

huhnseal/ custom technology partner/



Custom Technology Partner

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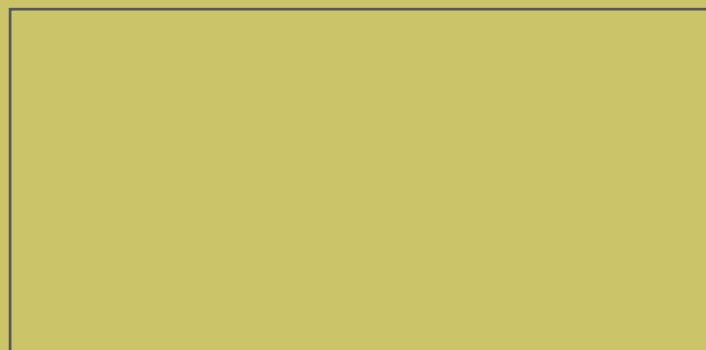
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Follow us on:



– Our vision

An on-going and symbiotic relationship with the customer allows us to come up with custom solutions, working towards a shared success: the traditional distance between customer and manufacturer is definitively obsolete.



> Our philosophy has always been to develop custom mechanical sealing solutions, along with an efficient and on going collaboration with

our customers interested in reducing their energy consumption and operating costs, as well as the impact on the environment.

– We develop custom mechanical sealing solutions, along with efficient support tools –

Technical competence.
Standing strong on a century of experience, we are continuously pursuing technologically cutting-edge solutions.

Partnership.
We have always been fully aware that the mechanical seal is a fundamental component of rotating equipment. The reliability of our mechanical seals is a crucial condition to increasing the competitiveness of our partners.

Marketing and After-sales Service.
In addition to creating products designed for every need, we provide exclusive support and the possibility of customising products, even with customer branding, of developing and choosing tools and materials together. The intention is nevertheless to increase flexibility and fulfil the various needs of an increasingly demanding market.

— Our story

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More than 100 years, the story of a challenge that we have taken to global levels.



— FROM 1903 TO DATE. GERMANY, SWEDEN, ITALY AND NEW INTERNATIONAL FRONTIERS.

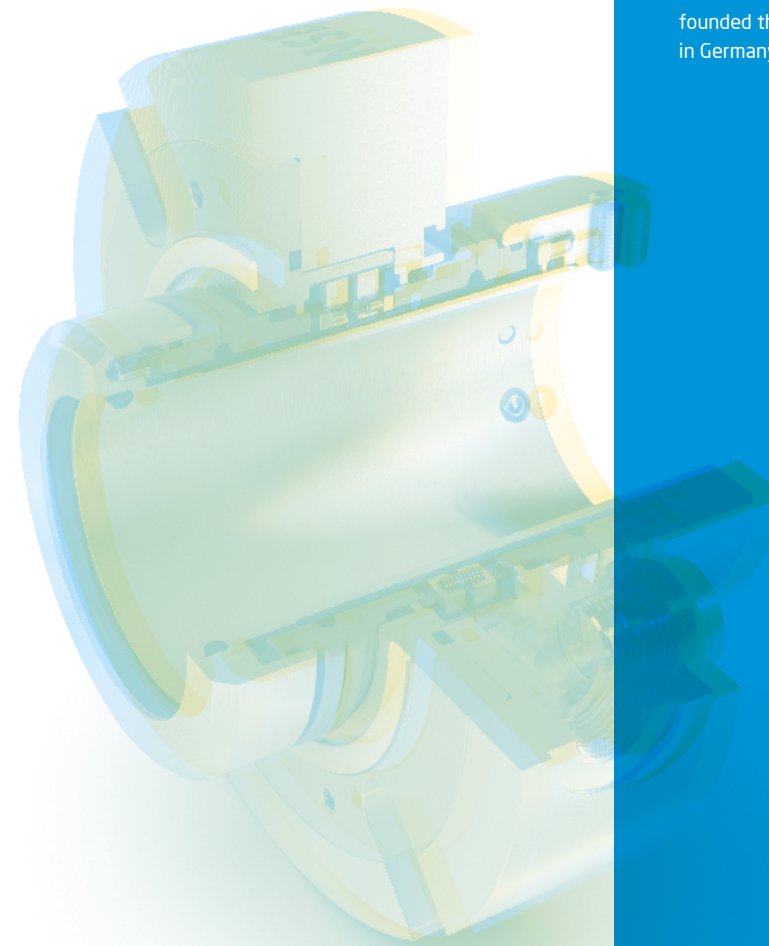


> In 1903, in Germany, Gustav Huhn founded his company, manufacturing innovative radial seals for steam locomotive pistons. Two generations later, relocated in Sweden due to the Second World War, Gustav Huhn AB was already the leader in the industrial market of mechanical seals.

