



ENVIRONMENTAL TECHNOLOGY



EASASEAL™

Advanced High Pressure
Sealing Technology



- **HIGH PRESSURE PIPELINE APPLICATIONS**
- **PRODUCED WATER RE-INJECTION APPLICATIONS**
- **INNOVATIVE TECHNOLOGY FOR EXTENDED SEAL LIFE**
- **CENTROIDALLY BALANCED DESIGN ENSURES SEAL FACE FLATNESS**

AESSEAL® - "Providing Exceptional Customer Service"



The AESSEAL® Global Technology Centre, one of over 50 branches worldwide.

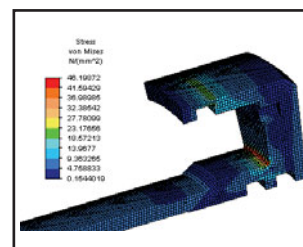
AESSEAL® is one of the leading global specialists in the design and manufacture of mechanical seals, support systems and bearing isolators.

Following 24 years of uninterrupted growth, AESSEAL® has over 1000 employees operating from 51 locations worldwide. With sales to 83 countries, AESSEAL® is now the worlds 4th largest mechanical seal supplier. Growth has been driven through exceptional customer service and innovative *reliability focused solutions*.

Innovation for Extreme Application Sealing

Developing solutions for extreme applications requires design innovation, technology and application engineering. Customers can be confident that all AESSEAL® solutions have been developed and tested to exceed the required performance envelope.

In recent years AESSEAL® has developed an enviable reputation for cutting edge technology and market leading performance. This has been achieved by massive capital investment in an advanced research program. This commitment to research runs through the entire product development process.

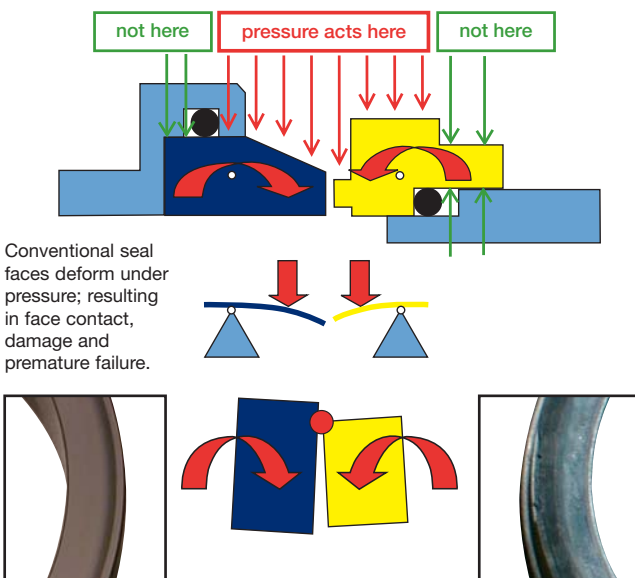


AESSEAL® currently invests over 7% of its turnover on Research and Development. This is believed to be the highest investment to turnover ratio in the sealing industry.

The company's multi-million dollar test facility in Rotherham, England, is testament to this investment program. The high-pressure test bay cost in the region of £250,000 (\$450,000 / €375,000) and has been used qualify the EASASEAL™ product range to 100barg (1,500 psig).



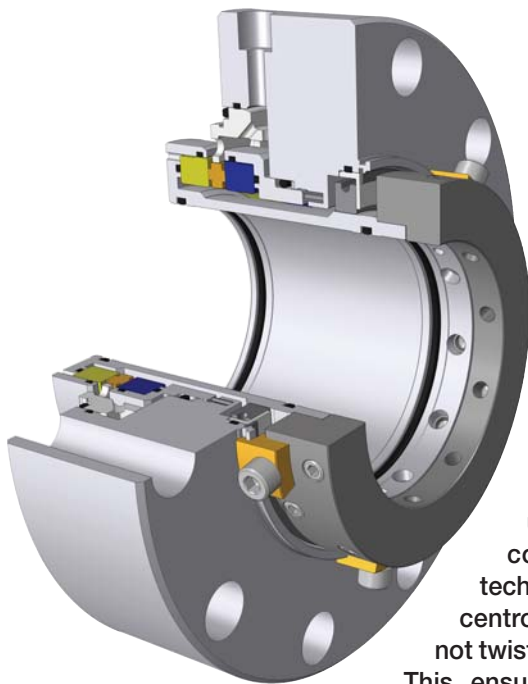
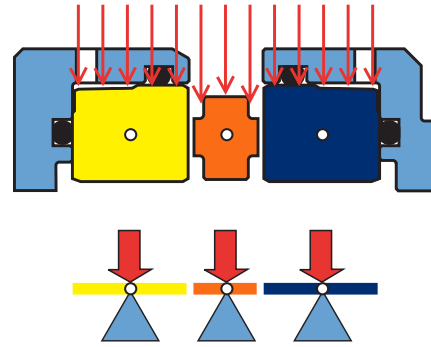
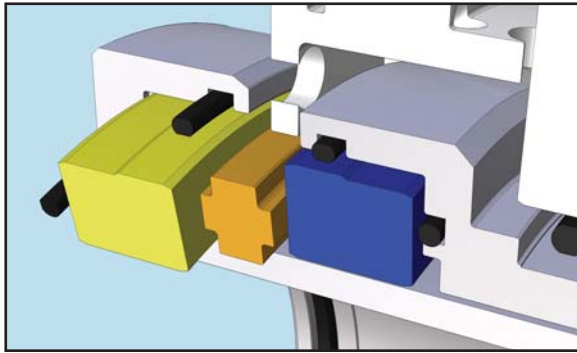
Limitations of Conventional Sealing Technology at High Pressures



