



**DE VALVES**

valves and actuators

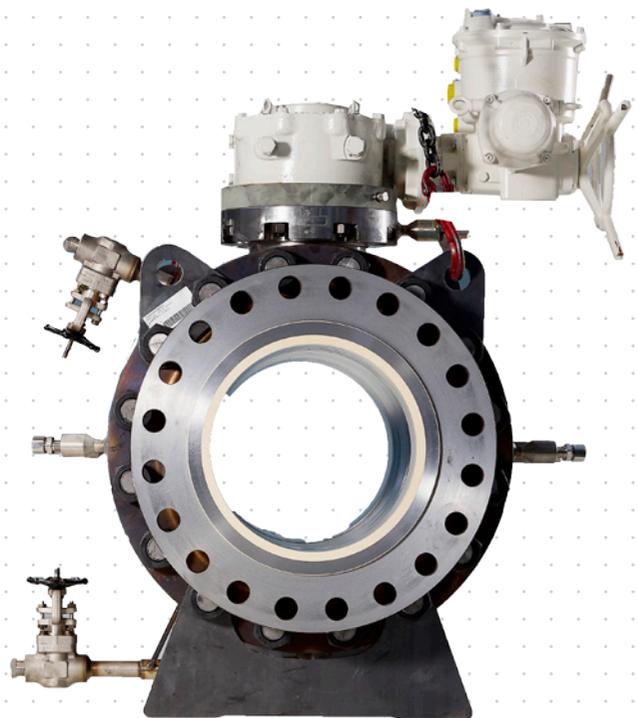
# introduction

**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 our customer's specific requirements.

**PETROLVALVES** has been manufacturing end-entry & top-entry ball valves since the early 1960's, participating in the largest oil & gas projects around the world.

**PETROLVALVES'** experience in the end-entry and top-entry valve design developed quickly, driving the company towards innovative solutions to meet complex applications. In this way, the DE valve was developed to avoid problematic issues caused from debris and solids entrained within the process fluid.



## DEV BASIC INFORMATIONS

### SUB-PRODUCT TYPE

	DESIGN	SEAT TYPE	MODEL	SEALING TYPE
TRUNNION	Split body	Soft seated	228	Elastomeric Seal
			238	Thermoplastic Seal
		Metal seated	228	Elastomeric Seal
			238	Thermoplastic Seal
	3 PIECES	Soft seated	241	Elastomeric Seal
			243	Thermoplastic Seal
		Metal seated	241	Elastomeric Seal
			243	Thermoplastic Sea
	Top entry	Soft seated	261 (Cast Body)	Elastomeric Seal
		Metal seated		Thermoplastic Seal
		Soft seated	262 (Forged Body)	Elastomeric Seal
		Metal seated		Thermoplastic Seal
Soft seated		944 (Cast Forged Body)	Elastomeric Seal	
Metal seated			Thermoplastic Seal	

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### SERVICES

Natural gas, LNG, crude oil, refined products, transmission lines, as well as many industrial and oil and gas applications where there is a presence of debris, or suspended solid particles in the fluid media.

For example:

- ▶ transmission pipelines ▶ offshore platforms ▶ onshore terminals
- ▶ metering stations ▶ surge-relief skids ▶ blowdown service

RANGE OF PRODUCTION ( * )				
API 6D class	150 to 600	900	1500	2500
SIZE	2" to 60"	2" to 48"	2" to 48"	2" to 30"
API 6A class	API 3000	API 5000**	API 10000	API 15000
SIZE	up to 34"	up to 34"	up to 16"	10"
(*) for non listed dimensions contact PV's staff				
(**) and uprated				

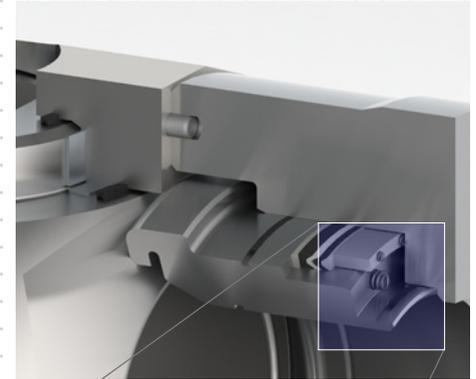
## DEV PRINCIPAL FEATURE

DE Valve combines all of the main features and benefits of **PV** side entry and top entry ball valves, with the addition of a 'debris excluder' on the seat and / or on the stem / trunnion, designed by **PV**.

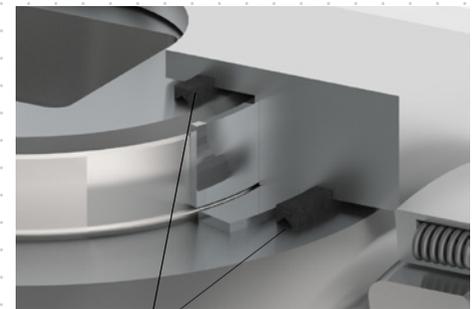
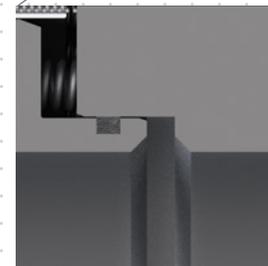
Typically the debris excluder component is provided in PTFE or carbon filled PTFE, and can be provided in other materials, according to the service.

This solution prevents the possibility of solid particles becoming trapped behind the seat, the seat holders, or in the sealing area between the seat and body. Trapped solids can make any valve difficult to operate, increasing torque and causing premature wear of the seat or seals. Movement of the seat (piston action) purges the media between the seat holder and body, thereby expelling any particles trapped in this annular area.

The wiper seals on the upper trunnion / stem and lower trunnion, reduce the stem's exposure to solids, minimizing the possibility of stem leakage, and guarantee constant valve torque during the life of the product. When the valve rotates, debris is thereby prevented from ingress into the stem seal area and between the trunnion and bearings.



