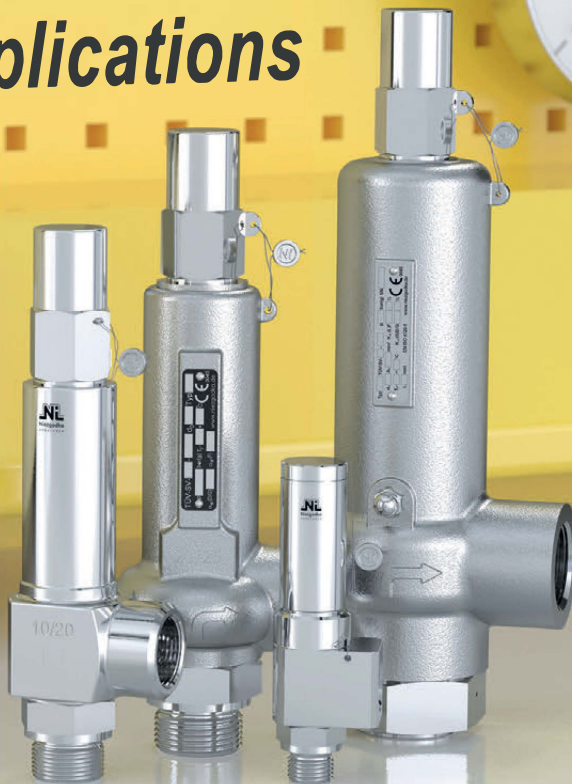


Safety valves *for Hydrogen applications*



Niezgodka

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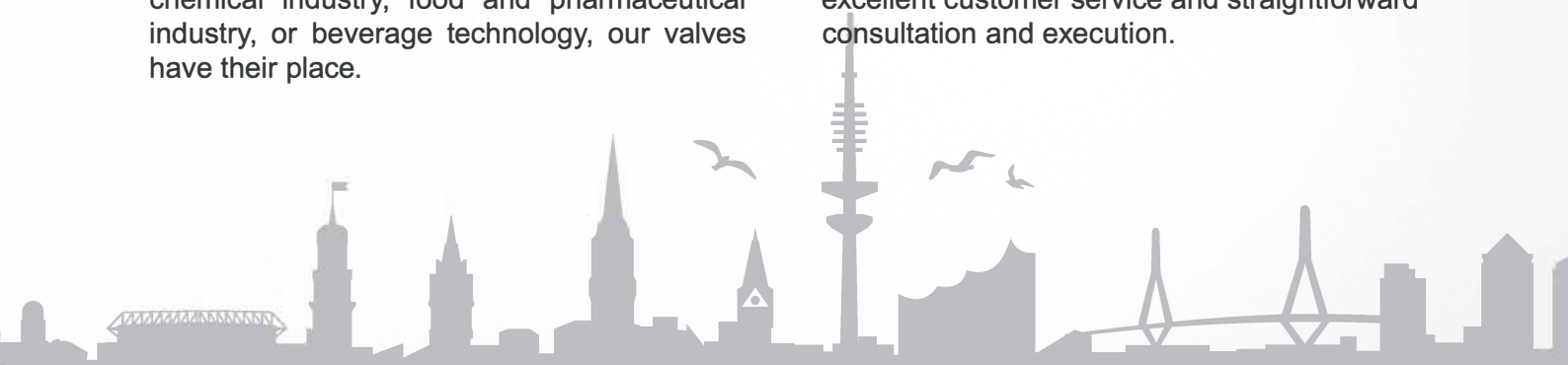
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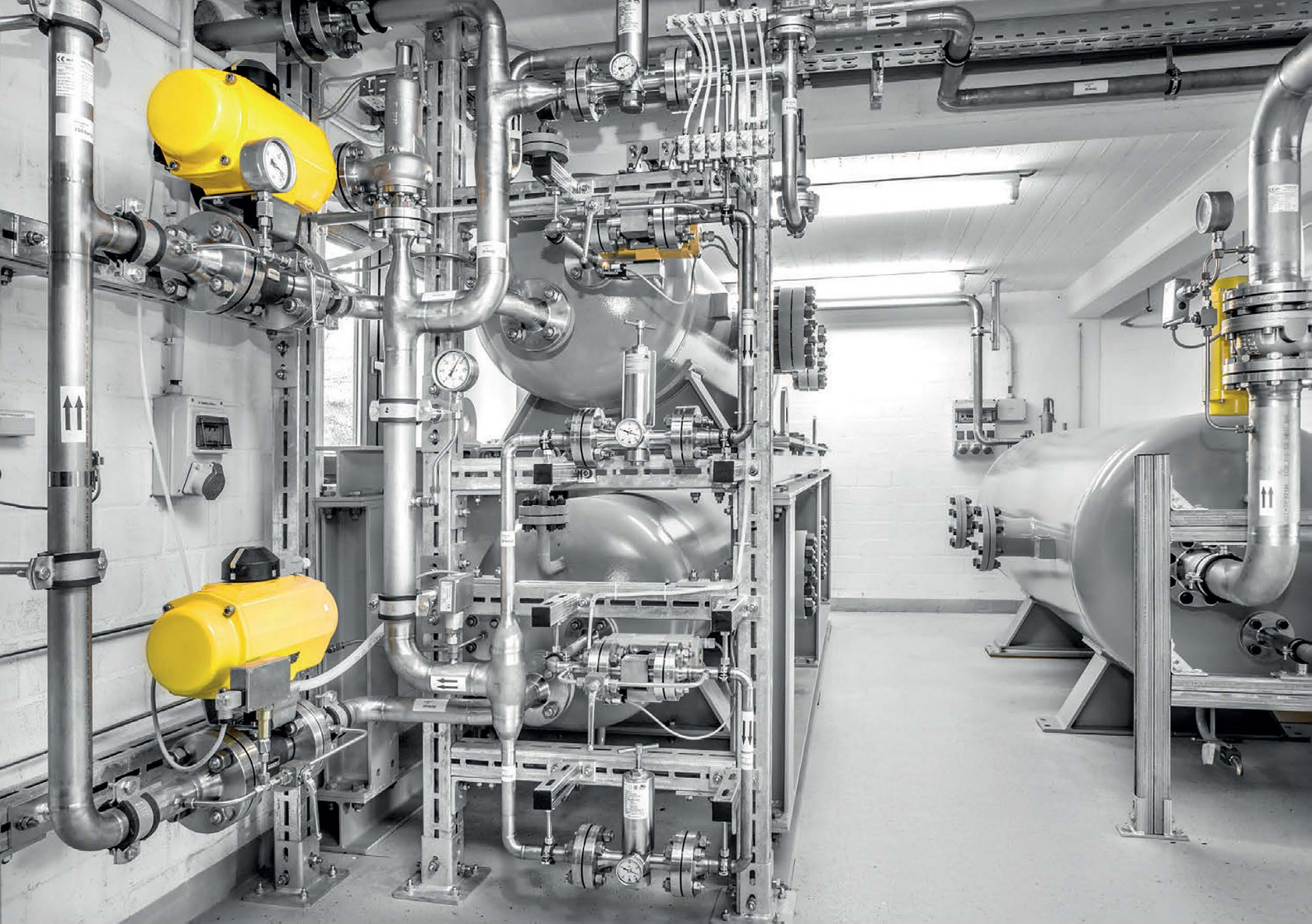


Niezgodka GmbH

Since 1967, we have been dedicated to the development and manufacture of high-quality and reliable safety and control valves. Our highest aim is to meet all functional and material requirements at the highest level. With over 50 years of experience and expertise, we are well equipped to find the optimum solution for you. Our product range covers almost every sectors of industry. Whether in the oil and gas industry, chemical industry, food and pharmaceutical industry, or beverage technology, our valves have their place.

They can also be used in cryogenic applications, water treatment, shipbuilding, equipment and apparatus manufacturing and compressor construction, with a wide range of valve types available. Whether dealing with liquids, gases or vapours, our valves are designed and approved for all conditions. Flat hierarchies, short lines of communication and a long-standing, cohesive team ensure excellent customer service and straightforward consultation and execution.





A vertical industrial pipe with various valves and fittings is mounted on a light-colored wall. The pipe is metallic and has several horizontal and vertical connections. A pressure gauge is visible on one of the fittings. The background is a plain, light-colored wall.

Challenges in hydrogen applications

The use of hydrogen as an energy carrier is growing in importance in an environmentally conscious world. Hydrogen offers numerous advantages, including high energy efficiency and low emissions. However, special safety measures are required to safely utilise the full potential of this technology. This is where safety valves come into play. They are critical for ensuring the safe operation of hydrogen systems.

