

# Responsive



## Chemical Processing Industry Sealing Products

Innovative sealing solutions that increase the uptime of rotating equipment in chemical processing applications, and help reduce environmental emissions.



AESSEAL® is a world leading provider of quality mechanical seals – but we're more than just a supplier of new and replacement parts.

We are a chemical processing industry pioneer with a total focus on achieving exceptional quality in terms of products, technical innovation, customer service and product support.

Established in 1979, we've grown to become a major global player in the sealing industry, operating from 230 locations and supplying customers in 104 countries. AESSEAL® is an expert at sealing rotating equipment in the chemical processing industry and have successfully sealed a wide range of equipment worldwide.

Our unique modular technology enables us to respond quickly and effectively to even the most demanding technical challenge or delivery deadline. Our seals deliver increased reliability and reduced cost of ownership – and we have the

evidence and customer references to prove it. We deliver exceptional service and exceed expectations. Everything we do – from manufacturing to distribution and product support – is focused on redefining the customer experience. We believe that, once we've worked together, you will never need to look for another supplier.

The chemical and pharmaceutical industry has traditionally been very difficult to seal. Most liquids and mediums that require sealing are very corrosive and the seals themselves are used in very arduous situations. AESSEAL® continuously focuses resources on creating new sealing solutions to solve problems encountered in this industry.



## Improve Equipment Reliability?

### Simple.

Besides holding one of the world's most comprehensive 'standard inventory' portfolios of mechanical seals, bearing seals, seal support systems and braided packing, we have made a massive investment in creating an industry-defining range of sealing products for the chemical processing industry.

At the heart of this lies our unique modular technology, which means we're able to streamline the order process and deliver against even the most challenging lead times. Our customer philosophy, like our ordering process, is simple: we'll do whatever it takes to deliver whatever is needed. Our aim is to consistently exceed expectations.

### Investment.

We have invested heavily in testing and manufacturing equipment and in state-of-the-art computer controlled machinery which has increased productivity and reduced manufacturing costs, bringing our customers the best 'value for money' sealing products in the industry. Determined to remain at the forefront of the engineering profession, we invest heavily in R&D, bringing you our customer the very latest in sealing technology. Nobody in our sector is doing more.

### Modular Technology.

We have developed a unique and patented range of pre-engineered seal components which enables some 10 million different combinations to be configured, meaning we can rapidly assemble and despatch solutions to meet virtually any application faster and more cost-effectively than any other supplier. The result? Custom-fit quality with off-the-shelf turnaround and cost, as well as seals which surpass our customers' expectations for reliability.

### Customer Service.

Our aim to redefine the customer experience is embedded within our culture. Everyone who works at AESSEAL® is encouraged to champion the customer's cause, to identify improvements in our products and to challenge our business to find new and better ways of working.

We believe Exceptional is achievable and offer above average guarantees (48 hour shipment of standard products as part of a seal management program) and a multi-lingual and always-open service (24 hours a day, 365 days a year). Our approach is constantly being recognized by our many repeat and valued customers.

### Ethical.

We are totally committed to exceeding our corporate, environmental and social responsibilities. We further promote corporate responsibility throughout our supply chain.

## Experience you can Trust

With over forty years of experience in the chemical industry and by recording the knowledge acquired AESSEAL® have developed a world leading chemical database which helps to choose the correct seal for the medium being sealed. In addition, a comprehensive pump and application database which determines whether a seal will fit without modification or if a previous engineered seal design has been created. These tools enable AESSEAL® engineers to deliver solutions quicker to our customers further improving our already exceptional customer service.



## From a customer perspective.

In order to continuously improve our products and redefine our Customer's experience, we work as a team, sharing ideas and best practices across our international network.

A commitment to delivering an exceptional experience defines our approach and our focus as a business is on exceeding expectations. We empower our people to champion the customer's viewpoint, so we can constantly evolve new products and services. We see the world through their eyes. Here, you can see the impact of our work through theirs.

“We empower our people to champion our customer's viewpoint so we can evolve new products that reduce downtime.”