Huhnseal AB was founded in 1983, when Göran Anderberg bought the rights for Gustav Huhn AB products, establishing a company that grew consistently through a successful

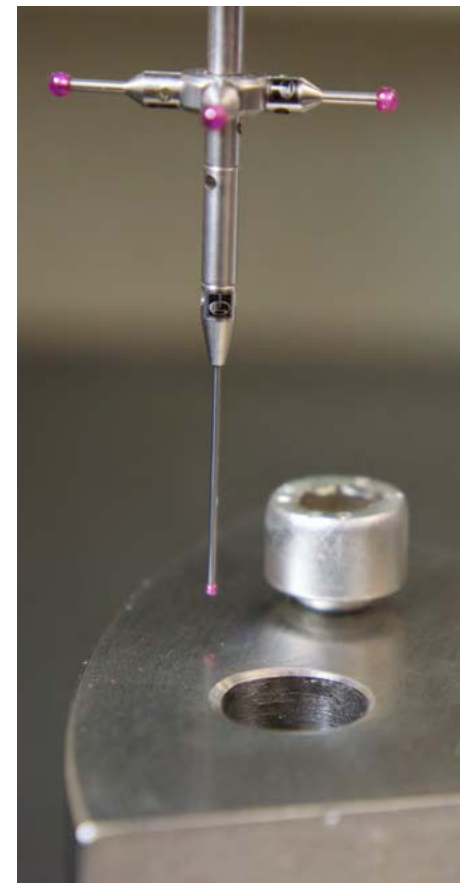
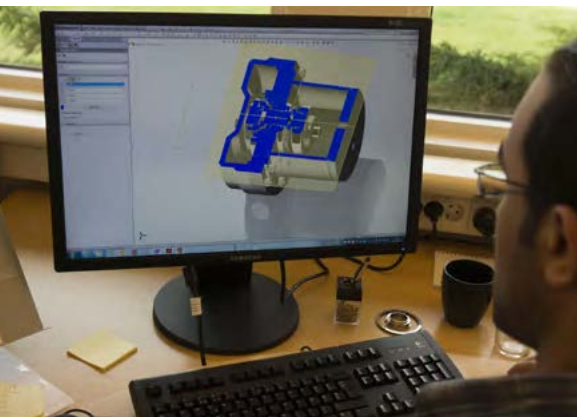
combination of experience and innovation. In 2008, Huhnseal became a member of MeccanotecnicaUmbra Group, a world leader in the mechanical seal industry.

Today Huhnseal is a company that develops and manufactures mechanical seals for every industrial process (Pulp and Paper, Food and Beverage, Pharmaceutical, Mining, Chemical). The headquarters are in Landskrona, Sweden, and this is where the seals are designed, tested and manufactured for the global market.



