The Iso-sleeve cartridge seal is designed for high-pressure applications (maximum 4200 psig), where no gas leakage can be tolerated. The cartridge design reduces the time and complexity of installation and maintenance. Design features include a PEEK (polyether ether ketone) thermoplastic rub-tolerant labyrinth seal for improved chemical resistance and a gold babbitt coating on the breakdown seal and gas side seal for improved resistance to harsh sulfides and chlorides in gases.

Pressurized sealing oil is fed through the seal-oil inlet, where a portion of the oil is reduced to atmospheric pressure by a series of floating gold plated breakdown seals. This oil is returned to the clean reservoir. The remainder of the oil is forced through the gas side seal, another gold plated floating steel ring. This oil is discharged through the contaminated oil drain, to be reclaimed or discarded.

**Benefits**
- Replaceable seal sleeve (included with the cartridge) without opening the casing and removing the rotor
- Immune to dirt or liquids in the process gas
- Allows monitoring of seal health with a sight glass and thermometer
- Provides positive damping to improve rotor dynamics
- Designed to fit the existing Elliott compressor seal cavity – rotor modifications required
- Unnecessary to vent gas to flare (requires additional modifications)

**Features**
- Tungsten carbide coating on the rotor sleeve to minimize wear
- Gold babbitt on the breakdown seal and gas side seal for added resistance to sulfides and chlorides
- Rub-tolerant labyrinth inboard seal made of PEEK thermoplastic for reduced buffer gas consumption and chemical resistance
- Wedge windback groove on the gas side seal to minimize contaminated oil leakage
- Optimized bushing design for improved stability
Iso-Sleeve™ Cartridge Seal STANDARD Retrofit Package includes the following:

- Two (2) cartridge Iso-sleeve™ seals
- One (1) set of assembly/disassembly tooling
- One (1) rotor shaft machining
- One (1) rotor balance
- Standard Documentation Package: Revised outline drawings and updated assembly drawings and installation/removal instructions.

<table>
<thead>
<tr>
<th>Application</th>
<th>Description</th>
<th>Iso-Carbon® Cartridge Seal</th>
<th>Iso-Sleeve™ Cartridge Seal</th>
<th>Dry Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Gas</td>
<td>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.</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Wet Gas</td>
<td>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.”</td>
<td>✓</td>
<td></td>
<td>✓*</td>
</tr>
<tr>
<td>Hydrogen Recycle</td>
<td>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.”</td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>Ethylene Refrigeration</td>
<td>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.</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

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