

Additional international standard testing can be performed, such as

- Non Destructive Examination Tests performed by qualified personnel
- Fugitive Emission Test
- Cryogenic Test up to -196°C
- Hyperbaric Functional Test on subsea valves
- Functional Test on actuated valves



All operators are fully trained and experienced to perform all types of test required

by the main test specifications, such as API 6A PSL 1, 2, 3, 3G, 4 and PR 1 or PR2, API 6D, API 6DSS, API 598, ISO 14313, EN 12266, ISO 15848-1, ISO 15848-2.

Dedicated area for Cryogenic testing and Clean Services

FG Valvole has a special testing area dedicated to full cryogenic testing at -196°C using liquid nitrogen, without any limitation to valve size and / or pressure class. In addition there is a dedicated clean area for the assembling and the examination of the valves for special services (Oxygen and Hydrogen service).

Lift automated warehouse

- New 8m high lift automated warehouses able to store finished components to speed up the product delivery
- All major and minor components are bar coded to maintain the material and process traceability.



After Sales and services

Customers can count on valve repair services provided by our professional technicians, both in our workshop and outside. Personnel contacting customers are qualified engineers with a proven experience on the field and trained on **FG Valvole** products.

Certifications and Quality Standards

- ISO 9001 • ISO 14001 • OHSAS 18001
- API6D • API6A • API 6DSS • PED 2014/68/UE
- Fire Safe certificate API 6FA/API 607/ISO 10497 • ATEX 2014/34/UE – TUV
- SIL 3 Certificate - Bureau Veritas • Achilles FPAL (UK-Netherland & Norway-Denmark)
- EAC certification TR CU 012/2011 and TR CU 032/2013

Approvals and Reference list

FG Valvole serves many of the major worldwide Traders Engineering Companies, Contractors, Oil Companies, Oil & Gas Pipeline Company. Our Customers have rewarded our dedication and have enabled our consistent growth. Please contact our commercial department for specific references.



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COMPANY PROFILE



COMPANY PROFILE

FG Valvole at a glance

FG Valvole is a private owned company, part of a Group, established with the aim to serve customers in Oil & Gas, Petrochemical, and Power Industry.

The Company was established in 2006 as strategic supplier of ball valves for one of the major Italian valve manufacturer. In the following years **FG Valvole** started to sell overseas with API 6D and 6A monogram and its own brand.

Over the years **FG Valvole** products have been recognized as high quality engineered products by major Oil and Gas operators in the North Seas and was able to obtain the most relevant qualifications in that area.

In 2016 **FG Valvole** inaugurated the new Headquarter and facilities in Zanica, Bergamo to better serve customers worldwide. The proximity to Milano Orio al Serio International Airport guarantees to **FG Valvole** partners a perfect link and easy access to its offices.

Nowadays **FG Valvole** designs and manufactures different types of engineered valves for various severe applications and serves all major recognized Oil & Gas Operators worldwide. Main production includes Ball, Axial Flow, Gate, Globe and Check Valves in different executions, materials and ratings.



Facilities in Italy

Production facilities in Zanica, Bergamo are 6.000 sqm workshop and warehouse + 1.500 sqm offices + 4.000 sqm uncovered area. Next to the actual area there is an additional owned plot of 23.000 sqm of which 13.000 sqm will be dedicated to an expansion production in 2017- 2018.

- Valve design using CAD 2D, Solidworks 3D modelling, Solidworks FEA (Finite Element Analysis) and CFD (Computational Fluid Analysis) software tools
- Material sourcing from qualified suppliers
- Quality Management System according to ISO 9001 and API Q1 specifications
- Product Quality Assurance
- Internal assembling and testing according to International standards
- Machining and special processes outsourced in respect of the maintenance of high quality standards.

Assembling and Testing Area

All assembly and testing operations are performed in the new facilities.

FG Valvole is equipped with an innovative new generation testing area for hydro pneumatic and high pressure gas tests which includes underground and bunkered automatically controlled PLC multi-head benches.

This allows **FG Valvole** to work in a safe and clean environment and meet the most rigorous international standards in regards of health and safety, proven by release of OHSAS 18001 and ISO 14000 certifications.

