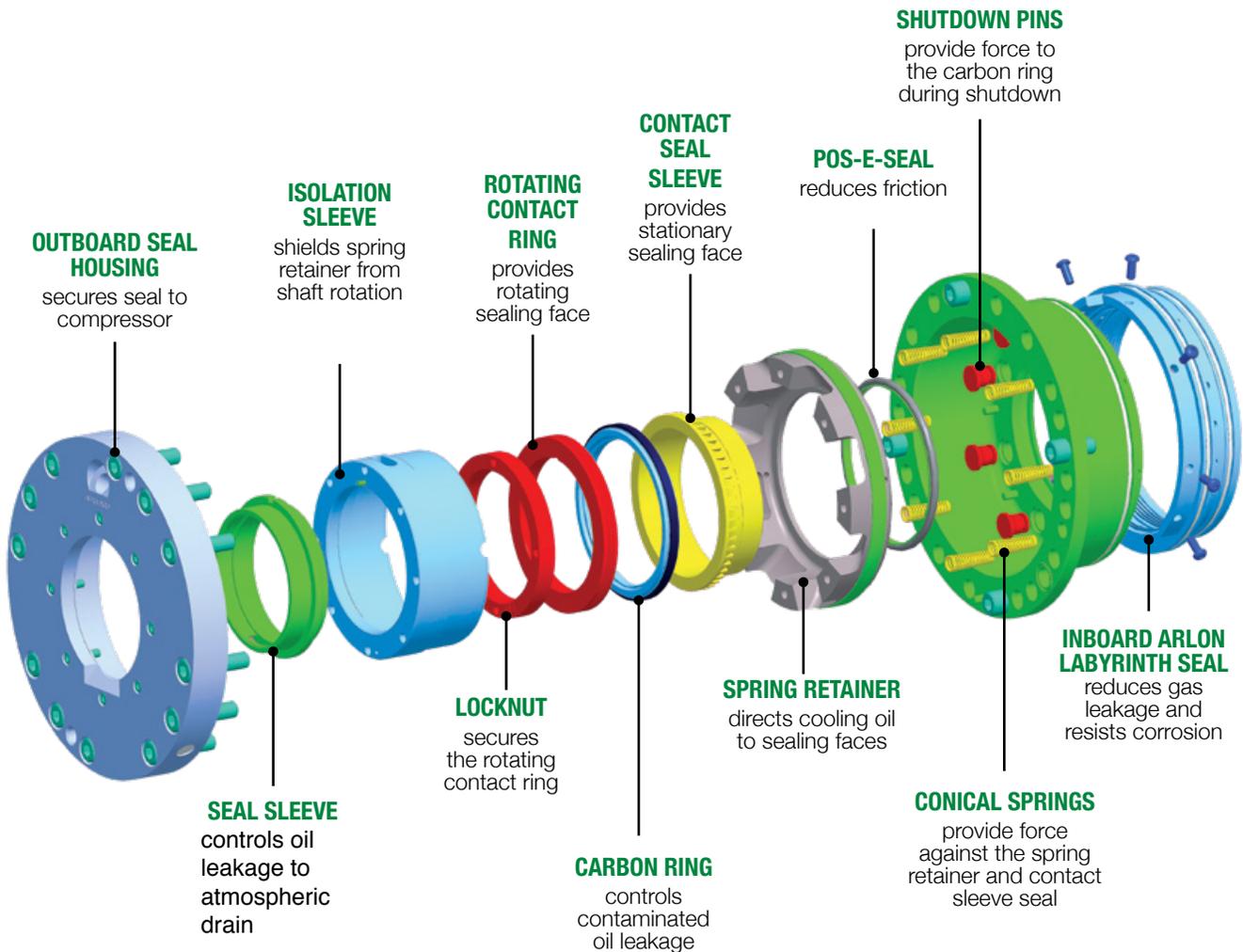




# ISO-CARBON<sup>®</sup> Cartridge Seal



The ISO-CARBON<sup>®</sup> cartridge seal is designed for low-pressure applications (maximum 750 psig). The cartridge design reduces the time and complexity of installation and maintenance. The assembly features an anti-oil ingestion labyrinth and “G” seal paired with a traditional carbon ring for improved reliability and seal life. The ISO-CARBON cartridge seal is immune to dirt or liquids in the process gas, allows users to monitor seal health using a sight glass and thermometer, and is equipped with shutdown pistons for positive sealing in emergency situations. Upgraded materials and secondary seal configurations are also included. The cartridge design allows the seal to be static leak tested prior to installation.

