



Driveline



Case Study

Suspension sealing solutions for tracked military vehicles

Tracked vehicle
operating in
temperature ranging
from -51°C to +200°C

About Mechanical Face Seals

Mechanical face seals are specifically designed to operate in environments where external contamination levels are high.

Seals of this type are used in applications where downtime is especially costly, and seal durability is of critical importance.

Advantages of mechanical face seals include:

- **High reliability**
- **Cost-effective sealing against external and internal media**
- **Long service life with virtually no required maintenance**
- **Easy assembly**
- **Range of installation tooling available**

The Client

A leading defence OEM working on suspension and mobility solutions for a new tracked vehicle programme for the US Department of Defence.



US Army tracked vehicle

Bespoke sealing solutions tested and proven at -60°C

The Challenge

The development team, working on a new tracked military vehicle, presented the team at FTL with a range of challenges. These included:

- Temperature range -51°C to +200°C
- Working with aggressive and abrasive media
- High risk of contamination from a dirty and dusty external environment
- Limited space for seal installation

As this was a brand new vehicle development, nothing at all could be left to chance when it came to the design and implementation of an effective sealing solution. Given the expected demands of the vehicle when in service, an exceptional level of operational reliability was essential.

The Solution

FTL identified the requirement for a compact dynamic primary seal assembly at the interface between the body of the suspension system and the hull mounting plate.

Our approach was to develop a solution that brought together the primary seal and associated housing adaptors as a complete assembly.

The FTL solution included bespoke, application specific mechanical face seal and housing adaptors combined with FKM (Viton) elastomer especially compounded to deliver exceptional performance across a wide temperature range, and specifically down to extreme low temperature.

More than 10,000
test cycles
successfully
completed

The Benefit

The proposed FTL solution was verified during extensive inhouse testing, down to temperatures as low as -60°C. More than 10,000 test cycles were successfully completed.

This mechanical face seal assembly and FKM solution has been approved for use by the client, and as a result will now be incorporated within the design specification for the vehicle test program.

"Testing successfully verified the key low temperature sealing performance requirement."

Military OEM spokesperson

In-depth 
Solutions

For more in-depth solutions

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