With cranes up to 50 Tons load, **FG Valvole** is capable to perform testing for valves up to 60" and pressure class.



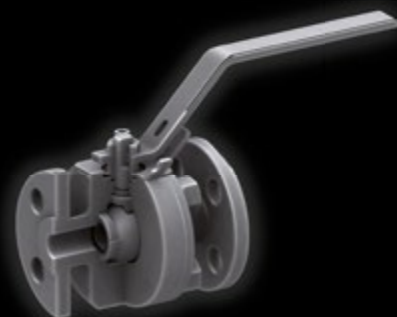
SPECIAL VALVES

Trunnion side entry ball valves

SIZES: ½" – 60"
PRESSURE CLASSES: ANSI 150 – 4500
API 2000 – 15000
MAIN FEATURES AND OPTIONS:

- Two or three pieces body construction; bolted joints
- Extremely wide selection of materials for both body and internals, including: carbon steel, low alloy steels, stainless steels, Duplex 22/25 Cr, Ni-alloys and titanium
- Overlays: Alloy 625 / 316L
- Coatings: Tungsten Carbide/Chromium Carbide/ENP
- Soft or Metal Seated
- Single or Double Piston Effect Seat
- Double block and bleed
- Overlay on Sealing Surfaces Only
- Cladding in Seat Pocket Areas
- Fully Internally Clad
- Specific design for HIPPS, ESD application

Special constructions available for High and Low Temperature (Cryogenic), erosive /abrasive, corrosive service



Top entry ball valves

SIZES: ½" – 48"
PRESSURE CLASSES: ANSI 150 – 4500
API 2000 – 15000
MAIN FEATURES AND OPTIONS:

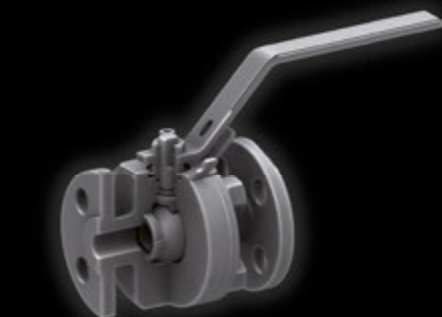
- Trunnion or Floating construction
- Extremely wide selection of materials (forging or casting) for both body and internals, including: carbon steel, low alloy steels, stainless steels, Duplex 22/25 Cr, Ni-alloys and titanium
- Overlays: Alloy 625/316L
- Coatings : Tungsten Carbide/Chromium Carbide/ENP
- Soft or Metal Seated
- Single or Double Piston Effect Seat
- Double block and bleed
- Overlay on Sealing Surfaces Only
- Cladding in Seat Pocket Areas
- Fully Internally Clad



Floating side entry ball valves

SIZES: ½" – 10"
PRESSURE CLASSES: ANSI 150 – 2500
API 2000 – 15000
MAIN FEATURES AND OPTIONS:

- Two or three pieces body construction; bolted joints
- Extremely wide selection of materials for both body and internals, including: carbon steel, low alloy steels, stainless steels, Duplex 22/25 Cr, Ni-alloys and titanium
- Overlays: Alloy 625 / 316L
- Coatings: Tungsten Carbide/Chromium Carbide/ENP
- Soft or Metal Seated
- Metal Seated construction to suit very severe service requirements. Special constructions available for extremely High and Low Temperature (Cryogenic), erosive/abrasive, corrosive service
- Bidirectional design available
- Overlay on dynamic sealing area
- Cladding in Seat Pocket Areas
- Fully Internally Clad
- Specific design for HIPPS, ESD application



Modular double block & bleed ball valves

SIZES: ½" – 24"
PRESSURE CLASSES: ANSI 150 – 4500
API 2000 – 15000
MAIN FEATURES AND OPTIONS:

- Available in floating and trunnion construction
- Split body construction; bolted joints; cartridge type
- Extremely wide selection of materials for both body and internals, including: carbon steel, low alloy steels, stainless steels, Duplex 22/25 Cr, Ni-alloys and titanium
- Overlays: Alloy 625 /316L
- Coatings: Tungsten Carbide/Chromium Carbide/ENP
- Soft or Metal Seated
- Single or Double Piston Effect Seat
- Double block and bleed
- Overlay on Sealing Surfaces Only
- Cladding in Seat Pocket Areas
- Fully Internally Clad
- Special constructions available for High and Low Temperature (Cryogenic), erosive /abrasive, corrosive service.