Safety valves protect against overpressure, overheating and other potential hazards that can occur during the storage, distribution and utilisation of hydrogen. In this context, high-quality and reliable safety valves are essential to safeguard the integrity of the hydrogen infrastructure and ensure the safety of people and the environment.

The use of safety valves in hydrogen applications presents a number of specific challenges:

Material selection and compatibility

Hydrogen can embrittle many materials that are commonly used in valves. This leads to material failure and leaks. Hydrogen can have a corrosive effect in combination with certain materials and under certain conditions. The valve materials must be corrosion-resistant. Suitable materials must be selected to counteract this embrittlement.

Tightness

Hydrogen molecules are very small and can cause leaks through tiny gaps or diffuse through materials. It is crucial that the valves are tight in all areas to prevent hydrogen from escaping.

High Pressure and Temperature

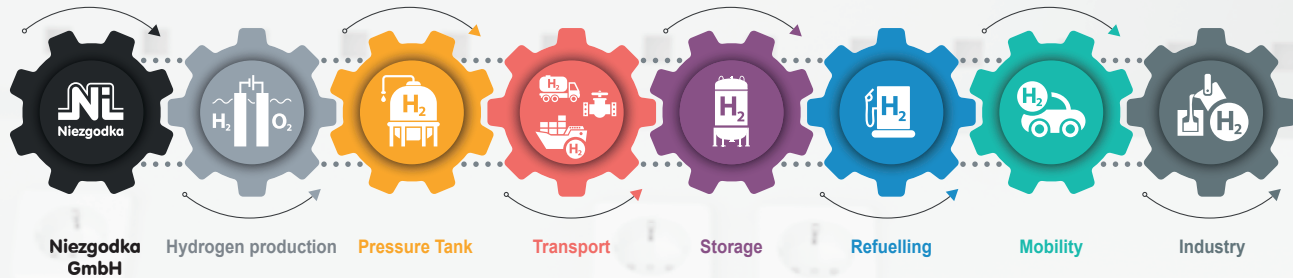
Hydrogen applications often require operation at high pressures and temperatures. Safety valves must be designed in such a way that they can withstand these extreme conditions.

Standards and regulations

There are specific standards and regulations for handling hydrogen that must be complied with. Safety valves must be designed and tested in accordance with these requirements.

These challenges require careful planning and the use of special materials and designs to ensure the safety and reliability of safety valves in hydrogen applications.

Safety valves for Hydrogen applications






Our valves can be used throughout the entire hydrogen process chain - from hydrogen production to compression stations and refuelling stations. We also cater to your specific application conditions in order to offer you the best technical and economic solution.

We are H2 ready





Type 140 Safety Valve

TÜV-SV-Nr.:	1067
	0,2 to 500 bar(g)
Medium:	D / G / F
	-200°C to 280°C
do Ø:	6 to 12,5 mm
	G 3/8 to G 3/4
Height:	185
Material:	1.4404, 1.4571, 1.4435, 2.4360, 3.7035




Type 140 is a safety valve manufactured from solid materials like 1.4404, 1.4571, 1.4435, 2.4360, 3.7035.

This type ensures a high tightness up to 500 bar(g) set pressure.

High flexibility to tailor the material to individual customer requirements is provided by production.





Type 50 Safety Valve

TÜV-SV-Nr.:	1141
	0,5 to 100 bar(g)
Medium:	D / G / F
	-200°C to 280°C
do Ø:	6 mm
	G 1/4 to G 3/8
Height:	100 mm
Material:	1.4404, 1.4571, 1.4435, 2.4360

Type 50 is a safety valve with a height of 100 mm and a maximum set pressure of 100 bar(g).




This type is an optimum solution for protection in the field of hydrogen production and electrolysis processes, even in the tightest of spaces.

Type 21 is a high pressure safety valve up to 1.100 bar(g) set pressure according ISO EN 4126-1. Due to the low leak rate in the seat/cone area (max. 10^{-6} mbar l/s), it is suitable for the use of volatile media (hydrogen).

Type 21 Safety Valve	
TÜV-SV-Nr.:	1036
	300 to 1100 bar(g)
Medium:	D / G / (F to 250 bar)
	-60°C to 200°C
do Ø:	6 to 12,5 mm
	MP C+T Port Type 9M 13/16UN
Height:	276 mm
Material:	1.4571 / 1.4581



Type 10 covers a set pressure range from 0.1 to 500 bar(g) with highest tightness by using different sealing materials. In addition to the standard version, the design with a back-pressure compensating metal bellow offers a high degree of flexibility.

