



# Compressor



## Case Study

Custom FTL solution is seal of choice for rotary vane compressor

# Cartridge assembly design improves ease of maintenance

## Introduction

Following other successful seal applications within the customers group, FTL became involved with a design/test programme for new product development.

The programme was to produce a seal which would give a near 100% pass success on test and return a 20,000 hour service life.

Several sealing systems were tested with successive design enhancements, improving the overall seal performance and durability.

This culminated in a final test which exceeded all design and performance expectations. The seal system was then introduced to the client's full range of rotary vane compressors.

## The Client

A leading UK manufacturer of industrial compressor technology.



*Rotary vane compressor unit*

# Low friction sealing solution with performance enhancing properties provide dry running capabilities

## The Challenge

Rotary compressors, either screw or vane, are complex applications and can be challenging when it comes to the design and implementation of a successful sealing solution.

Typically, rotary vane compressors run slower than screw compressors, but neither are considered slow running. Rotational speeds vary between 1750 and 9000 RPM, a range within which there are high demands placed on a sealing system.

The client needed a reliable sealing solution which supported powerful and cost-effective compressor performance. Ease of maintenance was also a factor. The key operational challenge was that the rotary seals needed to accommodate positive pressure, withstanding the high running speeds and operate without lubrication.

## The Solution

FTL designed custom, low friction, PTFE seals with performance enhancing fillers to provide exceptional and reliable performance.

Integrating the sealing element into a more robust cartridge assembly removed the responsibility of correct seal installation from the manufacturer or service engineer. Instead the seals were fitted at FTL's facility with dedicated tooling and the appropriate levels of inspection to ensure perfect installation at the client's production facility.

The installation of the cartridge seal assembly is much easier and carries less risk for the manufacturer or service engineer.

FTL have cleverly integrated a feature into the cartridge assembly that allows manufacturers to differentiate between factory assembly and subsequently planned service seal replacement whereby an alternative position on the shaft is used to establish a new seal contact band.

# Cartridge Sealing assembly for perfect installation - preventing damage to critical parts

## The Benefits

- **Over 20,000 hours of operational service**
- **Increased speed to market for new product development**
- **Ease of Installation**  
preventing damage to critical parts during installations
- **Dry running capabilities**  
reliable performance of compressor
- **OEM vs Service parts**  
reduction of cost as minimising wear parts

The unique cartridge design allows the components to be used for production as well as spares where the position of the seals lips are repositioned on the shaft for extended service.



*Custom PTFE sealing solution in cartridge assembly*

**In-depth**   
**Solutions**

### For more in-depth solutions

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