



## Summary

<b>Industry:</b>	Water & Waste Water
<b>Application:</b>	Pump Cartridge Seal
<b>Actual Saving:</b>	Reduced downtime
<b>Payback Period:</b>	Ongoing



## Bespoke Mechanical Seal Design Resolves Ongoing Issue

### ISSUE

Working closely with a large provider of operations and maintenance solutions for water infrastructure our ERIKS Application Engineer identified the possibility to address a major issue where a mechanical seal supplied by a pump OEM was routinely failing prematurely after just 2-3 months.

The seal was a bespoke design of cartridge seal with oil chamber built in. In addition to the lost operation time and the cost of maintenance time that unit cost of each replacement seal was high.

Upon investigation the existing seal face materials, Silicon Carbide on both rotor and stator, showed signs of abrasion. Our analysis identified the cause of failure to be resultant from: the design of rotating seal face allowing media to build up at a step in the face; this hindered the operation of the spring allowing media (very coarse dirty water) to get between the faces causing excessive wear on both faces. Coupled with a lip seal failing and a loss of barrier fluid this caused frictional heat build-up and damage to the elastomer seals within the assembly.

### SOLUTION

Cooperating with our Mechanical Seal Refurbishment facility in Hoboken, Belgium, our Application Engineer proposed a new design that incorporated critical design changes:

- Stationary Face: material changed to solid tungsten.
- Rotary Face: changed the stepped face design to a tapered face.
- Oil Seal: changed out to magnetically located labyrinth seal

The result was that the first seal upgraded has been running for 6-8 months without issue, with a further 5 pump seals having been upgraded during 2015 without issue.

### OTHER BENEFITS

- Improved design
- ERIKS expertise
- Improved TCO

### FURTHER COMMENTS...

Refurbishing seals can offer significant savings over the cost of replacement; typically the price of refurbishment is 60-70% of the price of a replacement for seals of up to £5000 in value. Above this greater savings may be achieved with refurbishment being as low as 40% of a new seal

### MORE INFORMATION

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