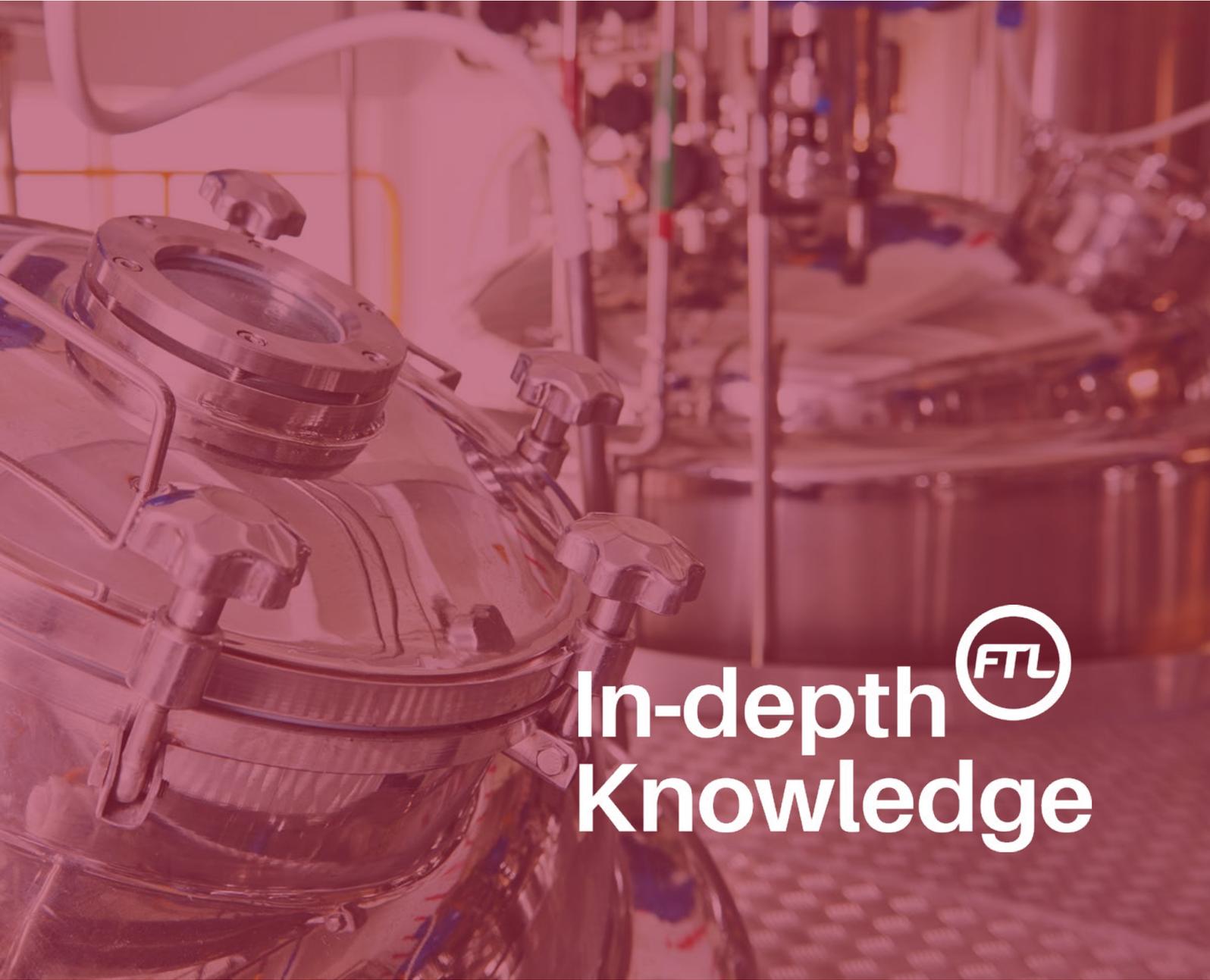


# Food and Pharmaceutical



In-depth sealing solutions





In-depth   
Knowledge

# Introduction



**FTL provides innovative sealing solutions for a wide range of critical food, pharmaceutical and bio-analytical applications.**

Sealing solutions engineered to perform to the highest standards, under the most demanding of operating environments. With our personal consultancy service, you can expect the best possible sealing system for your application.

