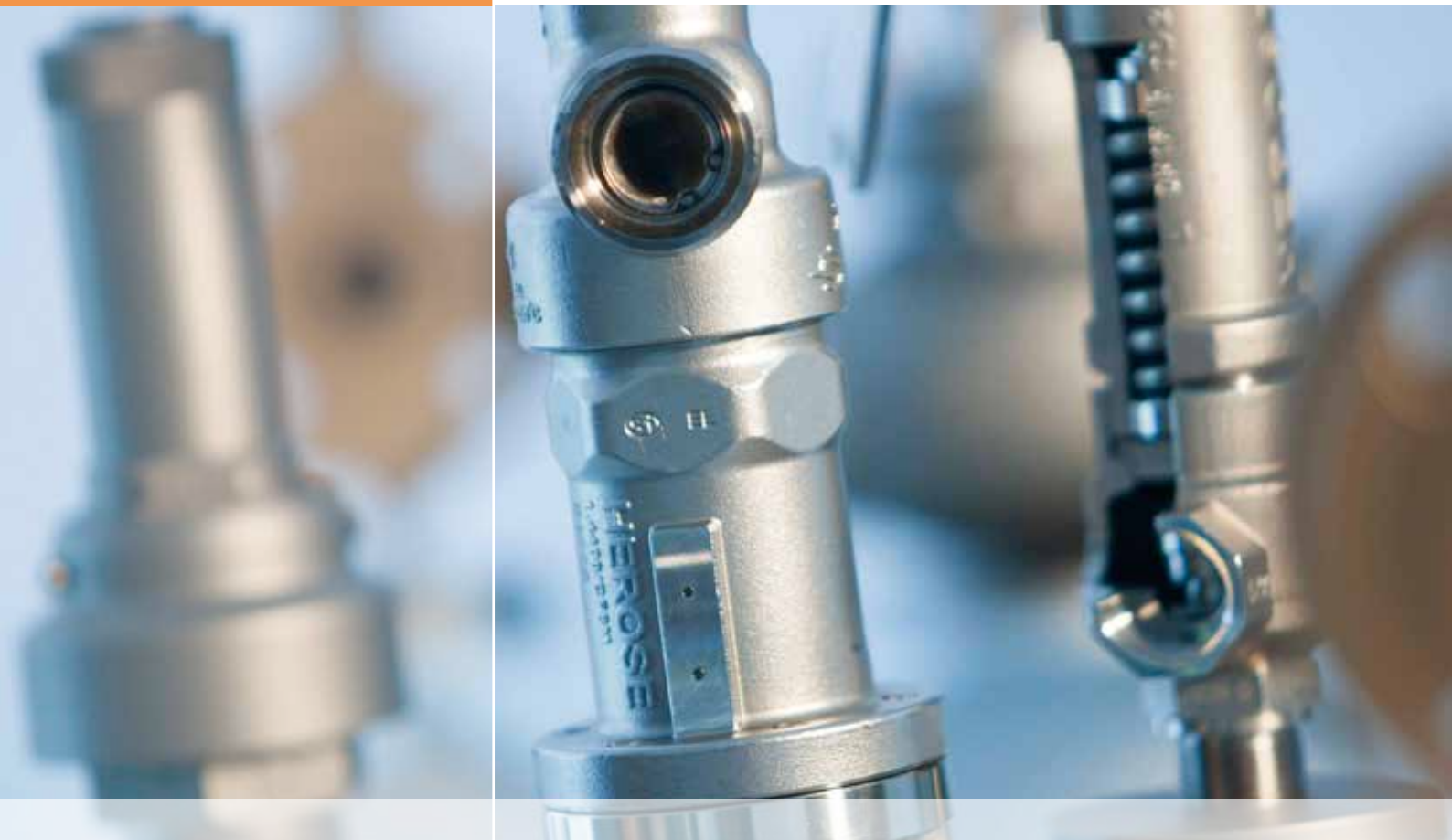


CRYOGENIC

INDUSTRY

ENERGY

## A Quality Promise



Our aim is simple: Perfection.  
The result: products on the very highest level.



