



ENVIRONMENTAL TECHNOLOGY



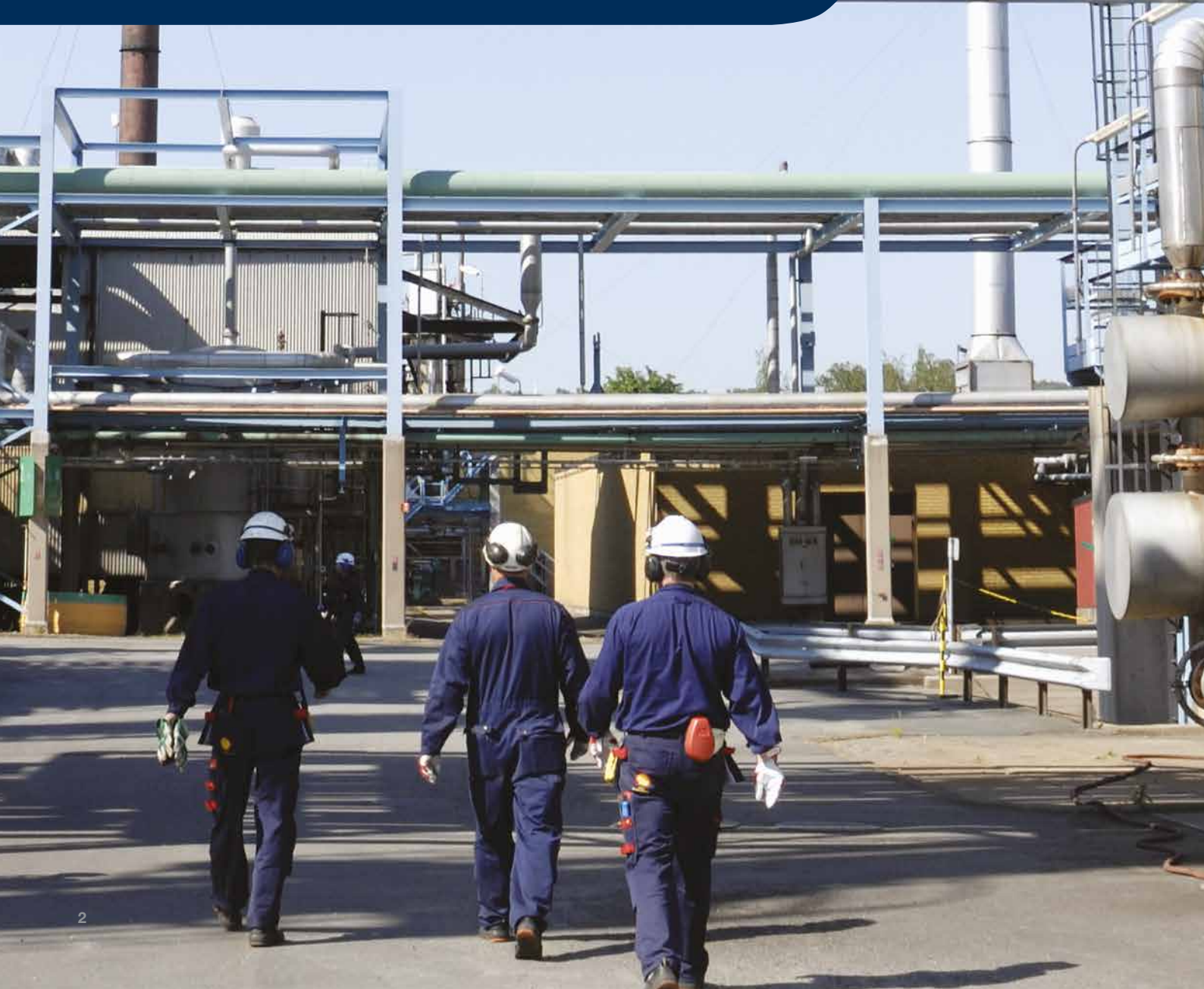
Corporate **Brochure**

NET ZERO



AES Engineering Ltd went beyond Net Zero in 2021, with its global business activities delivering CO₂e savings equivalent to the environmental impact of more than 18 million trees, according to figures verified by the leading standards organisation BSI.

The target of getting beyond Net Zero by 2029 was delivered eight years ahead of schedule thanks to a group-wide effort and the #29by29 pledge to invest £29 million by 2029 in environmentally-friendly projects.





