EcoGuard™
SEALING SOLUTION



Zero Emission Sealing

Proprietary solution, designed to eliminate the flare off of harmful gases into the atmosphere.

AESSEAL®
ENVIRONMENTAL TECHNOLOGY



Turning off the flare stacks



Reduce & Eliminate Emissions from Gas Compressors

The EcoGuard™ Sealing Solution has been developed to offer a robust solution to emission-focused challenges arising from the operation of centrifugal compressors. The latest environmental innovation from AESSEAL® provides an innovative platform for operators to actively reduce the release of harmful greenhouse gases.

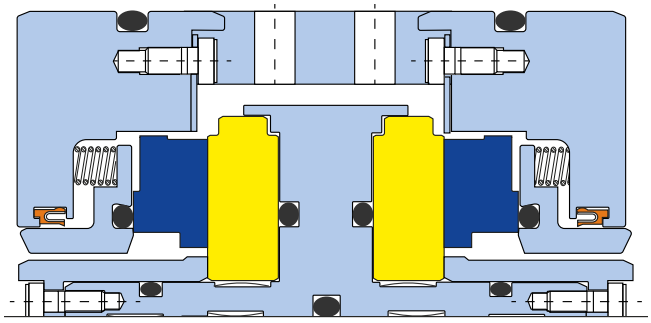


EcoGuard™ Sealing Solution

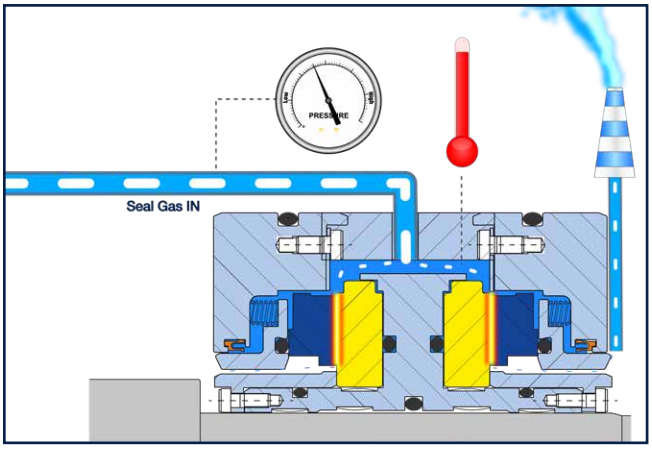
AESSEAL® has developed a unique, true zero-emission sealing solution for centrifugal compressors using its EcoGuard™ Seal design.

EcoGuard Seals utilizes the injection of an inert gas, usually Nitrogen, as a seal gas at a pressure higher than the process pressure. Due to the design the inert gas passes over the primary sealing elements instead of process gas and therefore inert gas is released to flare or atmosphere resulting in a true zero emission sealing solution.

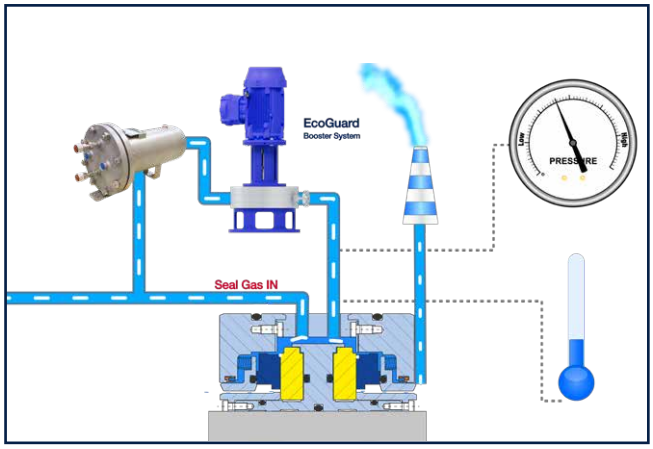
EcoGuard™ Sealing Solution is designed to manage the heat generation in the seals effectively and allows for a higher pressure and speed application envelope than would normally be permitted.



EcoGuard™ Seal



Build-up of heat / friction within double dry gas seal



EcoGuard™ Sealing Solution
Zero Emission Sealing Solution with cooling

- Oil & Gas Production
- Gas Transportation & Storage
- Petrochemical
- Refineries
- Chemical Production
- Fertilizer Production

Zero Emissions

The elimination of fugitive emissions via the installation and operation of the AESSEAL® **zero emission solution** can result in the following benefits:

- Avoidance of fees associated with emissions
- Compliance with environmental legislation
- Prevention of CO_2e being released to atmosphere

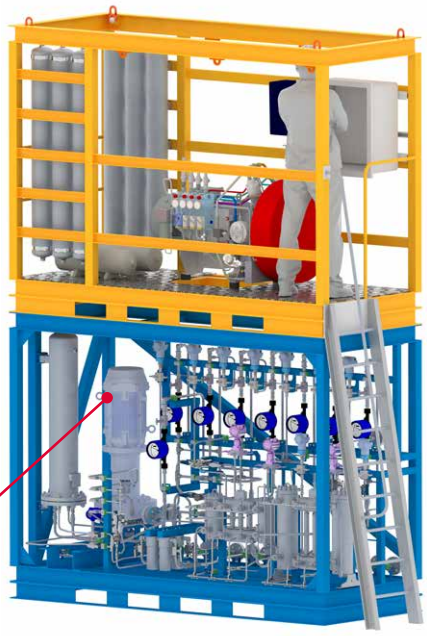
Operating limits:

- 100 barG dynamic pressure
- 200 barG static pressure
- 120 m/s peripheral speed

The comprehensive modular sealing solution



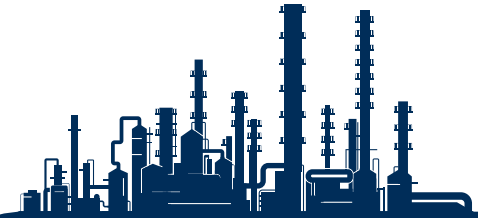
EcoGuard™ Seal



EcoGuard™ Skid



EcoGuard™ Regenerative Compressor (ERC)



PLANET POSITIVE

EcoGuard™ Seal

The EcoGuard™ Seal is a compressor dry gas seal that utilizes patented DualDam™ hydrostatic and hydrodynamic face technology to provide lift even under static conditions. This unique action provides zero face contact under starting, stopping and slow roll conditions.

- Unique, patented DualDam™ EcoGuard™ Seal technology offers robust protection for the sealing surfaces during start-up, coastdown, slow roll and upset conditions
- Supplied in 410 stainless steel as standard with exotic alloy options on request
- Available with Silicon Carbide seats as standard. Silicon Nitride seats available on request. Mating faces available in Carbon and synthetic diamond-coated Silicon Carbide
- Capable of withstanding reverse rotation and static conditions
- 'O' ring and spring-energized polymer versions available
- Fully shrouded seats adopted as standard
- Bi-directional seal designs also available where appropriate



EcoGuard™ Sealing Solution

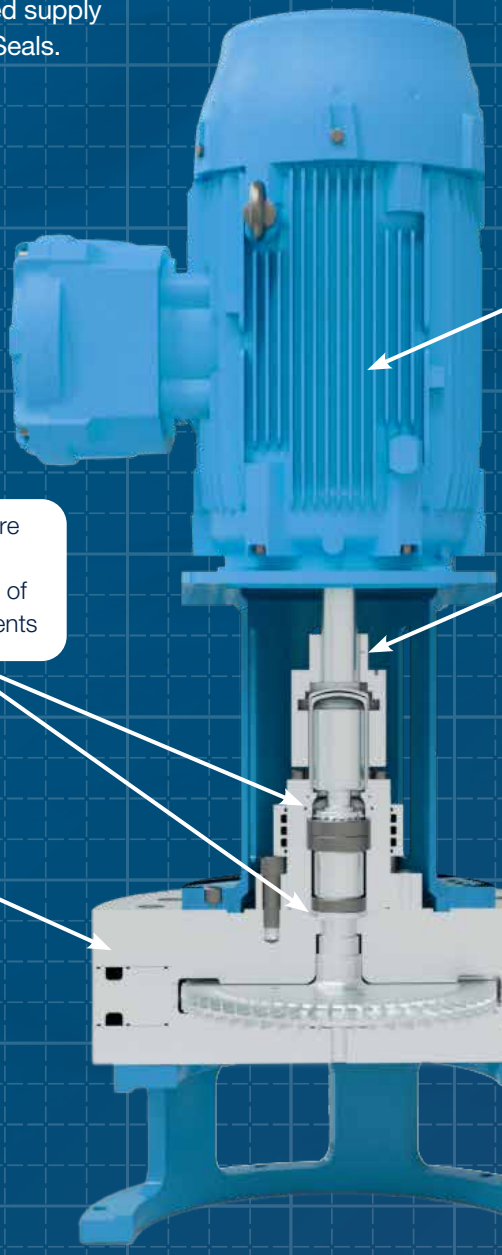
The EcoGuard™ Seal has been designed as part of the EcoGuard™ Sealing Solution to eliminate harmful emissions to flare stacks.

EcoGuard™ Regenerative Compressor (ERC)

ERC Design

The patent pending ERC has been designed to operate continuously in line with the API recommended operational lifespan of compressor dry gas seals.

