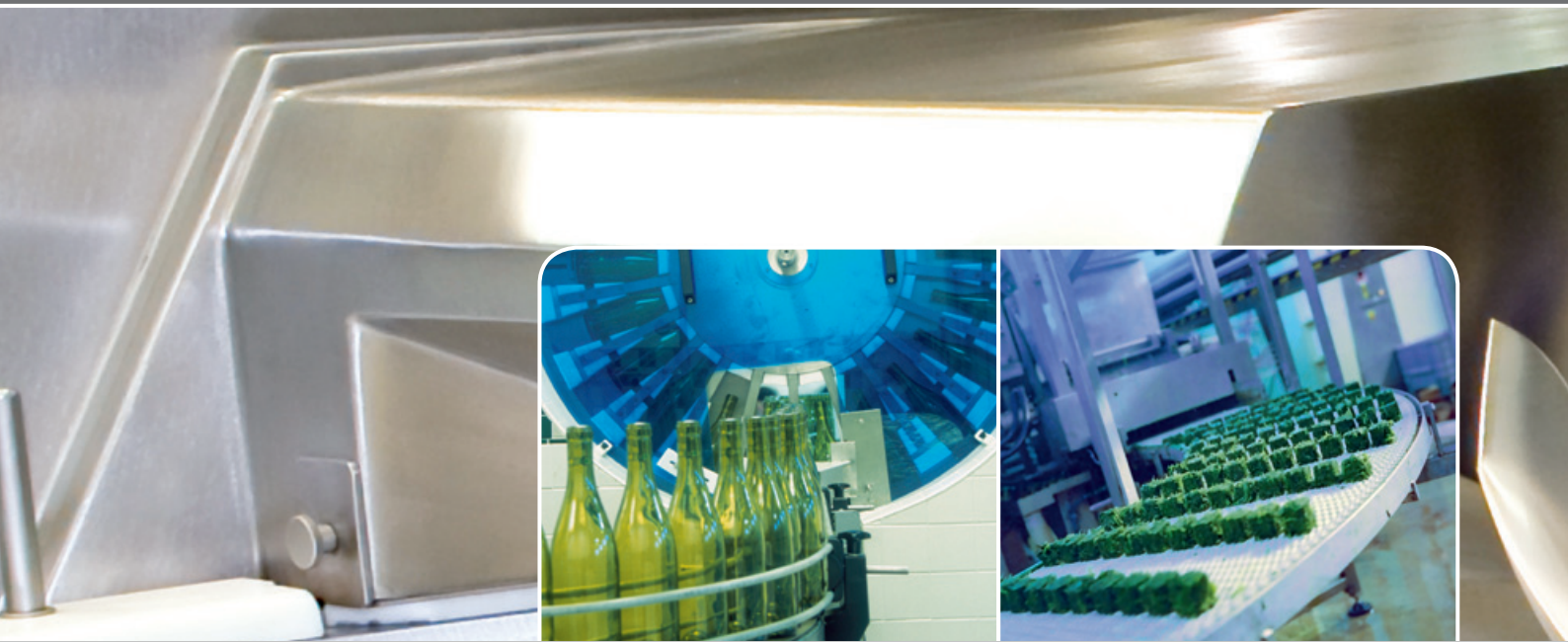




SEALING SOLUTIONS

FOR THE PROCESS INDUSTRIES

WE MAKE IT EASY



Process Seals – Your specialist for sealing solutions in the process industries

As the leading sealing partner for the process industries, Process Seals delivers innovative sealing solutions to sustainably safeguard and optimize your processes. The requirements for seals in the process industries are fundamentally different from those in other industries.

