BALL VALVES FOR OIL & GAS:

FLOATING, TRUNNION AND TOP ENTRY

BETA Industrie is a specialist of ball valves for the Onshore and Offshore Oil & Gas Industries. We are focussing on actuated and manually operated Top Entry and Side Entry, Forged Floating and Trunnion Mounted Ball Valves.

Our range of ball valves is able to withstand and exceed the rigorous demands of high risk industry applications. We combine a policy of high quality design and manufacture with an embedded philosophy of professional service, customer care and safety.

All production processes maintain international safety and quality standards, whilst all products are tested rigorously and certified for quality ensurance. **API, ISO & PED** accreditations and our experience ensure the highest customized quality service.

VALVE APPLICATIONS

The application and the process fluid characteristics are the main factors in selecting a valve type and construction materials: clean fluids generally allow a wide range of valves and materials, while for dirty fluids and high risk applications the choice is limited to few valve types and selected materials.

- Utility (Water, Air, Nitrogen, Hydraulic Oils)
- Corrosive & Dirty (severe abrasive services in Sour, Sandy, Slurry, Fouling, Solidifying conditions
- High Temperature (≤ 1000°C)
- Low Temperature (-45°C < t > 0°C)
- Cryogenic (≥ -196°C)
- High Pressure (≤ 1500 bar)

VALVE RANGE

BETA Industries supply program includes on/off, control and mixing ball valves

Trunnion metal seated or soft seated

Side entry or Top Entry
Split Body, Fully Welded Body

Double Block & Bleed Modular dual ball

Design and Manufacturing standard API 6D, BS 5351, ASME B16.34, ASME VIII div 1

End Connection: RF, FF, RTJ, HUB, BW
Face to face: ASME B16.10, API 6D
Test and Inspection: API 598/API 6D

Operation method: Manual, Worm Gear, Electric or Pneumatic Actuator

Multiple way transfer valves
1/2" – 36" ANSI 150 – 2500
1/2"- 48" ANSI 150 – 1500
1/2" – 56" ANSI 150 – 900

Floating metal seated or soft seated

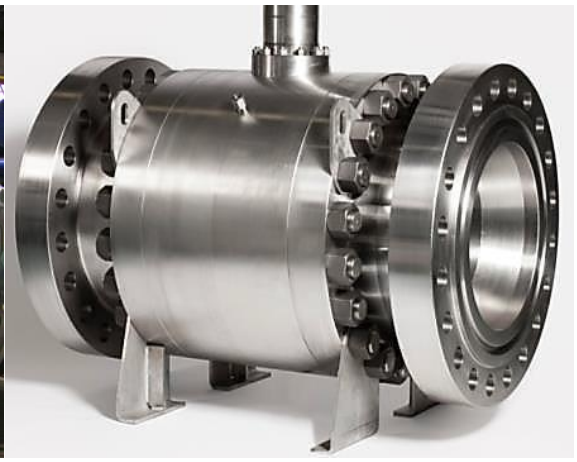
Side entry or Top Entry,
Threaded Body, Split Body, Fully Welded Body
Double Block & Bleed Modular Body dual ball

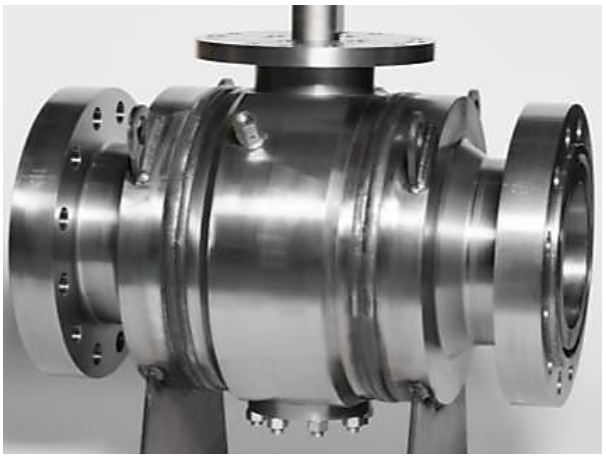
Design and Manufacturing standard API 6D, BS 5351, ASME B16.34, ASME VIII div 1

End Connection: RF, FF, RTJ, HUB, BW
Face to face: ASME B16.10, API 6D
Test and Inspection: API 598/API 6D

