

RELY ON EXCELLENCE

DF-(P)DGS6

Mechanical Seals | Mechanical seals for pumps | Engineered Seals



Features

- Dry gas seal for multiphase pump applications
- DiamondFace sliding surface technology
- Ideal for applications with Ethane, CO₂, and similar media with low vapor margins
- Shrouded rotating ring
- Bi-directional
- Ready-to-fit cartridge unit
- Single, double, tandem, and tandem with intermediate labyrinth available

Notes

Dimensions on request.

Sealing CO₂ reliably with conventional mechanical seals is challenging due to the difficulty of maintaining the fluid in a phase appropriate for the seal type. With CO₂, the phases range from liquid, supercritical to vapor, depending on the process parameters.

EagleBurgmann has performed extensive analysis, calculations, and testing, and developed with the DF-PDGS6 an effective and efficient sealing solution.

Advantages

- DiamondFace sliding surface technology for maximum operational performance under multiphase process conditions (liquid, vapor, supercritical)
- Ideal upgrade solution for wet mechanical seals with dry running issues
- Simple set-up: seal gas heating and nitrogen buffer are not required
- Stiff sealing gap creates necessary heat and doesn't require additional heating
- Significantly lower leakage rate avoids icing problems with CO₂ (Joule Thomson effect) and keeps emission rate low
- High film stiffness in all operating modes
- Proven reliable and economical solution
- Adjustable to extreme narrow installation space - retrofits are easy to implement

Operating range

Shaft diameter:
D = 32 ... 154 mm (1.26" ... 6.06")

Pressure (static und dynamic):
DF-DGS6: p = 0 ... 120 bar (1,450 PSI)
DF-PDGS6: p = 0 ... 250 bar (3,625 PSI)

Temperature:
DF-DGS6: t = -46 °C ... +150 °C
(-51 °F ... +302 °F)
DF-PDGS6: t = -100 °C ... +200 °C
(-148 °F ... +392 °F)

Sliding velocity:
vg = 0,6 ... 140 m/s (2 ... 459 ft/s)

For applications outside the standardized operating range mentioned, please contact us.

Materials

Primary seat and seal face: Silicon carbide with DiamondFace technology
Secondary seat and seal face: Silicon carbide with DLC coating (optional: DiamondFace technology)
Secondary seals: FKM, FFKM, PTFE (DF-PDGS6). Other elastomers available, depending on product gas composition
Metal parts: 1.4006 (410) and other stainless steels

Standards and approvals

- NACE

Recommended applications

- NGL (Natural Gas Liquids) processes
- Flashing hydrocarbon applications
- Liquid and supercritical CO₂-applications
- Oil and gas industry
- Refining technology
- Petrochemical industry
- LNG
- CCUS
- Hydrogen
- Power generation

Recommended piping plans

[API Plan 76](#)

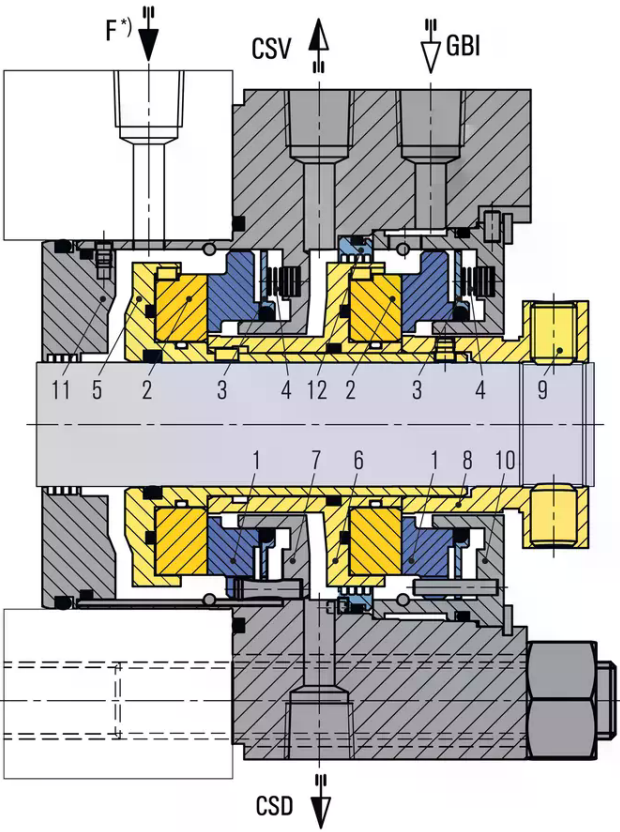
Optional:
[API Plan 02](#)
[API Plan 12](#)
[API Plan 13](#)
[API Plan 32](#)
[API Plan 72](#)
[API Plan 75](#)

Not recommended: Plan 11 and plans with cooler e.g. 21, 22, 23

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In our white paper "Advanced turbomachinery dry gas seal design solution for multiphase CO2 pump applications", we take a closer look at the special characteristics of CO2 and why they effect the safety and reliability of a seal. For more information, please feel free to contact us or [download the whitepaper directly](#).

The DF-(P)DGS6 product brochure can be found in our [Download Center](#).

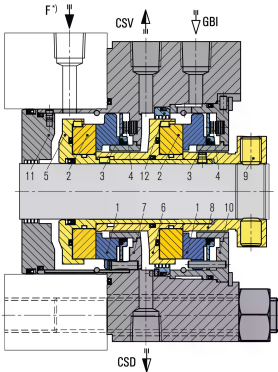


DF-DGS6 Tandem seal with intermediate labyrinth

1	Seal face
2	Seat
3	Thrust ring
4	Spring
5	Shaft sleeve
6	Intermediate sleeve
7	Housing
8	Clamping sleeve
9	Set screw
10	Adapter
11	Process side labyrinth
12	Internal labyrinth
F	Flush - optional
CSV	Containment seal vent
CSD	Containment seal drain
GBI	Gas buffer inlet

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Product variants



DF-PDGS6

For multiphase pump applications (especially with CO2) with high pressure and both low and high temperature applications (see operating range). With U-cups and special dynamic sealing elements. Secondary seals made of PTFE.