CONFIGURATION AVAILABLE

Ball/Needle/Ball Cartridge Type
Ball/Needle/Needle/Ball
Ball/Needle/Globe
Ball/Needle/Ball
Ball/Ball
Ball/Globe



API 6A ball valves

SIZES: ½" – 26.3/4"
PRESSURE CLASSES: API 2000 – 15000
MAIN FEATURES AND OPTIONS:

- Top Entry, Split Body, Welded Body, Modular DBB configuration available in both Floating and Trunnion construction
- Extremely wide selection of materials for both body and internals, including: carbon steel, low alloy steels, stainless steels, Duplex 22/25 Cr, Ni-alloys and titanium
- Overlays: Alloy 625/316L
- Coatings: Tungsten Carbide/Chromium Carbide/ENP
- Soft or Metal Seated
- Single or Double Piston Effect Seat
- Double block and bleed
- Fully Internally Clad
- Overlay on Sealing Surfaces Only
- Cladding in Seat Pocket Areas
- Specific design for HIPPS, ESD application
- Special constructions available for High and Low Temperature (Cryogenic), erosive/abrasive, corrosive service



Wedge gate bolted bonnet valves

SIZES: 1.1/2" – 60"
PRESSURE CLASSES: ANSI 150 – 4500
API 2000 – 15000
MAIN FEATURES AND OPTIONS:

- Production Type: Bolted Bonnet, Outside Screwed & Yoke
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- Wedge Type:
- 1 piece Flexible Wedge for 2" to 60" size valves in all classes
- 1 piece Solid wedge for 1.1/2" to 24" size valves in all classes of light wall Thickness type
- 2 piece Split Wedge for 2" to 60" size valves in all classes
- Double Disc Parallel Seats for 2" to 60" size valves in all classes
- Design Range:
- Heavy wall Thickness Type (API 600, ASME B16.34)
- (ISO 14313, API 600, BS1414, API 6A)
- Light wall Thickness Type (ASME B16.34, API603)
- Applicable Materials: Carbon Steel, Alloy Steel, Stainless Steel, Special SS, Special Alloy



Wedge gate pressure seal valves

SIZES: 1.1/2" – 36"
PRESSURE CLASSES: ANSI 300 – 4500
MAIN FEATURES AND OPTIONS:

- Production Type: Pressure Seal Bonnet, Outside Screwed & Yoke
- Wedge Type
- 1 piece Flexible Wedge for 2" to 36" size valves in all classes
- 1 piece Solid wedge for 1-1/2" to 12" size valves in all classes of Light wall Thickness type
- Double Disc Parallel Seats for 2" to 60" size valves in all classes
- Design Range:
- Heavy wall Thickness Type (API 600, ASME B16.34)
- Light wall Thickness Type (ASME B16.34, API603)

Globe bolted bonnet valves

SIZES: ½" – 36"
PRESSURE CLASSES: ANSI 150 – 4500
API 2000 – 15000
MAIN FEATURES AND OPTIONS:

- Production Type: Bolted Bonnet, Outside Screwed & Yoke, Straight Pattern, Y Pattern, Angle
- Disc Type: Plug Disc type for 1/2" to 36" size valves in all classes, Parabolic Disc type for 1/2" to 36" size
- Design Range: Heavy wall Thickness Type (ISO 14313, BS1873, API 6A), Light wall Thickness Type (ASME B16.34, API603)
- Applicable Materials: Carbon Steel, Alloy Steel, Stainless Steel, Special SS, Special Alloy



Globe pressure seal valves

SIZES: ½" – 36"
PRESSURE CLASSES: ANSI 300 – 4500
MAIN FEATURES AND OPTIONS:

- Production Type: Pressure Seal Bonnet, Outside Screwed & Yoke
- Disc Type: Plug Disc type for 1/2" to 36" size valves in all classes
- Design Range: Heavy wall Thickness Type (BS1873, ASME B16.34), Light wall Thickness Type (ASME B16.34, API603)
- Material selection: WCB/LCB C5/WC1/WC6/WC9 C12/C12A/CF8/CF8M/CF8C

Fully welded body ball valves

SIZES: ½" – 60"
PRESSURE CLASSES: ANSI 150 – 4500
API 2000 – 15000
MAIN FEATURES AND OPTIONS:

- Two or three pieces body sections butt welded together; no leak path to environment
- Specific design for underground service with operable stem extension and bypass system
- Extremely wide selection of materials for both body and internals, including: carbon steel, low alloy steels, stainless steels, Duplex 22/25 Cr, Ni-alloys and titanium
- Overlays: Alloy 625/316L
- Coatings : Tungsten Carbide/Chromium Carbide/ENP
- Soft or Metal Seated
- Single or Double Piston Effect Seat
- Double block and bleed
- Overlay on Sealing Surfaces Only
- Cladding in Seat Pocket Areas
- Fully Internally Clad



Cryogenic ball valves

SIZES: ½" – 36"
PRESSURE CLASSES: ANSI 150 – 4500
API 2000 – 15000
MAIN FEATURES AND OPTIONS:

- Two or three pieces body construction; bolted joints
- Available in floating and trunnion construction
- Extremely wide selection of materials for both body and internals, including: carbon steel, low alloy steels, stainless steels, Duplex 22/25 Cr, Ni-alloys and titanium
- Overlays: Alloy 625/316L
- Coatings: Tungsten Carbide/Chromium Carbide/ENP
- Soft or Metal Seated
- Single or Double Piston Effect Seat
- Double block and bleed
- Overlay on Sealing Surfaces Only
- Cladding in Seat Pocket Areas
- Fully Internally Clad



NOTES
Many applications require valves to be suitable for low temperature operation or operation at cryogenic conditions. When operating temperature is lower than -50° C it is highly recommended to provide a bonnet extension and the use of a valve designed on purpose for a reliable and safe operation at these critical conditions (i.e. sealing system by means of lip-seals instead of O-rings). Valves are tested at low or cryogenic temperature according to the operating conditions and to the project/customer specifications

Sub sea applications ball valves

SIZES: ½" – 36"
PRESSURE CLASSES: ANSI 150 – 4500
API 2000 – 15000
MAIN FEATURES AND OPTIONS:

- Top Entry, Split Body, Welded Body, Modular DBB configuration available in both Floating and Trunnion construction
- Subsea Operators and accessories available: Single & Double acting rack and pinion actuators, Gear boxes, Direct roV interfaces, Diver handwheel interfaces
- Accessories: extended spool, position indicator, override extension, compensation system, manual torque tools, protection cups
- Extremely wide selection of materials for both body and internals, including: carbon steel, low alloy steels, stainless steels, Duplex 22/25 Cr, Ni-alloys and titanium either forged or cast
- Fully or partial Internally Clad
- Overlays: Alloy 625/316L
- Coatings: Tungsten Carbide/Chromium Carbide/ENP
- Metal to-metal seat seal available as standard
- Large variety of stem seals available, including metal stem seal
- Stem equipped with double acting bearings to withstand both internal and external pressure thrust (deepwater)
- Proven design for extreme deepwater installation
- Redundancy of sealing unctions is available in order to improve seal reliability
- Single or Double Piston Effect
- Double block and bleed
- Specific design for HIPPS, ESD application



Through conduit slab gate valves

SIZES: 1.1/2" – 56"
PRESSURE CLASSES: ANSI 150 – 4500
API 2000 – 15000
MAIN FEATURES AND OPTIONS:

- Production Type: Top Entry construction, Through conduit suitable for pigging, Floating seats, Anti blowout stem, Cast or forged, Fire safe certified, Double block & bleed, By-directional, Self-relieving design, Rising-Stem and Non-Rising-Stem design available, Low actuation force demand
- Disc Type: 1 piece Solid Disc for 1-1/2" to 56" size valves in all classes
- Design Range:
- API 6D, API 6A, ISO 10423
- Wall Thickness according ASME B16.34
- End to end dimension according to ASME B16.10



