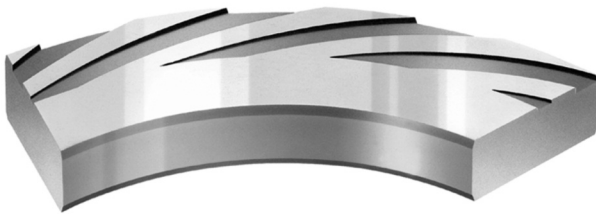
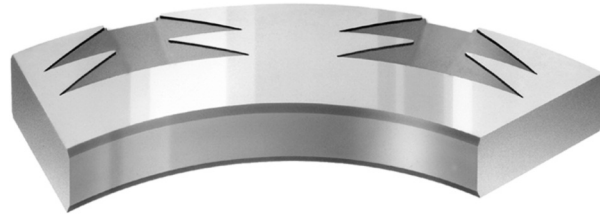
**Standard Unidirectional Groove Design****Optional Bidirectional Groove Design**

### Product Description

Type 28 compressor dry-running gas seals have been the industry standard since the 1970s for gas-handling turbomachinery. Utilizing John Crane's patented spiral groove pattern, these seals are non-contacting in operation.

- During dynamic operation, the mating ring/seat and primary ring/face maintain a sealing gap of approximately 0.0002 in./5 microns, thereby eliminating wear
- These seals eliminate seal oil contamination and reduce maintenance costs and downtime
- Single, double opposed, and tandem cartridge seals are capable of handling a wide variety of gas sealing applications in the gas collection/transmission, refining, chemical and petrochemical processing industries

### Design Features

- Shrouded mating ring prevents secondary damage in the event of a mating ring fracture
- Low-level leakage can be vented to a safe area, used as fuel to drive equipment, or returned to process via a low-pressure ejector