Operation method: Manual, Worm Gear, Electric or Pneumatic Actuator

1/2" – 1.1/2" ANSI 150 - 2500
1/2"- 2" ANSI 150 - 1500
1/2" – 4" ANSI 150 – 600
1/2" – 6" ANSI 150 – 300





ENGINEERING AND PRODUCTION

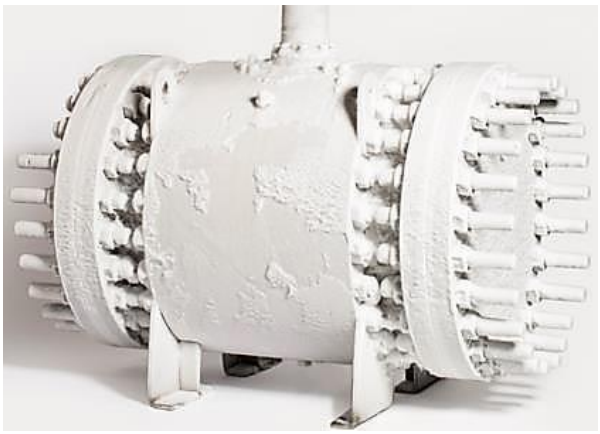
We are incessantly working to offer a continuous innovation and an improved valve range.

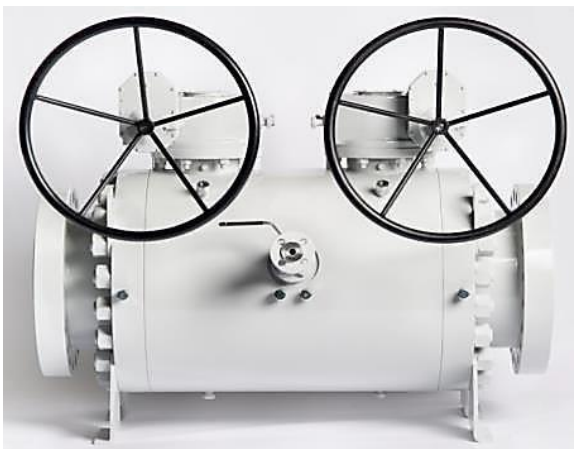
Each step of valve engineering and manufacturing can be validated using advanced software (AutoCAD, Solid Works 3D) through Finite Element Analysis of loads, tensions and deformations and final Stress tests, according to the applicable International Standards.

Top entry and side entry ball valves with split or fully welded body, multiple way transfer valves and modular or mono-flange double block & bleed valves from low to high pressures, engineered and manufactured to withstand and exceed the high risk industry applications in cryogenic and high temperature processes; specific high-performance models are available to suit corrosive and severe abrasive services in sandy, slurry, fouling, scaling and solidifying conditions.

We design and manufacure special products according to specific customer's requirements to meet the needs of the most critical process services.

- High temperature services (TCC or WCC treatment)
- Low temperature and cryogenic services
- High temperature services
- Multiple way valves
- Fully Welded valves
- Jacketed valves





NORMATIVE REFERENCES

Valves can be designed, manufactured and tested according to the following International Standards:

- American Petroleum Institute (API): API 6A, API 6D, 6DSS, 607, 598
- American Society of Mechanical Engineers (ASME): ASME B16.5, ASME B16.10, ASME B16.11, ASME B16.25, ASME B16.34, ASME B16.47, ASME B31.3, ASME B31.4, ASME B31.8, ASME IX, ASME VIII (divisions 1 & 2)
- Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS): MSS SP25, MSS SP44, MSS SP45, MSS SP53, MSS SP54, MSS SP55, MSS SP6, MSS SP61, MSS SP72, MSS SP82, MSS SP9
- British Standards Institute (BS): BS 1503, BS 1504, BS 1560, BS 2080, BS 4504, BS 5146, BS 5351, BS 6364, BS 6755, EN 558, EN1503, EN1626, EN1983, EN5211, EN12266, EN12516, EN12567, EN12570, EN12627, EN12982
- International Organization for Standardization (ISO): ISO 5208, ISO 10423, ISO 10497, ISO 14313, ISO 14723, ISO 15156-3, ISO 15607, ISO 15609, ISO 15614-7, ISO 15848 (parts 1 & 2), ISO 17292
- American Society for Testing and Materials (ASTM): ASTM E94, ASTM E142, ASTM E165, ASTM E280, ASTM E446, ASTM 562, ASTM E709, ASTM G48 \
- National Association of Corrosion Engineers-Corrosion Resistant (NACE): NACE MR0175, NACE MR0103, NACE TM0187, NACE TM0284