We understand the challenges of food and pharmaceutical processing, and by working closely with manufacturers and operators, our specialist sealing engineers have developed a suite of products and materials which deliver optimal sealing performance.

Whatever the demands placed on your equipment, from steam and clean-in-place procedures through to contact with corrosive and erosive media, our custom-engineered seals will not let you down.

## **Benefits of FTL's sealing solutions:**

- ✓ Standard and custom design
- ✓ Just in time deliveries
- ✓ Exceptional range of solutions
- ✓ FDA and 3-A Compliant materials
- ✓ CIP and SIP solutions
- ✓ USP Class VI, WRAS and KTW approved materials
- ✓ World class research and development CoE

# Our Process

**FTL partner with you from initial concept to commercial reality.**

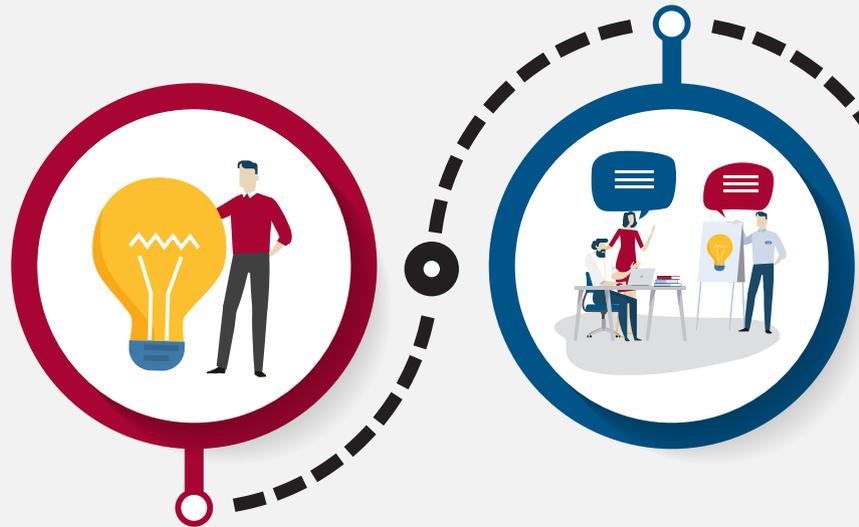
We provide a collaborative consultancy service for any sealing requirement, from a single custom seal component to a complete complex sealing system.

Our business model is designed to meet fast-changing customer needs, working with customers to identify opportunities for improvements in formulations, production processes and operation infrastructure.

We draw upon a breadth of industry knowledge to provide dynamic and effective sealing solutions, that deliver revenue and results for customers across the globe.

## Define

Defining and diagnosing challenges



## Discover

Understanding customers' requirements and challenges

## Develop

Validation and performance testing



## Design

Detailed design programme



## Deliver

Dedicated supply chain management

[Click here to find out more](#)

# Sealing Challenges

## Products

Leading food and pharmaceutical companies know and trust FTL for exceptional quality engineering across all sealing elements. We enjoy a proud reputation for our consistently high standards, working with OEM, MRO and manufacturing sites alike.

## Certifications

FTL seals are certified and compliant with many pertinent industry standards, including FDA, USP Class VI, ATEX, 3-A Sanitary Standard 18-03 and all relevant EC regulations including EC 1935-2004 - keeping your team and your end consumers as safe as possible.

## Volume

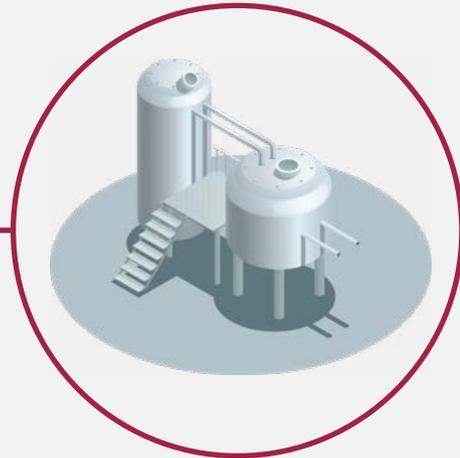
From a one-off custom seal to high volume bespoke seals, at FTL we pride ourselves on having the ability to deliver what you need, when you need it. Get in touch with our food and pharmaceutical sealing experts to discover how we can best support your operation.