HEROSE is one of Europe's leading manufacturers of valves for industrial applications. For over 140 years we have developed, produced and sold valves for cryogenic technology and pressure vessel construction and set standards for the safe handling of technical gases, vapours and liquids. With a production volume of more than 400,000 valves per year, we are one of the most experienced suppliers in our sector. Our products are in successful use throughout the world.

Our partners in industry and business expect us to supply reliable valves, which meet the high demands of the future. They also expect a sound company and continuous product development from their business partners. These values form the foundation of the HEROSE company philosophy.



## Business fields

### CRYOGENIC



We enable safe handling of cryogenic technical gases and LNG applications.

HEROSE valves for cryogenic technology are internationally certified and are in use throughout the world. Whether for protecting vessels and piping systems from excess pressure, or for the storage and transport of liquefied natural gas and cryogenic industrial gases down to  $-270^{\circ}\text{C}$ .

from page 4

### INDUSTRY



We ensure safe handling of gases, vapours, liquids, granular and powdered media.

From brake systems in high speed trains to the desalination of seawater and from distillation to vibration-tested safety valves in silo vehicles, you invest in functionality with maximum efficiency.

from page 12

### ENERGY



We contribute to a reliable global energy supply.

For decades, HEROSE valves have proven themselves worldwide and ensure the safe operation of oil-immersed transformers. Whether drain valves, three-way valves or gate valves: HEROSE corrosion and temperature-resistant products function without problems, even at  $-50^{\circ}\text{C}$ .

from page 16



At cryogenic temperatures,  
experience is our greatest asset.



#### 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 air gases are stored in fixed storage tanks with capacities from 5,000 to 50,000 litres. Compact HEROSE filling modules ensure safe and convenient handling during the filling process.

## Valves for cryogenic liquefied industrial gases

When liquefied at cryogenic temperatures, the volume of industrial gases reduces by a factor of up to 600 and therefore enables economic solutions for transport and storage. Our know-how in the development and manufacture of cryogenic valves guarantees maximum process reliability in the handling of industrial gases. All components are automatically de-greased and therefore meet the stringent requirements for use with oxygen.



## Processes



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.

LNG ist the future.  
We are ready.



#### Transport



Special road trailer are used to transport LNG from the liquid gas storage facility to the users' satellite stations. Because of frequent filling, transportation and unloading, they are subjected to extreme stresses. HEROSE supplies the valves for liquefied natural gas, approved for LNG according to DIN EN 12567.

#### Storage



Cryogenic liquefied natural gas is stored in small-scale tank storage facilities with capacities from 10,000 to 100,000 m<sup>3</sup>. HEROSE valves have proved themselves in many tank storage filling and removal lines, including for safety-relevant valves, which are fire safe approved according to EN ISO 10497.



## Valves for cryogenic liquefied natural gas

Natural gas is liquefied at a temperature of  $-161^{\circ}\text{C}$  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 small-scale LNG applications. If required, Fire Safe according to EN ISO 10497.



### Fuelling



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 regard to fire safety. In addition, we have developed complete solutions for the associated infrastructure for storage and transportation of LNG.

### Processes



To supply customers with natural gas in various aggregate states according to their requirements, increasing numbers of decentralised liquefaction and re-gasification units are being constructed. HEROSE supplies a wide range of valves to cater for the various process requirements.



Come to us for ultimate quality.  
With excellent value for money.







### Safety valves and changeover valves

HEROSE safety valves are certified according to global standards, including CE and ASME. They can therefore be used throughout the world, regardless of where the customer later installs the equipment. Combination with changeover valves also provides the operator with the ability to service the safety valves during operation.