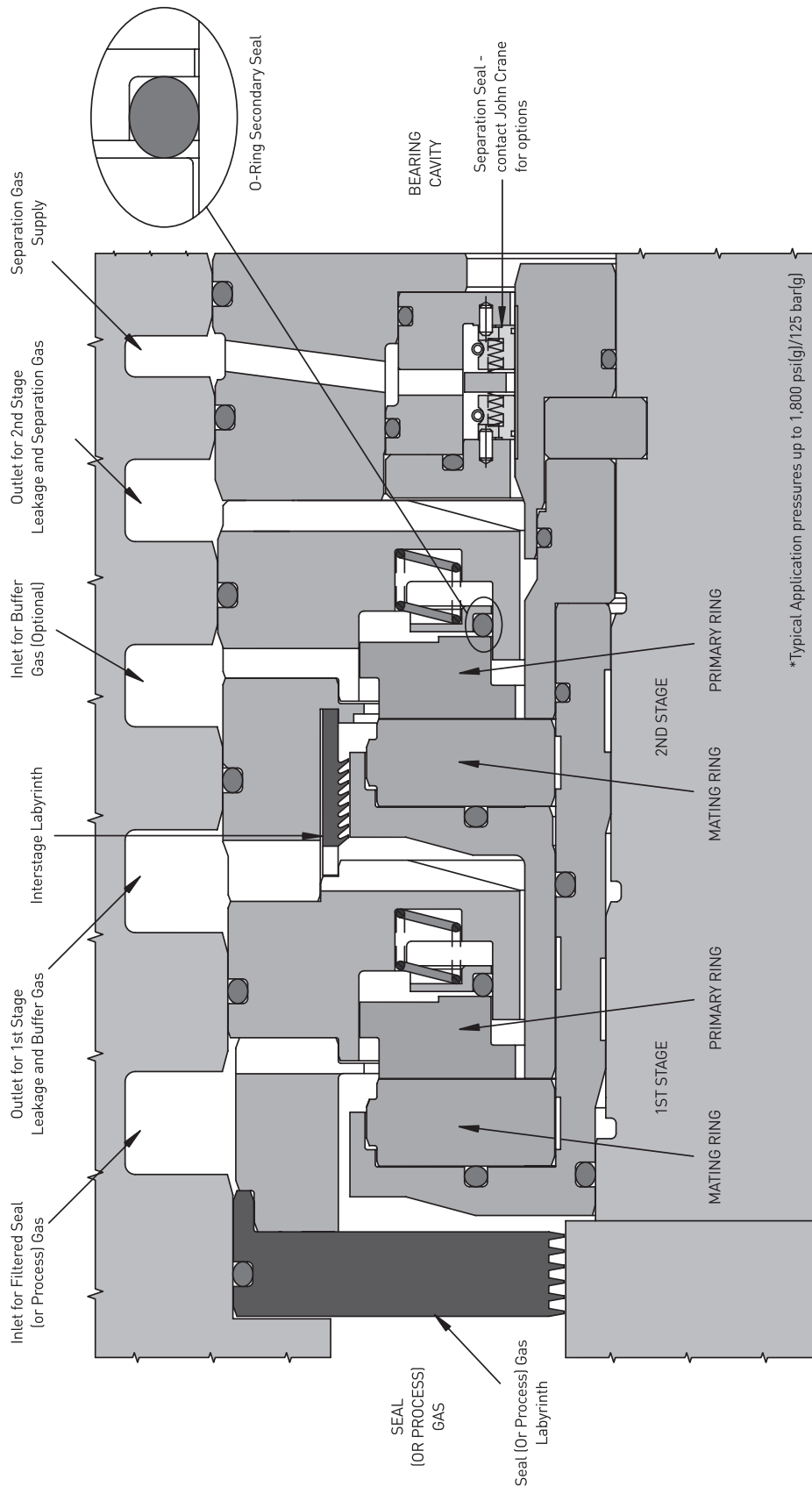
### Performance Capabilities

- Temperature: -220°F to 600°F/-140°C to 315°C
- Pressure: Up to 6,500 psi(g)/450 bar(g) across single stage
- Speed: Up to 660 fps/200 m/s
- Shaft: Up to 13.75"/350mm

