

STÖHR
VALVES FOR EXTREMES



best for Hydrogen

A WORLD WITH GREEN ENERGY





STÖHR ARMATUREN

Fittings for the future Hydrogen value chain

The industry today

Today, hydrogen represents a modest fraction of the global, European and national energy mix. What's more, hydrogen is still largely produced from fossil fuels – usually natural gas or coal – which results in the release of millions of tonnes of carbon dioxide (CO₂) each year. If hydrogen is to contribute to climate neutrality, it will need to achieve a far greater reach and its production must become fully decarbonised.

Interest in hydrogen has peaked at various times in the past, but its sustained use has never really taken off. Today, technological developments, the rapid decline in the cost of renewable energy and an urgent need to dramatically reduce greenhouse gas emissions all combine to open up new possibilities for hydrogen use.

Green energy and future needs

Hydrogen is enjoying a renewed rapid growth in attention, both in Europe and around the globe. With the ability to be used as feedstock, fuel and for energy carriage and storage, the gas has many possible applications throughout industry, transport and power sectors. Most importantly, hydrogen emits no carbon dioxide and almost no

air pollution in use – making it an effective solution when it comes to decarbonising industrial processes and economic sectors where carbon reduction is both urgent and hard to achieve.

It's clear that hydrogen has an essential part to play in supporting international commitments to reach carbon neutrality by 2050 and in the global effort to implement the Paris Agreement while working towards zero pollution.

Our mission

STÖHR is committed to having a positive impact on the environment and offers solutions for both stationary and mobile hydrogen-based applications. Our components meet the requirements at all medium temperatures, valve sizes and pressure levels.

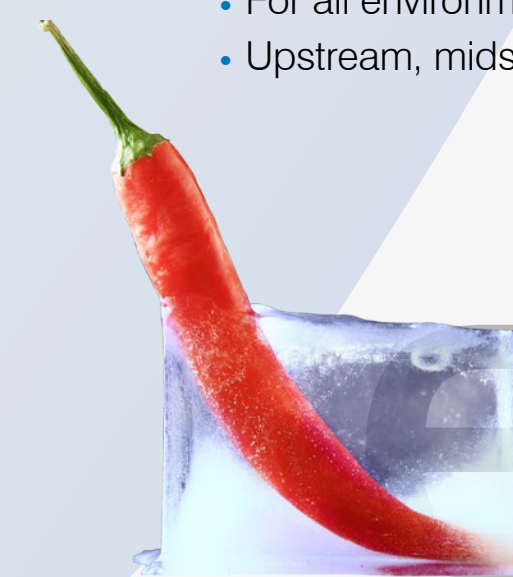
Whether you're working on stationary applications for infrastructure, filling stations, or decentralised energy supply systems or perhaps mobile applications for aviation, maritime, automotive, aeronautics or railroad, we're open to your challenge! Get in touch to discuss your design concept and we'll work with you to design, prototype and manufacture the fittings and installations you need for mass production.

best for hydrogen

let's go for it!

STÖHR ARMATUREN stand for

- Fittings for gases since 1938
- Experienced in cryogenics since the 1960s
- Quality system based on ISO 9001:2015
- High product safety in operation
- High reliability, low maintenance
- Long durability
- Designed and Made in Germany
- High leak tightness to the environment
- Lowest heat loads to the medium
- Highest pressure levels
- From cryogenic to ambient and even hot medium temperatures
- For all environmental and service conditions
- Upstream, midstream and downstream applications



meet the
Extremes



Our markets of hydrogen applications,
today and tomorrow

Applications equipped with fittings from STÖHR ARMATUREN

4 | INFRASTRUCTURE

5 | AUTOMOTIVE

6 | RAILROAD TECHNOLOGY

7 | SHIP, YACHT, FERRY, NAVAL

8 | AVIATION

9 | AERONAUTICS

best for: production | transportation | storage | filling | usage





best for H₂-infrastructure

Hydrogen Infrastructure Applications

Storage and distribution:

LH₂/GH₂ shut-off valves, check valves and filters for gas storage and distribution centers.

Transport:

Mobile tank trailers for H₂-transportation
Hydrogen truck trailers.

Filling stations:

H₂ fuel station for high or low pressure gas storage.

Intermediate Hydrogen storage

Buffer storage for green energy.



let's have a call
+49.8231.349052

STÖHR
VALVES FOR HYDROGEN

figure: sizes not in scale, valves exemplary



360 bar H₂ globe valve



900 bar LH₂ check valve



900 bar LH₂/GH₂ globe valve hydraulic



LH₂ manual globe valve

Balanš
7100

Univerš
1200



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best for: production | transportation | storage | filling | usage



Hydrogen Automotive Applications

Onboard hydrogen powered fuel cell systems:

Supply line from LH₂ tank to fuel cell.