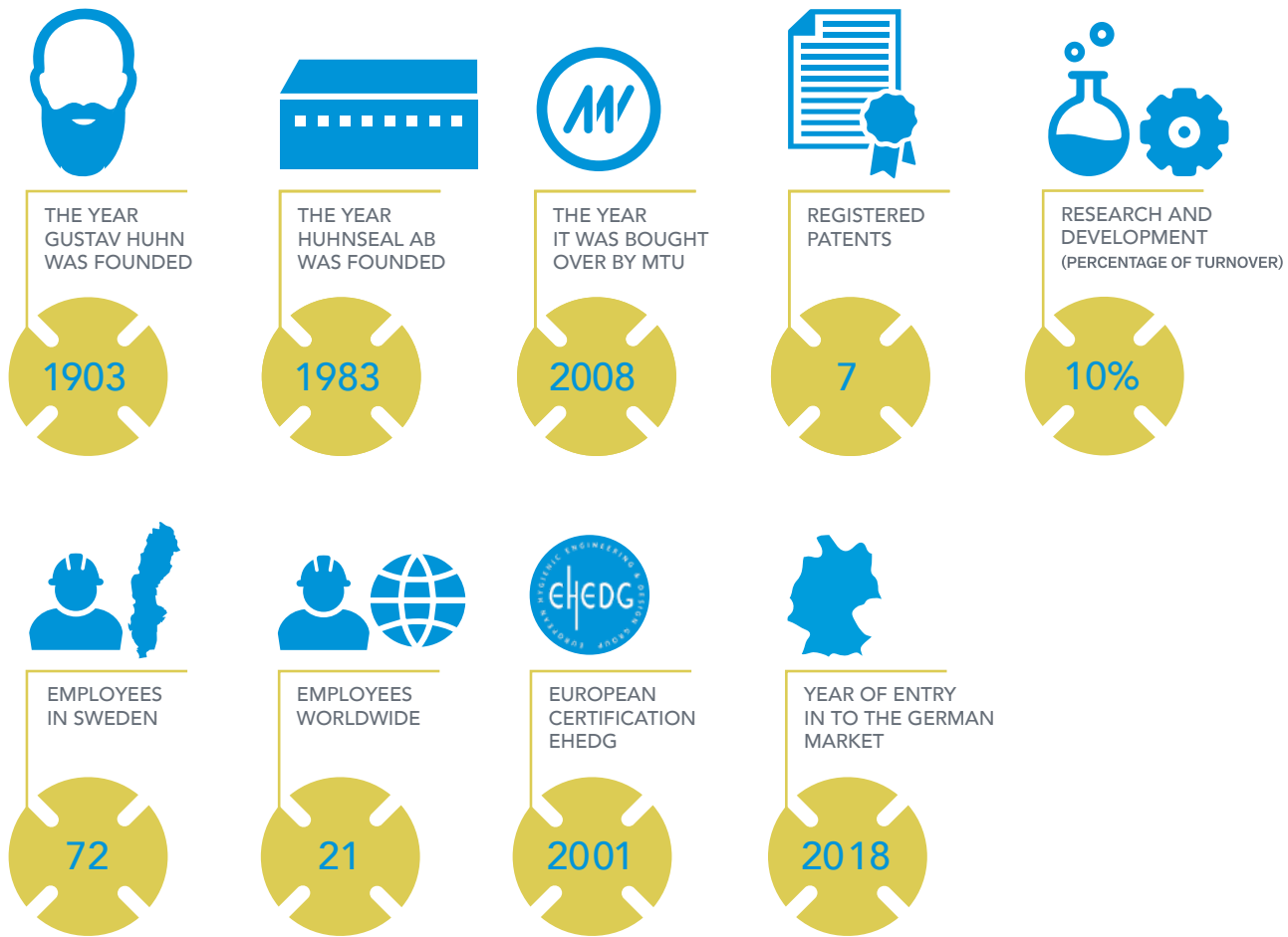
Gustav Huhn founded the company in Germany in 1903



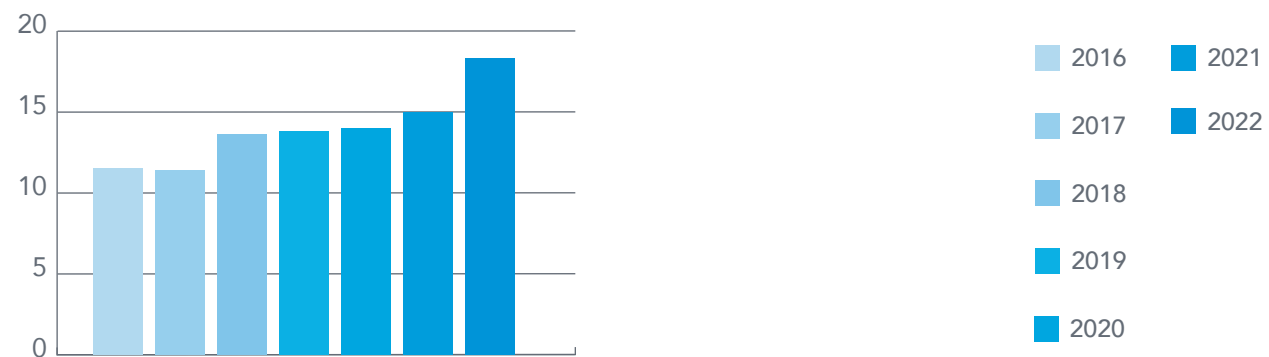


– Huhnseal facts

Over a century of history, research and quality in a single glance.



TURNOVER IN MIL EURO



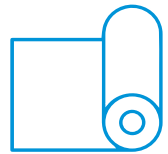
– Huhnseal around the world

An international company operating in 8 countries and 4 continents.



— Industrial segments

Huhnseal AB produces a broad range of mechanical seals for various industrial segments.

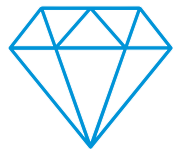


THE PULP AND PAPER INDUSTRY

We offer the best solution for every application and process, reducing the consumption of water and energy, and lowering costs.

We achieve this objective by offering high quality seals as well as also establishing a strong and stable collaboration based on customer needs and priorities. We aim to normalise the seal life and maintenance program, standardising most types of products and reducing the level of stock.