# TYPE 28

## DRY-RUNNING, NON-CONTACTING GAS SEALS

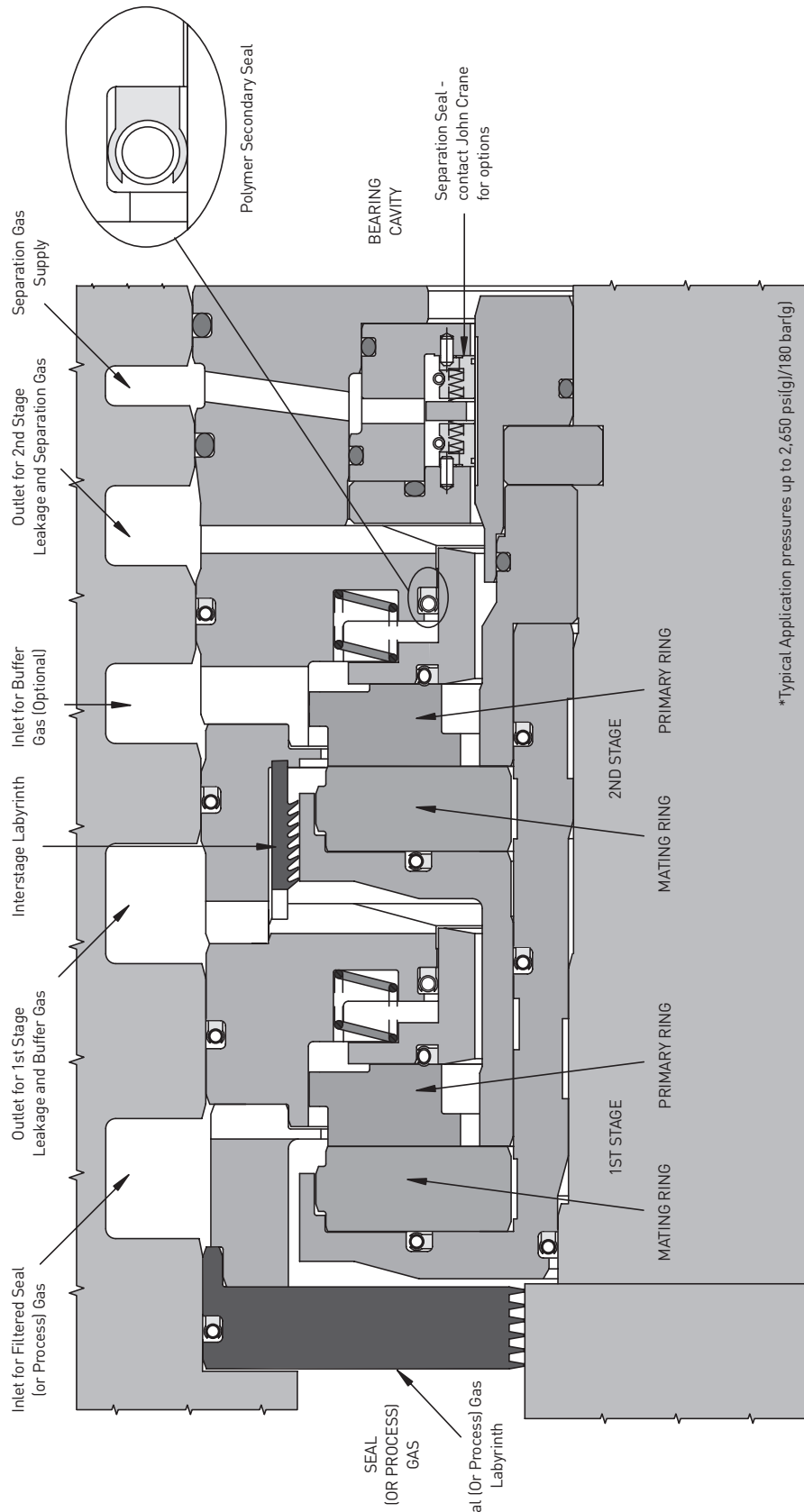
### Type 28AT Tandem Arrangement



# TYPE 28

## DRY-RUNNING, NON-CONTACTING GAS SEALS

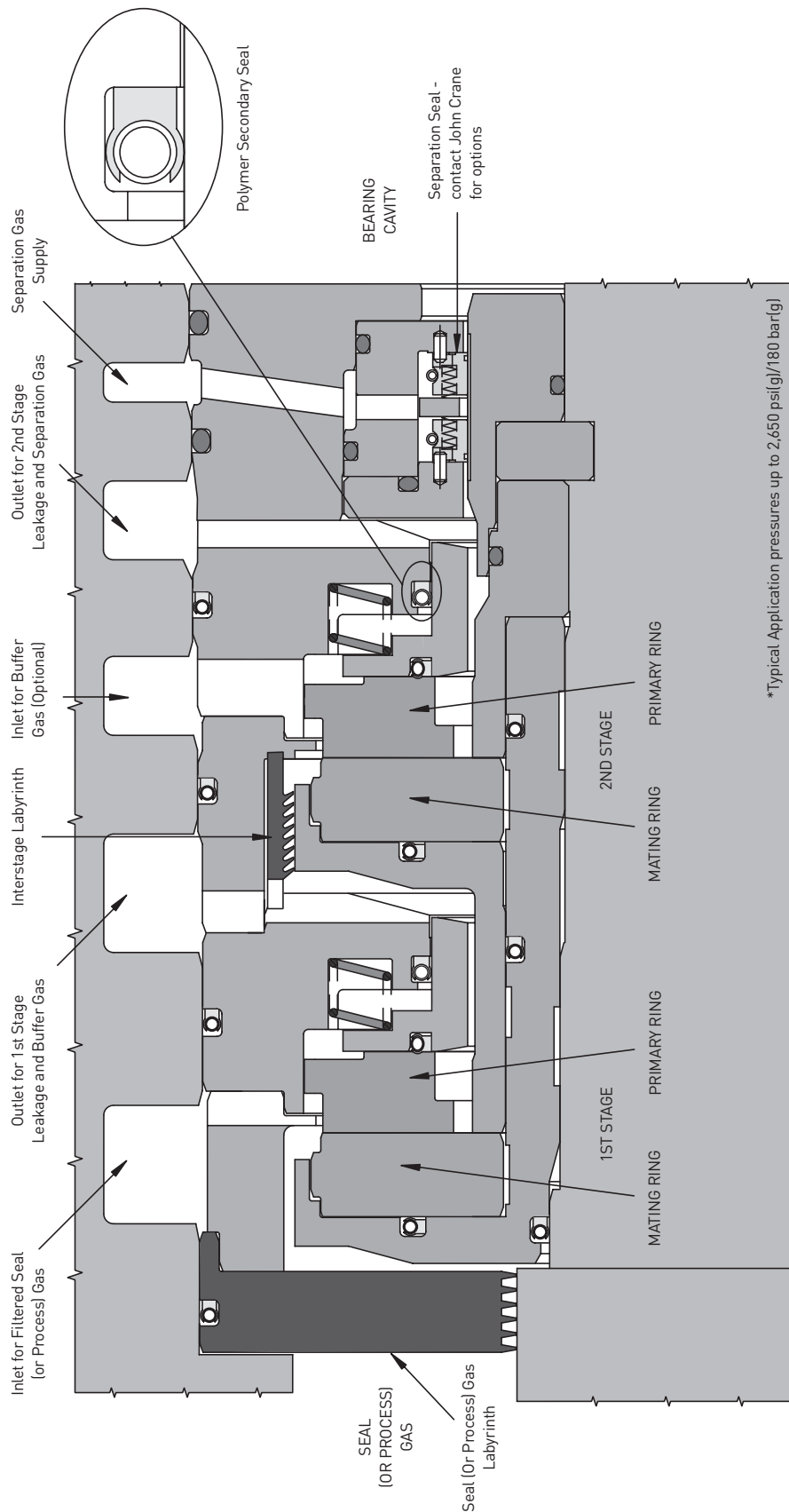
