

Offshore Valves



Valve Specialists™

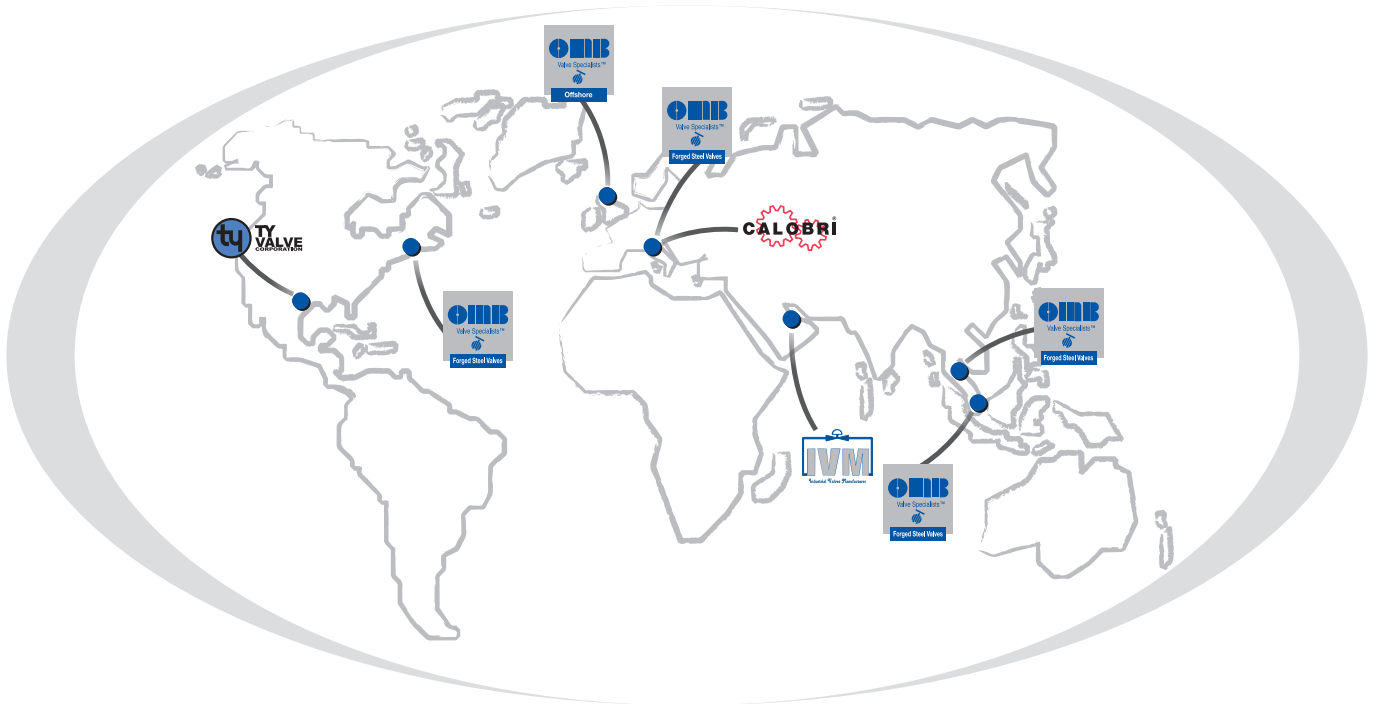


Offshore



C-OV1

30 YEARS OF INNOVATION



OMB Group a family owned and managed business founded by Mr Roberto Brevi in 1973. The group specialise in forged steel valves from small diameter gate valves to large diameter Trunnion mounted ball valves. The company now operates 5 plants in 3 countries and is established worldwide with a network of agents, distributors and OMB offices.



NEW catalog

Welcome to our first catalogue dedicated to offshore valves, this issue includes API 6A & 6D versions of our Through conduit Gate Valves (TCGV), Expanding Gate Valves, Trunnion Ball Valve, Swing Check Valve and DBB modular valves.

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THE GROUP



At OMB we have developed a comprehensive range of engineered valves products installed globally across a wide range of industries:

- Offshore
- Subsea
- Refining
- Petrochemical
- Chemical
- Desalination

In these past 30 years millions of valves have been supplied to major oil and gas companies worldwide and the OMB name has become synonymous with absolute reliability, superior quality and competitive pricing.

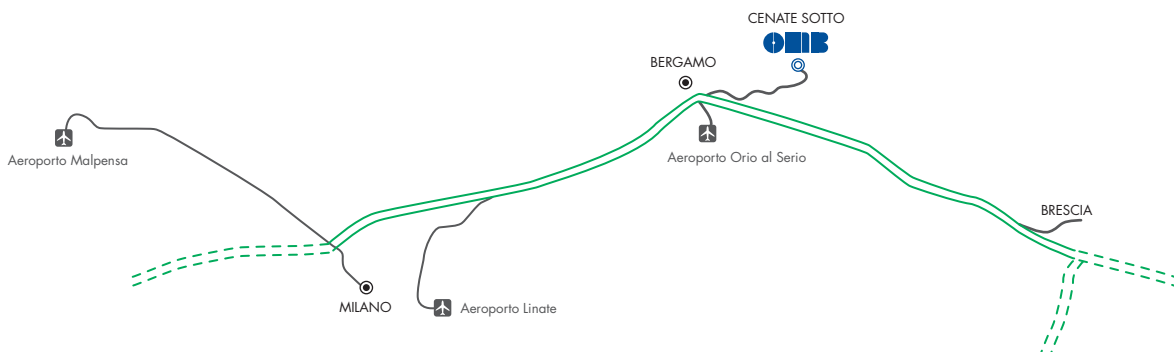
In the early 80's we were the first to introduce robotics in the manufacturing process along with specialized equipment designed to reduce machining time and increase the quality of components.

Today we are more than ever committed to innovation and continuous improvement: we remain focused in expanding our capacity at home, opening new plants near the end users and extending our distribution network.

We invite you to visit our plants where you will see an innovative experienced team working with state of the art equipment to provide the best valve money can buy.

This is our promise !

Roberto, Simone and Fabio Brevi





OMB Valves S.p.A. consider the safety of its employees, the security of its assets and protection of the environment as important as any other phase of the Company's operation and administration.

It is the policy of the Company to provide and maintain safe working conditions the provision of specialist, safety equipment operating practices that will safeguard all employees, the public, the environment and corporate property. The elimination, at the source, of dangers to the health, safety and physical well-being of its workers is of paramount importance.

It is our policy not to compromise on safety, health and environment for reasons of economy or productivity. This commitment includes compliance with all applicable laws and regulations but it is not limited to minimal compliance.

While the application of safety, health and environment standard is the responsibility of line management, all employees must take appropriate or necessary measures to protect their own safety and that of their colleagues.

The natural evolution of our HSE policy has seen OMB Valves take the next step from compliance to request TUV approval to ISO 14000 and OHSAS 1800.

The OMB quality system is certified in accordance to ISO9001:2000 with our comprehensive quality programmes covering the full scope of our activities and has been certified since 1990. OMB products are certified to meet the European Union Pressure Equipment Directive P.E.D. (CE mark) since its introduction in 1994, along with accreditation to meet ATEX requirements. OMB has been accepted as an approved supplier by many of the worlds major energy companies: a complete list of references, inclusive of projects supplied and product details is available on our web site.



ISO 9001



PED



Gost-R



ISO 15848



ATEX

MATERIAL SOURCES AND TRACEABILITY

OMB use forgings made in Italy for all our products: we have an extensive investment in dyes covering all size and pressure classes in every material from carbon steels to the most exotic alloys. All our suppliers are ISO9000 certified.



Our valves are supplied with the forging plant issued BS EN 10204.3.1 certificate as a minimum. We maintain our online database with all the certificates issued, searchable via our web site.

MATERIAL & VALVE TESTING FACILITIES

OMB conduct non-destructive examination by ultrasonics, magnetic particle and liquid penetrant at our site along with, chemical analysis by computer controlled direct reading emission spectrometer and ferrite content analyzer equipment are available.

All valves are hydraulically tested, seat leakage tested and functionally tested. In addition packing emission testing in accordance to the latest ISO requirement, helium gas, cryogenic, vacuum and other functional testing can be arrange in our laboratories.

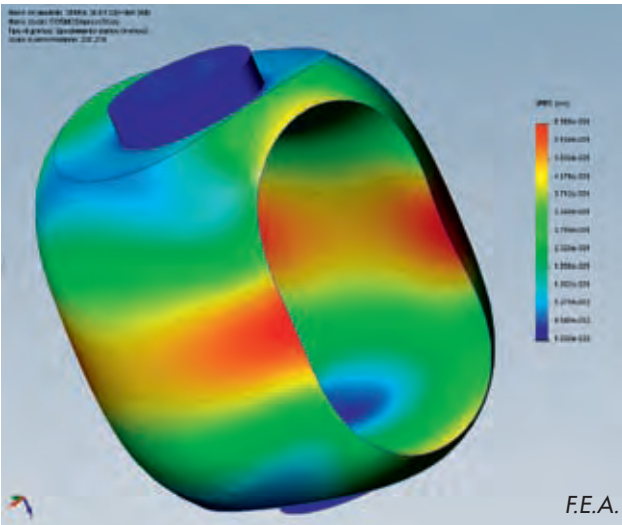


API 6A – 0778



API 6D – 0289

OMB Valves has an extensive engineering department dedicated exclusively to product design, utilizing the latest design tools and software with 3D and Finite Element Analysis (FEA & TFEA) capabilities. Our mix of young innovative engineers coupled with our very experienced time served engineers provide the perfect combination of professional engineering to design the best valves for your processes.



DESIGN & MANUFACTURING STANDARDS

| | | | |
|---|--|---|--|
| EN ISO 9001:2000 ISO 10423 (API 6A) ISO 14313 (API 6D) EU P.E.D. ASME B16.34 ASME B16.5 ASME B16.10 ASME B16.25 ASME II, V, VIII, X | Quality Management System Drilling and Production Equipment Pipeline transportation systems-pipeline valves Pressure Equipment Directive 97/23/EC Module H Valves-Flanged, Threaded and Welding end Pipe Flanges and Flanged Fittings Face to Face Dimensions Butt weld ends Boiler and Pressure vessel Code | ISO 5208 BS EN 12266-1/2 BS EN ISO 4406 BS EN 10204 BS EN ISO 10497 API 14D NACE MR.01.75 | Industrial Valve Pressure Testing Testing Of Valves Hydraulic Fluid Cleanliness Metallic Products Inspection Documents Fire Testing Sand slurry annex i in API 6A Sulfide Stress Cracking resilient metallic materials |
|---|--|---|--|



OMB test 100% of valves thereby guaranteeing our customer fully tested valves to meet their demanding services. Where gas testing is a customer requirement all body gas tests are preceded with a hydro safety test.

For API 6A valve testing will be conducted in accordance with PSL level 3 and 4.

For API 6D valve testing will be conducted in accordance with ISO 5208.

HYDRAULIC TEST



Dimensional Inspection



"Valves tested at independent fire test facility Scotland".

| CLASS | RATING | | | BODY TEST | | | P. SEAT TEST | | | AIR SEAT TEST | | |
|-----------|--------|-----|--------------------|-----------|-------|--------------------|--------------|-------|--------------------|---------------|-----|--------------------|
| | psi | bar | Kg/cm ² | psi | bar | Kg/cm ² | psi | bar | Kg/cm ² | psi | bar | Kg/cm ² |
| ASME 150 | 275 | 19 | 19.3 | 413 | 28.5 | 29 | 303 | 20.9 | 21 | 100 | 6 | 7 |
| ASME 300 | 720 | 50 | 51 | 1080 | 25 | 77 | 792 | 55 | 56 | 100 | 6 | 7 |
| ASME 600 | 1440 | 99 | 101 | 2160 | 148.5 | 152 | 1584 | 108.9 | 111 | 100 | 6 | 7 |
| ASME 900 | 2160 | 149 | 152 | 3240 | 223.5 | 228 | 2376 | 163.9 | 167 | 100 | 6 | 7 |
| ASME 1500 | 3600 | 248 | 253 | 5400 | 372 | 380 | 3960 | 272.8 | 278 | 100 | 6 | 7 |
| ASME 2500 | 5988 | 413 | 491 | 8982 | 619.5 | 632 | 6587 | 454.3 | 463 | 100 | 6 | 7 |
| API 3000 | 3000 | 207 | 210 | 4500 | 310.5 | 315 | 3300 | 227.7 | 231 | 100 | 6 | 7 |
| API 5000 | 5000 | 345 | 352 | 7500 | 517.5 | 528 | 5500 | 379.5 | 387 | 100 | 6 | 7 |
| API 10000 | 10000 | 690 | 703 | 15000 | 103.5 | 1055 | 11000 | 759 | 773 | 100 | 6 | 7 |

Gate Valves



Ball Valves



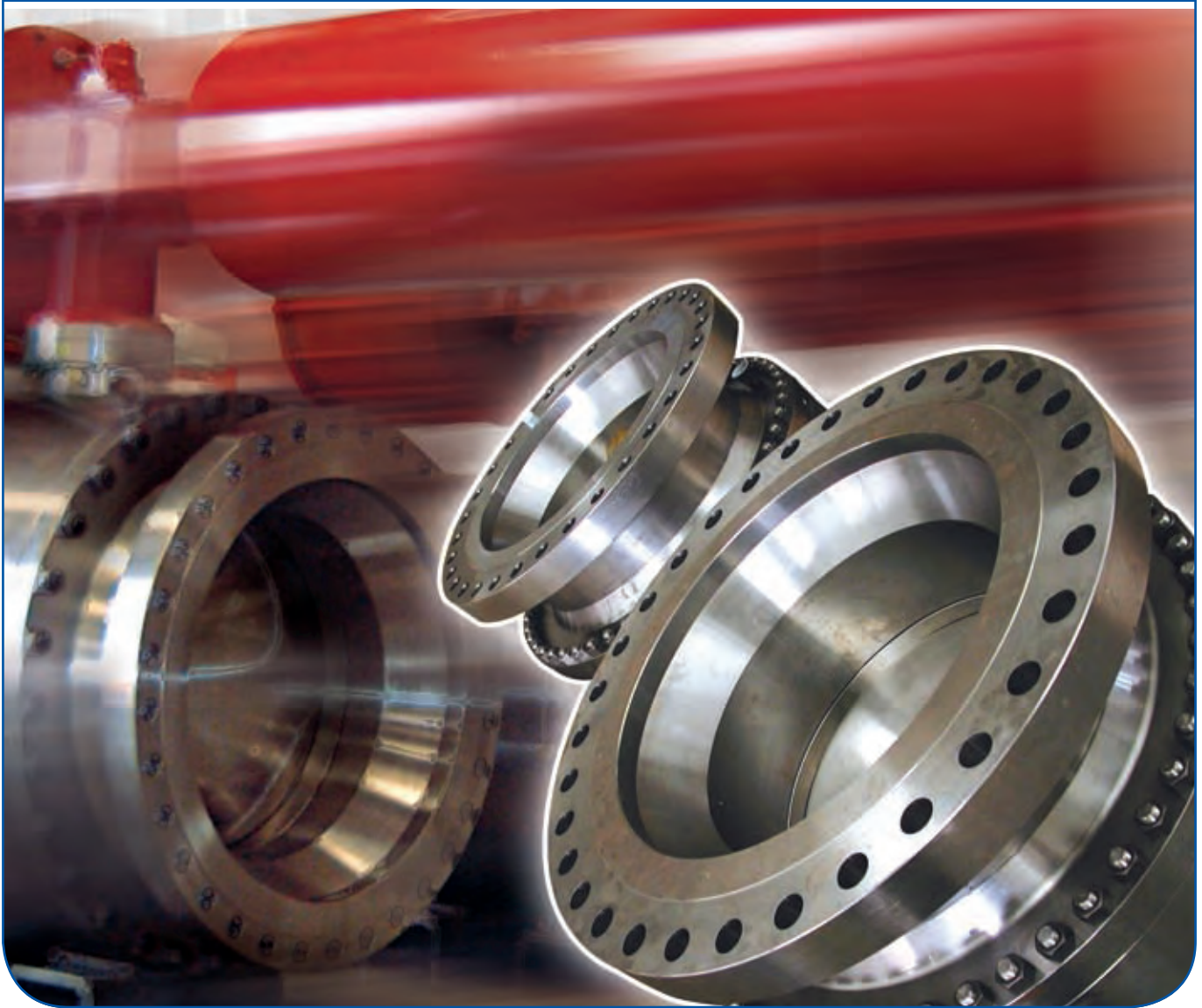
Modular Valves



Check Valves

All major isolation valves are manufactured by OMB Valves for your oil & gas processing plant, this is a significant advantage for our customers to have the ability to procure all critical isolation valves from one reliable manufacturer, from the highly critical ESDV's to the latest compact designs for Double Block & Bleed's (DBB), OMB Offshore provide them all.





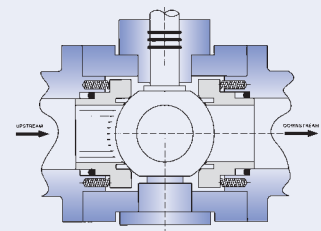
OMB Trunnion mounted ball valves are manufactured to API 6D and 6A specifications. The construction is side entry three piece full or reduced bore. Lever, gear or actuated options are available in standard and compact designs.

Full Bore and Reduced Bore options are available, full bore valves are suitable for the passage of all types of pipeline

scraper and inspection pigs without causing damage to either the valve or the pig. All valves are designed with anti blow out stem to prevent stem ejection by internal pressure.

Body cavity over pressure is prevented by self relieving seats, For Double Block and or emergency Shut down Valves (ESDV/SSDV) Double Piston Effect Seats will be provided.

CONSTRUCTION



KEY FEATURES ARE:

- ✓ FULL BORE, PIGGABLE
- ✓ BI DIRECTIONAL SEALING.
- ✓ DOUBLE BLOCK CAPABILITIES.
- ✓ BUBBLE TIGHT SEALING.
- ✓ METAL TO METAL SEALING



| CLASS DIAMETER | CLASS 150 RB - FB | | CLASS 300 RB - FB | | CLASS 600 RB - FB | | CLASS 900 RB - FB | | CLASS 1500 RB - FB | | CLASS 2500 RB - FB | |
|----------------|-------------------|---|-------------------|---|-------------------|---|-------------------|---|--------------------|---|--------------------|---|
| 1/2" | | | | | | | | | | | | |
| 3/4" | | | | | | | | | | | | |
| 1" | | | | | | | | | | | | |
| 1 1/2" | | | | | | | | | | | | |
| 2" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 3" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 4" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 6" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 8" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 10" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 12" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 14" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 16" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 18" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 20" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 22" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 24" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 26" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 28" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 30" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 32" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 34" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 36" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 40" | | ● | | ● | | ● | | ● | | ● | | ● |
| 42" | | ● | | ● | | ● | | ● | | ● | | ● |
| 48" | | ● | | ● | | ● | | ● | | ● | | ● |
| 56"-60" | | ● | | ● | | ● | | ● | | ● | | ● |

Applicable Standards

API 6D LICIENCE No 6D-0286

API 6A LICIENCE No 6A-0778

API Spec. Q1

API 6D (EN ISO 14313)
Pipeline Transportation Systems-Pipeline Valves.

API 598 (Inspection Testing)

API 14D Sand Slurry (Annex I API 6A)

ASME B16.34
(Vales-Flanged, Threaded and Welding end)

ASME B16.5 (Pipe Flanges and Flanged Fittings)

ASME B16.10 (Face to Face Dimensions)

ASME B16.25 (Butt weld ends)

ASME
(Boiler and Pressure vessel Code II, V, VIII, X)

ASME B31.8
Gas transmission and Distribution piping systems.

ASME B31.4
Liquid Petroleum transmission piping systems.

BS EN ISO 10497 - Fire Testing.

BS EN 12266 - 1/2. (Testing Of Valves)

BS EN ISO 4406 (Hydraulic Fluid Cleanliness)

BS EN 10204 (Metallic Products Inspection Documents)

EU Pressure Equipment Directive.

EN ISO 9001:2000

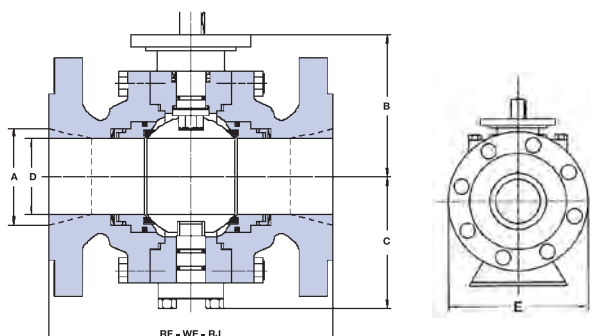
ISO 5208 (industrial valves pressure testing)

NACE MR0175/ISO 15156
(Sulphide Stress Cracking Resistant Materials for offshore applications)

NOROSK L-001-Piping and Valves.

NOROSK M-630-Material Data Sheets for Piping.

NOROSK M-650-Qualification of Manufacturers of special materials.



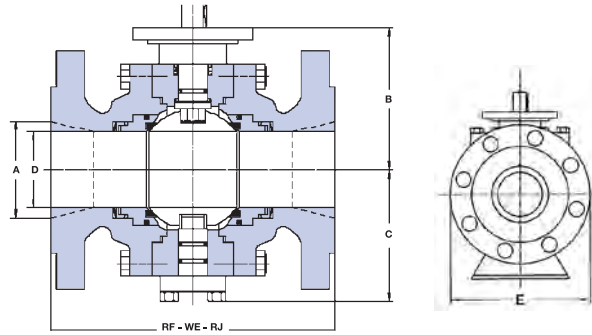
ASME CLASS 150 FULL BORE

| SIDE ENTRY | | | | | | | |
|------------|-----|-------|-------|-------|-------|-------|-------|
| SIZE | | D | RF | WE | B | C | E |
| 2 | in. | 2.00 | 7.00 | 8.50 | 5.51 | 3.54 | 5.90 |
| 50 | mm | 51 | 178 | 216 | 140 | 90 | 150 |
| 3 | in. | 3.00 | 8.00 | 11.13 | 7.48 | 4.13 | 7.48 |
| 80 | mm | 76 | 203 | 283 | 190 | 105 | 190 |
| 4 | in. | 4.00 | 9.00 | 12.00 | 9.72 | 5.55 | 9.00 |
| 100 | mm | 102 | 229 | 305 | 247 | 141 | 230 |
| 6 | in. | 6.00 | 15.50 | 18.00 | 11.61 | 6.88 | 12.20 |
| 150 | mm | 152 | 394 | 457 | 295 | 175 | 310 |
| 8 | in. | 8.00 | 18.00 | 20.50 | 12.99 | 8.26 | 15.35 |
| 200 | mm | 203 | 457 | 521 | 330 | 210 | 390 |
| 10 | in. | 10.00 | 21.00 | 22.00 | 15.74 | 9.84 | 18.11 |
| 250 | mm | 254 | 533 | 559 | 400 | 250 | 460 |
| 12 | in. | 12.00 | 24.00 | 25.00 | 18.11 | 12.20 | 21.45 |
| 300 | mm | 305 | 610 | 635 | 460 | 310 | 545 |
| 14 | in. | 14.00 | 27.00 | 30.00 | 18.89 | 13.38 | 24.00 |
| 350 | mm | 356 | 686 | 762 | 480 | 340 | 610 |
| 16 | in. | 16.00 | 30.00 | 33.00 | 21.25 | 15.15 | 26.37 |
| 400 | mm | 406 | 762 | 838 | 540 | 385 | 670 |
| 18 | in. | 18.00 | 34.00 | 36.00 | 22.83 | 16.85 | 24.80 |
| 450 | mm | 457 | 864 | 914 | 580 | 428 | 630 |
| 20 | in. | 20.00 | 36.00 | 39.00 | 23.00 | 21.45 | 33.43 |
| 500 | mm | 508 | 914 | 991 | 584 | 545 | 849 |
| 22 | in. | 22.00 | 40.00 | 43.00 | 24.00 | 23.00 | 36.81 |
| 550 | mm | 559 | 991 | 1092 | 610 | 584 | 935 |
| 24 | in. | 24.00 | 42.00 | 45.00 | 24.10 | 25.87 | 39.57 |
| 600 | mm | 610 | 1067 | 1143 | 612 | 655 | 1005 |
| 26 | in. | 26.00 | 45.00 | 49.00 | 24.69 | 22.20 | 41.73 |
| 650 | mm | 660 | 1143 | 1245 | 627 | 564 | 1060 |
| 28 | in. | 28.00 | 49.00 | 53.00 | 25.35 | 25.91 | 44.88 |
| 700 | mm | 711 | 1245 | 1346 | 644 | 658 | 1140 |
| 30 | in. | 30.00 | 51.00 | 55.00 | 27.20 | 27.70 | 47.24 |
| 750 | mm | 762 | 1295 | 1397 | 691 | 705 | 1200 |
| 32 | in. | 32.00 | 54.00 | 60.00 | 29.21 | 29.37 | 51.18 |
| 800 | mm | 813 | 1372 | 1524 | 742 | 746 | 1300 |
| 34 | in. | 34.00 | 58.00 | 64.00 | 29.88 | 30.51 | 53.94 |
| 850 | mm | 864 | 1473 | 1626 | 759 | 775 | 1370 |
| 36 | in. | 36.00 | 60.00 | 68.00 | 31.97 | 31.77 | 56.30 |
| 900 | mm | 914 | 1524 | 1727 | 812 | 807 | 1430 |
| 40 | in. | 40.00 | 69.00 | 77.00 | 35.43 | 35.35 | 63.00 |
| 1000 | mm | 1016 | 1753 | 1956 | 900 | 898 | 1600 |
| 42 | in. | 42.00 | 72.00 | 82.00 | 37.13 | 37.00 | 64.96 |
| 1050 | mm | 1067 | 1855 | 2083 | 943 | 940 | 1656 |
| 48 | in. | 48.00 | 80.00 | 94.00 | 43.19 | 41.73 | 75.59 |
| 1200 | mm | 1219 | 2134 | 2388 | 1097 | 1060 | 1920 |
| 56 | in. | 53.54 | 98.00 | 98.00 | 52.00 | 50.00 | 89.00 |
| 1400 | mm | 1360 | 2490 | 2490 | 13.21 | 1270 | 2260 |

ASME CLASS 150 REDUCED BORE

| SIDE ENTRY | | | | | | | | |
|------------|-----|-------|-------|-------|-------|-------|-------|-------|
| SIZE | | A | D | RF | WE | B | C | E |
| 2 x 1/2 | in. | 2.00 | 1.50 | 7.00 | 8.50 | 4.00 | 3.00 | 5.90 |
| 50 x 40 | mm | 51 | 38 | 178 | 216 | 101 | 76 | 150 |
| 3 x 2 | in. | 3.00 | 2.00 | 8.00 | 11.13 | 5.51 | 3.54 | 7.48 |
| 80 x 50 | mm | 76 | 51 | 203 | 283 | 140 | 90 | 190 |
| 4 x 3 | in. | 4.00 | 3.00 | 9.00 | 12.00 | 7.48 | 4.13 | 9.00 |
| 100 x 80 | mm | 102 | 76 | 229 | 305 | 190 | 105 | 230 |
| 6 x 4 | in. | 6.00 | 4.00 | 15.50 | 18.00 | 11.02 | 6.53 | 12.20 |
| 150 x 100 | mm | 152 | 102 | 394 | 457 | 280 | 166 | 310 |
| 8 x 6 | in. | 8.00 | 6.00 | 18.00 | 20.50 | 11.61 | 6.88 | 15.35 |
| 200 x 150 | mm | 203 | 152 | 457 | 521 | 295 | 175 | 395 |
| 10 x 8 | in. | 10.00 | 8.00 | 21.00 | 22.00 | 12.99 | 8.26 | 15.98 |
| 250 x 200 | mm | 254 | 203 | 533 | 559 | 330 | 210 | 406 |
| 12 x 10 | in. | 12.00 | 10.00 | 24.00 | 25.00 | 15.74 | 9.84 | 19.02 |
| 300 x 250 | mm | 305 | 254 | 610 | 635 | 400 | 250 | 483 |
| 14 x 10 | in. | 14.00 | 10.00 | 27.00 | 30.00 | 18.11 | 12.30 | 21.06 |
| 350 x 250 | mm | 356 | 254 | 686 | 762 | 460 | 310 | 535 |
| 14 x 12 | in. | 14.00 | 12.00 | 27.00 | 30.00 | 18.11 | 12.20 | 21.06 |
| 350 x 300 | mm | 356 | 305 | 686 | 762 | 460 | 310 | 535 |
| 16 x 12 | in. | 16.00 | 12.00 | 30.00 | 33.00 | 18.89 | 13.38 | 23.43 |
| 400 x 300 | mm | 406 | 305 | 762 | 838 | 480 | 340 | 595 |
| 16 x 14 | in. | 16.00 | 14.00 | 30.00 | 33.00 | 18.89 | 13.38 | 23.43 |
| 400 x 350 | mm | 406 | 356 | 762 | 838 | 480 | 340 | 595 |
| 18 x 16 | in. | 18.00 | 16.00 | 34.00 | 36.00 | 21.25 | 15.15 | 24.80 |
| 450 x 400 | mm | 457 | 406 | 864 | 914 | 540 | 385 | 630 |
| 20 x 16 | in. | 20.00 | 16.00 | 36.00 | 39.00 | 22.83 | 16.85 | 27.56 |
| 500 x 400 | mm | 508 | 406 | 914 | 991 | 580 | 428 | 700 |
| 20 x 18 | in. | 20.00 | 18.00 | 36.00 | 39.00 | 22.83 | 16.85 | 27.56 |
| 500 x 450 | mm | 508 | 457 | 914 | 991 | 580 | 428 | 700 |
| 24 x 20 | in. | 24.00 | 20.00 | 42.00 | 45.00 | 23.00 | 18.00 | 32.28 |
| 600 x 500 | mm | 610 | 508 | 1067 | 1143 | 584 | 457 | 820 |
| 28 x 24 | in. | 28.00 | 24.00 | 49.00 | 53.00 | 24.50 | 19.49 | 37.40 |
| 700 x 600 | mm | 711 | 610 | 1245 | 1346 | 622 | 495 | 950 |
| 30 x 24 | in. | 30.00 | 24.00 | 51.00 | 55.00 | 25.15 | 20.28 | 38.78 |
| 750 x 600 | mm | 762 | 610 | 1295 | 1397 | 638 | 515 | 985 |
| 36 x 30 | in. | 36.00 | 30.00 | 60.00 | 68.00 | 27.17 | 27.56 | 46.06 |
| 900 x 750 | mm | 914 | 762 | 1524 | 1727 | 690 | 700 | 1170 |

The valve details on this page are the standard production range only, for other size valves or end configurations please consult the factory.
 Note OMB reserves the right to make modifications or changes to its production, without prior notice and take no responsibility for any errors in this publication.



