

Development and manufacture

Huhnseal AB designs, develops and manufactures a wide range of mechanical seals for the industry worldwide. We value highly a close cooperation with our customers in order to obtain a deep understanding of their applications. Thanks to a flexible and effective organisation we can supply our customers with the necessary sealing solutions at short notice if required.

Standard and custom made seals

In addition to the standard range seals, we supply custom-made seals. Product development and tests under duty-simulated conditions have high priority in our company, resulting in innovative sealing solutions optimized for the customer's application.

Service concept

Start-up service and maintenance support is offered when needed to further ensure optimal performance. We also offer refurbishment to restore the seal to its original condition. With each refurbishment a report is attached. We also offer our End-customers the possibility to add their refurbished seals into our seal repair database (HMS) in order to have a future follow-up and be able to maximize the value of the customers investment.

Our mission

Our mission is to supply our customers with efficient sealing solutions reducing energy consumption, environmental impact and overall operating costs.

A quality conscious organization



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HUHNSEAL

Custom Technology Partner



Standard and Special Sealing Solutions

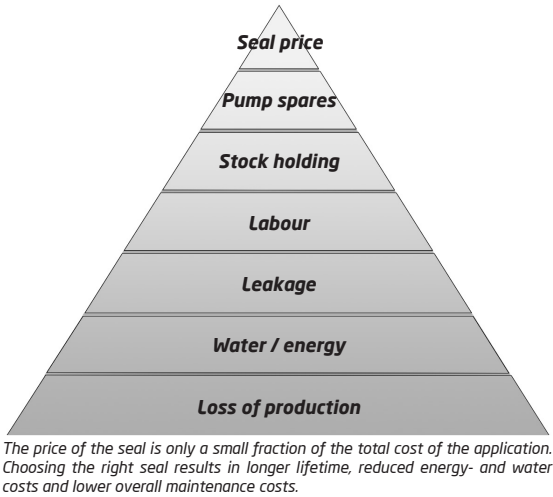
Pulp and paper industry

Your needs and priorities are our focus

Regardless of whether your operation is based on chemical pulping, ground wood pulp, mechanical pulp or recycled pulp, Huhnseal has a strong product range to meet your needs

The mechanical seal is a critical component when it comes to reaching a high level of availability of your rotating equipment. Our goal is to offer you the best possible sealing solution for each application and hereby increase the availability of your process, reduce water- and energy consumption and hence lower the total cost. We achieve this by not only offering you high quality seals but also establishing a strong and durable partnership where we focus on your needs and priorities. We help you standardize your sealing program, reduce the number of different seal types and lower you stock levels.

Our program spans from a strong standard seal range to highly specialised seals for demanding applications to diamond coated seal faces. With Huhnseal's vast application knowledge we can help you gain increased accessibility to your process with improved profitability and quality while at the same time lowering its energy and environmental impact.



Some of the benefits working with Huhnseal



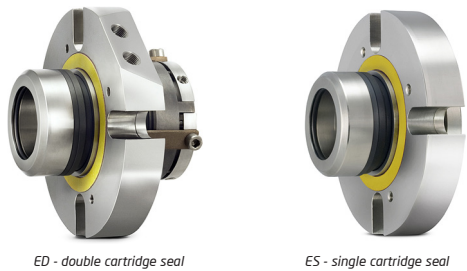
- **Reliable standard seals**
- **Special seals one-off**
- **Diamond coated SiC-faces**
- **Seal repair database (HMS)**
- **Highly skilled engineering department**
- **Branded seals for OEM'S**
- **OEM after market exclusivity for special seals**
- **Stock holding for reliable logistical solution**

Huhnseal standard sealing solutions

Huhnseal E-series - a strong standard platform

80% of the pump applications in the mill can be sealed using Huhnseal E-series standard cartridge seals. ED (double seal) and ES (single seal) offer unique design features especially developed for the Pulp & Paper industry. Protected spring design, ± 2 mm axial movement, excellent shaft bending acceptance and only using high quality engineering materials are some of the key features. Standard E-series seals may be combined

with different assembly kits enabling easy fitting in most if not all of the centrifugal pumps of standard sizes used in the pulp and paper industry. Regardless of which pump brand your process is based upon, Huhnseal will engineer the necessary components for you, enabling safe and trouble-free fitting of the E-series type seals.



Standard component seals

Not all pumps used in the Pulp and Paper industry allow cartridge seal assembly due to the design of the seal chamber. Huhnseal offers standard component seals for this range of pumps as well.

These types of seals are recommended for low duty applications and applications with low fiber concentrations where standard cartridge seals cannot be used.

Huhnseal customised sealing solutions

Customised seals for Scanpump and Sulzer

Huhnseal has 25 years of experience in engineering customised seals for many different pump brands. For all Scanpump (PSI) and Sulzer (Ahlstar™) bearing units we have developed a unique program of single and double seals. Typical features are: robust design, springs located outside buffer fluid and rigid clamp-in fit to the shaft making set screws redundant. These features make them especially suitable for demanding black liquor pump applications. Of course these seals may also be used for any other Scanpump PSI-

or Sulzer Ahlstar pump application in the mill if you prefer these customised seals over using standard seals with assembly kits.



Specialized seals for Black Liquor pumps

The black liquor circulating pumps around the digester are some of the most critical seal applications in a modern chemical pulp plant. High temperatures and pressures, pressure chocks, abrasive media and hazardous chemicals are typical application features. Huhnseal has developed a special seal technology which ensures safe, reliable and economic operation of these

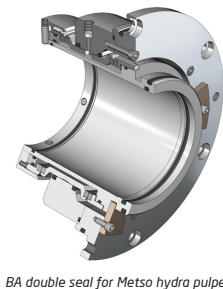
demanding pump positions. This seal technology can be made available to most pump types and brands.



Seals for special rotating equipment

For many other types of equipment, such as: pulpers, pressure screens, mills, refiners and bleaching mixers, Huhnseal supplies special sealing solutions. In most cases double seals are used with customised design allowing direct fitting without modifying the original machine parts. Huhnseal offers these products along with a logistical plan for spares and service. The seals are offered with many different types of materials for machined

parts and elastomers.



Huhnseal diamond seal technology

Crystalline diamond coating for seal faces

Clean water to be used for buffer (double seals) or flushing (single seals) is often a scarce resource. Also in many cases adding flush water into the pulp is to be avoided because the energy required for heating added flushing water carries an extremely high cost. The solution to this problem is to use single cartridge seals with crytalline diamond coating on the Silcone Carbide seal faces. The diamond coating offers an extremely hard surface, low-est possible

friction and optimal heat conductivity. This allows for operation with single cartridge seals, where normally double seals or single seals with flush into the product would be used. This concept is especially suitable for recycled pulp mills and pumps for additives, but also for most general pulp applications.

