

# Multi-ring circumferential gas seals for hydrocarbon processing equipment



Kaydon's multi-ring circumferential gas shaft seal (K-MRC) is a low cost, highly versatile gas seal solution for low pressure sealing applications [ $< 100$  psi, (7 bar)]. This radial contact shaft seal can be applied where economical, environmental, or space restrictions preclude the use of traditional end face seals. Its compact radial profile makes it ideal for oil free screw compressors and labyrinth seal retrofits.

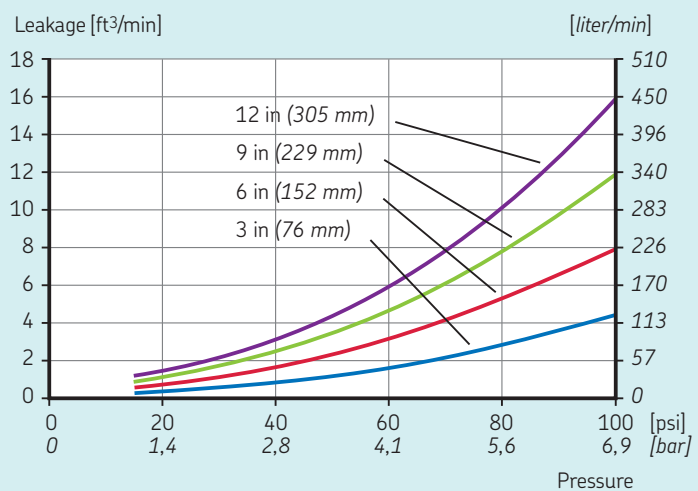
The multi-ring circumferential gas shaft seal features several segmented carbon seal rings that ride directly on a hard coated shaft or shaft sleeve. Working faces are partially pressure-balanced. Sealing occurs across narrow sealing dams to unload the seal rings in both the axial and radial directions. This allows the seal rings to track with the shaft and minimize wear.

## Low leakage rates

For pressures up to 15 psi (1 bar) leakage rates per ring are less than 0.1 ft<sup>3</sup>/min per diameter inch (0,11 liter/min per diameter millimeter).



Leakage rates



## Extreme durability

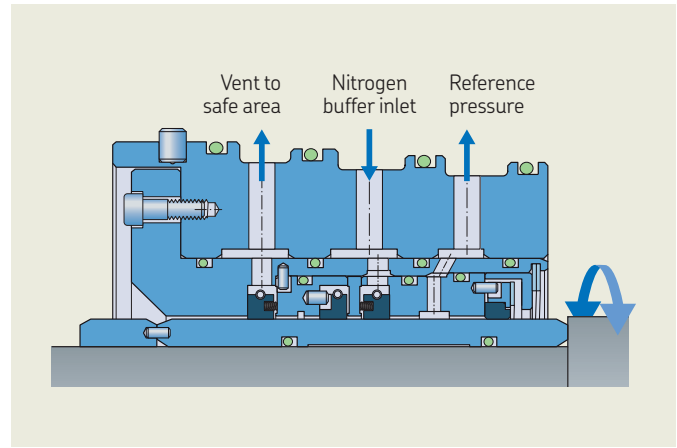
Perhaps the multi-ring circumferential gas shaft seal's greatest feature is its ability to tolerate liquid contamination, solid debris, radial vibration, and axial vibration without risk of catastrophic failure. The seals have virtually no axial position limitation, and can support radial shaft deflection of up to 0.030 in (0,762 mm).

## Design flexibility

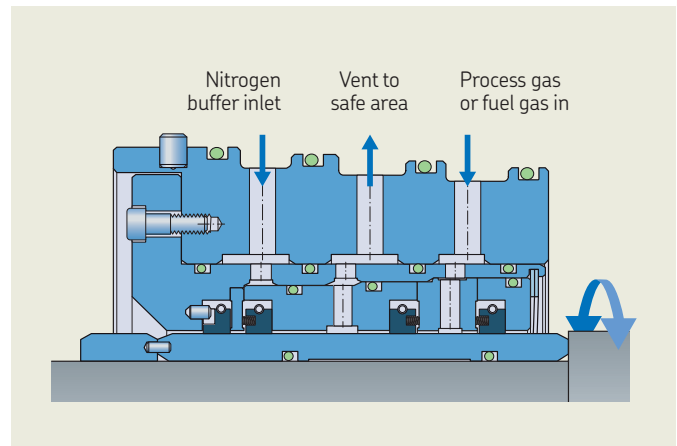
The multi-ring circumferential gas shaft seal may be arranged to fit different hydrocarbon processing operations by using any number of rings and ports (see seal configuration examples on opposite side). Filtered process gas or fuel gas may be used if inert gas is not available above sealing pressure. Split cartridges are also available.

### Configurations for process equipment

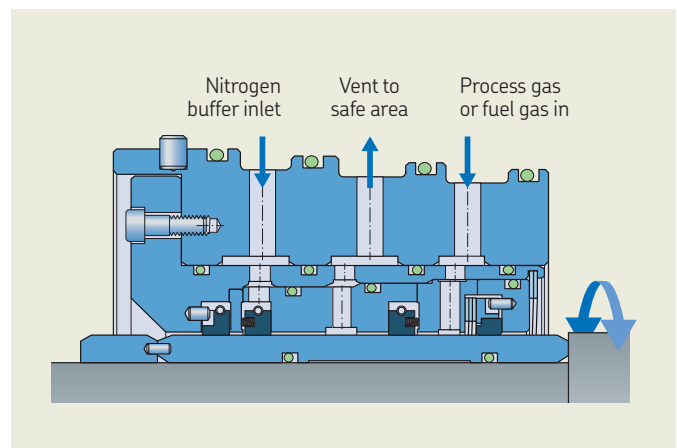
**Single purge with vent**  
*Simplified system for applications where process gas is compatible with a single nitrogen buffer, or where process emissions are not allowed. Vent enables flow monitoring and safe exit of process gas if nitrogen supply is lost.*



**Dual-purge low flow**  
*For applications where inert gas cannot be used for primary buffer. Vent leakage isolated by nitrogen buffer. Ideal for clean applications like refrigeration processes.*



**Dual-purge high flow**  
*Velocity of seal gas towards process is optimized by use of clearance bushing. Ideal for extremely dirty gas applications.*



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Kaydon's multi-ring circumferential gas seals group has the experience and expertise to help with new seal designs, upgrades, retrofits, and troubleshooting of Kaydon and other brand seals, and control systems.

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