

# COMPANY & PRODUCT OVERVIEW 9/20













## **VASTAS**

Designing and producing safe, long lasting valves for the industry. Uses its expertise for maintenance, repair and renewal of all valve system extending to all valve brands.

#### **DESIGN**

Using 75 years of site experience, Vastas designs advanced valve solutions, including tailor-made valves for the most complex needs.

#### **PRODUCE**

Vastas' 21.000m<sup>2</sup> production plant differs from others with its inhouse capabilities. Machine park has over 300 key machines and tools including CNC, testing benches, welding, heat treatment, coating facilities etc. API & ISO accredited. The production facility and all processes are in line with the QHSE management system.

#### SERVICE

Heritage of Vastas is its site service, which has a history that dates back to 1930's. Today, Vastas is a service provider for all valve and actuator brands.

#### **ESTABLISHMENT**

1945

#### LOCATION

Turkey

#### CAPACITY

11.764 tons / year

#### **PERSONNEL**

250+

#### **FOCUS**

Pipeline Valves

#### **PRIMARY INDUSTRIES**

Oil & Gas, Energy, Water

#### PRODUCT LINE

Ball, Gate, Check, Plug, Globe Valves, Hydraulic & Pneumatic Actuators

#### **ACCREDITATION**

SIL 2 & 3 / Since 2015 API 6D / Since 2003 API 600 / Since 2006 API 6A / Since 2012 API 602 / Since 2012 NACE / Since 2010 ATEX / Since 2010

ASME U Designator / Since 2016 (ASME Sec. 8 Div 1) ISO 9001 / Since 1997 ISO 14001 / Since 2003 OHSAS 18001 / Since 2003 CE / Since 2002 ISO 45001/Since 2019

You can visit our website to review the certificates.

# **FOUNDATION** & HISTORY

In 1945, after years of field experience, two masters Ali & Ziya started a 12 m<sup>2</sup>. workshop in Karakoy Istanbul. That small workshop became the origin of Vastas and the Valve business. Today Vastas is operating at a 21.000 m<sup>2</sup> production facility and exporting over 70 countries worldwide.

#### Milestones

First workshop	1945
First valve production	1967
Corporate status / Vastas brand was born	1979
First investment / New plant was built at Cerkezkoy OSB	1986
Becomes the first Turkish valve manufacturer with API 6D monogramme.	2003
Applies QHSE Integrated Management System, acc.to API 1 and ISO 9001, 14001, OHSAS18001 certified	2003
Re-enlargement / Increased the capacity by 110% and the overall sales by 250%	2004
Product Development & Licence / API 600 monogram licence received, Actuators included in the production range	2006
Growth & Sustainable Development/ Increased it's personnel capacity by 250%	2011
Vastas produces Turkey's Biggest NGPL Ball Valve a 56 inch FW type	2011
TS EN ISO 17025 Laboratory Accreditation obtained	2011
API 6A & API 602 monogram license received	2012
The first Turkish valve company with SIL 2&3 certification.	2015
International Quality Award	2015
ASME -U Designator acc.to Asme Sec. VIII, Div 1	2016
Earns a milestone reference, producing all tank storage and pipeline valves of the giant airport IGA	2017
QHSE Integrated Management System, ISO 45001 Certified	2019

# **VISION & MISSION**

#### **Our Vision**

Our aim is to become one of the leading global brands, manufacturing industrial valve & actuators.

#### **Our Mission**

With our commitment to future generations; our mission is to ensure a sustainable environments for all living kinds and update our values for the society.

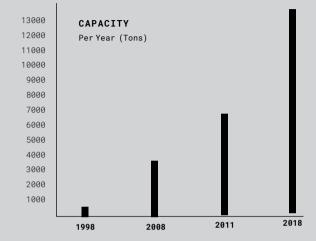
#### **Our Policy**

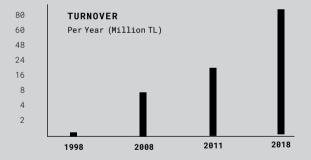
Vastas's Policy is to create optimum value from what is spent. To reward the time and manpower spent, to contribute brainpower. To ensure the sustainability of the natural sources spent, to invest in the future of the community and environment.