We can equip any type of machine with a considerable variety of standard and highly specialised seals available for High-Duty applications.



MINING AND SLURRY

Huhnseal offers a complete line of mechanical seals for the mining industry, sewage, waste water, abrasive fluids, to satisfy the greatest number of applications for the treatment of liquids in a broad range of machinery. Huhnseal seals guarantee excellent results fulfilling the request for reliable and advanced solutions even in the most heavy duty applications such as Extra Heavy Slurry Grades of HI (Hydraulic Institute) for pumps, which are generally used in the mining industry.



— Industrial segments

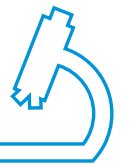
Synonymous with efficiency, collaboration and compliance with the regulations in force.



SANITARY USES

Huhnseal offers its extensive experience in the design and production of mechanical seals customised for hygiene purposes. Huhnseal seals dedicated to the food industry fulfil the standards and the most advanced hygiene regulations.

Huhnseal is also an active member of the EHEDG and 3-A associations. Suitable hygiene solutions are designed for the needs of the machinery that they are intended for, by providing cleanable in place (CIP) solutions allowing the end user to sterilise and clean the equipment without removing the mechanical seal. All of the materials used for mechanical seals in the food and beverage industry are strictly Food-Grade.



PHARMACEUTICAL INDUSTRY

The pharmaceutical industry requires designs dedicated to the various types of applications. Mechanical seals for the pharmaceutical industry are manufactured to avoid the formation of build-up that could contaminate the product. Huhnseal seals are designed to operate in Dry-Running conditions, including the presence of abrasive products or when broad axial and radial Run-Outs are required. All of the materials used for mechanical seals in the pharmaceutical industry are strictly Food-grade.



— Industrial segments

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Continuously forward
and improvement thinking.



W&WW AND DEWATERING

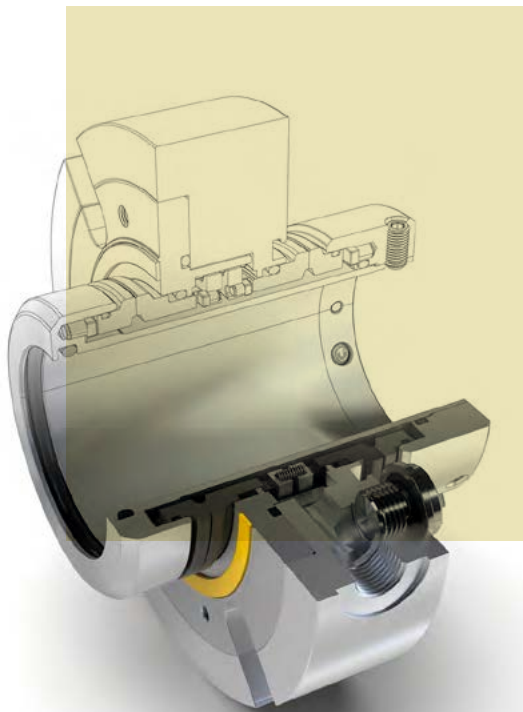
Huhnseal designed and produced a series of mechanical seals that are ideal for various applications: seals for well drainage pumps, seals dedicated to water treatment pumps, for centrifugal and self-priming pumps. Plus, our seals are ideal in the sectors dedicated to pumping abrasive, thick, hot and high pressure liquids.

The extensive knowledge of the various industrial applications allows us to select the best materials in the most suitable combinations, guaranteeing long and excellent reliability.



CHEMICAL INDUSTRY

In the complex chemical industry it is necessary to implement special precautions when designing mechanical seals for rotating equipment. Most of these seals are designed to work with aggressive fluids, hazardous and polluting liquids, but also at extreme temperatures. This is why the sealing system must offer a high level of reliability, so that production can be conducted with maximum safety and reliability. In this case chemically inert materials such as PTFE, Kalrez or FEP can be used for mechanical seals. Huhnseal fulfils all of the production standards for the chemical industry in full compliance with the laws in force.



— Industrial segments

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Mechanical Seals
for Compressors.



REFRIGERATION INDUSTRY

Huhnseal offers a complete line of compressor seals for the refrigeration industry. Our mechanical seals meet the highest demands for screw compressors and reciprocating compressors.

The mechanical seal is a critical component related to compressor reliability. Our goal is to offer the best possible sealing solution for each application and hereby improve the equipment reliability, reduce refrigerant and energy consumption hence lower the total cost of operation.

We achieve this by offering high quality and durable seals and by establishing a strong partnering relationship where we focus on customers' needs and priorities. Huhnseal offers a standard seal range up to a highly specialized seal for demanding applications. With Huhnseal's vast application knowledge we can help to increase time between repairs with improved profitability and quality, while at the same time lowering its energy and environmental impact.

