

Plunger Pump



Case Study

FTL's LS13 seals eliminate coolant leakage on descaling pumps

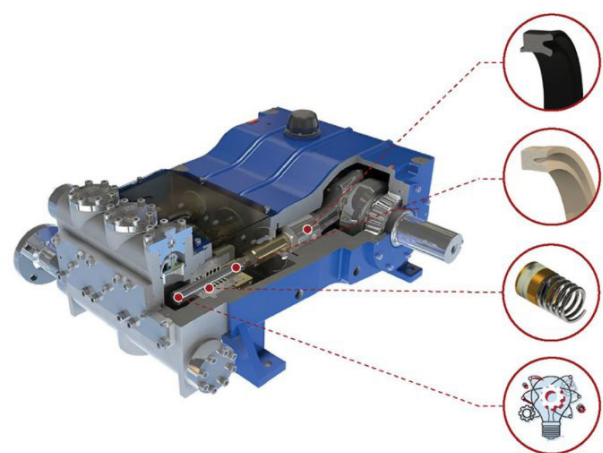
Reduced risk of crosshead contamination due to water/coolant leakage

Advantages of an optimised plunger pump include:

- Longer service life than conventional packings and chevron seals.
- Cost savings possible as a result of self-lubricating properties.
- Reduced low pressure leakage.
- Low friction, for low power loss.
- Dry running capabilities.
- Live loading allows for controlled wear loss.
- Packing materials suitable for use in abrasive media.

The Client

The client for this project was a well established UK manufacturer of high pressure plunger pumps, supporting water jetting and various pumping process applications.



FTL offers crosshead, low pressure and high pressure sealing solutions as well as custom designed assemblies.

Improved reaction rate against the plunger from controlled movement within the seal housing

The Challenge

The customer was experiencing several significant difficulties with low pressure sealing on the fluid end of a triplex plunger pump used for surface and subsea high pressure cleaning and descaling.

The primary challenge was that the existing looped cooling system on the wet end of the plunger pump required a low pressure seal to prevent water leaking out and potentially contaminating the crosshead area.

Due to high plunger speeds and lack of lubrication, the existing problematic seal was experiencing a high degree of wear and leakage.

The Solution

FTL collaborated with the client to design and develop a custom solution that included a high wear resistant seal with the lubrication capabilities required by the application.

The custom solution consisted of specially designed spring-energized modified PTFE seals together with bearing grade plastic stand off ring options.

This feature worked to ensure controlled movement within the seal housing, creating an improved reaction rate against the reciprocating plunger.

Based on the success seen on the customer's triplex pumps, the FTL solution has now also been incorporated into their quintuplex design.

Zero leakage and improved cooling in high pressure gland packing

The Benefit

The main advantage of using FTL's custom designed LS13 sealing solutions, along with FTL's fully optimized zero leakage high pressure seals (LLPA), was to enable the system to contain its media — thus cooling the plunger running under the high pressure gland packing end.

This cooling effect, in conjunction with the specialised sealing materials within the packing arrangement, contributed to an increase in service life of the main seals and improved performance.

"FTL really took the time to understand our challenges and worked closely with our design team to engineer a more robust sealing solution that delivered the results we were looking for. Their expertise and knowledge combined with a responsive and professional service really impressed us. Their passion and customer-focused approach was very refreshing and not something we have experienced with other seal providers."

**In-depth
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