ASME CLASS 300 FULL BORE

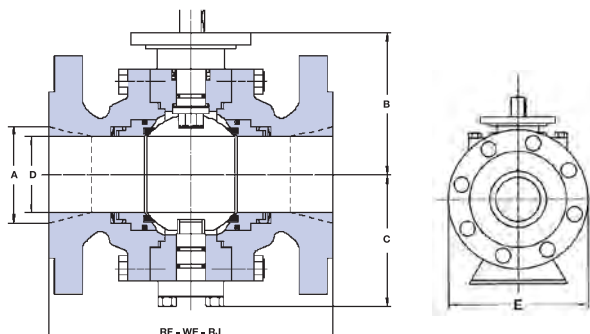
| SIZE | | SIDE ENTRY | | | | | |
|------|-----|------------|--------|--------|-------|-------|-------|
| | | D | RF | WE | B | C | E |
| 2 | in. | 2.00 | 8.50 | 8.50 | 7.87 | 4.72 | 6.50 |
| 50 | mm | 51 | 216 | 216 | 200 | 120 | 165 |
| 3 | in. | 3.00 | 11.10 | 11.10 | 9.44 | 5.11 | 8.50 |
| 80 | mm | 76 | 283 | 283 | 240 | 130 | 218 |
| 4 | in. | 4.00 | 12.00 | 12.00 | 9.72 | 5.55 | 10.00 |
| 100 | mm | 102 | 305 | 305 | 247 | 141 | 254 |
| 6 | in. | 6.00 | 15.90 | 18.00 | 11.61 | 6.88 | 12.20 |
| 150 | mm | 152 | 457 | 457 | 295 | 175 | 310 |
| 8 | in. | 8.00 | 19.80 | 20.50 | 12.99 | 8.26 | 15.40 |
| 200 | mm | 203 | 502 | 521 | 330 | 210 | 390 |
| 10 | in. | 10.00 | 22.40 | 22.00 | 16.53 | 10.62 | 18.50 |
| 250 | mm | 254 | 568 | 559 | 420 | 270 | 470 |
| 12 | in. | 12.00 | 25.50 | 25.00 | 18.30 | 12.79 | 21.30 |
| 300 | mm | 305 | 648 | 635 | 465 | 325 | 545 |
| 14 | in. | 14.00 | 30.00 | 30.00 | 21.45 | 16.92 | 24.80 |
| 350 | mm | 356 | 762 | 762 | 545 | 430 | 630 |
| 16 | in. | 16.00 | 33.00 | 33.00 | 23.62 | 18.50 | 27.20 |
| 400 | mm | 406 | 838 | 838 | 600 | 470 | 690 |
| 18 | in. | 18.00 | 36.00 | 36.00 | 23.10 | 20.07 | 30.30 |
| 450 | mm | 457 | 914 | 914 | 586 | 510 | 770 |
| 20 | in. | 20.00 | 39.00 | 39.00 | 23.90 | 19.68 | 33.50 |
| 500 | mm | 508 | 991 | 991 | 607 | 500 | 850 |
| 22 | in. | 22.00 | 43.00 | 43.00 | 24.10 | 21.00 | 37.00 |
| 550 | mm | 559 | 1092 | 1092 | 612 | 533 | 940 |
| 24 | in. | 24.00 | 45.00 | 45.00 | 24.50 | 23.62 | 39.70 |
| 600 | mm | 610 | 1143 | 1143 | 622 | 600 | 1010 |
| 26 | in. | 26.00 | 49.00 | 49.00 | 24.80 | 22.80 | 42.50 |
| 650 | mm | 660 | 1245 | 1245 | 630 | 580 | 1080 |
| 28 | in. | 28.00 | 53.00 | 53.00 | 25.20 | 26.60 | 45.30 |
| 700 | mm | 711 | 1346 | 1346 | 640 | 675 | 1150 |
| 30 | in. | 30.00 | 55.00 | 55.00 | 27.60 | 28.70 | 48.40 |
| 750 | mm | 762 | 1397 | 1397 | 700 | 730 | 1230 |
| 32 | in. | 32.00 | 60.00 | 60.00 | 29.30 | 29.90 | 52.00 |
| 800 | mm | 813 | 1524 | 1524 | 745 | 760 | 1320 |
| 34 | in. | 34.00 | 64.00 | 64.00 | 29.90 | 31.50 | 54.50 |
| 850 | mm | 864 | 1626 | 1626 | 760 | 800 | 1380 |
| 36 | in. | 36.00 | 68.00 | 68.00 | 31.70 | 32.5 | 56.9 |
| 900 | mm | 914 | 1727 | 1727 | 805 | 825 | 1445 |
| 40 | in. | 40.00 | 77.00 | 77.00 | 35.40 | 36.2 | 64.10 |
| 1000 | mm | 1016 | 1956 | 1956 | 900 | 920 | 1630 |
| 42 | in. | 42.00 | 82.00 | 82.00 | 38.10 | 38.40 | 66.90 |
| 1050 | mm | 1067 | 2083 | 2083 | 968 | 980 | 1700 |
| 48 | in. | 48.00 | 85.40 | 85.40 | 43.30 | 45.60 | 74.80 |
| 1200 | mm | 1219 | 2170 | 2170 | 1100 | 1160 | 1960 |
| 56 | in. | 53.54 | 108.00 | 108.00 | 50.00 | 50.00 | 89.00 |
| 1400 | mm | 1360 | 2743 | 2743 | 1270 | 1270 | 2260 |

ASME CLASS 300 REDUCED BORE

| SIZE | | SIDE ENTRY | | | | | | |
|-----------|-----|------------|-------|-------|-------|-------|-------|-------|
| | | A | D | RF | WE | B | C | E |
| 2 x 1/2 | in. | 2.00 | 1.50 | 8.50 | 8.50 | 6.88 | 3.14 | 6.50 |
| 50 x 40 | mm | 51 | 38 | 216 | 216 | 175 | 80 | 165 |
| 3 x 2 | in. | 3.00 | 2.00 | 11.10 | 11.10 | 7.87 | 4.72 | 8.50 |
| 80 x 50 | mm | 76 | 51 | 283 | 283 | 200 | 120 | 218 |
| 4 x 3 | in. | 4.00 | 3.00 | 12.00 | 12.00 | 9.44 | 5.11 | 10.00 |
| 100 x 80 | mm | 102 | 76 | 305 | 305 | 240 | 130 | 254 |
| 6 x 4 | in. | 6.00 | 4.00 | 15.90 | 18.00 | 11.02 | 5.90 | 12.20 |
| 150 x 100 | mm | 152 | 102 | 457 | 457 | 280 | 150 | 310 |
| 8 x 6 | in. | 8.00 | 6.00 | 19.80 | 20.50 | 11.61 | 6.88 | 15.40 |
| 200 x 150 | mm | 203 | 152 | 502 | 521 | 295 | 175 | 390 |
| 10 x 8 | in. | 10.00 | 8.00 | 22.40 | 22.00 | 12.99 | 8.26 | 17.50 |
| 250 x 200 | mm | 254 | 203 | 568 | 559 | 330 | 210 | 445 |
| 12 x 10 | in. | 12.00 | 10.00 | 25.50 | 25.00 | 16.53 | 10.62 | 20.50 |
| 300 x 250 | mm | 305 | 254 | 648 | 635 | 420 | 270 | 520 |
| 14 x 10 | in. | 14.00 | 10.00 | 30.00 | 30.00 | 18.30 | 12.79 | 23.00 |
| 350 x 250 | mm | 356 | 254 | 762 | 762 | 465 | 325 | 585 |
| 14 x 12 | in. | 14.00 | 12.00 | 30.00 | 30.00 | 18.30 | 12.79 | 23.00 |
| 350 x 250 | mm | 356 | 305 | 762 | 762 | 465 | 325 | 585 |
| 16 x 12 | in. | 16.00 | 12.00 | 33.00 | 33.00 | 21.45 | 16.92 | 25.60 |
| 400 x 300 | mm | 406 | 305 | 838 | 838 | 545 | 430 | 650 |
| 16 x 14 | in. | 16.00 | 14.00 | 33.00 | 33.00 | 21.45 | 16.92 | 25.60 |
| 400 x 350 | mm | 406 | 356 | 838 | 838 | 545 | 430 | 650 |
| 18 x 16 | in. | 18.00 | 16.00 | 36.00 | 36.00 | 23.62 | 18.50 | 28.00 |
| 450 x 400 | mm | 457 | 406 | 914 | 914 | 600 | 470 | 710 |
| 20 x 16 | in. | 20.00 | 16.00 | 39.00 | 39.00 | 24.40 | 20.07 | 30.70 |
| 500 x 400 | mm | 508 | 406 | 991 | 991 | 620 | 510 | 780 |
| 20 x 18 | in. | 20.00 | 18.00 | 39.00 | 39.00 | 24.40 | 20.07 | 30.40 |
| 500 x 450 | mm | 508 | 457 | 991 | 991 | 620 | 510 | 780 |
| 24 x 20 | in. | 24.00 | 20.00 | 45.00 | 45.00 | 25.10 | 19.68 | 36.00 |
| 600 x 500 | mm | 610 | 508 | 1143 | 1143 | 637 | 500 | 915 |
| 30 x 24 | in. | 30.00 | 24.00 | 55.00 | 55.00 | 25.80 | 21.20 | 42.90 |
| 750 x 600 | mm | 762 | 610 | 1397 | 1397 | 655 | 540 | 1090 |
| 36 x 30 | in. | 36.00 | 30.00 | 68.00 | 68.00 | 27.60 | 28.70 | 50.00 |
| 900 x 750 | mm | 914 | 762 | 1727 | 1727 | 700 | 730 | 1270 |

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ASME CLASS 600 FULL BORE

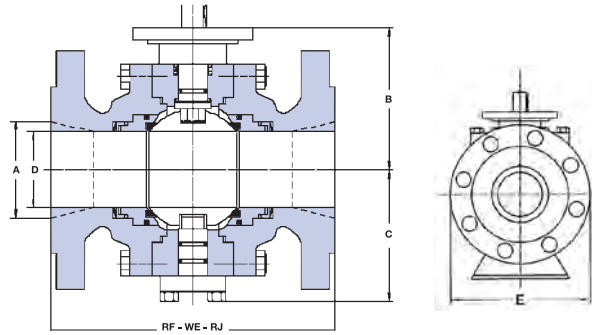
| SIZE | | SIDE ENTRY | | | | | | |
|------|-----|------------|--------|--------|--------|-------|-------|-------|
| | | D | RF | RJ | WE | B | C | E |
| 2 | in. | 2.00 | 11.50 | 11.63 | 11.50 | 7.67 | 4.33 | 6.50 |
| 50 | mm | 51 | 292 | 295 | 292 | 195 | 110 | 165 |
| 3 | in. | 3.00 | 14.00 | 14.13 | 14.00 | 9.44 | 4.33 | 8.50 |
| 80 | mm | 76 | 356 | 359 | 356 | 240 | 110 | 218 |
| 4 | in. | 4.00 | 17.00 | 17.13 | 17.00 | 11.02 | 6.88 | 10.70 |
| 100 | mm | 102 | 432 | 435 | 432 | 280 | 175 | 273 |
| 6 | in. | 6.00 | 22.00 | 22.13 | 22.00 | 12.00 | 7.67 | 14.10 |
| 150 | mm | 152 | 559 | 562 | 559 | 305 | 195 | 360 |
| 8 | in. | 8.00 | 26.00 | 26.13 | 26.00 | 15.74 | 11.02 | 16.50 |
| 200 | mm | 203 | 660 | 664 | 660 | 400 | 280 | 419 |
| 10 | in. | 10.00 | 31.00 | 31.13 | 31.00 | 17.12 | 11.22 | 20.40 |
| 250 | mm | 254 | 787 | 791 | 787 | 435 | 285 | 520 |
| 12 | in. | 12.00 | 33.00 | 33.13 | 33.00 | 17.32 | 12.59 | 22.60 |
| 300 | mm | 305 | 838 | 841 | 838 | 440 | 320 | 575 |
| 14 | in. | 14.00 | 35.00 | 35.13 | 35.00 | 19.88 | 13.38 | 24.70 |
| 350 | mm | 356 | 889 | 892 | 889 | 505 | 340 | 628 |
| 16 | in. | 16.00 | 39.00 | 39.13 | 39.00 | 23.22 | 16.14 | 27.60 |
| 400 | mm | 406 | 991 | 994 | 991 | 590 | 410 | 700 |
| 18 | in. | 18.00 | 43.00 | 43.13 | 43.00 | 23.55 | 17.51 | 30.50 |
| 450 | mm | 457 | 1092 | 1095 | 1092 | 589 | 445 | 775 |
| 20 | in. | 20.00 | 47.00 | 47.25 | 47.00 | 23.80 | 20.07 | 34.10 |
| 500 | mm | 508 | 1194 | 1200 | 1194 | 604 | 510 | 865 |
| 22 | in. | 22.00 | 51.00 | 51.38 | 51.00 | 24.00 | 20.35 | 37.40 |
| 550 | mm | 559 | 1295 | 1305 | 1295 | 609 | 571 | 950 |
| 24 | in. | 24.00 | 55.00 | 55.38 | 55.00 | 24.50 | 25.19 | 40.50 |
| 600 | mm | 610 | 1397 | 1407 | 1397 | 622 | 640 | 1028 |
| 26 | in. | 26.00 | 57.00 | 57.50 | 57.00 | 24.80 | 24.30 | 40.10 |
| 650 | mm | 660 | 1448 | 1461 | 1448 | 630 | 618 | 1020 |
| 28 | in. | 28.00 | 61.00 | 61.50 | 61.00 | 26.20 | 27.20 | 46.10 |
| 700 | mm | 711 | 1549 | 1562 | 1549 | 665 | 692 | 1172 |
| 30 | in. | 30.00 | 66.30 | 66.50 | 66.30 | 29.20 | 31.50 | 50.80 |
| 750 | mm | 762 | 1651 | 1664 | 1651 | 741 | 800 | 1290 |
| 32 | in. | 32.00 | 70.00 | 70.72 | 70.00 | 29.80 | 31.70 | 52.40 |
| 800 | mm | 813 | 1778 | 1794 | 1778 | 756 | 804 | 1330 |
| 34 | in. | 34.00 | 76.00 | 76.52 | 76.00 | 30.80 | 32.20 | 57.10 |
| 850 | mm | 864 | 1930 | 1946 | 1930 | 782 | 817 | 1450 |
| 36 | in. | 36.00 | 82.00 | 82.63 | 82.00 | 34.20 | 37.20 | 60.90 |
| 900 | mm | 914 | 2083 | 2099 | 2083 | 869 | 945 | 1546 |
| 40 | in. | 40.00 | 85.40 | 85.43 | 85.40 | 36.10 | 38.60 | 64.80 |
| 1000 | mm | 1016 | 2170 | 2170 | 2170 | 916 | 980 | 1645 |
| 42 | in. | 42.00 | 85.60 | 85.63 | 85.60 | 39.20 | 43.70 | 70.80 |
| 1050 | mm | 1067 | 2175 | 2175 | 2175 | 995 | 1110 | 1800 |
| 48 | in. | 48.00 | 95.90 | 95.87 | 95.90 | 44.60 | 49.80 | 81.50 |
| 1200 | mm | 1219 | 2435 | 2435 | 2435 | 1132 | 1265 | 2070 |
| 56 | in. | 53.54 | 106.70 | 106.70 | 106.70 | 51.00 | 57.50 | 94.00 |
| 1400 | mm | 1360 | 2710 | 2710 | 2710 | 1295 | 1460 | 2390 |

ASME CLASS 600 REDUCED BORE

| SIZE | | SIDE ENTRY | | | | | | | |
|-----------|-----|------------|-------|-------|-------|-------|-------|-------|-------|
| | | A | D | RF | RJ | WE | B | C | E |
| 2 x 1/2 | in. | 2.00 | 1.50 | 11.50 | 11.63 | 11.50 | 7.48 | 3.54 | 6.50 |
| 50 x 40 | mm | 51 | 38 | 292 | 295 | 292 | 190 | 90 | 165 |
| 3 x 2 | in. | 3.00 | 2.00 | 14.00 | 14.13 | 14.00 | 14.01 | 4.33 | 8.30 |
| 80 x 50 | mm | 76 | 51 | 356 | 359 | 356 | 356 | 110 | 210 |
| 4 x 3 | in. | 4.00 | 3.00 | 17.00 | 17.13 | 17.00 | 9.44 | 4.33 | 14.70 |
| 100 x 80 | mm | 102 | 76 | 432 | 435 | 432 | 240 | 110 | 373 |
| 6 x 4 | in. | 6.00 | 4.00 | 22.00 | 22.13 | 22.00 | 11.02 | 6.88 | 14.00 |
| 150 x 100 | mm | 152 | 102 | 559 | 562 | 559 | 280 | 175 | 356 |
| 8 x 6 | in. | 8.00 | 6.00 | 26.00 | 26.13 | 26.00 | 12.00 | 7.67 | 16.50 |
| 200 x 150 | mm | 203 | 152 | 660 | 664 | 660 | 305 | 195 | 419 |
| 10 x 8 | in. | 10.00 | 8.00 | 31.00 | 31.13 | 31.00 | 15.74 | 11.02 | 20.10 |
| 250 x 200 | mm | 254 | 203 | 787 | 791 | 787 | 400 | 280 | 510 |
| 12 x 10 | in. | 12.00 | 10.00 | 33.00 | 33.13 | 33.00 | 17.12 | 11.22 | 22.00 |
| 300 x 250 | mm | 305 | 254 | 838 | 841 | 838 | 435 | 285 | 560 |
| 14 x 10 | in. | 14.00 | 10.00 | 35.00 | 35.13 | 35.00 | 17.32 | 12.59 | 23.80 |
| 350 x 250 | mm | 356 | 254 | 889 | 892 | 889 | 440 | 320 | 605 |
| 14 x 12 | in. | 14.00 | 12.00 | 35.00 | 35.13 | 35.00 | 17.32 | 12.59 | 23.80 |
| 350 x 250 | mm | 356 | 305 | 889 | 892 | 889 | 440 | 320 | 605 |
| 16 x 12 | in. | 16.00 | 12.00 | 39.00 | 39.13 | 39.00 | 19.88 | 13.38 | 27.00 |
| 400 x 300 | mm | 406 | 305 | 991 | 994 | 991 | 505 | 340 | 685 |
| 16 x 14 | in. | 16.00 | 14.00 | 39.00 | 39.13 | 39.00 | 19.88 | 13.38 | 24.70 |
| 400 x 350 | mm | 406 | 356 | 991 | 994 | 991 | 505 | 340 | 628 |
| 18 x 16 | in. | 18.00 | 16.00 | 43.00 | 43.13 | 43.00 | 23.22 | 16.10 | 29.30 |
| 450 x 400 | mm | 457 | 406 | 1092 | 1095 | 1092 | 590 | 410 | 745 |
| 20 x 16 | in. | 20.00 | 16.00 | 47.00 | 47.25 | 47.00 | 23.80 | 17.51 | 32.10 |
| 500 x 400 | mm | 508 | 406 | 1194 | 1200 | 1194 | 604 | 445 | 815 |
| 20 x 18 | in. | 20.00 | 18.00 | 47.00 | 47.25 | 47.00 | 24.00 | 17.51 | 32.10 |
| 500 x 450 | mm | 508 | 457 | 1194 | 1200 | 1194 | 609 | 445 | 815 |
| 24 x 20 | in. | 24.00 | 20.00 | 55.00 | 55.38 | 55.00 | 24.50 | 20.07 | 37.00 |
| 600 x 500 | mm | 610 | 508 | 1397 | 1407 | 1397 | 622 | 510 | 940 |
| 30 x 24 | in. | 30.00 | 24.00 | 66.30 | 66.50 | 66.30 | 24.80 | 22.40 | 44.50 |
| 750 x 600 | mm | 762 | 610 | 1651 | 1664 | 1651 | 629 | 570 | 1130 |
| 36 x 30 | in. | 36.00 | 30.00 | 82.00 | 82.63 | 82.00 | 27.90 | 29.90 | 51.80 |
| 900 x 750 | mm | 914 | 762 | 2083 | 2099 | 2083 | 708 | 760 | 1315 |

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ASME CLASS 900 FULL BORE

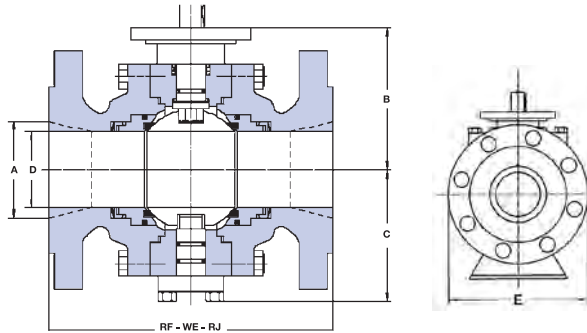
| SIDE ENTRY | | | | | | | | |
|------------|-----|-------|-------|-------|-------|-------|-------|-------|
| SIZE | | D | RF | RJ | WE | B | C | E |
| 2 | in. | 2.00 | 14.49 | 14.61 | 14.49 | 7.87 | 4.72 | 8.50 |
| 50 | mm | 51 | 368 | 371 | 368 | 200 | 120 | 220 |
| 3 | in. | 3.00 | 15.00 | 15.12 | 15.00 | 9.44 | 5.11 | 9.49 |
| 80 | mm | 76 | 381 | 384 | 381 | 240 | 130 | 241 |
| 4 | in. | 4.00 | 17.99 | 18.11 | 17.99 | 11.02 | 6.88 | 11.50 |
| 100 | mm | 102 | 457 | 460 | 457 | 280 | 175 | 290 |
| 6 | in. | 6.00 | 24.02 | 24.13 | 24.02 | 13.77 | 8.66 | 15.00 |
| 150 | mm | 152 | 610 | 613 | 610 | 350 | 220 | 381 |
| 8 | in. | 8.00 | 29.02 | 29.13 | 29.02 | 15.35 | 10.23 | 18.50 |
| 200 | mm | 203 | 737 | 740 | 737 | 390 | 260 | 470 |
| 10 | in. | 10.00 | 32.99 | 33.11 | 32.99 | 18.89 | 14.20 | 21.46 |
| 250 | mm | 254 | 838 | 841 | 838 | 480 | 310 | 545 |
| 12 | in. | 12.00 | 37.99 | 38.11 | 37.99 | 17.24 | 16.14 | 24.02 |
| 300 | mm | 305 | 965 | 968 | 965 | 438 | 410 | 610 |
| 14 | in. | 14.00 | 40.51 | 40.87 | 40.51 | 21.45 | 14.56 | 25.50 |
| 350 | mm | 356 | 1029 | 1038 | 1029 | 545 | 370 | 650 |
| 16 | in. | 16.00 | 44.49 | 44.88 | 44.49 | 24.59 | 16.53 | 27.95 |
| 400 | mm | 406 | 1130 | 1140 | 1130 | 624 | 420 | 710 |
| 18 | in. | 18.00 | 47.99 | 48.50 | 47.99 | 24.80 | 24.29 | 31.50 |
| 450 | mm | 457 | 1219 | 1232 | 1219 | 630 | 617 | 800 |
| 20 | in. | 20.00 | 52.01 | 52.48 | 52.01 | 25.00 | 28.54 | 35.04 |
| 500 | mm | 508 | 1321 | 1334 | 1321 | 635 | 725 | 890 |
| 24 | in. | 24.00 | 60.98 | 61.73 | 60.98 | 26.00 | 32.71 | 41.69 |
| 600 | mm | 610 | 1549 | 1568 | 1549 | 660 | 831 | 1059 |
| 28 | in. | 28.00 | 69.02 | 69.88 | 69.02 | 26.54 | 27.80 | 48.58 |
| 700 | mm | 711 | 1753 | 1775 | 1753 | 674 | 706 | 1234 |
| 30 | in. | 30.00 | 74.02 | 74.88 | 74.02 | 28.50 | 30.59 | 51.18 |
| 750 | mm | 762 | 1880 | 1902 | 1880 | 725 | 777 | 1300 |
| 32 | in. | 32.00 | 80.00 | 80.87 | 80.00 | 30.87 | 31.90 | 53.43 |
| 800 | mm | 813 | 2032 | 2054 | 2032 | 784 | 810 | 1357 |
| 34 | in. | 34.00 | 85.00 | 86.14 | 85.00 | 31.77 | 33.54 | 57.80 |
| 850 | mm | 864 | 2159 | 2188 | 2159 | 807 | 852 | 1468 |
| 36 | in. | 36.00 | 90.00 | 91.14 | 90.00 | 33.39 | 35.35 | 60.31 |
| 900 | mm | 914 | 2286 | 2315 | 2286 | 848 | 898 | 1532 |

ASME CLASS 900 REDUCED BORE

| SIDE ENTRY | | | | | | | | | |
|------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| SIZE | | A | D | RF | RJ | WE | B | C | E |
| 2 x 1/2 | in. | 2.00 | 1.50 | 14.49 | 14.61 | 14.49 | 6.10 | 4.25 | 8.60 |
| 50 x 40 | mm | 51 | 38 | 368 | 371 | 368 | 155 | 108 | 220 |
| 3 x 2 | in. | 3.00 | 2.00 | 15.00 | 15.12 | 15.00 | 7.87 | 4.72 | 9.49 |
| 80 x 50 | mm | 76 | 51 | 381 | 384 | 381 | 200 | 120 | 241 |
| 4 x 3 | in. | 4.00 | 3.00 | 17.99 | 18.11 | 17.99 | 9.44 | 5.11 | 11.50 |
| 100 x 80 | mm | 102 | 76 | 457 | 460 | 457 | 240 | 130 | 290 |
| 6 x 4 | in. | 6.00 | 4.00 | 24.02 | 24.13 | 24.02 | 11.02 | 6.88 | 14.90 |
| 150 x 100 | mm | 152 | 102 | 610 | 613 | 610 | 280 | 175 | 381 |
| 8 x 6 | in. | 8.00 | 6.00 | 29.02 | 29.13 | 29.02 | 13.77 | 8.66 | 18.50 |
| 200 x 150 | mm | 203 | 152 | 737 | 740 | 737 | 350 | 220 | 470 |
| 10 x 8 | in. | 10.00 | 8.00 | 32.99 | 33.11 | 32.99 | 15.35 | 10.23 | 21.46 |
| 250 x 200 | mm | 254 | 203 | 838 | 841 | 838 | 390 | 260 | 545 |
| 12 x 10 | in. | 12.00 | 10.00 | 37.99 | 38.11 | 37.99 | 18.89 | 12.20 | 24.02 |
| 300 x 250 | mm | 305 | 254 | 965 | 968 | 965 | 480 | 310 | 610 |
| 14 x 10 | in. | 14.00 | 10.00 | 40.51 | 40.87 | 40.51 | 17.24 | 16.14 | 25.50 |
| 350 x 250 | mm | 356 | 254 | 1029 | 1038 | 1029 | 438 | 410 | 650 |
| 14 x 12 | in. | 14.00 | 12.00 | 40.51 | 40.87 | 40.51 | 17.24 | 16.14 | 27.90 |
| 350 x 300 | mm | 356 | 305 | 1029 | 1038 | 1029 | 438 | 410 | 710 |
| 16 x 12 | in. | 16.00 | 12.00 | 44.49 | 44.88 | 44.49 | 21.45 | 14.56 | 29.50 |
| 400 x 300 | mm | 406 | 305 | 1130 | 1140 | 1130 | 545 | 370 | 750 |
| 16 x 14 | in. | 16.00 | 14.00 | 44.49 | 44.88 | 44.49 | 21.45 | 14.56 | 31.10 |
| 400 x 350 | mm | 406 | 356 | 1130 | 1140 | 1130 | 545 | 370 | 790 |
| 18 x 16 | in. | 18.00 | 16.00 | 47.99 | 48.50 | 47.99 | 24.59 | 16.53 | 31.50 |
| 450 x 400 | mm | 457 | 406 | 1219 | 1232 | 1219 | 624 | 420 | 800 |
| 20 x 16 | in. | 20.00 | 16.00 | 52.01 | 52.48 | 52.01 | 25.00 | 24.29 | 31.10 |
| 500 x 400 | mm | 508 | 406 | 1321 | 1334 | 1321 | 630 | 617 | 790 |
| 20 x 18 | in. | 20.00 | 18.00 | 52.01 | 52.48 | 52.01 | 25.57 | 24.29 | 35.04 |
| 500 x 450 | mm | 508 | 457 | 1321 | 1334 | 1321 | 649 | 617 | 890 |
| 24 x 20 | in. | 24.00 | 20.00 | 60.98 | 61.73 | 60.98 | 25.70 | 28.54 | 40.94 |
| 600 x 500 | mm | 610 | 508 | 1549 | 1568 | 1549 | 652 | 725 | 1040 |
| 30 x 24 | in. | 30.00 | 24.00 | 74.02 | 74.88 | 74.02 | 28.00 | 24.88 | 48.43 |
| 750 x 600 | mm | 762 | 610 | 1880 | 1902 | 1880 | 711 | 632 | 1230 |
| 36 x 30 | in. | 36.00 | 30.00 | 90.00 | 91.14 | 90.00 | 31.70 | 30.87 | 57.48 |
| 900 x 750 | mm | 914 | 762 | 2286 | 2315 | 2286 | 807 | 784 | 1460 |

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ASME CLASS 1500 FULL BORE

| SIDE ENTRY | | | | | | | | |
|------------|-----|-------|-------|-------|-------|-------|-------|-------|
| SIZE | | D | RF | RJ | WE | B | C | E |
| 2 | in. | 2.00 | 14.49 | 14.61 | 14.49 | 8.07 | 4.72 | 8.60 |
| 50 | mm | 51 | 368 | 371 | 368 | 205 | 120 | 220 |
| 3 | in. | 3.00 | 18.50 | 18.62 | 18.50 | 8.26 | 4.92 | 10.51 |
| 80 | mm | 76 | 470 | 473 | 470 | 210 | 125 | 267 |
| 4 | in. | 4.00 | 21.50 | 21.61 | 21.50 | 9.64 | 6.29 | 12.20 |
| 100 | mm | 102 | 546 | 549 | 546 | 245 | 160 | 310 |
| 6 | in. | 6.00 | 27.76 | 27.99 | 27.76 | 13.18 | 10.03 | 15.51 |
| 150 | mm | 152 | 705 | 711 | 705 | 335 | 255 | 394 |
| 8 | in. | 8.00 | 32.76 | 33.11 | 32.76 | 17.20 | 13.38 | 19.09 |
| 200 | mm | 203 | 832 | 841 | 832 | 437 | 340 | 485 |
| 10 | in. | 10.00 | 39.02 | 39.37 | 39.02 | 19.76 | 15.00 | 23.03 |
| 250 | mm | 254 | 991 | 1000 | 991 | 502 | 381 | 585 |
| 12 | in. | 12.00 | 44.49 | 44.61 | 44.49 | 20.98 | 17.24 | 27.95 |
| 300 | mm | 305 | 1130 | 1146 | 1130 | 533 | 438 | 710 |
| 14 | in. | 14.00 | 49.49 | 50.24 | 49.49 | 24.64 | 19.60 | 30.12 |
| 350 | mm | 356 | 1257 | 1276 | 1257 | 626 | 498 | 765 |
| 16 | in. | 16.00 | 54.49 | 55.35 | 54.49 | 28.54 | 18.11 | 33.39 |
| 400 | mm | 406 | 1384 | 1407 | 1384 | 725 | 460 | 848 |
| 18 | in. | 18.00 | 60.51 | 61.38 | 60.51 | 29.00 | 23.90 | 38.58 |
| 450 | mm | 457 | 1537 | 1559 | 1537 | 736 | 607 | 980 |
| 20 | in. | 20.00 | 65.51 | 66.38 | 65.51 | 30.00 | 25.40 | 39.96 |
| 500 | mm | 508 | 1664 | 1686 | 1664 | 762 | 644 | 1015 |
| 24 | in. | 24.00 | 80.43 | 81.54 | 80.43 | 32.00 | 28.50 | 50.91 |
| 600 | mm | 610 | 2043 | 1972 | 2043 | 813 | 725 | 1295 |