**Sizes:** DN6 to DN50

**Pressures:** 0.2 bar (3 psi) to 250 bar (3626 psi)

**Temperatures:** -270°C to +400°C

**Connections:** Threads, flanges

**Materials:** Stainless steel, brass, bronze



### Globe valves

HEROSE globe valves are available with a wide range of connections and material combinations. They can be equipped with additional functions, such as bellows seals for increased tightness requirements, or with a non-return function. With this combination, use of a separate valve can be eliminated.

**Sizes:** DN10 to DN200

**Pressures:** up to 50 bar (725 psi)

**Temperatures:** -255°C to +120°C

**Connections:** Butt weld, socket weld, welded stubs, threads, flanges

**Materials:** Stainless steel, bronze



### Actuated valves

If required, HEROSE pneumatically actuated globe valves can be equipped with an additional hand wheel, with which the valve can be opened or closed manually in case of loss of pressure. Optional seawater-resistant materials are available, which are ideally suitable for offshore use.

**Sizes:** DN10 to DN200

**Pressures:** up to 50 bar (725 psi)

**Temperatures:** -196°C to +120°C

**Connections:** Butt weld, socket weld, threads, flanges

**Materials:** Stainless steel, bronze



### Fill cluster

A combination of individual HEROSE valves with different functions will be pre-assembled at the factory to form a system. This reduces the joining and welding work on site and saves time and costs for installation on vacuum insulated vessels.

**Sizes:** DN25 and DN40

**Pressures:** up to 50 bar (725 psi)

**Temperatures:** -196°C to +120°C

**Connections:** Butt weld, socket weld, welded stubs, threads, flanges

**Materials:** Stainless steel, bronze

No compromises during assembly:  
High quality materials. Greatest care. Absolute cleanliness.





### Strainer and check valves

Filtration of the medium ensures compliance with the specified level of purity for downstream processes. For this various screens and filters with different mesh sizes are available. Check valves allow fluids or gases to flow through it in only one direction and prevent backflow of the medium.

**Sizes:** DN10 to DN200

**Pressures:** up to 50 bar (725 psi)

**Temperatures:** -196°C to +120°C

**Connections:** Butt weld, socket weld, welded stubs, threads, flanges

**Materials:** Stainless steel, bronze



### Gate valves

With HEROSE gate valves, the flow rate is three to five times higher than with globe valves of comparable size. This speeds up the filling of tanks and trailers and saves valuable time for the delivery of cryogenic liquefied gases.

**Sizes:** DN25 to DN100

**Pressures:** up to 50 bar (725 psi)

**Temperatures:** -196°C to +120°C

**Connections:** Butt weld, socket weld

**Material:** Stainless steel



### Ball valves

HEROSE cryogenic ball valves have a larger flow diameter than comparable shut-off valves. They provide faster opening and closing times and are suitable for tank applications, as well as for cryogenic pumps, pipelines or low pressure trailers.

**Sizes:** DN8 to DN150

**Pressures:** up to 50 bar (725 psi)

**Temperatures:** -196°C to +120°C

**Connections:** Butt weld, socket weld, threads, flanges

**Material:** Stainless steel



### CombipressureRegulators

HEROSE CombipressureRegulators combine three functions: pressure build-up, economiser and safety function. Fewer valves and piping are required, which also saves costs. With combined pressure regulators, cryogenic liquefied technical gases such as nitrogen, oxygen or argon can be economically stored at constant pressure during operation.

**Sizes:** DN20

**Flow rate (Kvs):** 1.2 m³/h, 3.2 m³/h

**Pressures:** up to 38 bar (551 psi)

**Temperatures:** -196°C to +200°C

**Connection:** Threaded

**Material:** Stainless steel



Reliability is our motto.  
Quality is the basis and trust is the result.



#### Compressed air



Fixed or mobile compressed air supplies are provided by compressors. HEROSE safety valves secure systems up to 250 bar and offer our customers a solution for a wide variety of applications.

- Compressors
- Industrial plants
- Municipal vehicles
- Brake systems

#### Liquids



Seawater desalination plants are used, among other places, on cruise ships, to produce drinking and operating water. HEROSE safety valves are produced in seawater-resistant bronze and can therefore be used for a wide variety of applications.

