

Case Study: DURATUFF® Rings

Oil & Gas



INDUSTRY

Oil & Gas

CUSTOMER

Manufacturer of well pump equipment

BACKGROUND

The manufacturer was developing a new transfer and booster pump for oil well liquids & gases and wanted to prevent the media from escaping. This variable speed compressor will see oil, gas and water with sand and/or paraffin's, plus it is designed to handle both liquids and gases.

CHALLENGES FACED

Hydrogen sulfide (H₂S) is an extremely deadly gas commonly found in drilling applications, making it critical that the seals have zero leakage. In addition to poisonous gases, sand and grit can be very abrasive on seals and can quickly tear them apart; and many seals that are resistant to abrasives are made with aramid cloth which can actually wear and damage the plunger overtime. When pumping liquids, water and oil will act as a lubricant to reduce friction between the plunger and the seals. However, when the media is 100% gas there is no lubricant and the packing rings are essentially running dry on a moving plunger. Compounding the challenges of running dry, the pump has a >50" stroke length which creates enormous stress on the packing.

OPERATING CONDITIONS

Size: 2.500 x 3.250"

Temperature: 300°F max.

Application: Transfer pump

Media: Oil, gas, sludge, water with abrasives, H₂S

Pressure: 400psi max.

Speed: 1.2FPS

SOLUTION AND BENEFITS

To seal abrasive liquids and poisonous gasses at higher temperatures that occasionally run dry, Garlock recommended a combination of our premium DURATUFF® rubber v-rings along with a filled PTFE lantern ring to provide the best and longest lasting seal in this demanding application. The lantern ring allows for added lubrication to reduce friction associated with running dry. Our fabric reinforced DURATUFF® rings were used to block out and seal against abrasives and strong chemicals, and our brass reinforced homogenous DURATUFF® provides a tight seal against gases and cleans the plunger to eliminate foreign material buildup. The previous seal would result in minor gas leakage overtime but with Garlock's premium oil and gas sealing solution, they achieved zero leakage and a long product life that wasn't damaging to the equipment.

For more information, please visit:
<http://www.garlock.com>

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an EnPro Industries family of companies

Tel: 1-877-GARLOCK / 315.597.4811

Fax: 800.543.0598 / 315.597.3216

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