

Improve product safety without reducing efficiency

Metal-detectable sealing and engineering plastic solutions



Physical contamination: protect your product, your customers, and yourself

Innovative solutions to minimise the risk of product contamination in strictly-regulated industries such as the food and beverage and pharmaceutical sectors.

SKF offers a wide range of metal-detectable seals and engineering plastic components. These innovative solutions have been designed to make it simple for companies in the food and beverage, pharmaceutical and other contamination-sensitive industries to demonstrate due diligence, while at the same time optimising productivity.

Metal-detectable products have been specially formulated to be quickly and easily found with standard metal detection equipment in the event that any small pieces fall into product. In addition to this, most of the components in the range are blue, as standard, to make them visually detectable.

Features and benefits

- Specifically designed, custom made material detectable by conventional equipment
- Detectable particle sizes as small as 2 mm
- Can be used as part of a HACCP process
- FDA compliant: material meets the requirements for dairy, food and other industries

Metal-detectable equipment parts

No matter how well made a component is, ultimately it will start to suffer from wear and tear. If pieces of rubber break off a moving part they can migrate through your system and into your product. Searching for, and locating fragmented rubber parts is a costly, time-consuming and difficult process requiring expensive x-ray equipment, manual observation and an extensive maintenance program. However, failure to locate missing parts can have an even costlier outcome.

An easy, cost-effective solution is the use of metal-detectable elastomers. By manufacturing a standard elastomer with a metal impregnated compound, displaced rubber material can now be located by a standard in-line metal detector. This enables your system to instantly reject contaminated product.



Metal-detectable elastomers and hygienic sealing solutions

Metal-detectable elastomers

- Easily detect lost elastomeric fragments
- Help prevent product recalls
- Reduce product loss
- Stop distribution of contaminated product
- Compatible with standard OEM equipment
- Designed for microbial, high-temperature and mechanical applications



Materials available

- NBR
- EPDM
- FKM
- Silicone

Metal-detectable hygienic seals and O-rings

- Metal-detectable
- Triclover seals
- RJT seals
- DIN 11 851 seals (D seals)
- O rings



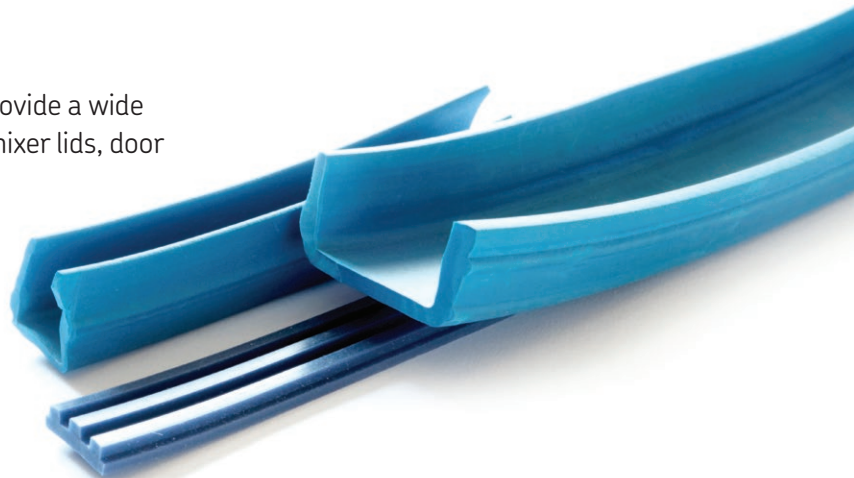
Metal-detectable extruded profiles

Typical applications

Metal-detectable compounds can be extruded to provide a wide array of profiles. These can be used on vessel lids, mixer lids, door seals and other sealing strips.

Materials available

Detectable NBR, EPDM, FKM and Silicone



Metal-detectable moulded products

Moulded seals

Customer requirements can vary considerably, depending on the machine, industry and the specific conditions at the user's site. In order to meet these different needs, SKF can produce custom-moulded products such as valve seals, including butterfly valve seals, and gate valve seals, and many other process equipment sealing applications.



Metal-detectable silicone sheeting

By making seals and gaskets out of metal-detectable silicone sheeting, fragments of broken components can be safely found and isolated.

Conforming to FDA standard 177.2600 (articles intended for direct food contact) and compliant to EU standard EC1935/2004, metal-detectable silicone rubber sheeting comes in the colour blue as standard.

