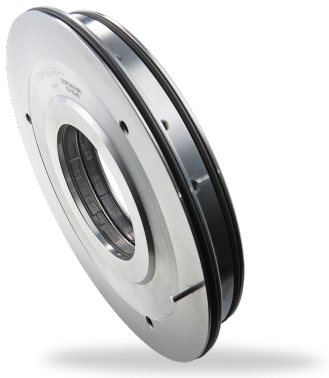
RELY ON EXCELLENCE

CSR

Mechanical seals | Compressor seals | Separation seals



Features
- Contacting bushing seal
- Gas-lubricated
- Bi-directional
- Ready-to-fit cartridge unit

Advantages
- Very low leakage
- No increased leakage in static operation
- Small gas consumption
- Optimized carbon material for operation with ultra dry nitrogen
- For continuous operation with little shutdowns and slow roll operation >10m/s

Operating range
Shaft diameter:
24.5 ... 320.3 mm (0.96" ... 12.61")
Design pressure:
p = 0.5 ... 10 bar (7.25 ... 145 PSI)
Operating pressure:
p = 0.5 ... 0.8 bar (7.25 ... 11.60 PSI)
Temperature:
t = -20 °C ... +200 °C (-4 °F ... +392 °F)
Sliding velocity:
vg = 10 ...140 m/s (33 ... 459 ft/s)
Separation gas dew point at 0.8 bar (11.6 PSI):
t = -50 °C ... -20 °C (-58 °F ... -4°F)*

* This limitation does not apply to CSR10.

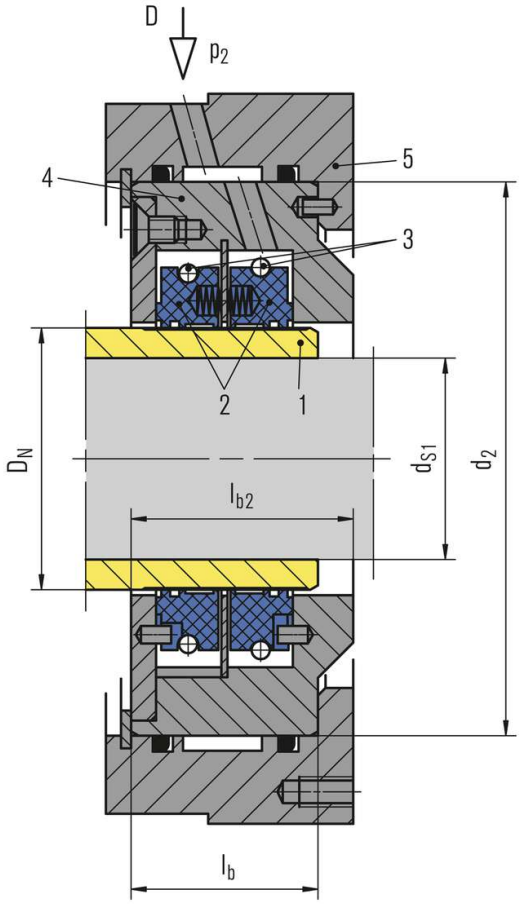
Materials
Seal face: Carbon graphite impregnated
Secondary seals: FKM
Shaft sleeve: Stainless steel TC-coated
Metal parts: 1.4006 or other stainless steels.

Standards and approvals
- NACE
- API 692

Notes
Contacting bushing seals feature very low gas consumption for both dynamic and static operation modes. In static operation the carbon segments will contact the shaft reducing gas consumption to a minimum. In dynamic operation, the profiled inner surface of the segmented ring will ensure an aerodynamic lift-off at circumferential speeds >10 m/s (33 ft/s). The segmented carbon rings float on a very thin gas film of few µm.

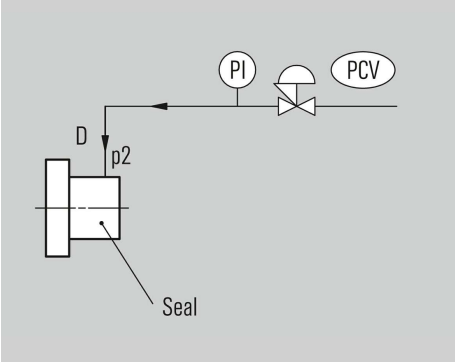
Dimensions on request.

Recommended applications
- Oil and gas industry
- Refining technology
- Petrochemical industry
- Nitrogen
- Air
- Centrifugal compressors
- Blowers



Item	Description
1	Shaft sleeve
2	Segmented carbon ring
3	Garter spring
4	Housing of standardized sub-cartridge
5	Housing (size matched to installation space)
D	Separation gas

Installation, details, options



Piping and instrumentation diagram of a CSR (pressure controlled separation gas supply).

Product variants

CSR version for dry nitrogen

The CSR separation seal is also available for operation with very dry nitrogen with no limitations regarding dew point. Newly developed carbon ring materials ensure smooth operation even when the CSR is supplied with very pure nitrogen, from e.g. cryogenic production. The reliability of the system can be increased significantly as a result.