- Waste water treatment
- Seawater desalination plants
- Fire extinguisher systems

## Safety valves for industrial applications

Ultimate safety is the aim of our development and production.

This is especially when the safety of people is at stake. Because of this, we test the reliability of our products in especially extreme situations. This is the reason that the HEROSE Type 06219 free discharge safety valve is used in many high speed trains. It secures the pressure between the compressor and the pressure reservoir against impermissible excess in the braking system.



### Steam



Liquids can be separated by the use of heat in distillation processes. An important criterion is the surface finish of the materials which are used. Depending on the application, HEROSE uses stainless steel springs and the option of valves with nickel plating.

- Special sealing materials
- Distillation plants
- Sterilisers/fermenters
- Autoclaves

### Powder and grains



In Europe, silo trailers for the transportation of powdery and granular goods are highly successful. 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 feeds
- Wood
- Cement

Our valves are second to none for safety.  
Consistent quality simply cannot be replaced.







### Safety valves angle type

HEROSE supplies angle type safety valves for up to 250 bar, which are approved for vapours, gases and liquids. The valve can therefore be used for various aggregate states. In addition, it is also available as a version with a flange, NPT or Tri-Clamp connection for the inlet and outlet and also with a soft sealed disc.

**Sizes:** DN10 to DN50

**Pressures:** up to 250 bar (3626 psi)

**Temperatures:** -270°C to +400°C

**Connections:** Thread, flange, Tri-Clamp

**Materials:** Stainless steel, bronze, brass



### Free discharge safety valves

These valves have proved themselves thousands of times in daily use and their carefully matched design and materials offer optimum value for money. They are ideal for applications in which compressed air may be released into the atmosphere without problems.

**Sizes:** DN8 to DN50

**Pressures:** up to 43 bar (624 psi)

**Temperatures:** -40°C to +200°C

**Connection:** Thread

**Materials:** Stainless steel, brass



### Safety valves for liquid, granular and powdery goods

All components of the valve are protected against dirt and designed for a long service life. Because of this, these HEROSE safety valves are ideally suited for silo operations, where granular or powdered materials need to be reliably transported.

**Sizes:** DN25 to DN50

**Pressures:** up to 6 bar (87 psi)

**Temperatures:** -40°C to +200°C

**Connection:** Thread

**Materials:** Stainless steel, brass



### DIN EN standard valves

HEROSE has a wide range of standard valves in its range, which offer especially good value for money. These include shut-off valves, gate valves, pressure reducers and strainer, as well as check valves for various industrial applications.

**Sizes:** DN8 to DN50

**Pressures:** up to 40 bar (580 psi)

**Temperatures:** -40°C to +200°C

**Connection:** Thread, flange

**Materials:** Stainless steel, bronze, brass

As the demand for energy increases, so do the requirements.  
Transformer valves for extreme conditions.



Transformer stations



In the local grid, distribution transformers produce the normal voltage of 400/230 Volt.

Offshore platforms



Transformers on supply platforms are exposed to extreme climatic conditions and salt-laden sea air.

## Valves for oil-immersed transformers

The ambitious climate targets of the energy revolution are a great challenge for all involved. The locations where energy is needed and the place in which it is generated are often far apart. We know what we are facing; we have realistic data and facts and we develop the corresponding products. Seawater and weather-resistant valves must smoothly and dependably control the cooling circulation of transformers to ensure the power supply.

Technical availability is our primary objective, so that all wind farms can utilise the wind which is available offshore as planned. At the same time, sophisticated onshore projects demand our attention for the further development of existing solutions.



## Wind farms



In future, offshore wind farms will provide one sixth of the electricity which is needed in Germany.



Reliability is a hot topic.  
Quality begins at 1100° Celsius.





### Flanged gate valves

HEROSE flanged gate valves are used to regulate the oil circulation in transformers. There is a wide variety of versions, designed for use at extreme temperatures down to  $-50^{\circ}\text{C}$ , as well as for offshore applications. The gate valves are available with an optional locking device.

**Sizes:** DN25 to DN250

**Pressures:** up to 6 bar (87 psi)

**Temperatures:**  $-50^{\circ}\text{C}$  to  $+120^{\circ}\text{C}$

**Connection:** Flange (DIN EN, ANSI)

**Materials:** Brass, bronze, seawater resistant bronze



### Three-way plug cocks

HEROSE three-way valves provide a defined oil flow and therefore the controlled dissipation of heat within oil-immersed transformers. The defined setting of the flow direction enables the isolation of contaminated oil in transformers with a multiple chamber system and continued operation of the transformer at a lower power. This considerably reduces downtimes.

**Sizes:** DN25, DN50, DN80

**Pressures:** up to 5 bar (73 psi)

**Temperatures:**  $-40^{\circ}\text{C}$  to  $+115^{\circ}\text{C}$

**Connection:** Flange (DIN EN)

**Material:** Bronze



### Outlet valves

HEROSE outlet valves made from bronze and seawater-resistant bronze are used on oil-immersed transformers for the safe removal of oil samples for quality checks. To prevent unauthorised operation of the valves, they are optionally available with a locking device and a position indicator.

**Sizes:** DN15, DN32

**Pressures:** up to 6 bar (87 psi)

**Temperatures:**  $-50^{\circ}\text{C}$  to  $+115^{\circ}\text{C}$

**Connection:** Flange (DIN EN, ANSI)

**Materials:** Stainless steel, brass, bronze, seawater resistant bronze



### Ball valves

Due to the use of high quality materials, HEROSE ball valves are ideally suitable for handling neutral gases and liquids, mineral oil products and alkalis, as well as corrosive liquids and gases. As with all valves, a locking device is available as an option.

**Sizes:** DN15 to DN150

**Pressures:** up to 40 bar (580 psi)

**Temperatures:**  $-50^{\circ}\text{C}$  to  $+230^{\circ}\text{C}$

**Connection:** Flange (DIN EN, ANSI)

**Materials:** Stainless steel, cast steel

Continuous quality control is second nature for us.  
And very reassuring for you.



#### Material testing



With a contour measuring device, even dimensions which are difficult to access can be checked.

#### Leak testing



100% leak tests of mechanically machined body at the nominal pressure.



We offer our customers reliable products, a high level of safety and a sound business. These values run through the entire production process – from purchasing up to international support. Positive feedback from our customers shows that we have the right approach. The name HEROSE is a promise of quality, which motivates us to persevere with our efforts and challenges to become even better.

The company, the various teams and each individual employee all live according to this vision. For us, it is a matter of course to regularly look to the future and adopt new ideas to make work processes and production methods even more efficient and economical. Sometimes it is not enough just to be good.



