PETROLVALVES GROUP
enabling your energy flow

TOP ENTRY BALL VALVES

introduction

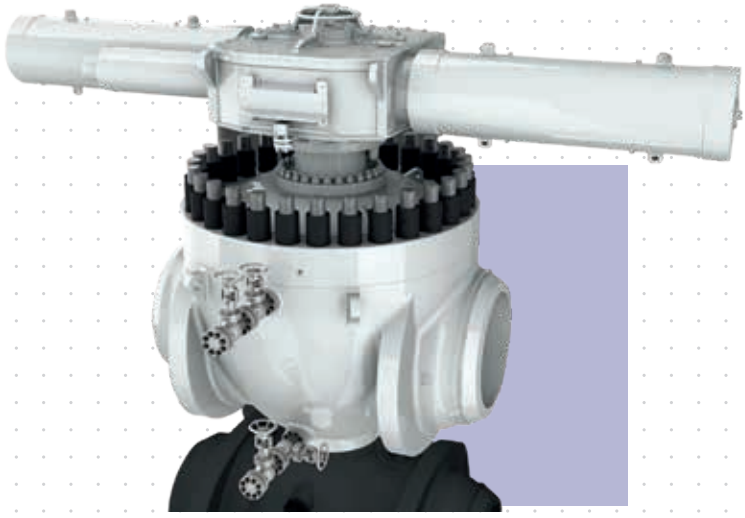
PETROLVALVES is a leading manufacturer of valves for the oil and gas industry.

Formed in 1956, **PETROLVALVES** has grown to a company with sales, services and manufacturing facilities throughout the world with direct presence in the United States, Norway, United Kingdom, Italy, Singapore and Australia.

The continuous investment in development of new technology has resulted in the growth and ongoing success of our company. **PETROLVALVES** line of production includes some of the most sophisticated valve products in the world with a strong focus on the development of custom or niche products designed according to customer's specific requirements.

PETROLVALVES has been manufacturing Top-entry ball valves since the late 1960s and also owns a registered patent for the first Top Entry Ball Valves supplied to the market.

Petrolvalves experience in the Top-Entry valve design grew faster and faster, driving the company to challenge itself with more and more complex products, such as large diameter i.e. 48" (metal seated) for the Nord Stream Project



top entry ball
BASIC INFORMATION

STANDARD SERVICE: use in natural gas, LNG, crude oil, refined products transmission lines as well as in many other general industrial and oil&gas applications. For example:

- transmission pipelines,
- pumping, compression and reinjection units
- offshore platforms
- onshore terminals
- pig traps
- metering stations
- surge-relief skids
- blowdown

SUB-PRODUCT TYPE

	DESIGN	SEAT TYPE	MODEL	SEALING TYPE
TRUNNION	API 6D	▸ Soft seated	261 (Cast body)	Elastomeric Seal
		▸ Metal seated		Thermoplastic Seal
		▸ Soft seated	262 (Forged body)	Elastomeric Seal
		▸ Metal seated		Thermoplastic Seal
	API 6A	▸ Soft seated ▸ Metal seated	944 (Cast/ Forged body)	Thermoplastic Seal
	API 6D (Cryogenic)	▸ Soft seated	263 (Cast Body)	Thermoplastic Seal

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SPECIAL SERVICE

- HIPPS
- ESD
- SSIV
- HIGH/LOW TEMPERATURE
- CRYOGENIC
- DIRTY / ABRASIVE SERVICE
- BURIED

RANGE OF **PRODUCTION (*)**				
API 6D class	150 to 600	900	1500	2500
SIZE	2" to 52"	2" to 48"	2" to 48"	2" to 30"
API 6A class	API 3000	API 5000**	API 10000	API 15000
SIZE	up to 38"	up to 38"	up to 16"	11"

(*) for non listed dimensions and API 20000 contact PV's staff
(**) and uprated

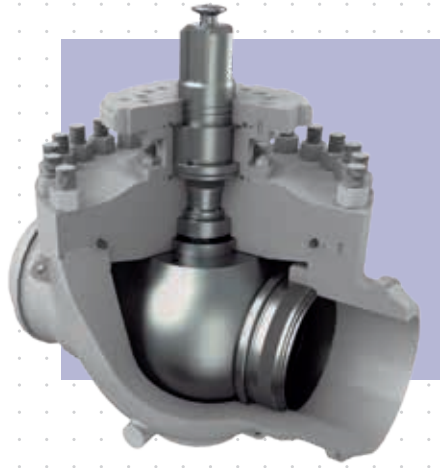
top entry ball
DESIGN FEATURES

MAIN DESIGN FEATURES	SPECIAL FEATURES	ACCESSORIES
▸ API 6D or API 6A ▸ ASME B16.34 ▸ Fire Safe ▸ Full/Reduced Bore ▸ Bidirectional/Unidirectional ▸ Self Relieving ▸ Anti blow out stem ▸ Anti static device	▸ NACE Requirement ▸ Special bore ▸ Full/partial cladding ▸ Seat Double Piston effect ▸ Double Block and Bleed ▸ Double Isolation & Bleed ▸ Equalizing hole ▸ Ad hoc design for vertical pipeline installation (*) ▸ Ad hoc engineering to suit customer projects requirements (*) inclusive of any special tooling wich may be needed to maintain the valve in situ	**Vent & Drain:** ▸ Plugged ▸ Flanged ▸ With valve **Stem Injection:** ▸ Plugged **Seat Injection:** ▸ Plugged • 1 for each seat up to DN 10" * • 2 for each seat from DN 12" * (*) other configuration upon request

The most important feature of top entry design is:

"FULLY MAINTAINABLE IN LINE"

Complete valve maintenance is extremely quick and safe, by removing the bonnet to have access to the main components of the valve .



seat-to-body SEALING

ELASTOMER SEALING

O-ring type, with PTFE back up for higher classes.

