

RELY ON EXCELLENCE

## Global expertise in industrial compressor sealing

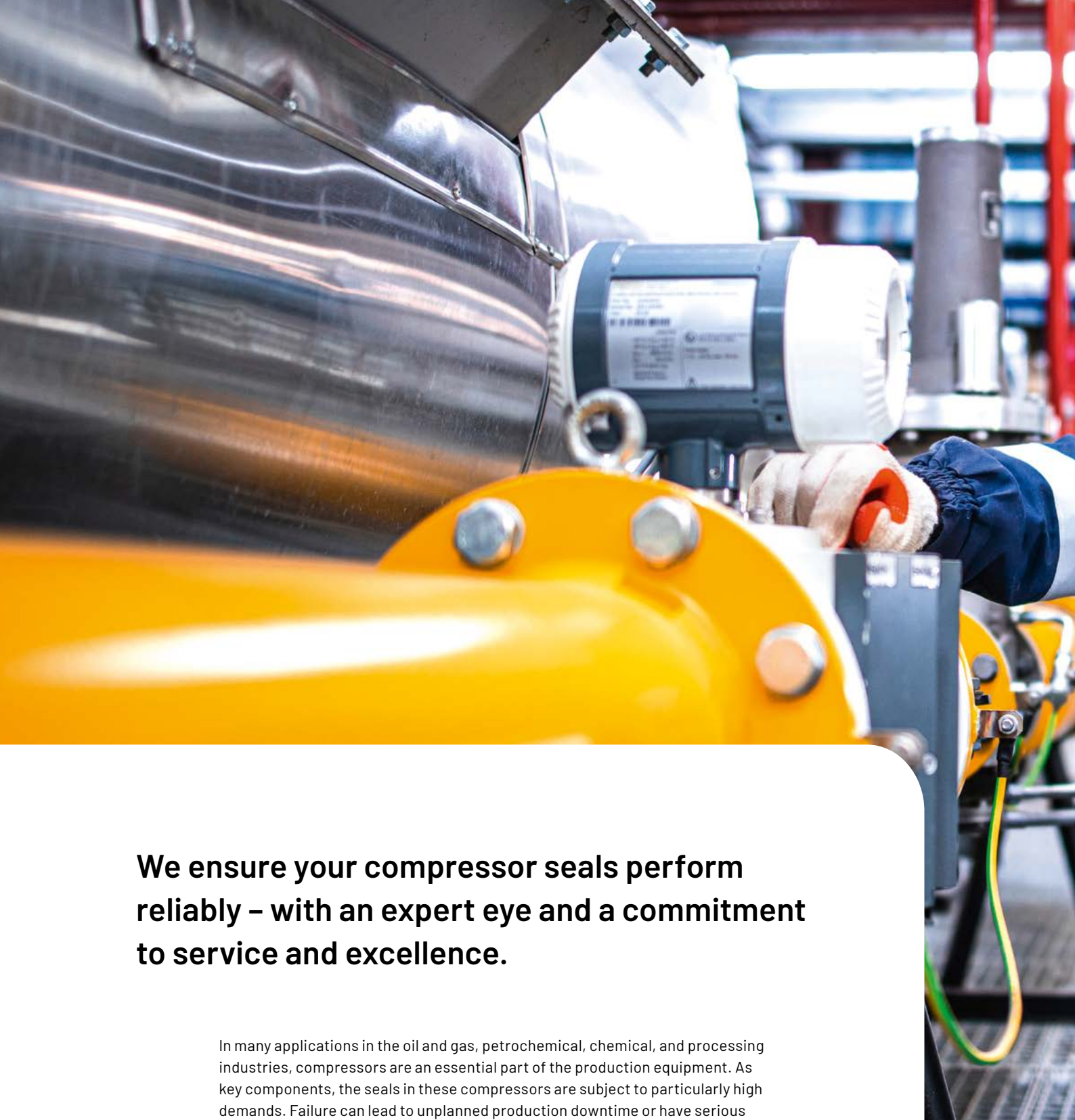
When excellence counts to ensure a safe, reliable, and sustainable operation.



Discover the comprehensive range of EagleBurgmann dry gas seals and gas supply systems



Edition ACEMEA



## **We ensure your compressor seals perform reliably – with an expert eye and a commitment to service and excellence.**

In many applications in the oil and gas, petrochemical, chemical, and processing industries, compressors are an essential part of the production equipment. As key components, the seals in these compressors are subject to particularly high demands. Failure can lead to unplanned production downtime or have serious technical, environmental, and economic consequences.

This makes it even more important to have the right partner from the outset to select and expertly design the right sealing system. In-depth technical knowledge, technology leadership, and a holistic end-to-end approach are the keys to success.

