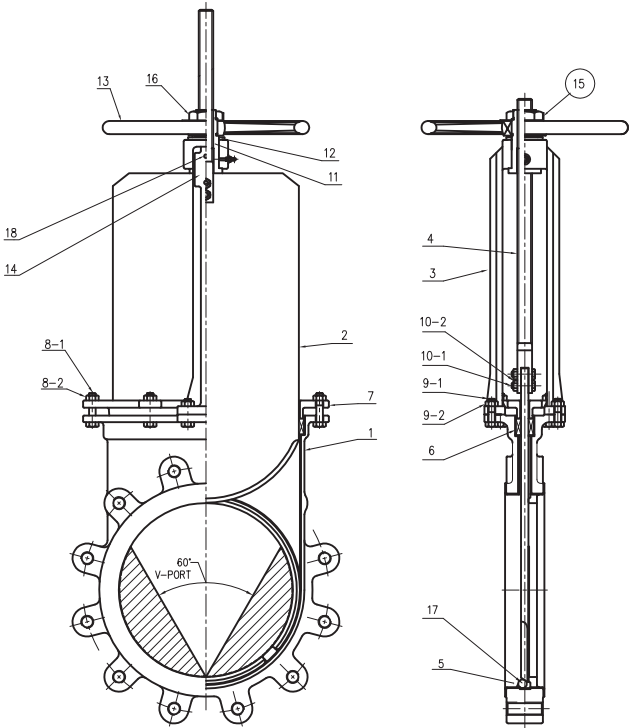
Design: MSS SP-81  
Face to Face: MSS SP-81  
Flange: EN1092-1/ ASME 16.5/ MSS SP-44(SIZE ≥ 22")  
Testing: API 598(Soft Seal)/ MSS SP-81(Metal Seal)  
Material: NACE MR0175/ ISO 15156-3

### Official approvals

Nominal Pressure: PN10/ PN16/ PN25/ 150LB/ 300LB  
Nominal Diameter: DN50-2000mm/ NPS 2"-80"  
Temperature: -33~1100℃ ( Depending on medium and seal material)  
Leakage Class: liquid 0.1XDN mm³/s (Metal seat)/ Class A(Soft seal: 0 leakage)  
Drive Method: Handwheel/ Gear Box/ Pneumatic/ Electric Actuator