MATERIALS OF MECHANICAL SEALS IN COMPRESSORS

- Carbon
- Silicon Carbide
- Silicon Carbide Graphite Composite
- Special Casts
- Chloroprene
- HNBR
- FEPM
- FFKM
- Stainless Steel
- Duplex Steel
- Titanium

CHARACTERISTICS OF MECHANICAL SEALS IN THE REFRIGERATION

- High resistance
- Long life
- Great reliability
- Power saving
- Easy to be repaired



– Customised products

Like clothing tailored by skilled hands, we develop “tailored” mechanical solutions for our partners.

SPECIAL FEATURES

We develop custom mechanical seal solutions: like a “tailoring” process we design and build our products modelling them on customer needs, in terms of size and applied technologies.

Over time, Sweden has become synonymous with rationality and precision, our production process guarantees punctual and quality service.

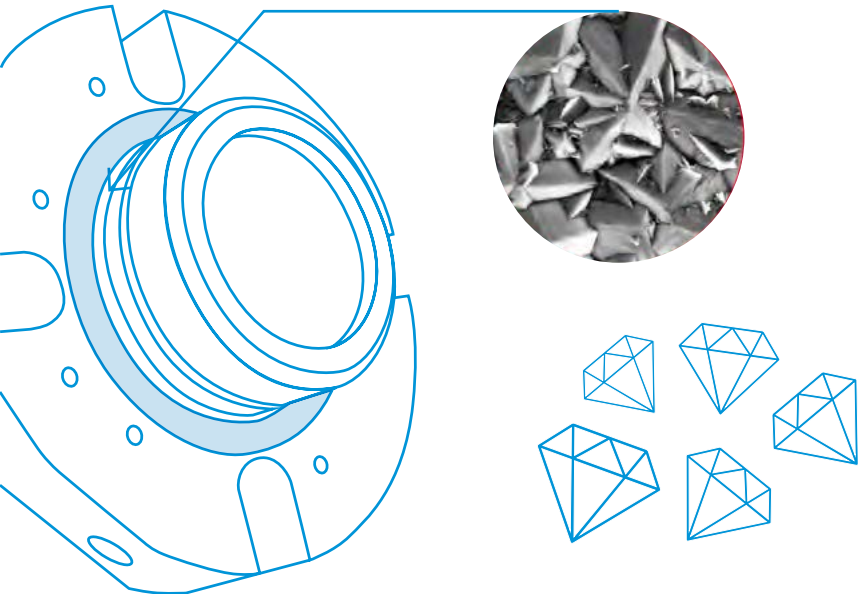
We operate in numerous markets and industrial sectors, and our many years of experience in the food industry, our top field of action, ranks among our various specialisations: for example, our mechanical seals guarantee the absence of product residues and subsequent harmful bacterial loads.

DIAMOND COATING

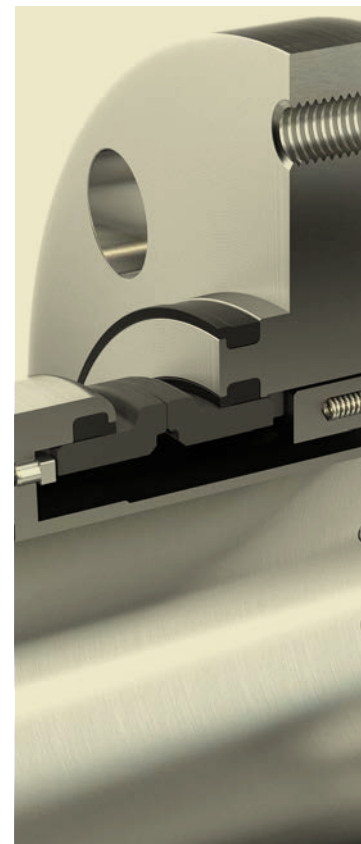
Clean water used as a barrier (double seals) or for flushing (single seal) is sometimes an unavailable resource. The solution to this problem is to use a single cartridge with a diamond coating on the silicon carbon ring. This coating provides extremely elevated hardness to materials surface lower friction and excellent thermal conductivity. This allows the use of single cartridge seals where double or single flushed seals would normally be required.

Lip-o-Ring®

Patented hygienic elastomer, designed with a special profile that fulfils seal cleaning requirements. The special shape of the Lip-o-Ring® prevents the formation of build up, which is otherwise the cause of bacterial proliferation. The CIP stage is also quicker and more efficient.