#### Identification



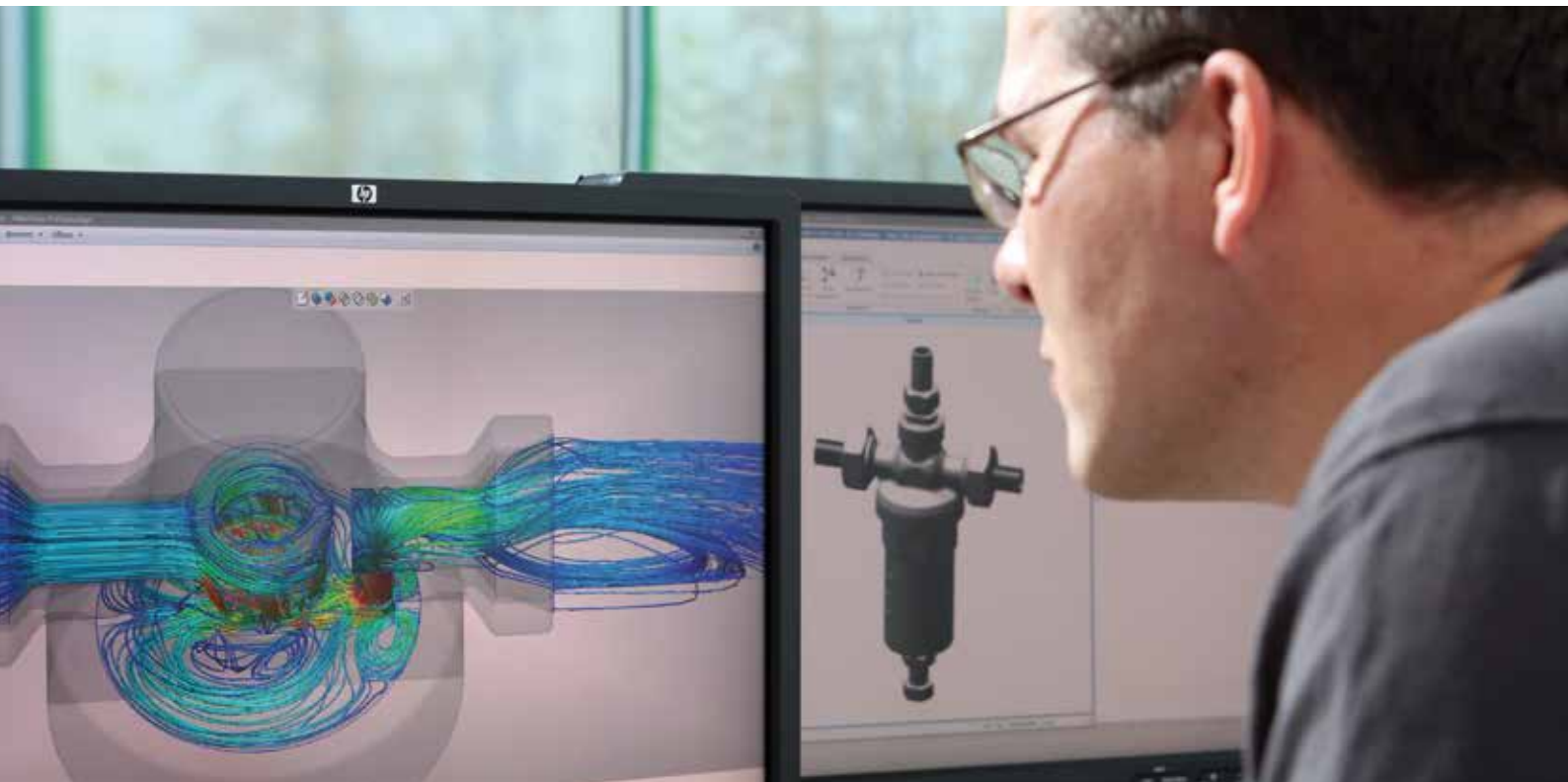
Each pressurised component is labelled and is therefore traceable.

#### Free of oil and grease



Cleanliness for use with oxygen is guaranteed by automatic processes.

Foresight and durability, a cosmopolitan and a down-to-earth attitude. These are not mutually exclusive.



Company headquarters



The company headquarters in Bad Oldesloe – progressive thinking on 11,000 square metres.

Workshops



In regular workshops, we train our customers and communicate our theoretical and practical knowledge.

We are curious about our future international markets and at the same time keep both feet on the ground in our region. This very special combination has made us into what we are today: a successful company which has been managed by its owners for five generations, with its own development and designs, which focusses on innovative products.