Mobile tank shut-off valves with TPED certificate actuated by handwheel, electric or pneumatic drive.

Hydrogen filling stations

Stationary tank shut-off with electric, pneumatic or hydraulic actuation and check valves.



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STÖHR₂
VALVES FOR HYDROGEN

figure: sizes not in scale, valves exemplary



Cryogenic pneumatic globe valve



Cryogenic pneumatic globe valve with integrated check function



Cryogenic filter

Stick₂
900



Hydrogen Rail Applications

Onboard hydrogen gas supply:

Tank shut-off valve.

LH₂ and GH₂ shut-off, control, check valves and filters for fuel cell application.

Stationary filling station equipment:

Tank shut-off valve.

LH₂ and GH₂ shut-off, control, check valves and filters.



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STÖHR
VALVES FOR HYDROGEN

figure: sizes not in scale, valves exemplary



LH₂ globe valve

Balanš
7100



LH₂ upside-down globe valve

Freeš
1200



LH₂ manual globe valve

Univerš
1600



Hydrogen Maritime Applications

Onboard hydrogen gas supply:

LH₂ and GH₂ from tank to fuel cell, also applicable for Ammonia and Methanol.

Onboard gas supply for submarines:

GH₂ and LO_x supply from tank to fuel cell
Cabin oxygen supply

Hydrogen harbor equipment:

Use of valves mounted on mobile filling crane.
Stationary LH₂, Ammonia or Methanol loading facilities for tankers, yachts, ferries and submarines.



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VALVES FOR HYDROGEN

figure: sizes not in scale, valves exemplary



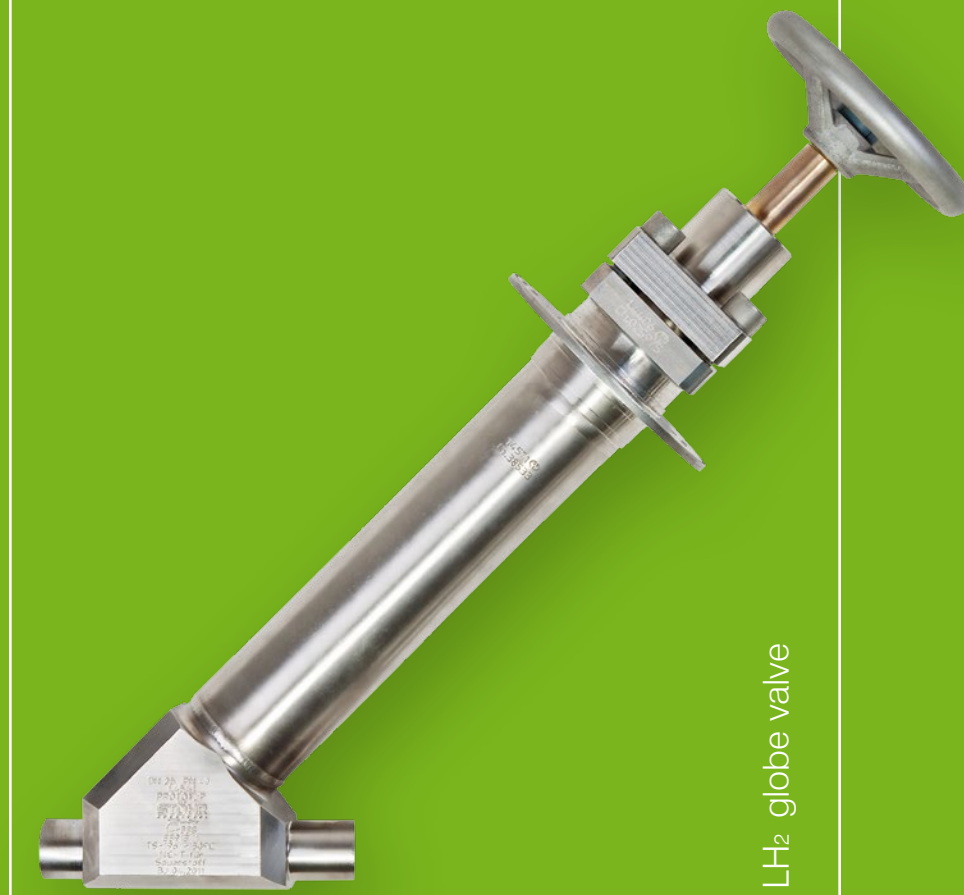
Univerš
I200

Manual cryogenic globe valve with DNV approval and stamp, available nominal sizes from DN 10 to 100



Freeš
I200

LH₂ upside-down globe valve with hydraulic drive



Ellipš
I700

LH₂ globe valve



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best for: production | transportation | storage | filling | usage



Hydrogen Aviation Applications

Onboard hydrogen powered fuel cell systems:

Tank valves.
Globe valves after tank.
Supply line from LH₂ tank to fuel cell.

Hydrogen powered gas engines:

Use of LH₂ for direct combustion in adapted engines.
Supply line from LH₂ tank to the engine.

Airport hydrogen supply:

Hydrogen storage tanks valves.
Distribution to the aircraft.
Supply for other airport vehicles.



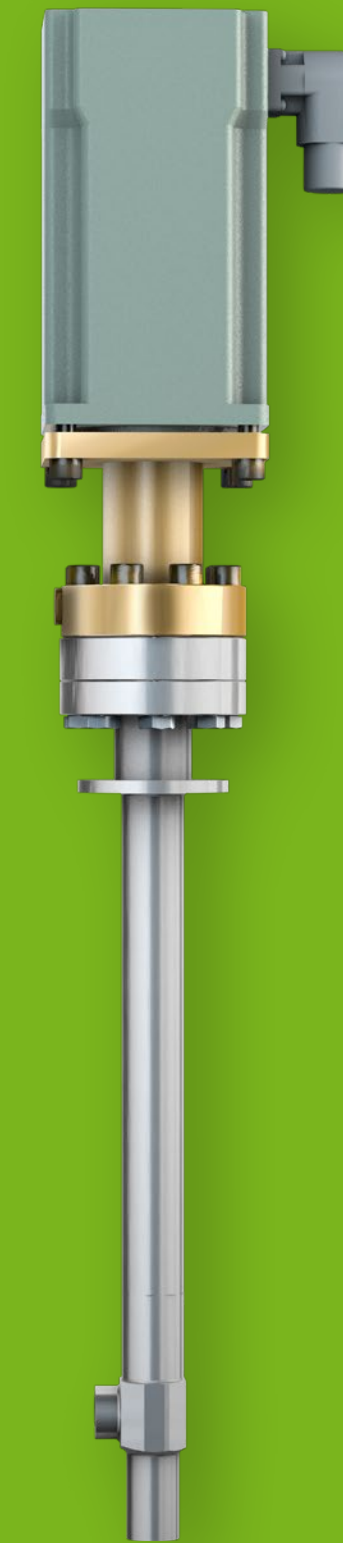
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VALVES FOR HYDROGEN