Diamond coating for sealing rings

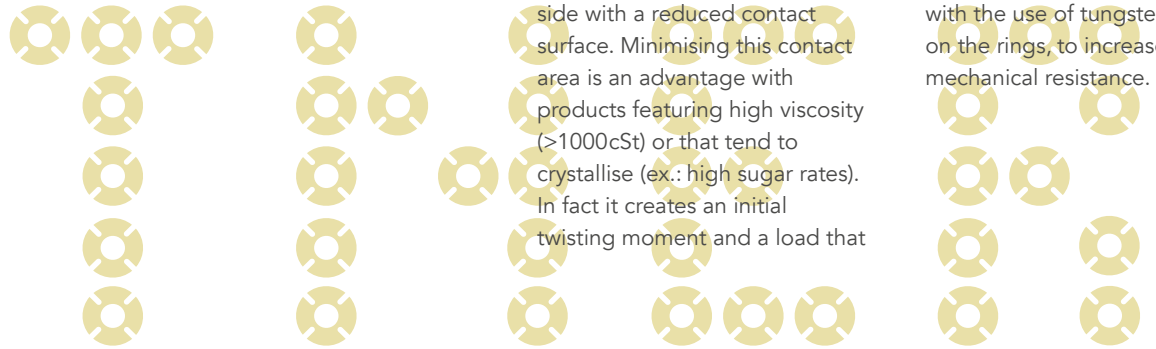


Lip-o-Ring®

KNIFE-EDGE SEALING RINGS

The K-E configuration is comprised of a pair of sealing rings installed on the product side with a reduced contact surface. Minimising this contact area is an advantage with products featuring high viscosity (>1000cSt) or that tend to crystallise (ex.: high sugar rates). In fact it creates an initial twisting moment and a load that

“breaks” and eliminates any build up in the contact zone between the two rings. This feature can be combined with the use of tungsten carbide on the rings, to increase the mechanical resistance.