## Customer Applications. Solved.

### USA

With repeated frequent seal failures on their 'bottoms' circulation pump a US chemical company turned to AESSEAL® for assistance. AESSEAL® found the failures were due to solidified process fluid clogging the seal bellows and coking of the process fluid on the atmospheric side of the seal. AESSEAL® recommended that using API Plan 62 with a steam quench on the atmospheric side of the seal. This low cost upgrade is saving the plant almost \$12,000 per year.

### Mexico

A chemical company in Mexico was having problems with a competitors mechanical seal on a monoethylene glycol recirculation pump. AESSEAL® replaced the seal with a DMSF™ along with a Plan 53 seal support system. The DMSF™ had the benefit of the springs being exposed to the process fluid, this led to an improvement in reliability.

### Mexico

The mechanical seal in a phosphoric acid ether pump had poor reliability as the process fluid was attacking the seal components. AESSEAL® recommended replacing the competitors seal with a DMSF™ manufactured with Alloy 255 for the wetted parts. Alloy 255 is more resistant to chemical attack and seal reliability was improved by over four times.



## United Kingdom

A chemical plant in the UK was sealing an Aceto Digester feed pump with a competitors dry running gas seal. The seal was unreliable and was failing on average every 3 months at a typical cost of over £3,500 per repair. AESSEAL® installed a UDGS™ dry gas seal along with a gas supply panel. The initial installation ran continuously for 18 months and the plant decided to upgrade a further 7 pumps. The plant is currently saving £273,898 per year in reduced maintenance costs.

## United Kingdom

A leading Paint manufacturer was experiencing reliability problems with a badly aligned bottom entry paint mixer. Paint was leaking from the vessel through the OEM supplied lip seal causing the mixer motor to fail every 2.5 months. AESSEAL® installed the LabTecta® bearing isolator in place of the lip seal. The plant experienced a significant improvement in reliability (MTBF increased 540% and counting) and the cost of the upgrade was repaid within 1 month. The customer has saved over £8000 in reduced maintenance cost (so far) and an expected 9.5 days per year of lost production.

## United Kingdom

Lubrizol in the UK were having regular ongoing failures with their reactor seals. AESSEAL® analysed the reasons for the failure and recommended installing a CDMSC™ dual mixer seal. The Mean Time Between Failures was improved from just 3 months to 3.5 years, plus the seal was much simpler to replace reducing downtime significantly.

## China

A major chemical company was having problems with a competitors top entry agitator seals on two mixer applications. The seals were unbalanced and had issues with the axial positioning. AESSEAL® replaced the seals with a MIXMASTER mixer seal. The new seals have proven to be more reliable which has led to the facility reducing maintenance cost and saving over 760,000 CNY in lost production.