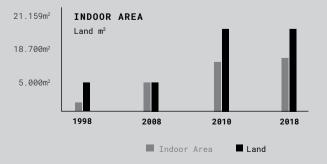
#### **Our Values**

- Sustainable life for all
- Transparency
- To bear yesterday's responsibility
- Be the best of today
- · Serve the product of tomorrow
- · Continuous development of quality
- Customer-focused services

#### Improvement Report







### INDUSTRIES SERVED

#### **NATURAL GAS**

- ·Natural Gas Pipeline Projects
- ·Natural Gas Storage Projects
- GTL Projects
- LNG Storage Projects
- LNG Terminal and Regasification Projects

Vastas API Spec. 6D valves and combined systems are designed for natural gas projects and are offered as emergency shut down, line- break, shut-off, differential pressure controlled, remote and/or local controlled.

Area of usage includes line blocking, pigging stations, compressor stations, regulating & metering stations, loops and takeoff processes

With its focus on midstream projects, economical life of Vastas pipeline valves are 40 years and alternatives depending on operational conditions and maintenance preferences may be supplied upon request.

You may find the best-suited type to your line maintenance procedure between full-welded, split body, top entry alternatives. Services on live pipeline, line-break, part renewal or maintenance are also Vastas' expertise area and offered as a full facility package and not limited with own brand.

Vastas can supply all non-cryogenic valve types for LNG projects. Non cryogenic valves are under tailor-made scope.

#### REFERENCE PROJECTS

TANAP Compressor Stations Turkey



Bulgartransgaz Domestic Gas Distribution PL Projects Bulgaria



GOGC Regional Natural Gas Transportation Projects Georgia



GASCO / ICB / 007 - LPT (1) Helwan Power Project Savings Egypt



SSGC RLNG 42" Pipeline, Pakland to Nara Pakistan



#### CRUDE OIL



- Exploration & Production Projects
- Crude Oil Transmission Projects
- Crude Oil Pipeline Projects
- Slurry Pipeline Projects
- Crude Oil Storage Projects
- Crude Oil Refining Projects
- LPG Storage Projects

Vastas manufactures API 6D valves and actuator systems for crude oil pipelines and API 6A Valves for wellhead needs. Preferred application areas are line blocking, pigging stations, metering stations, terminals and wellheads. However Vastas valves are used in various areas at various projects.

Services on live pipeline, and various after-sales, maintenance, repair, refurbishment services are also Vastas' expertise area and offered as a full facility package and not limited with own brand. With 80 years of field experience, it can offer solutions in cases of limited maintenance possibility.

Vastas API Spec 600 valves are applicable for Fuel and other oil

products and used in terminals, pipelines and storage facilities.

These valves designed for fuel storage and tank farms, fuel,

jet fuel and jetty pipeline are offered manual or, with remote or

local control and as emergency shutdown or shut-off purposes.

#### REFERENCE PROJECTS

SHELL Gumusut - Kakap Deep Water Platform, Malaysia Pearl GTL Project, Qatar Storage and Terminal, Turkey PDVSA Refinery,





BP Sangachal Terminal Azerbaijan



SOCAR

Socar Projects:

- -Star Refinery
- -Wellheads
- -NG, CO Production, Distribution
- -Oilfield CO, NG, Water Pipelines
- -Aliaga Oil Storage Terminal Exp,

Turkey, Azerbaijan



- -North Kuwait Crude Oil
- -North Kuwait Flow Lines

Kuwait



GAZPROM Badra Oil Field Development Project Iraq



#### **FUEL**

• Fuel Storage Projects

• Fuel Pipeline Projects

Refining Projects



#### REFERENCE PROJECTS

**ENI Sannazzaro Refinery** Italy



Istanbul Grand Airport (IGA) Project,



Astana International Airport Kazakhstan



OPET Marmara Fuel Plant, OPET Airport Jet Fuel Terminal Turkey



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#### **WATER**



- · Water Transmission Pipeline Projects
- Water Reservoir Projects
- Drinking Water Projects
- · Hot Water & Geothermal Projects
- Sea Water Projects
- Desalination Projects
- Waste Water Projects

Complying with AWWA standards and ASME Sec III and B16.34 standards, Vastas valves are suitable for water projects. High-pressure valves for water pipelines complying with international standards, corrosion resistance solutions for waste water and seawater, valves operating at high temperature for hot water, steam and geothermal solutions are in Vastas production scope.

Some water applications like saline water are subject to extreme conditions and with its R&D strength and manufacturing flexibility, Vastas can offer valve and actuator solutions with special materials and customized design.

#### **REFERENCE PROJECTS**

IMPSA Miel II Project Colombia



SWCC Ras Alzarw - Riyad Water Transmission Line Saudi Arabia



Malawi Blantyre, Chileka Pumping Stations Malawi



Bulgarian, Pleven Water Conveyance Line Project Bulgaria



Jordan, Al Samra Waste Water Transmission Pipeline Jordan



#### **ENERGY**



- Thermal Power Plant Projects
- Geothermal Power Plant Projects
- · Solar-Thermal Power Plant Projects
- Hydroelectric Power Plant Projects
- Combined Cycle Power Plant Projects

Vastas is aware that valves have a critical role in optimizing efficiency in the plant and for power plant projects it has to be ready for harsh conditions. Vastas valves are suitable for high pressure and high temperature applications. When needed, Vastas offers tailor made valve solutions for severe services and critical applications.

Vastas products can operate at hot water & steam, complying with AWWA standards and ASME Sec III and B16.34 standards they can be used for various projects including geothermal facilities, at various processes including ORC. Vastas products include Strainers for Geothermal projects.

#### REFERENCE PROJECTS

1800 Mw ALBA PS5 Combined Cycle Power Plant Bahrain



SAMSUNG C&T Kirikkale Independent Power Plant Turkey



Greeneco Denizli City, Saraykoy Geothermal Power Plant I & II Turkey



#### **IRON & STEEL INDUSTRY**



Vastas API600, API6D Gate, Ball, Check, Globe, Plug valves and tailor-made Goggle valves, stariners are used in Iron & Steel facilities for Cooling Systems, Furnace Gas, Coke Gas, NG lines and power stations.

#### REFERENCE PROJECTS

Ternium Siderar Gas Treatment Plant Argentina



Erdemir Production Facility, Coke Oven Plant Project Turkey



Isdemir Iron & Steel Plant
Turkey



#### MINING INDUSTRY



Vastas valves are used at various mining facilities including Phosphate, Gold, Silver, Copper, Mercury and so on. It is used for metal concentrates and slurry lines. Vastas product range includes Knife Gate Valves, for these applications. plus pinch valves and air release valves are manufactured as tailor-made projects upon request.

#### REFERENCE PROJECTS

**Eti Gümüs Kutahya City Mining** Turkey



OCP Khouribga - Jorf Lasfar Phosphate Slurry Pipeline System Morocco



#### MARINE



- Marine Terminal Projects
- FSRU Projects
- •FSO & FPSO Projects
- Drill ship Projects
- •Oil Tanker Projects

Vastas valves can be used at various marine projects, with sub-sea excluded. Vastas does not yet offer valves with Marine standards but it offers high pressure solutions, sea water resistance and tailor made solutions for special requirements. Vastas valves with API6D, API600, API 594 standards are used at various marine projects including Terminals, platforms and FRSU, FPSO.

#### REFERENCE PROJECTS

BW Offshore Catcher FPSO Development Project

United Kingdom

Liberia, Ghana



Karadeniz 470MW Powership Osman Khan (FPP)



TOTAL Kaombo Field Development Project 2 FPSO Units Angola



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# **OPERATION** SOLUTIONS

Vastas offers complete valve systems and various solutions from a single source. Vastas valve and actuator systems can be listed in eight main groups.

**ESDV** 

EMERGENCY SHUT DOWN VALVE SYSTEMS

**SDV** 

SHUT DOWN VALVE SYSTEMS



PIPELINE



REFINERY



POWER PLANT



PIPELINE



REFINERY



POWER PLANT



TANK STORAGE



WELL HEAD







WELL HEAD



TANK STORAGE

**LBV** 

LINE BREAK VALVE SYSTEMS



PIPELINE



WELL HEAD

SSOV

SAFETY SHUTOFF VALVE SYSTEMS



**BDV** 

BLOW DOWN VALVE SYSTEMS



HIGH INTEGRITY PRESSURE PROTECTION SYSTEMS





WELL HEAD



POWER PLANT



WELL HEAD





REFINERY



**PIPELINE** 

PROCESS VALVE SYSTEMS

MOV

PIPELINE

MOTOR OPERATED VALVE SYSTEMS



PIPELINE





REFINERY

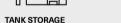




POWER PLANT













POWER PLANT TANK STORAGE



WATER WORKS



FPSO

MINE



RMS

PIPELINE





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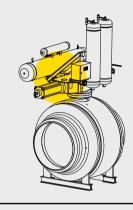
FPSO



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# **PRODUCT RANGE**

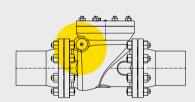
Main Product Range are Ball Valves, Gate Valves, Check Valves, Globe Valves, Plug Valves, Hydraulic Actuators & Pneumatic Actuators.