ASME CLASS 1500 REDUCED BORE

| SIDE ENTRY | | | | | | | | | |
|------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| SIZE | | A | D | RF | RJ | WE | B | C | E |
| 2 x 1 1/2 | in. | 2.00 | 1.50 | 14.49 | 14.61 | 14.49 | 7.48 | 4.33 | 8.66 |
| 50 x 40 | mm | 51 | 38 | 368 | 371 | 368 | 190 | 110 | 220 |
| 3 x 2 | in. | 3.00 | 2.00 | 18.50 | 18.62 | 18.50 | 8.07 | 4.72 | 10.51 |
| 80 x 50 | mm | 76 | 51 | 470 | 473 | 470 | 205 | 120 | 2.67 |
| 4 x 3 | in. | 4.00 | 3.00 | 21.50 | 21.61 | 21.50 | 8.26 | 4.92 | 12.20 |
| 100 x 80 | mm | 102 | 76 | 546 | 549 | 546 | 210 | 125 | 310 |
| 6 x 4 | in. | 6.00 | 4.00 | 27.76 | 27.99 | 27.76 | 9.64 | 6.29 | 15.51 |
| 150 x 100 | mm | 152 | 102 | 705 | 711 | 705 | 245 | 160 | 394 |
| 8 x 6 | in. | 8.00 | 6.00 | 32.76 | 33.11 | 32.76 | 13.18 | 10.03 | 19.09 |
| 200 x 150 | mm | 203 | 152 | 832 | 841 | 832 | 335 | 255 | 485 |
| 10 x 8 | in. | 10.00 | 8.00 | 39.02 | 39.37 | 39.02 | 16.14 | 11.41 | 23.03 |
| 250 x 200 | mm | 254 | 203 | 991 | 1000 | 991 | 410 | 290 | 585 |
| 12 x 10 | in. | 12.00 | 10.00 | 44.49 | 44.61 | 44.49 | 18.30 | 13.18 | 26.57 |
| 300 x 250 | mm | 305 | 254 | 1130 | 1146 | 1130 | 465 | 335 | 675 |
| 14 x 10 | in. | 14.00 | 10.00 | 49.49 | 50.24 | 49.49 | 21.77 | 17.24 | 27.95 |
| 350 x 250 | mm | 356 | 254 | 1257 | 1276 | 1257 | 553 | 439 | 710 |
| 14 x 12 | in. | 14.00 | 12.00 | 49.49 | 50.24 | 49.49 | 21.77 | 17.24 | 29.92 |
| 350 x 300 | mm | 356 | 305 | 1257 | 1276 | 1257 | 553 | 438 | 760 |
| 16 x 12 | in. | 16.00 | 12.00 | 54.49 | 55.35 | 54.49 | 24.64 | 19.60 | 32.48 |
| 400 x 300 | mm | 406 | 305 | 1384 | 1407 | 1384 | 626 | 498 | 825 |
| 16 x 14 | in. | 16.00 | 14.00 | 54.49 | 55.35 | 54.49 | 24.64 | 19.60 | 32.48 |
| 400 x 350 | mm | 406 | 356 | 1384 | 1407 | 1384 | 626 | 498 | 825 |
| 18 x 16 | in. | 18.00 | 16.00 | 60.51 | 61.38 | 60.51 | 25.00 | 20.00 | 36.22 |
| 450 x 400 | mm | 457 | 406 | 1537 | 1559 | 1537 | 630 | 508 | 920 |
| 20 x 16 | in. | 20.00 | 16.00 | 65.51 | 66.38 | 65.51 | 26.00 | 20.00 | 38.97 |
| 500 x 400 | mm | 508 | 406 | 1664 | 1686 | 1664 | 660 | 508 | 990 |
| 20 x 18 | in. | 20.00 | 18.00 | 65.51 | 66.38 | 66.51 | 28.00 | 23.00 | 38.97 |
| 500 x 450 | mm | 508 | 457 | 1664 | 1686 | 1664 | 711 | 542 | 990 |
| 24 x 20 | in. | 24.00 | 20.00 | 80.43 | 81.54 | 80.43 | 30.00 | 25.00 | 46.06 |
| 600 x 500 | mm | 610 | 508 | 2043 | 1972 | 2043 | 762 | 635 | 1170 |

ASME CLASS 2500 FULL BORE

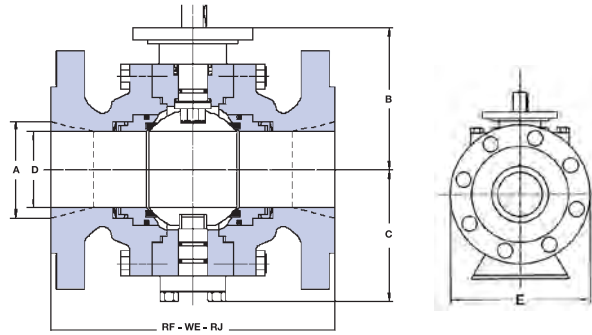
| SIDE ENTRY | | | | | | | | |
|------------|-----|-------|-------|-------|-------|-------|-------|-------|
| SIZE | | D | RF | RJ | WE | B | C | E |
| 2 | in. | 2.00 | 17.76 | 17.87 | 17.76 | 8.46 | 5.11 | 9.05 |
| 50 | mm | 51 | 451 | 454 | 451 | 215 | 130 | 230 |
| 3 | in. | 3.00 | 22.76 | 22.99 | 22.76 | 8.66 | 5.31 | 11.08 |
| 80 | mm | 76 | 578 | 584 | 578 | 220 | 135 | 300 |
| 4 | in. | 4.00 | 26.50 | 26.89 | 26.50 | 10.03 | 6.96 | 14.02 |
| 100 | mm | 102 | 673 | 683 | 673 | 255 | 170 | 356 |
| 6 | in. | 6.00 | 35.98 | 36.50 | 35.98 | 16.92 | 10.43 | 19.09 |
| 150 | mm | 152 | 914 | 927 | 914 | 430 | 265 | 485 |
| 8 | in. | 8.00 | 40.24 | 40.87 | 40.24 | 16.92 | 13.30 | 24.41 |
| 200 | mm | 203 | 1022 | 1038 | 1022 | 430 | 340 | 620 |
| 10 | in. | 10.00 | 50.00 | 50.87 | 50.00 | 17.50 | 16.60 | 29.33 |
| 250 | mm | 254 | 1270 | 1292 | 1270 | 444 | 421 | 745 |
| 12 | in. | 12.00 | 55.98 | 56.89 | 55.98 | 18.00 | 18.90 | 34.44 |
| 300 | mm | 305 | 1422 | 1445 | 1422 | 457 | 480 | 875 |

ASME CLASS 2500 REDUCED BORE

| SIDE ENTRY | | | | | | | | | |
|------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| SIZE | | A | D | RF | RJ | WE | B | C | E |
| 2 x 1 1/2 | in. | 2.00 | 1.50 | 17.76 | 17.87 | 17.76 | 7.78 | 4.72 | 9.25 |
| 50 x 40 | mm | 51 | 38 | 451 | 454 | 451 | 200 | 120 | 230 |
| 3 x 2 | in. | 3.00 | 2.00 | 22.76 | 22.99 | 22.76 | 8.46 | 5.11 | 11.01 |
| 80 x 50 | mm | 76 | 51 | 578 | 584 | 578 | 215 | 130 | 300 |
| 4 x 3 | in. | 4.00 | 3.00 | 26.50 | 26.89 | 26.50 | 8.66 | 5.31 | 14.02 |
| 100 x 80 | mm | 102 | 76 | 673 | 683 | 673 | 220 | 135 | 356 |
| 6 x 4 | in. | 6.00 | 4.00 | 35.98 | 36.50 | 35.98 | 10.03 | 6.96 | 19.09 |
| 150 x 100 | mm | 152 | 102 | 914 | 927 | 914 | 255 | 170 | 485 |
| 8 x 6 | in. | 8.00 | 6.00 | 40.24 | 40.87 | 40.24 | 12.00 | 9.00 | 22.05 |
| 200 x 150 | mm | 203 | 152 | 1022 | 1038 | 1022 | 348 | 228 | 560 |
| 10 x 8 | in. | 10.00 | 8.00 | 50.00 | 50.87 | 50.00 | 14.00 | 13.00 | 26.57 |
| 250 x 200 | mm | 254 | 203 | 1270 | 1292 | 1270 | 355 | 330 | 670 |
| 12 x 10 | in. | 12.00 | 10.00 | 55.98 | 56.89 | 55.98 | 16.00 | 18.00 | 30.70 |
| 300 x 250 | mm | 305 | 254 | 1422 | 1445 | 1422 | 406 | 475 | 780 |

The valve details on this page are the standard production range only, for other size valves or end configurations please consult the factory. Note OMB reserves the right to make modifications or changes to its production, without prior notice and take no responsibility for any errors in this publication.





API CLASS 3000 FULL BORE

| SIDE ENTRY | | | | | | |
|------------|-----|-------|-------|-------|-------|-------|
| SIZE | | D | RJ | B | C | E |
| 2 1/16 | in. | 2.06 | 14.61 | 6.50 | 4.33 | 8.50 |
| 50 | mm | 52.4 | 371 | 165 | 110 | 216 |
| 3 1/8 | in. | 3.12 | 17.13 | 7.87 | 5.00 | 9.44 |
| 80 | mm | 79.3 | 435 | 200 | 150 | 240 |
| 4 1/16 | in. | 4.06 | 20.12 | 8.27 | 6.69 | 11.80 |
| 100 | mm | 103.2 | 511 | 210 | 170 | 300 |
| 5 1/8 | in. | 5.12 | 24.13 | 10.83 | 10.16 | 16.65 |
| 125 | mm | 130 | 613 | 275 | 258 | 423 |
| 7 1/16 | in. | 7.06 | 28.11 | 13.78 | 13.39 | 15.00 |
| 200 | mm | 179.4 | 714 | 350 | 340 | 380 |

API CLASS 3000 REDUCED BORE

| SIDE ENTRY | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|
| SIZE | | A | D | RJ | B | C | E |
| 2 1/16 x 1 13/16 | in. | 2.06 | 2.06 | 14.61 | 6.50 | 4.33 | 8.50 |
| 50 x 40 | mm | 52.4 | 52.4 | 371 | 165 | 110 | 216 |
| 3 1/8 x 2 1/16 | in. | 3.12 | 3.12 | 17.13 | 7.87 | 5.90 | 9.49 |
| 80 x 50 | mm | 79.3 | 79.3 | 435 | 200 | 150 | 240 |
| 4 1/16 x 3 1/8 | in. | 4.06 | 4.06 | 20.12 | 8.27 | 6.69 | 11.61 |
| 100 x 80 | mm | 103.2 | 103.2 | 511 | 210 | 170 | 300 |
| 5 1/8 x 4 1/16 | in. | 5.12 | 5.12 | 24.13 | 10.83 | 10.16 | 16.65 |
| 125 x 150 | mm | 130 | 130 | 613 | 275 | 258 | 423 |
| 7 1/16 x 6 | in. | 7.06 | 7.06 | 28.11 | 13.78 | 13.39 | 15.00 |
| 200 x 150 | mm | 179.4 | 179.4 | 714 | 350 | 340 | 381 |

API CLASS 5000 FULL BORE

| SIDE ENTRY | | | | | | |
|------------|-----|-------|-------|-------|-------|-------|
| SIZE | | D | RJ | B | C | E |
| 2 1/16 | in. | 2.06 | 14.61 | 6.50 | 4.33 | 8.50 |
| 50 | mm | 52.4 | 371 | 165 | 110 | 216 |
| 3 1/8 | in. | 3.12 | 17.13 | 7.87 | 5.90 | 9.44 |
| 80 | mm | 79.3 | 435 | 200 | 150 | 240 |
| 4 1/16 | in. | 4.06 | 20.12 | 8.27 | 6.69 | 11.80 |
| 100 | mm | 103.2 | 511 | 210 | 170 | 300 |
| 5 1/8 | in. | 5.12 | 24.13 | 10.83 | 10.16 | 16.65 |
| 125 | mm | 130 | 613 | 275 | 258 | 423 |
| 7 1/16 | in. | 7.06 | 28.11 | 13.78 | 13.39 | 15.00 |
| 200 | mm | 179.4 | 714 | 350 | 340 | 380 |

API CLASS 5000 REDUCED BORE

| SIDE ENTRY | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|
| SIZE | | A | D | RJ | B | C | E |
| 2 1/16 x 1 13/16 | in. | 2.06 | 2.06 | 14.61 | 6.50 | 4.33 | 8.50 |
| 50 x 40 | mm | 52.4 | 52.4 | 371 | 165 | 110 | 216 |
| 3 1/8 x 2 1/16 | in. | 3.12 | 3.12 | 17.13 | 7.87 | 5.90 | 9.44 |
| 80 x 50 | mm | 79.3 | 79.3 | 435 | 200 | 150 | 240 |
| 4 1/16 x 3 1/8 | in. | 4.06 | 4.06 | 20.12 | 8.27 | 6.69 | 11.80 |
| 100 x 80 | mm | 103.2 | 103.2 | 511 | 210 | 170 | 300 |
| 5 1/8 x 4 1/16 | in. | 5.12 | 5.12 | 24.13 | 10.83 | 10.16 | 16.65 |
| 125 x 150 | mm | 130 | 130 | 613 | 275 | 258 | 423 |
| 7 1/16 x 6 | in. | 7.06 | 7.06 | 28.11 | 13.78 | 13.39 | 14.90 |
| 200 x 150 | mm | 179.4 | 179.4 | 714 | 350 | 340 | 380 |

API CLASS 10000 FULL BORE

| SIDE ENTRY | | | | | | |
|------------|-----|-------|-------|------|------|-------|
| SIZE | | D | RJ | B | C | E |
| 2 1/16 | in. | 2.06 | 14.61 | 6.50 | 4.33 | 8.50 |
| 50 | mm | 52.4 | 371 | 165 | 110 | 216 |
| 3 1/8 | in. | 3.12 | 17.13 | 7.87 | 5.90 | 9.44 |
| 80 | mm | 79.3 | 435 | 200 | 150 | 240 |
| 4 1/16 | in. | 4.06 | 20.12 | 8.27 | 6.69 | 11.80 |
| 100 | mm | 103.2 | 511 | 210 | 170 | 300 |

API CLASS 10000 REDUCED BORE

| SIDE ENTRY | | | | | | | |
|------------------|-----|-------|-------|-------|------|------|-------|
| SIZE | | A | D | RJ | B | C | E |
| 2 1/16 x 1 13/16 | in. | 2.06 | 2.06 | 14.61 | 6.50 | 4.33 | 8.50 |
| 50 x 40 | mm | 52.4 | 52.4 | 371 | 165 | 110 | 216 |
| 3 1/8 x 2 1/16 | in. | 3.12 | 3.12 | 17.13 | 7.87 | 5.90 | 9.44 |
| 80 x 50 | mm | 79.3 | 79.3 | 435 | 200 | 150 | 240 |
| 4 1/16 x 3 1/8 | in. | 4.06 | 4.06 | 20.12 | 8.27 | 6.69 | 11.80 |
| 100 x 80 | mm | 103.2 | 103.2 | 511 | 210 | 170 | 300 |



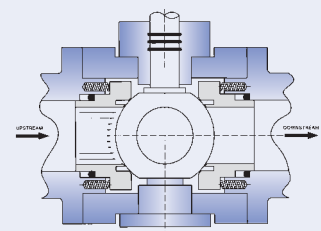


OMB Trunnion mounted ball valves are manufactured to API 6D and 6A specifications. The construction is top entry full bore. Lever, gear or actuated options are available in standard and compact designs.

Full Bore valves are suitable for the passage of all types of pipeline scrapper and inspection pigs without causing damage to either the valve or the pig. All valves are designed with anti blow out stem to prevent stem ejection by internal pressure.

Body cavity over pressure is prevented by self relieving seats, For Double Block and or emergency Shut down Valves (ESDV/SSDV) Double Piston Effect Seats will be provided.

CONSTRUCTION



KEY FEATURES ARE:

- ✓ FULL BORE, PIGGABLE
- ✓ BI DIRECTIONAL SEALING.
- ✓ DOUBLE BLOCK CAPABILITIES.
- ✓ BUBBLE TIGHT SEALING.
- ✓ METAL TO METAL SEALING



| CLASS DIAMETER | CLASS 150 RB - FB | | CLASS 300 RB - FB | | CLASS 600 RB - FB | | CLASS 900 RB - FB | | CLASS 1500 RB - FB | | CLASS 2500 RB - FB | |
|----------------|-------------------|---|-------------------|---|-------------------|---|-------------------|---|--------------------|---|--------------------|---|
| 1/2" | | | | | | | | | | | | |
| 3/4" | | | | | | | | | | | | |
| 1" | | | | | | | | | | | | |
| 1 1/2" | | | | | | | | | | | | |
| 2" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 3" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 4" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 6" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 8" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 10" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 12" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 14" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 16" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 18" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 20" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 22" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 24" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 26" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 28" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 30" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 32" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 34" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 36" | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 40" | | ● | | ● | | ● | | ● | | ● | | ● |
| 42" | | ● | | ● | | ● | | ● | | ● | | ● |
| 48" | | ● | | ● | | ● | | ● | | ● | | ● |

Applicable Standards

API 6D LICIENCE No 6D-0286

API 6A LICIENCE No 6A-0778

API Spec. Q1

API 6D (EN ISO 14313)
Pipeline Transportation Systems-Pipeline Valves.

API 598 (Inspection Testing)

API 14D Sand Slurry (Annex I API 6A)

ASME B16.34
(Vales-Flanged, Threaded and Welding end)

ASME B16.5 (Pipe Flanges and Flanged Fittings)

ASME B16.10 (Face to Face Dimensions)

ASME B16.25 (Butt weld ends)

ASME
(Boiler and Pressure vessel Code II, V, VIII, X)

ASME B31.8
Gas transmission and Distribution piping systems.

ASME B31.4
Liquid Petroleum transmission piping systems.

BS EN ISO 10497 - Fire Testing.

BS EN 12266 - 1/2. (Testing Of Valves)

BS EN ISO 4406 (Hydraulic Fluid Cleanliness)

BS EN 10204 (Metallic Products Inspection Documents)

EU Pressure Equipment Directive.

EN ISO 9001:2000

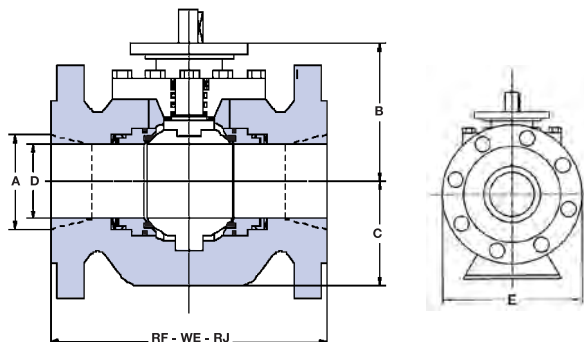
ISO 5208 (industrial valves pressure testing)

NACE MR0175/ISO 15156
(Sulphide Stress Cracking Resistant Materials for offshore applications)

NOROSK L-001-Piping and Valves.

NOROSK M-630-Material Data Sheets for Piping.

NOROSK M-650-Qualification of Manufacturers of special materials.



ASME CLASS 150 FULL BORE

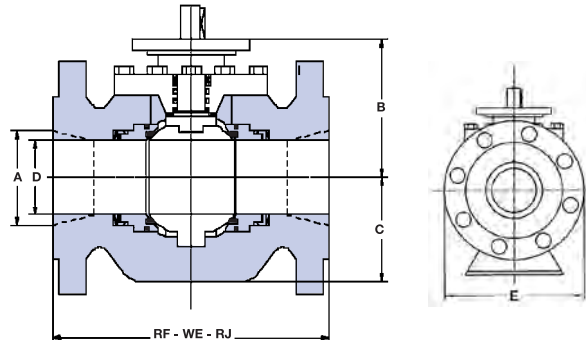
| SIZE | | TOP ENTRY | | | | | |
|------|-----|-----------|-------|-------|-------|-------|-------|
| | | D | RF | WE | B | C | E |
| 2 | in. | 2.00 | 7.00 | 8.50 | 5.51 | 3.54 | 5.00 |
| 50 | mm | 51 | 178 | 216 | 140 | 90 | 150 |
| 3 | in. | 3.00 | 8.00 | 11.13 | 7.48 | 4.13 | 7.48 |
| 80 | mm | 76 | 203 | 283 | 190 | 105 | 190 |
| 4 | in. | 4.00 | 9.00 | 12.00 | 11.02 | 6.53 | 9.00 |
| 100 | mm | 102 | 229 | 305 | 280 | 166 | 230 |
| 6 | in. | 6.00 | 15.50 | 18.00 | 11.61 | 6.88 | 12.20 |
| 150 | mm | 152 | 394 | 457 | 295 | 175 | 310 |
| 8 | in. | 8.00 | 18.00 | 20.50 | 12.99 | 8.26 | 15.35 |
| 200 | mm | 203 | 457 | 521 | 330 | 210 | 390 |
| 10 | in. | 10.00 | 21.00 | 22.00 | 15.74 | 9.84 | 18.11 |
| 250 | mm | 254 | 533 | 559 | 400 | 250 | 460 |
| 12 | in. | 12.00 | 24.00 | 25.00 | 18.11 | 12.20 | 21.45 |
| 300 | mm | 305 | 610 | 635 | 460 | 310 | 545 |
| 14 | in. | 14.00 | 27.00 | 30.00 | 18.89 | 13.38 | 24.00 |
| 350 | mm | 356 | 686 | 762 | 480 | 340 | 610 |
| 16 | in. | 16.00 | 30.00 | 33.00 | 21.25 | 15.15 | 26.37 |
| 400 | mm | 406 | 762 | 838 | 540 | 385 | 670 |
| 18 | in. | 18.00 | 34.00 | 36.00 | 23.00 | 16.85 | 24.80 |
| 450 | mm | 457 | 864 | 914 | 584 | 428 | 630 |
| 20 | in. | 20.00 | 36.00 | 39.00 | 24.00 | 21.45 | 33.43 |
| 500 | mm | 508 | 914 | 991 | 610 | 545 | 849 |
| 22 | in. | 22.00 | 40.00 | 43.00 | 24.10 | 23.00 | 36.81 |
| 550 | mm | 559 | 991 | 1092 | 612 | 584 | 935 |
| 24 | in. | 24.00 | 42.00 | 45.00 | 30.70 | 25.78 | 39.57 |
| 600 | mm | 610 | 1067 | 1143 | 780 | 655 | 1005 |
| 26 | in. | 26.00 | 45.00 | 49.00 | 24.69 | 22.20 | 41.73 |
| 650 | mm | 660 | 1143 | 1245 | 627 | 564 | 1060 |
| 28 | in. | 28.00 | 49.00 | 53.00 | 25.35 | 25.91 | 44.88 |
| 700 | mm | 711 | 1245 | 1346 | 644 | 658 | 1140 |
| 30 | in. | 30.00 | 51.00 | 55.00 | 27.20 | 27.70 | 47.24 |
| 750 | mm | 762 | 1295 | 1397 | 691 | 705 | 1200 |
| 32 | in. | 32.00 | 54.00 | 60.00 | 29.21 | 29.37 | 51.18 |
| 800 | mm | 813 | 1372 | 1524 | 742 | 746 | 1300 |
| 34 | in. | 34.00 | 58.00 | 64.00 | 29.88 | 30.51 | 53.94 |
| 850 | mm | 864 | 1473 | 1626 | 759 | 775 | 1370 |
| 36 | in. | 36.00 | 60.00 | 68.00 | 31.97 | 31.77 | 56.30 |
| 900 | mm | 914 | 1524 | 1727 | 812 | 807 | 1430 |
| 40 | in. | 40.00 | 69.00 | 77.00 | 35.43 | 35.35 | 63.00 |
| 1000 | mm | 1016 | 1753 | 1956 | 900 | 898 | 1600 |
| 42 | in. | 42.00 | 72.00 | 82.00 | 37.13 | 37.00 | 64.96 |
| 1050 | mm | 1067 | 1855 | 2083 | 943 | 940 | 1656 |
| 48 | in. | 48.00 | 80.00 | 94.00 | 43.19 | 41.73 | 75.59 |
| 1200 | mm | 1219 | 2134 | 2388 | 1097 | 1060 | 1920 |

ASME CLASS 150 REDUCED BORE

| SIZE | | TOP ENTRY | | | | | | |
|-----------|-----|-----------|-------|-------|-------|-------|-------|-------|
| | | A | D | RF | WE | B | C | E |
| 2 x 1/2 | in. | 2.00 | 1.50 | 7.00 | 8.50 | 4.00 | 3.00 | 5.90 |
| 50 x 40 | mm | 51 | 38 | 178 | 216 | 101 | 76 | 150 |
| 3 x 2 | in. | 3.00 | 2.00 | 8.00 | 11.13 | 5.51 | 3.54 | 7.48 |
| 80 x 50 | mm | 76 | 51 | 203 | 283 | 140 | 90 | 190 |
| 4 x 3 | in. | 4.00 | 3.00 | 9.00 | 12.00 | 7.48 | 4.13 | 9.00 |
| 100 x 80 | mm | 102 | 76 | 229 | 305 | 190 | 105 | 230 |
| 6 x 4 | in. | 6.00 | 4.00 | 15.50 | 18.00 | 11.02 | 6.53 | 12.20 |
| 150 x 100 | mm | 152 | 102 | 394 | 457 | 280 | 166 | 310 |
| 8 x 6 | in. | 8.00 | 6.00 | 18.00 | 20.50 | 11.61 | 6.88 | 15.35 |
| 200 x 150 | mm | 203 | 152 | 457 | 521 | 295 | 175 | 390 |
| 10 x 8 | in. | 10.00 | 8.00 | 21.00 | 22.00 | 12.99 | 8.26 | 15.98 |
| 250 x 200 | mm | 254 | 203 | 533 | 559 | 330 | 210 | 460 |
| 12 x 10 | in. | 12.00 | 10.00 | 24.00 | 25.00 | 15.74 | 9.84 | 19.02 |
| 300 x 250 | mm | 305 | 254 | 610 | 635 | 400 | 250 | 483 |
| 14 x 10 | in. | 14.00 | 10.00 | 27.00 | 30.00 | 18.11 | 12.30 | 21.06 |
| 350 x 250 | mm | 356 | 254 | 686 | 762 | 460 | 310 | 535 |
| 14 x 12 | in. | 14.00 | 12.00 | 27.00 | 30.00 | 18.11 | 12.20 | 21.06 |
| 350 x 250 | mm | 356 | 305 | 686 | 762 | 460 | 310 | 535 |
| 16 x 12 | in. | 16.00 | 12.00 | 30.00 | 33.00 | 18.89 | 13.38 | 23.43 |
| 400 x 300 | mm | 406 | 305 | 762 | 838 | 480 | 340 | 595 |
| 16 x 14 | in. | 16.00 | 14.00 | 30.00 | 33.00 | 18.89 | 13.38 | 23.43 |
| 400 x 350 | mm | 406 | 356 | 762 | 838 | 480 | 340 | 595 |
| 18 x 16 | in. | 18.00 | 16.00 | 34.00 | 36.00 | 21.25 | 15.15 | 24.80 |
| 450 x 400 | mm | 457 | 406 | 864 | 914 | 540 | 385 | 630 |
| 20 x 16 | in. | 20.00 | 16.00 | 36.00 | 39.00 | 22.83 | 16.85 | 27.56 |
| 500 x 400 | mm | 508 | 406 | 914 | 991 | 580 | 428 | 700 |
| 20 x 18 | in. | 20.00 | 18.00 | 36.00 | 39.00 | 22.84 | 16.85 | 27.56 |
| 500 x 450 | mm | 508 | 457 | 914 | 991 | 580 | 428 | 700 |
| 24 x 20 | in. | 24.00 | 20.00 | 42.00 | 45.00 | 23.00 | 18.00 | 32.28 |
| 600 x 500 | mm | 610 | 508 | 1067 | 1143 | 584 | 457 | 820 |
| 30 x 24 | in. | 30.00 | 24.00 | 51.00 | 55.00 | 25.15 | 19.49 | 38.78 |
| 750 x 600 | mm | 762 | 610 | 1295 | 1397 | 638 | 495 | 985 |
| 36 x 30 | in. | 36.00 | 30.00 | 60.00 | 68.00 | 27.17 | 27.56 | 46.06 |
| 900 x 750 | mm | 914 | 762 | 1524 | 1727 | 690 | 700 | 1170 |