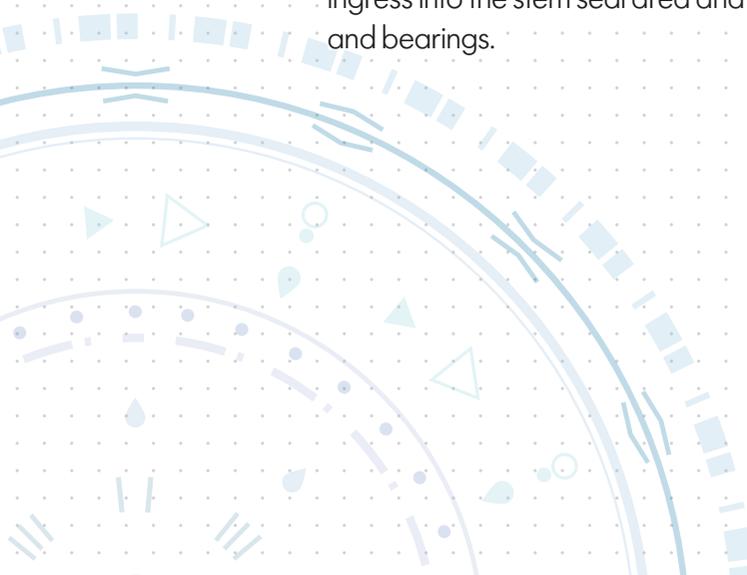
Seat debris preventer



Upper trunnion/stem debris preventer



Lower trunnion /stem debris preventer



## standard DESIGN FEATURES

MAIN DESIGN FEATURES	SPECIAL FEATURES	ACCESSORIES
<ul style="list-style-type: none"> <li>▶ API 6D or API 6A</li> <li>▶ ASME B16.34</li> <li>▶ Fire Safe</li> <li>▶ Full/Reduced Bore</li> <li>▶ Bidirectional/Unidirectional</li> <li>▶ Self Relieving</li> <li>▶ Anti blow out stem</li> <li>▶ Anti static device</li> <li>▶ Double Block and Bleed</li> </ul>	<ul style="list-style-type: none"> <li>▶ NACE Requirement</li> <li>▶ Special bore</li> <li>▶ Full/partial cladding</li> <li>▶ Equalizing hole</li> <li>▶ Extended stem</li> <li>▶ Extended bonnet</li> <li>▶ Engineered to order to meet customers' specific service conditions</li> </ul>	<p><b>Vent &amp; Drain:</b></p> <ul style="list-style-type: none"> <li>▶ Plugged</li> <li>▶ Flanged</li> <li>▶ With valve</li> </ul> <p><b>Stem Injection:</b></p> <ul style="list-style-type: none"> <li>▶ Class 1500 standard for DN 6" and above</li> <li>▶ Class 2500 standard for DN 4" and above</li> </ul> <p><b>Seat Injection:</b></p> <ul style="list-style-type: none"> <li>▶ Class 150/300/600 upon request for DN 6" and above</li> <li>▶ Class 900/1500/2500 upon request for DN 4" and above</li> </ul>

**PETROLVALVES** engineering department is specialized in fulfilling all client requirements and project specifications.

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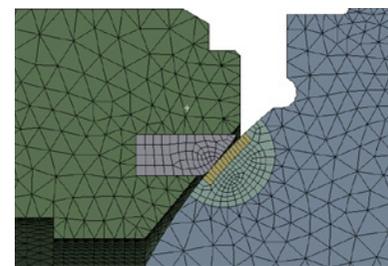
## seat-to-ball SEALING DESIGN

### SOFT SEAT

with thermoplastic insert, the seat is pressure energized, providing tight shut off seat-to-ball sealing, leak rate A (no visible leakage), in any condition. Multiple choices are available for the insert material to suit the application.

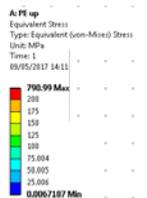
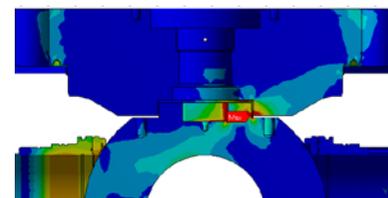
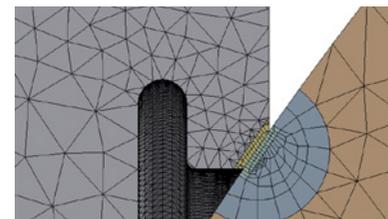
### METAL SEAT

designed and manufactured to provide the optimal degree of flexibility and rigidity interface between both ball and seat rings. Stress analysis are performed to optimize performance under any condition.



### TYPICAL SEAT INSERT MATERIAL

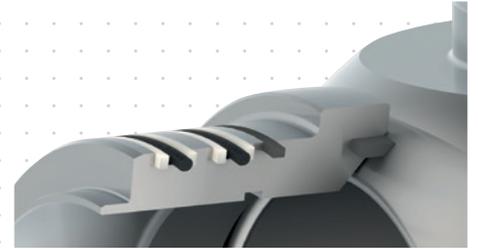
- ▶ PTFE
- ▶ RPTFE
- ▶ PCTFE
- ▶ PEEK
- ▶ Devlon
- ▶ Nylon



seat-to-body  
**SEALING**

**ELASTOMER SEALING**

o-ring type, with PTFE back up on higher classes



**PTFE CHEVRON TYPE**

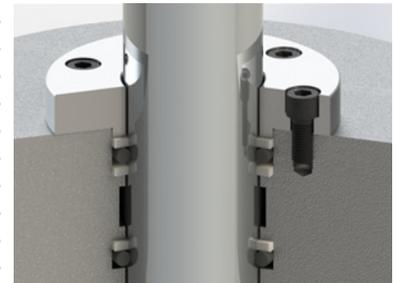
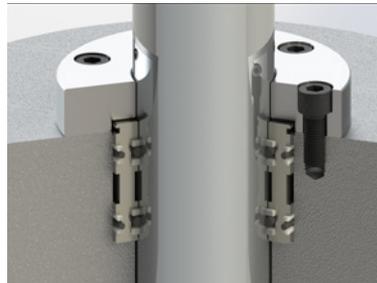
thermoplastic multiple V rings seal type