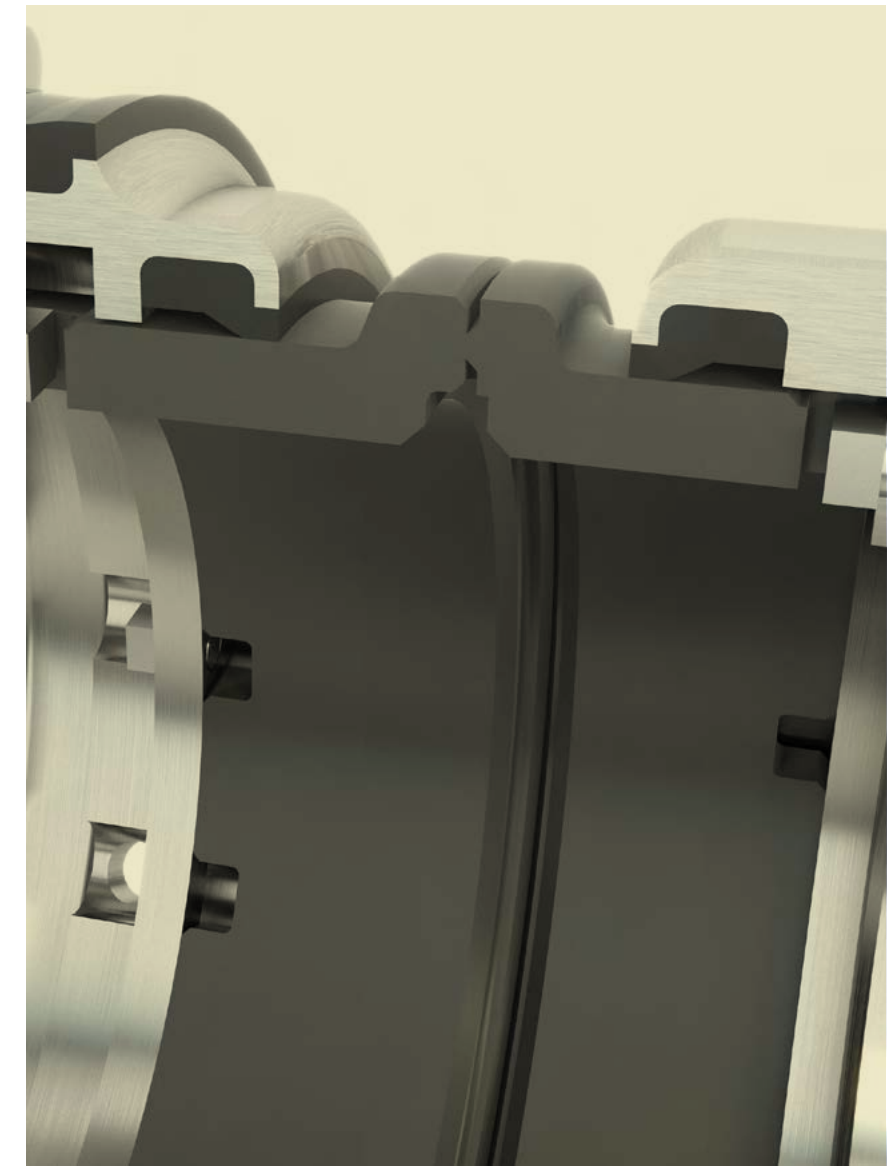
EXCELLENT MOVEMENT CAPABILITIES

Excellent Resistance to Angular Misalignment
Huhnsel has the capability to compensate for angular misalignment without generating undue stress on the mating faces which may degrade sealing performance. This feature minimizes the effects of excessive shaft deflection during operation of the equipment.

Excellent handling of axial elongation
Huhnsel can design mechanical seals to tolerate relatively high axial shaft movement. This feature allows for rotating equipment expansion due to thermal cycling or necessary equipment adjustments that would normally affect the mechanical seal.

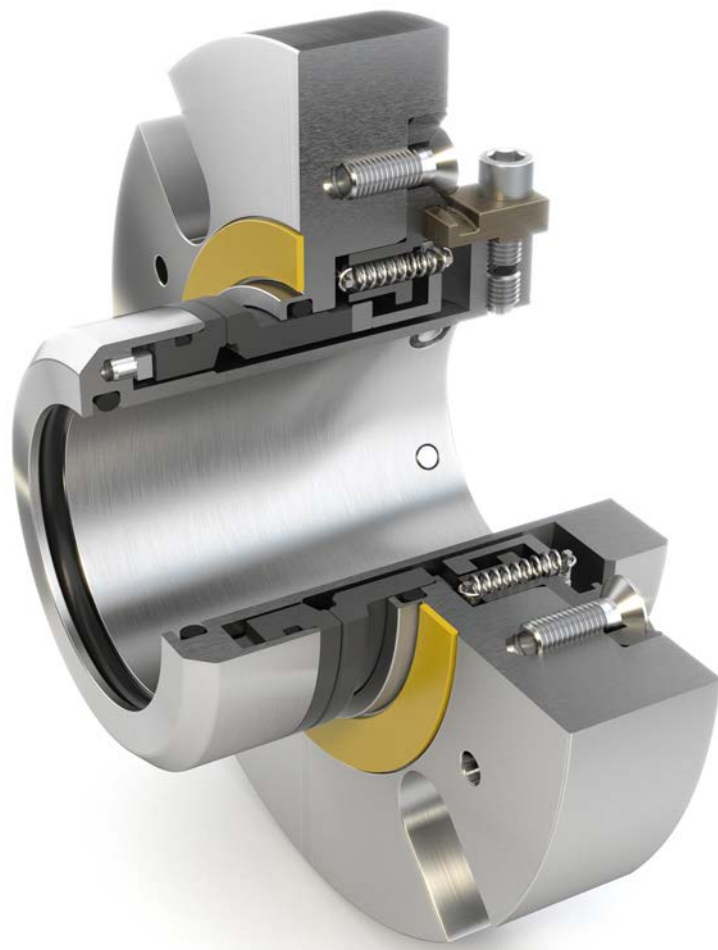


Movement Capabilities



Knife-Edge

– Customised products



HUHNSEAL ED

This is a balanced double cartridge that guarantees the best performance even with sudden changes in pressure, on the product side as well as the barrier fluid zone.

The seal configuration is heavy duty yet flexible, with excellent capacity for axial and radial movement. The springs are positioned outside of both product and barrier fluid, reducing the risk of blockage to a minimum.

SUPPORT SYSTEMS

BARRIER FLUID TANK

The objective of a thermosiphon system is to provide a flow of cooling media to the mechanical seal at the required pressure. The media recirculates through the seal by heat convection generated as the pump shaft rotates through the seal. The media in the vessel is forced into the seal through the bottom line as the hot barrier fluid leaves the seal through the top line back into the vessel. The media flows in the circuit and is cooled by contact with the walls of the tank and the cooling coils if used. The thermosiphon system is therefore passive and stand alone, avoiding the cost and complexity of a conventional liquid pump. In order to achieve this natural cooling effect, the tank containing a suitable sealing liquid must be located approx 1/2 m above the seal and not more than 2 m on any side, connecting the seal and the tank with pipes in stainless steel. Depending on the application, local conditions and client preferences, a thermosiphon system can be delivered in a number of different versions by combining several options and a basic package.