### Type 28XP Tandem Arrangement



# TYPE 28

## DRY-RUNNING, NON-CONTACTING GAS SEALS

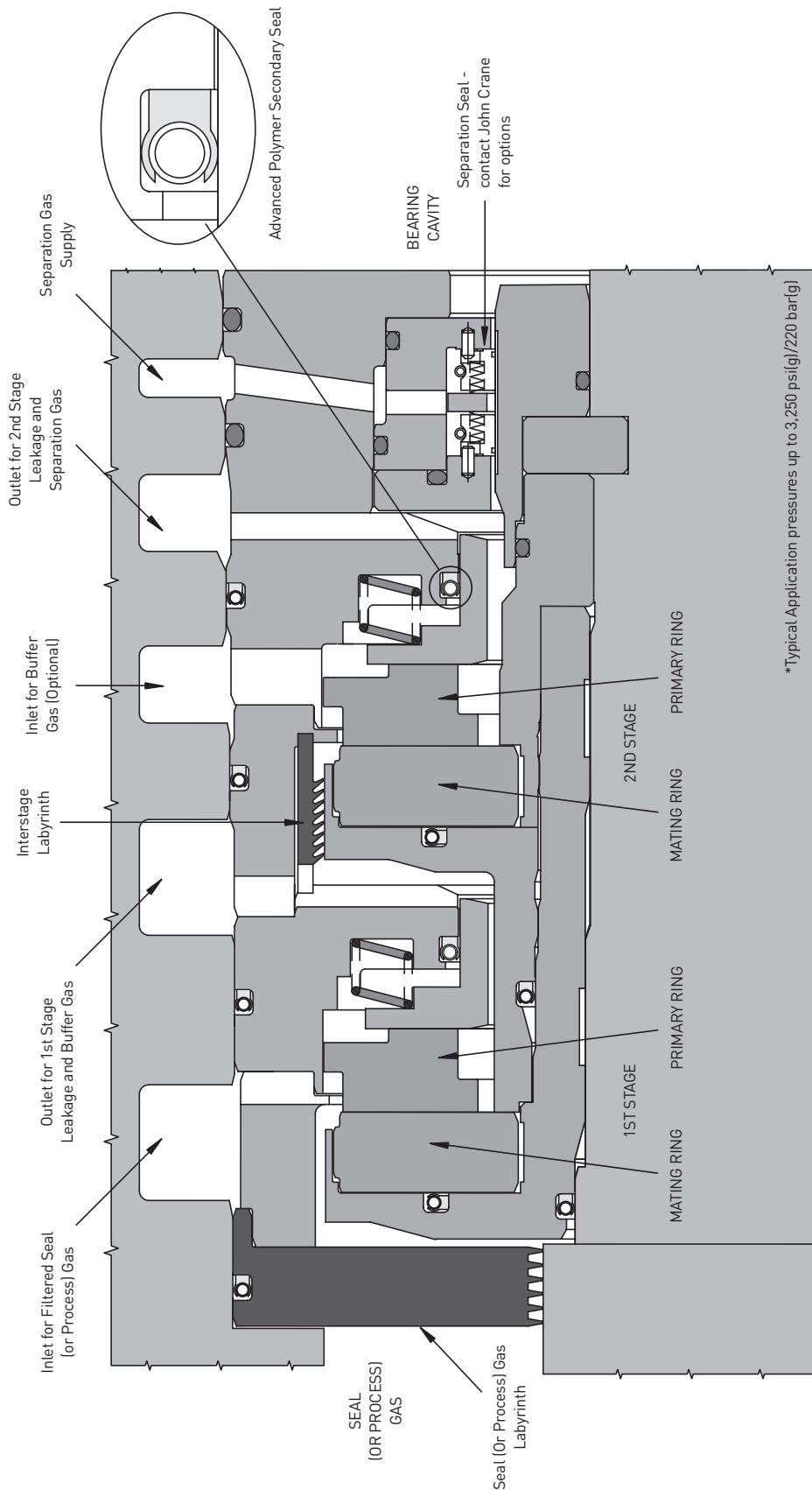
### Type 28XP-S Tandem Arrangement



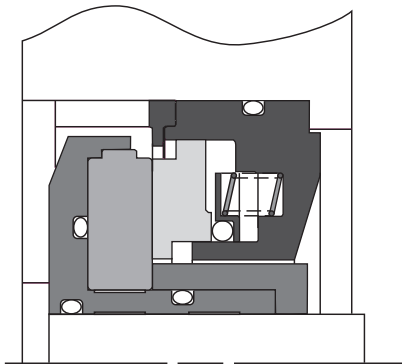
