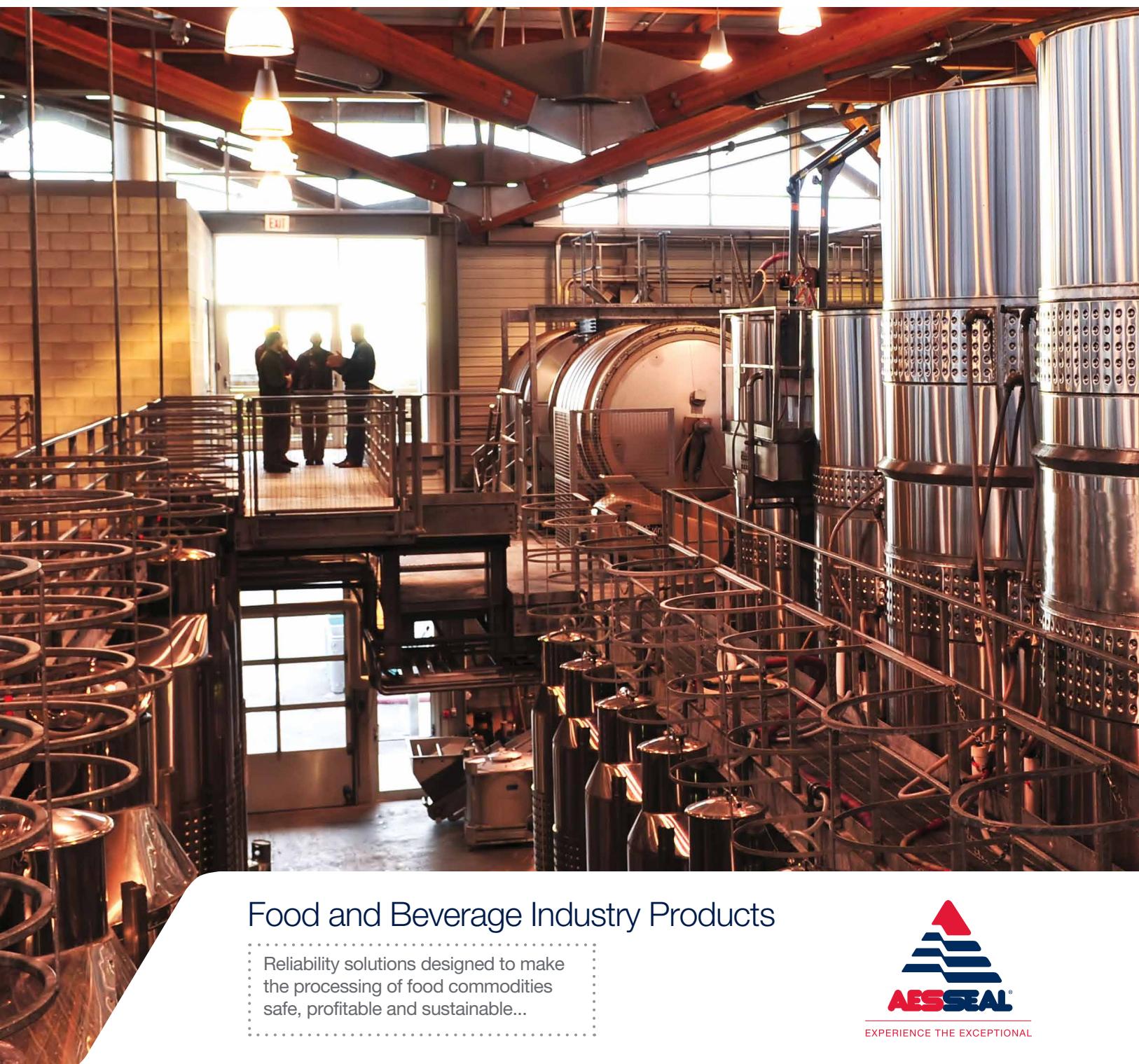


Solutions



Food and Beverage Industry Products

Reliability solutions designed to make the processing of food commodities safe, profitable and sustainable...



Certified food-safe solutions to keep your equipment running longer, produced in world-class manufacturing facilities.

Our global customers are critical to the world's food supply and we help them with reliable product solutions. Food safety drives their process decisions. Solutions are needed to effectively seal rotating equipment. This means solutions for a wide array of equipment, solutions to protect bearings against high-pressure wash-downs, solutions to seal thick sticky slurries and solutions capable of withstanding clean-in-place (CIP) procedures.