**Whatever your current goal, be it safety, reliability, availability, efficiency, or sustainability: With our seals, seal supply systems and comprehensive services, EagleBurgmann is your one-stop expert for all your compressor sealing needs.**



### Your global DGS experts

For many decades, EagleBurgmann has been shaping the market for dry gas seals, supporting end users, OEMs and EPC companies around the world. Today, with more than 60 subsidiaries at 250 locations, we serve both traditional and new industries in all major economic regions.



### Cutting-edge technology and more than just standard

From the modular range of products to complex application-specific designs, we offer a unique variety of superior sealing technology. But our engineers are also adept at developing new design solutions. With innovative approaches and well-thought-out alternatives, we solve even the most difficult tasks.



### All-around support based on your needs

As a customer, you benefit not only from our expertise in research and development, consulting and engineering, and state-of-the-art manufacturing, but also from a flexible service concept. For our customers, this translates into reliable technology, high efficiency at a fair price-performance ratio, and fast response times.

## Shaping the future today



Global transformation poses new challenges for the industry: Digitalization, decarbonization, renewable energies, and the transition towards a circular economy require the development and safe implementation of new technologies across sectors.

EagleBurgmann has always been at the forefront of innovation and is actively shaping the current transition. We see ourselves as a solutions partner to our customers, working together to develop sealing systems that ensure the safe and efficient operation of machines and plants.

CobaDGS, the world's most climate friendly dry gas seal for turbo compressors, is just one example of many.

## Driving innovations

1988	1989	1999	2004	2007	2008	2009
<b>First 3D grooves</b>	<b>First bidirectional gas seal</b>	<b>Pioneering low temperatures</b>	<b>High-pressure PDGS</b>	<b>DiamondFace</b>	<b>CobaSeal</b>	<b>RoTechBooster</b>
Best lift-off characteristics even at low speeds with optimum gas film stiffness.	Expands the use of gas-lubricated mechanical seals to new dimensions.	First gas seal for cryogenic applications (-170 °C / -274 °F).	Operating pressures up to 550 bar / 7,977 PSI set a new benchmark.	Innovative sliding surface technology takes operating performance to a new level.	Outperforms all existing separation seals in terms of leak prevention.	First electrically driven booster system for unmatched seal gas supply.





ZERO Failure      ZERO Emission      ZERO Incident

2012	2018	2020	2022	2023	Coming next
<b>DF-(P)DGS6</b>	<b>RoTechSeal</b>	<b>CobaDGS</b>	<b>Espey WKA1200</b>	<b>EB Smart DGS</b>	<b>HDGS</b>
Reliable sealing of multiphase pumps and CO <sub>2</sub> applications for the first time.	Special design features provide increased resistance to seal gas contamination.	Most climate-friendly sealing solution for compressors operating up to 160 bar.	Cost-effective carbon floating ring seal for compressor and turbine applications.	Sealing technology 4.0 with embedded sensor for digital condition monitoring.	Turbine seal for power plants with sCO <sub>2</sub> applications.



# Everything you need to tackle even the most complex challenges

From initial considerations to ongoing operation, the sealing experts at EagleBurgmann are at your side with in-depth application knowledge, a high level of problem-solving expertise and extensive support. With us, you get sealing solutions that work reliably, unlock potential for increased efficiency, and find ways to save costs. The proximity to customers, decades of experience and first-class expertise in sealing technology make all the difference.

## High-end compressor sealing technology that meets every requirement

Depending on the medium, the operating conditions, the compressor design and the mode of operation, different sealing systems are recommended. EagleBurgmann seals and systems are modularly designed which allows us to best meet your needs – and is one of the many reasons why our sealing solutions are sought after worldwide.

1

### Broad portfolio of compressor seals

For the main seal which seals the shaft from the process side, various seal arrangements are used, depending on the application and type of machine: single seal, double seal, tandem seal, and tandem seal with intermediate labyrinth. All compressor dry gas seals are available in any configuration.



2

### Innovative separation seals

EagleBurgmann has exactly the right separation seals for safely and reliably sealing the bearing oil. They are available as non-contacting or lift-off carbon ring seals and as aerostatic lift-off-gas-lubricated seals. Short and compact, they can be easily integrated into the main seal housing or retrofitted as a separate unit.





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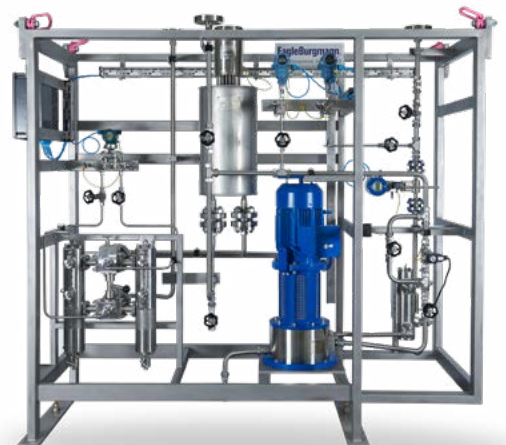
### Perfect match: Seal management systems (SMS)

SMS are used to supply the main and separation seal with seal gas, buffer gas and separation gas. It also monitors the sealing system for health of the seal. Our SMS are highly adaptable to the prevailing operating conditions and special safety requirements. They are available with additional gas conditioning skid and comply with all current industrial standards, such as API Std 692.

