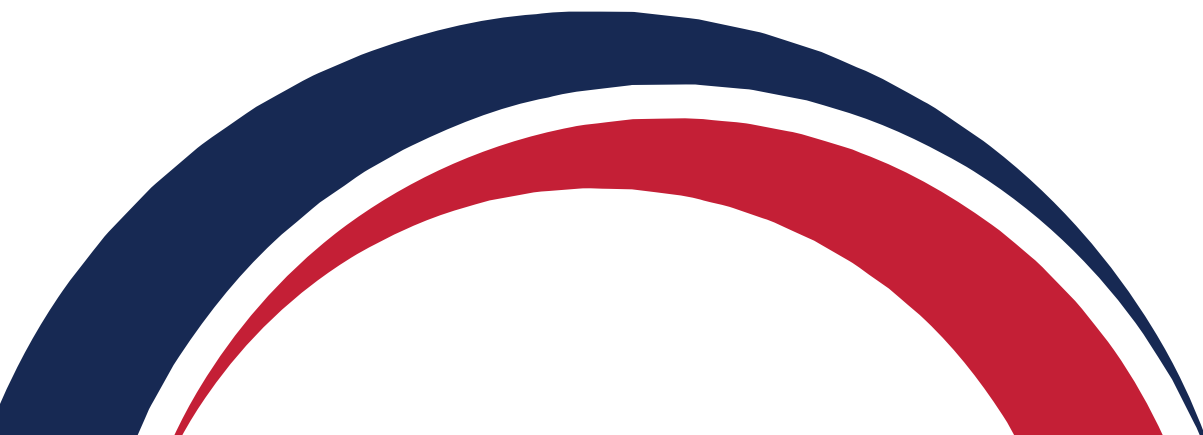




# Food & Pharmaceutical sealing solutions



In today's Food and Pharmaceutical industries, cleanliness, traceability and compliance with international regulatory standards (e.g. FDA / USP regulations) are essential for risk management. Potential danger to human health and value of pharmaceutical APIs means batch losses and downtime cannot happen. Employing durable, high-performance, precisely engineered sealing solutions is imperative to meet these goals and prevent process material contamination.

Working within these demanding environments requires attention not only to the stringent regulations and quality control of the sealing materials, production processing and packaging, but also to the complexity of the operations within which the seal is required to perform during both the critical manufacturing of compounds but also the post production sterilisation programmes.

### SEALING ENVIRONMENTS

- Extreme temperatures
- Steam
- Powders and dust
- Oils and waxes
- Amines and solvents (SIP and CIP cleaning)
- Vacuum environments
- Dynamic operating conditions

### TYPICAL APPLICATIONS

- Hygienic pipework
- Reaction vessels
- Vertical / horizontal agitators
- Mixers and Blenders
- Centrifugal pumps
- Volumetric pumps
- Tablet processing machines
- Valves
- Gear Boxes

### ABOUT US

The group is built on two of the UK's leading suppliers in pharmaceutical and processing sealing technology.

Eastern Seals (UK) Ltd supplies seals to customers around the world. Specialist compounds are just one of the company's renown assets. UK Seals & Polymers Ltd specialise in hydraulic and pneumatic solutions. Together, the group boasts over 40 years experience in the Sealing industry.

We supply a range of sealing solutions designed to meet the unique challenges of the industry and FDA / USP CLASS VI standards. Our products provide excellent chemical resistance, outstanding mechanical properties and extended service life to improve the integrity and productivity of your operation.

Our portfolio includes a wide range of seals and specialist materials:

- Metal detectable O-rings
- Encapsulated O-rings and Spring O-rings
- Mechanical seals
- Inflatable seals and custom moulded parts
- PTFE packings



“Working within this environment requires attention not only to the stringent **regulations and quality control** of the sealing materials, but also to the **complexity of the operations** within which the seal is required to perform.”

# Featured Products

## METAL DETECTABLE O-RINGS



Metal detectable O-rings help reduce the risk of product contamination by early detection and containment of contamination. They decrease the risk of polymers finding their way into the finished product and supply chain.

Metal detectable seals are easily detected by most conventional metal detection techniques that are already in place on production lines. Should a fragment of elastomer be detected, the production line can be stopped immediately, and any contaminated products can be quickly removed, well before they reach the supply chain. Fragments as small as 2mm can be identified by metal detector equipment.

## SPRING O-RINGS



Spring O-rings are ideal for sealing at extremely low temperatures where traditional elastomers suffer from brittleness, and it is very difficult to achieve effective liquid or gas sealing. Low compression sets allow effective sealing as low as -250°C in Cryogenic applications.

Elastomers we consider to be good at low temperatures (i.e. Silicone or Fluorosilicone) can quickly become brittle and lose their ability to provide resilience. This results in premature leakage. Spring O-rings utilise a precision rolled flat strip spring in 301 stainless steel (AMS 5519N). These seals are specially formed to energize a seamless jacket of Fluoropolymer (FEP or PFA).

## ENCAPSULATED O-RINGS



FEP encapsulated O-rings are recommended when a standard O-ring has inadequate chemical resistance for an application. They are also recommended when a solid PTFE O-ring does not have the elasticity for reliable, long term fluid sealing. They are often used where chemical resistance and or hygiene is required.