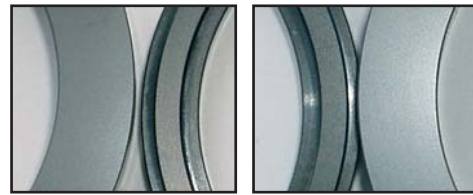
Understanding the limitations of conventional mechanical seal faces was a fundamental and important first step in the EASASEAL™ development program.

Seal faces deform as a result of forces applied to them relative to their centroid (centre of mass). These seal face deformations can be predicted by finite element analysis (FEA) and verified by post service seal face condition analysis.

By analysing the forces applied to seal faces in relation to their centroid AESSEAL® has produced a design that does not deform under pressure. This eliminates failure modes associated with seal face deformation.



100mm (4.000")
EASASEAL™ faces after
500 hours testing at
100 bar (1500 psi).

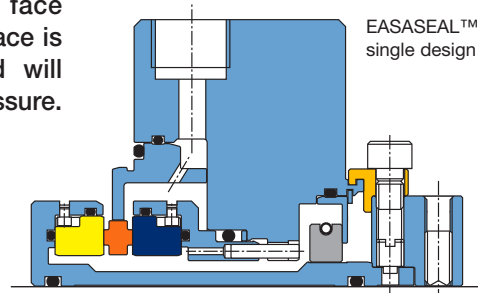


The patent pending EASASEAL™ was named after the inventor and senior AESSEAL® development engineer, Easa Taheri Oskouei.

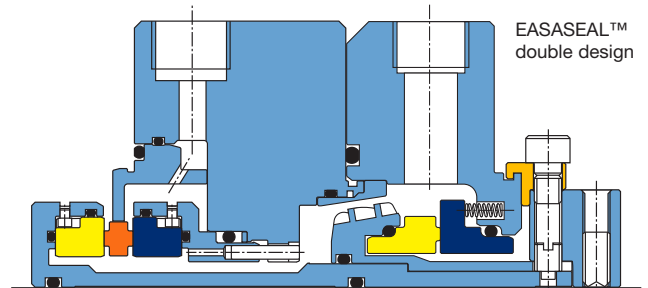
This unconventional yet innovative design employs a robust, uniformly shaped floating face, which acts as an interface between the rotary and the stationary seal faces.

In single seal format, process pressure acts on the outside circumference of the floating face. This creates a force that is uniformly distributed through the centroid of the seal face. Unlike conventional seal face technology, the floating face is centroidally balanced and will not twist or deform under pressure.

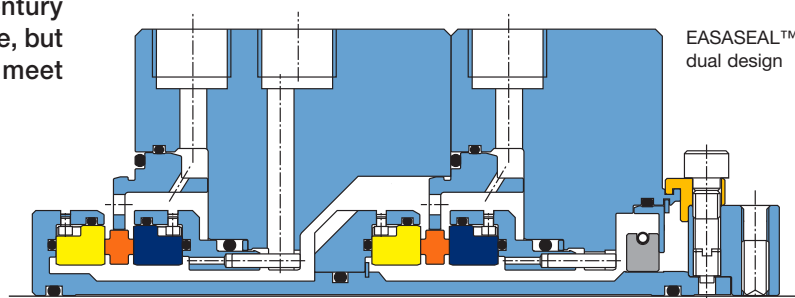
This ensures the seal faces remain flat and damage free.



EASASEAL™
single design



EASASEAL™
double design



EASASEAL™
dual design

Affordable Innovation through Modularity

“Blue-sky innovation” is a term often associated with cutting edge product development. It is true to say that it is one important element of extreme application sealing.

AESSEAL® also prides itself on applied innovation, through modularity, for maximized customer service.