figure: sizes not in scale, valves exemplary



Cryogenic control valve with electric actuator



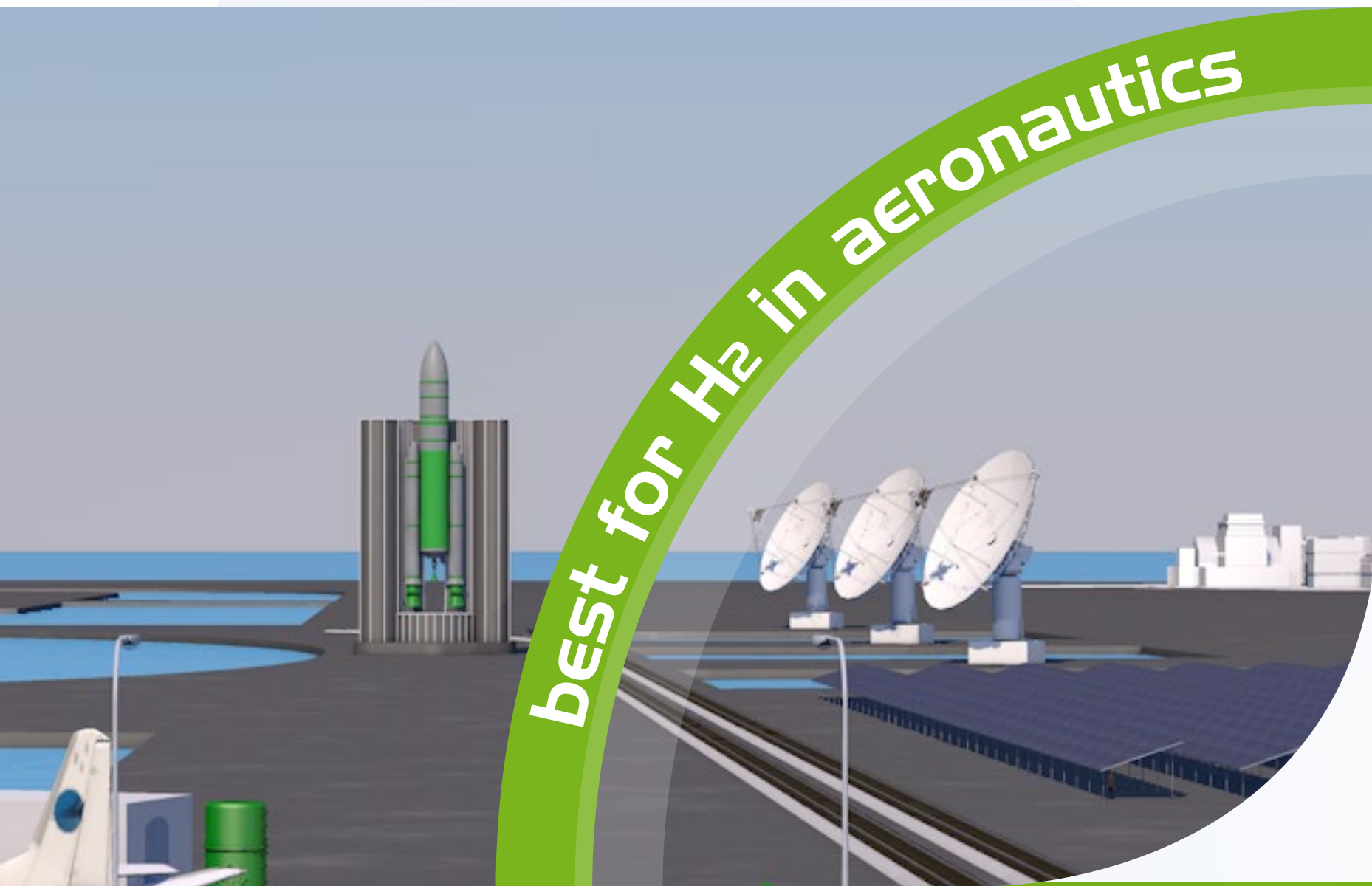
Cryogenic globe valve for vacuum-jacketing



Cryogenic globe valve in upside-down execution

Stick
900

best for: production | transportation | storage | filling | usage



Hydrogen Aeronautic Applications

Ground based infrastructure:

Rocket engine test benches.
Storage farms.
Transport lines.
Fuel filling for launchers.
Mobile tank globe valves.



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figure: sizes not in scale, valves exemplary