## Australia

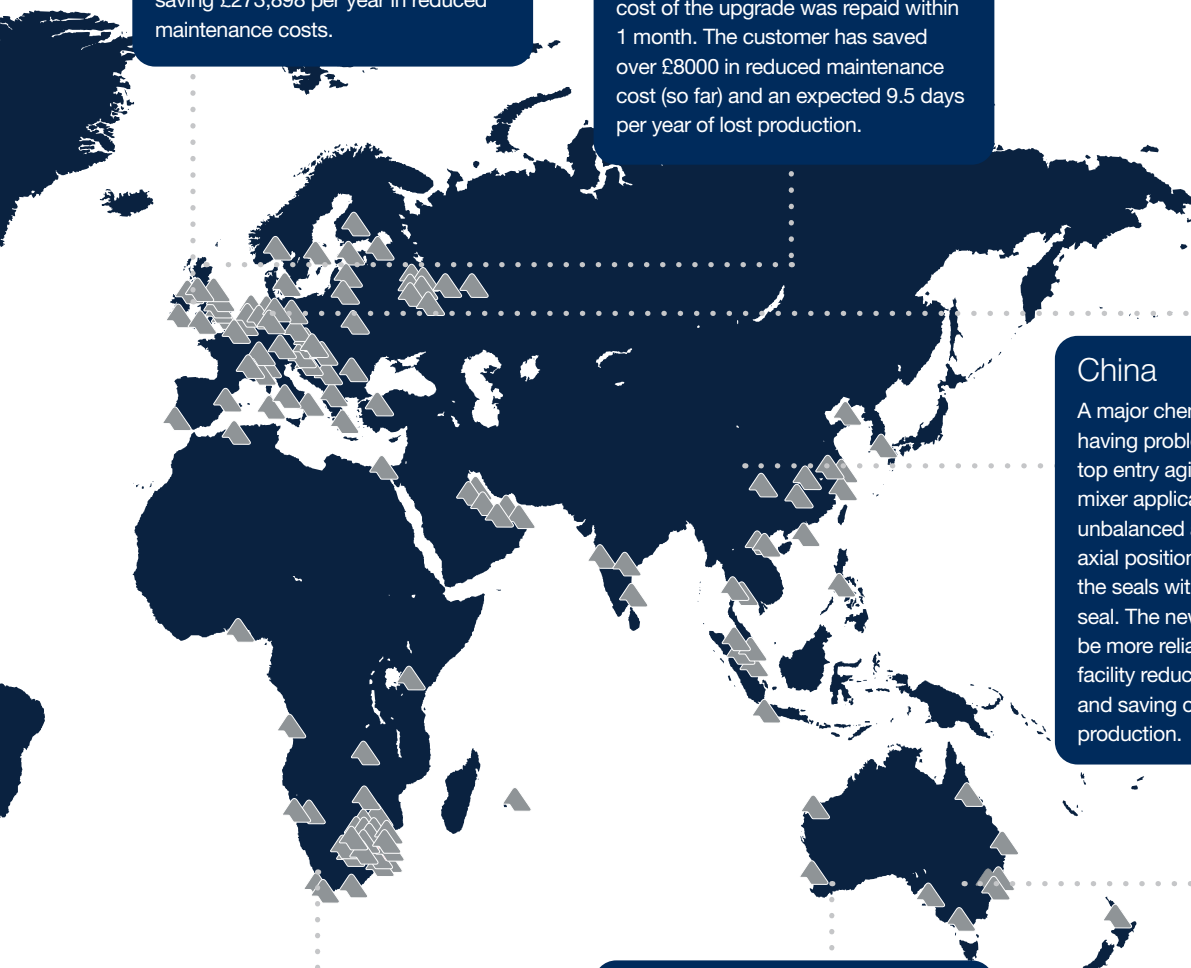
One of the largest ammonia production facilities in Australia was having repeated reliability problems with the mechanical seal on its anhydrous ammonia recirculation pump. Seals were typically lasting just days. AESSEAL® were asked to investigate the problem and found that the elastomers were not compatible with the process fluid. AESSEAL® replaced the seal with a dual CAPI seal along with Plan 14 and 52 seal support system. The upgraded solution is now proving to be very reliable with more than 6 months trouble free operation at time of writing.

## Australia

With reliability measured in just days a major chemical company turned to AESSEAL® for a sealing solution for its fluorosilicic acid spray pump. AESSEAL® replaced the gland packing with the HDDSS™ slurry seal. The upgrade led to a significant improvement in reliability.

## South Africa

A Platinum mine using Metso slurry pumps could tolerate no product dilution. We installed 32 sets of CDPH™ double seals and SW02™ seal support systems, supported by one FDU™ to supply barrier water. Pumps and seals are running well after 2 years, even through periods of process upset. We added Flowfuse™ units to the SW02™ to prevent product dilution.