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ASME CLASS 300 FULL BORE

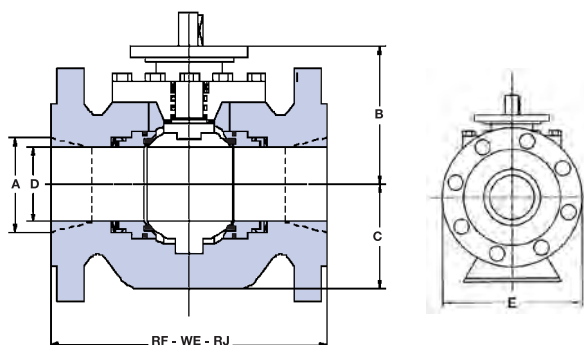
| SIZE | | TOP ENTRY | | | | | |
|------|-----|-----------|-------|-------|-------|-------|-------|
| | | D | RF | WE | B | C | E |
| 2 | in. | 2.00 | 8.50 | 8.50 | 7.87 | 4.72 | 6.50 |
| 50 | mm | 51 | 216 | 216 | 200 | 120 | 165 |
| 3 | in. | 3.00 | 11.10 | 11.10 | 9.44 | 5.11 | 8.50 |
| 80 | mm | 76 | 283 | 283 | 240 | 130 | 218 |
| 4 | in. | 4.00 | 12.00 | 12.00 | 11.02 | 5.90 | 10.00 |
| 100 | mm | 102 | 305 | 305 | 280 | 150 | 254 |
| 6 | in. | 6.00 | 15.90 | 18.00 | 11.61 | 6.88 | 12.20 |
| 150 | mm | 152 | 457 | 457 | 295 | 175 | 310 |
| 8 | in. | 8.00 | 19.80 | 20.50 | 12.99 | 8.26 | 15.40 |
| 200 | mm | 203 | 502 | 521 | 330 | 210 | 390 |
| 10 | in. | 10.00 | 22.40 | 22.00 | 16.53 | 10.62 | 18.50 |
| 250 | mm | 254 | 568 | 559 | 420 | 270 | 470 |
| 12 | in. | 12.00 | 25.50 | 25.00 | 18.30 | 12.79 | 21.30 |
| 300 | mm | 305 | 648 | 635 | 465 | 325 | 545 |
| 14 | in. | 14.00 | 30.00 | 30.00 | 21.45 | 16.92 | 24.80 |
| 350 | mm | 356 | 762 | 762 | 545 | 430 | 630 |
| 16 | in. | 16.00 | 33.00 | 33.00 | 23.62 | 18.50 | 27.20 |
| 400 | mm | 406 | 838 | 838 | 600 | 470 | 690 |
| 18 | in. | 18.00 | 36.00 | 36.00 | 23.10 | 20.07 | 30.30 |
| 450 | mm | 457 | 914 | 914 | 586 | 510 | 770 |
| 20 | in. | 20.00 | 39.00 | 39.00 | 23.90 | 19.68 | 33.50 |
| 500 | mm | 508 | 991 | 991 | 607 | 500 | 850 |
| 22 | in. | 22.00 | 43.00 | 43.00 | 24.01 | 21.00 | 37.00 |
| 550 | mm | 559 | 1092 | 1092 | 612 | 533 | 940 |
| 24 | in. | 24.00 | 45.00 | 45.00 | 24.50 | 23.62 | 39.70 |
| 600 | mm | 610 | 1143 | 1143 | 622 | 600 | 1010 |
| 26 | in. | 26.00 | 49.00 | 49.00 | 24.80 | 22.80 | 42.50 |
| 650 | mm | 660 | 1245 | 1245 | 630 | 580 | 1080 |
| 28 | in. | 28.00 | 53.00 | 53.00 | 25.20 | 26.60 | 45.30 |
| 700 | mm | 711 | 1346 | 1346 | 640 | 675 | 1150 |
| 30 | in. | 30.00 | 55.00 | 55.00 | 27.60 | 28.70 | 48.40 |
| 750 | mm | 762 | 1397 | 1397 | 700 | 730 | 1230 |
| 32 | in. | 32.00 | 60.00 | 60.00 | 29.30 | 29.90 | 52.00 |
| 800 | mm | 813 | 1524 | 1524 | 745 | 760 | 1320 |
| 34 | in. | 34.00 | 64.00 | 64.00 | 29.90 | 31.50 | 54.50 |
| 850 | mm | 864 | 1626 | 1626 | 760 | 800 | 1380 |
| 36 | in. | 36.00 | 68.00 | 68.00 | 31.70 | 32.5 | 56.9 |
| 900 | mm | 914 | 1727 | 1727 | 805 | 825 | 1445 |
| 40 | in. | 40.00 | 77.00 | 77.00 | 35.40 | 36.2 | 64.10 |
| 1000 | mm | 1016 | 1956 | 1956 | 900 | 920 | 1630 |
| 42 | in. | 42.00 | 82.00 | 82.00 | 38.10 | 38.40 | 66.90 |
| 1050 | mm | 1067 | 2083 | 2083 | 968 | 980 | 1700 |
| 48 | in. | 48.00 | 85.40 | 85.40 | 43.30 | 45.60 | 74.80 |
| 1200 | mm | 1219 | 2170 | 2170 | 1100 | 1160 | 1960 |

ASME CLASS 300 REDUCED BORE

| SIZE | | TOP ENTRY | | | | | | |
|-----------|-----|-----------|-------|-------|-------|-------|-------|-------|
| | | A | D | RF | WE | B | C | E |
| 2 x 1/2 | in. | 2.00 | 1.50 | 8.50 | 8.50 | 8.22 | 2.75 | 6.50 |
| 50 x 40 | mm | 51 | 38 | 216 | 216 | 209 | 70 | 165 |
| 3 x 2 | in. | 3.00 | 2.00 | 11.10 | 11.10 | 7.87 | 4.72 | 8.50 |
| 80 x 50 | mm | 76 | 51 | 283 | 283 | 200 | 120 | 218 |
| 4 x 3 | in. | 4.00 | 3.00 | 12.00 | 12.00 | 9.44 | 5.11 | 10.00 |
| 100 x 80 | mm | 102 | 76 | 305 | 305 | 240 | 130 | 254 |
| 6 x 4 | in. | 6.00 | 4.00 | 15.90 | 18.00 | 11.02 | 5.90 | 12.20 |
| 150 x 100 | mm | 152 | 102 | 457 | 457 | 280 | 150 | 310 |
| 8 x 6 | in. | 8.00 | 6.00 | 19.80 | 20.50 | 11.61 | 6.88 | 15.40 |
| 200 x 150 | mm | 203 | 152 | 502 | 521 | 295 | 175 | 390 |
| 10 x 8 | in. | 10.00 | 8.00 | 22.40 | 22.00 | 12.99 | 8.26 | 18.50 |
| 250 x 200 | mm | 254 | 203 | 568 | 559 | 330 | 210 | 470 |
| 12 x 10 | in. | 12.00 | 10.00 | 25.50 | 25.00 | 16.53 | 10.62 | 21.30 |
| 300 x 250 | mm | 305 | 254 | 648 | 635 | 420 | 270 | 520 |
| 14 x 10 | in. | 14.00 | 10.00 | 30.00 | 30.00 | - | - | 23.00 |
| 350 x 250 | mm | 356 | 254 | 762 | 762 | - | - | 585 |
| 14 x 12 | in. | 14.00 | 12.00 | 30.00 | 30.00 | 18.30 | 12.79 | 23.00 |
| 350 x 250 | mm | 356 | 305 | 762 | 762 | 465 | 325 | 585 |
| 16 x 12 | in. | 16.00 | 12.00 | 33.00 | 33.00 | - | - | 25.60 |
| 400 x 300 | mm | 406 | 305 | 838 | 838 | - | - | 650 |
| 16 x 14 | in. | 16.00 | 14.00 | 33.00 | 33.00 | 21.45 | 16.92 | 25.60 |
| 400 x 350 | mm | 406 | 356 | 838 | 838 | 545 | 430 | 650 |
| 18 x 16 | in. | 18.00 | 16.00 | 36.00 | 36.00 | 23.62 | 18.50 | 28.00 |
| 450 x 400 | mm | 457 | 406 | 914 | 914 | 600 | 470 | 710 |
| 20 x 16 | in. | 20.00 | 16.00 | 39.00 | 39.00 | - | - | 30.70 |
| 500 x 400 | mm | 508 | 406 | 991 | 991 | - | - | 780 |
| 20 x 18 | in. | 20.00 | 18.00 | 39.00 | 39.00 | 24.40 | 20.07 | 30.40 |
| 500 x 450 | mm | 508 | 457 | 991 | 991 | 620 | 510 | 780 |
| 24 x 20 | in. | 24.00 | 20.00 | 45.00 | 45.00 | 28.89 | 19.68 | 36.00 |
| 600 x 500 | mm | 610 | 508 | 1143 | 1143 | 734 | 500 | 915 |
| 30 x 24 | in. | 30.00 | 24.00 | 55.00 | 55.00 | - | - | 42.90 |
| 750 x 600 | mm | 762 | 610 | 1397 | 1397 | - | - | 1090 |
| 36 x 30 | in. | 36.00 | 30.00 | 68.00 | 68.00 | - | - | 50.00 |
| 900 x 750 | mm | 914 | 762 | 1727 | 1727 | - | - | 1270 |

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ASME CLASS 600 FULL BORE

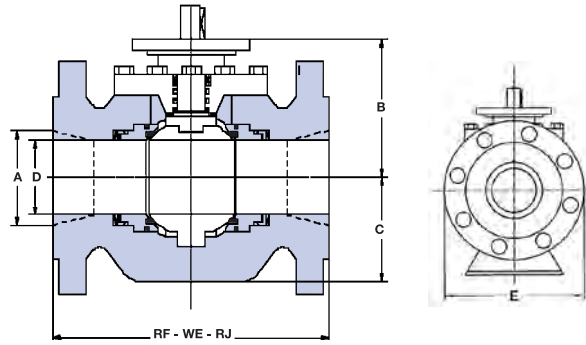
| SIZE | | TOP ENTRY | | | | | | |
|------|-----|-----------|-------|-------|-------|-------|-------|-------|
| | | D | RF | RJ | WE | B | C | E |
| 2 | in. | 2.00 | 11.50 | 11.63 | 11.50 | 7.67 | 4.33 | 6.50 |
| 50 | mm | 51 | 292 | 295 | 292 | 195 | 110 | 165 |
| 3 | in. | 3.00 | 14.00 | 14.13 | 14.00 | 9.44 | 4.33 | 8.50 |
| 80 | mm | 76 | 356 | 359 | 356 | 240 | 110 | 218 |
| 4 | in. | 4.00 | 17.00 | 17.13 | 17.00 | 11.02 | 6.88 | 10.70 |
| 100 | mm | 102 | 432 | 435 | 432 | 280 | 175 | 273 |
| 6 | in. | 6.00 | 22.00 | 22.13 | 22.00 | 12.00 | 7.67 | 14.10 |
| 150 | mm | 152 | 559 | 562 | 559 | 305 | 195 | 360 |
| 8 | in. | 8.00 | 26.00 | 26.13 | 26.00 | 15.74 | 11.02 | 16.50 |
| 200 | mm | 203 | 660 | 664 | 660 | 400 | 280 | 419 |
| 10 | in. | 10.00 | 31.00 | 31.13 | 31.00 | 17.12 | 11.22 | 20.40 |
| 250 | mm | 254 | 787 | 791 | 787 | 435 | 285 | 520 |
| 12 | in. | 12.00 | 33.00 | 33.13 | 33.00 | 17.32 | 12.59 | 22.60 |
| 300 | mm | 305 | 838 | 841 | 838 | 440 | 320 | 575 |
| 14 | in. | 14.00 | 35.00 | 35.13 | 35.00 | 19.88 | 13.38 | 24.70 |
| 350 | mm | 356 | 889 | 892 | 889 | 505 | 340 | 628 |
| 16 | in. | 16.00 | 39.00 | 39.13 | 39.00 | 23.22 | 16.14 | 27.60 |
| 400 | mm | 406 | 991 | 994 | 991 | 590 | 410 | 700 |
| 18 | in. | 18.00 | 43.00 | 43.13 | 43.00 | 23.55 | 17.51 | 30.50 |
| 450 | mm | 457 | 1092 | 1095 | 1092 | 589 | 445 | 775 |
| 20 | in. | 20.00 | 47.00 | 47.25 | 47.00 | 23.80 | 20.07 | 34.10 |
| 500 | mm | 508 | 1194 | 1200 | 1194 | 604 | 510 | 865 |
| 22 | in. | 22.00 | 51.00 | 51.38 | 51.00 | 24.00 | 20.35 | 37.40 |
| 550 | mm | 559 | 1295 | 1305 | 1295 | 609 | 571 | 950 |
| 24 | in. | 24.00 | 55.00 | 55.38 | 55.00 | 24.50 | 25.19 | 40.50 |
| 600 | mm | 610 | 1397 | 1407 | 1397 | 622 | 640 | 1028 |
| 26 | in. | 26.00 | 57.00 | 57.50 | 57.00 | 24.80 | 24.30 | 40.10 |
| 650 | mm | 660 | 1448 | 1461 | 1448 | 630 | 618 | 1020 |
| 28 | in. | 28.00 | 61.00 | 61.50 | 61.00 | 26.20 | 27.20 | 46.10 |
| 700 | mm | 711 | 1549 | 1562 | 1549 | 665 | 692 | 1172 |
| 30 | in. | 30.00 | 66.30 | 66.50 | 66.30 | 29.20 | 31.50 | 50.80 |
| 750 | mm | 762 | 1651 | 1664 | 1651 | 741 | 800 | 1290 |
| 32 | in. | 32.00 | 70.00 | 70.72 | 70.00 | 29.80 | 31.70 | 52.40 |
| 800 | mm | 813 | 1778 | 1794 | 1778 | 756 | 804 | 1330 |
| 34 | in. | 34.00 | 76.00 | 76.52 | 76.00 | 30.80 | 32.20 | 57.10 |
| 850 | mm | 864 | 1930 | 1946 | 1930 | 782 | 817 | 1450 |
| 36 | in. | 36.00 | 82.00 | 82.63 | 82.00 | 34.20 | 37.20 | 60.90 |
| 900 | mm | 914 | 2083 | 2099 | 2083 | 869 | 945 | 1546 |
| 40 | in. | 40.00 | 85.40 | 85.43 | 85.40 | 36.10 | 38.60 | 64.80 |
| 1000 | mm | 1016 | 2170 | 2170 | 2170 | 916 | 980 | 1645 |
| 42 | in. | 42.00 | 85.60 | 85.63 | 85.60 | 39.20 | 43.70 | 70.80 |
| 1050 | mm | 1067 | 2175 | 2175 | 2175 | 995 | 1110 | 1800 |
| 48 | in. | 48.00 | 95.90 | 95.87 | 95.90 | 44.60 | 49.80 | 81.50 |
| 1200 | mm | 1219 | 2435 | 2435 | 2435 | 1132 | 1265 | 2070 |

ASME CLASS 600 REDUCED BORE

| SIZE | | TOP ENTRY | | | | | | | |
|-----------|-----|-----------|-------|-------|-------|-------|-------|-------|-------|
| | | A | D | RF | RJ | WE | B | C | E |
| 2 x 1/2 | in. | 2.00 | 1.50 | 11.50 | 11.63 | 11.50 | 8.22 | 2.75 | 6.50 |
| 50 x 40 | mm | 51 | 38 | 292 | 295 | 292 | 209 | 70 | 165 |
| 3 x 2 | in. | 3.00 | 2.00 | 14.00 | 14.13 | 14.00 | 7.67 | 4.33 | 8.30 |
| 80 x 50 | mm | 76 | 51 | 356 | 359 | 356 | 195 | 110 | 210 |
| 4 x 3 | in. | 4.00 | 3.00 | 17.00 | 17.13 | 17.00 | 9.44 | 4.33 | 14.70 |
| 100 x 80 | mm | 102 | 76 | 432 | 435 | 432 | 240 | 110 | 373 |
| 6 x 4 | in. | 6.00 | 4.00 | 22.00 | 22.13 | 22.00 | 11.02 | 6.88 | 14.00 |
| 150 x 100 | mm | 152 | 102 | 559 | 562 | 559 | 280 | 175 | 356 |
| 8 x 6 | in. | 8.00 | 6.00 | 26.00 | 26.13 | 26.00 | 12.00 | 7.67 | 16.50 |
| 200 x 150 | mm | 203 | 152 | 660 | 664 | 660 | 305 | 195 | 419 |
| 10 x 8 | in. | 10.00 | 8.00 | 31.00 | 31.13 | 31.00 | 15.74 | 11.02 | 20.10 |
| 250 x 200 | mm | 254 | 203 | 787 | 791 | 787 | 400 | 280 | 510 |
| 12 x 10 | in. | 12.00 | 10.00 | 33.00 | 33.13 | 33.00 | 17.12 | 11.22 | 22.00 |
| 300 x 250 | mm | 305 | 254 | 838 | 841 | 838 | 435 | 285 | 560 |
| 14 x 10 | in. | 14.00 | 10.00 | 35.00 | 35.13 | 35.00 | — | — | 23.80 |
| 350 x 250 | mm | 356 | 254 | 889 | 892 | 889 | — | — | 605 |
| 14 x 12 | in. | 14.00 | 12.00 | 35.00 | 35.13 | 35.00 | 17.32 | 12.59 | 23.80 |
| 350 x 250 | mm | 356 | 305 | 889 | 892 | 889 | 440 | 320 | 605 |
| 16 x 12 | in. | 16.00 | 12.00 | 39.00 | 39.13 | 39.00 | — | — | 27.00 |
| 400 x 300 | mm | 406 | 305 | 991 | 994 | 991 | — | — | 685 |
| 16 x 14 | in. | 16.00 | 14.00 | 39.00 | 39.13 | 39.00 | 19.88 | 13.38 | 24.70 |
| 400 x 350 | mm | 406 | 356 | 991 | 994 | 991 | 505 | 340 | 628 |
| 18 x 16 | in. | 18.00 | 16.00 | 43.00 | 43.13 | 43.00 | 23.22 | 16.14 | 29.30 |
| 450 x 400 | mm | 457 | 406 | 1092 | 1095 | 1092 | 590 | 410 | 745 |
| 20 x 16 | in. | 20.00 | 16.00 | 47.00 | 47.25 | 47.00 | — | — | 32.10 |
| 500 x 400 | mm | 508 | 406 | 1194 | 1200 | 1194 | — | — | 815 |
| 20 x 18 | in. | 20.00 | 18.00 | 47.00 | 47.25 | 47.00 | 27.55 | 17.51 | 32.10 |
| 500 x 450 | mm | 508 | 457 | 1194 | 1200 | 1194 | 700 | 445 | 815 |
| 24 x 20 | in. | 24.00 | 20.00 | 55.00 | 55.38 | 55.00 | 30.51 | 20.07 | 37.00 |
| 600 x 500 | mm | 610 | 508 | 1397 | 1407 | 1397 | 775 | 510 | 940 |
| 30 x 24 | in. | 30.00 | 24.00 | 66.30 | 66.50 | 66.30 | — | — | 44.50 |
| 750 x 600 | mm | 762 | 610 | 1651 | 1664 | 1651 | — | — | 1130 |
| 36 x 30 | in. | 36.00 | 30.00 | 82.00 | 82.63 | 82.00 | — | — | 51.80 |
| 900 x 750 | mm | 914 | 762 | 2083 | 2099 | 2083 | — | — | 1315 |

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ASME CLASS 900 FULL BORE

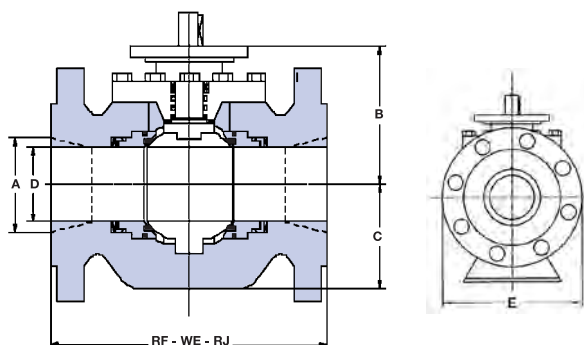
| SIZE | | TOP ENTRY | | | | | | |
|------|-----|-----------|-------|-------|-------|-------|-------|-------|
| | | D | RF | RJ | WE | B | C | E |
| 2 | in. | 2.00 | 14.49 | 14.61 | 14.49 | 7.87 | 4.72 | 8.50 |
| 50 | mm | 51 | 368 | 371 | 368 | 200 | 120 | 220 |
| 3 | in. | 3.00 | 15.00 | 15.12 | 15.00 | 9.44 | 5.11 | 9.49 |
| 80 | mm | 76 | 381 | 384 | 381 | 240 | 130 | 241 |
| 4 | in. | 4.00 | 17.99 | 18.11 | 17.99 | 11.02 | 6.88 | 11.50 |
| 100 | mm | 102 | 457 | 460 | 457 | 280 | 175 | 290 |
| 6 | in. | 6.00 | 24.02 | 24.13 | 24.02 | 13.77 | 8.66 | 15.00 |
| 150 | mm | 152 | 610 | 613 | 610 | 350 | 220 | 381 |
| 8 | in. | 8.00 | 29.02 | 29.13 | 29.02 | 15.35 | 10.23 | 18.50 |
| 200 | mm | 203 | 737 | 740 | 737 | 390 | 260 | 470 |
| 10 | in. | 10.00 | 32.99 | 33.11 | 32.99 | 18.89 | 14.20 | 21.46 |
| 250 | mm | 254 | 838 | 841 | 838 | 480 | 310 | 545 |
| 12 | in. | 12.00 | 37.99 | 38.11 | 37.99 | 17.24 | 16.14 | 24.02 |
| 300 | mm | 305 | 965 | 968 | 965 | 438 | 410 | 610 |
| 14 | in. | 14.00 | 40.51 | 40.87 | 40.51 | 21.45 | 14.56 | 25.50 |
| 350 | mm | 356 | 1029 | 1038 | 1029 | 545 | 370 | 650 |
| 16 | in. | 16.00 | 44.49 | 44.88 | 44.49 | 25.59 | 16.53 | 27.95 |
| 400 | mm | 406 | 1130 | 1140 | 1130 | 650 | 420 | 710 |
| 18 | in. | 18.00 | 47.99 | 48.50 | 47.99 | 26.57 | 24.29 | 31.50 |
| 450 | mm | 457 | 1219 | 1232 | 1219 | 675 | 617 | 800 |
| 20 | in. | 20.00 | 52.01 | 52.48 | 52.01 | 31.10 | 28.54 | 35.04 |
| 500 | mm | 508 | 1321 | 1334 | 1321 | 790 | 725 | 890 |
| 24 | in. | 24.00 | 60.98 | 61.73 | 60.98 | 36.02 | 32.71 | 41.69 |
| 600 | mm | 610 | 1549 | 1568 | 1549 | 915 | 831 | 1059 |
| 28 | in. | 28.00 | 69.02 | 69.88 | 69.02 | — | — | 48.58 |
| 700 | mm | 711 | 1753 | 1775 | 1753 | — | — | 1234 |
| 30 | in. | 30.00 | 74.02 | 74.88 | 74.02 | — | — | 51.18 |
| 750 | mm | 762 | 1880 | 1902 | 1880 | — | — | 1300 |
| 32 | in. | 32.00 | 80.00 | 80.87 | 80.00 | — | — | 53.43 |
| 800 | mm | 813 | 2032 | 2054 | 2032 | — | — | 1357 |
| 34 | in. | 34.00 | 85.00 | 86.14 | 85.00 | — | — | 57.80 |
| 850 | mm | 864 | 2159 | 2188 | 2159 | — | — | 1468 |
| 36 | in. | 36.00 | 90.00 | 91.14 | 90.00 | — | — | 60.31 |
| 900 | mm | 914 | 2286 | 2315 | 2286 | — | — | 1532 |

ASME CLASS 900 REDUCED BORE

| SIZE | | TOP ENTRY | | | | | | | |
|-----------|-----|-----------|-------|-------|-------|-------|-------|-------|-------|
| | | A | D | RF | RJ | WE | B | C | E |
| 2 x 1/2 | in. | 2.00 | 1.50 | 14.49 | 14.61 | 14.49 | 8.46 | 3.14 | 8.60 |
| 50 x 40 | mm | 51 | 38 | 368 | 371 | 368 | 215 | 80 | 220 |
| 3 x 2 | in. | 3.00 | 2.00 | 15.00 | 15.12 | 15.00 | 7.87 | 4.72 | 9.49 |
| 80 x 50 | mm | 76 | 51 | 381 | 384 | 381 | 200 | 120 | 241 |
| 4 x 3 | in. | 4.00 | 3.00 | 17.99 | 18.11 | 17.99 | 9.44 | 5.11 | 11.50 |
| 100 x 80 | mm | 102 | 76 | 457 | 460 | 457 | 240 | 130 | 290 |
| 6 x 4 | in. | 6.00 | 4.00 | 24.02 | 24.13 | 24.02 | 11.02 | 6.88 | 14.90 |
| 150 x 100 | mm | 152 | 102 | 610 | 613 | 610 | 280 | 175 | 380 |
| 8 x 6 | in. | 8.00 | 6.00 | 29.02 | 29.13 | 29.02 | 13.77 | 8.66 | 18.50 |
| 200 x 150 | mm | 203 | 152 | 737 | 740 | 737 | 350 | 220 | 470 |
| 10 x 8 | in. | 10.00 | 8.00 | 32.99 | 33.11 | 32.99 | 15.35 | 10.23 | 21.46 |
| 250 x 200 | mm | 254 | 203 | 838 | 841 | 838 | 390 | 260 | 545 |
| 12 x 10 | in. | 12.00 | 10.00 | 37.99 | 38.11 | 37.99 | 18.89 | 14.20 | 24.02 |
| 300 x 250 | mm | 305 | 254 | 965 | 968 | 965 | 480 | 310 | 610 |
| 14 x 10 | in. | 14.00 | 10.00 | 40.51 | 40.87 | 40.51 | — | — | 25.50 |
| 350 x 250 | mm | 356 | 254 | 1029 | 1038 | 1029 | — | — | 650 |
| 14 x 12 | in. | 14.00 | 12.00 | 40.51 | 40.87 | 40.51 | 17.24 | 16.14 | 27.90 |
| 350 x 300 | mm | 356 | 305 | 1029 | 1038 | 1029 | 438 | 410 | 710 |
| 16 x 12 | in. | 16.00 | 12.00 | 44.49 | 44.88 | 44.49 | — | — | 29.50 |
| 400 x 300 | mm | 406 | 305 | 1130 | 1140 | 1130 | — | — | 750 |
| 16 x 14 | in. | 16.00 | 14.00 | 44.49 | 44.88 | 44.49 | 21.45 | 14.56 | 31.10 |
| 400 x 350 | mm | 406 | 356 | 1130 | 1140 | 1130 | 545 | 370 | 790 |
| 18 x 16 | in. | 18.00 | 16.00 | 47.99 | 48.50 | 47.99 | 25.59 | 16.53 | 31.50 |
| 450 x 400 | mm | 457 | 406 | 1219 | 1232 | 1219 | 650 | 420 | 800 |
| 20 x 16 | in. | 20.00 | 16.00 | 52.01 | 52.48 | 52.01 | — | — | 31.10 |
| 500 x 400 | mm | 508 | 406 | 1321 | 1334 | 1321 | — | — | 790 |
| 20 x 18 | in. | 20.00 | 18.00 | 52.01 | 52.48 | 52.01 | 26.57 | 24.29 | 35.04 |
| 500 x 450 | mm | 508 | 457 | 1321 | 1334 | 1321 | 675 | 617 | 890 |
| 24 x 20 | in. | 24.00 | 20.00 | 60.98 | 61.73 | 60.98 | 31.10 | 28.54 | 40.94 |
| 600 x 500 | mm | 610 | 508 | 1549 | 1568 | 1549 | 790 | 725 | 1040 |
| 30 x 24 | in. | 30.00 | 24.00 | 74.02 | 74.88 | 74.02 | — | — | 48.43 |
| 750 x 600 | mm | 762 | 610 | 1880 | 1902 | 1880 | — | — | 1230 |
| 36 x 30 | in. | 36.00 | 30.00 | 90.00 | 91.14 | 90.00 | — | — | 57.48 |
| 900 x 750 | mm | 914 | 762 | 2286 | 2315 | 2286 | — | — | 1460 |

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ASME CLASS 1500 FULL BORE

| TOP ENTRY | | | | | | | | |
|-----------|-----|-------|-------|-------|-------|-------|-------|-------|
| SIZE | | D | RF | RJ | WE | B | C | E |
| 2 | in. | 2.00 | 14.49 | 14.61 | 14.49 | 8.07 | 4.72 | 8.60 |
| 50 | mm | 51 | 368 | 371 | 368 | 205 | 120 | 220 |
| 3 | in. | 3.00 | 18.50 | 18.62 | 18.50 | 8.26 | 4.92 | 10.51 |
| 80 | mm | 76 | 470 | 473 | 470 | 210 | 125 | 267 |
| 4 | in. | 4.00 | 21.50 | 21.61 | 21.50 | 9.64 | 6.29 | 12.20 |
| 100 | mm | 102 | 546 | 549 | 546 | 245 | 160 | 310 |
| 6 | in. | 6.00 | 27.76 | 27.99 | 27.76 | 13.18 | 10.03 | 15.51 |
| 150 | mm | 152 | 705 | 711 | 705 | 335 | 255 | 394 |
| 8 | in. | 8.00 | 32.76 | 33.11 | 32.76 | 17.20 | 13.38 | 19.09 |
| 200 | mm | 203 | 832 | 841 | 832 | 437 | 340 | 485 |
| 10 | in. | 10.00 | 39.02 | 39.37 | 39.02 | 19.76 | 15.00 | 23.03 |
| 250 | mm | 254 | 991 | 1000 | 991 | 502 | 381 | 585 |
| 12 | in. | 12.00 | 44.49 | 44.61 | 44.49 | 20.98 | 17.24 | 27.95 |
| 300 | mm | 305 | 1130 | 1146 | 1130 | 533 | 438 | 710 |
| 14 | in. | 14.00 | 49.49 | 50.24 | 49.49 | 24.64 | 19.60 | 30.12 |
| 350 | mm | 356 | 1257 | 1276 | 1257 | 626 | 498 | 765 |
| 16 | in. | 16.00 | 54.49 | 55.35 | 54.49 | 28.54 | 18.11 | 33.39 |
| 400 | mm | 406 | 1384 | 1407 | 1384 | 725 | 460 | 848 |
| 18 | in. | 18.00 | 60.51 | 61.38 | 60.51 | 29.00 | 23.90 | 38.58 |
| 450 | mm | 457 | 1537 | 1559 | 1537 | 736 | 607 | 980 |
| 20 | in. | 20.00 | 65.51 | 66.38 | 65.51 | 30.00 | 25.40 | 39.96 |
| 500 | mm | 508 | 1664 | 1686 | 1664 | 763 | 644 | 1015 |
| 24 | in. | 24.00 | 80.43 | 81.54 | 80.43 | 32.00 | 28.50 | 50.91 |
| 600 | mm | 610 | 2043 | 1972 | 2043 | 813 | 725 | 1295 |