## Support

We provide an end-to-end service from consultancy to installation and training, working closely with you to identify your needs before selecting the materials needed for your perfect seal. Our brand of personal service has made all the difference for our customers.

# Applications

- Mixers
- Blenders
- Pumps
- Processing equipment ○
- Medical devices
- Hydraulic motors
- Compressors and crankshafts
- Gearbox shafts
- Rotary
- Blowers
- Ventilators
- Actuators
- Rotary unions
- Encoders
- Packing Equipment ○
- Dryers
- Robotics
- Milling machines
- Centrifuges





In-depth   
Quality

# Industry Standards

Some sealing challenges are faced across all industries and applications. In food and pharmaceutical applications specifically, there are additional considerations which are critical in the design of a high performance seal.

Minimising risk to human health is always the top priority. When food, beverage and pharmaceutical end products are intended to be consumed, there has to be total confidence in the safety and integrity of all process equipment.

Therefore, seals in food and pharmaceutical applications must be free of any hazards, preventing contamination without reacting with any other process media.

The innovative sealing products and materials available through FTL are certified and fully traceable, able to withstand aggressive steam-in-place (SIP) and clean-in-place (CIP) cleaning processes. This ensures safe and reliable sealing performance over a long service life.

- ✓ Food & Drug Administration (FDA)
- ✓ 3-A Sanitary Standards
- ✓ USP Class VI
- ✓ European Parliamentary Council
- ✓ Water Regulations Advisory Scheme (WRAS)

[Click here to find out more](#)

# Sealing Solutions

**FTL can supply a sealing solution customised for an array of food and pharmaceutical applications. With access to a large portfolio of static and dynamic sealing products, and a suite of innovative high performance materials, we are a one-stop-shop for food and pharmaceutical sealing.**

## Rotary

FTL supplies custom rotary seals which deliver reliable sealing performance in a wide range of food and pharmaceutical applications.

All sealing solutions are expertly designed using high performance elastomer, polymeric and composite materials, taking all necessary considerations on:

- Rotation speed (high or low)
- Operating temperature
- Operating pressure
- Media compatibility
- Type of contamination risk

By making the right adaptations to your sealing system, you can expect significant reductions in downtime and operating costs, as well as a longer service life for your process equipment.

## Non-Contacting Shaft Seals

Custom shaft seals from FTL meet the sealing needs for a wide variety of food process machinery, handling dry powders, pastes, slurries and liquids.



## Lip Seals

Rotary lip seals with PTFE sealing lips offer a reliable solution for a range of difficult or problematic applications in food and pharmaceutical processing, producing the desired sealing effect through the application of radial contact pressure on the shaft. Selection of the correct PTFE compound and lip geometry ensures peak performance for any application.

- High performance sealing from -60°C to +200°C
- Outstanding chemical resistance
- Well-suited to high peripheral speeds
- Exceptional wear resistance
- Works well in low or unlubricated conditions
- Anti-adhesive lip behaviour, no stick slipping after long equipment downtime

## Mechanical Seals

Specially adapted mechanical seals, can be engineered for the demands of applications including mixers, agitators and dryers. From standard cartridge seals, both single- and double-acting, as well as split mechanical seals and gas lubricated seals, FTL can custom engineer a solution to fit the given application.

- Hygienic design, removing risk of product contamination
- Resistant to CIP and SIP processes
- Enabling CIP and SIP processes
- Double seal adaptations for slow rotation applications
- FDA-approved materials



## O-rings

The O-ring seal is widely used across every industry due to its incredible versatility. In food and pharmaceutical processing, FTL has materials which are certified and compliant with a range of industry standards, with outstanding thermal, chemical and mechanical resistance. From O-rings in EPDM, FKM, NBR, HNBR, PTFE and FFKM, FTL can supply to whichever dimension you require.

