



HEROSE

Built to Endure

**Built to
Endure**

5	THIS IS US	
7	HEROSE GROUP	
9	FACTS & FIGURES	
13	BUILT TO ENDURE	
15	QUALITY	
19	SERVICE	
		23
		LNG
		25
		HYDROGEN
		27
		INDUSTRIAL GASES
		31
		LIQUIDS, POWDER & GRAINS
		31
		COMPRESSED AIR & STEAM
		37
		PRODUCT VARIETY
		43
		CONTACT & IMPRESSUM



Dear readers.



Dirk M. Zschalich,
Managing Director



Jens Silligmüller,
Managing Director

Built to Endure: This claim applies to our special valves as equally as it does to us as the HEROSE group. Since foundry master Theodor Rose has laid the foundation for our success story with his valve factory in 1873, an enormous number of events have happened: In the vicissitude of history, HEROSE has changed and transformed itself continuously. We have survived crises, used chances and created prospects for ourselves. We developed new products and opened up future markets. One thing has always remained the same: Our great passion for quality and innovation. For 150 years, this is what we have been standing for.

HEROSE sets standards. We are one of the world's leading manufacturers of safety valves for industrial applications and number one in cryogenics. We develop, build and sell valves which are successfully used all over the world. Our customers expect our valves to prove themselves even under extreme conditions. We work together to find future-oriented solutions for the toughest demands.

Learn more about what makes us who we are. Get to know us: our philosophy, our innovative products and the highly motivated HEROSE team.

A handwritten signature in blue ink, appearing to read 'Dirk M. Zschalich'.

A handwritten signature in blue ink, appearing to read 'Jens Silligmüller'.

WE AT HEROSE

At home in Bad Oldesloe, **worldwide** in use.

HEROSE is one of the world's leading manufacturers of special valves. Quality is our tradition – we build our future on it. Our headquarter is in Bad Oldesloe, our perspective is global: Innovative solutions for customers with highest demands on all continents.

Valves have been our profession for 150 years. Our success story as an owner-managed company began in 1873 in Hamburg-Altona. The foundry and valve factory Th. Rose produced, among other things, beer taps and bathroom fittings, but especially bronze valves for maritime shipping, which already back then had to meet the highest safety requirements.

For 45 years we have been the expert for cryogenic valves and safety valves. We use all our know-how and broad experience every day to develop new products that master even the most challenging situations.

Between the North Sea and the Baltic Sea, Bad Oldesloe has been our home for more than 100 years. This is where the threads of our worldwide network of branches, subsidiaries and partners come together. The location has been expanded systematically for 25 years and is always at the state of the art. With a cutting-edge production facility, our own innovative development and construction, as well as excellently equipped testing facilities, we are optimally positioned for the future.






HEROSE

HEROSE GROUP

Always close at hand.

All around the globe, customers from industry and economy build on our innovative and reliable valves for a wide range of products.

With four manufacturing plants and six subsidiaries, we are operating for you on three continents and in four time zones. In cooperation with external sales representatives and authorized service partners, we create a strong, international network that makes our products and services globally available. This ensures short delivery routes and fast service, so that we are always close to you.

Our claim: worldwide secure products in 100 percent HEROSE quality.



For 150 years, we at HEROSE have been ensuring safety in handling technical gases, vapors and liquids.