ASME CLASS 1500 REDUCED BORE

| TOP ENTRY | | | | | | | | | |
|-----------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| SIZE | | A | D | RF | RJ | WE | B | C | E |
| 2 x 1/2 | in. | 2.00 | 1.50 | 14.49 | 14.61 | 14.49 | 7.48 | 4.33 | 8.66 |
| 50 x 40 | mm | 51 | 38 | 368 | 371 | 368 | 190 | 110 | 220 |
| 3 x 2 | in. | 3.00 | 2.00 | 18.50 | 18.62 | 18.50 | 8.07 | 4.72 | 10.51 |
| 80 x 50 | mm | 76 | 51 | 470 | 473 | 470 | 205 | 120 | 2.67 |
| 4 x 3 | in. | 4.00 | 3.00 | 21.50 | 21.61 | 21.50 | 8.26 | 4.92 | 12.20 |
| 100 x 80 | mm | 102 | 76 | 546 | 549 | 546 | 210 | 125 | 310 |
| 6 x 4 | in. | 6.00 | 4.00 | 27.76 | 27.99 | 27.76 | 9.64 | 6.29 | 15.51 |
| 150 x 100 | mm | 152 | 102 | 705 | 711 | 705 | 245 | 160 | 394 |
| 8 x 6 | in. | 8.00 | 6.00 | 32.76 | 33.11 | 32.76 | 13.18 | 10.03 | 19.09 |
| 200 x 150 | mm | 203 | 152 | 832 | 841 | 832 | 335 | 255 | 485 |
| 10 x 8 | in. | 10.00 | 8.00 | 39.02 | 39.37 | 39.02 | 16.14 | 11.41 | 23.03 |
| 250 x 200 | mm | 254 | 203 | 991 | 1000 | 991 | 410 | 290 | 585 |
| 12 x 10 | in. | 12.00 | 10.00 | 44.49 | 44.61 | 44.49 | 18.30 | 13.18 | 26.57 |
| 300 x 250 | mm | 305 | 254 | 1130 | 1146 | 1130 | 465 | 335 | 675 |
| 14 x 10 | in. | 14.00 | 10.00 | 49.49 | 50.24 | 49.49 | 21.77 | 17.24 | 27.95 |
| 350 x 250 | mm | 356 | 254 | 1257 | 1276 | 1257 | 553 | 439 | 710 |
| 14 x 12 | in. | 14.00 | 12.00 | 49.49 | 50.24 | 49.49 | 21.77 | 17.24 | 29.92 |
| 350 x 300 | mm | 356 | 305 | 1257 | 1276 | 1257 | 553 | 438 | 760 |
| 16 x 12 | in. | 16.00 | 12.00 | 54.49 | 55.35 | 54.49 | 24.64 | 19.60 | 32.48 |
| 400 x 300 | mm | 406 | 305 | 1384 | 1407 | 1384 | 626 | 498 | 825 |
| 16 x 14 | in. | 16.00 | 14.00 | 54.49 | 55.35 | 54.49 | 24.64 | 19.60 | 32.48 |
| 400 x 350 | mm | 406 | 356 | 1384 | 1407 | 1384 | 626 | 498 | 825 |
| 18 x 16 | in. | 18.00 | 16.00 | 60.51 | 61.38 | 60.51 | 25.00 | 20.00 | 36.22 |
| 450 x 400 | mm | 457 | 406 | 1537 | 1559 | 1537 | 630 | 508 | 920 |
| 20 x 16 | in. | 20.00 | 16.00 | 65.51 | 66.38 | 65.51 | 26.00 | 20.00 | 38.97 |
| 500 x 400 | mm | 508 | 406 | 1664 | 1686 | 1664 | 660 | 508 | 990 |
| 20 x 18 | in. | 20.00 | 18.00 | 65.51 | 66.38 | 65.51 | 28.00 | 23.00 | 38.97 |
| 500 x 450 | mm | 508 | 457 | 1664 | 1686 | 1664 | 711 | 542 | 990 |
| 24 x 20 | in. | 24.00 | 20.00 | 80.43 | 81.54 | 80.43 | 30.00 | 25.00 | 46.06 |
| 600 x 500 | mm | 610 | 508 | 2043 | 1972 | 2043 | 762 | 635 | 1170 |

ASME CLASS 2500 FULL BORE

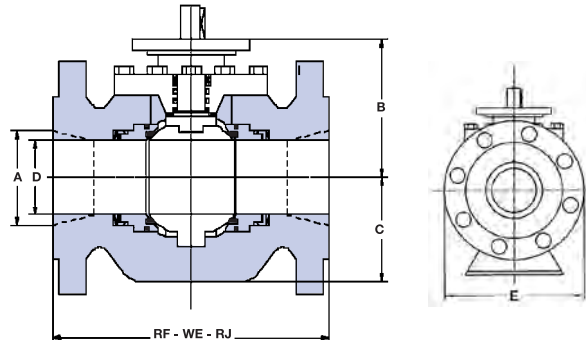
| TOP ENTRY | | | | | | | | |
|-----------|-----|-------|-------|-------|-------|-------|-------|-------|
| SIZE | | D | RF | RJ | WE | B | C | E |
| 2 | in. | 1.65 | 17.76 | 17.87 | 17.76 | 8.46 | 5.11 | 9.05 |
| 50 | mm | 42 | 451 | 454 | 451 | 215 | 130 | 230 |
| 3 | in. | 2.44 | 22.76 | 22.99 | 22.76 | 8.66 | 5.31 | 11.08 |
| 80 | mm | 62 | 578 | 584 | 578 | 220 | 135 | 300 |
| 4 | in. | 3.43 | 26.50 | 26.89 | 26.50 | 10.03 | 6.96 | 14.02 |
| 100 | mm | 87 | 673 | 683 | 673 | 255 | 170 | 356 |
| 6 | in. | 5.16 | 35.98 | 36.50 | 35.98 | 16.92 | 10.43 | 19.09 |
| 150 | mm | 131 | 914 | 927 | 914 | 430 | 265 | 485 |
| 8 | in. | 7.05 | 40.24 | 40.87 | 40.24 | 16.92 | 13.30 | 24.41 |
| 200 | mm | 179 | 1022 | 1038 | 1022 | 430 | 340 | 620 |
| 10 | in. | 8.78 | 50.00 | 50.87 | 50.00 | 17.50 | 16.60 | 29.33 |
| 250 | mm | 223 | 1270 | 1292 | 1270 | 444 | 421 | 745 |
| 12 | in. | 10.43 | 55.98 | 56.89 | 55.98 | 18.00 | 18.90 | 34.44 |
| 300 | mm | 265 | 1422 | 1445 | 1422 | 457 | 480 | 875 |

ASME CLASS 2500 REDUCED BORE

| TOP ENTRY | | | | | | | | | |
|-----------|-----|-------|------|-------|-------|-------|-------|-------|-------|
| SIZE | | A | D | RF | RJ | WE | B | C | E |
| 2 x 1/2 | in. | 1.65 | 1.50 | 17.76 | 17.87 | 17.76 | 7.78 | 4.72 | 9.25 |
| 50 x 40 | mm | 42 | 38 | 451 | 454 | 451 | 200 | 120 | 230 |
| 3 x 2 | in. | 2.44 | 1.65 | 22.76 | 22.99 | 22.76 | 8.46 | 5.11 | 11.01 |
| 80 x 50 | mm | 62 | 42 | 578 | 584 | 578 | 215 | 130 | 300 |
| 4 x 3 | in. | 3.43 | 2.44 | 26.50 | 26.89 | 26.50 | 8.66 | 5.31 | 14.02 |
| 100 x 80 | mm | 87 | 62 | 673 | 683 | 673 | 220 | 135 | 356 |
| 6 x 4 | in. | 5.16 | 3.43 | 35.98 | 36.50 | 35.98 | 10.03 | 6.96 | 19.09 |
| 150 x 100 | mm | 131 | 87 | 914 | 927 | 914 | 255 | 170 | 485 |
| 8 x 6 | in. | 7.05 | 5.16 | 40.24 | 40.87 | 40.24 | 12.00 | 9.00 | 22.05 |
| 200 x 150 | mm | 179 | 131 | 1022 | 1038 | 1022 | 348 | 228 | 560 |
| 10 x 8 | in. | 8.78 | 7.05 | 50.00 | 50.87 | 50.00 | 14.00 | 13.00 | 26.57 |
| 250 x 200 | mm | 223 | 179 | 1270 | 1292 | 1270 | 355 | 330 | 670 |
| 12 x 10 | in. | 10.43 | 8.78 | 55.98 | 56.89 | 55.98 | 16.00 | 18.00 | 30.70 |
| 300 x 250 | mm | 265 | 223 | 1422 | 1445 | 1422 | 406 | 475 | 780 |

The valve details on this page are the standard production range only, for other size valves or end configurations please consult the factory. Note OMB reserves the right to make modifications or changes to its production, without prior notice and take no responsibility for any errors in this publication.





API CLASS 3000 FULL BORE

| TOP ENTRY | | | | | | |
|-----------|-----|-------|-------|-------|-------|-------|
| SIZE | | D | RJ | B | C | E |
| 2 1/16 | in. | 2.06 | 14.61 | 6.50 | 4.33 | 8.50 |
| 50 | mm | 52.4 | 371 | 165 | 110 | 216 |
| 3 1/8 | in. | 3.12 | 17.13 | 7.87 | 5.00 | 9.44 |
| 80 | mm | 79.3 | 435 | 200 | 150 | 240 |
| 4 1/16 | in. | 4.06 | 20.12 | 8.27 | 6.69 | 11.80 |
| 100 | mm | 103.2 | 511 | 210 | 170 | 300 |
| 5 1/8 | in. | 5.12 | 24.13 | 10.83 | 10.16 | 16.65 |
| 125 | mm | 130 | 613 | 275 | 258 | 423 |
| 7 1/16 | in. | 7.06 | 28.11 | 13.78 | 13.39 | 15.00 |
| 200 | mm | 179.4 | 714 | 350 | 340 | 380 |

API CLASS 3000 REDUCED BORE

| TOP ENTRY | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|
| SIZE | | A | D | RJ | B | C | E |
| 2 1/16 x 1 13/16 | in. | 2.06 | 2.06 | 14.61 | 6.50 | 4.33 | 8.50 |
| 50 x 40 | mm | 52.4 | 52.4 | 371 | 165 | 110 | 216 |
| 3 1/8 x 2 1/16 | in. | 3.12 | 3.12 | 17.13 | 7.87 | 5.90 | 9.44 |
| 80 x 50 | mm | 79.3 | 79.3 | 435 | 200 | 150 | 240 |
| 4 1/16 x 3 1/8 | in. | 4.06 | 4.06 | 20.12 | 8.27 | 6.69 | 11.61 |
| 100 x 80 | mm | 103.2 | 103.2 | 511 | 210 | 170 | 300 |
| 5 1/8 x 4 1/16 | in. | 5.12 | 5.12 | 24.13 | 10.83 | 10.16 | 16.65 |
| 125 x 150 | mm | 130 | 130 | 613 | 275 | 258 | 423 |
| 7 1/16 x 6 | in. | 7.06 | 7.06 | 28.11 | 13.78 | 13.39 | 15.00 |
| 200 x 150 | mm | 179.4 | 179.4 | 714 | 350 | 340 | 381 |

API CLASS 5000 FULL BORE

| TOP ENTRY | | | | | | |
|-----------|-----|-------|-------|-------|-------|-------|
| SIZE | | D | RJ | B | C | E |
| 2 1/16 | in. | 2.06 | 14.61 | 6.50 | 4.33 | 8.50 |
| 50 | mm | 52.4 | 371 | 165 | 110 | 216 |
| 3 1/8 | in. | 3.12 | 17.13 | 7.87 | 5.90 | 9.44 |
| 80 | mm | 79.3 | 435 | 200 | 150 | 240 |
| 4 1/16 | in. | 4.06 | 20.12 | 8.27 | 6.69 | 11.80 |
| 100 | mm | 103.2 | 511 | 210 | 170 | 300 |
| 5 1/8 | in. | 5.12 | 24.13 | 10.83 | 10.16 | 16.65 |
| 125 | mm | 130 | 613 | 275 | 258 | 423 |
| 7 1/16 | in. | 7.06 | 28.11 | 13.78 | 13.39 | 15.00 |
| 200 | mm | 179.4 | 714 | 350 | 340 | 380 |

API CLASS 5000 REDUCED BORE

| TOP ENTRY | | | | | | | |
|------------------|-----|-------|-------|-------|-------|-------|-------|
| SIZE | | A | D | RJ | B | C | E |
| 2 1/16 x 1 13/16 | in. | 2.06 | 2.06 | 14.61 | 6.50 | 4.33 | 8.50 |
| 50 x 40 | mm | 52.4 | 52.4 | 371 | 165 | 110 | 216 |
| 3 1/8 x 2 1/16 | in. | 3.12 | 3.12 | 17.13 | 7.87 | 5.90 | 9.44 |
| 80 x 50 | mm | 79.3 | 79.3 | 435 | 200 | 150 | 240 |
| 4 1/16 x 3 1/8 | in. | 4.06 | 4.06 | 20.12 | 8.27 | 6.69 | 11.80 |
| 100 x 80 | mm | 103.2 | 103.2 | 511 | 210 | 170 | 300 |
| 5 1/8 x 4 1/16 | in. | 5.12 | 5.12 | 24.13 | 10.83 | 10.16 | 16.65 |
| 125 x 150 | mm | 130 | 130 | 613 | 275 | 258 | 423 |
| 7 1/16 x 6 | in. | 7.06 | 7.06 | 28.11 | 13.78 | 13.39 | 14.90 |
| 200 x 150 | mm | 179.4 | 179.4 | 714 | 350 | 340 | 380 |

API CLASS 10000 FULL BORE

| TOP ENTRY | | | | | | |
|-----------|-----|-------|-------|------|------|-------|
| SIZE | | D | RJ | B | C | E |
| 2 1/16 | in. | 2.06 | 14.61 | 6.50 | 4.33 | 8.50 |
| 50 | mm | 52.4 | 371 | 165 | 110 | 216 |
| 3 1/8 | in. | 3.12 | 17.13 | 7.87 | 5.90 | 9.44 |
| 80 | mm | 79.3 | 435 | 200 | 150 | 240 |
| 4 1/16 | in. | 4.06 | 20.12 | 8.27 | 6.69 | 11.80 |
| 100 | mm | 103.2 | 511 | 210 | 170 | 300 |

API CLASS 10000 REDUCED BORE

| TOP ENTRY | | | | | | | |
|------------------|-----|-------|-------|-------|------|------|-------|
| SIZE | | A | D | RJ | B | C | E |
| 2 1/16 x 1 13/16 | in. | 2.06 | 2.06 | 14.61 | 6.50 | 4.33 | 8.50 |
| 50 x 40 | mm | 52.4 | 52.4 | 371 | 165 | 110 | 216 |
| 3 1/8 x 2 1/16 | in. | 3.12 | 3.12 | 17.13 | 7.87 | 5.90 | 9.44 |
| 80 x 50 | mm | 79.3 | 79.3 | 435 | 200 | 150 | 240 |
| 4 1/16 x 3 1/8 | in. | 4.06 | 4.06 | 20.12 | 8.27 | 6.69 | 11.80 |
| 100 x 80 | mm | 103.2 | 103.2 | 511 | 210 | 170 | 300 |

The valve details on this page are the standard production range only, for other size valves or end configurations please consult the factory.
 Note OMB reserves the right to make modifications or changes to its production, without prior notice and take no responsibility for any errors in this publication.

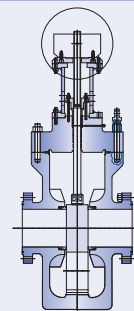




OMB manufactures both API 6A & 6D compliant Through Conduit Gate Valves (TCGV) designed as full bore, slab gate with primary downstream sealing, non-rising stem, and floating seats for positive bubble tight shut off and sealing at high and low differential pressure. Fully piggable designs ensure that the seats are well protected from process solids and gate skirts minimise the level of solids entering the valve cavity during valve operation. OMB utilizes multi stems seals to provide a secure multi barrier to the atmosphere. Seats are sealed to the body via lip seal, these seals are energized with Springs to provide a mechanical pre load. The seat to gate metal to metal sealing surface is Tungsten Carbide coated providing high resistance to erosion whilst maintaining a low coefficient of friction. As part of our standard supply for manual and

hydraulically actuated gate valves a metal to metal back seat seal is provided with the gate in the closed position. Mechanical end stops are provided to ensure correct bore alignment and the setting of position indication. Body cavity plugs are supplied for the purpose of providing flushing, drain and vent facilities with high integrity sealing capabilities.

CONSTRUCTION



KEY FEATURES ARE:

- ✓ FULL BORE, PIGGABLE
- ✓ BI DIRECTIONAL SEALING.
- ✓ BUBBLE TIGHT SEALING.
- ✓ METAL TO METAL SEALING



| CLASS DIAMETER | CLASS 150 FB | CLASS 300 FB | CLASS 600 FB | CLASS 900 FB | CLASS 1500 FB | CLASS 2500 FB |
|----------------|--------------|--------------|--------------|--------------|---------------|---------------|
| 1/2" | | | | | | |
| 3/4" | | | | | | |
| 1" | | | | | | |
| 1 1/2" | | | | | | |
| 2" | ● | ● | ● | ● | ● | ● |
| 3" | ● | ● | ● | ● | ● | ● |
| 4" | ● | ● | ● | ● | ● | ● |
| 6" | ● | ● | ● | ● | ● | ● |
| 8" | ● | ● | ● | ● | ● | ● |
| 10" | ● | ● | ● | ● | ● | ● |
| 12" | ● | ● | ● | ● | ● | ● |
| 14" | ● | ● | ● | ● | ● | |
| 16" | ● | ● | ● | ● | ● | |
| 18" | ● | ● | ● | ● | ● | |
| 20" | ● | ● | ● | ● | ● | |
| 22" | ● | ● | ● | ● | ● | |
| 24" | ● | ● | ● | ● | ● | |
| 26" | ● | ● | ● | ● | ● | |
| 28" | ● | ● | ● | ● | ● | |
| 30" | ● | ● | ● | ● | ● | |
| 32" | ● | ● | ● | ● | ● | |
| 34" | ● | ● | ● | ● | ● | |
| 36" | ● | ● | ● | ● | ● | |

Applicable Standards

API 6D LICIENCE No 6D-0286

API 6A LICIENCE No 6A-0778

API Spec. Q1

API 6D (EN ISO 14313) Pipeline Transportation Systems-Pipeline Valves.

API 598 (Inspection Testing)

API 14D Sand Slurry (Annex I API 6A)

ASME B16.34

(Valves-Flanged, Threaded and Welding end)

ASME B16.5 (Pipe Flanges and Flanged Fittings)

ASME B16.10 (Face to Face Dimensions)

ASME B16.25 (Butt weld ends)

ASME

(Boiler and Pressure vessel Code II, V, VIII, X)

ASME B31.8

Gas transmission and Distribution piping systems.

ASME B31.4

Liquid Petroleum transmission piping systems.

BS EN ISO 10497-Fire Testing.

BS EN 12266 – 1/2. (Testing Of Valves)

BS EN ISO 4406 (Hydraulic Fluid Cleanliness)

BS EN 10204 (Metallic Products Inspection Documents)

EU Pressure Equipment Directive.

EN ISO 9001:2000

ISO 5208 (industrial valves pressure testing)

NACE MR0175 / ISO 15156

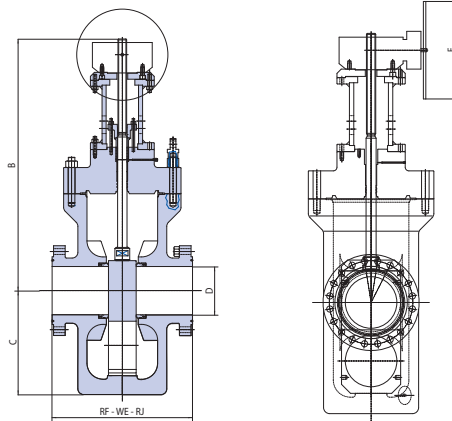
(Sulphide Stress Cracking Resistant Materials for offshore applications)

NOROSK L-001 - Piping and Valves.

NOROSK M-630 - Material Data Sheets for Piping.

NOROSK M-650 - Qualification of Manufacturers of special materials.





ASME CLASS 150 FULL BORE

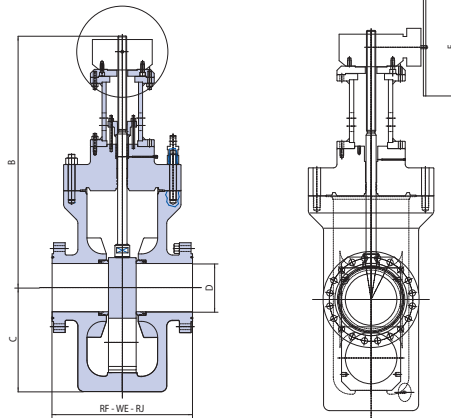
| SLAB | | | | | | | |
|------|-----|-------|-------|-------|--------|-------|-------|
| SIZE | | D | RF | WE | B | C | E |
| 2 | in. | 2.00 | 7.00 | 8.50 | 16.53 | 5.27 | 9.80 |
| 50 | mm | 51 | 178 | 216 | 420 | 134 | 250 |
| 3 | in. | 3.00 | 8.00 | 11.13 | 20.27 | 7.08 | 9.80 |
| 80 | mm | 76 | 203 | 283 | 515 | 180 | 250 |
| 4 | in. | 4.00 | 9.00 | 12.00 | 23.07 | 8.86 | 9.80 |
| 100 | mm | 102 | 229 | 305 | 586 | 225 | 250 |
| 6 | in. | 6.00 | 10.51 | 15.87 | 32.20 | 12.20 | 9.80 |
| 150 | mm | 152 | 267 | 403 | 818 | 310 | 250 |
| 8 | in. | 8.00 | 11.50 | 16.50 | 40.62 | 15.55 | 9.80 |
| 200 | mm | 203 | 292 | 419 | 1032 | 395 | 250 |
| 10 | in. | 10.00 | 13.00 | 18.00 | 49.80 | 19.17 | 9.80 |
| 250 | mm | 254 | 330 | 457 | 1265 | 487 | 250 |
| 12 | in. | 12.00 | 14.01 | 19.76 | 58.74 | 22.16 | 15.75 |
| 300 | mm | 305 | 356 | 502 | 1492 | 563 | 400 |
| 14 | in. | 14.00 | 15.00 | 22.52 | 63.18 | 24.01 | 15.75 |
| 350 | mm | 356 | 381 | 572 | 1605 | 610 | 400 |
| 16 | in. | 16.00 | 15.98 | 24.01 | 71.06 | 27.56 | 20.86 |
| 400 | mm | 406 | 406 | 610 | 1805 | 700 | 530 |
| 18 | in. | 18.00 | 17.00 | 25.98 | 78.15 | 35.04 | 20.86 |
| 450 | mm | 457 | 432 | 660 | 1985 | 890 | 530 |
| 20 | in. | 20.00 | 18.00 | 28.00 | 85.24 | 37.60 | 20.86 |
| 500 | mm | 508 | 457 | 711 | 2165 | 955 | 530 |
| 22 | in. | 22.00 | 20.00 | 30.00 | 94.88 | 40.75 | 20.86 |
| 550 | mm | 559 | 508 | 762 | 2410 | 1035 | 530 |
| 24 | in. | 24.00 | 20.00 | 32.00 | 101.10 | 46.46 | 20.86 |
| 600 | mm | 610 | 508 | 813 | 2568 | 1180 | 530 |
| 26 | in. | 26.00 | 22.00 | 34.01 | 108.78 | 48.82 | 20.86 |
| 650 | mm | 660 | 559 | 864 | 2763 | 1240 | 530 |
| 28 | in. | 28.00 | 24.01 | 35.98 | 116.57 | 50.86 | 20.86 |
| 700 | mm | 711 | 610 | 914 | 2961 | 1292 | 530 |
| 30 | in. | 30.00 | 25.98 | 35.98 | 123.54 | 54.45 | 20.86 |
| 750 | mm | 762 | 660 | 914 | 3138 | 1383 | 530 |
| 32 | in. | 32.00 | 28.00 | 38.00 | 131.26 | 57.28 | 20.86 |
| 800 | mm | 813 | 711 | 965 | 3334 | 1455 | 530 |
| 34 | in. | 34.00 | 30.00 | 40.00 | 139.76 | 57.67 | 20.86 |
| 850 | mm | 864 | 760 | 1016 | 3550 | 1465 | 530 |
| 36 | in. | 36.00 | 32.00 | 40.00 | 145.98 | 66.30 | 20.86 |
| 900 | mm | 914 | 813 | 1016 | 3708 | 1684 | 530 |

ASME CLASS 300 FULL BORE

| SLAB | | | | | | | |
|------|-----|-------|-------|-------|--------|-------|-------|
| SIZE | | D | RF | WE | B | C | E |
| 2 | in. | 2.00 | 8.50 | 8.50 | 16.50 | 5.00 | 9.80 |
| 50 | mm | 51 | 216 | 216 | 420 | 130 | 250 |
| 3 | in. | 3.00 | 11.14 | 11.14 | 20.00 | 7.28 | 9.80 |
| 80 | mm | 76 | 283 | 283 | 520 | 185 | 250 |
| 4 | in. | 4.00 | 12.00 | 12.00 | 32.34 | 8.93 | 8.80 |
| 100 | mm | 102 | 305 | 305 | 593 | 227 | 225 |
| 6 | in. | 6.00 | 15.86 | 15.86 | 36.00 | 13.00 | 10.60 |
| 150 | mm | 152 | 403 | 403 | 912 | 330 | 270 |
| 8 | in. | 8.00 | 16.50 | 16.50 | 51.65 | 16.00 | 13.40 |
| 200 | mm | 203 | 419 | 419 | 1312 | 410 | 340 |
| 10 | in. | 10.00 | 18.00 | 18.00 | 53.00 | 18.90 | 20.86 |
| 250 | mm | 254 | 457 | 457 | 1350 | 480 | 530 |
| 12 | in. | 12.00 | 19.76 | 19.76 | 58.46 | 19.90 | 20.86 |
| 300 | mm | 305 | 502 | 502 | 1485 | 505 | 530 |
| 14 | in. | 14.00 | 30.00 | 30.00 | 67.00 | 25.00 | 20.86 |
| 350 | mm | 356 | 762 | 762 | 1700 | 634 | 530 |
| 16 | in. | 16.00 | 33.00 | 33.00 | 74.40 | 28.35 | 20.86 |
| 400 | mm | 406 | 838 | 838 | 1890 | 720 | 530 |
| 18 | in. | 18.00 | 36.00 | 36.00 | 79.00 | 31.00 | 20.86 |
| 450 | mm | 457 | 914 | 914 | 2000 | 790 | 530 |
| 20 | in. | 20.00 | 39.00 | 39.00 | 90.50 | 34.00 | 20.86 |
| 500 | mm | 508 | 991 | 991 | 2300 | 870 | 530 |
| 22 | in. | 22.00 | 43.00 | 43.00 | 95.00 | 37.00 | 20.86 |
| 550 | mm | 559 | 1092 | 1092 | 2410 | 950 | 530 |
| 24 | in. | 24.00 | 45.00 | 45.00 | 100.00 | 40.00 | 20.86 |
| 600 | mm | 610 | 1143 | 1143 | 2548 | 1005 | 530 |
| 26 | in. | 26.00 | 49.00 | 49.00 | 118.70 | 43.70 | 20.86 |
| 650 | mm | 660 | 1245 | 1245 | 3015 | 1110 | 530 |
| 28 | in. | 28.00 | 53.00 | 53.00 | 126.00 | 48.00 | 20.86 |
| 700 | mm | 711 | 1346 | 1346 | 3200 | 1220 | 530 |
| 30 | in. | 30.00 | 55.00 | 55.00 | 133.00 | 54.70 | 20.86 |
| 750 | mm | 762 | 1397 | 1397 | 3380 | 1390 | 530 |
| 32 | in. | 32.00 | 60.00 | 60.00 | 141.70 | 57.50 | 20.86 |
| 800 | mm | 813 | 1524 | 1524 | 3600 | 1460 | 530 |
| 34 | in. | 34.00 | 64.00 | 64.00 | 150.00 | 58.00 | 20.86 |
| 850 | mm | 864 | 1626 | 1626 | 3820 | 1480 | 530 |
| 36 | in. | 36.00 | 68.00 | 68.00 | 159.00 | 61.00 | 20.86 |
| 900 | mm | 914 | 1727 | 1727 | 4050 | 1550 | 530 |

The valve details on this page are the standard production range only, for other size valves or end configurations please consult the factory. Note OMB reserves the right to make modifications or changes to its production, without prior notice and take no responsibility for any errors in this publication.