- Supplied in any size or quantity, from 0.8mm to 2.4m internal diameter
- Simple groove design and easy to install
- Materials compliant with and exceeding FDA, USP Class VI, WRAS, KTW and 3-A requirements
- Metal-detectable variants available

## Packings

Compression or braided packing is used to seal pumps and valves across many industries, and is customisable to perform under a range of temperature and pressure extremes, as well as aggressive chemical environments. Our sealing engineers can advise you on the optimal combination of braid materials and ancillary sealing elements for your application.

- Exceptional range of materials and braid options
- Resistant to extreme temperatures, pressures and aggressive media
- Low friction performance
- Abrasion resistant and non-wearing options
- Minimal economic losses due to product leaks
- Easy to install



## Inflatable Seals

Inflatable seals are used in food process and chemical industries to deliver a flexible and responsive high performance sealing solution. Once pressurised, the seal inflates to fit the sealing face. Seal pressures and profiles can be customised to meet the exact demands of the application.

- Elastomer seals with a hollow section, filled pneumatically or hydraulically
- Commonly used in airlock doors and hatches, dome valves and sterilising equipment
- Customised to your exact sealing requirements

## Bearings

FTL has a range of bearings suitable for both reciprocating and rotary applications in the food and pharmaceutical sectors. We have several options designed to address challenges relating to load, friction, duty and also cost.

As sealing specialists we also understand that the success of sealing elements very much depends on the performance and integrity of the components surrounding the seal.

For a seal to be effective invariably the shaft must be supported by an effective bearing solution therefore considering the seal and bearing arrangement collectively is often an approach supported by FTL.



## Modified PTFE Bearings

PTFE bearings are exceptionally versatile, covering a wide operational temperature range and exhibiting outstanding resistance to chemical media of all kinds.

PTFE bearings demonstrate low dynamic friction and prevent incidents of stick slip. Together with excellent mechanical properties, PTFE is a strong option for long-lasting high performance.

- Excellent chemical resistance
- Extremely low coefficient of friction
- Wide range of fillers available to suit different applications

## Carbon Matrix Bearings

Carbon bearings are available in FDA-compliant composite grades, making them ideal for food process equipment.

With self-lubricating qualities, these bearings are well suited for applications with intermittent lubrication or initial dry running on start up. Impregnated composites are consistent through the material, ensuring no performance drop resulting from wear.

- High thermal temperature limit
- Low expansion co-efficient
- Self-lubricating and non-galling



## Thermoplastic Bearings

Thermoplastic is used in the engineering of precision parts requiring a combination of strength, low friction and excellent chemical resistance.