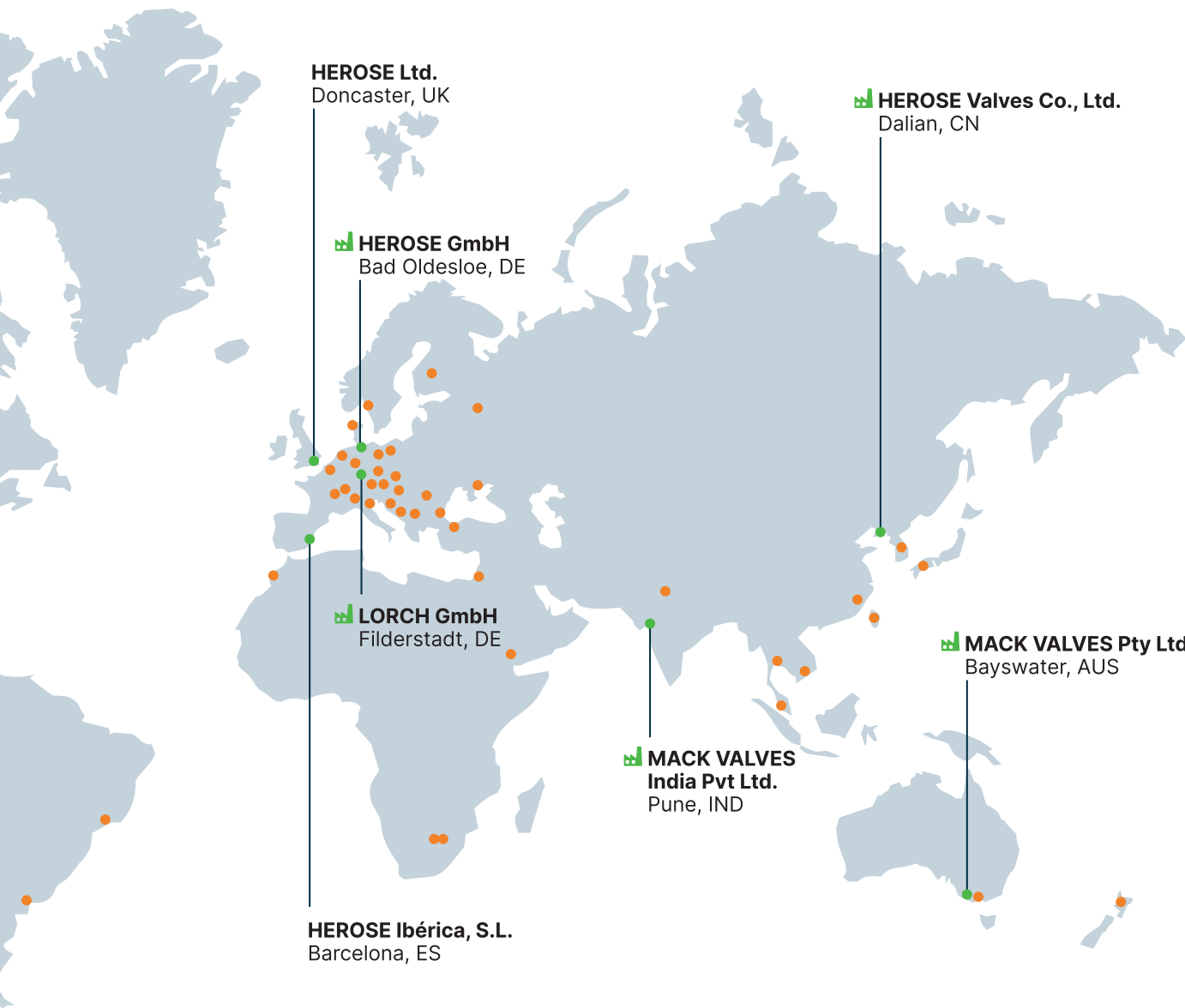


Critical and important industries are supported by us at MACK VALVES with technical valves.



LORCH concentrates primarily on the production of safety valves for industrial applications.





HEROSE Ltd.
Doncaster, UK

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Bad Oldesloe, DE

LORCH GmbH
Filderstadt, DE

HEROSE Ibérica, S.L.
Barcelona, ES

HEROSE Valves Co., Ltd.
Dalian, CN

**MACK VALVES
India Pvt Ltd.**
Pune, IND

MACK VALVES Pty Ltd.
Bayswater, AUS



FACTS AND FIGURES

150 years speak volumes.

Quality made in Germany by HEROSE: When it comes to safety and performance of our valves, numbers speak a clear message: 150 years of HEROSE, that means 150 years of know-how and experience.

Year by year, more than half a million of valves are shipped from our plants, almost 80 percent are exported and reach customers in more than 90 countries. Whether cryogenic liquefied technical gases or LNG, whether steam, compressed air or liquids, powdery or granular media, customers from the most varied industries rely on HEROSE every day.

Behind the numbers are the people at HEROSE: more than 500 highly qualified employees and more than 60 certified partners worldwide work hand in hand for our quality promise: around the clock, highly motivated and unconditionally.

550⁺_K

valves produced
per year



owner-managed
company

500⁺

employees
worldwide

150

years of experience



global
sales network

95⁺_{MIO.}

annual turnover

61⁺

international partners



5 production facilities

90⁺

global markets

EXTREME CONDITIONS

A rolling stone **gathers no moss.**

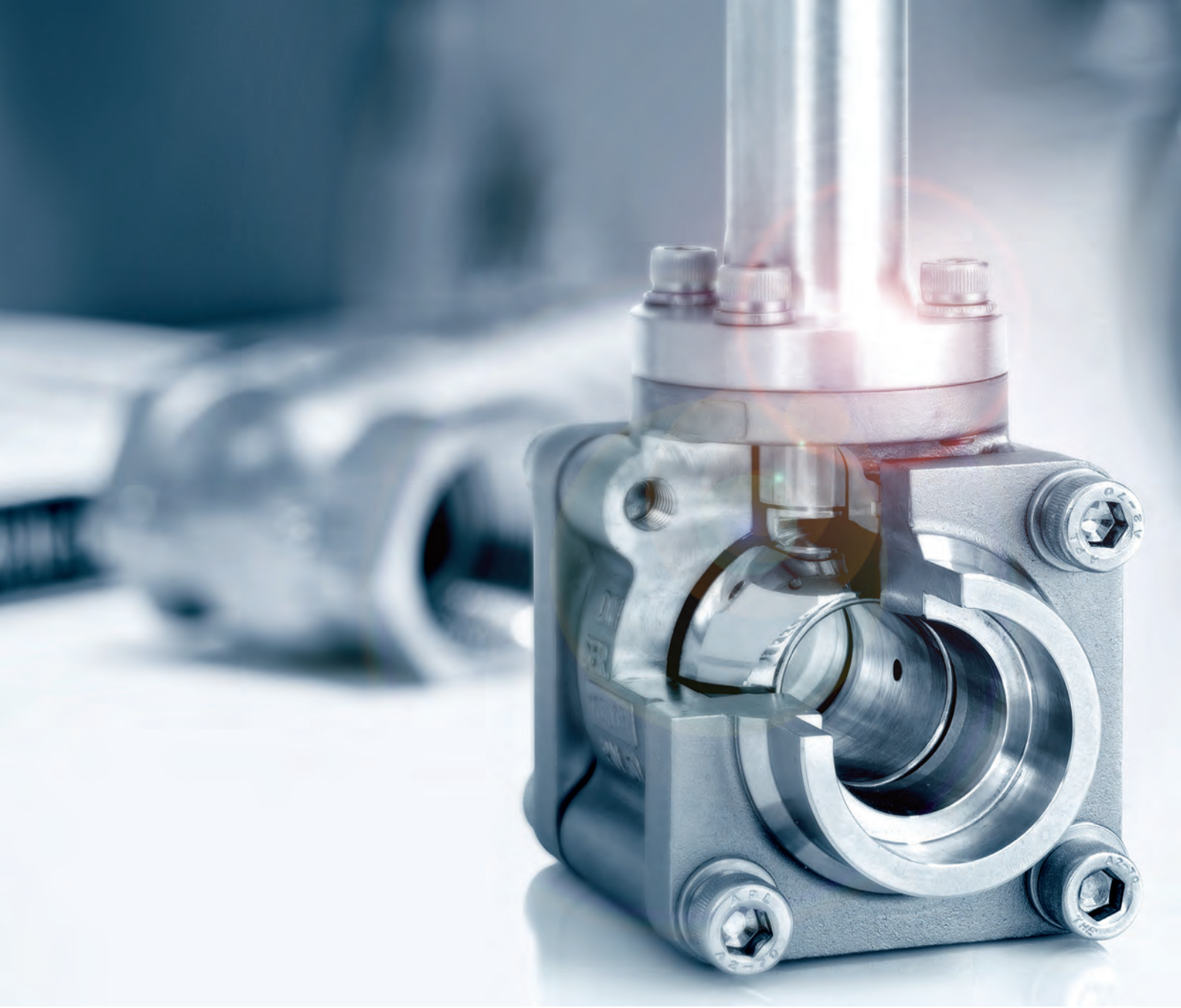
For this reason, our engineers are constantly searching innovative solutions - e.g. against the aggressive salt in seawater desalination plants. HEROSE safety valves made of seawater-resistant bronze show no signs of wear, even after many years.



BUILT



TO ENDURE





BUILT TO ENDURE

Products for the highest demands.

Endurance, precision and reliability: No matter whether at the absolute zero point or at maximum temperature, whether under extreme pressure or in sensitive surroundings, a lot depends on our valves. They must prove themselves permanently, are required around the clock and deliver perfect performance in every respect, even under the most difficult conditions.

The HEROSE products withstand a lot and this for a felt eternity. There is no room for mistakes or carelessness, but rather 100 percent high-quality work is required. We face this challenge daily. Together with our customers and partners, we therefore push boundaries and break new ground, always in search for innovative, practice-oriented solutions for constantly new applications.

Built to Endure: We build valves that are long-lasting and resistant. Sustainable, future-oriented thinking determines our actions. It includes our quality suppliers, with whom we maintain long-term relationships, as well as the service that carefully and competently supports our customers.





BUILT TO ENDURE

Quality that endures.

Quality is the essence, because when it depends to it, our safety valves are there to help. This is what our teams are working on world-wide. We are transparent and comprehensive in our approach. Our concept ranges from the selection of raw materials to careful quality and functional testing to certified service. But the most important aspect are the people at HEROSE. Where quality and safety are concerned, they know no compromise.



Research in our own testing facility

An extensive water test station and an air test station with a high-pressure ball reservoir allow us to conduct most of the tests on our valves by ourselves under extreme conditions.



High quality raw materials

During our incoming goods inspection, we spot check all parts to ensure that each batch complies with our specifications. Pressure-bearing parts are tested for strength and density before assembly.



Innovative and practice-oriented solutions

Our HEROSE innovation includes a generation of valves that can be used at extreme temperatures between -270°C and $+400^{\circ}\text{C}$, special valves for air separation and valves for the liquefaction of natural gas (LNG).



Production with the latest machines

Our skilled staff manufactures our products using the most modern CNC machines, degreasing them with in-house developed equipment and using laser-controlled engraving machines.



OVER 170 APPROVALS WORLDWIDE

Our strategy: **Top quality.**

In plants and technical installations, our products are just a small wheel in the gearbox of the whole. But an important wheel, because in most cases the functioning and safety depend on them. That is why we pursue a straightforward strategy: top quality. We document this with over 170 certifications and classifications for worldwide application.



Certified quality management

Our slogan is "Quality control from design to delivery to the customer". The quality management system was already introduced in 1991 and is TÜV certified according to DIN EN ISO 9001:2015 certified.

Worldwide service and support

Service and support are provided at our headquarter in Bad Oldesloe, Germany, and through multiple sales representatives around the world.

EXTREME CONDITIONS

Under zero we are the hero.

Safety valves and control valves from HEROSE set worldwide standards in cryogenic technology. With ease of maintenance and durability. And with the claim to be made for you.

BUILT

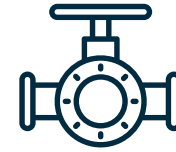
A large, sculptural iceberg with a deep, curved opening, set against a deep blue background. The ice has a textured, crystalline appearance with various cracks and facets. The lighting is dramatic, highlighting the edges and the interior of the opening.

TO ENDURE

CRYOGENIC LIQUEFIED NATURAL GAS

Proven solutions for **LNG requirements.**

Natural gas is liquefied at a temperature of -161°C and enables this versatile fuel to be supplied without depending on pipelines. We use our many years of experience in the field of industrial air gases to provide valves which are optimised for LNG applications. If required, fire safe according to EN ISO 10497.