#### **Full Welded Ball Valves**

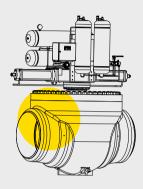
API 6D monogrammed

Safety Integrity Level (SIL) 2 & 3, ATEX, PED



#### **Check Valves**

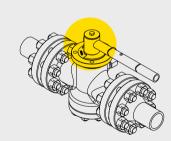
API 6D monogrammed ATEX, PED



#### **Top Entry Ball Valve**

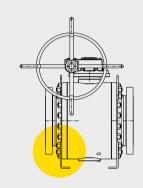
API 6D monogrammed

Safety Integrity Level (SIL) 2 & 3, ATEX, PED



#### **Plug Valves**

API 6D monogrammed ATEX, PED



#### **Split Body Ball Valves**

API 6D monogrammed

Safety Integrity Level (SIL) 2 & 3, ATEX, PED



#### **Globe Valves**

BS 1873 / API 623

Safety Integrity Level (SIL) 2 & 3,

ATEX, PED



#### Wedge Gate Valves

API 600 monogrammed

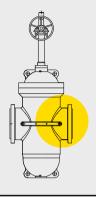
Safety Integrity Level (SIL) 2 & 3, ATEX, PED



#### **Compact Forged Valves**

API 6D / API 602 / API 608 / BS 5352 / ISO 17292

Safety Integrity Level (SIL) 2 & 3, (E604 & E60T)



#### **Conduit Gate Valves**

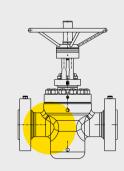
API 6D monogrammed

Safety Integrity Level (SIL) 2 & 3, ATEX, PED



#### **Tailor Made**

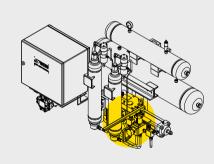
As a designing and manufacturing company we are not limited with the product range, we offer tailor made valve and actuator solutions as well.



#### **API 6A Gate Valves**

API 6A monogrammed

Safety Integrity Level (SIL) 2 & 3, ATEX, PED



#### **Hydraulic & Pneumatic Actuators**

ASME U-Stamp, Safety Integrity Level (SIL) 2 & 3, ATEX, PED

# **BALL VALVES**



#### **FULL WELDED BALL VALVES**

These types of valves are mostly forged steel. The body of valve is constructed by welding of all parts except stem housing. No sealing elements are used which might cause leakage through. Inspection and maintenance of such valves may be executed on live line.

SIL 2 & 3 certified. When required it can be manufactured from special material according to NACE corrosion standards and/or temperature class.

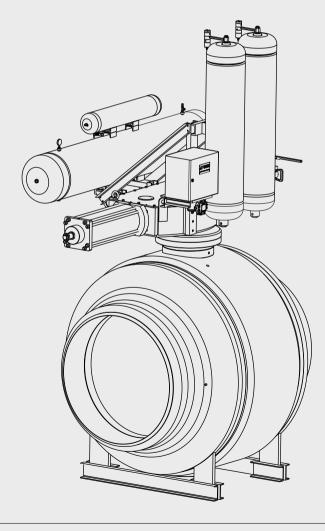
**E60M** Full Welded Forged Steel Ball Valves

NPS 2"-60" | DN 50-1500 |

CLASS 150-1500# | STD API 6D

They are especially used in Natural Gas & Crude-Oil Pipelines for above and underground applications. Generally used between -46°C up to 120°C.

It can be manufactured with various materials, PSL2 level can be obtained upon request.



#### **TOP ENTRY BALL VALVES**

These types of valves are being used for Natural Gas and Crude Oil Pipelines, NG Pipeline Pig Stations, Compressor and Measuring Stations, RMS Pressure Regulating and Measuring Stations for above & underground applications. Generally used between -46°C up to 100°C. PSL2 level can be obtained upon request and it can be manufactured with various materials.