Pulp & Paper



Power Generation



Mining & Minerals



Water & Waste Water



Bio/Ethanol



Oil & Gas



Food & Beverage



Automotive



Chemical & Pharma



Metal Processing



Bearing Protection



Mechanical Seals



Seal Support Systems



ENVIRONMENTAL TECHNOLOGY

Contents

Net Zero	2	Culture and Values	8
Our History	4	Our Capabilities	10
Global Reach	5	Our Expertise	12
Customer Service	6	Our Products	14



Our History

The Journey to Reliability

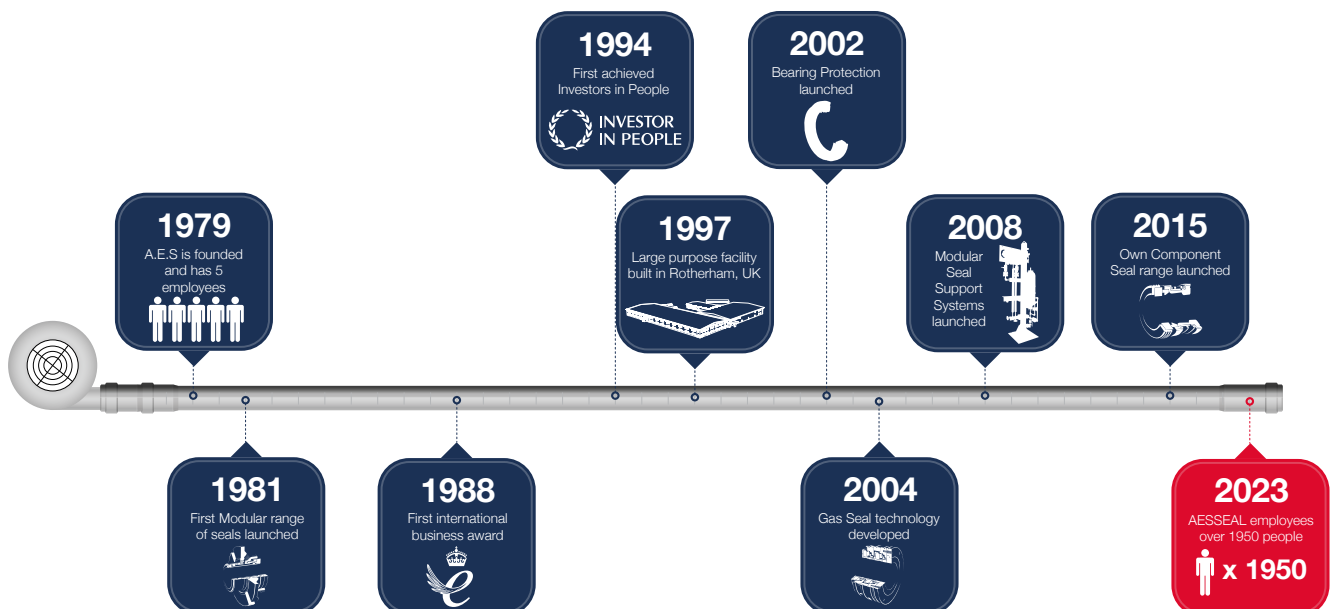
From humble beginnings in 1979, AESSEAL® has moved from strength to strength to become one of the world's largest mechanical seal manufacturers.

Founded in 1979, AESSEAL® is one of the world's leading specialists in the design and manufacture of mechanical seals and seal support systems. Our products are designed to improve the reliability of rotating equipment. Today we employ more than 1950 people and provide customer service from 235 locations in 104 countries.