PROCESSING

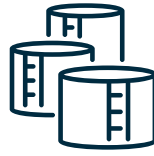
To provide customers with natural gas in different aggregate states according to their needs, more and more decentralized liquefaction and regasification plants are being built – HEROSE supplies a variety of valves to meet the different process requirements.





FUELING

The use of LNG as fuel for ships has considerable environmental advantages – lower emissions of carbon dioxide, sulphur dioxide and nitrogen oxides. We offer a wide range of valves for marine installations with extreme demands with re-gard to fire safety. In addition, we have developed complete solutions for the associated infrastructure for storage and transportation of LNG.



STORAGE

Cryogenic liquefied natural gas is stored in tank storage facilities with different capacities. HEROSE valves have proved themselves in many tank storage filling and removal lines, including safety-relevant valves, which are fire safe approved according to EN ISO 10497.



TRANSPORT

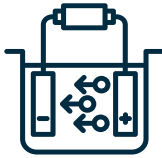
The transport of LNG from the LNG storage facilities to the user's satellite stations is handled by special trailers. Due to the frequent filling, transporting and discharging, they are confronted with the highest loads. HEROSE supplies the appropriate shut-off valves for liquefied natural gas according to DIN EN 12567.

RENEWABLE ENERGIES

The **hydrogen age** has started a long time ago.

The geopolitical situation has meant that hydrogen is no longer a topic of the future, but a very topical issue of the present. Hydrogen technologies are important core elements to achieve the energy transition and to decarbonise industry and mobility. Renewable hydrogen is supposed to replace fossil fuels. The technologies are available and many plans are in place to build the hydrogen infrastructure for production, import and transport.





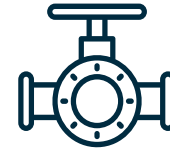
PRODUCTION

Electrolysers produce hydrogen and oxygen from water using renewable electricity. HEROSE safety valves accommodate the output from 1 to 100 MW electrolyser capacity, both for hydrogen and oxygen. Possible set pressures range from 0.5 to 55 bar and up to 550 bar and more when the gases are compressed further.



TRANSPORT & STORAGE

Hydrogen is stored and transported in gaseous form at 200 to 700 bar in pressure vessels or in liquid form at -253°C in special cryotanks. HEROSE's FullX top entry valve is suitable for cryogenic temperatures of -255°C (-427°F) and below. With a wide range of sizes and options, it can be used for most tasks in hydrogen liquefiers, storage tanks and trailers.



FUELLING

To fill the hydrogen tanks in vehicles such as trucks, buses and trains in short time, the hydrogen flow rate must be much higher than in passenger cars. With a flow capacity of up to 1,750 kg/h and a pressure of up to 550 bar and more, the HEROSE safety valves are the ultimate safety device in case something unexpected happens and discharge the hydrogen safely.



CRYOGENIC LIQUEFIED INDUSTRIAL GASES

In the **cryogenic sector**,
our experience is a big plus.

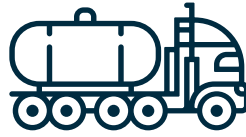
Cryogenic liquefaction reduces the volume of industrial gases by up to 600 times, enabling economical solutions for transport and storage. Our expertise in the development and manufacture of cryogenic valves guarantees maximum process reliability in all handling of industrial gases. All parts are automatically degreased and thus meet the very highest safety requirements – even for oxygen service.





PROCESSING

For the industrial production of high purity nitrogen, oxygen, argon and other air gases, the individual air components are separated using a thermal process in air separation plants. The necessary repair and maintenance work in the Cold Box is greatly simplified by the use of HEROSE top entry valves.



TRANSPORT

Industrial gases are liquefied at cryogenic temperatures and transported in special trailer from the air separation plant to the customer. Thanks to lightweight HEROSE valves, the payload can be increased.



STORAGE

Depending on the quantity cryogenic liquefied air gases will be in stationary storage tanks from 3,000 to 100,000 l. Compact filling modules from HEROSE provide a convenient and safe handling during the filling process.





BUILT TO EN

EXTREME CONDITIONS

Under **pressure**
we work best.

Our high-performance valves can best display their outstanding qualities under pressure – for example, our cryogenic shut-off valves easily safeguard pressures of up to 50 bar.