We are now the leaders for reliable solutions for cryogenic valves. We are also a leading European producer of safety valves. With a wide range of products, great depth of production and lean processes in all areas of the company, we are in a good position for the future. A global network of agencies and partners ensures close contact with our customers in more than eighty countries, with whom we exchange expert information in an atmosphere of trust and work on pioneering solutions together. **What can we do for you – please challenge us!**



## Exhibitions



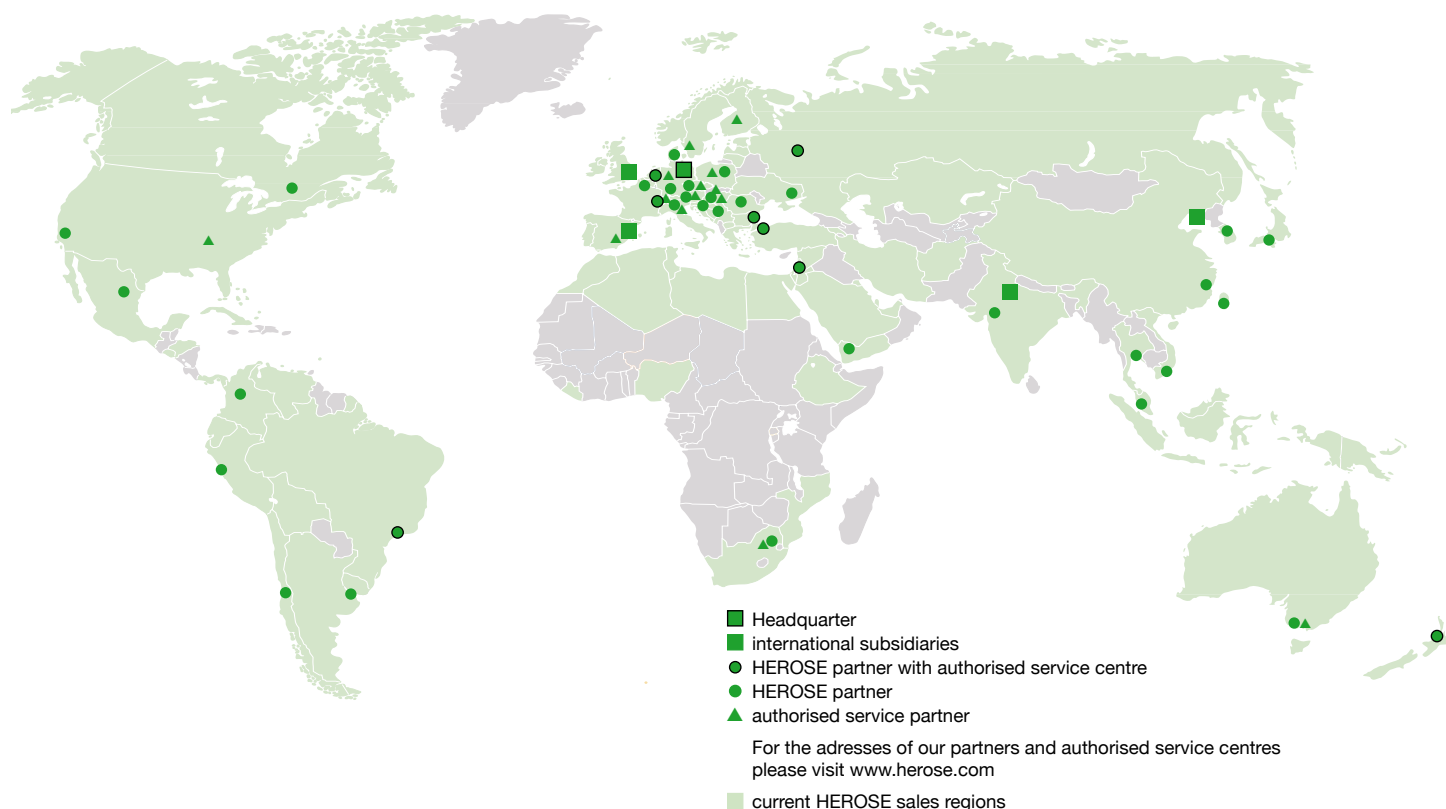
Our products and know-how are represented at important exhibitions and conferences throughout the world.

## International



HEROSE supplies to more than 80 countries and has subsidiaries and agencies e.g. in China, the United Kingdom, India and Spain.





## Headquarter

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