Four decades of continuous growth

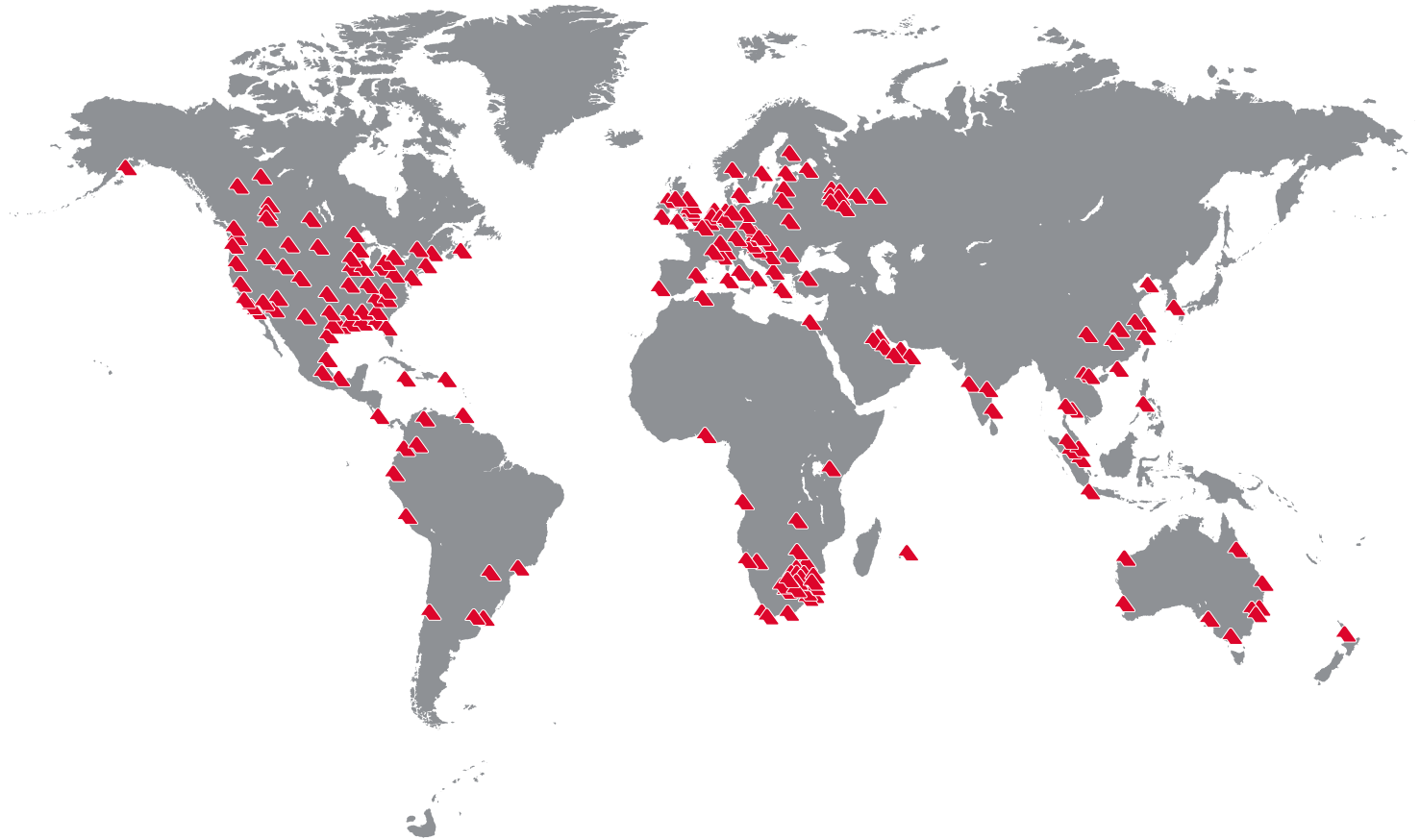
Grown through direct response to our customer needs, we strive for our customers and suppliers to **EXPERIENCE THE EXCEPTIONAL.**

As one of the fastest growing mechanical seal manufacturers in the world, AESSEAL® continues to grow by working closely with all our customers to ultimately, significantly improve reliability.



Customer service is provided from **235** locations in **104** countries, including **9** manufacturing and **44** repair locations, with more than **300** customer service representatives who visit industrial plants everyday.

Global Reach



US Headquarters



UK Headquarters



South East Asia Headquarters

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

“ We aim to deliver a customer experience that surpasses expectation and truly redefines what the world expects from their sealing specialist. ”

Our **Vision**

Customer Service **and Focus**

We believe that the customer is our focus.

Product range

AESSEAL® has a large and diverse product range that can be applied to any pump within 48 hours.

A modular product range was designed specifically for manufacture that uses common components across a range of different products. This not only allows products from the standard range to be built quickly to order, but also allows custom products to be relatively simply offered with excellent delivery times.

On time delivery

98% on time delivery

AESSEAL® achieve some of the best on time delivery performance on the market, getting products to you when needed the most.

Inventory

AESSEAL® continually invests in inventory to support our customer service policy.

It is estimated that around 10% of global sales value is held in inventory and positioned strategically at key locations across the globe to ensure that parts are available where they are needed most.