## Our Product Range

### For Chemical Applications



#### Packing

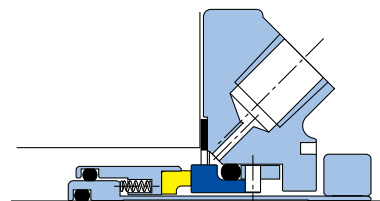
AESSEAL® offers a range of gland packing that has been designed and manufactured to reduce plant operating maintenance costs. AESSEAL® offers trapezoidal cross section packing along with the regular square cross section packing. Trapezoidal cross section packing transforms to a square shape when compressed providing even pressure distribution over the entire stuffing box, avoiding leakage along the outer diameter and minimizing wear on both the packing and the shaft. This extends the life of the packing, improves the sealability and gives shorter run-in periods. The cost of packing is low when compared to the cost of down-time of a plant. Therefore, it is of the utmost importance to select the highest quality modern fiber packing in an inter-braided construction with optimized profiles to provide the most resilient, long-lasting packing sealing solution. You can find more information at: [www.aesseal.com/en/product/gland-packing](http://www.aesseal.com/en/product/gland-packing)

#### Mechanical Seals

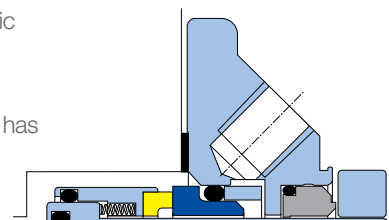
AESSEAL® offers a range of mechanical seals suitable for the challenges of most chemical processing applications a selection of the commonly used is listed below. You can find more information about our full range at: [www.aesseal.com/en/product/cartridge-mechanical-seals](http://www.aesseal.com/en/product/cartridge-mechanical-seals)



- The SCUSI™ – A short cartridge single mechanical seal with patented self aligning faces and integral flush port. Available with optional Kalrez® wetted elastomers. Short overall length allows use on equipment with limited outboard space.

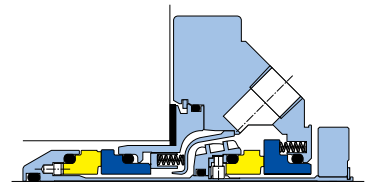


- The CURC™ / CURE™ – Cartridge single mechanical seals available with optional Kalrez® wetted elastomers and exotic alloy wetted components. Patented self-aligning faces are incorporated. The CURC™ is a general purpose single cartridge seal with integral flush, quench & drain ports and has an integral leakage restriction bushing. The CURE™ has a unique low-pressure secondary seal for the containment of quench fluid.

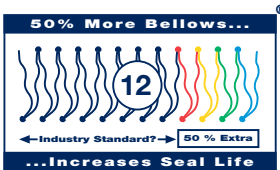
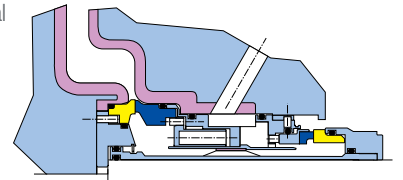




- The DMSF™ – range of double mechanical seals has been designed as a high-performance sealing solution for arduous applications. A double cartridge stationary seal with an integral pumping ring and monolithic seal faces. The DMSC™ is supplied without an integral pumping ring meaning that it is perfect for use on applications that demand the use of an external forced circulation device (e.g. PUMPPAC™). The seal is supplied with monolithic seal faces.



- The LSEAL™ – the cartridge double and single mechanical seal designed specifically to suit the Flowserve™ L-series range of plastic lined process pumps. It is designed with non-metallic wetted components and is available with optional wetted elastomers in Kalrez®.



- The Bellows Range – 50% more bellows than the industry standard (12 instead of 8) means there is less stress on each convolution in the bellows stack which helps increase seal life. Our standard bellows material, Alloy C276, also has superior mechanical and corrosion resistance properties compared to other industry standard bellows materials such as 300 series Stainless Steel or Alloy 20. The bellows unit is available in a variety of different material options with either elastomer or graphite packing sealing rings.



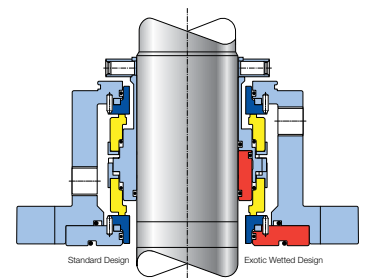
“ We design and manufacture products which exceed expectations for reliability and performance. ”

“The solution installed by AESSEAL® not only increased the Mean Time Between Failure rate by over 3000%, but also reduced downtime.”

