VASTAS

VALVES & ACTUATORS

VALVES FOR HYDROGEN APPLICATIONS





Project Types



Hydrogen



Natural Gas Pipelines

*H2/NG Blend transmission and distribution pipelines.

As global energy consumption continues to rise, the necessity to reduce carbon emissions has become increasingly important due to the threat of climate change. In this regard, hydrogen has emerged as a viable solution for decarbonization. Additionally, it can store energy generated from renewable sources, making it a promising option for transitioning towards a sustainable future.

Vastas aims to use its experience to develop added value for flow control solutions in the newly transforming hydrogen sector and works to provide safer, more efficient, more eco-friendly product and services for projects that can minimize and eventually stop the CO2 emission and help our environment and ecosystems to regenerate and sustain for a better greener future.

There exist certain challenges that must be addressed in order to safely and effectively work with hydrogen.

Vastas is designer, manufacturer and service provider of valves and actuators. It has 80 years of field experience, its first workshop is found in 1945 doing maintenance, repair and assembly services, first valve production in 1967, Vastas is a highly experienced valve company. Vastas uses its expertise to customize its products and its services according to its clients needs.

Vastas offers valve and actuator maintenance and repair services and its not limited with own brand but offered for all brand valve and actuators. Any service that can not be made on site can be offered at Vastas facility, including refurbishment and renewal of valves, actuators and spares.

VALVES FOR HYDROGEN APPLICATIONS

Vastas offers valves that are tailored to meet the specific needs of H2 and NG mixtures. In order to ensure optimal performance, Vastas takes into account various factors that may impact the performance of the valves.

1. Design

The potential for hydrogen attack, embrittlement and blistering are reduced by below design considerations;

- Large Radius design and uniform stress proven by FEA
- Minimising welding applications due to susceptibility of weld areas
- Avoid drainage to the atmosphere by means of relieving cavity to the pipeline.

2. Features

Features
Hydrogen is lighter than air, highly flammable and easily ignited. Its flame speed is about 7 times that of natural gas. Hydrogen burns in air with a pale blue, almost invisible flame. Unlike most gases, it heats up when depressurized, which, combined with the difficulty of seeing the flame, makes small leaks a serious risk of fire and injury. The following features are standard on Vastas valves and verified by testing.
Antistatic design
Fire safe design

3. Material Selection

Compatible metallic material selection is ensured considering end user and processing requirements. With the right choice and NDT materials provided to be

- Without surface and internal flaws or impurities
- Fine grained, homogenous, inclusion free microstructure
- Material acc. to NACE MR 0175
- Post weld heat treatment

4. Sealing for External and Internal Leakage

Hydrogen is colorless, odorless and highly explosive, has low viscosity, low molecular weight and is an asphyxiant. These characteristics make zero leakage a necessity. Soft seals are needed to have resistance to both RGD and ageing, and they should also be compatible with H2.

Body/bonnet sealing: Hard non-porous metal gasket

Seat sealing: O-ring or chevron packing

Seat sealing: Metal to metal with flexible disc & stellited seat

Soft seat in retainer

H2 compatible and non-permeable soft seals

5. Inspection & Tests

NDT for examination of valve parts

Low pressure Fugitive Emission(He) test for fully assembled valves

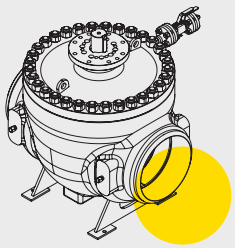
High pressure Fugitive Emission(He) test for fully assembled valves

High /Low /Dynamc gas pressure tests

6. Coating and Painting

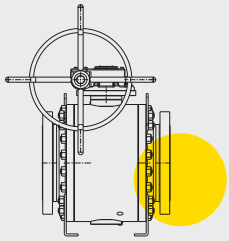
Vastas offers certified coating systems for above and under ground valves acc. to ISO 12944 and ISO 10290 from global manufacturers as carboline, jotun, hempel, TIB Chemicals etc. with in-house NACE certified operators and inspectors.

Products Range



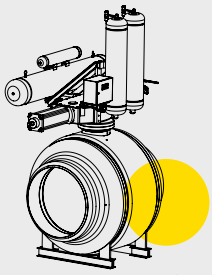
TOP ENTRY BALL VALVES

API 6D monogrammed
Safety Integrity Level (SIL)
Certified, ATEX, PED



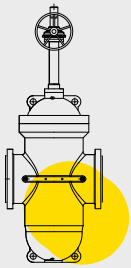
SPLIT BODY BALL VALVES

API 6D monogrammed
Safety Integrity Level (SIL)
Certified, ATEX, PED



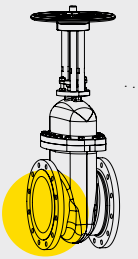
FULL WELDED BALL VALVES

API 6D monogrammed
Safety Integrity Level (SIL)
Certified, ATEX, PED



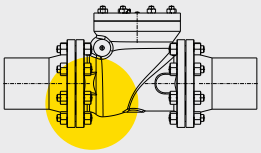
CONDUIT GATE VALVES

API 6D monogrammed
Safety Integrity Level (SIL)
Certified, ATEX, PED



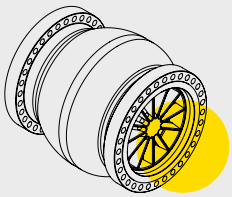
WEDGE GATE VALVES

API 600 monogrammed
Safety Integrity Level (SIL)
Certified, ATEX, PED



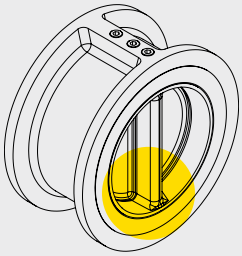
SWING CHECK VALVE

API 6D monogrammed
ATEX, PED



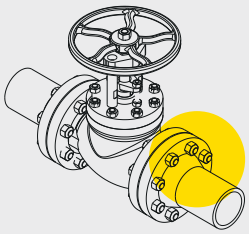
DUAL DISC CHECK VALVES

API 6D monogrammed
ATEX, PED



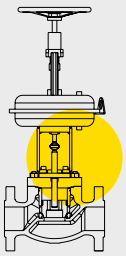
NOZZLE CHECK VALVES

API 6D monogrammed
ATEX, PED



GLOBE VALVES

BS 1873 / API 623
Safety Integrity Level (SIL),
ATEX, PED



GLOBE TYPE CONTROL VALVES

BS 1873 / API 623
Safety Integrity Level (SIL), ATEX,
PED

*Offered in full size range,
Class up to 600#

Carbon Steel, Low Temperature Carbon Steel, Low Temperature Alloy Steel, Low Alloy Steel, Stainless Steel and other special material upon request.

VALVES & ACTUATORS

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