4

### Seal gas booster as a safety module

The EagleBurgmann RoTechBooster is a first in class electrically driven seal gas booster that keeps dry gas seals reliably clean not only during standby conditions, but any time insufficient seal gas flow occurs. For optimum performance, it can be integrated in our gas conditioning skid or SMS.



## Benefit from comprehensive support

### CONSULTING & DESIGN

- **In-depth needs analysis** provides the basis for an optimal seal design.
- **Feasibility studies and calculations** assist in the decision-making process.
- **Vent studies according to API 692** ensure the safe interaction of the sealing system and its components with your compressor.
- **Our advice on regulations** and legal requirements gives you peace of mind.
- **EagleBurgmann's modular sealing technology portfolio** enables cost-effective, customized solutions.

### SERVICE

- **Flexible inventory concepts** for managing and stocking complete seals or spare parts free up your staff for more important tasks.
- **On-site service by qualified specialists** in all areas of safety ensures sealing technology expertise and comprehensive support on the spot.
- **Customized service programs** integrate into existing service structures and provide planning certainty.
- **Seminars and trainings** keep your staff up to date with the latest technology and developments in dry gas seals and systems.

## EagleBurgmann DGS Centers of Competence

Our DGS Centers of Competence are equipped with **state-of-the-art machinery** and **testing facilities**. They are strategically located around the world to provide you with prompt assistance and world-class expertise.

Highly trained and experienced service engineers perform testing up to 500 bar, maintenance and repair of compressor seals, and provide seal-related advice. Certification to EagleBurgmann standards guarantees the highest level of service quality.







## COMMISSIONING

- **Experienced field engineers** support your technicians on site. This helps to prevent costly mistakes and rework.
- **On-site stocking of spare parts** ensures a smooth installation process.

## REPAIRS

- **A dense network of service centers** ensures that professional seal repairs are carried out quickly and reliably.
- **With wear part reconditioning**, we restore your seal in a cost-effective and sustainable manner.
- **Test runs** aid in quality assurance.
- **Seal life assessment** helps determine measures to extend service intervals.

## BAD ACTORS

- **Using Root Cause Analysis and state-of-the-art methods** such as leak detection, thermography and other measures, we systematically uncover weaknesses to provide sound remedies.
- **Application trials** verify the practical use of our technology.

## DIGITAL CONDITION MONITORING & ASSET MANAGEMENT

- **With EB Smart DGS measurement, data logging and our digital twin** we support your digital strategy for condition monitoring and predictive maintenance. Unplanned downtime will be a thing of the past.

## RETROFITS

- **Seal upgrades** counteract malfunctions and production downtime, extend runtimes, and improve performance.
- **Seal retrofits** optimally adapt the seals to the existing or to modified processes.
- **Seal standardization concepts and optimized spare parts management** simplify logistics and reduce the potential for errors.

# Proven success around the world. Our sealing technology in practice.



## Sealing flashing hydrocarbons

### Retrofit of ethane pumps with DGS6 and DiamondFace technology | USA

Compared to the conventional liquid-lubricated seals originally used, the new solution has impressed with a significantly extended MTBF since 2011.



## Reducing emissions

### Most climate-friendly dry gas seal for pipeline compressor | France

The innovative CobraDGS prevents fugitive emissions caused by process gas leakage during compressor operation. It is a complete solution with high-pressure N<sub>2</sub> generator and supply system.



## Prevent venting

### RoTechBoosters for compressors in natural gas storage | Germany

The compressors can be kept pressurized for several months when in standstill which protects the mechanical seals from unrefined process gas and makes gas venting unnecessary.



## Upgrade for CCUS

### Equipment of several compressors used for gas re-injection | Brazil

With the 335 bar PDGS seal EagleBurgmann set a new standard for dry gas seals used in ultra-high pressure gas injection systems. The medium is natural gas with a high CO<sub>2</sub> content.



## Equipping for LNG processing

### New floating liquefied natural gas processing facility | Mozambique

Supply of several dry gas seals and RoTechBoosters for regeneration and mixed refrigerant compressor units.

We're closer than you think. Our experts are always nearby and happy to offer their sealing expertise. Get in touch: [info@eagleburgmann.com](mailto:info@eagleburgmann.com)



Read more on how we helped our customers.