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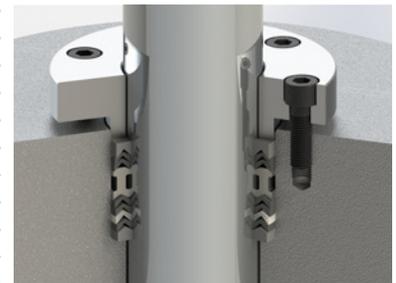
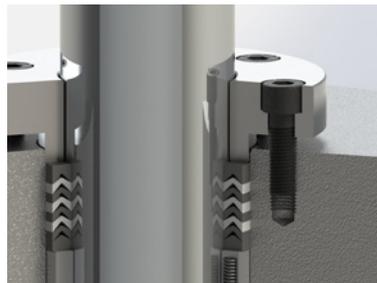
stem  
**SEALING**

**O-RING TYPE**



**PTFE CHEVRON TYPE**

thermoplastic multiple V-rings, with or without lantern ring



## materials

**PETROLVALVES'** DEV have been designed for use with various combinations of materials to optimize performance in any service condition.

AVAILABLE BODY MATERIAL SELECTION	AVAILABLE OBTURATOR MATERIAL SELECTION SOFT SEAT EXECUTION	AVAILABLE SEAT MATERIAL SELECTION SOFT SEAT EXECUTION
<ul style="list-style-type: none"> <li>▶ CS, LTCS (*)</li> <li>▶ Low Alloy Steel (*)</li> <li>▶ Stainless Steel</li> <li>▶ Ni Alloy</li> </ul> <p>(*) CRA weld overlay option available</p>	<ul style="list-style-type: none"> <li>▶ CS, LTCS (*)</li> <li>▶ Low Alloy Steel (*)</li> <li>▶ Austenitic / Ferritic / Martensitic Stainless Steel</li> <li>▶ DElex, SuperDElex, Ni Alloy</li> </ul> <p>(*) CRA weld overlay option available</p> <p><b>Option</b></p> <ul style="list-style-type: none"> <li>▶ Electroless Nickel plating</li> </ul>	<ul style="list-style-type: none"> <li>▶ CS, LTCS</li> <li>▶ Low Alloy Steel</li> <li>▶ Austenitic / Ferritic / Martensitic Stainless Steel</li> <li>▶ DElex, SuperDElex, Ni Alloy</li> </ul> <p><b>Secondary seal material</b></p> <ul style="list-style-type: none"> <li>▶ PTFE, RPTFE, PCTFE, PEEK, DEVLON, NYLON</li> </ul> <p><b>Option</b></p> <ul style="list-style-type: none"> <li>▶ Electroless Nickel plating</li> </ul>

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AVAILABLE BODY MATERIAL SELECTION	AVAILABLE OBTURATOR MATERIAL SELECTION METAL SEAT EXECUTION	AVAILABLE SEAT MATERIAL SELECTION METAL SEAT EXECUTION
<ul style="list-style-type: none"> <li>▶ CS, LTCS (*)</li> <li>▶ Low Alloy Steel (*)</li> <li>▶ Stainless Steel</li> <li>▶ Ni Alloy</li> </ul> <p>(*) CRA weld overlay option available</p>	<ul style="list-style-type: none"> <li>▶ CS, LTCS (*)</li> <li>▶ Low Alloy Steel (*)</li> <li>▶ Austenitic / Ferritic / Martensitic Stainless Steel</li> <li>▶ DElex, SuperDElex, Ni Alloy</li> </ul> <p>(*) CRA weld overlay option available</p> <p><b>Hardfacing:</b></p> <ul style="list-style-type: none"> <li>▶ Tungsten / Chromium carbide coating</li> </ul>	<ul style="list-style-type: none"> <li>▶ Low Alloy Steel</li> <li>▶ Austenitic / Ferritic / Martensitic Stainless Steel</li> <li>▶ DElex, SuperDElex, Ni Alloy</li> </ul> <p><b>Hardfacing:</b></p> <ul style="list-style-type: none"> <li>▶ Tungsten / Chromium carbide coating</li> </ul>



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