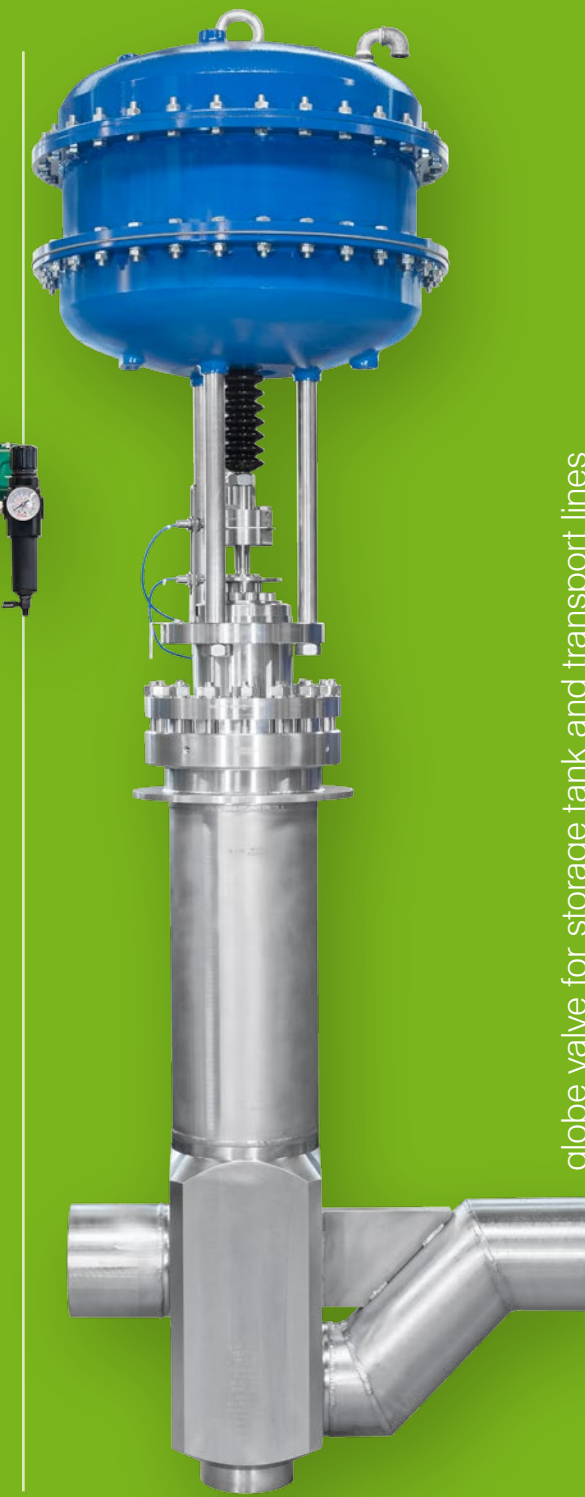
tank shut-off valve

Locks



engine test bench high-pressure valve

Balans
7100



globe valve for storage tank and transport lines

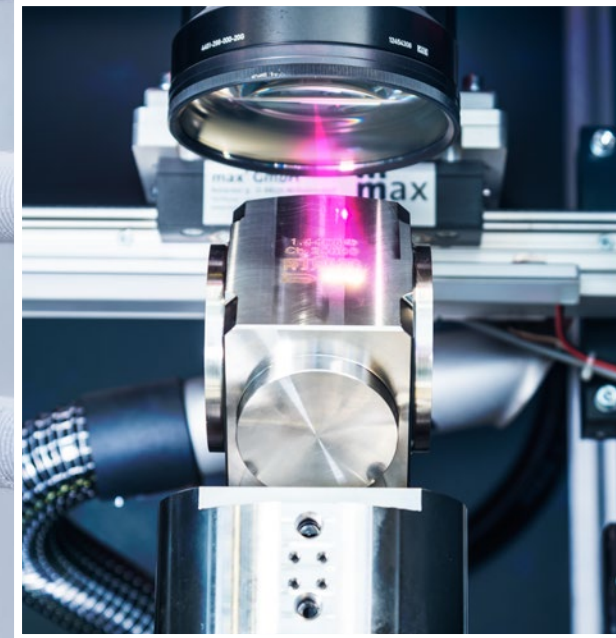
Univer
1600



globe valve for launcher filling



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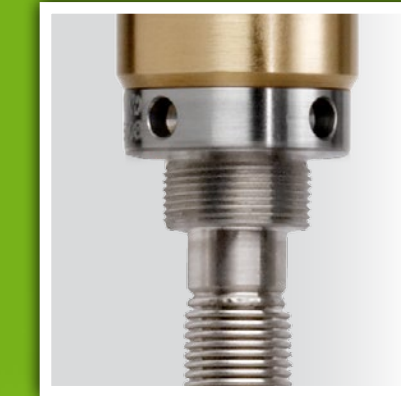


STÖHR technology in brief

Fittings	Globe valves and control valves, all bellow sealed with 2nd sealing to the environment, Check valves, Filters, Blow-off valves, Valve blocks
Media	Hydrogen and other gases or liquids such as He, O ₂ , CH ₄ , NH ₃ , CH ₃ OH
Sizes	Nominal diameters ranging from DN 2 (<1/8") to DN 300 (12")
Temperatures	Cryogenic: 2 K to 243 K (-271 °C to -30 °C) Ambient: 243 K to 323 K (-30°C to + 50° C) Hot: up to 676 K (+400 °C)
Pressure	All pressure levels up to ultra-high pressure of 1,000 bar (100 MPa / 15.000 psi)
Tightness	To environment: He leak tightness of 10E-8 mbar*liter/s At seat: He leak tightness of 10E-6 mbar*liter/s
Materials	Full stainless steel material, 316L family or special steel
Certifications	STÖHR ARMATUREN QM based on ISO 9001:2015, Pressure Vessel Regulation and AD2000-W2 H0, Explosion proof for flammable media with ATEX certificate



Univerš
800 - 1600



Stickš
900



Freeš
1200



Ellipš
1700



Magroš
1500



Balanš
7100



Axiuš
1400



Lockš



Specialš

Our products for green energy
and for your project

Contact: Joseph Schnöll, Business Development

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FOR A WORLD WITH GREEN ENERGY



FREES 1200TD, LH₂ upside-down globe valve

WE TURN EVERYTHING
UPSIDE DOWN



Thank you for your interest

More to see on: www.stoehr-hydrogen.de