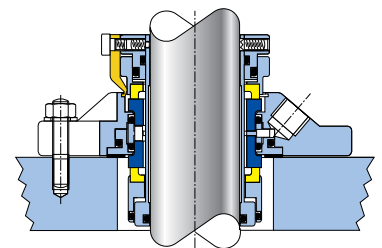
## Mixer, Agitator and Reactor Seals



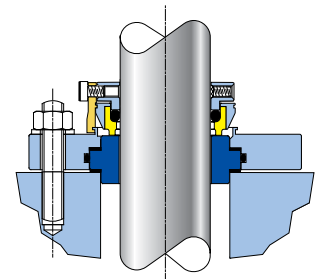
- The SCMS™ – range of single or dual mechanical seals is suitable for side entry (flooded) or top entry (running in vapour) mounting and the design facilitates both wet and dry running version. The compact design of the SCMS™ range makes it an ideal solution where space is limited. The modular design of the SCMS™ enable the seal to be supplied either with or without a bearing, glass lined flange and with exotic wetted components. ATEX / IECEx certification for Zone 0/20, 1/21 and 2/22 is available and can be supplied with FDA compliant materials.



- The CDM™ – The cartridge double mechanical seal specifically designed for mixer applications. The seals can be supplied with Kalrez® wetted elastomers and exotic alloy wetted components. For use on top, side and bottom entry equipment.



- The ESM™ – The external unit mechanical seal for mixer applications, available with non-metallic wetted components and optional Kalrez® wetted elastomers. These are available with a collet drive for hard, soft or glass coated shafts. We offer an optional Buffer Canister™ to bathe the seal faces in a buffer fluid. This helps facilitate seal operation.



## Engineered Seals

Sealing applications in the chemical industry often require a custom engineered design. AESSEAL® has many years of experience in designing solutions for the industry that deliver improvements in reliability for our customers.

We work with you to design a sealing solution specifically for your application ensuring that the correct materials of construction are used that will deliver the optimum life and minimize maintenance. AESSEAL® has worked with mining companies all over the world typically producing over 13,000 custom engineered mechanical seals annually.

You can find more information at [www.aesseal.com/chemical](http://www.aesseal.com/chemical)



Seal and fittings for Aseptic and Sterile applications





## Seal Support Systems

You can obtain your mechanical seal and seal support system from the same supplier: AESSEAL®. All of our systems comply with the following international standards:



SW2™  
Water Management System

- ASME VIII Div. 1
- PED 2014/68/EU
- GOST

A range of instrumentation options are available to adapt your seal support system to specific application requirements and to prevent damage to your large process pumps in the event of a power failure, etc. To find out more, please visit:

[www.aesseal.com/en/product/seal-support-systems](http://www.aesseal.com/en/product/seal-support-systems)



FDU™  
Fluid Delivery Unit

- Seal Support Systems – AESSEAL® offers a family of fully maintenance-free, self-topping, self-pressurising seal support systems that support our double mechanical seals with pressurised barrier fluid. Pressure ratings available up to 435 psi (30 bar) makes these seal support systems ideal for servicing multiple slurry pumps in a “series train”.
- Fluid Delivery Unit (FDU™) – The FDU™ is used where there is no plant water supply available for topping up the seal support systems, or where the plant water supply does not have the required pressure or water quality to maintain a clean fluid film on the seal faces (the barrier fluid pressure is typically 15 psi or 1 bar greater than the stuffing box pressure). The FDU™ normally uses water as the barrier fluid, but may also use a water/glycol mixture or oil in extremely cold climates for freeze protection.

## Bearing Protection

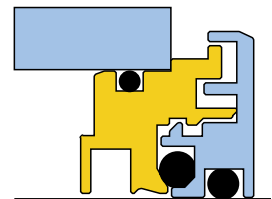
The LabTecta® and MagTecta™ range of bearing protectors has a proven track record of increasing the MTBR (Mean Time Between Repairs) for all rotating mining equipment, including pumps, motors, gearboxes, trunnions and pillow block bearings. The LabTecta®OP is independently certified to IP-69K for superior protection against water and solid contaminants. With no contacting parts, it is ideal for oil splash, grease, or even dry-running conditions. A wide range of special designs are available to suit large axial movement, split seals, vertical-up shafts, self-aligning pillow-blocks, air purge (dusty conditions), all-stainless steel and fully flooded applications.