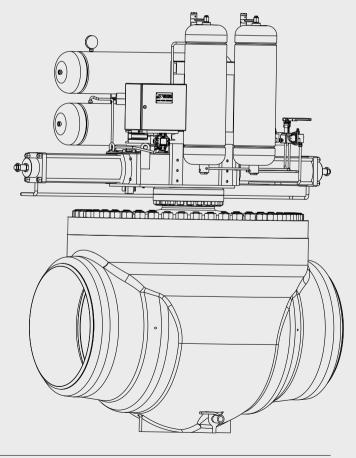
SIL 2 & 3 certified. When required it can be manufactured from special material according to NACE corrosion standards and/or temperature class.

#### E60T Top Entry Ball Valves

NPS 3"-48" | DN 80-1200 | CLASS 150-1500# | STD API 6D

Top Entry Ball Valves are mainly used in pipelines. It is directly connected to the pipeline by welding.

Although the general features are same with Full Welded or Split Body Ball Valves, the biggest difference is that the ball can get in or get out from the top of the valve which makes it possible to carry out maintenance, repair and to replace spare parts without removing the valve from pipeline. Other features are similar with Full Welded and Split Body Ball Valves.



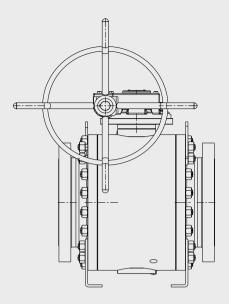


#### **SPLIT BODY BALL VALVES**

Split Body Ball Valves are made from forged steel with flanged connections.

The body of valve is constructed by welding of all parts except stem housing. No sealing elements are used which might cause leakage through. Inspection and maintenance of such valves may be executed on live line.

SIL 2 & 3 certified. When required it can be manufactured from special material according to NACE corrosion standards and/or temperature class.



E601 Split Body Ball Valves - Forged, DBB

NPS 2"-56" | DN 50-1400 CLASS 150-2500# | STD API 6D

This type of valves are being especially used as line valve in Natural Gas and Crude Oil Pipelines, Pig Stations, Compressor and Measuring Stations and Pressure Regulating and Metering Stations (RMS), Pumping Stations and Loading Terminals.

When required, it can be manufactured specially for Sea Water, Waste Water, Mineral Mud (Slurry) by using suitable material in accordance to NACE Corrosion Standards.

Generally it is used between -46°C up to 100°C. It can be manufactured with various materials upon request and PSL2 level can be obtained.

**E603** Split Body Ball Valves – Forged, DBB, Triple Seat Type

NPS 2"-56" | DN 50-1400 CLASS 150-600# | STD API 6D

This is same type with E601 (our standard split body ball valve) but It's seat design is patterned and manufactured as triple seat and it's features are as follows:

- firstly it has PSSM type double piston effect ring
- secondly it is supported with PSSM type self relief (single piston effect) ring
- finally with the sealent between the both seat rings, the leak-proof ring is provided

This feature prevents the contamination damages.

#### **OTHER BALL VALVES**

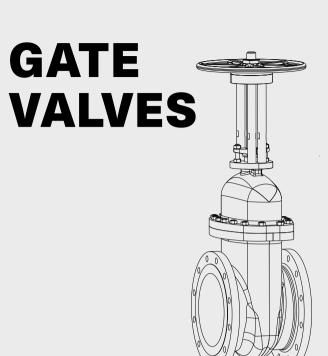
**E60L** Full Welded Ball Valve – Triple Seat Type

NPS 2"-56" | DN 50-1400 | CLASS 150-1500# | STD API 6D

E607 Floating Ball Valve

NPS 2"-8" | DN 50-200 | CLASS 150-300# | STD API 6D, API 608





#### **WEDGE GATE VALVES**

Vastas Wedge Gate Valves are API 600 licensed. They are preferred as closure (shut-down) valves.

Upon request it can be manufactured in bigger sizes and from various materials. Custom-made wedge gate valves are manufactured to meet the requirements for high-pressure water, sea-water and waste water systems.

SIL 2 & 3 certified. When required it can be manufactured from special material according to NACE corrosion standards and/ or temperature class.