From sealing a Puma or Fristam Pump in a dairy plant to sealing a four-story fermenter in a bio-products plant, we have the product offering to meet industry requirements. In addition to product selection, we have unique designs and support systems to make it more profitable to process and convert commodities into food ingredients.

Our manufacturing facilities are world-class, just what you would expect from a supplier to the food and beverage industry. We believe in cleanliness and controlling every step of the supply chain.





“ Quality is non-negotiable and it is a strong thread that weaves all of our activities and people together. **”**

Quality

The Food and Beverage industry demands food-safe products.

Government requirements vary regionally; this calls for a quality system capable of meeting the needs of different legislative statutes.

AESSEAL® controls quality with integrated product life-cycle management (PLM) software and product serialization.

It doesn't matter if you reach us in Iowa (USA) or Durban, (South Africa), our system gives us transparency. We can tell you the materials used, the date your seal was manufactured and anything special about it.

Hygienic Components

Whether it is food grade compliant elastomers with WRAS certification, 3-A Sanitary Standard or European Hygienic Engineering and Design Guidelines (EHEDG), our seals reduce the probability of micro-organism growth and cross batch contamination during operations and between clean-in-place cycles (CIP).

We offer you alternatives to seals that leach nickel, which act to grind carbon or which have an increased probability of seal face breakage – all liabilities to your plant operations. Our materials are traceable, certified and audited to ISO-9001 Lloyds Quality Registry (LRQA). We have processes in place to ensure our FDA / WRAS inventory cannot be inadvertently supplied incorrectly. More importantly, we can identify it in the seals you use or you purchased from us in the past. Mechanical seals in direct contact with food carry the EC Regulation Symbol.

From a Customer Perspective

Service matters. We have a track-record with regional and multi-national companies in the food and beverage industry. Our products are global, information is transparent and our service and support is coordinated.

Unlike other suppliers, we have a global product range. Wherever your plant is located, the product you purchase from us will have the same product nomenclature. Our business enterprise system allows us to view and balance inventory anywhere in the world. This means we can supply products quicker.

Information is transparent. Our product life-cycle management software empowers each branch location to access the latest engineering design revision and we let our customer partners access our product drawings instantaneously from our website. This ensures the correct product for the equipment.

We coordinate the service for our global contract customers with quarterly conference calls. Comparing application results, solving problems and accessing the 10,000 applications we are tracking in the corn processing and oil seed industry on our Asset Health Software. We continuously improve.

This coordination allows us to have educational training guides in the food and beverage industry. From solutions for specific equipment in the dairy and brewing industry to how to seal a chocolate or sugar plant, these training resources are available.

Global

Customer service is provided from 230 locations in 104 countries, including 9 manufacturing and 58 repair locations, with more than 300 customer service representatives who visit industrial plants every day.

USA

"AESSEAL's ownership in the equipment is exceptional, as is its communication system. Our failure rate and reliability risks from seal failures have steadily declined. They provide maintenance and reliability with valuable information on the MTBF of the equipment".

USA

"I continue to be impressed with AESSEAL's efforts. For me, they are the only supplier that has not had to sell themselves.... This is the kind of supplier we aspire to be."

USA

"A double seal failed on a critical reactor application. The OEM quoted an unacceptable 8-10 day delivery for a new seal. AESSEAL reacted, repaired the seal and installed it within 3 days minimizing the cost of lost production".

South Africa

"Rpacking our bottom entry batter mixer every 2-3 weeks was a headache. AESSEAL engineered a solution that ran 6 years without failure, which has increased our uptime exponentially".

South Africa

"Upgrading our caramelized sugar pumps eliminated continuously leaking single seals. The double seals with barrier fluid systems have proven successful over and over again".



Ireland

"Prior to AESSEAL coming into our Brewery; we drained our 25,000 gallon hot wort agitator about every 6-months to change single seals. Hot wort leakage resulted in lost production and was a safety hazard. The AESSEAL upgrade to Water Management System with flow fuse had a pay-back of only 180 days".

UK

"AESSEAL's response to a critical failure on finished product covered all bases, they were on-site addressing the root cause of failure with an effective solution... outstanding".