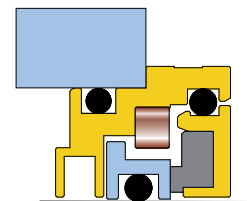
LabTecta®OP  
Bearing Protection

For more information please visit:

[www.aesseal.com/en/product/bearing-protection](http://www.aesseal.com/en/product/bearing-protection)



LabTecta®OP



MagTecta-S™





## Exceptional Service Secures Business

MÜNZING Chemie, an established German manufacturer of speciality additives such as concrete defoamers, dispersing agents and waxes, was looking to upgrade the mechanical sealing solutions on eight chemical mixing machines. To get the best solution for their application they approached a number of mechanical seal suppliers to bid including AESSEAL®.

The upgrade project would include sealing two mixers on each machine. One was an 80mm diameter shaft rotating at between 10 and 20 rpm, the other, a 60mm diameter shaft rotating at between 735 and 935 rpm.

The inside of the machine was classified as an ATEX Zone 0 area. AESSEAL® recommended the SCMS™ short canister mixer seal along with an SP02 seal support system. The SCMS™ is available with Zone 0 certification, can accommodate up to 3.5mm of radial movement and its compact size ensures it can be installed on most mixer designs. The SCMS™ seal used in conjunction with a 12 litre SP02 system was a self-contained solution. This requires no additional cooling devices or level and pressure sensors (unlike solutions offered by others).



Shortly after the project discussions began, MÜNZING Chemie experienced a failure with one of the existing seals. With the immediate need for a replacement they asked all bidding parties if they could assist. AESSEAL® offered a CDM™ dual mechanical seal and were the only company able to supply and install the seal within 48 hours, successfully demonstrating their promise to deliver exceptional customer service. This proved to be a key reason why AESSEAL® were selected for the upgrade project.

“ 48 hour  
turnaround ”



View more case studies in the chemical industry on our website





ENVIRONMENTAL TECHNOLOGY

To experience the exceptional, please contact your local representative. Discover full details on our website:

[www.aesseal.com](http://www.aesseal.com)

This brochure is fully recyclable. When laminated, a sustainable, biodegradable and recyclable lamination is used.

For further information and safe operating limits contact our technical specialists at the locations below.



**UK Sales & Technical advice:**

AESSEAL plc  
Mill Close  
Bradmarsh Business Park  
Rotherham,  
S60 1BZ, UK  
Tel: +44 (0) 1709 369966  
E-mail: [enquiries@aesseeal.info](mailto:enquiries@aesseeal.info)  
[www.aesseal.com](http://www.aesseal.com)

**AESSEAL plc is certified to:**

ISO 9001, ISO 14001, ISO/IEC 20000, ISO/IEC 27001,  
ISO/TS 29001, ISO 37001, ISO 45001 & ISO 50001



Net Zero champions globally



Use double mechanical seals with hazardous products.



Always take safety precautions:

- Guard your equipment
- Wear protective clothing

**USA Sales & Technical advice:**

AESSEAL Inc.  
355 Dunavant Drive  
Rockford,  
TN. 37853,  
USA

Tel: +1 865 531 0192  
E-mail: [usa@aesseeal.com](mailto:usa@aesseeal.com)  
[www.aesseal.com](http://www.aesseal.com)

**Important:** Since the conditions and methods of use of this product are beyond our control, AESSEAL plc expressly disclaims any and all liability resulting or arising from any use of this product or reliance on any information contained in this document - AESSEAL plc standard conditions of sale apply. All sizes are subject to manufacturing tolerances. We reserve the right to modify specifications at any time. AESSEAL® is a Registered Trademark of AES Engineering Ltd, AESSEAL plc recognizes all trademarks and trademark names as the property of their owners.