




COMPLETE PACKAGES



Piping Division

EUROGUARCO SpA
Italy



La Spezia, Plant 1

The Company

Established in 1958 in Northern Italy, the company was originally born as a gasket and insulating products manufacturer.

Across the years **Euroguarco** has expanded the production range to valves and special piping



La Spezia, Plant 2



Cremona, Plant 2



items, with ties and interests with best-of-class partners and customers worldwide.

In the last years, the Valve Division has achieved the expertise in the a quasi-complete range of manual and actuated valves, in accordance with main international standards for design, production and testing.



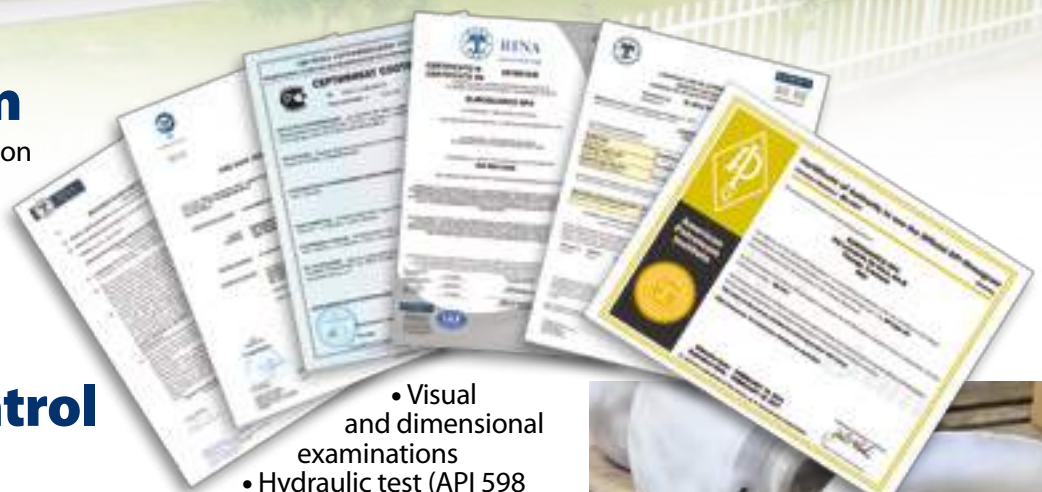
Cremona, Plant 1





Certification

Euroguarco Valve Division to date has obtained the following main certifications: API 6D, API 6FA, PED, ATEX, GOST and more to come.



Quality Control & Testing

Quality control procedure and testing are carried out in strict compliance with relevant standard or according to additional client's requirement.

- Visual and dimensional examinations
- Hydraulic test (API 598 or per client's request)
- Dry Film Thickness
- UT of body welding ends according to ANSI B16.34, Annex E



Euroguarco can satisfy all testing requirements, whether by in-house facilities or from external qualified laboratories next to the factory:

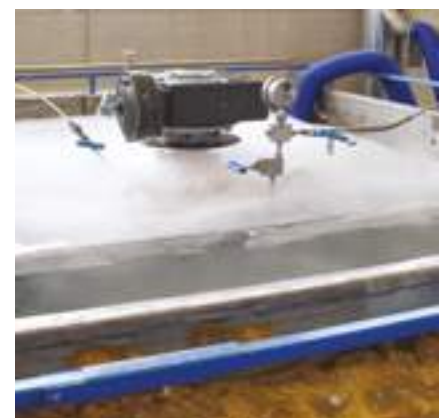
- Chemical analysis and mechanical tensile test of the materials:
 - Hardness survey
 - Impact test



- UT of circular body welds according to ASME VIII, Div.1. Appendix 12
- Radiographic Examination (RT)
- Liquid Penetration (LP) on machine-finished welding ends per ANSI B16.34, Annex D
- Inspection of coated and painted surfaces
- Magnetic Particle (MP)
- Any other NDE on request

Special Tests

- HIC & SSCC for Sour Service
- Low Temperature Test for Cryogenic Service
- Gas Test
- Fire Safe Test per API 6FA
- Fugitive Emission Test



Ball Valves

Euroguarco manufactures ball valves in forged or cast steel and alloys, by trunnion and floating construction type, lever and gear operated or actuated with any type of actuator: electric, pneumatic, hydraulic and gas over oil. Construction conforming to API 6D, ASTM/ANSI, ASME, EN, DIN, GOST, BS, JIS.