Italy

"Bearings on our large pasta machines required changing every 15 months due to poor lip seal performance. AESSEAL installed MagTecta™ bearing protection as a solution, which has delivered 30 months performance to date. We are now changing all pasta machines to AESSEAL bearing protection".

Italy

"Our previous supplier indicated that it was impossible to better 2 months performance on an application. AESSEAL implemented a solution that has been running for over 15 months without problems and are now a key supplier for the entire plant".

Turkey

"The fiber wash pump was a real ongoing problem to us, but AESSEAL came up with an innovative solution for the root cause of mechanical seal damage. It was both technically sound and economical to order solutions. So we're using them elsewhere."

Australia

"A seal repair and installation within the same day allowed us to keep food production going – and the technical ability and speed of AESSEAL is impressive".

South Africa

"At our Glucose Refinery we are not customers of AESSEAL but partners....With our input and AESSEAL's technical skills and reliable service, problem mechanical seals are a thing of the past.". .

South Africa

"Water management systems used to be a major issue for us in sugar refining, but AESSEAL has provided not just technical solutions, but excellent staff training on the topic. It's become a real win/win partnership and MTBF is definitely increasing".

Australia

"It only took AESSEAL 2 hours to respond to an O-ring problem that could have closed the brewery. This was an exceptional response".

Product Solutions

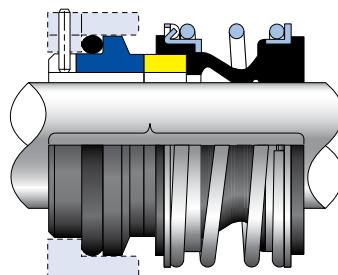
Innovation

Technology Upgrades

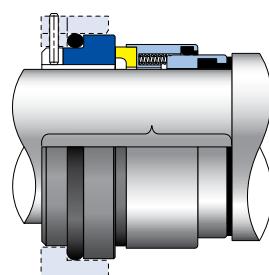
When asked to replace a seal, which used a rubber bellows, we looked at the cause of failure. On an Alfa Laval ALC series pump, the faces were sticking together, silicon carbide fragments were breaking and contaminating the product and the rubber bellows split under drive torque. AESSEAL® innovation solution was to design the M010, eliminate drive set-screws and isolate the individual springs from the liquid.

The figure at the far right is the upgrade solution.

Special elastomers drive the internal rotary and the outer barrel also has special elastomers to eliminate crevice entrapment of particles. The rotary face is press-fit into the rotary barrel and the drive between the two rotary components use metal-to-metal pins.



Original Alfa Laval Seal



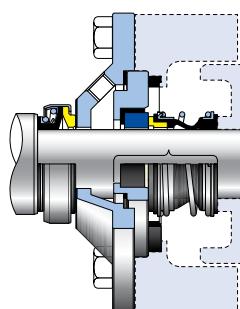
Upgraded Alfa Laval Seal Design

Comprehensive

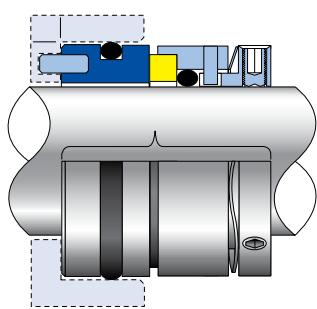
Industry Specific Products

These cross section graphics represent just a few of the many industry specific seals in stock for immediate shipment. Special equipment require special seals. We don't think you should modify your equipment to fit our mechanical seals. By doing this, modification could impact the other spare parts you purchase from your pump supplier. Instead, we manufacture the seal to fit the OEM equipment.

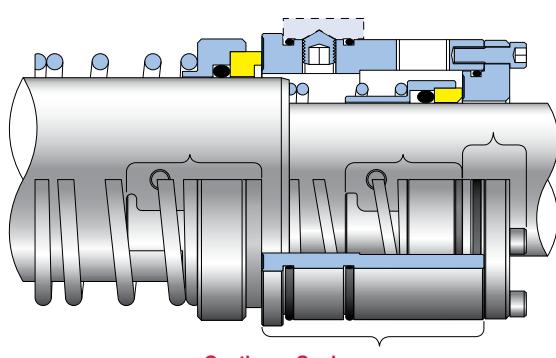
You will find these applications in dairies, breweries and other food processing industries. Equipment such as APV, Alfa Laval, Contherm heat exchangers, Fristam, Johnson, Hilge, KSB, Tuchenhagen, Sine, Tri-Clover and Waukesha, to name a few.