# TYPE 28

## DRY-RUNNING, NON-CONTACTING GAS SEALS

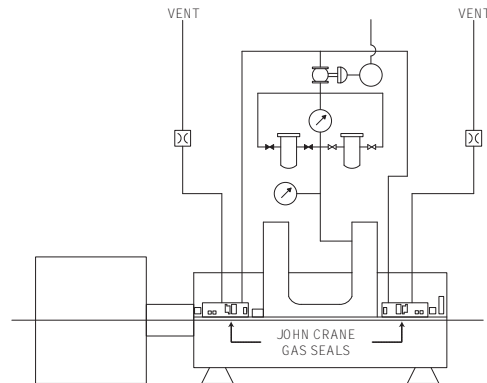
### Type 28EXP Tandem Arrangement



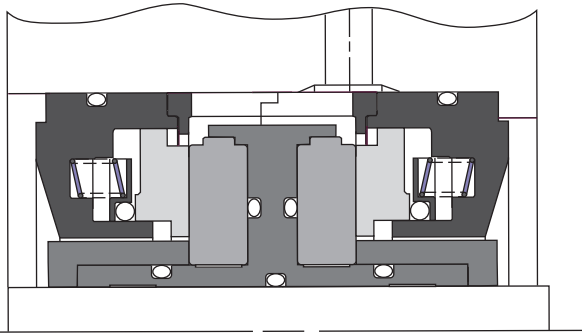
### Typical Single Seal Arrangement and Seal Support System