The EcoGuard™ Regenerative Compressor (ERC) operates as a Seal Gas Circulation Device, allowing for the uninterrupted supply of seal gas to EcoGuard™ Seals.



Electric Motor – to drive impellers

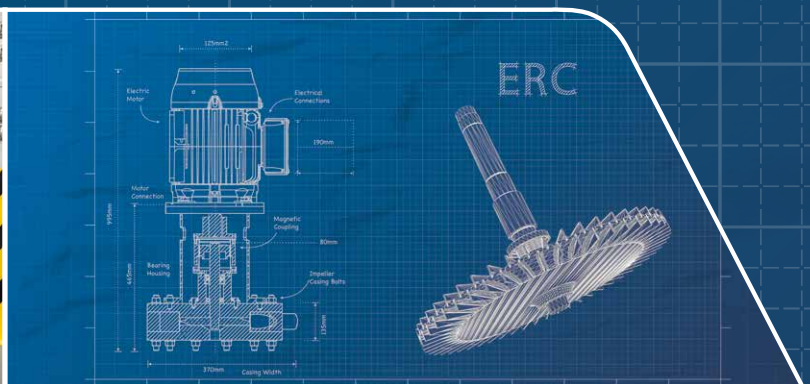
Bearings – ensure continuous and aligned operation of rotating components

Magnetic Coupling – to transfer drive from motor to impellers

Inlet & Outlet – flanged plate design with standard fittings to ensure easy integration

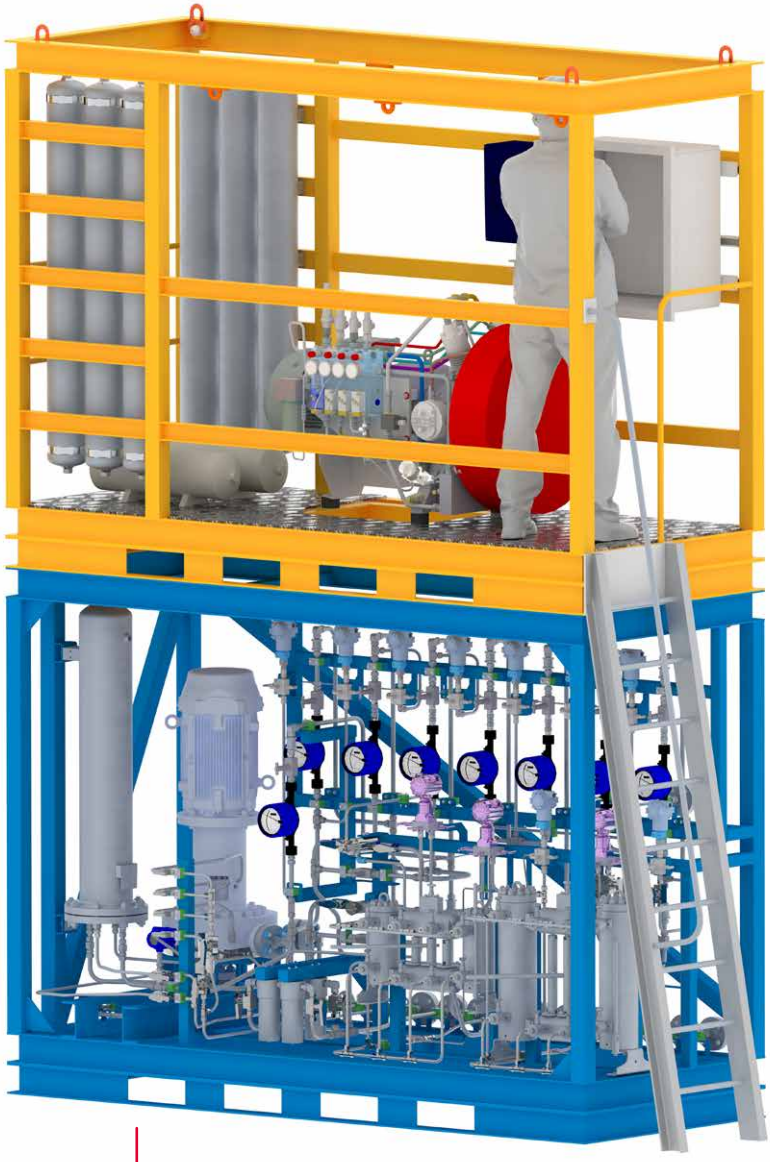
Impeller Casing – manufactured from stainless steel





EcoGuard™ Skid

The EcoGuard™ Skid is a seal support system with patent pending technology that includes any necessary items to deliver a dry nitrogen barrier fluid to EcoGuard™ Seals.