A thermoplastic buffer labyrinth seal with rub-tolerant teeth replaces the traditional aluminum labyrinth to create a tighter seal, eliminate corrosion concerns, reduce the risk of oil ingestion, and reduce the consumption of buffer gas (if supplied). A thermoplastic wear ring is affixed to the outside of the spring retainer; if wear occurs, the ring will be sacrificed before it causes damage to the more expensive inboard seal housing.

The ISO-CARBON cartridge also includes Elliott’s Pos-E-Seal innovative solution that reduces leakage problems caused by O-ring hang-up. O-ring hang-up occurs over time as the soft rubber of an O-ring fills into the tiny pores of the adjoining metal. This creates an “interlock” that requires increased force for it to break loose and start moving. Eventually, the springs and normal differential pressure will be insufficient to separate the O-ring and the adjacent metal component. The Pos-E-Seal serves as an improved secondary seal to reduce friction.

## Benefits

- ♦ Tolerant to dirty and unstable process gas conditions
- ♦ Fail-safe design - in case of seal oil pressure loss
- ♦ Simple installation with cartridge assembly; no tolerance strips required
- ♦ Designed to fit the existing Elliott compressor seal cavity – no machining of the shaft or seal housing is required
- ♦ Replaceable without rotor removal
- ♦ Optional static leak test before assembly into compressor

## Features

- ♦ Polyether ether ketone (PEEK) thermoplastic wear ring on spring retainer to minimize wear on the inner housing
- ♦ Rub-tolerant labyrinth seal made of PEEK thermoplastic for reduced buffer consumption and corrosion resistance
- ♦ “G” seal design modified oil flow path for increased stability and reduced wear at higher speeds (> 10,000 rpm)
- ♦ Pos-E-Seal - an improved secondary seal - reduces the friction associated with high leakage rate

Application	Description	ISO-CARBON® Cartridge Seal	ISO-SLEEVE™ Cartridge Seal	Dry Gas
Natural Gas	Gas cleanliness depends on where the gas is in its processing, upstream or midstream. There can be a wide range of pressures. Natural gas can be dirty and wet, but can be handled easily once purified.	✓	✓	
Wet Gas	The gas is typically dirty and close to its dew point; it can condense easily to a liquid state. Application pressures are very low. Oil seals are tolerant of dirty, hazardous gas since they use oil as a “buffer.”	✓		
Hydrogen Recycle	The gas is typically dirty and close to its dew point; it can easily condense to a liquid state. Application pressures range from moderate to high. Oil seals are tolerant of dirty, hazardous gas since they use oil as a “buffer.”		✓	✓*
Ethylene Refrigeration	This gas starts out as a liquid, but evaporates as it passes through an expansion valve. The vapors are then compressed for condensation. There are low inlet pressures and a high risk of product contamination. It is important to maintain a clean and oil-free process.			✓

\*Often requires a booster system for startup and / or additional gas conditioning as part of the buffer gas system.

## ISO-CARBON Cartridge Seal Conversion STANDARD Retrofit Package includes the following:

- ♦ Two ISO-CARBON cartridge seals
- ♦ One set of assembly / disassembly tooling
- ♦ Standard Documentation Package: Revised outline drawings and updated assembly drawings and installation / removal instructions



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T H E W O R L D T U R N S T O E L L I O T T



C O M P R E S S O R S ■ T U R B I N E S ■ C R Y O D Y N A M I C S ■ G L O B A L S E R V I C E