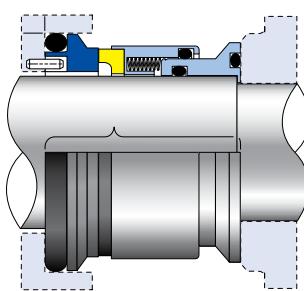
APV Puma



IBEX Mog Rotary Lobe



Contherm Cooker



Hilge





Reliability Solutions

The AESSEAL® Water Management System is different from a traditional seal tank. Commodity processing pumps operate in water soluble slurries. Centrifuges and evaporators separate and refine the finished product. As the product thickens and becomes sticky, seal reliability becomes critical. Traditional piping plans (e.g. plan 53-A or plan 54) are insufficient. Secondary barrier fluids suffer from cross contamination and inconsistent pressure controls.

Seal reliability depends on maintaining a consistent fluid film at the inboard seal face. The barrier fluid is pressurised above the process pressure. This means the inboard seal face fluid film is clean and stable. In figure 1, the process fluid is the fluid film on the inboard seal face set because the barrier fluid is at a lower pressure. Figure 2 shows the barrier as the fluid film, this is accomplished when the barrier fluid is at a higher differential pressure than the process fluid.

Under traditional plan 53-A set-up, the tank has a fixed volume of liquid pressurised by nitrogen or compressed air; during process upsets, the tank empties and the seal runs dry. The AESSEAL® Water Management System is different. Water is filtered and continuously supplied to the seal tank, flow controls confirm the condition of the inboard seal face and pressure is regulated for each application.

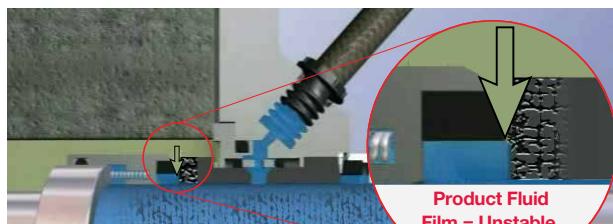


Fig. 1

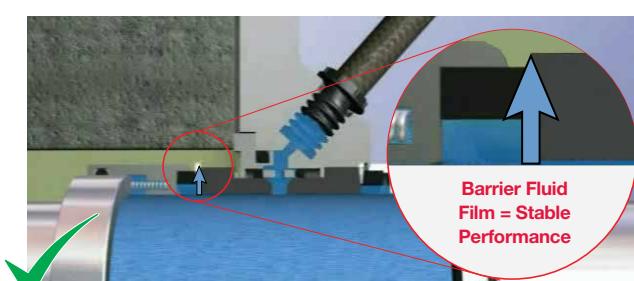


Fig. 2



SW Range (SW2™ and SW3™)
Water Management Systems



Our Product Range

From standard to special application, AESSEAL® has the range to seal your entire plant. Our technology covers a wide range of products, from component seals to complex seals used in 4-story reactors.

Mechanical Seals



SAI™

AESSEAL® delivers seal auxiliary systems to support all API piping plans as well as hybrid pre-engineered systems to solve the operational factors constraining reliability. You can find more information at www.aesseal.com/seals.aspx