ENDURE

INDUSTRIAL APPLICATIONS

Reliable even under **challenging conditions.**

The operating location and conditions can be a major challenge for any technical installation: Weather conditions, seawater or powdery and granular media are a continuous test for the technology. Our development department faces these challenges with quality and precision.





LIQUIDS

Seawater desalination plants are used on cruise ships, among others, to obtain drinking and operating water. Our HEROSE safety valves are made of seawater-resistant bronze and are therefore suitable for a wide range of applications.

- › Waste water treatment
- › Seawater desalination plants
- › Fire extinguishing systems



POWDER & GRAINS

Silo trailers for the transport of dusty and granular media became a European success model. One of the reasons for this success is the HEROSE safety valve for securing the pneumatic discharge. Thanks to its robustness, the valve also operates perfectly under extreme conditions of use.

- › Food industry
- › Animal feed
- › Wood
- › Cement

INDUSTRIAL APPLICATIONS

Highly convincing performance under pressure.

Maximum safety is the objective of our development and production. Especially when it comes to the safety of people. Therefore, we investigate the reliability of our products in tests in particular extreme situations. Not without a reason is the safety valve type 06219 from HEROSE installed in many bullet trains. It protects the pressure between compressor and pressure vessel against impermissible exceeding in the braking system.

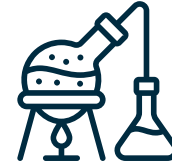




COMPRESSED AIR & GASES

Stationary as well as mobile compressed air is provided by compressors. HEROSE safety valves secure systems up to 500 bar and offer our customers solutions for different applications.

- › Compressors
- › Industrial plants
- › Municipal vehicles
- › Brake systems



STEAM

Liquids can be separated by the distillation process with the addition of heat. One important criterion is the surface quality of the materials used. Dependent on the application and type of sealing materials, HEROSE offers the use of stainless steel springs and the option of plating valves with nickel.

