



Omniseal Solutions
SAINT-GOBAIN

BEYOND
the boundaries of possible



INDUSTRIAL CASE STUDY

ROTARY SCROLL COMPRESSOR





○ RULON® FLUOROPOLYMERS

Rotary Scroll Compressor

Roland Wagner June 2021

INDUSTRIAL WEAR & FRICTION LOWER MAINTENANCE

Environment

The global demand for rotary scroll compressor is expected to cross \$14 Billion by 2026. In the past 10 years, they have become a major player in compressed air, previously dominated by reciprocating screw compressors. The compressors are used in variety of applications including chemical, pharmaceutical, food & beverage, laboratory, and medical; and provides benefits such as improved efficiency, fewer moving parts, smooth and quiet operation, and a smaller and cleaner work space.

A scroll compressor works in a circular motion as opposed to an up-and-down piston action. Its design uses two interleaving scrolls (one part that moves in a circle while the other is stationary) to pump, compress or pressurize fluids such as liquids and gases.

Challenge

Scroll compressors have two leakage paths, i.e., axial and radial leakage. Of these leakage paths, axial leakage is quite serious since it affects the efficiency of the compressor. To prevent this axial leakage, scroll compressor manufacturers use tip seals that are placed into grooves on the tips of both spirals.

For oil-free scroll compressors, they face a unique challenge as they cannot use any type of lubrication. Due to this non-lubrication environment, temperature, friction and wear of the tip seal increases, which lowers the efficiency of the compressor.



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Solution

Omniseal Solutions has developed Rulon® fluoropolymer compounds especially for oil-free scroll compressors. Trials have revealed that the material wear in our compounds is approximately one half (1/2) compared to existing materials available in the market. Due to this lower wear and less friction, the life of the tip seal is significantly enhanced thereby increasing time between change over.



Standard tip seals provide about 1,000 to 2,000 hours of use. When using a Rulon® 945 scroll seal, seal life is over 3,000 hours, saving customers from losing money & replacing parts often.

Benefits

- Low material wear, less friction, high life
- Custom designed, reliable solution
- Low maintenance costs



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Design Expertise & Tailor-made Solutions for Your Critical Applications

Omniseal Solutions is a global engineering leader with over 65 years of historical legacy, relentlessly dedicated to the design and manufacture of precision sealing and wear and friction control solutions that protect critical applications in the most demanding environments and passionately driven to push *Beyond the Boundaries of Possible*.



—○ Contact Our Expert

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