Various optional designs are available: fire safe design, cryogenic service, buried service, stem extended, metal-to-metal, etc.



Manufacturing Range

- Sizes from 1/2" to 36"
- Class Rating PN 20 to PN250
- ASME Class 150# up to 2500#
- Temperature from -196°C to 400°C
- Materials:
 - Cast and Forged Carbon Steel: WCB, WCC, LCB, LCC, A105, LF2, LF3.
 - Forged Stainless & Duplex Steel: F304, F316(L), F6, 17-4PH, AISI 4140, F321, F347, F44, F51, F53, F55.
 - Special Alloys: Inconel 625, Hastelloy, Monel 6Mo, Incolloy 825, Alloy 20, Sanycro 28, Titanium.

Seat insert and special coatings (for high temperature or aggressive media).

- Standard materials: PTFE, Nylon, HNBR, VITON, Fluoroloy, PEEK, Vespel, KEL-F, Buna N.
- Coating and cladding: electro-less nickel plating (ENP), overlays of seat pockets or the whole surface in contact with fluid by Stellite 6, while TCC (Tungsten Carbide Coating) for metal-to-metal seated valves. Inconel 625 weld overlay on wetted parts and dynamic seals area is available (overlay

thickness upon request), as well as CCC (Chromium Carbide Coating), C.R.A. overlays & cladding.

- Seals & Gaskets (made also in-house by Euroguarco Gasket Division): Viton, HNBR, Graphite, SW316+Graphite, Kel-F, Buna, Lip Seals. Other materials are available on Customer's request.
- Bore: full or reduced
- Ends: socket, NPT, butt weld or flanged.

Seat Design: Soft or Metal-To-Metal Type.

Soft Seat

Soft seat is a standard technical design of ball valves suitable for max operating temperature up to 250°C with non-abrasive fluids (e.g. gas and clean liquid service), to avoid seat damage. Soft seated ball valves are provided with reinforced PTFE, Nylon, Devlon and Peek insert, depending on the service and pressure class.

Soft seated construction is normally provided with a secondary sealing system, obtained by injecting a highly dense fluid (grease) into the seating area to prevent the leakage in case of soft insert damage.

in case of abrasive fluids or services at high temperature and/or high pressure.

For this specific design the ball and seat can be hard-faced by Tungsten Carbide (TC), Chromium Carbide (CC), Stellite 6 or Inconel 625 (for corrosive service), in order to enhance the seat performance.

Metal-to-Metal

Metal to metal seat design is used for more severe applications,

Floating Ball Valves

Euroguarco floating ball valves are mainly used for low-pressure service, as an alternative to trunnion mounted ball valves. With a double chip structure, the ball can float from one side to the other for reducing the operating torque and decrease the valve wear. Full or reduce port design,

in two or three pieces, class rating 150-300-600#, threaded NPT or SW up to 2", flanged up to 6".

All balls are precision-machined and mirror-finished for bubble-tight shut-off and less operating torque.

Valve bodies are investment cast and solution annealed/normalized for the



highest quality and added strength. All body castings are marked with a foundry heat number for full traceability.

Trunnion Mounted Ball Valves: Side Entry, Top Entry

Trunnion mounted ball valves are designed for withstanding higher pressure matched to high

or low temperature, widely used for a variety of applications for crude oil, natural gas pipelines and others.

They can be of different designs: split body/side entry, top entry, three-way, fully welded and double block & bleed construction.