DMSF™

- **Chocolate Industry** – Seals for positive displacement, internal gear, rotary lobe, screw, sliding vane and MasoSine pumps. Speciality equipment: scraped surface heat exchangers, depositors, agitators, conche and tempering machines are sealed with our custom designed sealing products.
- **Sugar Industry** – Products for the extraction, clarification, carbonization, decolorization, evaporation, crystallisation, separation and drying process are detailed in our Sugar Industry Sealing Guide. Installations using our Water Management System improve the efficiency of evaporators.
- **Oil Seed Processing** – Standard and special products are used in drying, cleaning, cracking, dehulling, conditioning and flaking. Also, seals for solvent extraction and removal, degumming, alkali-refining, bleaching, hydrogenation, deodorizing, blending and storage are used in Oil Seed Processing plants on each continent of the globe.
- **Wet and Dry Corn Milling** – AESSEAL® is one of the market leaders in this industry. Our mechanical seals, systems and bearing protection devices are used on critical and non-critical production equipment. Applications in steeps, grind mills, germ separation, germ and starch washing as well as germ, corn steep and fiber dryers. We also seal the refining production process and by-product derivatives.
- **Dairy and Breweries** – Special seal designs for APV, Alfa Laval, Contherm heat exchangers, Fristam, Johnson, Hilge, KSB and Tuchenhagen pumps are available from our vast stock holdings.
- **Component Mechanical Seal** – Portfolio includes multi-spring, welded metal-bellows and single spring designs for internal and external rotaries. A large stock-holding of o-ring and boot-mounted stationaries are available in silicon carbide, tungsten carbide and ceramic.
- **Cartridge Mechanical Seals** – Single seals with plain glands, flush ports and quench and drain porting. Double seals with inlet and outlet ports as well as flush ports to assist with C.I.P. requirements.
- **Progressive Cavity Pump Mechanical Seals** – Custom designed seals, such as the PCP™ range for progressive cavity pumps have beneficial design features. Full cartridge and contoured bell housing and tapered smooth surfaces eliminate crevice entrapment.
- **Mechanical Seals for Reactors** – Reactor mechanical seals with modular features and options. Options include glass-lined flanges, debris-well, integral bearings with LabTecta®66 seals to exclude steam used in sanitary applications. Patented dry running technology suppresses high frequency noise resonance.



PCPS™



Mixmaster IV™

AESSEAL® has proven experience in the Food and Beverage Industry, learn more about our experience by downloading our Industry Sealing Guides at www.aesseal.com

Seal Auxiliary Systems

The innovative AESSEAL® modular design process enables the provision of seal auxiliary systems to suit all API piping plans within rapid delivery times. The modular nature also guarantees a simpler ordering process for you.

From water management to complex high pressure as well as food grade barrier systems, AESSEAL® empowers local service providers with heat generation software to select the optimum solution on-site. Systems are manufactured at the AESSEAL® Global Technology Centre, which is certified to Module D, B1 and H1; H1 being the highest level of Pressure Equipment Directive (PED) certification.

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

A range of instrumentation options are available to adapt your seal auxiliary systems to specific application requirements. To find out more, please visit www.aesseal.com/systems.aspx



W2 Water Management System

Bearing Protection

Food Safety is a major concern. Daily high pressure wash-downs contaminate bearings; shouldn't a bearing protection range be part of your reliability strategy? Bearing protection can eliminate over 50% of bearing failures. The LabTecta®66 and MagTecta™ bearing protection technology has a proven ability to increase operating performance on pump, electric motor, pillow block, steam turbine and gearbox equipment. Inboard and outboard air purge seals contain product and restrict dust from building up on the outside of machines. These products reduce fire risk from carbonized build-up of oils. The unique and patented designs enhance bearing life by preventing bearing contamination. Additionally, the LabTecta®66 is field repairable in a matter of minutes, further helping to reduce downtime issues.



LabTecta®66RDS™

- API610 Ed.10
- IEEE Std. 841-2001
- British Standard EN60034-5:2001, IP66 rating for LabTecta®66 range

For more information please visit www.aesseal.com/bearings.aspx



Customer Collaboration

Our focus isn't just on the rapid, cost-effective delivery of new and replacement parts. It's equally fixed on delivering long-term reliability solutions which exceed even the highest expectations.

We don't see ourselves as a supplier, but as a business partner, working alongside customers to deliver added value throughout the supply chain and beyond. As well as inventory management, engineer call-out, training, water saving audits and a competitor repair / replacement program, we offer a range of reliability services through our Customer Collaboration Site Service Program. Key products include:

AESSEAL® Improvement Remedy. Here, our consultants fully inspect all seal failures in order to determine the root cause. Subsequent recommendations enhance long-term reliability while delivering demonstrable cost savings.

Software Suite. An extensive database of our experience in the Food & Beverage industry, provides an invaluable resource which can be queried to provide answers and recommendations to improve equipment reliability.

Literature. Free web site downloads available for publications covering Food & Beverage activities, piping plans and product information.

To experience more of our exceptional offer, please visit our Food & Beverage section online:
www.aesseal.com/food.aspx





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

www.aesseal.com

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



Use double mechanical seals with hazardous products.

Always take safety precautions:

- Guard your equipment
- Wear protective clothing



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AESSEAL plc is certified to ISO 9001, ISO 14001, ISO 29001, ISO 50001 and OHSAS 18001.

'Our purpose is to give our customers such exceptional service that they need never consider alternative sources of supply.'



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