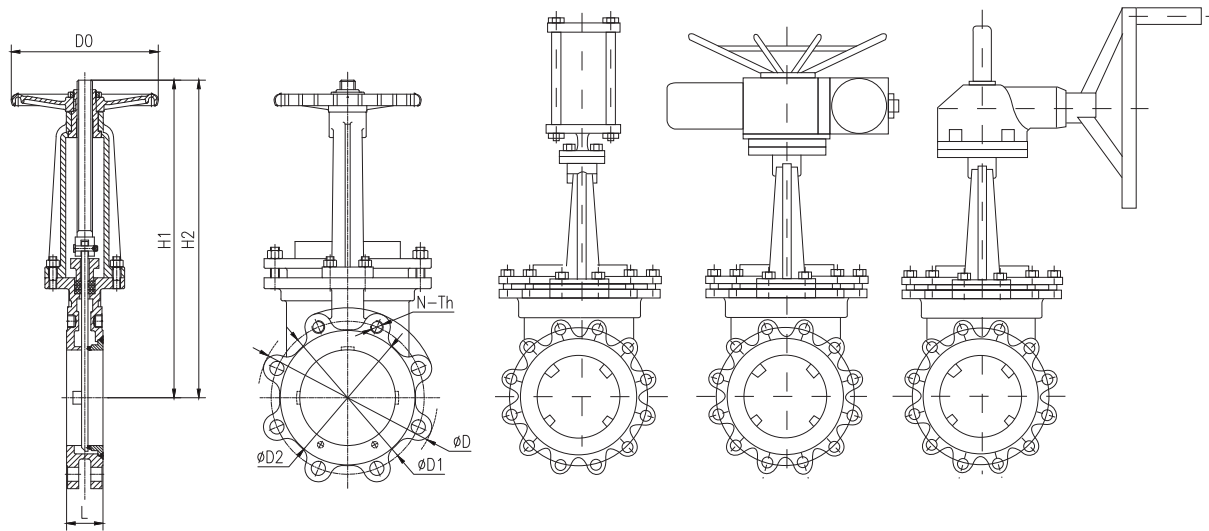


### Material List



| No   | Part           | Standard                      |
|------|----------------|-------------------------------|
| 1    | BODY           | DI/ Duplex/ CF8M steel        |
| 2    | KNIFE BLADE    | A240-316                      |
| 4    | YOKE           | A216-WCB                      |
| 5    | STEM           | A276-410                      |
| 6    | BODY SEAT RING | EPDM/ RUBBER/A240-316/ Duplex |
| 7    | PACKING        | NON-ASBESTOS                  |
| 8-1  | PACKING GLAND  | A216-WCB                      |
| 8-2  | GLAND BOLT     | A193 B7/ B8(M)                |
| 9-1  | GLAND NUT      | A194 2H/ 8                    |
| 9-2  | YOKE BOLT      | A193 B7/ B8(M)                |
| 10-1 | YOKE NUT       | A194 2H/ 8                    |
| 10-2 | DISC BOLT      | A193 B7/ B8(M)                |
| 11   | DISC NUT       | A194 2H/ 8                    |
| 12   | YOKE SLEEVE    | BRASS                         |
| 13   | THRUST WASHER  | BRASS                         |
| 14   | HAND WHEEL     | A338                          |
| 15   | NAME PLATE     | ALUMINUM                      |
| 16   | LOCK WASHER    | A240-304                      |
| 17   | WHEEL NUT      | BRASS,STEEL                   |
| 18   | BOTTOM STOPPER | A240-316                      |