48 hour delivery on standard products



Component Seals



Seal storage systems

A Customer Experience



German chemical manufacturer



Engineers working onsite



SCMS™ - Short Cannister Mixer Seal

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 a 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.

“48 hour turnaround”

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.



Our **Vision** Culture **and Values**

Our staff and areas in which we work are fundamental to the success of our company

Developing our people

At AESSEAL® there is a strong focus on developing staff and nurturing talent in the business. Offering a range of training courses available to both customers and staff alike.

A comprehensive apprenticeship scheme in conjunction with local universities and colleges enables us to grow our own future talent. As a global business, AESSEAL® strongly believes in the development and retention of engineering skills and works closely with schools and other educational establishments in the promotion of STEM (science, technology, engineering and maths) subjects to drive interest in the area.

AESSEAL® is strategically dedicated to being an employer of choice by creating the safest and most rewarding place of work possible.



Work with local schools, colleges and universities



Encouraging young people into engineering



Supporting charities over all the world

“It is impossible to be excellent without being a good neighbour, partner and useful member of the communities in which we live and work. Some call this Corporate Social Responsibility. We at AESSEAL call it common sense.”



Global operations



Helping to fund education



Wetlands area at the global headquarters

Uncompromising integrity and ethics

All of our business activities are completely transparent.

We operate with the same uncompromising integrity in each of the 104 countries where we provide our products and services. In short, dishonest practices distort markets and waste resources. It is that same integrity that fuels trust in our brand. We condemn corrupt and fraudulent practices and require transparency, integrity and honesty in all aspects of our business

Corporate Social Responsibility (CSR)

At AESSEAL® we recognize the need to protect the natural environment, ensure the health and safety of our people and commit to sustainability.

An embedded and comprehensive Corporate Social Responsibility Strategy underpins our global business ethos and our operational practices. As a matter of policy we are dedicated to surpassing expectations.

We recognise the individual requirements of all stakeholders; our customers, employees, neighbours, partners and the community alike.

Dedicated to protecting the Environment

We recognise that through the development and use of better systems and technology we enable companies worldwide to save 95 billion litres (25 billion US gallons) of water every year: saving them money and significantly reducing the amount of industrial waste water – one of the main causes of water pollution in the world.



Our Capabilities Technology and Innovation

Through continued significant investment, AESSEAL® is always looking ahead.

Innovation

At AESSEAL® we constantly strive to innovate and improve in everything we do from design and manufacture through to management and technology.

Leading innovative designs such as EasyClean™ and LabTecta®OP IP69K, AESSEAL® embrace the thoughts and ideas of staff to ultimately achieve reliability for our customers.

Improve reliability without modifying your existing equipment

AESSEAL® has made an enormous investment in modular design which includes custom-engineered specials.

For you, the customer, this means a value-for-money solution and the best on-time delivery performance in the industry. AESSEAL® uses 9 and 11 axis machine tools, each of which have over 300 tool positions, so we can supply your engineered special on demand.



EasyClean™



LabTecta®OP IP69K



11-axis machine

Investment

Over **7%** of annual sales revenue has been reinvested in R&D over several decades. This has almost certainly led to the most advanced range of sealing technology available globally.



Dry gas seal support system



Dry gas seal assembly



Large diameter dry gas rig

Our technology

From packing to state-of-the-art dry gas compressor seals.

For every seal developed by AESSEAL® we use the most advanced computational facilities and numerical tools to design and optimize seal performance prior to manufacture and testing.

Tools include Predictive Software Code developed in-house, Finite Element Analysis (FEA) and Computational Fluid Dynamics (CFD). Our numerical tools are used for seal design, performance optimization, special product application and troubleshooting. In combination with an extensive test programme the result is world leading technology that keeps your equipment running longer.

Design and testing

AESSEAL® is certified to the highest quality standards.

All products are designed in 3D CAD which is fully integrated with CAM. CAM controls and drives all machine tools centrally. Integration with PLM ensures control of changes so products can be delivered quickly, affordably and repeatably.

Custom-engineered products account for over **56%** of our business and we have the design and manufacturing infrastructure to deliver them **fast**.



Our **Expertise** Custom-Engineered **Special Seals**

Reliable sealing solutions for the most challenging applications.

Seals for remote autoclave application

With high seal failure rates, a mining company approached AESSEAL® for help to find a solution to improve the reliability of their equipment.

With seals lasting up to just 5 months on average and with some leaking immediately following installation, AESSEAL were approached to offer a more reliable solution.