MATERIALS

Our valves for the Oil & Gas industry are available in the following materials:

Carbon steel ASTM A105, A105N
ASTM A216 WCB, WCC
ASTM A217 WC6, WC9, CW6, C12
ASTM A350 LF2, LF3, LF6
ASTM A352 LCB, LCC, LC3
ASTM A694 F52, F60, F65
Stainless steel ASTM A182 F11, F20, F22, F304/F304L, F316/F316L, F316H, F316Ti, F321, F347, F347H, F44
Duplex ASTM A182 F5, F51, F52, F53, F55
ASTM A182 F60, F65, F6A, F6B, F6NM F9, F91, FXM19
ASTM A276/A479 304/304L, 316/316L, 316H, 316Ti, 321, 347, 347H, 904L
ASTM A351 CK3MCuN, CA15, CF8, CF3, CF8M, CF3M, CG8M, CF8C
ASTM A479 S31254, S31803, S20910, S32750, S32760, S41000, S41400, S41300, S17400
ASTM A479 S31803, S32750, S32760, S20910, S41000, S41400, S41300, S17400
ASTM A739 B11, B22
Nickel Alloys ASTM N08825, N06625, N04400, N08020, N07750, N07718, N08926, N07725
Titanium ASTM B348 (Gr. 2 & 5), ASTM B381 F2
Bronze ASTM B148 UNS C95500, C95800, C63200, ASTM B62

Not listed materials are available upon request.

CERTIFICATIONS

Our ball valves engineering, manufacturing and testing processes are covered by a Quality Assurance program certified and continuously audited by accredited inspection authorities in accordance with:

- ISO 9001:2008 for design, production and after sales of ball valves
- API Specification Q1 and Specification 6D
- Atex 94/9/EC Directive for equipment and protective systems intended for use in potentially Explosive atmospheres
- PED 97/23/EC module H Pressure equipment directive

Each valve is identified by a Serial Number with relevant EN 10204 3.1 material certificate for pressure containing and retaining parts and pressure test report. A Third Part inspector can witness every production activity, starting from raw material production to final test and issue a certificate in accordance with EN 10201 3.2. Our ball valves are designed to meet the Fire Safe requirements according to BS6755 P.2, API 607, API6FA and ISO 10497 and Fugitive Emission according to ISO 15848/1. Qualification tests covering the whole production range have been witnessed by independent inspectors.

VALVE LEAK TESTING

Our production has its own in-house testing department, the following Valve Leak Testing can be internally performed by qualified and experienced personnel:

- Hydrostatic shell & seat test;
- Low Pressure gas test (with air or Nitrogen) according to Annex B of API 6D, API 598, EN 12266-1 or to customer specific requirements;
- High Pressure gas test (with Nitrogen) according to Annex B of API 6D, API 598, EN 12266-1, BS 6364 or to customer specific requirements, from ambient to cryogenic temperature down to -196°C
- Fugitive emission gas test (with Helium) according test to ISO 15848 /2
- Cavity relief test

Not listed testing can be performed upon request.

NONE DESTRUCTIVE TESTING

The following Non Destructive Testing are performed by qualified personnel, certified in accordance with EN 473-ISO 9712 or SNT-TC-1A 2 LEVEL:

- MT (Magnetic particle examination)
- UT (Ultrasonic examination)
- PT (Dye penetrant examination)
- RT (Radiographic test)
- PMI (Positive material identification)
- Hardness test
- Ferrite test (by FISHER Feritscope FMP30)

DESTRUCTIVE TESTING

Thanks to a cooperation with Research Centres and Laboratories the following Destructive Testing can be also performed according to customer's and project requirements:

- Mechanical and Impact test down to – 196°C
- Chemical analysis check
- Corrosion tests
- Micro examinations by electronic microscope up to 500x magnifications
- Ferrite check to E562
- Hydrogen-Inducted Cracking test (HIC) & Sulphide Stress Corrosion Cracking (SSCC)

REFERENCE LIST

An extensive reference list of valves supplied to End users, EPC Contractors and OEM in the Oil & Gas industrie is available on request.