E500 Cast Steel Wedge Gate Valve

**NPS** 2"-72" | **DN** 50-1800 | CLASS 150-2500# | STD API 600

**E50F** Wedge Gate Valve – Pressure Seal Bonnet Type

**NPS** 3"-16" | **DN** 80-400 | CLASS 900-2500# | STD ASME B16.34



#### **CONDUIT GATE VALVES**

Vastas Conduit Type Valves are API 6D licensed. They are suitable as line valves. Like Ball Valves they have DBB, FB, ASD, FSD, SLS, ESL features. They are suitable for pig transmission too. They can be used both for above ground and under ground applications.

It can be used as an isolating valve in pig loading-unloading platforms, in pump or compressor & in RMS stations, storage and distribution terminals.

SIL 2 & 3 certified. When required it can be manufactured from special material according to NACE corrosion standards and/or temperature class.

#### E50B Through Conduit Slab Gate Valve

**NPS** 2"-72" | **DN** 50-1800 CLASS 150-900# | STD API 6D

#### **E50D** Through Conduit Double Expanding Gate Valve

**NPS** 4"-36" | **DN** 100-900 CLASS 150-600# | STD API 6D

#### **E50P** Through Conduit Gate Valve

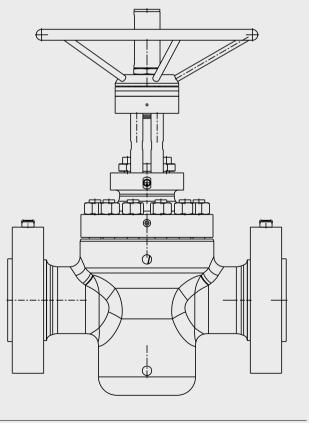
Pressure Seal Bonnet Type **NPS** 4"-24" | **DN** 100-600 CLASS 900-2500# | STD API 6D

#### **API 6A GATE VALVES**

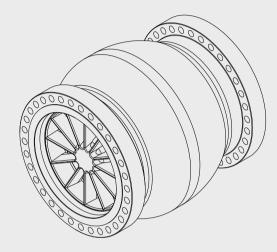
This type is designed for wellhead and pipeline needs. It has conduit features. It can be used with hydraulic control and self-acting.

#### E50A Expanding or Slab Gate Valve

**NPS** 2"-13" | **DN** 50-350 | CLASS 3000-5000-10000# | STD API 6A



# CHECK **VALVES**



This is a non-return type valve for preventing back flow.

It works automatically according the flow direction, upon request, controlled operation is an available option through additional device.

When required it can be manufactured from special material according to NACE corrosion standards and/or temperature class.

E400 Swing Check Valve

NPS 2"-48" | DN 50-1200 CLASS 150-2500# | STD API 6D

E40D Dual Disc Check Valve

NPS 2"-48" | DN 50-1200 CLASS 150-600# | STD API 6D

**E40N** Nozzle Check Valve – Axial Type

NPS 2"-48" | DN 50-1200 CLASS 150-600# | STD API 6D



# **PLUG VALVES**

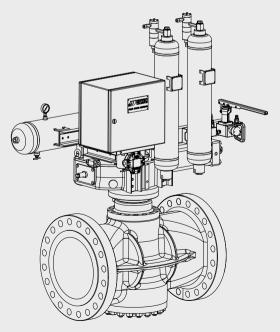
Plug Valve is an auxiliary valve used in opening and throttling of high pressurized systems. It is used as by-pass to the line valve; it balances the pressure and provides the safe opening of line valve.

Plug valves have a conical or cylindrical obturator rotating around the axis perpendicular to the flow direction.

When required it can be manufactured from special material according to NACE corrosion standards and/or temperature

Pressure Balance Plug Valve

**NPS** 2"-30" | **DN** 50-750 CLASS 150-600# | STD API 6D



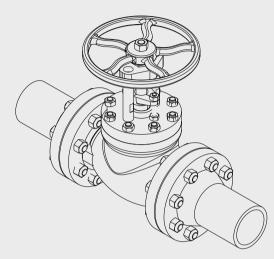


#### **OTHER PLUG VALVES**

#### **WEDGE PLUG VALVES**

**E10D** Wedge Plug Valve, Nonlubricated – Full-bore NPS 6"-24" | DN 150-600 | CLASS 600# | STD API 6D

# **GLOBE VALVES**



Vastas Globe Valves are commonly used for flow control. They are used for regulating and throttling at various pressures or flow rates and can suit to lines with frequent on/off operations. This type is not a closure valve.