All of SKF's silicone sheet products are available either plain or backed with adhesive, and can be supplied in sheet form or converted into strips, seals, washers, gaskets or fabricated articles.

Silicone sheeting is available in thicknesses of 1, 1.5, 2, 3, 4, 5, 6, 8 and 10 mm



Metal-detectable silicone cord

Compliant to FDA 177.2600, EC 1935/2004, Bfr, WRAS and KTW standards, metal-detectable cord allows fragments of failed seals to be found and isolated safely. This product is popular in the food processing and pharmaceutical applications, due to its good flexibility and elasticity. It also has good resistance to both high and low temperatures, and excellent resistance to mildew, fungi and UV ageing.



Standard cords

This product is available in diameters of 1, 1.5, 2, 3, 4, 5, 6, 7, 8, 10 or 12 mm. These can be cut and joined to form O-rings in a wide range of non-standard sizes. Other sizes of cord can be custom made to order.

Metal-detectable machined PTFE seals

New innovations in PTFE have provided a material which is detectable using optical scanners, metal detectors or X-ray equipment. Supplied in FDA-approved blue it is suitable for any kind of food processing machine.

Key properties

- Blue in colour
- FDA and EU 10/2011 approved
- Detectable by X-ray or metal detection equipment

This innovation in PTFE material allows SKF to produce metal-detectable machined seals for a wide range of applications including

- Piston seals
- Rod seals
- Rotary seals
- Wiper seals
- Special seals



Metal-detectable machined PTFE parts

Metal-detectable blue PTFE can also be used to produce a wide variety of non-seal parts for a broad range of uses and applications

Key properties

- Blue in colour
- FDA and EU 10/2011 approved
- Detectable by X-ray or metal detection equipment

**PTFE SEALS.
MACHINED
COMPONENTS.
BLUE &
DETECTABLE.**

Metal-detectable machined plastic components

A range of metal-detectable plastics are now available, enabling the production of a wide variety of production machinery and production line components.

Key properties

- Blue in colour
- FDA and EU 10/2011 approved
- Detectable by X-ray or metal detection equipment

- Excellent wear resistance
- High impact resistance
- Water, acid and chemical resistance

Typical applications

Wear strips, guide rails, corner wear bends, chain guides, bearings, bushes, scrapers, rollers, idler wheels, liners and general machined parts

Metal-detectable machined plastic materials

Metal-detectable plastics are available in the following materials

- PE-UHMW
- Acetal (POM C)
- Nylon PA6
- Peek



Ready-made metal-detectable solutions

Adaptable solutions for a range of applications

Metal-detectable sieve seals

Industrial sieving equipment is typically used in industries such as the bakery ingredients, food powders, confectionery, and chocolate industries, amongst others.

Typical equipment used includes

- **Vibratory sieves:** used to provide quality, even sized ingredients by screening and removing oversized particles and contaminants
- **Vibratory separators:** used to effectively grade and separate materials, with up to four mesh decks
- **Magnetic separators:** used to control ferrous contamination

Seals

Seals are generally found on sieve mesh screens where they seal the screen in the housing and between adjacent faces. Seals are also found on the magnetic separator grid to perform a similar function. Excessive sieve wear can result in the sieve's seal breaking down, and small pieces falling into the product.



Historical problems

Originally some of these seals were made from white food-grade silicone. However, silicone is not the best material for a dynamic application; the vibratory action of the sieve is likely to shorten the lifetime of the seal, increasing the likelihood of seal breakdown and resulting contamination from seal fragments.

If this did occur and seal fragments entered the product, the next problem was to identify the hazard; white seal fragments would be very difficult to notice in a product like flour.

Newer versions are manufactured in a blue colour which is much more likely to be seen, but still relies on a vigilant person to notice, identify and remove any contamination, or to stop the process.

The engineered solution

SKF offers specially designed blue, metal-detectable seals for sieve screens and magnets. These are normally produced in Nitrile, which is more durable in dynamic applications and should offer a longer life than silicone counterparts. In the event of seal breakdown, the blue colour makes it easier for a seal fragment to be spotted. Should a fragment go unseen, the special metal-detectable properties of the material also allow detection by standard metal-detection equipment.

As standard, these items are provided in metal-detectable NBR, but they can be manufactured in EPDM, FKM and silicone on request. The seals can also be supplied to fit existing sieve screens and magnets from leading manufacturers.



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PUB SE/S2 18143 EN.UK · November 2018

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