Knife Gate Valve

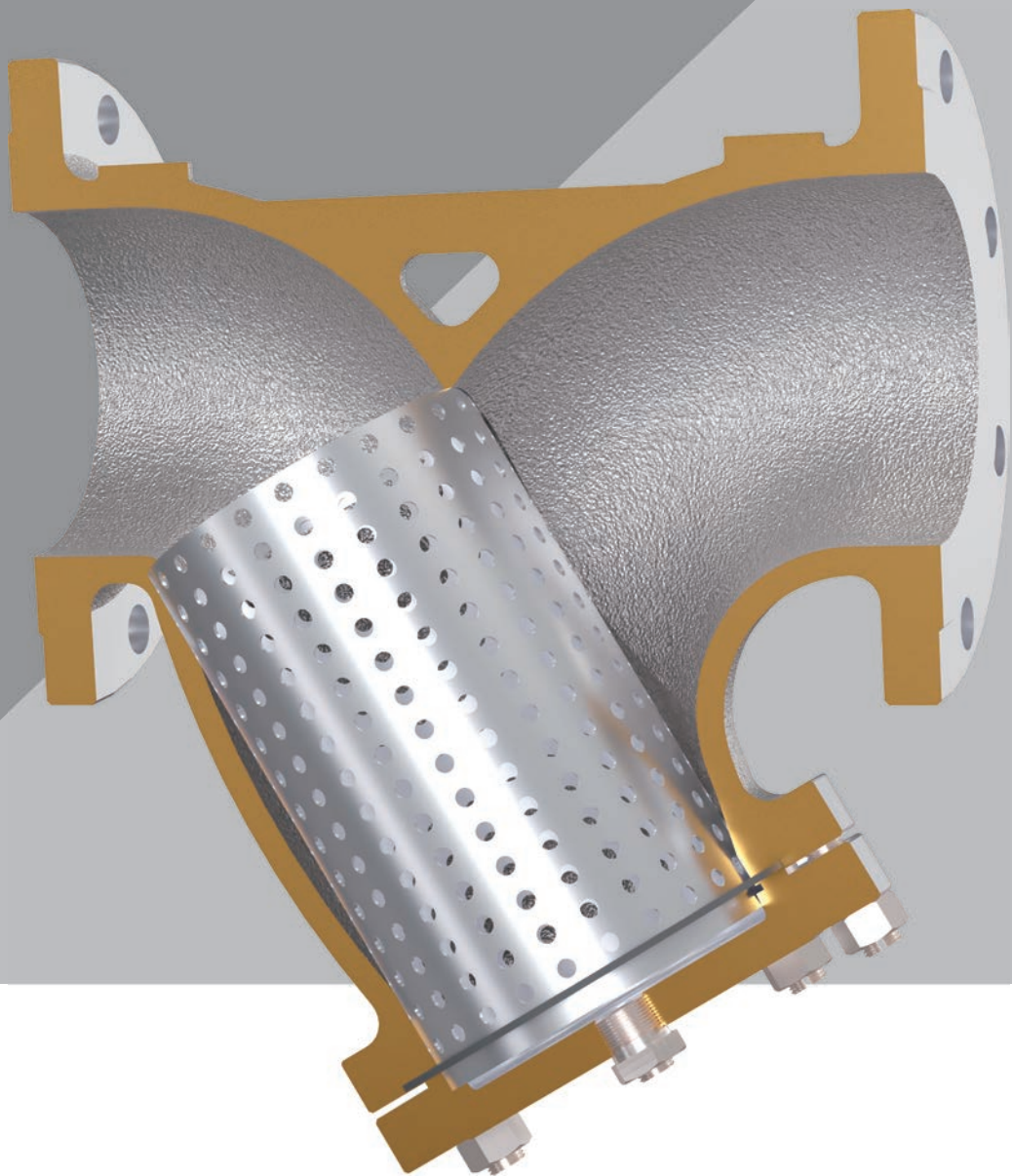


Class150 Knife Gate Valve

| NPS | L          | D1    | D0  | N-Th         | H1(Full cut-off) | H2 (Full open) |
|-----|------------|-------|-----|--------------|------------------|----------------|
|     | ANSI 150LB |       |     |              |                  |                |
| 2   | 48         | 120.5 | 200 | 4-5/8-11UNC  | 340              | 390            |
| 3   | 51         | 152.5 | 220 | 4-5/8-11UNC  | 380              | 460            |
| 4   | 51         | 190.5 | 220 | 8-5/8-11UNC  | 420              | 520            |
| 5   | 57         | 216   | 250 | 8-3/4-10UNC  | 460              | 585            |
| 6   | 57         | 241.5 | 280 | 8-3/4-10UNC  | 510              | 660            |
| 8   | 70         | 298.5 | 315 | 8-3/4-10UNC  | 620              | 820            |
| 10  | 70         | 362   | 355 | 12-7/8-9UNC  | 740              | 990            |
| 12  | 76         | 432   | 400 | 12-7/8-9UNC  | 840              | 1140           |
| 14  | 76         | 476   | 450 | 12-1-8UNC    | 920              | 1270           |
| 16  | 89         | 540   | 500 | 16-1-8UNC    | 1024             | 1424           |
| 18  | 89         | 578   | 550 | 16-11/8-7UNC | 1170             | 1620           |
| 20  | 114        | 635   | 600 | 20-11/2-7UNC | 1250             | 1750           |

Y Type Strainer

Products





## Y Type Strainer

### General features

- General Features
- Strainer Easy to Maintain
- Low Pressure Loss
- High Flow Speed
- Large Straining Capacity
- Precision Machined Seats
- EPOXY Painted

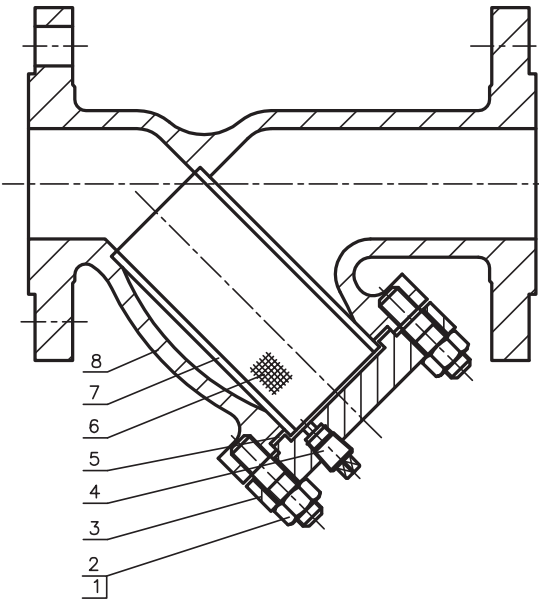
### Related Standard

- Design: API 6D/ ASME B16.34
- Face to Face: API 6D/ ASME B16.10
- Flange: EN1092-1/ ASME 16.5/ ASME B16.25(BW ENDS)
- Testing: API 598(Soft Seal)/ MSS SP-81(Metal Seal)
- Material: NACE MR0175/ ISO 15156-3 on request

### Official approvals

- Nominal Pressure: 150LB/ 300LB
- Nominal Diameter: DN15-350mm/ NPS 3/4"-14"
- Temperature: -29 ~ 425℃ ( Depending on medium and seal material)
- Leakage Class: liquid 0.1XDN mm3/s (Metal seat)/ Class A(Soft seal: 0 leakage)
- Applicable medium: Water/ Oil/ Gas etc.