The advantage of Globe valves is; they operate smoothly even during sudden opening/closing operations at the line. They are not affected by shocks and vibrations created by the flowing fluid. They do not generally require by-pass systems

SIL 2 & 3 certified.

When required, it can be manufactured from special material according to NACE corrosion standards and/or temperature class. Standard production includes 2" - 16" different size and types are also available as tailor made production and can be manufactured upon request.

E300 Globe Valve - Plug-Ball Disc

**NPS** 2"-16" | **DN** 50-400 | **CLASS** 150-1500# | **STD** BS 1873

E30B Globe Type Control Valve

NPS 2"-16" | DN 50-400 | CLASS Flanged:150-1500# Weld End:900-2500# | STD BS 1873



# **COMPACT FORGED VALVES**

#### COMPACT FORGED BALL VALVES

E604 Full Welded Ball Valve - Floating with Cap/Lever Underground Type

**NPS** 1/2"-3" | **DN** 15-80 CLASS 150-1500# | STD ISO 17292. API 608

E60K Full Welded Floating Ball Valve - Forged

**NPS** 1"-4" | **DN** 25-100

CLASS 150-600# | STD API 6D, API 608

**E60T** Top Entry Ball Valve – Floating Type

**NPS** 1/2"-2" | **DN** 15-100

CLASS 150-1500# | STD API 608

#### **COMPACT FORGED GATE VALVES**

E504 Gate Valve Bolted Bonnet - Rising Stem

**NPS** 1/2"-2" | **DN** 15-50

CLASS 150-800# | STD API 602, BS 5352

E505 Gate Valve Bolted Bonnet - Rising Stem

**NPS** 1/2"-2" | **DN** 15-50

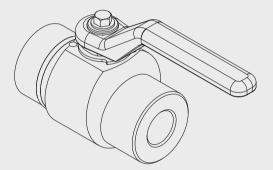
CLASS 150-1500# | STD API 602, BS 5352

#### **COMPACT FORGED CHECK VALVES**

E404 Check Valve, Lift, BB, Plug type Disc -Welded Integral Body Seat

**NPS** 1/2"-2" | **DN** 15-50

CLASS 150-1500# | STD API 602, BS 5352



#### **COMPACT FORGED PLUG VALVES**

E104 Plug Valve, Inverted Plug – Lubricated

**NPS** 1/2"-2" | **DN** 15-50

CLASS 150-1500# | STD API 599

#### COMPACT FORGED GLOBE VALVES

E304 Globe Valve, BB, Plug Type Disc -Weld Integral Body Seat

**NPS** 1/2"-2" | **DN** 15-50

CLASS 150-1500# | STD API 602, BS 5352

E305 Globe Valve, Bolted Bonnet – Plug Type Disc

**NPS** 1/2"-2" | **DN** 15-50

CLASS 150-1500# | STD API 602, BS 5352

# TAILOR MADE

As a designing and manufacturing company we are not limited with the product range, we offer tailor made valve and actuators solutions as well. Some of the tailor made valves are below:

E804 Goggle Valve

NPS 12"-120" | DN 300-3000 | WORKING PRESSURE 50 mbar-1500 mbar

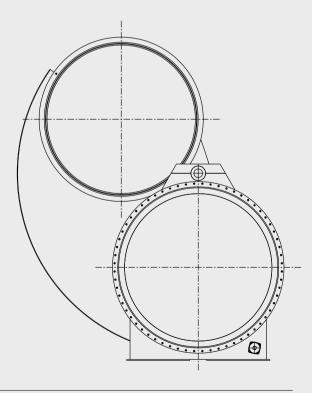
These type of valves are used for the isolation of downstream flow. They are typically used in 12" (DN300) to 120" (DN3000) diameter lines. They provide %100 'man-safe' shut-off.

Goggle valves are frequently found in the petrochemical, steel and oil industries. Commonly used applications are furnace gas and coke gas lines.

E701 Strainer

NPS 4"-32" | DN 100-800 | CLASS 150-1500#

Strainers are produced from cast steel body. The flow is conveyed inside the body and basket screen where particles larger than the mesh are captured meanwhile the flow passes through the screen and returns to pipeline. Strainers are used in crude oil pipeline, gas stream applications, sea water, hot water and saturated water pipelines.







#### YOU CAN ACCESS ALL THE REST OF THE OVERVIEW CATALOGUE ONLINE

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