## MECHANICAL SEALS



Mechanical seals for the pharmaceutical sector are designed to avoid the formation of deposits that could cause bacterial contamination of the medium (medicinal). These mechanical seals are also able to operate in totally dry conditions, with both abrasive and non-abrasive media. They also ensure the typical flexibility requirements in terms of axial and radial run-out of the agitator shafts are fully met.

The 1688 range is designed for short working length and hygienic requirements, such as rotary lobe pumps. Their principle applications are often for high viscosity liquids. The compact design makes this seal an excellent choice for confined, shallow seal housing areas, or even external seal mounted applications.

Materials used for the mechanical seals for Pharmaceutical applications are strictly Food-Grade.

# Featured Products

## CUSTOM MOULDINGS



We supply custom rubber moulded components for the Pharmaceutical and Food production industries. Example food production line components include; rubber moulded masking tyres, moulded wheels and silicone rubber suckers.

These parts are available in almost any shape and cross section.

## GASKETS



We supply high quality FDA compliant rubber products guaranteed to meet your exact specifications and application requirements. Compounds that meet FDA requirements and NSF regulations for food processing applications include: Silicone FDA, Nitrile FDA, EPDM FDA and Neoprene FDA. These rubber polymers exhibit a natural resistance to bacteria build-up, a large range of working temperatures, excellent resistance to chemical properties, flexibility and are odorless and tasteless.

## HYDRAULIC SEALS



Sealing material plays a critical role in food, beverage and pharmaceutical industries. Seals may come into contact with products intended for human consumption, therefore sealing materials must comply with the FDA regulations and norms.

We supply hydraulic sealing components in a range of elastomer materials and profiles, that conform to FDA regulations. Materials include Nitrile, Viton® / FKM, EPDM, Silicone and PTFE.

## BONDED SEALS



Bonded seals are available in several FDA conforming materials. They can be utilised for a wide variety of applications, although primarily used in high-pressure environments where copper washers are unsuitable. Both the metal washer and the rubber material can be selected to suit a particular application.

We supply standard and self centering styles in; Bolt size (Imperial), BSP, German Metric and French Metric. Bonded seals are available in a wide range of materials including nitrile and stainless steel.



# Materials

We offer a comprehensive range of high performance sealing materials optimized for food, pharmaceutical and processing applications:-

- Compatible with virtually all process media - able to withstand cleaning regimes and sanitisation practices including solvents, steams and amines.
- Operating temperatures in the range of -60°C to +327°C (-76°F to 621°F).
- Full manufacturing traceability including certification to BS EN ISO 10204.
- Certification to WRAS, NSF, FDA, USP Class VI and 3-A Sanitary Standards.

MATERIAL TYPES	TEMPERATURE RANGE (°C)	COLOURS	CERTIFICATIONS
EPDM	-55°C to +150°C	Black, White, Blue	FDA, USP Class VI, 3-A, WRAS, NSF
FKM / Viton®	-15°C to +204°C	Black, White, Blue	FDA, USP Class VI, 3-A, WRAS
FFKM	-30°C to +275°C	Black, White	FDA, USP Class Vi, 3-A
HNBR	-40°C to +150°C	Black, Green	FDA, 3-A
Nitrile (NBR)	-35°C to +110°C	Black, White, Blue, Green	FDA, 3A
Silicone (VMQ)	-55°C to +225°C	White Blue, Translucent, Red	FDA, USP Class VI, 3-A

**This table provides a general guide on material recommendations. Eastern Seals (UK) Ltd and UK Seals & Polymers Ltd continues to source new materials in accordance with Automotive customer specifications in conjunction with our manufacturers around the world. The Group may source their products from a variety of Quality Approved Suppliers and the data shown should not be relied upon by any purchaser without verification of material source.**

## FOOD & DRUG ADMINISTRATION (FDA)

The Food & Drug Administration is the US Federal Agency responsible for ensuring that foods are safe, wholesome and sanitary; human and veterinary drugs, biological products and medical devices are safe and effective and cosmetics are safe. CFR21.177.2600 describes the relevant regulations for 'Rubber articles intended for repeated use'. Paragraphs A-D detail the requirements for dry foods, paragraphs E and F detail the requirements for aqueous and fatty foods.

## WRAS

Materials approved for drinking water applications must satisfy the requirement of BS 6920 for the Water Regulations Advisory Scheme (WRAS) in the United Kingdom. The testing regime for WRAS approval is different to FDA testing, in that it tests the 'Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water'. The test ensures sealing materials do not promote the propagation of bacteria or affect the color, appearance and taste of drinking water.

## USP CLASS VI

The United States Pharmacopeia (USP) is the non-government organisation that promotes the public health by establishing state-of-the-art standards to ensure the quality of medicines and other health care technologies. Standards are published in the US Pharmacopeia and the National Formulary (USP NF). Testing for compliance involves an assessment of the effects of the material and extractables on tissue. Suffix <87> involves in vitro testing and Suffix <88> involves in vivo testing.

## 3-A SANITARY STANDARDS INC.

This standard defines specifications and best practice for the design, manufacture, installation and use of hygienic equipment. "3-A Sanitary Standard 18-03 for multiple-use rubber and rubber-like materials used in product contact surfaces in dairy equipment" describes requirements for food quality materials that are suitable for steam sterilisation, acid and alkali cleaning solutions and chlorine sanitising agents.

We appreciate that not everyone requires the same thing and that flexibility is the key. So whether you prefer to deal with us over the phone, by email or fax, we are ready to help.

**You tell us what you want and we will take care of the rest.**



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