



# Well Service Cement Pump

## Case Study - Permian Basin

Cement Triplex Pump benefited by innovative FTL bespoke  
High-pressure Seal

# Improvements to MTBM and reduced downtime for cement triplex pumps

## The Client

The client is a market leader in manufacturing cementing units and providing high-pressure pumping services in the Oil & Gas industry. The land cementing units are deployable in harsh environments, where the client strives to operate low maintenance equipment, whilst saving time during operation.

## The Objective

The original packing seal life averaged between 100-150 engine hours.

The technical objective of the field test was to evaluate the reliability and service life improvement of the FTL fluid end packing seal in cement triplex pumps, with abrasive slurries, when compared to the current standard fluid end packing seals and other competitor trials. The FTL solution allowed for the removal of the existing lubrication system, as this can be costly and unreliable when lubrication issues are present.

## Acceptance Criteria

Total running hours target of 500 engine hours without a fluid end packing seal leak in triplex cement pumps. Including water, slurry and oil leaks.

No adverse abrasion to occur between the FTL fluid end packing seal and the triplex pump plunger, which could potentially lead to faster plunger wear.

A hydrostatic test was also a solid requirement.

## Product Specification

|                                   |  |
|-----------------------------------|--|
| <b>Application</b>                | <b>Triplex Pump</b>  |
| <b>Plunger Size</b>               | <b>3.5"</b>  |
| <b>Crank speed</b>                | <b>Up to 450 RPM</b>   |
| <b>Fluid media</b>                | <b>Cement slurry</b>   |
| <b>Fluid pressure</b>             | <b>Up to 10,000 psi<br/>(Static and dynamic)</b>               |
| <b>Fluid temperature</b>          | <b>Up to 100 °C</b>  |
| <b>Lubrication</b>                | <b>Self-lubrication, eliminate external lubrication system</b> |
| <b>Current seal life</b>          | <b>100 - 150 Engine hours</b>                                  |
| <b>Service Life (MTBM) target</b> | <b>500 hours</b>   |

The custom designed FTL Seal is unique as it is self-lubricating

## The Solution

FTL provided a bespoke and ready-to-install high-pressure sealing solution able to meet the criteria of the application.

The materials used for the sealing element were carefully selected to increase life, with the added benefit of having dry running capabilities. Careful consideration had been taken on the surface finish and geometry of interfacing components to optimise seal design. Once fitted and in operation the seal design self-adjusts, ensuring the optimum energized condition throughout the working life of the seal.

The FTL High-Pressure Seal occupies the full stuffing box when the packing nut is fully engaged and can be fitted without the need for custom or specialized tooling.

FTL developed and built an in-house static test rig to provide further confidence in the solution prior to field trials. The results demonstrated that the seal performs hydrostatically and successfully passed the hydrostatic yard tests.



## Test Results

The original packing seal life averaged between 100-150 hours.

Test results confirmed the FTL packing seal achieved, and exceeded, the required lifetime of 500 engine hours: achieving 775 engine hours in the field without lubrication. This equates to 332.2 PTO hours. Packing leaks were not observed during the duration of the test.

The FTL High-Pressure Seal requires no adjustments during operation

## The Benefit

Improved MTBM for the unit

Reduced unplanned visits to the workshop

Reduced spend on triplex pump seals

Reduced spend on lubricants

Improved labour availability and reduced labour spend

Improved unit reliability, availability, and reduced downtime

## Technical Advantages

Self-lubricating solution

Low maintenance - no adjustments required during operation

Ease of installation

Retrofittable solution

Improved MTBF

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



For more in-depth solutions

---

T: 0113 252 1061

E: [ftltech@idexcorp.com](mailto:ftltech@idexcorp.com)

W: [ftl.technology](http://ftl.technology)