### Material List

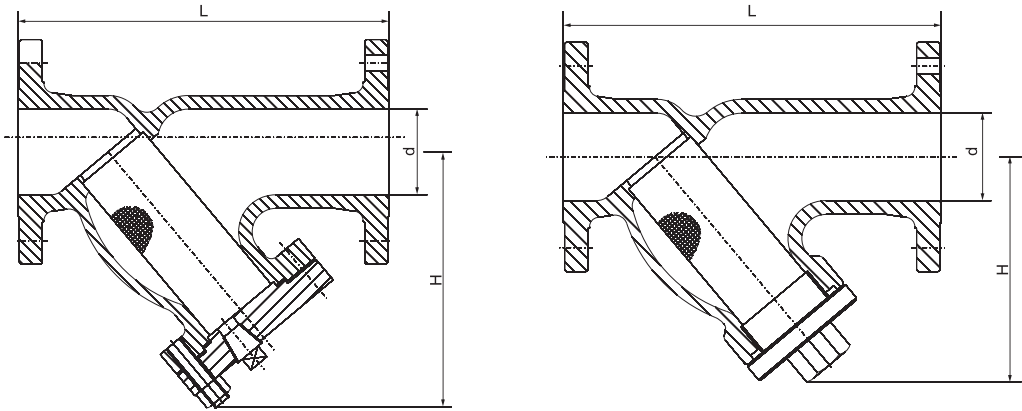


| No | Part     | Standard                       |
|----|----------|--------------------------------|
| 1  | Nut      | A194 2H/ 8                     |
| 2  | Stem     | A193 B7/ B8(M)                 |
| 3  | Bonnet   | A 216 WCB/ A351 CF3(M)/ CF8(M) |
| 4  | Plug     | A182 F304(L)/ F316(L)          |
| 5  | Gasket   | 304+Graphit/ PTFE              |
| 6  | Strainer | A240 304(L)/ 316(L)            |
| 7  | Rack     | WCB                            |
| 8  | Body     | A 216 WCB/ A351 CF3(M)/ CF8(M) |