ASME CLASS 600 FULL BORE

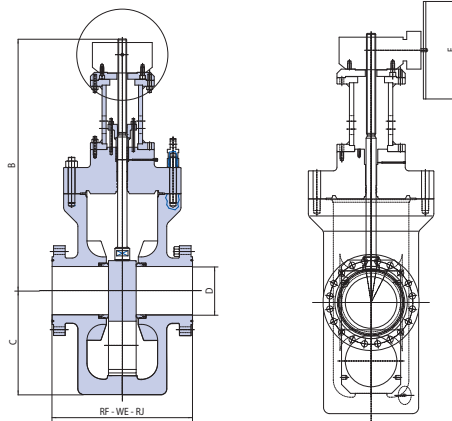
| SIZE | | SLAB | | | | | | |
|------|-----|-------|-------|-------|-------|--------|-------|-------|
| | | D | RF | RJ | WE | B | C | E |
| 2 | in. | 2.00 | 11.50 | 11.63 | 11.50 | 16.54 | 5.00 | 9.80 |
| 50 | mm | 51 | 292 | 295 | 292 | 420 | 130 | 250 |
| 3 | in. | 3.00 | 14.00 | 14.13 | 14.00 | 20.50 | 7.30 | 9.80 |
| 80 | mm | 76 | 356 | 359 | 356 | 520 | 185 | 250 |
| 4 | in. | 4.00 | 17.00 | 17.13 | 17.00 | 25.60 | 11.00 | 9.80 |
| 100 | mm | 102 | 432 | 435 | 432 | 650 | 280 | 250 |
| 6 | in. | 6.00 | 22.00 | 22.13 | 22.00 | 34.45 | 16.00 | 9.80 |
| 150 | mm | 152 | 559 | 562 | 559 | 875 | 409 | 250 |
| 8 | in. | 8.00 | 26.00 | 26.13 | 26.00 | 42.80 | 19.70 | 9.80 |
| 200 | mm | 203 | 660 | 663 | 660 | 1087 | 500 | 250 |
| 10 | in. | 10.00 | 31.00 | 31.13 | 31.00 | 50.80 | 22.00 | 11.80 |
| 250 | mm | 254 | 787 | 791 | 787 | 1290 | 560 | 300 |
| 12 | in. | 12.00 | 33.00 | 33.13 | 33.00 | 59.00 | 26.60 | 15.75 |
| 300 | mm | 305 | 838 | 841 | 838 | 1498 | 675 | 400 |
| 14 | in. | 14.00 | 35.00 | 35.13 | 35.00 | 66.00 | 28.30 | 15.75 |
| 350 | mm | 356 | 889 | 892 | 889 | 1677 | 720 | 400 |
| 16 | in. | 16.00 | 39.00 | 39.13 | 39.00 | 72.80 | 32.00 | 20.86 |
| 400 | mm | 406 | 991 | 994 | 991 | 1850 | 815 | 530 |
| 18 | in. | 18.00 | 43.00 | 43.13 | 43.00 | 81.00 | 35.00 | 20.86 |
| 450 | mm | 457 | 1092 | 1095 | 1092 | 2060 | 890 | 530 |
| 20 | in. | 20.00 | 47.00 | 47.25 | 47.00 | 88.40 | 36.60 | 31.50 |
| 500 | mm | 508 | 1194 | 1200 | 1194 | 2245 | 930 | 800 |
| 22 | in. | 22.00 | 51.00 | 51.38 | 51.00 | 100.40 | 43.00 | 31.50 |
| 550 | mm | 559 | 1295 | 1305 | 1295 | 2549 | 1095 | 800 |
| 24 | in. | 24.00 | 55.00 | 55.38 | 55.00 | 106.20 | 44.50 | 37.40 |
| 600 | mm | 610 | 1397 | 1407 | 1397 | 2697 | 1130 | 950 |
| 26 | in. | 26.00 | 57.00 | 57.50 | 57.00 | 109.00 | 46.00 | 37.40 |
| 650 | mm | 660 | 1448 | 1461 | 1448 | 2770 | 1170 | 950 |
| 28 | in. | 28.00 | 61.00 | 61.50 | 61.00 | 121.00 | 50.60 | 37.40 |
| 700 | mm | 711 | 1549 | 1562 | 1549 | 3068 | 1285 | 950 |
| 30 | in. | 30.00 | 66.30 | 65.50 | 66.30 | 130.00 | 55.70 | 37.40 |
| 750 | mm | 762 | 1651 | 1664 | 1651 | 3300 | 1415 | 950 |
| 32 | in. | 32.00 | 70.00 | 70.72 | 70.00 | 136.30 | 56.70 | 37.40 |
| 800 | mm | 813 | 1778 | 1794 | 1778 | 3462 | 1440 | 950 |
| 34 | in. | 34.00 | 76.00 | 76.52 | 76.00 | 146.00 | 60.00 | 37.40 |
| 850 | mm | 864 | 1930 | 1946 | 1930 | 3710 | 1525 | 950 |
| 36 | in. | 36.00 | 82.00 | 82.63 | 82.00 | 115.20 | 64.00 | 37.40 |
| 900 | mm | 914 | 2083 | 2099 | 2083 | 3839 | 1625 | 950 |

ASME CLASS 900 FULL BORE

| SIZE | | SLAB | | | | | | |
|------|-----|-------|-------|-------|-------|--------|-------|-------|
| | | D | RF | RJ | WE | B | C | E |
| 2 | in. | 2.00 | 14.49 | 14.61 | 14.49 | 17.70 | 5.30 | 9.80 |
| 50 | mm | 51 | 368 | 371 | 368 | 450 | 135 | 250 |
| 3 | in. | 3.00 | 15.00 | 15.12 | 15.00 | 21.20 | 7.30 | 9.80 |
| 80 | mm | 76 | 381 | 384 | 381 | 538 | 185 | 250 |
| 4 | in. | 4.00 | 17.99 | 18.11 | 17.99 | 26.60 | 9.25 | 9.80 |
| 100 | mm | 102 | 457 | 460 | 457 | 675 | 235 | 250 |
| 6 | in. | 6.00 | 24.02 | 24.13 | 24.02 | 38.60 | 13.40 | 15.25 |
| 150 | mm | 152 | 610 | 613 | 610 | 980 | 340 | 400 |
| 8 | in. | 8.00 | 29.02 | 29.13 | 29.02 | 48.00 | 17.00 | 20.86 |
| 200 | mm | 203 | 737 | 740 | 737 | 1220 | 435 | 530 |
| 10 | in. | 10.00 | 32.99 | 33.11 | 32.99 | 52.40 | 19.30 | 20.86 |
| 250 | mm | 254 | 838 | 841 | 838 | 1330 | 490 | 530 |
| 12 | in. | 12.00 | 37.99 | 38.11 | 37.99 | 60.00 | 2.80 | 20.86 |
| 300 | mm | 305 | 965 | 968 | 965 | 1525 | 580 | 530 |
| 14 | in. | 14.00 | 40.51 | 40.87 | 40.51 | 63.80 | 23.80 | 20.86 |
| 350 | mm | 356 | 1029 | 1038 | 1029 | 1620 | 605 | 530 |
| 16 | in. | 16.00 | 44.49 | 44.88 | 44.49 | 69.00 | 28.60 | 29.52 |
| 400 | mm | 406 | 1130 | 1140 | 1130 | 1755 | 726 | 750 |
| 18 | in. | 18.00 | 47.99 | 48.50 | 47.99 | 93.60 | 30.00 | 29.52 |
| 450 | mm | 457 | 1219 | 1232 | 1219 | 2377 | 760 | 750 |
| 20 | in. | 20.00 | 52.01 | 52.48 | 52.01 | 190.30 | 31.50 | 29.52 |
| 500 | mm | 508 | 1321 | 1334 | 1321 | 2776 | 800 | 750 |
| 24 | in. | 24.00 | 60.98 | 61.73 | 60.98 | 130.30 | 41.30 | 47.25 |
| 600 | mm | 610 | 1549 | 1568 | 1549 | 3310 | 1050 | 1200 |
| 28 | in. | 28.00 | 70.00 | 71.00 | 70.00 | 154.00 | 45.30 | 47.25 |
| 700 | mm | 711 | 1778 | 1800 | 1778 | 3913 | 1150 | 1200 |
| 30 | in. | 30.00 | 74.02 | 74.88 | 74.02 | 164.40 | 52.00 | 47.25 |
| 750 | mm | 762 | 1880 | 1902 | 1880 | 4175 | 1320 | 1200 |
| 32 | in. | 32.00 | 80.00 | 80.87 | 80.00 | 177.80 | 51.50 | 47.25 |
| 800 | mm | 813 | 2032 | 2054 | 2032 | 4517 | 1307 | 1200 |
| 34 | in. | 34.00 | 85.00 | 86.14 | 85.00 | 187.40 | 54.40 | 47.25 |
| 850 | mm | 864 | 2159 | 2188 | 2159 | 4760 | 1382 | 1200 |
| 36 | in. | 36.00 | 90.00 | 91.14 | 90.00 | 196.50 | 61.80 | 47.25 |
| 900 | mm | 914 | 2286 | 2315 | 2286 | 4990 | 1570 | 1200 |

The valve details on this page are the standard production range only, for other size valves or end configurations please consult the factory.
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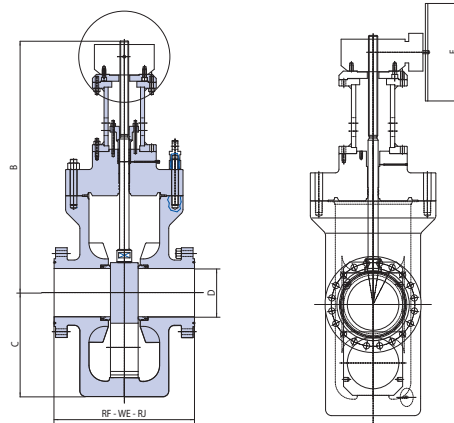


ASME CLASS 1500 FULL BORE

| SIZE | | SLAB | | | | | | |
|------|-----|-------|-------|-------|-------|--------|-------|-------|
| | | D | RF | RJ | WE | B | C | E |
| 2 | in. | 2.00 | 14.49 | 14.61 | 14.49 | 21.00 | 5.50 | 9.80 |
| 50 | mm | 51 | 368 | 371 | 368 | 510 | 140 | 250 |
| 3 | in. | 3.00 | 18.50 | 18.62 | 18.50 | 26.50 | 7.70 | 9.80 |
| 80 | mm | 76 | 470 | 473 | 470 | 675 | 195 | 250 |
| 4 | in. | 4.00 | 21.50 | 21.61 | 21.50 | 29.30 | 10.45 | 20.47 |
| 100 | mm | 102 | 546 | 549 | 546 | 745 | 265 | 520 |
| 6 | in. | 6.00 | 27.76 | 27.99 | 27.76 | 42.50 | 12.85 | 26.00 |
| 150 | mm | 152 | 705 | 711 | 705 | 1080 | 326 | 660 |
| 8 | in. | 8.00 | 32.76 | 33.11 | 32.76 | 52.00 | 16.35 | 26.00 |
| 200 | mm | 203 | 832 | 841 | 832 | 1320 | 415 | 660 |
| 10 | in. | 10.00 | 39.02 | 39.37 | 39.02 | 58.50 | 18.25 | 29.52 |
| 250 | mm | 254 | 991 | 1000 | 991 | 1485 | 464 | 750 |
| 12 | in. | 12.00 | 44.49 | 44.61 | 44.49 | 63.60 | 21.65 | 32.28 |
| 300 | mm | 305 | 1130 | 1146 | 1130 | 1615 | 550 | 820 |
| 14 | in. | 14.00 | 49.49 | 50.24 | 49.49 | 72.00 | 24.00 | 32.28 |
| 350 | mm | 356 | 1257 | 1276 | 1257 | 1820 | 593 | 820 |
| 16 | in. | 16.00 | 54.49 | 55.35 | 54.49 | 77.50 | 27.50 | 37.40 |
| 400 | mm | 406 | 1384 | 1407 | 1384 | 1965 | 700 | 950 |
| 18 | in. | 18.00 | 60.51 | 61.38 | 60.51 | 98.00 | 30.00 | 37.40 |
| 450 | mm | 457 | 1537 | 1559 | 1537 | 2490 | 765 | 950 |
| 20 | in. | 20.00 | 65.51 | 66.38 | 65.51 | 116.15 | 32.00 | 47.25 |
| 500 | mm | 508 | 1664 | 1686 | 1664 | 2950 | 815 | 1200 |
| 24 | in. | 24.00 | 76.00 | 81.54 | 76.00 | 140.00 | 41.50 | 47.25 |
| 600 | mm | 610 | 1943 | 1972 | 1943 | 3550 | 1050 | 1200 |

ASME CLASS 2500 FULL BORE

| SIZE | | SLAB | | | | | | |
|------|-----|-------|-------|-------|-------|-------|-------|-------|
| | | D | RF | RJ | WE | B | C | E |
| 2 | in. | 1.65 | 17.76 | 17.87 | 17.76 | 12.08 | 8.00 | 9.80 |
| 50 | mm | 42 | 451 | 454 | 451 | 307 | 203 | 250 |
| 3 | in. | 2.44 | 22.76 | 22.99 | 22.76 | 15.48 | 10.30 | 9.80 |
| 80 | mm | 62 | 578 | 584 | 578 | 339 | 262 | 250 |
| 4 | in. | 3.43 | 26.50 | 26.89 | 26.50 | 18.02 | 12.00 | 20.47 |
| 100 | mm | 87 | 673 | 683 | 673 | 458 | 305 | 520 |
| 6 | in. | 5.16 | 35.98 | 36.50 | 35.98 | 24.50 | 16.30 | 26.00 |
| 150 | mm | 131 | 914 | 927 | 914 | 622 | 414 | 660 |
| 8 | in. | 7.05 | 40.24 | 40.87 | 40.24 | 27.50 | 18.20 | 26.00 |
| 200 | mm | 179 | 1022 | 1038 | 1022 | 698 | 462 | 660 |
| 10 | in. | 8.78 | 50.00 | 50.87 | 50.00 | 34.00 | 22.65 | 29.52 |
| 250 | mm | 223 | 1270 | 1292 | 1270 | 864 | 575 | 750 |
| 12 | in. | 10.43 | 55.98 | 56.89 | 55.98 | 38.00 | 25.36 | 32.28 |
| 300 | mm | 265 | 1422 | 1445 | 1422 | 965 | 644 | 820 |



API CLASS 5000 FULL BORE

| SLAB | | | | | | |
|--------|-----|------|-------|-------|-------|-------|
| SIZE | | D | RJ | B | C | E |
| 2 1/16 | in. | 2.06 | 16.60 | 18.70 | 6.50 | 20.00 |
| 52 | mm | 52 | 371 | 475 | 165 | 500 |
| 2 9/16 | in. | - | - | - | - | - |
| 65 | mm | - | - | - | - | - |
| 3 1/8 | in. | 3.12 | 18.60 | 22.84 | 10.45 | 24.00 |
| 78 | mm | 78 | 473 | 580 | 265 | 600 |
| 4 1/16 | in. | 4.06 | 21.70 | 27.50 | 12.80 | 24.00 |
| 103 | mm | 103 | 549 | 700 | 325 | 600 |
| 5 1/8 | in. | 5.12 | 28.70 | 42.50 | 12.85 | 24.00 |
| 130 | mm | 130 | 727 | 1080 | 326 | 600 |
| 7 1/16 | in. | - | - | - | - | - |
| 200 | mm | - | - | - | - | - |
| 9 | in. | - | - | - | - | - |
| 228 | mm | - | - | - | - | - |
| 11 | in. | - | - | - | - | - |
| 274 | mm | - | - | - | - | - |

API CLASS 10000 FULL BORE

| SLAB | | | | | | |
|---------|-----|-------|-------|-------|-------|-------|
| SIZE | | D | RJ | B | C | E |
| 1 13/16 | in. | 2.06 | 18.20 | 16.5 | 5.50 | 16.00 |
| 46 | mm | 46 | 463 | 421 | 140 | 400 |
| 2 1/16 | in. | 3.12 | 20.50 | 18.00 | 6.50 | 20.00 |
| 52 | mm | 53 | 521 | 460 | 165 | 500 |
| 3 1/16 | in. | 4.06 | 24.40 | 23.00 | 10.50 | 24.00 |
| 78 | mm | 78 | 619 | 580 | 265 | 600 |
| 4 1/16 | in. | 4.10 | 26.40 | 27.50 | 12.80 | 24.00 |
| 103 | mm | 104 | 670 | 700 | 325 | 600 |
| 7 1/16 | in. | 7.08 | 35.00 | 41.30 | 17.70 | 24.00 |
| 179 | mm | 180 | 889 | 1050 | 450 | 600 |
| 9 | in. | 9.00 | 43.00 | 43.70 | 22.05 | 32 |
| 228 | mm | 229 | 1092 | 1110 | 560 | 800 |
| 11 | in. | 11.02 | 47.00 | 62.80 | 26.80 | 32 |
| 279 | mm | 280 | 1194 | 1595 | 680 | 800 |



OMB manufactures both API 6A and 6D compliant valves with our innovative design and proof testing the OMB Split gate valve offers true double barrier sealing with mechanically energized independent seats, thus providing a compact double isolation in a minimal effective design. The OMB design is used where additional safety barriers are required in your system with reduced space and weight being necessary.

A key feature of our design is the reduced frictional forces and hence the reduced torque requirements for sealing, this coupled with our own actuators provide a more effective compact design for all off shore applications.

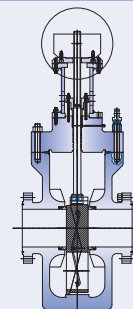
Tungsten carbide Coating (TCC) of the gate and seats along with our tertiary stem sealing provides a high standard of sealing capability.

The innovative tertiary stem sealing provided as standard within the OMB valve, coupled with the metal to metal back seat in the actuated design ensure no fugitive emissions.

Static body to bonnet seals of metal to metal design ensure that all body joints are stronger than that of the surrounding pipe work.

The full bore design offers trouble free operation for the duration of the valve life.

CONSTRUCTION



KEY FEATURES ARE:

- ✓ FULL BORE.
- ✓ BI DIRECTIONAL SEALING.
- ✓ DOUBLE BLOCK CAPABILITIES.
- ✓ BUBBLE TIGHT SEALING.
- ✓ METAL TO METAL SEALING



| CLASS DIAMETER | CLASS 150 FB | CLASS 300 FB | CLASS 600 FB | CLASS 900 FB | CLASS 1500 FB | CLASS 2500 FB |
|----------------|--------------|--------------|--------------|--------------|---------------|---------------|
| 1/2" | | | | | | |
| 3/4" | | | | | | |
| 1" | | | | | | |
| 1 1/2" | | | | | | |
| 2" | ● | ● | ● | ● | ● | ● |
| 3" | ● | ● | ● | ● | ● | ● |
| 4" | ● | ● | ● | ● | ● | ● |
| 6" | ● | ● | ● | ● | ● | ● |
| 8" | ● | ● | ● | ● | ● | ● |
| 10" | ● | ● | ● | ● | ● | ● |
| 12" | ● | ● | ● | ● | ● | ● |
| 14" | ● | ● | ● | ● | ● | |
| 16" | ● | ● | ● | ● | ● | |
| 18" | ● | ● | ● | ● | ● | |
| 20" | ● | ● | ● | ● | ● | |
| 22" | ● | ● | ● | ● | ● | |
| 24" | ● | ● | ● | ● | ● | |
| 26" | ● | ● | ● | ● | ● | |
| 28" | ● | ● | ● | ● | ● | |
| 30" | ● | ● | ● | ● | ● | |
| 32" | ● | ● | ● | ● | ● | |
| 34" | ● | ● | ● | ● | ● | |
| 36" | ● | ● | ● | ● | ● | |

Applicable Standards

API 6D LICIENCE No 6D-0286

API 6A LICIENCE No 6A-0778

API Spec. Q1

API 6D (EN ISO 14313) Pipeline Transportation Systems-Pipeline Valves.

API 598 (Inspection Testing)

API 14D Sand Slurry (Annex I API 6A)

ASME B16.34

(Vales-Flanged, Threaded and Welding end)

ASME B16.5 (Pipe Flanges and Flanged Fittings)

ASME B16.10 (Face to Face Dimensions)

ASME B16.25 (Butt weld ends)

ASME

(Boiler and Pressure vessel Code II, V, VIII, X)

ASME B31.8

Gas transmission and Distribution piping systems.

ASME B31.4

Liquid Petroleum transmission piping systems.

BS EN ISO 10497-Fire Testing.

BS EN 12266 – 1/2. (Testing Of Valves)

BS EN ISO 4406 (Hydraulic Fluid Cleanliness)

BS EN 10204 (Metallic Products Inspection Documents)

EU Pressure Equipment Directive.

EN ISO 9001:2000

ISO 5208 (industrial valves pressure testing)

NACE MR0175 / ISO 15156

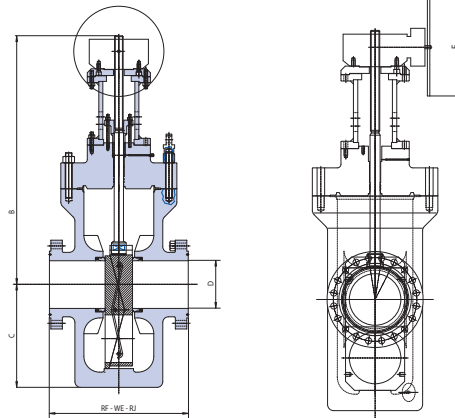
(Sulphide Stress Cracking Resistant Materials for offshore applications)

NOROSK L-001 Piping and Valves.

NOROSK M-630 - Material Data Sheets for Piping.

NOROSK M-650 - Qualification of Manufacturers of special materials





ASME CLASS 150 FULL BORE

| SIZE | | D | RF | WE | B | C | E |
|------|-----|-------|-------|-------|--------|-------|-------|
| 2 | in. | 2.00 | 7.00 | 8.50 | 16.53 | 5.27 | 9.80 |
| 50 | mm | 51 | 178 | 216 | 420 | 134 | 250 |
| 3 | in. | 3.00 | 8.00 | 11.13 | 20.27 | 7.08 | 9.80 |
| 80 | mm | 76 | 203 | 283 | 515 | 180 | 250 |
| 4 | in. | 4.00 | 9.00 | 12.00 | 23.07 | 8.86 | 9.80 |
| 100 | mm | 102 | 229 | 305 | 586 | 225 | 250 |
| 6 | in. | 6.00 | 10.51 | 15.87 | 32.20 | 12.20 | 9.80 |
| 150 | mm | 152 | 267 | 403 | 818 | 310 | 250 |
| 8 | in. | 8.00 | 11.50 | 16.50 | 40.62 | 15.55 | 9.80 |
| 200 | mm | 203 | 292 | 419 | 1032 | 395 | 250 |
| 10 | in. | 10.00 | 13.00 | 18.00 | 49.80 | 19.17 | 9.80 |
| 250 | mm | 254 | 330 | 457 | 1265 | 487 | 250 |
| 12 | in. | 12.00 | 14.01 | 19.76 | 58.74 | 22.16 | 15.75 |
| 300 | mm | 305 | 356 | 502 | 1492 | 563 | 400 |
| 14 | in. | 14.00 | 15.00 | 22.52 | 63.18 | 24.01 | 15.75 |
| 350 | mm | 356 | 381 | 572 | 1605 | 610 | 400 |
| 16 | in. | 16.00 | 15.98 | 24.01 | 71.06 | 27.56 | 20.86 |
| 400 | mm | 406 | 406 | 610 | 1805 | 700 | 530 |
| 18 | in. | 18.00 | 17.00 | 25.98 | 78.15 | 35.04 | 20.86 |
| 450 | mm | 457 | 432 | 660 | 1985 | 890 | 530 |
| 20 | in. | 20.00 | 18.00 | 28.00 | 85.24 | 37.60 | 20.86 |
| 500 | mm | 508 | 457 | 711 | 2165 | 955 | 530 |
| 22 | in. | 22.00 | 20.00 | 30.00 | 94.88 | 40.75 | 20.86 |
| 550 | mm | 559 | 508 | 762 | 2410 | 1035 | 530 |
| 24 | in. | 24.00 | 20.00 | 32.00 | 101.10 | 46.46 | 20.86 |
| 600 | mm | 610 | 508 | 813 | 2568 | 1180 | 530 |
| 26 | in. | 26.00 | 22.00 | 34.01 | 108.78 | 48.82 | 20.86 |
| 650 | mm | 660 | 559 | 864 | 2763 | 1240 | 530 |
| 28 | in. | 28.00 | 24.01 | 35.98 | 116.57 | 50.86 | 20.86 |
| 700 | mm | 711 | 610 | 914 | 2961 | 1292 | 530 |
| 30 | in. | 30.00 | 25.98 | 35.98 | 123.54 | 54.45 | 20.86 |
| 750 | mm | 762 | 660 | 914 | 3138 | 1383 | 530 |
| 32 | in. | 32.00 | 28.00 | 38.00 | 131.26 | 57.28 | 20.86 |
| 800 | mm | 813 | 711 | 965 | 3334 | 1455 | 530 |
| 34 | in. | 34.00 | 30.00 | 40.00 | 139.76 | 57.67 | 20.86 |
| 850 | mm | 864 | 760 | 1016 | 3550 | 1465 | 530 |
| 36 | in. | 36.00 | 32.00 | 40.00 | 145.98 | 66.30 | 20.86 |
| 900 | mm | 914 | 813 | 1016 | 3708 | 1684 | 530 |

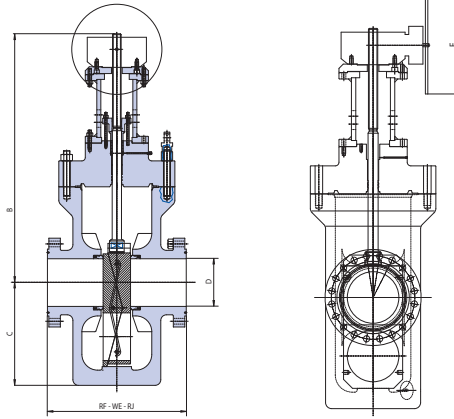
ASME CLASS 300 FULL BORE

| SIZE | | D | RF | WE | B | C | E |
|------|-----|-------|-------|-------|--------|-------|-------|
| 2 | in. | 2.00 | 8.50 | 8.50 | 16.50 | 5.00 | 9.80 |
| 50 | mm | 51 | 216 | 216 | 420 | 130 | 250 |
| 3 | in. | 3.00 | 11.14 | 11.14 | 20.00 | 7.28 | 9.80 |
| 80 | mm | 76 | 283 | 283 | 520 | 185 | 250 |
| 4 | in. | 4.00 | 12.00 | 12.00 | 32.34 | 8.93 | 8.80 |
| 100 | mm | 102 | 305 | 305 | 593 | 227 | 225 |
| 6 | in. | 6.00 | 15.86 | 15.86 | 36.00 | 13.00 | 10.60 |
| 150 | mm | 152 | 403 | 403 | 912 | 330 | 270 |
| 8 | in. | 8.00 | 16.50 | 16.50 | 51.65 | 16.00 | 13.40 |
| 200 | mm | 203 | 419 | 419 | 1312 | 410 | 340 |
| 10 | in. | 10.00 | 18.00 | 18.00 | 53.00 | 18.90 | 20.86 |
| 250 | mm | 254 | 457 | 457 | 1350 | 480 | 530 |
| 12 | in. | 12.00 | 19.76 | 19.76 | 58.46 | 19.90 | 20.86 |
| 300 | mm | 305 | 502 | 502 | 1485 | 505 | 530 |
| 14 | in. | 14.00 | 30.00 | 30.00 | 67.00 | 25.00 | 20.86 |
| 350 | mm | 356 | 762 | 762 | 1700 | 634 | 530 |
| 16 | in. | 16.00 | 33.00 | 33.00 | 74.40 | 28.35 | 20.86 |
| 400 | mm | 406 | 838 | 838 | 1890 | 720 | 530 |
| 18 | in. | 18.00 | 36.00 | 36.00 | 79.00 | 31.00 | 20.86 |
| 450 | mm | 457 | 914 | 914 | 2000 | 790 | 530 |
| 20 | in. | 20.00 | 39.00 | 39.00 | 90.50 | 34.00 | 20.86 |
| 500 | mm | 508 | 991 | 991 | 2300 | 870 | 530 |
| 22 | in. | 22.00 | 43.00 | 43.00 | 95.00 | 37.00 | 20.86 |
| 550 | mm | 559 | 1092 | 1092 | 2410 | 950 | 530 |
| 24 | in. | 24.00 | 45.00 | 45.00 | 100.00 | 40.00 | 20.86 |
| 600 | mm | 610 | 1143 | 1143 | 2548 | 1005 | 530 |
| 26 | in. | 26.00 | 49.00 | 49.00 | 118.70 | 43.70 | 20.86 |
| 650 | mm | 660 | 1245 | 1245 | 3015 | 1110 | 530 |
| 28 | in. | 28.00 | 53.00 | 53.00 | 126.00 | 48.00 | 20.86 |
| 700 | mm | 711 | 1346 | 1346 | 3200 | 1220 | 530 |
| 30 | in. | 30.00 | 55.00 | 55.00 | 133.00 | 54.70 | 20.86 |
| 750 | mm | 762 | 1397 | 1397 | 3380 | 1390 | 530 |
| 32 | in. | 32.00 | 60.00 | 60.00 | 141.70 | 57.50 | 20.86 |
| 800 | mm | 813 | 1524 | 1524 | 3600 | 1460 | 530 |
| 34 | in. | 34.00 | 64.00 | 64.00 | 150.00 | 58.00 | 20.86 |
| 850 | mm | 864 | 1626 | 1626 | 3820 | 1480 | 530 |
| 36 | in. | 36.00 | 68.00 | 68.00 | 159.00 | 61.00 | 20.86 |
| 900 | mm | 914 | 1727 | 1727 | 4050 | 1550 | 530 |

The valve details on this page are the standard production range only, for other size valves or end configurations please consult the factory.