Through conduit double expanding gate valves

SIZES: 2" – 36"
PRESSURE CLASSES: ANSI 150 – 4500
API 2000 – 15000
MAIN FEATURES AND OPTIONS:

- Production Type: Top Entry construction, Through conduit suitable for pigging, Anti blowout stem, Cast or forged, Fire safe certified, Double block & bleed, By-directional, Rising-Stem and Non-Rising-Stem design available, Low actuation force demand
- Disc Type: Double Disc Parallel Seats for 2" to 36" size valves in all classes
- Design Range:
- API 6D, API 6A, ISO 10423
- Wall Thickness according ASME B16.34
- End to end dimension according o ASME B16.10



Nozzle check valves

SIZES: ½" – 60"
PRESSURE CLASSES: ANSI 150 – 4500
API 2000 – 15000
MAIN FEATURES AND OPTIONS:

- Production Type: Short pattern (std FGV) and long pattern (ANSI B16.10) design available
- Metal Seated
- Soft seated construction available for bubble-tight shutoff
- Valve conduit contour designed to provide maximum fluid-dynamic efficiency
- Different spring selection is available to suit the required range of flow rates, combining minimum pressure drop and no-chattering
- Disc Type: Non Slam Disc type for 1/2" to 60" size valves in all classes
- Design Range: Heavy wall Thickness Type (ISO 14313, API 594, API 6D, API 6A)



Swing check valves

Dual check valves
SIZES: ½" – 60" / **PRESSURE CLASSES:** ANSI 150 – 4500
API 2000 – 15000
MAIN FEATURES AND OPTIONS:

- Production Type: Clapper Disc type for 1/2" to 60" size valves in all classes
- SWING:
- Bolted bonnet and Pressure seal design available
- Metal Seated
- Disc Type: Clapper Disc type for 1/2" to 60" size valves in all classes
- DUAL:
- Wafer and Monobloc (Flanged/Hub Ends) Bodies available
- Hing pins are retained into the body
- Lug type design option
- Disc Type: Dual Plates type for 1/2" to 60" size valves in all classes
- TILTING:
- Bolted Bonnet or Pressure Seal available
- Short Pattern can be supplied Wafer Type or Monobloc (Flanged)
- Disc Type: Tilting Non Slam Disc type for 1/2" to 60" size valves in all classes
- Soft seated construction available for bubble-tight shutoff. Extremely wide selection of materials for both body and internals, including: carbon steel, low alloy steels, stainless steels, Duplex 22/25 Cr, Ni-alloys and titanium.
- Hardfacings: Stellite, Colmoly, Tungsten and Chromium Carbides
- Design Range:
- Heavy wall Thickness Type (ISO 14313, API 6D, API 6A, BS1868)
- Light wall Thickness Type (ASME B16.34, API603)



Axial flow valves

SIZES: 2" - 48" / **PRESSURE CLASSES:** ANSI 150 to 2500
API 2000 to 15000
MAIN APPLICATIONS:

- Production / Treatment / Transmission and Transportation /Fire Pump
- Storage and distribution
- Anti surge / throttling service
- Choke and by-pass service
- Tank loading / venting and depressurization

MAIN FEATURES AND OPTIONS

- Valves for tight isolation service (ON-OFF)
- Valves for throttling service (FLOW CONTROL)
- Reduced valves stroke for quick closing time (SDV-HIPPS)
- Extended design life and low maintenance interventions
- Balanced-pressure disc design
- Extremely wide selection of materials for both body and internals including: carbon steel, low alloy steels, stainless steels, Duplex 22/25 cr, Ni-alloys and titanium.

DESIGN OPTIONS

- PLUG TYPE TRIM DESIGN for large flow rate and high pressure drop
- (SINGLE) CAGE TRIM DESIGN for gas, liquid and mixed phases service where high pressure drop is predicted and noise level shall be limited
- (MULTI) CAGE TRIM DESIGN for high pressure drops and large flow rate. Multi cage trim can be sized to suit any specific flow condition with different characteristics



Dedicated product brochure is available on request contacting FG Valvole commercial department

PRODUCT

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