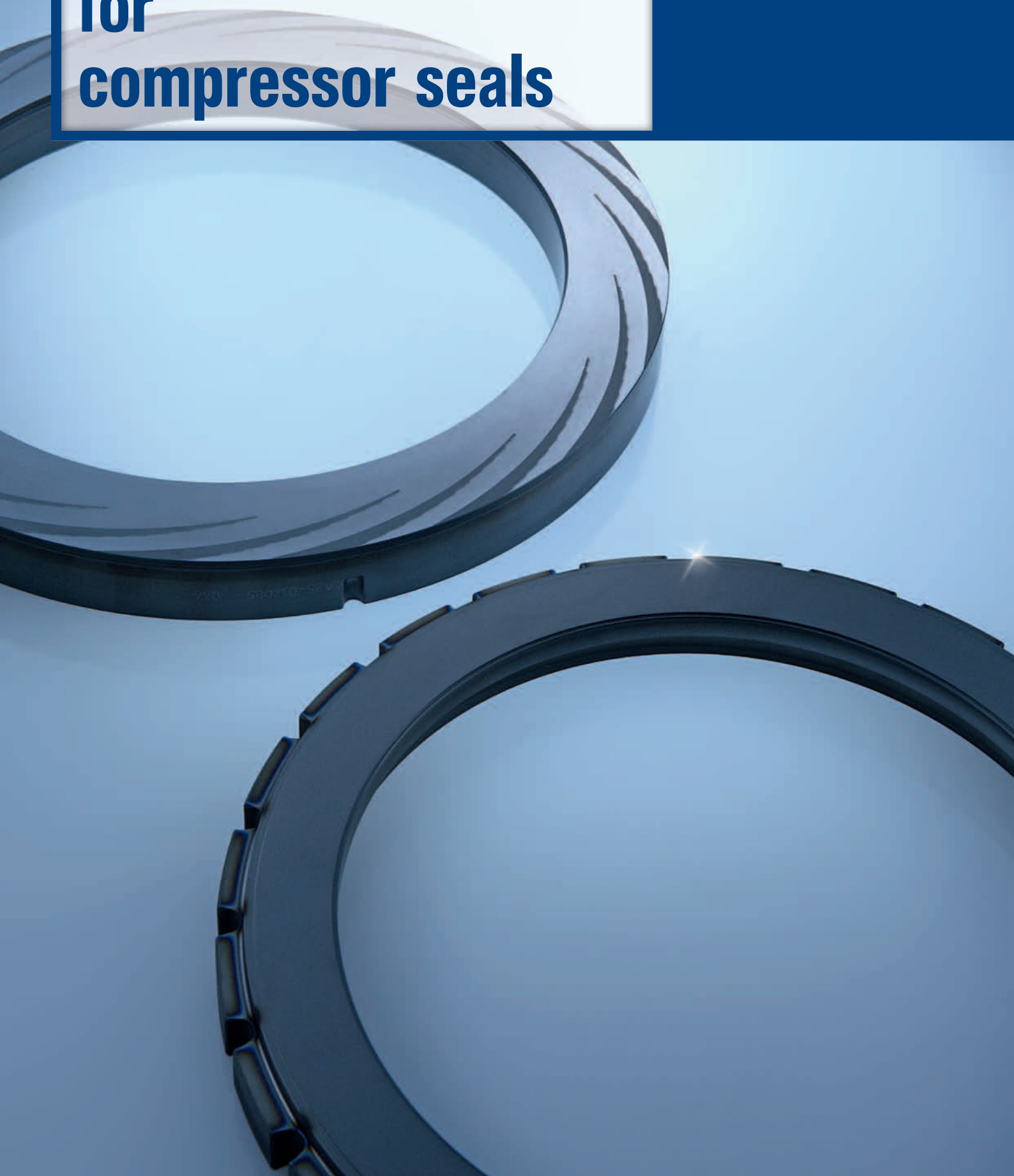


DiamondFaces[®]
for
compressor seals



DiamondFaces®

Maximum safety for compressor seals

Compressors are complex machines, and they are some of the most sophisticated components in a system. They are used in a broad range of applications including oil & gas production, gas transportation and storage, air separation systems, the refinery, chemical and petrochemical industries and many other sectors. Compressor availability has a crucial impact on system productivity. Besides machine designs that are suitable for the process, the components and how they are integrated into the system are the factors which determine the reliability and performance of a compressor. EagleBurgmann DiamondFaces® technology for dry gas seals delivers an unparalleled reliability enhancement in all compressor operating modes where the faces of the compressor seals are in constant contact: turning, ratcheting, coast-down and other operating modes that create critical conditions for standard gas seals.