Side Entry/Split Body

The body construction comes in 2 or 3-piece (up to 6") and 3-piece (above 6"). The combination of trunnion mounted balls and unique spring-loaded upstream sealing, provides bubble-tight shut-off and low operating torques, even at extremely high shut-off pressure.

Low Operating Torque: the accurate machining of stem, stem packing housing and sealing surface, together with best quality Euroguarco or other equivalent brands sealing material, ensure strict compliance with the most severe pollution control regulations.



Top Entry

The top entry design enables maintenance keeping the valve in service: the valve's internal parts can be inspected and repaired without removing the valve off the pipeline. Widely used in pipelines for its safe and reliable

operation, our top entry ball valves follow API 6D standard design mainly. The vast choice of materials, sizes and pressure classes that we offer may permit an ideal selection for virtually any application.



Double Block & Bleed

DBB valves are engineered with one body and two balls, in order to secure more safety but also save weight and space in working environments where these factors are important, e.g. offshore platform.

EG DBB valve enables an easy design of the distribution systems for liquid and gaseous fluids, reducing the risk of failure and leakage. It also provides a reduced maintenance cost of the plant itself and contributes towards a safer workplace.

Fully Welded

Fully Welded ball valves also provide high-reliability

and safety with save of weight, for heavy duty maintenance-free performance. These valves can be

used under aggressive environment conditions in the distribution of fluids (gas, oil, hydrocarbons, sour fluids).

Optionals

Stem Extension: valves installed underground or in inaccessible areas, can be equipped with stem and

auxiliary piping extensions (drain, vent, sealant, actuator power, etc.). Transition pieces or pups can be welded on our

valves to solve the problem of connection of valve to the existing pipeline, that sometimes may occur.

Gate, Globe, Check, Butterfly, Plug & Choke

With the support of our partners, we can manufacture most of the other type of valves further to ball: gate, slab gate (API 6A), globe, check, choke (API 6A), butterfly and plug valves.

Construction Standards conforming to API 599, API 600, API 602, API 603, API 6D, API 6A, ASME B16.34, BS and ISO.

Sizes from 1/4" to 42". Pressure rating from ANSI 150# to 2500# and API 1500 to API 20.000.



Steel Plates, Pipes and Tubes.



Other Steel Piping Products:

Our range of steel piping product is one of the largest and is sourced only from carefully selected manu-

facturers: we supply fittings, flanges, gaskets & boltings in any size or grade you might require.

Fittings *BW, forged, self-reinforced branch outlets.*



Hot Ind. Bend



Flanges *Large Diam. and Anchor Flanges.*



Gaskets

Metallic and semi-metallic gaskets Flexitallic® or Euroguarco®. Spiral Wound, Ring T Joints, Metal-Jacketed, Cam-profile, Metallic Flat, Lens, Delta Ring, Norsok Ring, Weld-Ring gaskets in any material and working conditions.

Soft gasket sheets and cut gaskets Flexitallic® or Euroguarco® in synthetic



fibres (CSF) Fasit®, expanded flexible graphite Graflex®, filled, modified and expanded PTFE Guaflon® and Sigma®, Thermiculite®.

Flange insulation set Normally including bakelite sleeves and washers, flat ring gaskets in PTFE or Fasit®, steel



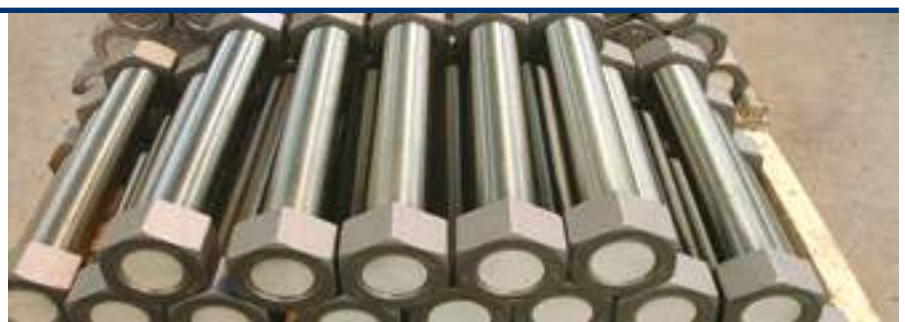
washers, nuts and bolts.