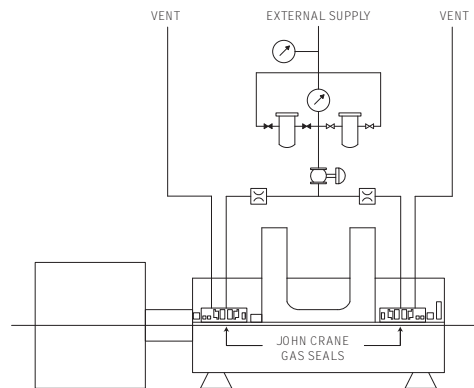
\*Single Seal Arrangement for applications not requiring a safety back-up seal.



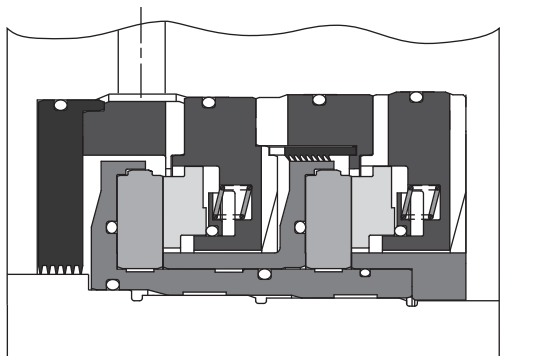
### Typical Double Opposed Seal Arrangement and Seal Support System



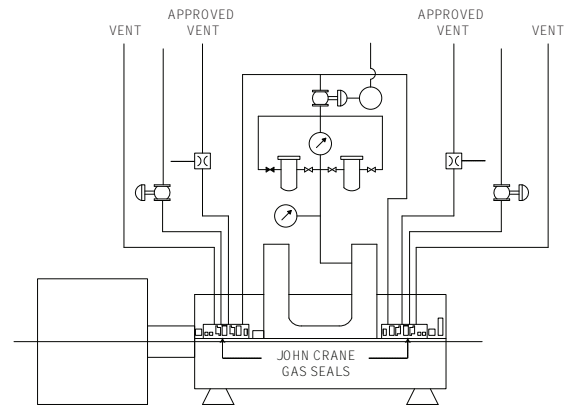
\*Double Seal Arrangement where hazardous gas is not permissible to leak into atmosphere.



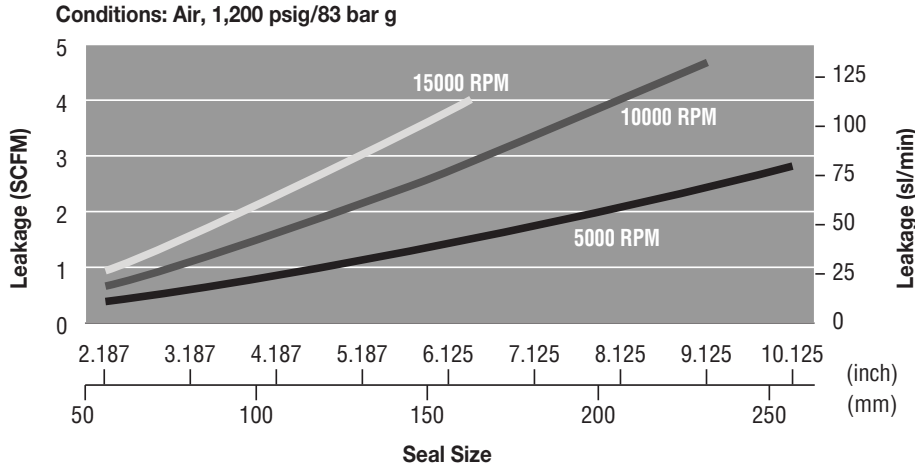
### Typical Tandem Seal Arrangement and Seal Support System



