

DiamondFaces®-coated sliding faces –
The solution against electrical corrosion.

EagleBurgmann®
Rely on excellence

DF-SAF(P)I seals in boiler feed pumps

Ever since October 2010, the world's first mechanical seal with diamond-coated sliding faces has been operating in a boiler feed pump at a nuclear power station in southern Germany, to the complete satisfaction of the operator, E.ON. EagleBurgmann is the first and only company to offer this convincing technological solution which has currently been used in the SAF(P)I seal type.

Electrical corrosion eliminated

The outstanding advantage of the DF-SAF(P)I is that it puts an end to the electrical corrosion that has a destructive effect on the silicon carbide rings. Even without conditioning the feed water, e.g. by injecting ammonia, the seal with coated seal face and seat achieves a significantly longer service life. Complicated repair jobs and expensive downtimes are both minimized as a result.

Tested under scientific conditions, proven in practical applications

Before the DiamondFaces® coating was used, it was tested under scientific conditions and with the original fluid as part of a project undertaken jointly by EagleBurgmann and the Technical University of Graz in Austria. After more than 10,000 hours of continuous operation without any signs of electrical corrosion on seal face or seat, it was then possible to go on to successful practical application of the seal solution together with E.ON.



Boiler feed pump at the power station operator E.ON, equipped with EagleBurgmann DF-SAF(P)I.

International interest

The operator's expectations were met in full, and as a result it ordered additional DiamondFaces® seals for re-equipping another pump.

In the meantime, orders for power stations operated by other customers in the USA, South Korea and Switzerland have been placed and/or completed. Reports on the experience at our reference customer, E.ON, were one of the decisive factors leading to these decisions.

Reliable partnership

EagleBurgmann has been working successfully and in a spirit of partnership with E.ON for more than 20 years now, to the mutual benefit of both partners. This confirms that our success is determined not only by innovative technology but also by the commitment and customer orientation displayed by our employees.

EagleBurgmann mechanical seal DF-SAF(P)

Features

- Cartridge design
- Single seal
- Balanced
- Independent of direction of rotation
- Integrated pumping device
- Double pressure balanced
- Stationary springs
- Seal face and seat with DiamondFaces® coating

Advantages

- Seal resistant to deformation, for very high sliding velocities and pressures
- Specifically developed for use with water that has a high electrical conductivity in conjunction with high sliding velocities
- Resistant to electrical corrosion
- Economy due to standardized internal components
- High flexibility due to adaptation of the connecting parts to the pump installation space
- Optimum heat dissipation due to integrated pumping device
- Lower power consumption than conventional seals
- Non sensitive to shaft movements due to stationary design
- Quick and easy installation because it is a preassembled unit
- Only a few seal components

Operating range

Shaft diameter:

$d_1 = 120 \dots 200 \text{ mm (4.72" ... 7.87")}$

Pressure: $p_1 = 70 \text{ bar (1.015 PSI)}$

Temperature: $t = 300 \text{ °C (572 °F)}$

Sliding speed: $v_g = 70 \text{ m/s (230 ft/s)}$

Axial movement: $\pm 3 \text{ mm}$

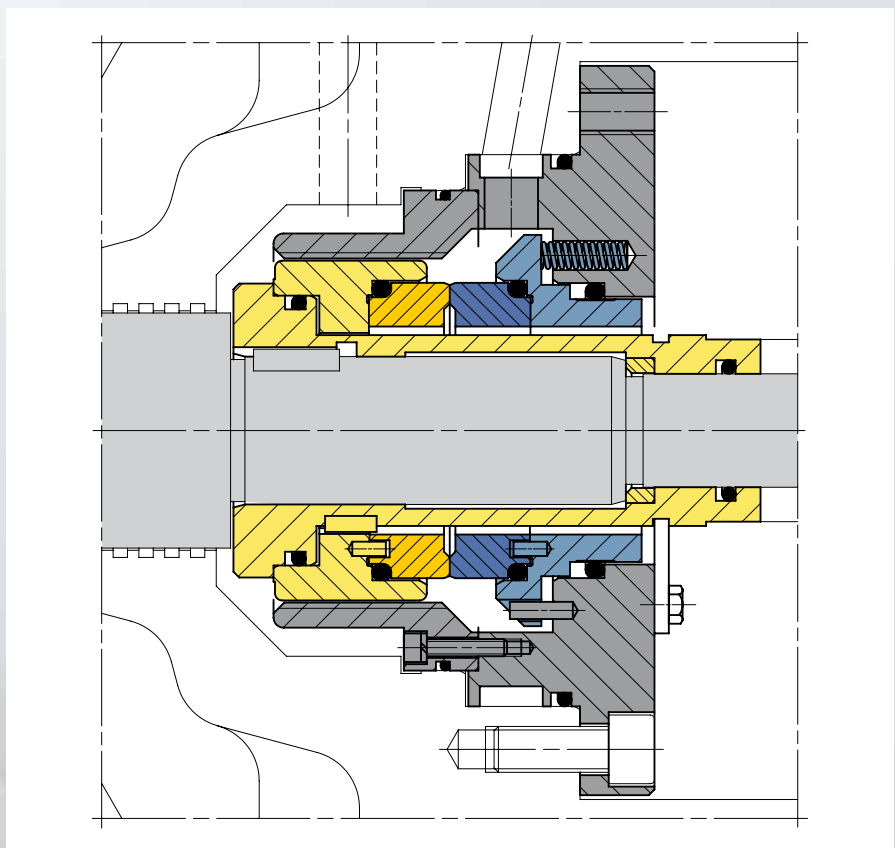
Materials

Seal face and seat: Silicon carbide with diamond coating (DiamondFaces®)

Secondary seals: EPDM (E), FFKM (K)

Springs: CrNiMo steel (G)

Metal parts: CrNiMo steel (G)



EagleBurgmann DFSAF mechanical seal.