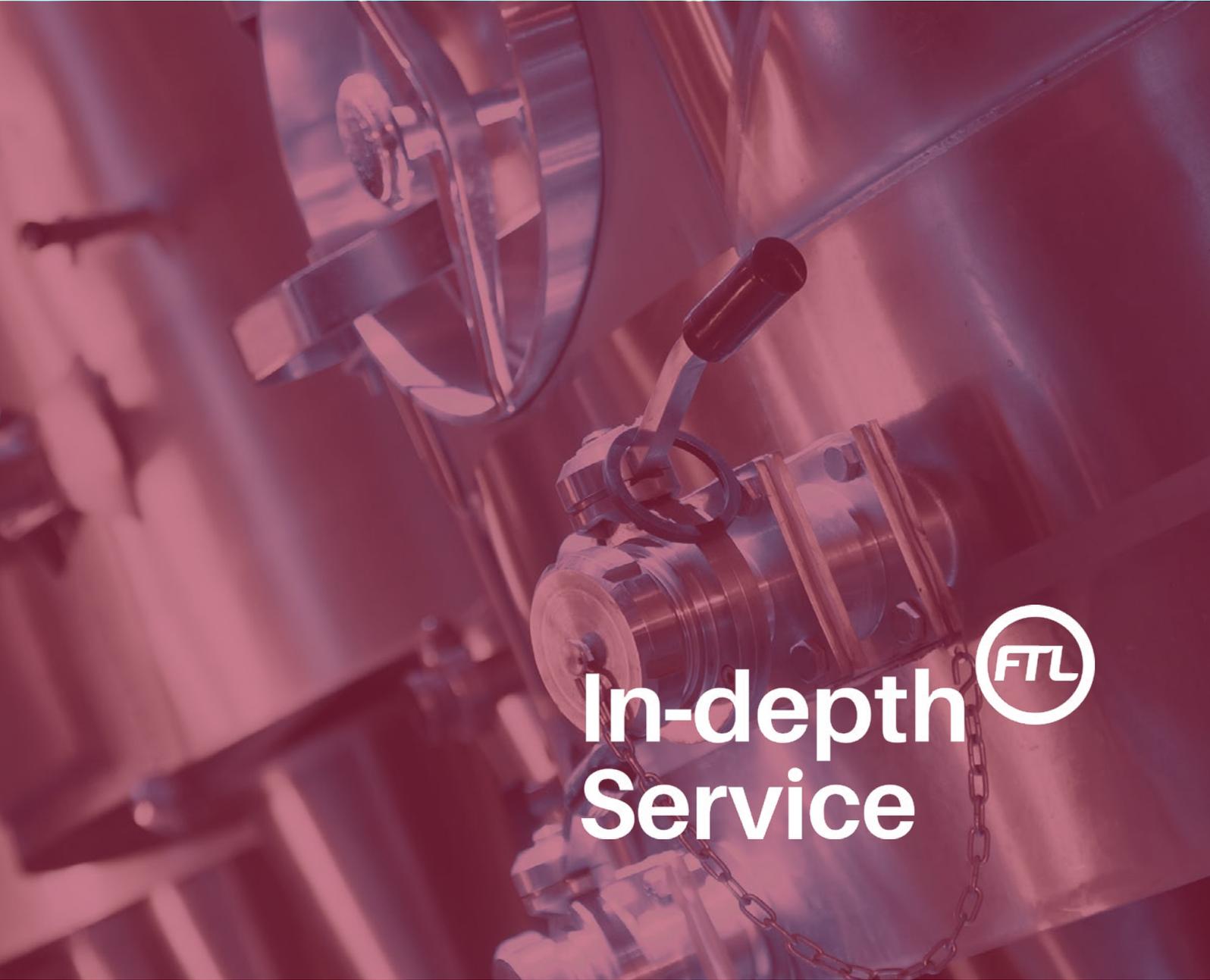
Polyacetal bearings are especially well suited to applications operating in abrasive or dusty atmospheres, and demonstrate very low water absorption.

- High strength and rigidity
- Low coefficient of friction
- Can be injection moulded and enhanced to suit a wide range of applications

## Bronze Bearings

Available in sintered self-lubricating bronze and also machined bronze (requiring lubrication) both variants can accommodate high running speeds and load.

- Sintered variant typically used for lighter duties
- Machined variant for heavier duties



# In-depth Service





## Conveyor Rollers

These rollers are engineered to meet the rigorous demands of the gravity or non-driven applications in the food processing industry. Heavy duty design provides outstanding mechanical strength, with low inertia due to low rolling resistance.

- Optimised for low and high temperature environments
- Integrated sealing elements to protect bearings from contact media, dirt and dust.

## Wheels and Casters

From bakeries to frozen food warehousing, the operating temperature range of wheels and casters in the food processing industry is critical for effective long term reliability. The right material selection, together with precision sealed bearings, can minimise downtime of equipment through a reduction in unscheduled maintenance events.

- Resistant to extreme temperatures and rapid temperature swings
- Reduced maintenance requirements
- FDA-compliant for contact with food ingredients

# Hygienic Seals and Gaskets

## PTFE Hosing

PTFE hosing has long been preferred over metal hosing in the food process industry, for reasons including bacteriological safety and neutrality of taste and odour in sensitive products. PTFE hoses are light, flexible and highly durable, with outstanding media compatibility.

- Excellent resistance to shock and temperature (-60°C to +260°C)
- Compatible with liquids, solids and gases encountered in food process applications
- FDA-approved material

## Sanitary Gaskets

Elastomer seal gaskets designed to meet the demands of pipe couplings in food, beverage and pharmaceutical process lines. Sanitary gasket seals can be manufactured to several clamp size standards, or engineered to your precise requirements.