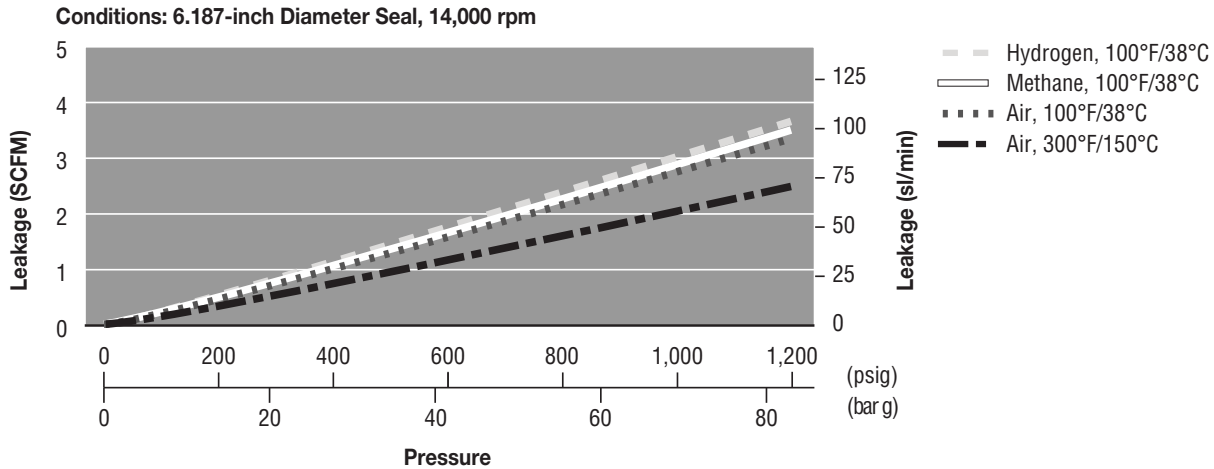
\*Tandem Seal Arrangement for applications requiring a safety back-up seal.



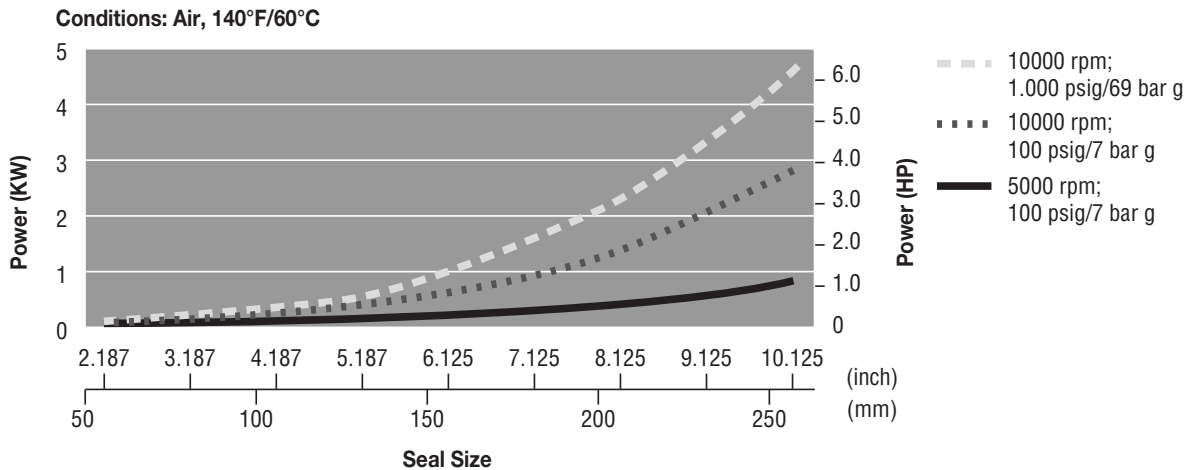
### Size and Speed Effect on Leakage



### Pressure, Temperature and Gas Effect on Leakage



### Gas Seal Power Consumption



\*This information should not be used for specification purposes. Contact DryGasSeals@johncrane.com for more information about exact application requirements.



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| Fax: 1-847-967-3915      | Fax: 44-1753-224224 | Fax: 55-11-3371-2599 | Fax: 971-488-62830              | Fax: 65-6518-1803   |

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