- › Distillation plants
- › Sterilizers/fermenters
- › Autoclaves



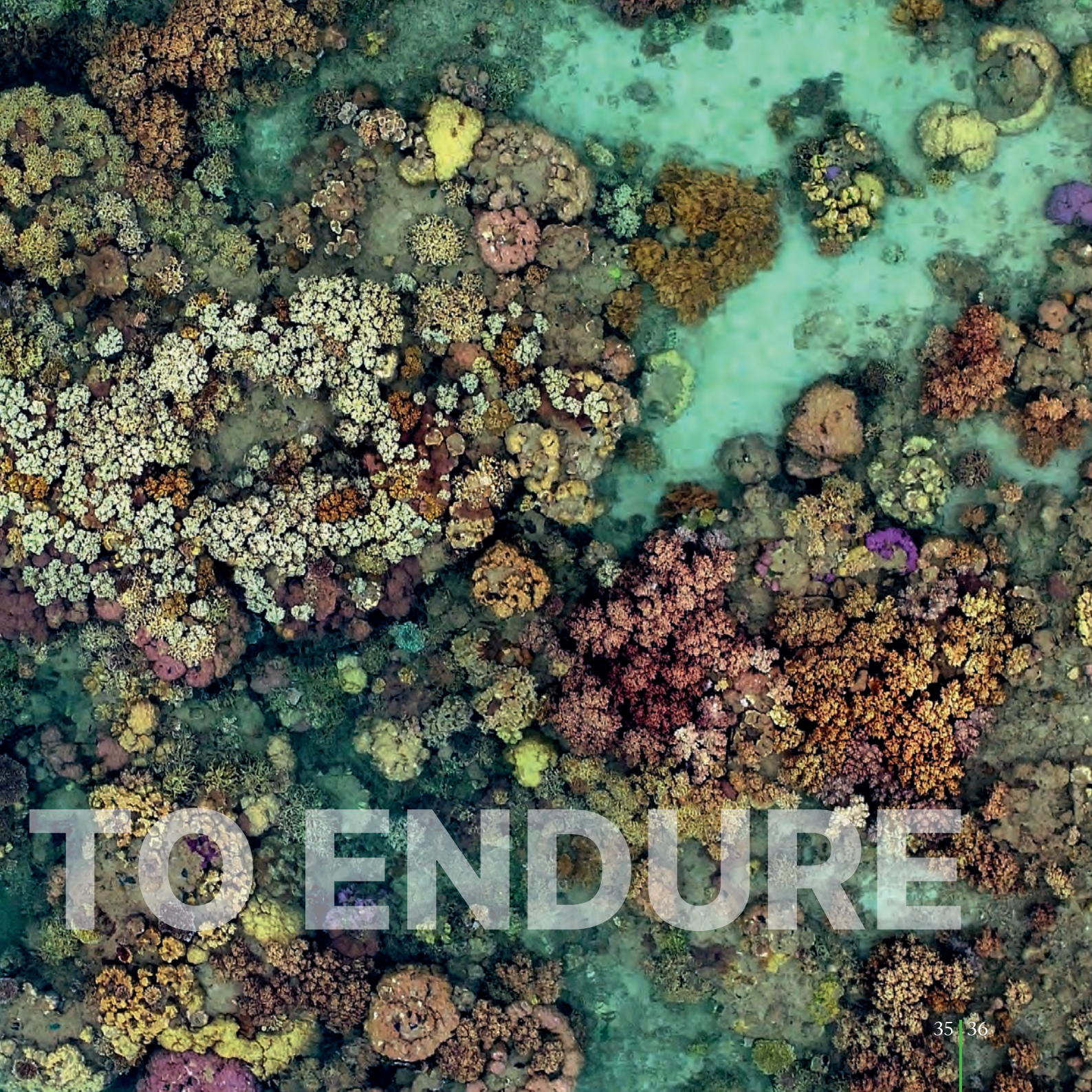


OUR PRODUCT DIVERSITY

**As different your needs,
as diverse our products.**

Valves are used in the most varied situations. Whether in heat or freezing cold, at sea, on land, for storage and transport. Our product selection is as diverse as the areas of application and requirements. So it will always fit perfectly!

BUILT

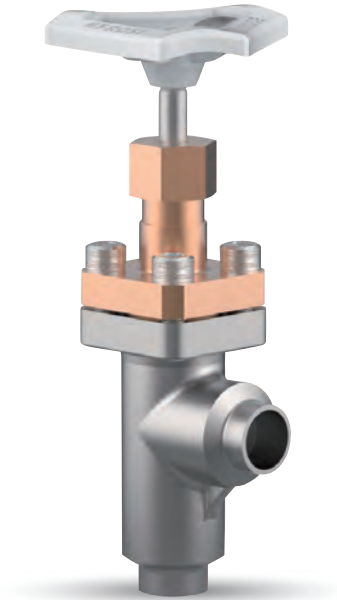


TO ENDURE

OUR PRODUCT GROUPS

Reliable solutions for all requirements.

The valves of our various HEROSE product groups are as diverse as their application areas, but they all have one thing in common: quality down to the last detail - which is what makes them so reliable and durable. Choose products whose function you can rely on.



| Angle valves

Our angle valves, which control or prevent the flow of a medium at a 90-degree angle, are available with different connections for inlet and outlet as well as different material combinations. In addition, we offer, for example, a check function that saves on a separate valve. Our HEROSE angle valves can be used universally for different aggregate conditions. Angle valves are manufactured in stainless steel, bronze and brass.



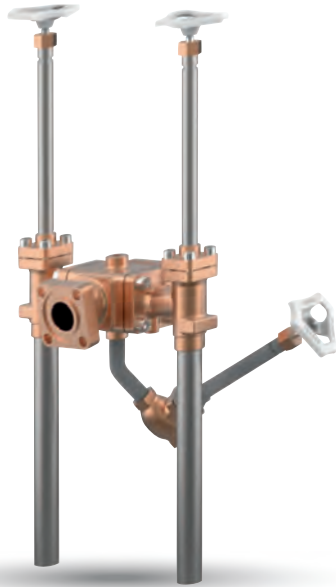
| Globe valves

Regulation or prevention of flow is controlled with HEROSE globe valves. Equipped with additional functions, such as a bellow seals for increased tightness requirements or a check function, the right valve can be found for every application. In addition, a wide range of connection and material combinations are available. The portfolio is rounded off by top entry valves for vacuum-insulated piping systems.



| Gate valves

For our HEROSE gate valves, which shut off the pipe vertically to the flow direction, the flow rate is three to five times higher than with comparably sized globe valves due to the design. This speeds up the filling of tanks and trailers and saves valuable time for the delivery of cryogenic liquefied gases. With different actuator options, we offer solutions for various applications.