## Y Type Strainer

### Standards

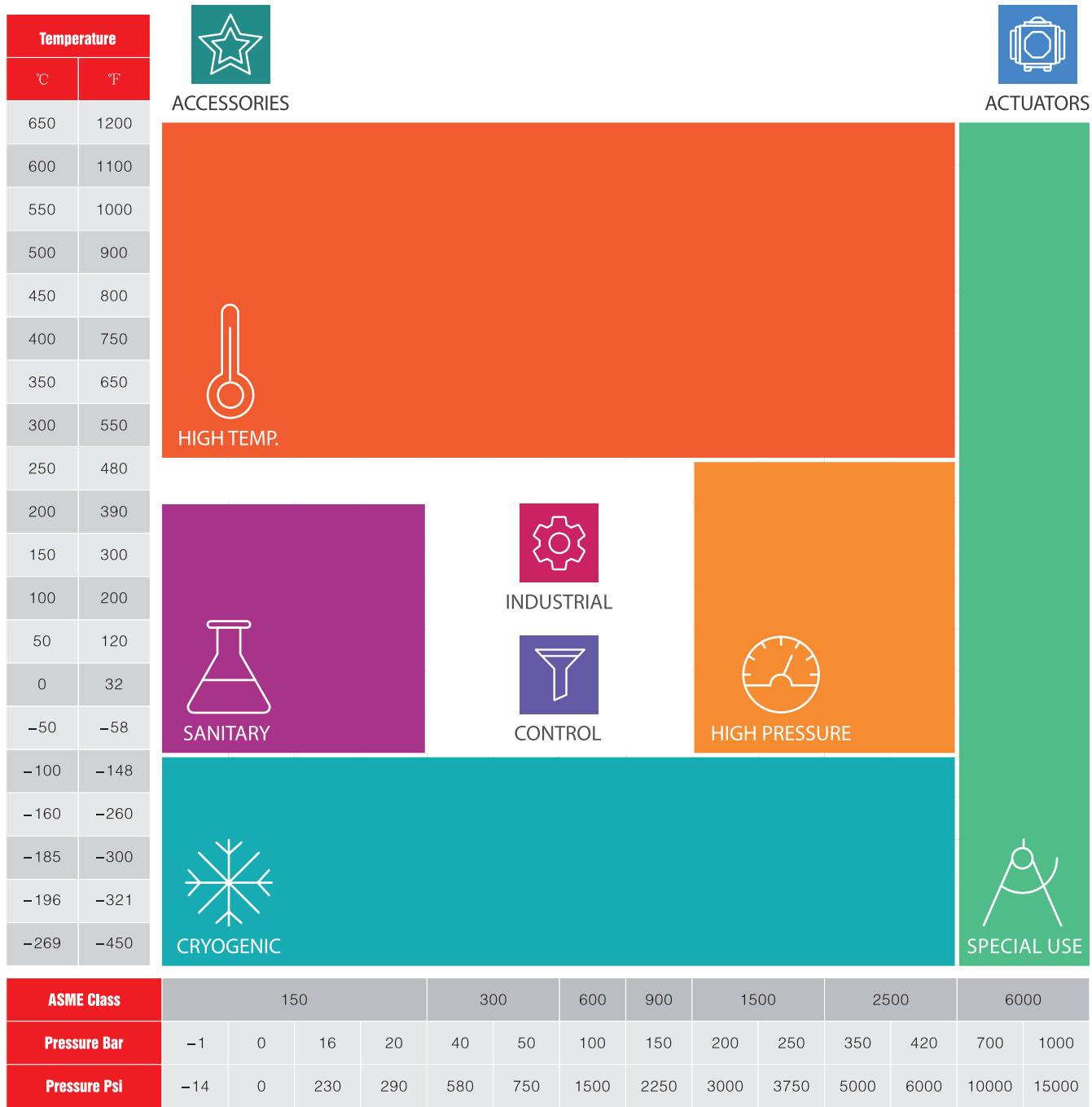
End flange dimension ASME B16.5



### Class150~class300 cast steel y strainer

| Size  |     | Class 150       |     |     | Class 300       |     |     |
|-------|-----|-----------------|-----|-----|-----------------|-----|-----|
|       |     | Dimensions (mm) |     |     | Dimensions (mm) |     |     |
| NPS   | DN  | L               | H   | H1  | L               | H   | H1  |
| 3/4   | 15  | 108             | 67  | 92  | 152             | 70  | 95  |
| 1/2   | 20  | 117             | 73  | 105 | 178             | 80  | 110 |
| 1     | 25  | 127             | 87  | 117 | 203             | 92  | 120 |
| 1 1/4 | 32  | 140             | 100 | 138 | 216             | 105 | 142 |
| 1 1/2 | 40  | 165             | 123 | 150 | 229             | 128 | 155 |
| 2     | 50  | 203             | 147 | 179 | 267             | 152 | 184 |
| 2 1/2 | 65  | 216             | 180 | 232 | 292             | 185 | 236 |
| 3     | 80  | 241             | 198 | 263 | 318             | 204 | 266 |
| 4     | 100 | 292             | 234 | 337 | 356             | 240 | 340 |
| 5     | 125 | 390             | 274 | 383 | 460             | 280 | 386 |
| 6     | 150 | 440             | 314 | 452 | 550             | 320 | 456 |
| 8     | 200 | 540             | 400 | 555 | 600             | 410 | 560 |
| 10    | 250 | 760             | 512 | 725 | 760             | 530 | 730 |
| 12    | 300 | 870             | 581 | 870 | 870             | 600 | 875 |
| 14    | 350 | 950             | 633 | 933 | 950             | 650 | 938 |

Product Families



Design Standard of Different Valve Types

| Valve type                  | Gate Valve                                                                 | Globe Valve                                                             | Check Valve                                                        | Butterfly Valve                                       | Ball Valve                                              |
|-----------------------------|----------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------|
| Design standards            | API600/ API6D/<br>API602/API 603<br>(DIN3352/ EN10434/<br>BS1414 Optional) | API602/ASME B16.34<br>API 603<br>(DIN3356/ EN13709/<br>BS1873 Optional) | API6D/ API602<br>API 603<br>(DIN3356/ EN10739/<br>BS1868 Optional) | API609/ API6D<br>(DIN3354/ EN593/<br>BS5155 Optional) | API608/ API6D<br>(DIN3357/ EN13709/<br>BS5351 Optional) |
| End face length<br>standard | ASME B16.10(DIN3202/ EN558)                                                |                                                                         |                                                                    |                                                       |                                                         |
| Flange standard             | ASMEB16.5/ ASMEB16.47(DIN2543-2545/ EN1092/ BS4504/ BS1560)                |                                                                         |                                                                    |                                                       |                                                         |
| Welding end<br>standard     | ASME B16.25 ( DIN3239/ EN1262/ BS2080 )                                    |                                                                         |                                                                    |                                                       |                                                         |
| Test standards              | API598(DIN3230/ EN12266/ BS5146)                                           |                                                                         |                                                                    |                                                       |                                                         |