The practice: Wear caused by seal face contact

Practical experience has shown that unexpected operating states are not all that uncommon. Compressors can run for hours, days or even months at a time at speeds below the seal face lift-off threshold or beyond the operating limits of today's gas seal technology. Because the seal faces are designed primarily for non-contact operation, they are subject to wear when there is contact for sustained periods. This ultimately damages the seal faces. The seal may fail, causing compressor downtime, which can have a serious impact on on-going operations.

The solution: Innovative and unbeatable

Innovative coatings containing crystalline diamond used on liquid-lubricated seals have an excellent track record under extreme conditions. More than 2,000 seals with DiamondFaces® technology installed worldwide have demonstrated the superior performance of this solution.

EagleBurgmann has enhanced its DiamondFaces® coating technology for use on the broad, structured silicon carbide seal faces of compressor seals. It is now possible to deposit a fully continuous layer of crystalline diamond with a precisely defined thickness on the mating surfaces of gas seals. During operation, the coating provides effective protection for the seal faces against wear and damage. The chemical bond between the diamond and the silicon carbide creates an extremely rugged coating, and the DiamondFaces® coating does not impair the lift-off capabilities of the seal faces. This significantly reduces the risk that compressor seals will be damaged or will fail during turning, ratcheting, frequent coast-down or under sub-optimal compressor operating conditions. The enormous increase in reliability soon pays off.

A number of application tests on our own test beds and at our customers' production sites have demonstrated the operational reliability and practical feasibility of these solutions.

The advantages: Durable and economical

Maximum resilience

DiamondFaces® is the ideal solution for extreme conditions (bad actors), where the mating surfaces of gas-lubricated compressor seals are in constant contact.

Maximum service life

DiamondFaces® extends the recommended repair intervals for mechanical seals to at least 10 years.

Maximum reliability

DiamondFaces® technology increases compressor availability, producing an unparalleled increase in operational reliability.

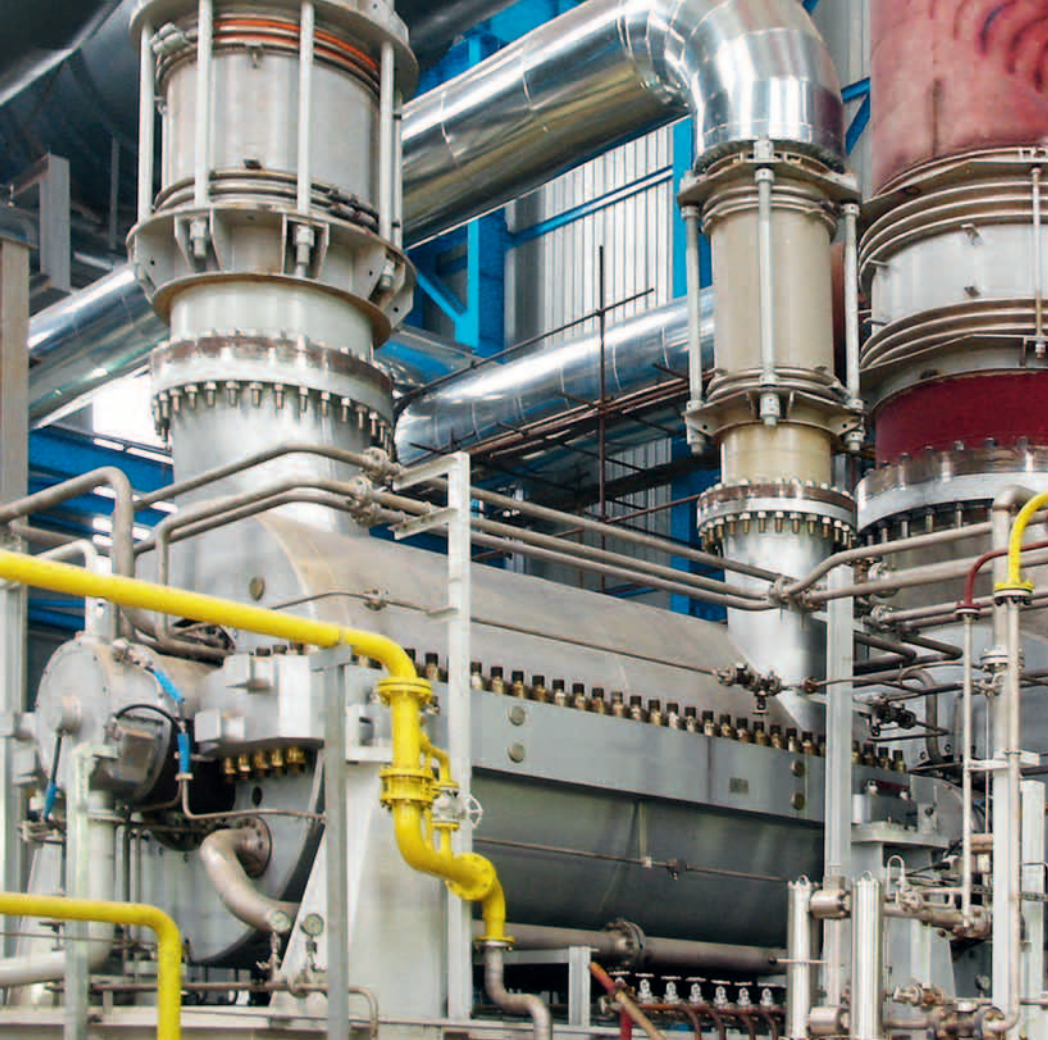
Maximum performance

DiamondFaces® has a short pay-back period due to the enormous increase in reliability and the much longer service life of compressor seals.