– Environment and certifications

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*Respect for the environment
is a pillar of our company policies.*

– CERTIFICATIONS:
ISO 9001
ISO 14001
EHEDG
ATEX
SELLIHCA

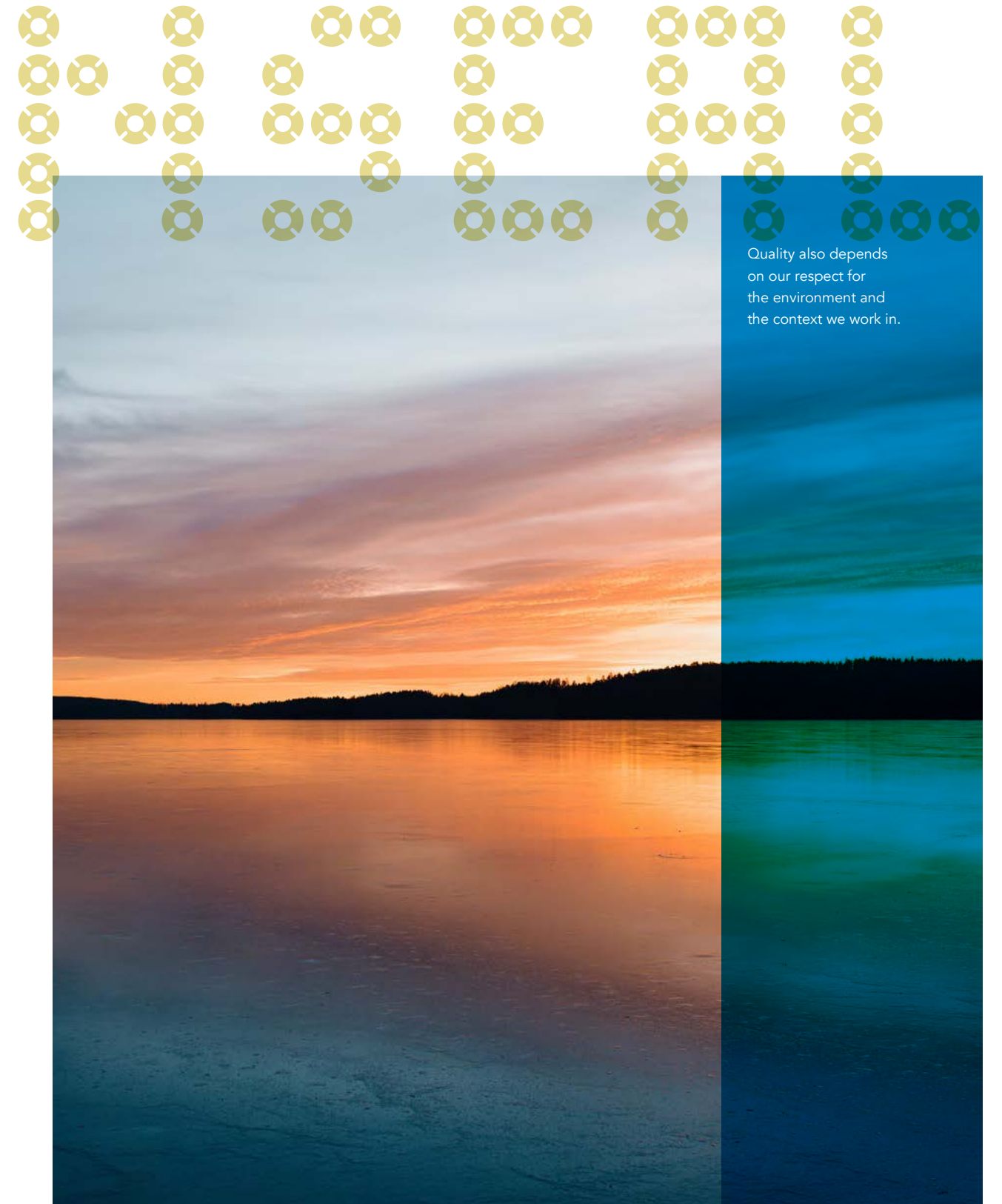


> Huhnseal AB obtained Quality System certifications in accordance with standards ISO 9001, ISO 14001.

Quality, technical competence and service are crucial elements for competing in the modern market, and the pride of our corporate strategy.

Customer respect has always been our priority with the objective of obtaining the highest satisfaction of their expectations and requests.

Huhnseal is a leading partner, where continuous improvement is behind every company process, guaranteeing long term collaboration with customers.



Quality also depends on our respect for the environment and the context we work in.