- Fully approved materials (FDA/WRAS/ USP Class VI/ADI-Free)
- High performance in extreme low and high temperatures (-210°C to +260°C)
- Excellent pH resistance from 0 to 14



## Hygienic Seals

Hygienic gasket seals are widely used in pharmaceutical process lines, with precision-moulded elastomer sealing elements custom engineered to handle the unique demands of any given application.

- Rapid disconnection and reconnection
- Resists aggressive CIP and SIP cleaning regimes
- Available in EPDM, Nitrile, Silicone, HNBR, FKM and FFKM (Perlast® perfluoroelastomer)
- Also available in Detectaseal® grades – metal-detectable elastomers to eliminate risk of rubber contamination

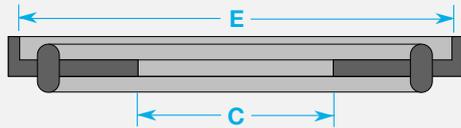
## Flexible Connectors

FTL Technology is a specialist supplier of flexible connectors engineered for food grade applications. Available in standard or custom lengths and fittings, and available in a range of rubbers, PTFE or PVC, flexible connectors are valued for their strength and durability.

- Compensates for movement, vibration and misalignment
- Easy installation
- Available in standard or custom lengths

# Gaskets Sizes Quick Reference

Type A - Lipped



Type B - Unlipped



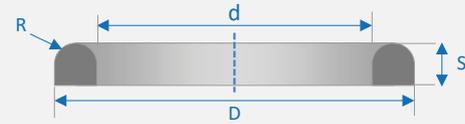
## BS 4825 Seals

(ISO 2952 and DIN 32676 are also available.)

- Suitable for use in Hygienic Connectors.

Nominal Size (mm)	Nominal Size (inch)	C	E/S
25.4	1"	22.8	50.5
38.1	1 ½"	35.5	50.5
50.8	2"	48.2	64
63.5	2 ½"	60.5	77.5
76.2	3"	73.2	91
101.6	4"	97.8	119
114.3	4 ½"	110.5	130
139.7	5 ½"	135.9	155
168.3	6 ⅝"	163.3	183
219.1	8 ⅝"	214.1	233.5

## DIN 11851 Seals



DN Size	ID (d)	OD (D)	Height (S)	Radius (R)
DN10	12 MM	20 MM	4.5 MM	2.3 MM
DN15	18 MM	26 MM	4.5 MM	2.3 MM
DN20	23 MM	33 MM	4.5 MM	2.8 MM
DN25	30 MM	40 MM	5 MM	2.8 MM
DN32	36 MM	46 MM	5 MM	2.8 MM
DN40	42 MM	52 MM	5 MM	2.8 MM
DN50	54 MM	64 MM	5 MM	2.8 MM
DN65	71 MM	81 MM	5 MM	2.8 MM
DN80	85 MM	95 MM	5 MM	2.8 MM
DN100	104 MM	114 MM	6 MM	2.8 MM
DN125	130 MM	142 MM	7 MM	3.5 MM
DN150	155 MM	167 MM	7 MM	3.5 MM

## O-rings (RJT)



Size Ref	Internal Diameter (A)	Cross Section (B)
1"	26.7 MM	6.6 MM
1.5"	39.4 MM	6.6 MM
2"	52.1 MM	6.6 MM
2.5"	64.8 MM	6.6 MM
3"	77.5 MM	6.6 MM
4"	93.9 MM	6.6 MM

# Research & Development Centre of Excellence

The FTL research and development centre of excellence comprises both rotary and reciprocating bespoke equipment to support the development and validation of our innovative sealing solutions.

This unique facility allows us to simulate operational application parameters. Such as running speeds, pressure, media, temperature, surface finish and hardness, to deliver accurate test results.

We provide a comprehensive consultancy service combined with component design and development. This is supported with state-of-the-art measurement and inspection technology, which combined with our R&D centre of excellence enables FTL to support the next generation rotary and reciprocating sealing challenges.



## The advantages of utilising FTL's test facility include:



Your engineering partner for trusted and innovative sealing solutions



Next generation product development guided by in-house design, testing and validation



Optimised product reliability through bespoke test programmes



Support with stringent food and pharmaceutical industry requirements



Support with component and equipment validation for regulatory bodies

[Click here to find out more](#)



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