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ASME CLASS 600 FULL BORE

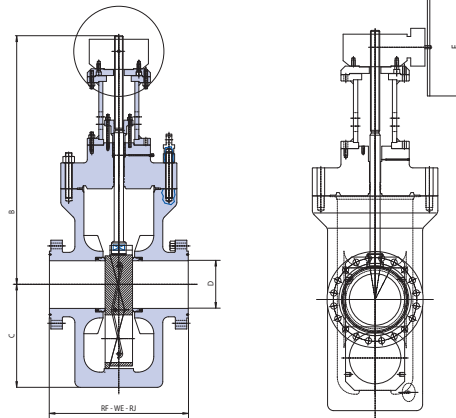
| SIZE | | SPLIT | | | | | | |
|------|-----|-------|-------|-------|-------|--------|-------|-------|
| | | D | RF | RJ | WE | B | C | E |
| 2 | in. | 2.00 | 11.50 | 11.63 | 11.50 | 16.54 | 5.00 | 9.80 |
| 50 | mm | 51 | 292 | 295 | 292 | 420 | 130 | 250 |
| 3 | in. | 3.00 | 14.00 | 14.13 | 14.00 | 20.50 | 7.30 | 9.80 |
| 80 | mm | 76 | 356 | 359 | 356 | 520 | 185 | 250 |
| 4 | in. | 4.00 | 17.00 | 17.13 | 17.00 | 25.60 | 11.00 | 9.80 |
| 100 | mm | 102 | 432 | 435 | 432 | 650 | 280 | 250 |
| 6 | in. | 6.00 | 22.00 | 22.13 | 22.00 | 34.45 | 16.00 | 9.80 |
| 150 | mm | 152 | 559 | 562 | 559 | 875 | 409 | 250 |
| 8 | in. | 8.00 | 26.00 | 26.13 | 26.00 | 42.80 | 19.70 | 9.80 |
| 200 | mm | 203 | 660 | 663 | 660 | 1087 | 500 | 250 |
| 10 | in. | 10.00 | 31.00 | 31.13 | 31.00 | 50.80 | 22.00 | 11.80 |
| 250 | mm | 254 | 787 | 791 | 787 | 1290 | 560 | 300 |
| 12 | in. | 12.00 | 33.00 | 33.13 | 33.00 | 59.00 | 26.60 | 15.75 |
| 300 | mm | 305 | 838 | 841 | 838 | 1498 | 675 | 400 |
| 14 | in. | 14.00 | 35.00 | 35.13 | 35.00 | 66.00 | 28.30 | 15.75 |
| 350 | mm | 356 | 889 | 892 | 889 | 1677 | 720 | 400 |
| 16 | in. | 16.00 | 39.00 | 39.13 | 39.00 | 72.80 | 32.00 | 20.86 |
| 400 | mm | 406 | 991 | 994 | 991 | 1850 | 815 | 530 |
| 18 | in. | 18.00 | 43.00 | 43.13 | 43.00 | 81.00 | 35.00 | 20.86 |
| 450 | mm | 457 | 1092 | 1095 | 1092 | 2060 | 890 | 530 |
| 20 | in. | 20.00 | 47.00 | 47.25 | 47.00 | 88.40 | 36.60 | 31.50 |
| 500 | mm | 508 | 1194 | 1200 | 1194 | 2245 | 930 | 800 |
| 22 | in. | 22.00 | 51.00 | 51.38 | 51.00 | 100.40 | 43.00 | 31.50 |
| 550 | mm | 559 | 1295 | 1305 | 1295 | 2549 | 1095 | 800 |
| 24 | in. | 24.00 | 55.00 | 55.38 | 55.00 | 106.20 | 44.50 | 37.40 |
| 600 | mm | 610 | 1397 | 1407 | 1397 | 2697 | 1130 | 950 |
| 26 | in. | 26.00 | 57.00 | 57.50 | 57.00 | 109.00 | 46.00 | 37.40 |
| 650 | mm | 660 | 1448 | 1461 | 1448 | 2770 | 1170 | 950 |
| 28 | in. | 28.00 | 61.00 | 61.50 | 61.00 | 121.00 | 50.60 | 37.40 |
| 700 | mm | 711 | 1549 | 1562 | 1549 | 3068 | 1285 | 950 |
| 30 | in. | 30.00 | 66.30 | 65.50 | 66.30 | 130.00 | 55.70 | 37.40 |
| 750 | mm | 762 | 1651 | 1664 | 1651 | 3300 | 1415 | 950 |
| 32 | in. | 32.00 | 70.00 | 70.72 | 70.00 | 136.30 | 56.70 | 37.40 |
| 800 | mm | 813 | 1778 | 1794 | 1778 | 3462 | 1440 | 950 |
| 34 | in. | 34.00 | 76.00 | 76.52 | 76.00 | 146.00 | 60.00 | 37.40 |
| 850 | mm | 864 | 1930 | 1946 | 1930 | 3710 | 1525 | 950 |
| 36 | in. | 36.00 | 82.00 | 82.63 | 82.00 | 115.20 | 64.00 | 37.40 |
| 900 | mm | 914 | 2083 | 2099 | 2083 | 3839 | 1625 | 950 |

ASME CLASS 900 FULL BORE

| SIZE | | SPLIT | | | | | | |
|------|-----|-------|-------|-------|-------|--------|-------|-------|
| | | D | RF | RJ | WE | B | C | E |
| 2 | in. | 2.00 | 14.49 | 14.61 | 14.49 | 17.70 | 5.30 | 9.80 |
| 50 | mm | 51 | 368 | 371 | 368 | 450 | 135 | 250 |
| 3 | in. | 3.00 | 15.00 | 15.12 | 15.00 | 21.20 | 7.30 | 9.80 |
| 80 | mm | 76 | 381 | 384 | 381 | 538 | 185 | 250 |
| 4 | in. | 4.00 | 17.99 | 18.11 | 17.99 | 26.60 | 9.25 | 9.80 |
| 100 | mm | 102 | 457 | 460 | 457 | 675 | 235 | 250 |
| 6 | in. | 6.00 | 24.02 | 24.13 | 24.02 | 38.60 | 13.40 | 15.25 |
| 150 | mm | 152 | 610 | 613 | 610 | 980 | 340 | 400 |
| 8 | in. | 8.00 | 29.02 | 29.13 | 29.02 | 48.00 | 17.00 | 20.86 |
| 200 | mm | 203 | 737 | 740 | 737 | 1220 | 435 | 530 |
| 10 | in. | 10.00 | 32.99 | 33.11 | 32.99 | 52.40 | 19.30 | 20.86 |
| 250 | mm | 254 | 838 | 841 | 838 | 1330 | 490 | 530 |
| 12 | in. | 12.00 | 37.99 | 38.11 | 37.99 | 60.00 | 2.80 | 20.86 |
| 300 | mm | 305 | 965 | 968 | 965 | 1525 | 580 | 530 |
| 14 | in. | 14.00 | 40.51 | 40.87 | 40.51 | 63.80 | 23.80 | 20.86 |
| 350 | mm | 356 | 1029 | 1038 | 1029 | 1620 | 605 | 530 |
| 16 | in. | 16.00 | 44.49 | 44.88 | 44.49 | 69.00 | 28.60 | 29.52 |
| 400 | mm | 406 | 1130 | 1140 | 1130 | 1755 | 726 | 750 |
| 18 | in. | 18.00 | 47.99 | 48.50 | 47.99 | 93.60 | 30.00 | 29.52 |
| 450 | mm | 457 | 1219 | 1232 | 1219 | 2377 | 760 | 750 |
| 20 | in. | 20.00 | 52.01 | 52.48 | 52.01 | 190.30 | 31.50 | 29.52 |
| 500 | mm | 508 | 1321 | 1334 | 1321 | 2776 | 800 | 750 |
| 24 | in. | 24.00 | 60.98 | 61.73 | 60.98 | 130.30 | 41.30 | 47.25 |
| 600 | mm | 610 | 1549 | 1568 | 1549 | 3310 | 1050 | 1200 |
| 28 | in. | 28.00 | 70.00 | 71.00 | 70.00 | 154.00 | 45.30 | 47.25 |
| 700 | mm | 711 | 1778 | 1800 | 1778 | 3913 | 1150 | 1200 |
| 30 | in. | 30.00 | 74.02 | 74.88 | 74.02 | 164.40 | 52.00 | 47.25 |
| 750 | mm | 762 | 1880 | 1902 | 1880 | 4175 | 1320 | 1200 |
| 32 | in. | 32.00 | 80.00 | 80.87 | 80.00 | 177.80 | 51.50 | 47.25 |
| 800 | mm | 813 | 2032 | 2054 | 2032 | 4517 | 1307 | 1200 |
| 34 | in. | 34.00 | 85.00 | 86.14 | 85.00 | 187.40 | 54.40 | 47.25 |
| 850 | mm | 864 | 2159 | 2188 | 2159 | 4760 | 1382 | 1200 |
| 36 | in. | 36.00 | 90.00 | 91.14 | 90.00 | 196.50 | 61.80 | 47.25 |
| 900 | mm | 914 | 2286 | 2315 | 2286 | 4990 | 1570 | 1200 |

The valve details on this page are the standard production range only, for other size valves or end configurations please consult the factory.
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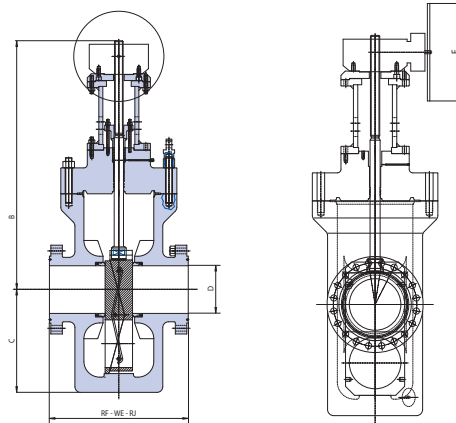


ASME CLASS 1500 FULL BORE

| SIZE | | SPLIT | | | | | | |
|------|-----|-------|-------|-------|-------|--------|-------|-------|
| | | D | RF | RJ | WE | B | C | E |
| 2 | in. | 2.00 | 14.49 | 14.61 | 14.49 | 21.00 | 5.50 | 9.80 |
| 50 | mm | 51 | 368 | 371 | 368 | 510 | 140 | 250 |
| 3 | in. | 3.00 | 18.50 | 18.62 | 18.50 | 26.50 | 7.70 | 9.80 |
| 80 | mm | 76 | 470 | 473 | 470 | 675 | 195 | 250 |
| 4 | in. | 4.00 | 21.50 | 21.61 | 21.50 | 29.30 | 10.45 | 20.47 |
| 100 | mm | 102 | 546 | 549 | 546 | 745 | 265 | 520 |
| 6 | in. | 6.00 | 27.76 | 27.99 | 27.76 | 42.50 | 12.85 | 26.00 |
| 150 | mm | 152 | 705 | 711 | 705 | 1080 | 326 | 660 |
| 8 | in. | 8.00 | 32.76 | 33.11 | 32.76 | 52.00 | 16.35 | 26.00 |
| 200 | mm | 203 | 832 | 841 | 832 | 1320 | 415 | 660 |
| 10 | in. | 10.00 | 39.02 | 39.37 | 39.02 | 58.50 | 18.25 | 29.52 |
| 250 | mm | 254 | 991 | 1000 | 991 | 1485 | 464 | 750 |
| 12 | in. | 12.00 | 44.49 | 44.61 | 44.49 | 63.60 | 21.65 | 32.28 |
| 300 | mm | 305 | 1130 | 1146 | 1130 | 1615 | 550 | 820 |
| 14 | in. | 14.00 | 49.49 | 50.24 | 49.49 | 72.00 | 24.00 | 32.28 |
| 350 | mm | 356 | 1257 | 1276 | 1257 | 1820 | 593 | 820 |
| 16 | in. | 16.00 | 54.49 | 55.35 | 54.49 | 77.50 | 27.50 | 37.40 |
| 400 | mm | 406 | 1384 | 1407 | 1384 | 1965 | 700 | 950 |
| 18 | in. | 18.00 | 60.51 | 61.38 | 60.51 | 98.00 | 30.00 | 37.40 |
| 450 | mm | 457 | 1537 | 1559 | 1537 | 2490 | 765 | 950 |
| 20 | in. | 20.00 | 65.51 | 66.38 | 65.51 | 116.15 | 32.00 | 47.25 |
| 500 | mm | 508 | 1664 | 1686 | 1664 | 2950 | 815 | 1200 |
| 24 | in. | 24.00 | 76.00 | 81.54 | 76.00 | 140.00 | 41.50 | 47.25 |
| 600 | mm | 610 | 1943 | 1972 | 1943 | 3550 | 1050 | 1200 |

ASME CLASS 2500 FULL BORE

| SIZE | | SPLIT | | | | | | |
|------|-----|-------|-------|-------|-------|-------|-------|-------|
| | | D | RF | RJ | WE | B | C | E |
| 2 | in. | 1.65 | 17.76 | 17.87 | 17.76 | 12.08 | 8.00 | 9.80 |
| 50 | mm | 42 | 451 | 454 | 451 | 307 | 203 | 250 |
| 3 | in. | 2.44 | 22.76 | 22.99 | 22.76 | 15.48 | 10.30 | 9.80 |
| 80 | mm | 62 | 578 | 584 | 578 | 339 | 262 | 250 |
| 4 | in. | 3.43 | 26.50 | 26.89 | 26.50 | 18.02 | 12.00 | 20.47 |
| 100 | mm | 87 | 673 | 683 | 673 | 458 | 305 | 520 |
| 6 | in. | 5.16 | 35.98 | 36.50 | 35.98 | 24.50 | 16.30 | 26.00 |
| 150 | mm | 131 | 914 | 927 | 914 | 622 | 414 | 660 |
| 8 | in. | 7.05 | 40.24 | 40.87 | 40.24 | 27.50 | 18.20 | 26.00 |
| 200 | mm | 179 | 1022 | 1038 | 1022 | 698 | 462 | 660 |
| 10 | in. | 8.78 | 50.00 | 50.87 | 50.00 | 34.00 | 22.65 | 29.52 |
| 250 | mm | 223 | 1270 | 1292 | 1270 | 864 | 575 | 750 |
| 12 | in. | 10.43 | 55.98 | 56.89 | 55.98 | 38.00 | 25.36 | 32.28 |
| 300 | mm | 265 | 1422 | 1445 | 1422 | 965 | 644 | 820 |

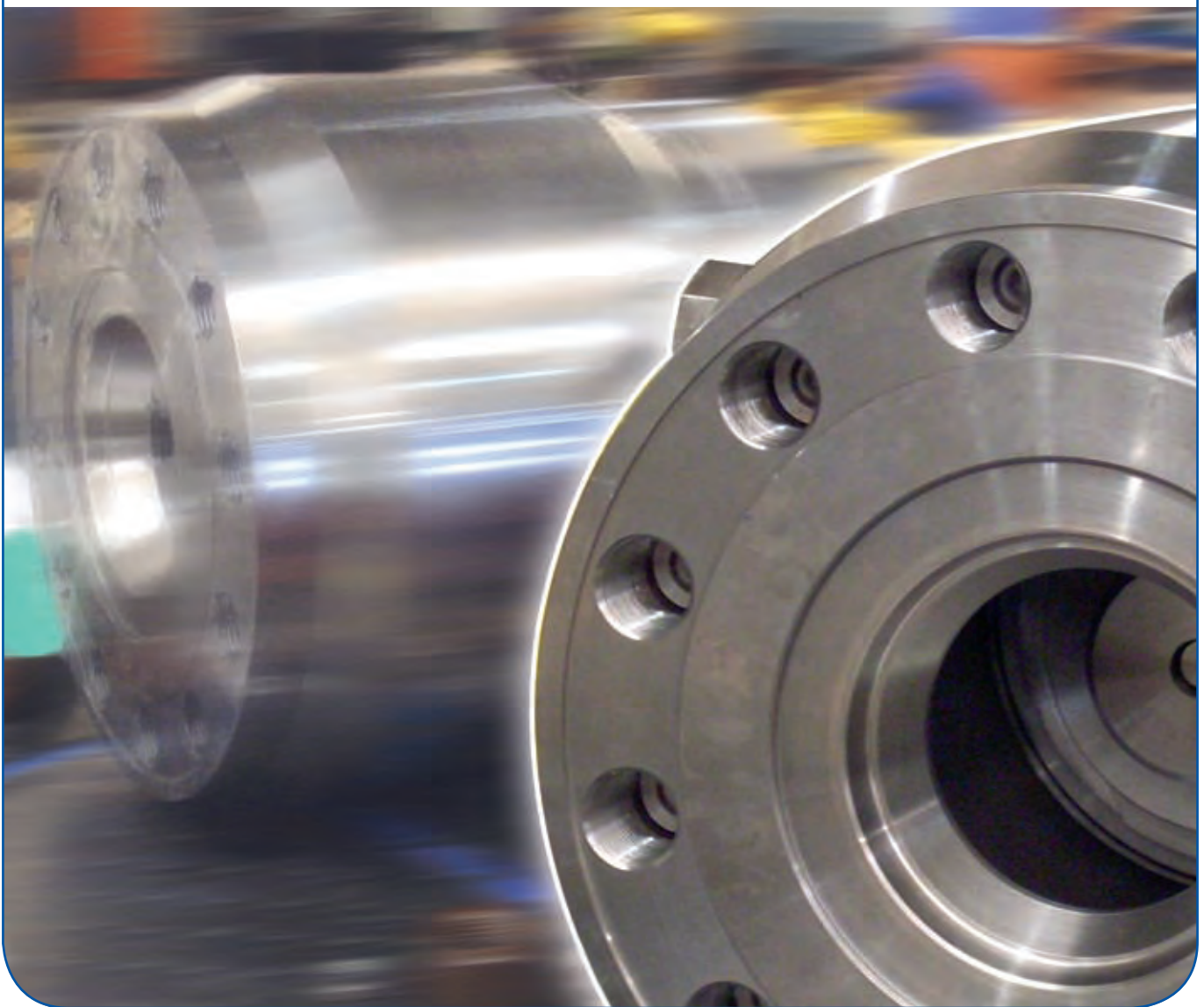


API CLASS 5000 FULL BORE

| SIZE | | SPLIT | | | | |
|--------|-----|-------|-------|-------|-------|-------|
| | | D | RJ | B | C | E |
| 2 1/16 | in. | 2.06 | 16.60 | 18.70 | 6.50 | 20.00 |
| 52 | mm | 52 | 371 | 475 | 165 | 500 |
| 2 9/16 | in. | - | - | - | - | - |
| 65 | mm | - | - | - | - | - |
| 3 1/8 | in. | 3.12 | 18.60 | 22.84 | 10.45 | 24.00 |
| 78 | mm | 78 | 473 | 580 | 265 | 600 |
| 4 1/16 | in. | 4.06 | 21.70 | 27.50 | 12.80 | 24.00 |
| 103 | mm | 103 | 549 | 700 | 325 | 600 |
| 5 1/8 | in. | 5.12 | 28.70 | 42.50 | 12.85 | 24.00 |
| 130 | mm | 130 | 727 | 1080 | 326 | 600 |
| 7 1/16 | in. | - | - | - | - | - |
| 200 | mm | - | - | - | - | - |
| 9 | in. | - | - | - | - | - |
| 228 | mm | - | - | - | - | - |
| 11 | in. | - | - | - | - | - |
| 274 | mm | - | - | - | - | - |

API CLASS 10000 FULL BORE

| SIZE | | SPLIT | | | | |
|---------|-----|-------|-------|-------|-------|-------|
| | | D | RJ | B | C | E |
| 1 13/16 | in. | 2.06 | 18.20 | 16.5 | 5.50 | 16.00 |
| 46 | mm | 46 | 463 | 421 | 140 | 400 |
| 2 1/16 | in. | 3.12 | 20.50 | 18.00 | 6.50 | 20.00 |
| 52 | mm | 53 | 521 | 460 | 165 | 500 |
| 3 1/16 | in. | 4.06 | 24.40 | 23.00 | 10.50 | 24.00 |
| 78 | mm | 78 | 619 | 580 | 265 | 600 |
| 4 1/16 | in. | 4.10 | 26.40 | 27.50 | 12.80 | 24.00 |
| 103 | mm | 104 | 670 | 700 | 325 | 600 |
| 7 1/16 | in. | 7.08 | 35.00 | 41.30 | 17.70 | 24.00 |
| 179 | mm | 180 | 889 | 1050 | 450 | 600 |
| 9 | in. | 9.00 | 43.00 | 43.70 | 22.05 | 32 |
| 228 | mm | 229 | 1092 | 1110 | 560 | 800 |
| 11 | in. | 11.02 | 47.00 | 62.80 | 26.80 | 32 |
| 279 | mm | 280 | 1194 | 1595 | 680 | 800 |



OMB Swing Check Valves (SCV) are designed as full bore, with no body penetrations for additional security. Our SCV are designed for the positive prevention of back flow in gas or liquid processes.

Fully piggable designs are available and ensure that the seats are well protected from the pig when passing through the valve cavity during operation.

Lock Open facility can be added where the clapper is held out of the flow area, allowing for reverse flow through the valve.

OMB utilizes PTFE Lip seal plus multi pack chevron PTFE stems seals to provide a secure multi barrier to the atmosphere when manual override is required.

Standard OMB Seats are hard faced metal to metal welded Satellite providing high resistance to erosion, soft seated options are be offered where both low

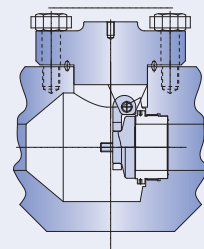
pressure and high pressure sealing is required.

Body joint seals are Spiral Wound SS316 & Graphite or metal to metal 718.

Non slam facility is also available where excess changes in flow are predicted.

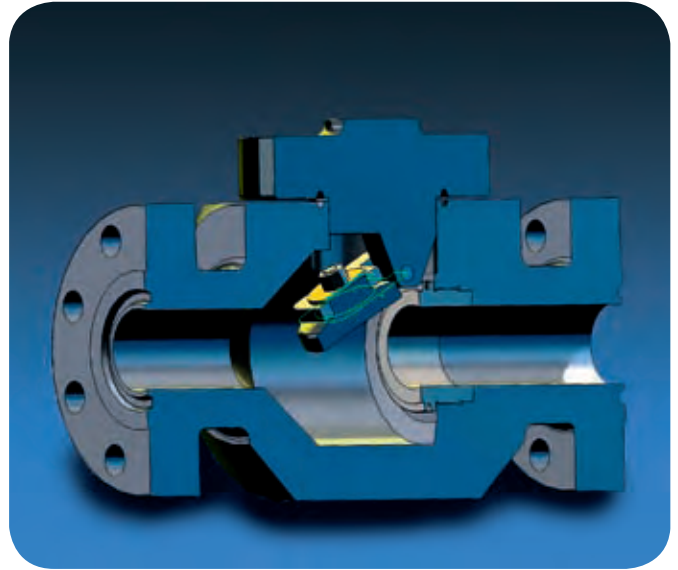
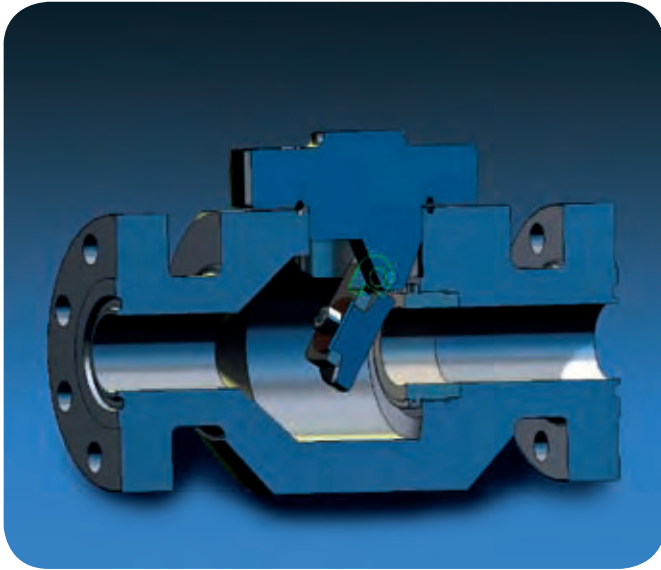
Body cavity plugs are supplied for the purpose of providing flushing, drain and vent facilities with high integrity sealing capabilities if required.

CONSTRUCTION



KEY FEATURES ARE:

- ✓ FULL BORE, PIGGABLE
- ✓ NON-SLAM.
- ✓ LOCK OPEN.
- ✓ BUBBLE TIGHT SEALING.
- ✓ METAL TO METAL SEALING



| CLASS DIAMETER | CLASS 150 FB | CLASS 300 FB | CLASS 600 FB | CLASS 900 FB | CLASS 1500 FB | CLASS 2500 FB |
|----------------|--------------|--------------|--------------|--------------|---------------|---------------|
| 1/2" | | | | | | |
| 3/4" | | | | | | |
| 1" | | | | | | |
| 1 1/2" | | | | | | |
| 2" | ● | ● | ● | ● | ● | ● |
| 3" | ● | ● | ● | ● | ● | ● |
| 4" | ● | ● | ● | ● | ● | ● |
| 6" | ● | ● | ● | ● | ● | ● |
| 8" | ● | ● | ● | ● | ● | ● |
| 10" | ● | ● | ● | ● | ● | ● |
| 12" | ● | ● | ● | ● | ● | ● |
| 14" | ● | ● | ● | ● | ● | |
| 16" | ● | ● | ● | ● | ● | |
| 18" | ● | ● | ● | ● | ● | |
| 20" | ● | ● | ● | ● | ● | |
| 22" | ● | ● | ● | ● | ● | |
| 24" | ● | ● | ● | ● | ● | |
| 26" | | | ● | | | |
| 28" | | | ● | | | |
| 30" | | | ● | | | |

Applicable Standards

API 6D LICIENCE No 6D-0286

API 6A LICIENCE No 6A-0778

API Spec. Q1

API 6D (EN ISO 14313)
Pipeline Transportation Systems-Pipeline Valves.

API 598 (Inspection Testing)

API 14D Sand Slurry (Annex I API 6A)

ASME B16.34

(Vales-Flanged, Threaded and Welding end)

ASME B16.5 (Pipe Flanges and Flanged Fittings)

ASME B16.10 (Face to Face Dimensions)

ASME B16.25 (Butt weld ends)

ASME

(Boiler and Pressure vessel Code II, V, VIII, X)

ASME B31.8 - Gas transmission and Distribution piping systems.

ASME B31.4 - Liquid Petroleum transmission piping systems.

BS EN ISO 10497-Fire Testing.

BS EN 12266 – 1/2. (Testing Of Valves)

BS EN ISO 4406 (Hydraulic Fluid Cleanliness)

BS EN 10204

(Metallic Products Inspection Documents)

EU Pressure Equipment Directive.

EN ISO 9001:2000

ISO 5208 (industrial valves pressure testing)

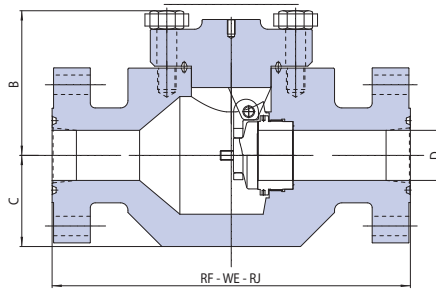
NACE MR0175 / ISO 15156

(Sulphide Stress Cracking Resistant Materials for offshore applications)

NOROSK L-001-Piping and Valves.

NOROSK M-630 - Material Data Sheets for Piping.

NOROSK M-650 - Qualification of Manufacturers of special materials.

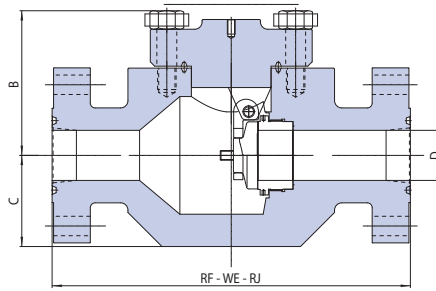


ASME CLASS 150 FULL BORE

| SIZE | | SWING | | | | |
|------|-----|-------|-------|-------|-------|-------|
| | | D | RF | WE | B | C |
| 2 | in. | 2.00 | 7.00 | 8.50 | 4.50 | 3.30 |
| 50 | mm | 51 | 178 | 216 | 115 | 77 |
| 3 | in. | 3.00 | 8.00 | 11.13 | 7.00 | 3.50 |
| 80 | mm | 76 | 203 | 283 | 178 | 89 |
| 4 | in. | 4.00 | 9.00 | 12.00 | 7.50 | 4.50 |
| 100 | mm | 102 | 229 | 305 | 191 | 115 |
| 6 | in. | 6.00 | 15.50 | 18.00 | 8.50 | 5.50 |
| 150 | mm | 152 | 394 | 457 | 216 | 140 |
| 8 | in. | 8.00 | 18.00 | 20.50 | 10.50 | 7.00 |
| 200 | mm | 203 | 457 | 521 | 261 | 178 |
| 10 | in. | 10.00 | 21.00 | 22.00 | 12.00 | 8.50 |
| 250 | mm | 254 | 533 | 559 | 305 | 216 |
| 12 | in. | 12.00 | 24.00 | 25.00 | 15.50 | 9.50 |
| 300 | mm | 305 | 610 | 635 | 394 | 242 |
| 14 | in. | 14.00 | 27.00 | 30.00 | 19.00 | 10.00 |
| 350 | mm | 356 | 686 | 762 | 473 | 237 |
| 16 | in. | 16.00 | 30.00 | 33.00 | 23.00 | 11.50 |
| 400 | mm | 406 | 762 | 838 | 579 | 290 |
| 18 | in. | 18.00 | 34.00 | 36.00 | 24.00 | 12.00 |
| 450 | mm | 457 | 864 | 914 | 588 | 294 |
| 20 | in. | 20.00 | 36.00 | 39.00 | 24.00 | 12.00 |
| 500 | mm | 508 | 914 | 991 | 588 | 294 |
| 22 | in. | 22.00 | 40.00 | 43.00 | 26.00 | 13.00 |
| 550 | mm | 559 | 991 | 1092 | 641 | 320 |
| 24 | in. | 24.00 | 42.00 | 45.00 | 31.00 | 16.00 |
| 600 | mm | 610 | 1067 | 1143 | 778 | 389 |

ASME CLASS 300 FULL BORE

| SIZE | | SWING | | | | |
|------|-----|-------|-------|-------|-------|-------|
| | | D | RF | WE | B | C |
| 2 | in. | 2.00 | 8.50 | 8.50 | 4.50 | 3.00 |
| 50 | mm | 51 | 216 | 216 | 115 | 77 |
| 3 | in. | 3.00 | 11.10 | 11.10 | 6.50 | 4.50 |
| 80 | mm | 76 | 283 | 283 | 166 | 115 |
| 4 | in. | 4.00 | 12.00 | 12.00 | 7.75 | 5.00 |
| 100 | mm | 102 | 305 | 305 | 197 | 127 |
| 6 | in. | 6.00 | 15.90 | 18.00 | 9.25 | 6.00 |
| 150 | mm | 152 | 457 | 457 | 235 | 153 |
| 8 | in. | 8.00 | 19.80 | 20.50 | 11.50 | 7.50 |
| 200 | mm | 203 | 502 | 521 | 293 | 191 |
| 10 | in. | 10.00 | 22.40 | 22.00 | 14.50 | 8.00 |
| 250 | mm | 254 | 568 | 559 | 369 | 204 |
| 12 | in. | 12.00 | 25.50 | 25.00 | 16.75 | 10.00 |
| 300 | mm | 305 | 648 | 635 | 426 | 252 |
| 14 | in. | 14.00 | 30.00 | 30.00 | 20.00 | 10.00 |
| 350 | mm | 356 | 762 | 762 | 504 | 252 |
| 16 | in. | 16.00 | 33.00 | 33.00 | 21.00 | 11.00 |
| 400 | mm | 406 | 838 | 838 | 519 | 260 |
| 18 | in. | 18.00 | 36.00 | 36.00 | 24.00 | 12.00 |
| 450 | mm | 457 | 914 | 914 | 588 | 294 |
| 20 | in. | 20.00 | 39.00 | 39.00 | 25.00 | 13.00 |
| 500 | mm | 508 | 991 | 991 | 610 | 305 |
| 22 | in. | 22.00 | 43.00 | 43.00 | 28.00 | 14.00 |
| 550 | mm | 559 | 1092 | 1092 | 708 | 354 |
| 24 | in. | 24.00 | 45.00 | 45.00 | 32.00 | 16.00 |
| 600 | mm | 610 | 1143 | 1143 | 808 | 404 |