The EASASEAL™ design has undergone a rigorous value engineering program. This ensures that AESSEAL® can offer 21st century technology that is not only affordable, but also available for delivery to meet customer expectations.

The diagrams on the right show the modularity of parts across the single, double and dual seal designs.

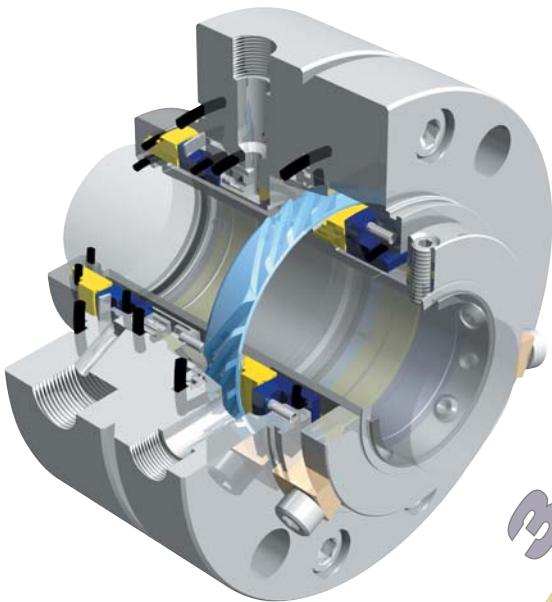
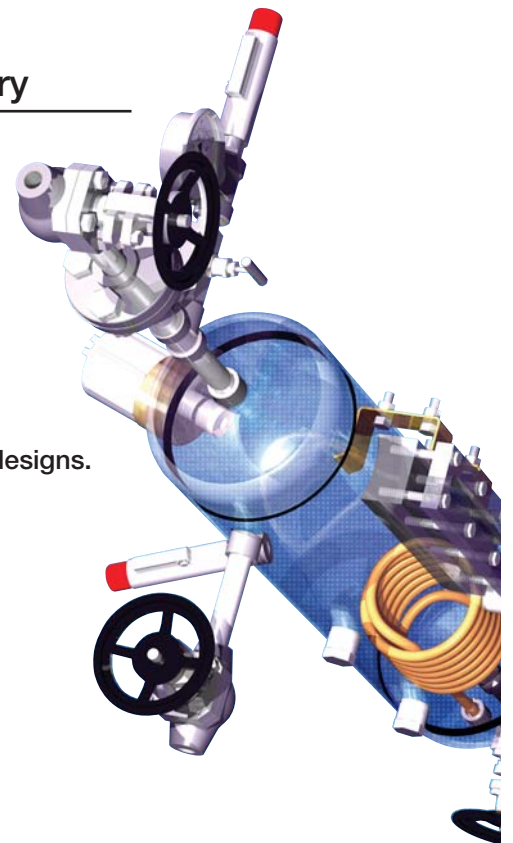
AESSEAL® Reliability Focused Solutions for Industry

AESSEAL® is an industry leader in many diverse and extreme sealing applications.

Its innovative patented and patent pending product profile covers a wide range of reliability focused solutions. These include:

- **Bearing Protection/Isolation** - Labyrinth & hermetic seals.
- **Seal Support Systems** - Convection & forced circulation.
- **High Temperature Metal Bellows** - Single & dual non-elastomer designs.
- **Gas Compressor Seals** - Hydrostatic & hydrodynamic lift.
- **Mixer & Dryer sealing** - Extended dry running performance.
- **API682 edition 2 tested Single and Dual seals** - Low emission designs for new & mature assets.

Visit www.aesseal.com for further details.



300 Bar 45,000 RPM

THIS DOCUMENT IS DESIGNED TO PROVIDE DIMENSIONAL INFORMATION AND AN INDICATION OF AVAILABILITY. FOR FURTHER INFORMATION AND SAFE OPERATING LIMITS CONTACT OUR TECHNICAL SPECIALISTS AT THE LOCATIONS BELOW.



AESSEAL® Seals and Systems are ATEX compliant.

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS:

- GUARD YOUR EQUIPMENT
- WEAR PROTECTIVE CLOTHING



WARNING

UK Sales & Technical advice:

AESSEAL plc
Mill Close
Templeborough
Rotherham
S60 1BZ
United Kingdom

Telephone: +44 (0) 1709 369966
Fax: +44 (0) 1709 720788
E-mail: seals@aesseeal.com
Internet: <http://www.aesseeal.com>



INVESTOR IN PEOPLE

Distributed by:



USA Sales & Technical advice:

AESSEAL Inc.
10231 Cogdill Road
Suite 105
Knoxville, TN 37932
USA

Telephone: +1 865 531 0192
Fax: +1 865 531 0571
E-mail: usa@aesseeal.com