Maximum flexibility

Every EagleBurgmann DGS seal can be supplied or retrofitted with DiamondFaces® technology.

Why be satisfied with less? Insist on the maximum!

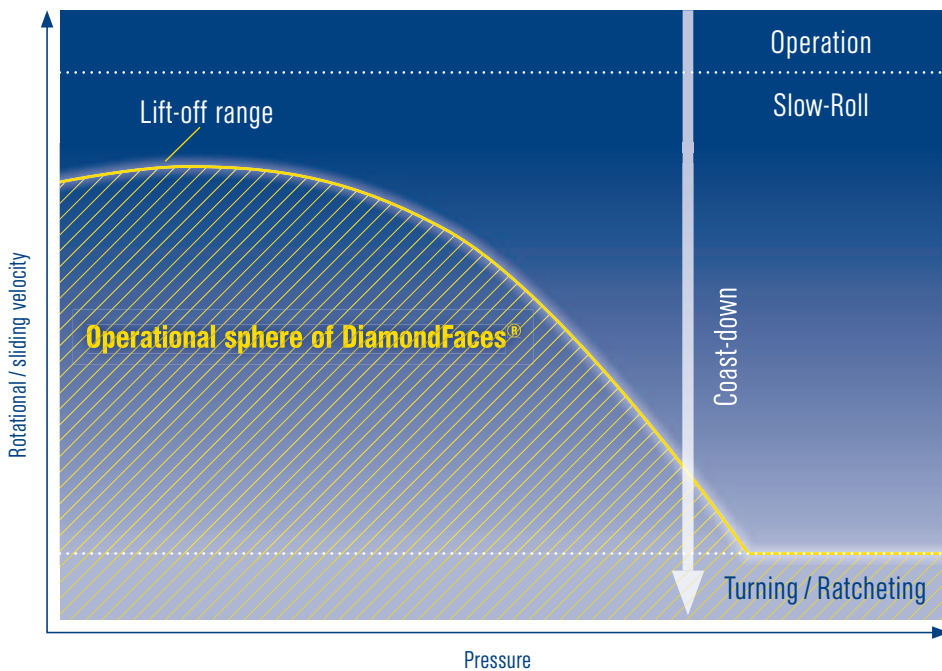


The original: DiamondFaces®

The introduction of DiamondFaces® by EagleBurgmann in 2007 was a milestone in the history of mechanical seal technology. A micro-crystalline layer, which has all the attributes of natural diamond, is applied to the seal faces using a chemical vapor deposition (CVD) process in a vacuum oven at a temperature of 2,000 °C. The process developed in cooperation with the Fraunhofer Institute for Surface Engineering and Thin Films in Braunschweig produces high coating thicknesses and an extremely even seal face. Coating adhesion exceeds all known requirements in practical application.

Seal faces with DiamondFaces® coatings are extremely hard and wear resistant. Other outstanding features include excellent heat conductivity and high chemical resistance. The technology increases the service life of mechanical seals by a wide margin. Time between maintenance calls increases considerably, and life cycle costs are much lower.

DiamondFaces®: The plus on safety below lift-off range



Coast-down

The compressor coasts slowly down for a long time under controlled conditions before it comes to a stop. When the speed decreases to the point where the seals no longer lift off, there is constant contact between the seal faces, causing wear and damage.

Turning

The compressor runs very slowly at low RPM (approx. 0.2 ... 1 min⁻¹) e.g. in standby mode. The seal faces, which are normally designed for turning mode for a specified time only, are in constant contact. Operating in this mode for longer periods of time results in wear and ultimately damages the seal faces.

Ratcheting

The shaft is rotated 90° at regular intervals to prevent deformation caused by thermal effects. There is full contact between the seal faces which are subject to wear over time.

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EagleBurgmann is one of the internationally leading companies for industrial sealing technology. Our products are used everywhere where safety and reliability are important: in the oil and gas industry, refining technology, the petrochemical, chemical and pharmaceutical industries, food processing, energy, water, mining, pulp & paper, aerospace and many other spheres. Every day, more than 5,500 employees contribute their ideas, solutions and commitment towards ensuring that customers all over the world can rely on our seals. Our modular TotalSealCare™ service underlines our strong customer orientation and offers tailor-made services for every application.

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