PTFE CHEVRON TYPE

Thermoplastic multiple V rings seal type.

stem SEALING

O-RING TYPE

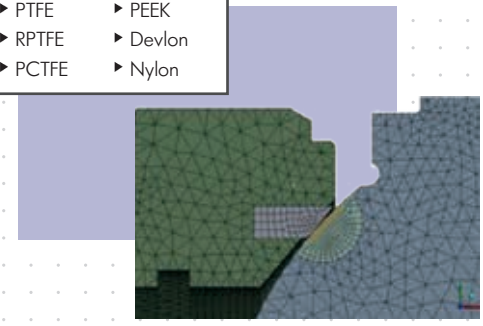
PTFE CHEVRON TYPE

Thermoplastic multiple V-rings, with or without lantern ring.

seat-to-ball
SEALING DESIGN

TYPICAL SEAT INSERT MATERIAL

- PTFE
- RPTFE
- PCTFE
- PEEK
- Devlon
- Nylon

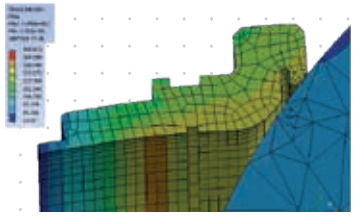


SOFT SEAT

With thermoplastic insert fitted, the seat is pressure energised; our design provides tight shut off seat-to-ball sealing, leak rate A (no visible leakage) in any condition. Multiple choices for the insert material to suit the service conditions.

METAL SEAT

Manufactured with the help of the most updated technologies to find the optimal selection of flexibility and stiffness of both ball and seat rings. Numerical simulations are carried out to optimize any project solution.

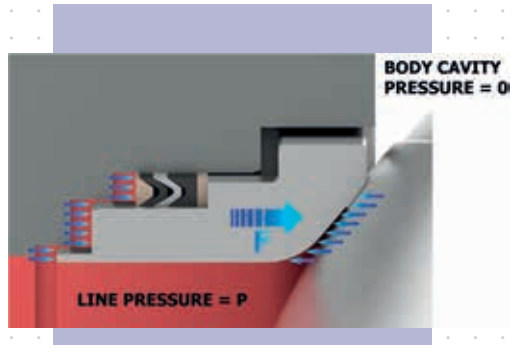


seat functionality
SELF RELIEVING SEAT

Valve seat and sealing are designed to relieve pressure in the valve cavity.
The cavity is always in the following condition:

- Body cavity pressure ≤ line pressure

Self relieving seats guarantee Double Block & Bleed performances in accordance with API 6D.

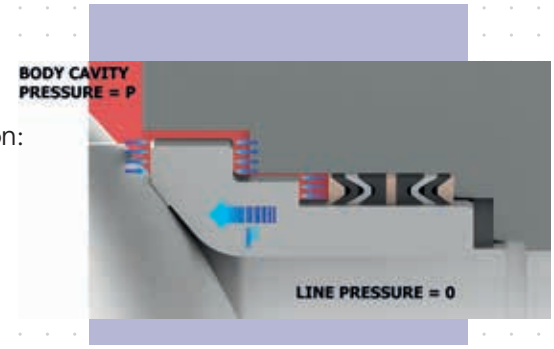


BIDIRECTIONAL SEAT

Valve seat and sealing are designed to seal against pressure source in either direction.
The seat will seal the valve as well in the following condition:

- Line pressure < body cavity pressure

Bidirectional seat design guarantees Double Block & Bleed performances in accordance with API 6D .



materials

PETROLVALVES Top entry ball valves have been designed for use with various combinations of materials which are selected to better suit service conditions.

AVAILABLE BODY MATERIAL SELECTION	AVAILABLE OBTURATOR MATERIAL SELECTION SOFT SEAT EXECUTION	AVAILABLE SEAT MATERIAL SELECTION SOFT SEAT EXECUTION
▸ CS, LTCS (*) ▸ Low Alloy Steel (*) ▸ Stainless Steel ▸ Ni Alloy (*) CRA weld overlay option available	▸ CS, LTCS (*) ▸ Low Alloy Steel (*) ▸ Austenitic / Ferritic / Martensitic Stainless Steel ▸ Duplex, Superduplex, Ni Alloy (*) CRA weld overlay option available Option ▸ Electroless Nickel plating	▸ CS, LTCS ▸ Low Alloy Steel ▸ Austenitic / Ferritic / Martensitic Stainless Steel ▸ Duplex, Superduplex, Ni Alloy Secondary seal material ▸ PTFE, RPTFE, PCTFE, PEEK, DEVLON, NYLON Option ▸ Electroless Nickel plating

AVAILABLE BODY MATERIAL SELECTION	AVAILABLE OBTURATOR MATERIAL SELECTION METAL SEAT EXECUTION	AVAILABLE SEAT MATERIAL SELECTION METAL SEAT EXECUTION
▸ CS, LTCS (*) ▸ Low Alloy Steel (*) ▸ Stainless Steel ▸ Ni Alloy (*) CRA weld overlay option available	▸ CS, LTCS (*) ▸ Low Alloy Steel (*) ▸ Austenitic / Ferritic / Martensitic Stainless Steel ▸ Duplex, Superduplex, Ni Alloy (*) CRA weld overlay option available HardFacing ▸ Tungsten / Chromium carbide coating	▸ Low Alloy Steel ▸ Austenitic / Ferritic / Martensitic Stainless Steel ▸ Duplex, Superduplex, Ni Alloy HardFacing ▸ Tungsten / Chromium carbide coating

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