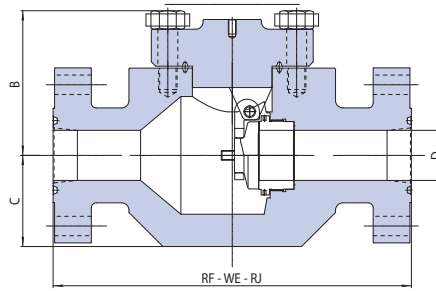


ASME CLASS 600 FULL BORE

| SIZE | | SWING | | | | | |
|------|-----|-------|-------|-------|-------|-------|-------|
| SIZE | | D | RF | RJ | WE | B | C |
| 2 | in. | 2.00 | 11.50 | 11.63 | 11.50 | 6.25 | 3.00 |
| 50 | mm | 51 | 292 | 295 | 292 | 159 | 77 |
| 3 | in. | 3.00 | 14.00 | 14.13 | 14.00 | 8.00 | 4.00 |
| 80 | mm | 76 | 356 | 359 | 356 | 204 | 102 |
| 4 | in. | 4.00 | 17.00 | 17.13 | 17.00 | 8.75 | 5.00 |
| 100 | mm | 102 | 432 | 435 | 432 | 223 | 127 |
| 6 | in. | 6.00 | 22.00 | 22.13 | 22.00 | 10.25 | 7.00 |
| 150 | mm | 152 | 559 | 562 | 559 | 261 | 178 |
| 8 | in. | 8.00 | 26.00 | 26.13 | 26.00 | 12.50 | 8.00 |
| 200 | mm | 203 | 660 | 664 | 660 | 318 | 204 |
| 10 | in. | 10.00 | 31.00 | 31.13 | 31.00 | 15.00 | 10.00 |
| 250 | mm | 254 | 787 | 791 | 787 | 381 | 254 |
| 12 | in. | 12.00 | 33.00 | 33.13 | 33.00 | 17.00 | 11.00 |
| 300 | mm | 305 | 838 | 841 | 838 | 432 | 280 |
| 14 | in. | 14.00 | 35.00 | 35.13 | 35.00 | 22.00 | 11.00 |
| 350 | mm | 356 | 889 | 892 | 889 | 534 | 280 |
| 16 | in. | 16.00 | 39.00 | 39.13 | 39.00 | 24.00 | 12.00 |
| 400 | mm | 406 | 991 | 994 | 991 | 545 | 298 |
| 18 | in. | 18.00 | 43.00 | 43.13 | 43.00 | 26.00 | 13.00 |
| 450 | mm | 457 | 1092 | 1095 | 1092 | 656 | 328 |
| 20 | in. | 20.00 | 47.00 | 47.25 | 47.00 | 29.00 | 15.00 |
| 500 | mm | 508 | 1194 | 1200 | 1194 | 717 | 359 |
| 22 | in. | 22.00 | 51.00 | 51.38 | 51.00 | 31.00 | 16.00 |
| 550 | mm | 559 | 1295 | 1305 | 1295 | 778 | 389 |
| 24 | in. | 24.00 | 55.00 | 55.38 | 55.00 | 34.00 | 17.00 |
| 600 | mm | 610 | 1397 | 1407 | 1397 | 839 | 420 |

ASME CLASS 900 FULL BORE

| SIZE | | SWING | | | | | |
|------|-----|-------|-------|-------|-------|-------|-------|
| SIZE | | D | RF | RJ | WE | B | C |
| 2 | in. | 2.00 | 14.49 | 14.61 | 14.49 | 6.50 | 4.00 |
| 50 | mm | 51 | 368 | 371 | 368 | 166 | 162 |
| 3 | in. | 3.00 | 15.00 | 15.12 | 15.00 | 7.25 | 4.50 |
| 80 | mm | 76 | 381 | 384 | 381 | 185 | 115 |
| 4 | in. | 4.00 | 17.99 | 18.11 | 17.99 | 8.25 | 5.50 |
| 100 | mm | 102 | 457 | 460 | 457 | 210 | 140 |
| 6 | in. | 6.00 | 24.02 | 24.13 | 24.02 | 11.25 | 7.50 |
| 150 | mm | 152 | 610 | 613 | 610 | 286 | 191 |
| 8 | in. | 8.00 | 29.02 | 29.13 | 29.02 | 14.50 | 9.00 |
| 200 | mm | 203 | 737 | 740 | 737 | 367 | 229 |
| 10 | in. | 10.00 | 32.99 | 33.11 | 32.99 | 16.50 | 10.50 |
| 250 | mm | 254 | 838 | 841 | 838 | 420 | 267 |
| 12 | in. | 12.00 | 37.99 | 38.11 | 37.99 | 18.00 | 12.00 |
| 300 | mm | 305 | 965 | 968 | 965 | 458 | 305 |
| 14 | in. | 14.00 | 40.51 | 40.87 | 40.51 | 25.00 | 13.00 |
| 350 | mm | 356 | 1029 | 1038 | 1029 | 618 | 309 |
| 16 | in. | 16.00 | 44.49 | 44.88 | 44.49 | 28.00 | 14.00 |
| 400 | mm | 406 | 1130 | 1140 | 1130 | 678 | 339 |
| 18 | in. | 18.00 | 47.99 | 48.50 | 47.99 | 30.00 | 15.00 |
| 450 | mm | 457 | 1219 | 1232 | 1219 | 732 | 366 |
| 20 | in. | 20.00 | 52.01 | 52.48 | 52.01 | 32.00 | 16.00 |
| 500 | mm | 508 | 1321 | 1334 | 1321 | 792 | 396 |
| 24 | in. | 24.00 | 60.98 | 61.73 | 60.98 | 37.00 | 19.00 |
| 600 | mm | 610 | 1549 | 1568 | 1549 | 930 | 465 |

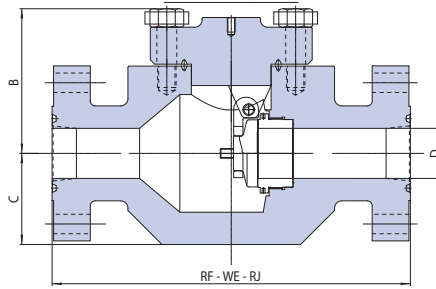


ASME CLASS 1500 FULL BORE

| SIZE | | SWING | | | | | |
|------|-----|-------|-------|-------|-------|-------|-------|
| | | D | RF | RJ | WE | B | C |
| 2 | in. | 2.00 | 14.49 | 14.61 | 14.49 | 6.25 | 4.00 |
| 50 | mm | 51 | 368 | 371 | 368 | 159 | 102 |
| 3 | in. | 3.00 | 18.50 | 18.62 | 18.50 | 10.75 | 5.00 |
| 80 | mm | 76 | 470 | 473 | 470 | 274 | 122 |
| 4 | in. | 4.00 | 21.50 | 21.61 | 21.50 | 10.75 | 6.00 |
| 100 | mm | 102 | 546 | 549 | 546 | 274 | 153 |
| 6 | in. | 6.00 | 27.76 | 27.99 | 27.76 | 13.75 | 7.00 |
| 150 | mm | 152 | 705 | 711 | 705 | 350 | 178 |
| 8 | in. | 8.00 | 32.76 | 33.11 | 32.76 | 20.00 | 10.00 |
| 200 | mm | 203 | 832 | 841 | 832 | 502 | 251 |
| 10 | in. | 10.00 | 39.02 | 39.37 | 39.02 | 24.00 | 12.00 |
| 250 | mm | 254 | 991 | 1000 | 991 | 594 | 297 |
| 12 | in. | 12.00 | 44.49 | 44.61 | 44.49 | 30.00 | 15.00 |
| 300 | mm | 305 | 1130 | 1146 | 1130 | 756 | 378 |
| 14 | in. | 14.00 | 49.49 | 50.24 | 49.49 | 30.00 | 15.00 |
| 350 | mm | 356 | 1257 | 1276 | 1257 | 756 | 378 |
| 16 | in. | 16.00 | 54.49 | 55.35 | 54.49 | 34.00 | 17.00 |
| 400 | mm | 406 | 1384 | 1407 | 1384 | 832 | 416 |
| 18 | in. | 18.00 | 60.51 | 61.38 | 60.51 | 37.00 | 19.00 |
| 450 | mm | 457 | 1537 | 1559 | 1537 | 923 | 462 |
| 20 | in. | 20.00 | 65.51 | 66.38 | 65.51 | 40.00 | 20.00 |
| 500 | mm | 508 | 1664 | 1686 | 1664 | 999 | 500 |
| 24 | in. | 24.00 | 80.43 | 81.54 | 80.43 | 49.00 | 25.00 |
| 600 | mm | 610 | 2043 | 1972 | 2043 | 1226 | 613 |

ASME CLASS 2500 FULL BORE

| SIZE | | SWING | | | | | |
|------|-----|-------|-------|-------|-------|-------|-------|
| | | D | RF | RJ | WE | B | C |
| 2 | in. | 2.00 | 17.76 | 17.87 | 17.76 | 11.00 | 6.00 |
| 50 | mm | 51 | 451 | 454 | 451 | 271 | 136 |
| 3 | in. | 3.00 | 22.76 | 22.99 | 22.76 | 14.00 | 7.00 |
| 80 | mm | 76 | 578 | 584 | 578 | 348 | 174 |
| 4 | in. | 4.00 | 26.50 | 26.89 | 26.50 | 16.00 | 8.00 |
| 100 | mm | 102 | 673 | 683 | 673 | 404 | 202 |
| 6 | in. | 6.00 | 35.98 | 36.50 | 35.98 | 22.00 | 11.00 |
| 150 | mm | 152 | 914 | 927 | 914 | 549 | 275 |
| 8 | in. | 8.00 | 40.24 | 40.87 | 40.24 | 25.00 | 13.00 |
| 200 | mm | 203 | 1022 | 1038 | 1022 | 614 | 307 |
| 10 | in. | 10.00 | 50.00 | 50.87 | 50.00 | 30.00 | 15.00 |
| 250 | mm | 254 | 1270 | 1292 | 1270 | 762 | 381 |
| 12 | in. | 12.00 | 55.98 | 56.89 | 55.98 | 34.00 | 12.00 |
| 300 | mm | 305 | 1422 | 1445 | 1422 | 854 | 427 |



API CLASS 3000 FULL BORE

| SWING | | | | | |
|--------|-----|-------|-------|-------|-------|
| SIZE | | D | RJ | B | C |
| 2 1/16 | in. | 2.06 | 14.61 | 4.33 | 8.28 |
| 50 | mm | 52.4 | 371 | 110 | 210 |
| 3 1/8 | in. | 3.12 | 17.13 | 5.00 | 10.13 |
| 80 | mm | 79.3 | 435 | 150 | 257 |
| 4 1/16 | in. | 4.06 | 20.12 | 6.69 | 11.43 |
| 100 | mm | 103.2 | 511 | 170 | 290 |
| 5 1/8 | in. | 5.12 | 24.13 | 10.16 | 11.97 |
| 125 | mm | 130 | 613 | 258 | 304 |
| 7 1/16 | in. | 7.06 | 28.11 | 13.39 | 12.72 |
| 200 | mm | 179.4 | 714 | 340 | 323 |

API CLASS 5000 FULL BORE

| SWING | | | | | |
|--------|-----|-------|-------|-------|-------|
| SIZE | | D | RJ | B | C |
| 2 1/16 | in. | 2.06 | 14.61 | 4.33 | 8.28 |
| 50 | mm | 52.4 | 371 | 110 | 210 |
| 3 1/8 | in. | 3.12 | 17.13 | 5.00 | 10.13 |
| 80 | mm | 79.3 | 435 | 150 | 257 |
| 4 1/16 | in. | 4.06 | 20.12 | 6.69 | 11.43 |
| 100 | mm | 103.2 | 511 | 170 | 290 |
| 5 1/8 | in. | 5.12 | 24.13 | 10.16 | 11.97 |
| 125 | mm | 130 | 613 | 258 | 304 |
| 7 1/16 | in. | 7.06 | 28.11 | 13.39 | 12.72 |
| 200 | mm | 179.4 | 714 | 340 | 323 |

API CLASS 10000 FULL BORE

| SWING | | | | | |
|--------|-----|-------|-------|------|-------|
| SIZE | | D | RJ | B | C |
| 2 1/16 | in. | 2.06 | 14.61 | 4.33 | 8.28 |
| 50 | mm | 52.4 | 371 | 110 | 210 |
| 3 1/8 | in. | 3.12 | 17.13 | 5.00 | 10.13 |
| 80 | mm | 79.3 | 435 | 150 | 257 |
| 4 1/16 | in. | 4.06 | 20.12 | 6.69 | 11.43 |
| 100 | mm | 103.2 | 511 | 170 | 290 |

CV FLOW COEFFICIENTS BALL & SLAB GATE

The Cv's a valve property defined as follows: "The Flow Coefficient Cv states the flow capacity of a valve in U.S. gallons per minute of water at standard temperature of 60°F (15,6°C) that will flow through the valve with a pressure loss of one pound per square least restrictive flow pattern inch at a specific opening position". For the metric system the analog value is Kv where the measured units are Bar, Kg and metres. The Cv of a valve in terms of pressure loss, the highest values of Cv indicate the value indicates the restrictive flow of a valve.

| API 6A | | | |
|-------------|---------|------|-------|
| Bore (inch) | CLASSES | | |
| | 3000 | 5000 | 10000 |
| 1 13/16 | 270 | 270 | 230 |
| 2 1/16 | 350 | 350 | 300 |
| 3 1/8 | 1000 | 940 | 890 |
| 4 1/16 | 1750 | 1700 | 1600 |
| 5 1/8 | 2900 | 2700 | 2450 |
| 7 1/16 | 5930 | 5400 | 5220 |

FLOW-RATE

$$Q = C_v \sqrt{\frac{\Delta p}{S}}$$

PRESSURE DROP

$$\Delta p = S \left(\frac{Q}{C_v} \right)^2$$

For liquids other than water

- P** = Pressure drop (p.s.i.).
- Q** = Liquid flow in gallons per minute (GPM).
- S** = Specific gravity of liquid relative to water (60°F).
- Cv** = Valves flow coefficient.

| CONVERSION TABLE TO METRI Kv | | |
|------------------------------|-------|-------|
| Flow Coefficient | Cv | Kv |
| Cv | 1 | 0.865 |
| Kv | 1.156 | 1 |

| API 6D | | | | | | |
|-------------|---------|--------|--------|--------|-------|-------|
| Bore (inch) | CLASSES | | | | | |
| | 150 | 300 | 600 | 900 | 1500 | 2500 |
| 2 | 420 | 420 | 400 | 330 | 330 | 250 |
| 2 1/2 | 690 | 690 | 610 | 520 | 510 | 320 |
| 3x2 | 200 | 200 | 200 | 1190 | 180 | 200 |
| 3 | 1200 | 1050 | 1000 | 910 | 820 | 500 |
| 4x3 | 600 | 600 | 600 | 590 | 550 | 560 |
| 4 | 2200 | 2100 | 1850 | 1800 | 1700 | 1100 |
| 6x4 | 800 | 800 | 790 | 790 | 780 | 745 |
| 6 | 5150 | 2100 | 4600 | 4380 | 3800 | 2500 |
| 8x6 | 2150 | 2150 | 2150 | 2150 | 2150 | 2150 |
| 8 | 9500 | 9400 | 9000 | 8500 | 7400 | 5300 |
| 10x8 | 4300 | 4200 | 4300 | 4450 | 4450 | 4100 |
| 10 | 15000 | 15000 | 14700 | 14500 | 11500 | 8300 |
| 12x10 | 7550 | 7550 | 7550 | 8000 | 9000 | 7550 |
| 14x10 | 6000 | 6000 | 6000 | 6100 | 6100 | - |
| 12 | 23000 | 23000 | 22500 | 21100 | 18000 | 13000 |
| 14x12 | 14000 | 14000 | 14000 | 12800 | 13000 | - |
| 16x12 | 9100 | 9100 | 9100 | 8900 | 8900 | - |
| 14 | 28000 | 28000 | 28000 | 25000 | 21000 | - |
| 16x14 | 15000 | 15000 | 15000 | 14200 | 14100 | - |
| 16 | 37200 | 37200 | 37200 | 34500 | 27500 | - |
| 18x16 | 21000 | 21000 | 21000 | 19200 | 19000 | - |
| 20x16 | 15300 | 15300 | 15300 | 13800 | 1200 | - |
| 18 | 49000 | 49000 | 49000 | 45000 | 37000 | - |
| 20x18 | 28400 | 28400 | 28400 | 25000 | 25000 | - |
| 20 | 59000 | 59000 | 59000 | 55200 | 47800 | - |
| 24x20 | 28200 | 28200 | 28000 | 25100 | 20600 | - |
| 22 | 68200 | 68200 | 68200 | 62000 | 54000 | - |
| 24 | 92000 | 92000 | 92000 | 83800 | 70000 | - |
| 30x24 | 36000 | 36000 | 36000 | 32900 | - | - |
| 26 | 111000 | 110000 | 110000 | 98500 | - | - |
| 28 | 121000 | 121000 | 121000 | 113000 | - | - |
| 30 | 145000 | 144000 | 144000 | 130000 | - | - |
| 36x30 | 64000 | 64000 | 64000 | 61500 | - | - |
| 32 | 170000 | 170000 | 170000 | 151000 | - | - |
| 36x32 | 87000 | 87000 | 87000 | 69500 | - | - |
| 36 | 210000 | 210000 | 210000 | 198200 | - | - |
| 40 | 267500 | 267500 | 267500 | - | - | - |
| 42x36 | 96700 | 96700 | 96000 | - | - | - |
| 42 | 280000 | 280000 | 280000 | - | - | - |
| 48 | 384000 | 384000 | 384000 | - | - | - |
| 56x42 | 89000 | 89000 | 89000 | - | - | - |
| 56 | 521000 | 521000 | 521000 | - | - | - |



BODY MATERIALS

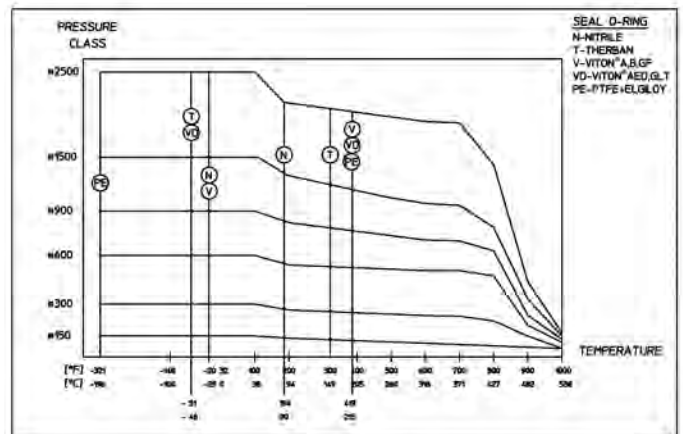
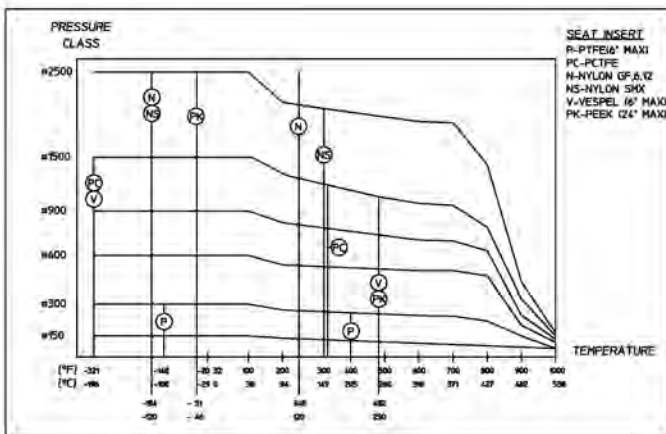
| CARBON AND STAINLESS STEEL | | | | | |
|------------------------------|---------------------------------------|---------------------|------------------|---------------|-------------------------------------|
| Material Group | Common Name | Nominal Type | UNS | Forging Spec. | Casting Spec. Equivalent |
| Carbon Steel | CS | C-Mn-Fe | K03504 | A105N | A261-WCB |
| Low Temperature Carbon Steel | LTCS | C-Mn-Fe | K03011 | A350-LF2 | A352-LC A A352-LC B A352-LC C |
| Stainless Steel | Austenitic S.Steel 300 Series S.Steel | 316: 16Cr-12Ni-2Mo | S31600 | A182-F316 | A351-CF8M |
| | | 316L: 16Cr-12Ni-2Mo | S31603 | A182-F316L | A351-CF3M |
| | Duplex 2205 | 22Cr-5Ni-3Mo-N | S31803 S32205 | A182-F51 | A890-J92205 |
| | Super Duplex 2507 | 25Cr-7Ni-4Mo-N | S32750 | A182-F53 | A351-CD4MCu A890 5A |
| | Super Austenitic 6Mo | 20Cr-18Ni-6Mo | S31254 | A182-F44 | A351-CK3MCuN |

| EXOTIC MATERIALS | | | | | |
|---------------------|-----------------|-----------------------|--------|-------------------|--------------------------|
| Material Group | Common Name | Nominal Type | UNS | Forging Spec. | Casting Spec. Equivalent |
| Nickel-Iron Alloy | Incoloy 800 | 33Ni-42Fe-21Cr | N08800 | B564-N08800 | - |
| | Incoloy 825 | 42Ni-21.5Cr-3Mo-2.3Cu | N08825 | B564-N08825 | A494-CU5MCu-C |
| Nickel | Nickel | 99/99Ni | N02200 | B160-N02200 (bar) | A94-Cz-100 |
| Nickel-Copper | Monel 400 | 67Ni-30Cu | N04400 | B56-N04400 | A94-M35-1 |
| | Monel 500 | - | N05500 | B564-N05500 | - |
| Nickel-Alloy | 904L | - | N08904 | 904L | n/a |
| Nickel Superalloy's | Inconel 600 | 72Ni-15Cr-8Fe | N06600 | B564-N06600 | A94-CY40 |
| | Inconel 625 | 60Ni-22Cr-9Mo-5Cb | N06625 | B564-N06625* | A94-CW-6MC |
| | Hastelloy C-276 | 54Ni-15Cr-16Mo | N10276 | B564-N10276* | A94-CW-2M |
| Titanium | Titanium | 98Ti | R50400 | B381-GR2 | B367-C2 |

TRIM MATERIALS

| OMB | UNS | TYPE | GRADE (FORDGED) | ASTM WROUGHT | NORSOK |
|--------------|------------|-------------------------|----------------------|----------------------|--------|
| C/S | UNS G41400 | 1Cr 0,25Mo 0,40C 0,81Mn | AISI 4140 | - | X02 |
| 316 | UNS S31600 | 18-8 Cr-Ni (18-10-2) | ASTM A182 F316 | A276-316 | S01 |
| 17/4PH | UNS S17400 | 0Cr 17Ni 4Cu 4Nb | ASTM A705 UNS S17400 | ASTM A564 UNS S17400 | - |
| Duplex | UNS S31803 | 22Cr-5Ni-3Mo-N | ASTM A182 F51 | A890J92205 | D47 |
| | UNS S32205 | | | | |
| Super Duplex | UNS S32750 | 25Cr-7Ni-4Mo-N | ASTM A182 F53 | A351-CD4MCU A890 5A | D57 |
| | UNS S32760 | 25Cr-7Ni-3.5Mo-N-Cu-W | ASTM A182 F55 | CD3MWCUN | - |
| ALLOY 718 | UNS N77180 | NC 19 Fa NE | ASTM B637 | Nc 19Fe Nt | - |
| MONEL(R) | UNS N04400 | 67 Ni-30Cu | ASTM B564-N04400 | B164-N04400 | - |

SEAT-INSERT (PRESSURE TEMPERATURE REATING)



SEAT & SEAL MATERIALS

| | OMB DESIGNATION | CHEMICAL NAME/DESIGNATION | TEMPERATURE RANGE | APPLICATION | TRADEMARK |
|---------------|---------------------------|--|-----------------------|---|--------------------------------|
| ELASTOMERIC | Nitril | N.B.R | 0 to + 80°C | This form of synthetic rubber is generally resistant to oil, fuel, and other chemicals. A standard material used for most applications, not A.E. compatible. | - |
| | Hydrogenated Nitril | H.N.B.R | -40 to + 150°C | High standard of dynamic and mechanical properties, to ensure long term operation. This is A.E.D compatible. | - |
| | Viton | F.K.M | -40 to + 180°C | Synthetic rubber and fluoropolymer elastomer commonly used in O-rings | Viton® |
| | Chemraz | F.F.K.M | -20 + 220°C | Chemraz® has the broadest chemical resistance of any elastomeric material, combining the resilience and sealing force of an elastomer with chemical resistance approaching that of PTFE. Chemraz O-rings, quad-rings, gaskets and custom elastomeric shapes last longer and seal completely in harsh environments and a wide range of temperatures. | DuPont™ Chemraz® |
| THERMOPLASTIC | P.T.F.E | Polytetrafluoroethylene | -100° to + 180°/220°C | Virgin PTFE is used as a standard material for its high lubricity and superior sealing up to 180°C. It is white in colour. | - |
| | R.P.T.F.E/Glass | Polytetrafluoroethylene. glass filled | -100° to + 200°/250°C | Reinforced PTFE seats are made with glass filled PTFE (20%). They are harder than virgin PTFE. White in colour with green or blue speckles. | DuPont™ Teflon® |
| | R.P.T.F.E/carbon Graphite | Polytetrafluoroethylene carbon-graphite filled | -100° to + 200°/250°C | Reinforced PTFE with 20% carbon and 5% Graphite. These seats are black in colour. | - |
| | POM (Delrin®) | Polyoxymethylene acetal resin | -57°C to 82°C | This material is very rigid it has a combination of strength, stiffness, hardness dimensional stability, toughness, fatigue resistance, abrasion resistance low wear and low friction. It can withstand pressure up to 5000 PSIG depending on valve size. Do not use on oxygen service. | DuPont™ Delrin® |
| | Nylon 12 G | Polyamide | -50° to + 120°C | Nylon 12G is more suitable than PTFE for higher pressure, but has a limited range in temperature. | - |
| | Devlon | Polyamide | -100° to +150°C | Devlon V is similar to Nylon 12G, but with a wider range of temperature application (lower and higher). | Devlon V® |
| | UHMWPE | Ultra High Molecular Weight Polyethylene | -200°C to 80°C | UHMWPE (05) is a common substitute where PTFE is not permitted and has excellent abrasion resistance. | - |
| | PEEK | Polyetheretherketone | -100° to 260°C | Peek is recommended for high temperature (up to 260°C) but it is very hard compared to other non metallic materials. Not applicable for concentrated sulphuric acid. | - |
| | PCTFE (Kel F) | Polychlorotrifluoroethylene | -250° + 150°C | PCTFE is specifically recommended for cryogenic service. | 3-M™ KELF® Daikin™ Neoflon® |
| | Vespe® Sp21 | 15% Graphite Filled Polyimide | -100° to 340°C | 15% Graphite filler. Performs well in a variety of chemical environments and a variety of industrial fluids at elevated temperatures. | DuPont™ Vespe® |
| OTHER | Graphite | - | - | High purity graphite used for backup sealing for fire resistance. | - |
| | Metallic | Spiral Wound | - | 316 with spiral wound graphite | - |
| | | Ring joint | - | Supplied in any of these designations manufactured out of 316 or Alloy 825 R, RX,BX,SRX&SBX | - |
| | | Bore Seals | - | Generally of the Grayloc® type. Manufactured in Alloy 718 | - |

BOLTING MATERIALS

| VALVE BODY MATERIAL | DESIGN TEMPERATURE RANGE (1) | BOLTING MATERIAL |
|---|------------------------------|---|
| Carbon steels (2) | -29 to +250° C | ASTM A 193 Gr. B7 and ASTM A 194 Gr. 2H |
| Low temperature Carbon Steels (2) | -46 to +250° C | ASTM A 193 Gr. B7M and ASTM A 194 Gr. 2HM or ASTM A 320 Gr. L7 or L7M and ASTM A 194 Gr. 4 or Gr. 7 |
| Low Alloy Steel 3.5% Ni | -101 to +265° C | ASTM A 320 Gr. L7 and ASTM A 194 Gr. 4 or 7 |
| Austenitic Stainless Steels | -196 to +300° C | ASTM A 193 or ASTM A 320 Gr. B8 or B8M cl.2 (see note 3) and ASTM A 194 Gr. 8MA or 8TA |
| Aluminum Bronze | -196 to +200° C | ASTM B 150 Gr. C63000 HR50 |
| Duplex Stainless Steel to UNS 31803 or Inconel 625 | -46 to +200° C | ASTM A 453 Gr. 660 |
| Other Non-ferrous | | Per applicable valve standard |

(1) "Design temperature" means temperature @ design pressure for bolting.

(2) Grades B7M for studs and 2HM for nuts must be selected if valves are in H₂ service and confined under heat insulation.

(3) Stainless steel bolting to ASTM A 193 Gr. B8 or B8M may conform to class 1 instead of class 2 for bolt diameters larger than 1^{1/2} inch. A 453 Gr. 660 may also be used down to minus 100°C if satisfactorily tested at that temperature.

FRACTION OF 1 INCH INTO DECIMALS AND MILLIMETERS

| FRACT. | INCH. | MILLIM. | FRACT. | INCH. | MILLIM. | FRACT. | INCH. | MILLIM. | FRACT. | INCH. | MILLIM. |
|--------|-------|---------|--------|-------|---------|--------|-------|---------|--------|-------|---------|
| 1/64 | 0.016 | 0.397 | 17/64 | 0.266 | 06.747 | 33/64 | 0.516 | 13.097 | 49/64 | 0.766 | 19.447 |
| 1/32 | 0.031 | 0.794 | 9/32 | 0.281 | 07.141 | 17/32 | 0.531 | 13.494 | 25/32 | 0.781 | 19.844 |
| 3/64 | 0.047 | 1.191 | 19/64 | 0.297 | 07.541 | 35/64 | 0.547 | 13.891 | 51/64 | 0.797 | 20.241 |
| 1/16 | 0.062 | 1.587 | 5/16 | 0.312 | 07.937 | 5/8 | 0.562 | 14.287 | 13/16 | 0.812 | 20.637 |
| 5/64 | 0.078 | 1.984 | 21/64 | 0.328 | 08.334 | 37/64 | 0.578 | 14.684 | 53/64 | 0.828 | 21.034 |
| 3/32 | 0.094 | 2.381 | 11/32 | 0.344 | 08.731 | 19/32 | 0.594 | 15.081 | 27/32 | 0.844 | 21.431 |
| 7/64 | 0.109 | 2.778 | 23/64 | 0.359 | 09.128 | 39/64 | 0.609 | 15.478 | 55/64 | 0.859 | 21.828 |
| 1/8 | 0.125 | 3.175 | 3/8 | 0.375 | 09.525 | 5/8 | 0.625 | 15.875 | 7/8 | 0.875 | 22.225 |
| 9/64 | 0.141 | 3.572 | 25/64 | 0.391 | 09.922 | 41/64 | 0.641 | 16.272 | 57/64 | 0.891 | 22.622 |
| 5/32 | 0.156 | 3.969 | 13/32 | 0.406 | 10.319 | 21/32 | 0.656 | 16.669 | 29/32 | 0.906 | 23.019 |
| 11/64 | 0.172 | 4.365 | 27/64 | 0.422 | 10.716 | 43/64 | 0.672 | 17.066 | 59/64 | 0.922 | 23.406 |
| 3/16 | 0.187 | 4.762 | 7/16 | 0.437 | 11.112 | 11/16 | 0.687 | 17.462 | 15/16 | 0.937 | 23.812 |
| 13/64 | 0.203 | 5.159 | 29/64 | 0.453 | 11.509 | 45/64 | 0.703 | 17.859 | 61/64 | 0.953 | 24.209 |
| 7/32 | 0.219 | 5.556 | 15/32 | 0.469 | 11.906 | 23/32 | 0.719 | 18.256 | 31/32 | 0.969 | 24.606 |
| 15/64 | 0.234 | 5.953 | 31/64 | 0.484 | 12.303 | 47/64 | 0.734 | 18.653 | 63/64 | 0.984 | 25.003 |
| 1/4 | 0.250 | 6.350 | 1/2 | 0.500 | 12.700 | 3/4 | 0.750 | 19.050 | 1 | 1.000 | 25.400 |



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