



High-Speed Mixer

Case Study

High-Performance PTFE Triple Lip Seal for High-Speed Food Mixers

Warranty safe sealing for High-Speed Mixers

The Client

The client is a global manufacturer of food processing equipment, specialising in high-speed bottom entry mixers for dough and other flour-based products.

The Objective

To develop a high integrity, cost effective sealing solution for high-speed mixers, suitable for both new build and in-service retrofits, operating in a continuous duty cycle to:

- Reduce Warranty claims
- Improve seal reliability
- Fit existing machines without housing redesign
- Minimum lifetime of 6 months
- FDA Compliant materials
- Protect spares and aftermarket business

The Challenge

The client had been battling seal-related failures for over five years, resulting in annually warranty claims. The mixers operate continuously and handle abrasive media like flour, water, and brine under vacuum and pressure - a combination that proved difficult to seal reliably.

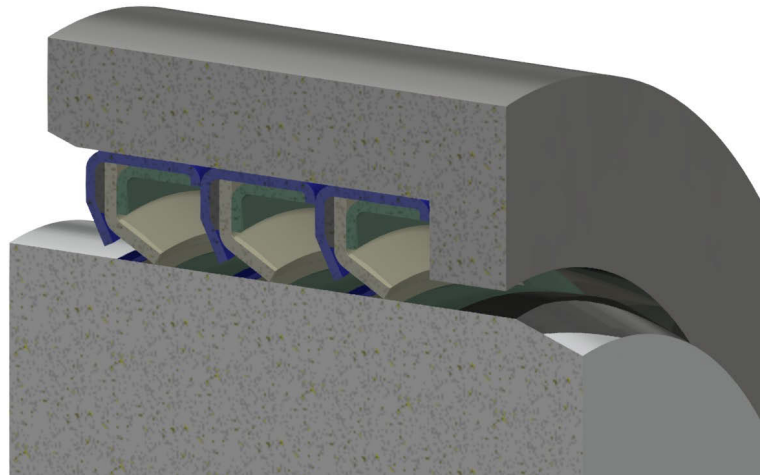
Before contacting FTL, the client explored the market extensively — engaging dozens of suppliers, trialing a wide range of mechanical seal designs, and reviewing a large volume of proposals. Despite this effort, none of the solutions delivered consistent performance. Making it impossible to offer warranties or reduce downtime with confidence.

Replacing traditional Mechanical seals with PTFE Lip Seal technology

The Solution

FTL developed a PTFE triple lip seal specifically engineered for high-speed mixer applications:

- **Triple lip geometry** for enhanced sealing performance and redundancy
- **Advanced PTFE compound** with engineered fillers to maintain integrity under high-speed rotation
- **FDA-compliant materials**, suitable for food contact applications
- **CIP (Clean-in-Place) compatibility** to allow frequent wash down cycles and exposure to cleaning agents without degradation
- **Accommodates Radial movement** via integrated O-Ring
- **Extended Warranty** with minimum seal lifetime of 6 months
- **Retrofittable** into existing housing designs



Test Results

During trials, the PTFE triple lip seal outperformed traditional mechanical seals — including double mechanical designs with hard faces and dedicated lubrication systems.

FTL's solution delivered reliable performance at a fraction of the cost and with no need for modification, making it the preferred choice for both retrofit and volume use.

Designed to Reduce Intervention and Increase uptime

Additional Value Adds

Cost effective pricing against traditional mechanical seals

OEM branded parts for traceability and aftermarket protection

Stock availability through call-off ordering

Warranty-backed performance

Benefit

Validation: Successfully met all performance and durability benchmarks.

OEM Trust: FTL became the supplier of choice

Quality: Reduced maintenance and improved uptime in high-speed mixers.

Operational Efficiency: Over 4000 seals delivered for both new and existing machinery

Strategic Impact

In high-throughput food processing environments, seal reliability directly impacts uptime, hygiene, and operational cost. FTL's tailored sealing solution supports long-term sustainability by reducing waste, improving equipment longevity, and enabling warranty-backed performance. The success of this project highlights FTL's ability to deliver application-specific, cost-effective sealing solutions for both legacy and new equipment platforms.