Type 10 Safety Valve	
TÜV-SV-Nr.:	847 / 878
	0,1 to 500 bar(g)
Medium:	D / G / F
	-200°C to 280°C
do Ø:	6 mm
	G 3/8 to G 1 1/4
Height:	185 mm
Material:	1.4571 / 1.4581



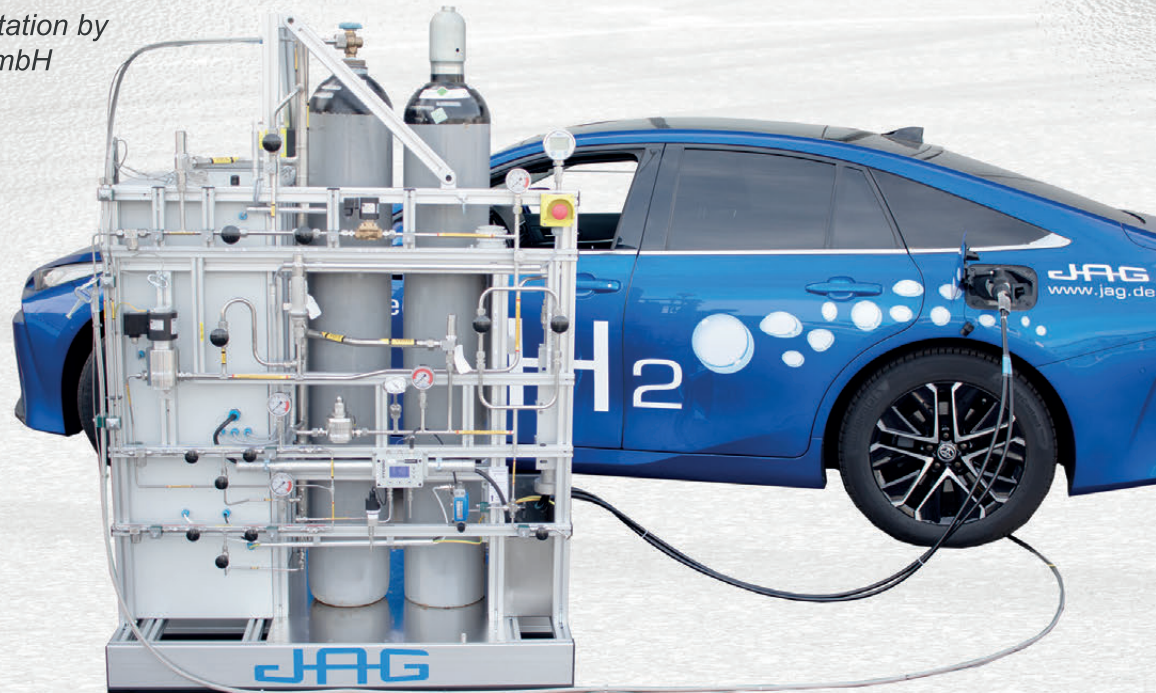


Highest demands on product and material

Niezgodka safety valves on duty

Since many years our safety valves are part of hydrogen applications. From production in process plants, compression with high-pressure compressors, to distribution in tanks, pipelines and refuelling stations all over the world.

*Hydrogen refuelling station by
JA-Gastechnology GmbH*





High demands on tightness

The high tightness of a safety valve is of crucial importance in hydrogen applications, as hydrogen, as the smallest and lightest chemical compound, poses particular challenges in terms of design and sealing.

To ensure the integrity of hydrogen systems and minimize media loss, it is essential that safety valves meet the highest tightness requirements. This is the only way to ensure that there are no uncontrolled gas leaks during the storage, transport or use of hydrogen.

For Hydrogen applications we use a soft disc made of **FPM** or **PEEK** depending on the set pressure.

The valve design achieves a **leakage rate** of $\leq 1 \times 10^{-6} \text{ mbar x l/s}$ acc. DIN EN 1779.

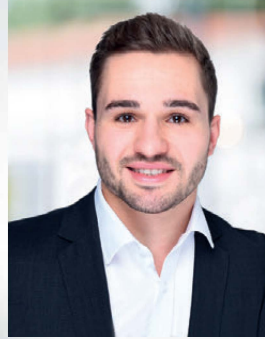


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