Stacked (tall) configuration

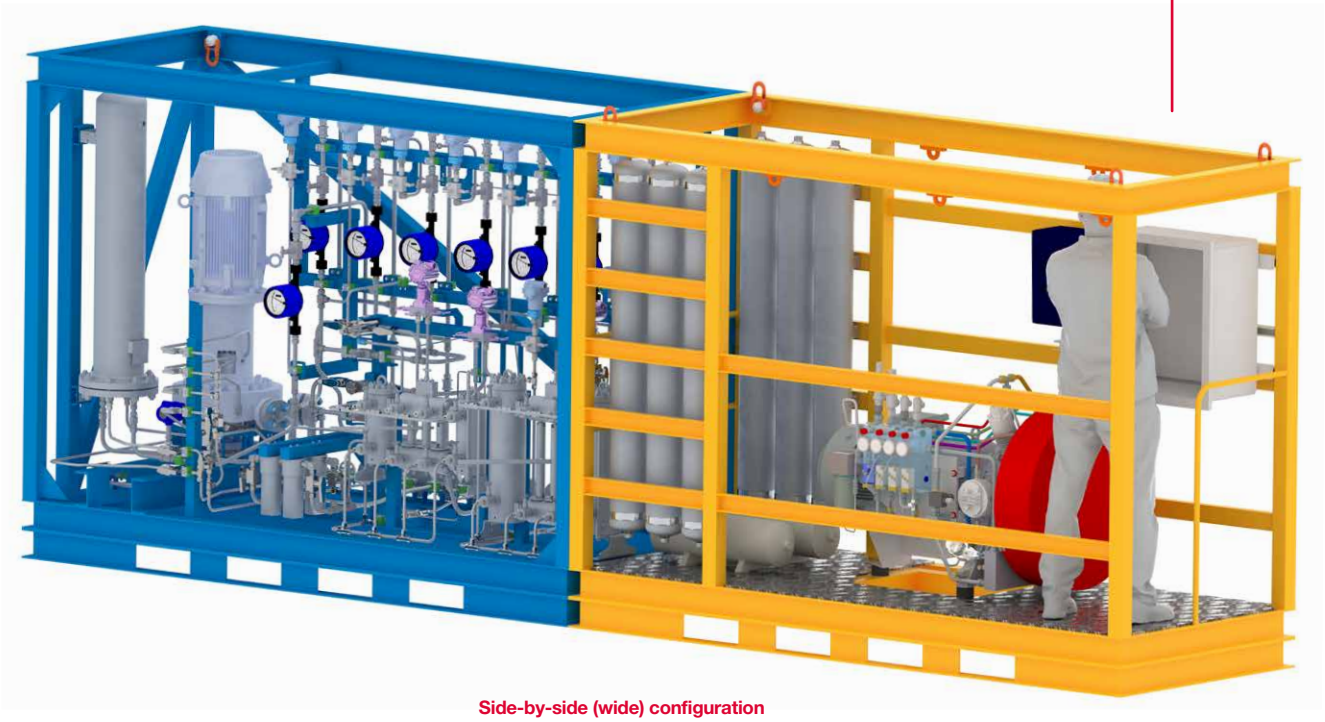
EcoGuard™ Skid

- ERC regenerative compressor to circulate seal gas
- AESSEAL® 682XL water cooler removes heat generated by high pressure double seals
- Superior gas filtration – more stringent than API requirements and including full redundancy
- Fully instrumented enabling seal health and performance monitoring
- NACE compliance as standard
- Retractable, swivel lifting points enable N2 booster skid to stack on top

Modular design, can be installed at ground level or stacked to save floor space and includes integrated ladder and harness points for height work.

N2 Booster Skid

- N2 booster skid takes low pressure plant nitrogen and boosts to 300 bar for maximum stored volume
- Reliable low maintenance 4 stage reciprocating compressor
- Stand alone, intuitive control system
- N2 storage vessels enable uninterrupted short term supply and reduce frequency of compressor start-ups.



Side-by-side (wide) configuration









Gas leakage from compressor dry gas seals is usually vented directly into the atmosphere or burned via a flare. This releases CO_2 and methane into the environment

The EcoGuard™ Sealing Solution prevents this from happening.

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

THE QUEEN'S AWARDS FOR ENTERPRISE: SUSTAINABLE DEVELOPMENT 2022

THE KING'S AWARDS FOR ENTERPRISE 2025

AESSEAL plc is certified to:

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

Use double mechanical seals with hazardous products. Always take safety precautions:

- Guard your equipment
- Wear protective clothing

SAFETY NOTICE

Containment Seals (2CW-CS or 2NC-CS)

Monitoring the containment seal's (CS) integrity is important. Review the guidance to understand risks, apply best practices & ensure safe, reliable operation.

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