Maximum product selection with the highest quality

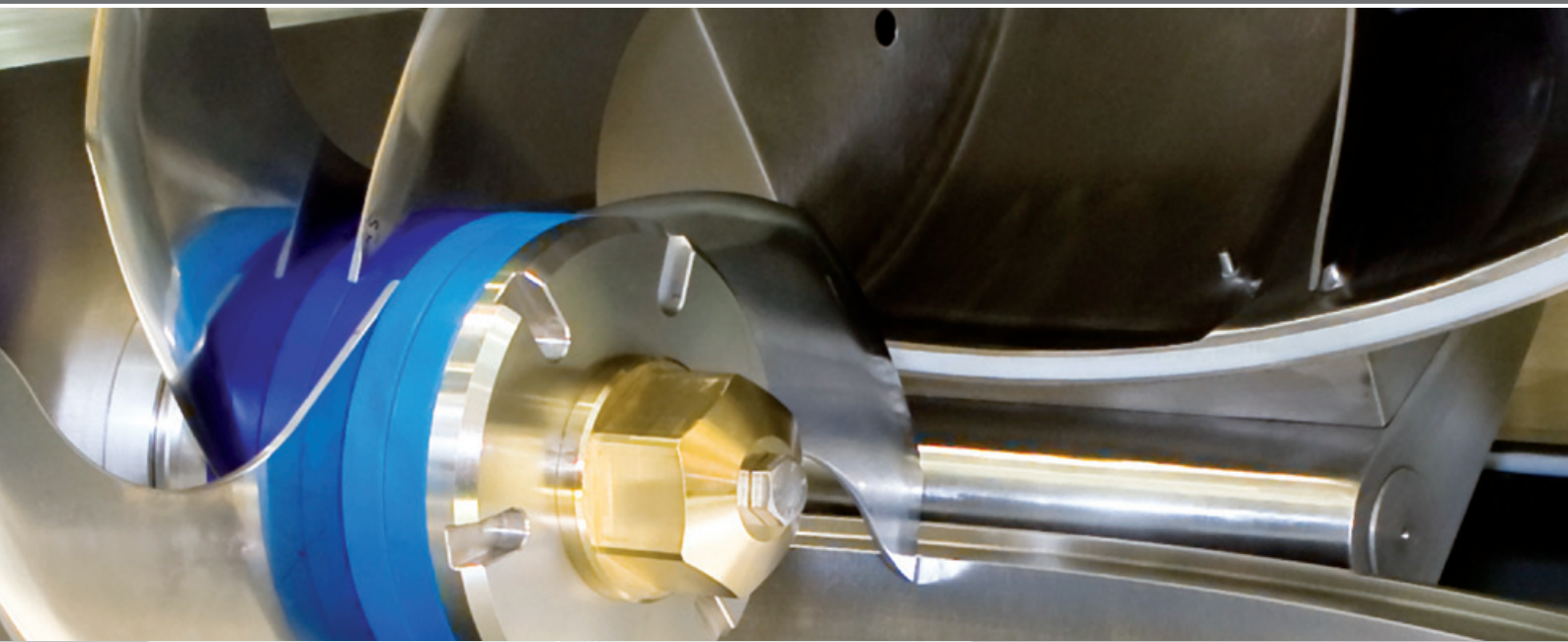
Broad application ranges call for a particularly diverse array of sealing solutions, often in small batch sizes that need to be produced economically. At the same time, consistently high quality and functional reliability must be ensured. Together with our partner Simrit, Process Seals is part of Freudenberg Sealing Techno-

logies, the global technology experts for sealing applications. As market experts, we focus exclusively on providing solutions for the process industries, and have adapted Freudenberg's sealing expertise to the demands of the food and beverage, pharmaceutical and chemical industries.

Tailor-made know-how

Our sealing specialists have considerable experience with these applications, allowing us to exactly meet your individual needs, whether in terms of materials and product development, logistics concepts or other services – quickly, precisely, and geared towards you, the customer.





Selected Simrit Distributors – strategic partners for your MRO needs

You can find the entire market expertise of Process Seals right around the corner: Selected Simrit Distributors can offer you Process Seals' products and practical expertise, together with hassle-free logistics and individual service. