Garlock

Case Study: Style 7857RH, 432 & 9511 V-rings w/ Bronze Adaptors - Mining

INDUSTRY

Mining

BACKGROUND

The customer manufactures large caliper brakes for mining equipment and was experiencing leakage when using competitive u-cup style seals. U-cups have only one sealing lip, so leakage could be sudden and catastrophic.

CHALLENGES FACED

The mining equipment runs nearly 24-7 and it's critical that the brakes work correctly when applied. Seal repairs are a difficult and time consuming process that include replacing multiple seals in each brake unit. The piston has a short travel length but there was side-loading, which is when the weight of the piston rests on the seals. Overtime the equipment vibration and side-loading would damage the single u-cup sealing lip such that it could no longer hold against the 3200 psi pressure and there would be an immediate failure which would shut the equipment down. Due to application differences there was no way to predict how long the u-cup seal would last and there was no warning or leakage before it failed.

OPERATING CONDITIONS

Size: 8.750" x 9.500" & 4.000" x 4.750"
Temperature: Ambient
Application: Caliper brake piston seal
Media: Mineral oil
Pressure: 3200 psi (221 bar)

SOLUTION AND BENEFITS

The customer modified their equipment to use our chevron packing which minimizes the risk of catastrophic failure and improves the life of the seal. The chevron packing set uses a unique combination of bronze adaptors, and v-ring Styles 7857RH, 432 and 9511 to protect against equipment damage and create an excellent seal during its long life. This combination of bronze adaptors and our Style 7857RH (rock hard) v-rings act as a bushing to protect against side-loading and extrusion, while the other v-rings seal both high and low pressure. Actual seal life depends on the application and location, however by switching to our chevron packing they increased the overall life of the seal and more importantly they now have a reliable seal which notifies people that it's due to be replaced by gently weeping oil rather than the catastrophic failure of a u-cup."

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

08.2023

GARLOCK
an Enpro Company

1666 Division Street
Palmyra, NY 14522

Tel: 1-877-GARLOCK / 315.597.4811
Fax: 800.543.0598 / 315.597.3216

www.garlock.com

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