Gland packings Sirpack®. Constructed with the inter-braid method, in various yarns and impregnation: aramid, PTFE, carbon, graphite, flexible graphite, panox, GFO, acrylic, glass cotton, kynol.

Other gaskets Manhole textile gaskets, toric seals, o-rings, cork, bakelite, textile gaskets made in ceramic fibre, glass fibre, etc.



Studbolts & Fasteners



Engineering and Equipment for Oil&Gas Systems:

In partnership with specialized engineering company (i.e. SIME s.r.l., ITALY) we can design and manufacture a wide variety of systems.



Slug Catcher



Fuel Gas Filters & Scrubber



Pressure Vessels



Pig Launcher & Receiver



Degassing Station



Skid



Customized Engineering





Selected References

- ABB (Italy)
- ADOC Japan (EAU)
- Agip (Italy)
- Agip KCO (Kazakhstan)
- AGOCO (Libya)
- Alenia Aeronavale (Italy)
- Ameira Petroleum (Egypt)
- Ansaldo Energia (Italy)
- ASRY Shipyards (Bahrain)
- Attok Refinery (Pakistan)
- Bangladesh Gas Field Co. (Bangladesh)
- Banias Power Co. (Syria)
- Banias Refinery (Syria)
- Bateman-Litwin (France)
- Belleli (Italy)
- BP (Iraq)
- Brega (Libya)
- Brembana (Italy)
- Cairo Refining (Egypt)
- CERN (Switzerland)
- Daura Refinery (Iraq)
- Dongang Boiler Group (China)
- Eastern Refinery (Bangladesh)
- Eco Petrol (Colombia)
- Edipower (Italy)
- ENEL (Italy)
- ENI (Italy)
- Enppi (Egypt)
- Fincantieri (Italy)
- Finmeccanica (Italy)
- Fondital (Italy)
- Foster Wheeler (Italy)
- Gas Transmission Co. Ltd (Bangladesh)
- GAZPROM (Russia)
- GE Nuovo Pignone (USA, Italy)
- Homs Refinery (Syria)
- Jordan Petroleum Refinery (Jordan)
- LukOil (Russia)
- MAERSKOIL (Kazakhstan)
- Magotteaux (Belgium)
- Mangiarotti (Italy)
- Mari Gas Co. (Pakistan)
- McDermott (USA)
- Mellitah (Libya)
- Midland Refinery (Iraq)
- Ministry of Defense (Italy)
- National Refinery (Pakistan)
- NIGC (Iran)
- North Oil Company (Iraq)
- NPCC (EAU)
- Nuovo Pignone - GE (Italy)
- Officine Resta (Italy)
- Olmi - Alfa Laval (Italy)
- OPET Petrol (Turkey)
- ORYXGAS (Switzerland)
- Oto Melara (Italy)
- PDI-Pemex (Mexico)
- Petrojet (Egypt)
- Qatar Gas (Qatar)
- Ras Gas (Qatar)
- Saipem (Italy)
- Saras (Italy)
- SCOP (Iraq)
- Sirte Oil Co. (Libya)
- Snam (Italy)
- Solvay (Italy)
- South Oil Company (Iraq)
- SGS Oil & Gas (Czech Republic)
- SSGC (Pakistan)
- Kala Naft (Iran)
- Kordestan Petrochemical (Iran)
- MAPNA (Iran)
- Metec (Ethiopia)
- Nargan (Iran)
- NIOC (Iran)
- PDO (Oman)
- Pentair (USA)
- POGC (Iran)
- Yara (Italy)
- Sung Kyong (South Korea)
- Tecnimont (Italy)
- Tehran Refinery (Iran)
- Termomeccanica Italiana
- Trenitalia (Italy)
- Waha Oil Company (Libya)
- Warri Refinery (Nigeria)



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