## Increasing efficiency

### Upgrade to CobraSeal in gas processing plant | Norway

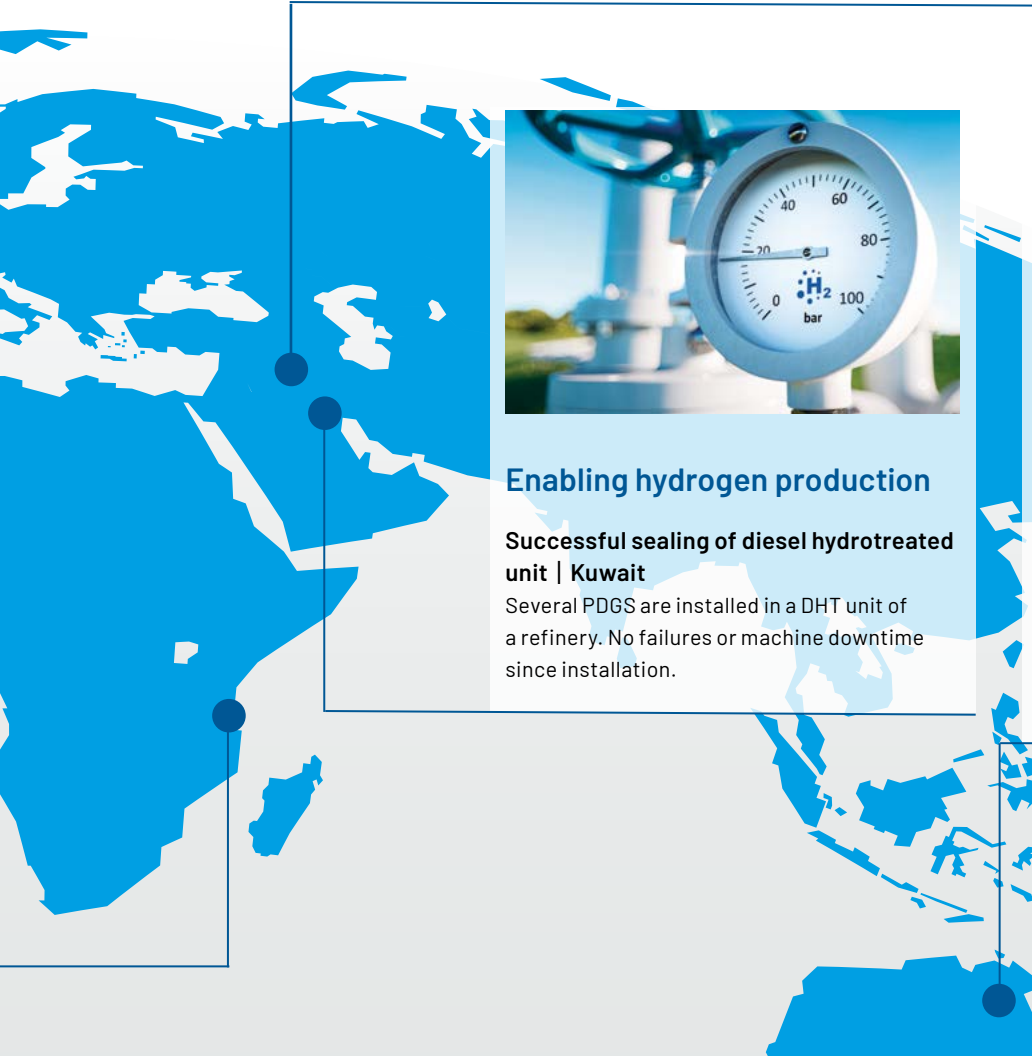
Previous separation seals had resulted in multiple seal failures and associated maintenance. The CobraSeals eliminate downtime, resulting in a huge reduction in emissions and significant savings in operating costs.



## Improving environmental performance

### Conversion of compressors from wet seals to DGS technology | Iraq

The EagleBurgmann Compressor Upgrade and Retrofit Excellence (CURE) team took the project from inception to successful commissioning.



## Enabling hydrogen production

### Successful sealing of diesel hydrotreated unit | Kuwait

Several PDGS are installed in a DHT unit of a refinery. No failures or machine downtime since installation.



## Reliability & sustainability

### Successful upgrade to robust EagleBurgmann RoTechSeal | Australia

Previous seals had shown unexpectedly high levels of contamination during dynamic operation, together with evidence of high sliding surface temperatures.

## EagleBurgmann – Leading Innovation in Sustainable Sealing Solutions

We are your leading international specialist in industrial sealing technology. We combine innovative technologies, digital solutions and our passion and enthusiasm to create sophisticated and reliable sealing systems. Our products help make entire industries safer and more sustainable. 6,000 employees create added value for our customers around the world with their enthusiasm and competence. EagleBurgmann is a joint venture between the German Freudenberg Group and the Japanese Eagle Industry Group.

**Rely on excellence.**



**More than 100 service centers worldwide**

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