Fill cluster

The fill cluster is a combination of individual HEROSE valves and is already pre-assembled to form a system. This reduces the joining and welding work on site and saves time and costs for the installation on the vacuum-insulated vessel.



Ball valves

The larger flow diameter of our cryogenic ball valves reduce flow losses and result in faster opening and closing times. They are well suited for tank applications as well as for cryogenic pumps, pipelines or low-pressure trailers. From a long and short version up to manually operated or pneumatically driven models and with up to three different pressure levels for the respective nominal size, we have the right solution for your application.



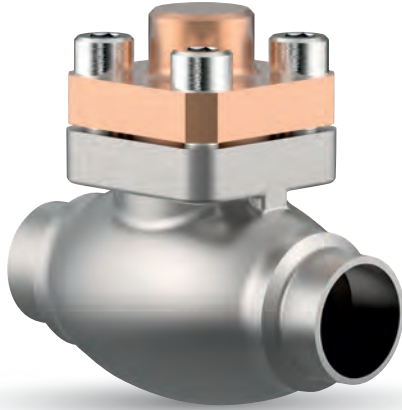
| Actuated valves

Precise and efficient control of the volume flow of a medium is possible through the actuator, which can be pneumatic or electric. On request, our actuated HEROSE globe valve can be equipped with an additional handwheel, with which the valve can be opened or closed manually in case of pressure loss. The valve housing is optionally available in seawater-resistant materials, which are ideally suitable for offshore use.



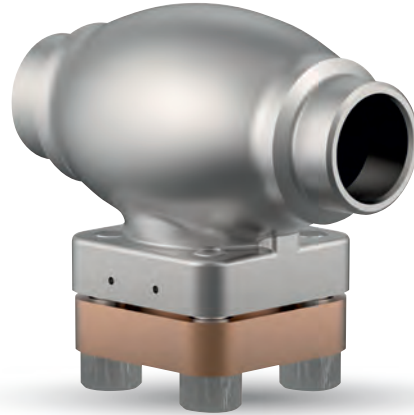
| Pressure regulator

Pressure build-up, pressure reduction and safety function are all combined in the HEROSE CombiPressure-Regulator. Fewer valves and piping are required, which also saves costs. When liquid is withdrawn, negative pressure is created. By evaporation, our pressure regulator builds up the missing pressure and, if required, releases it again. In this way, technical gases such as nitrogen, oxygen or argon can be stored economically in a stationary tank under constant pressure.



Check valves

If the medium flow is only required in one direction - while preventing the medium to flow back - our check valves are installed in systems and pipelines. Due to their special construction, they can likewise be used in the low-temperature range. With a wide range of manufacturing materials, connections and nominal pressures, we offer valves for many fields of application.



Strainer

The HEROSE strainers ensure compliance with specified purity levels for downstream processes. Screens and filters with different mesh sizes are available. Due to multiple combinations of materials and connections, our valve can be used in a wide variety of pipeline systems to protect valves, pipes and devices from contamination.



| Safety valves

The ultimate safety for the protection of vessels or piping systems: This is guaranteed by HEROSE safety valves. Due to their certification according to global standards, they can be used worldwide. Our valves are approved for pressures of up to 550 bar and are available in different material designs. Thereby, they cover a wide range of applications.



| Changeover valves

Maintaining safety valves during running operation? No problem: Our changeover valves usually have two outputs and one input, so that two safety valves can be connected to one pressure system. The connected vessel does not have to be emptied for testing or maintenance. Numerous designs offer a wide range of applications in the field of air gases, vapors and cryogenic liquefied gases.

HEROSE GROUP

HEROSE GMBH | Armaturen und Metalle

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