The AESSEAL® solution considered the existing failures previously seen on site relating to:

- Suitable lubrication for the seal faces
- A stable temperature for the seal to operate in to reduce the risk of dry running and thermal degradation of secondary sealing.
- An inconsistent seal support system

The HPVD seal was offered. The seals have proved to be operating more or less leak free. The MTBF has increased by more than 300%.

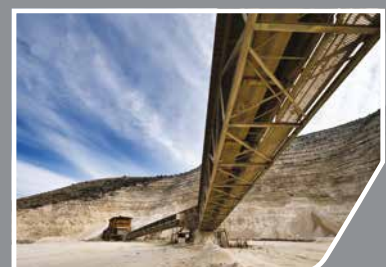
The new HPVD seal cost is circa 75% of the cost of a competitor repaired seal which typically leaks from start-up.



Autoclave



HPVD dual mechanical seal



Mine in a remote location

Reliability... it's in our DNA



Richards Bay Mill, South Africa



Previous quench to drain system



Engineer installing continuous loop system

Reducing water consumption

International packaging and paper group Mondi replaced quench-to-drain flushing and lubricating systems fitted to mechanical seals at its Richards Bay mill with AESSEAL® systems incorporating a continuous loop water management design.

The AESSEAL® systems cut water usage at the plant by more than 60,000 kilolitres per month, helping to conserve scarce water resources in northern KwaZulu-Natal, South Africa.

This has been achieved by the installation of SW2 and SW3 water management systems using recycled water to cool, lubricate and flush the mechanical seals at the plant. They have replaced a competitor's once-through flushing designs that needed a constant supply of fresh water.

Environmental performance, particularly with regard to the saving and correct utilisation of water resources, has always been a strong driving force behind the success AESSEAL® has had in South Africa. The company has a mandate to continuously drive down sealing costs and increase MTBF, in line with Mondi's identification of the need to carefully and aggressively manage water resources as a component of the group's environmental policy.

“Of all the World's water, 97.4% is salt water, 2% is solid in ice caps and only 0.6% is suitable for industrial use and human consumption.”



Our Products

Custom-engineered sealing solutions

Custom-engineered sealing solutions are often required for difficult applications including mechanical seal support systems which improve the environment the seal operates in for safe and reliable sealing.

The complex made simple

With its innovative approach to design, the AESSEAL® Complex Systems Division has introduced modularity and repeatability to what is, for some, an uncertain manufacturing process.

The Complex Systems Division's team encompass design, fabrication, engineering and customer service to guarantee a seamless flow from inception through to specification and the delivery of truly exceptional quality products such as the Plan 53B system depicted.

R&D

The division's research and development team has invested 5,000 hours in deciphering the finer details of API 682, ASME VIII Div 1 and PED 2014/68/EU. This dedication has resulted in the design of modular products that guarantee the delivery of high end systems within short lead times.



API 53B System designed in accordance with API 682

“We work with you to manage your assets and increase mean time between failures.”



Gas Seals

We supply a complete range of gas seals for compressors, API pumps, process pumps and reactors. Please visit: www.aesseal.com/gas-seal



Mechanical Seals

We offer a complete portfolio of mechanical seals, including the CAPI™ Type A, B & C ranges of bellows and pusher seals, with cutting-edge technology for the most demanding applications and environments. Please visit: www.aesseal.com/seals



Seal Support Systems

We believe we are the only manufacturer to supply CE certified assemblies without the use of third-party sources. The AESSEAL Global Technology Centre is certified to Module D, B1 and H1 — H1 being the highest level of PED certification. Please visit: www.aesseal.com/systems



Bearing Protection

AESSEAL® is a world leader in the provision of wholly-owned and extensively inventoried contacting and non-contacting bearing seal technology. Please visit: www.aesseal.com/bearings



Component Seals

We offer a range of component seals for a huge variety of applications. Please visit: www.aesseal.com/component



Packing

We manufacture a comprehensive range of packing to meet all your requirements. Please visit: www.aesseal.com/packing



Seal Repair

An increasing number of major international customers trust us to repair competitors' seals, including Dry Gas Compressor seals. Please visit: www.aesseal.com/services

“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.”

Comprehensive collaboration — a US customer's perspective



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AESSEAL plc is certified to ISO 9001, ISO 14001, ISO/IEC 20000, ISO/IEC 27001, ISO/TS 29001, ISO 37001, ISO 45001 & ISO 50001

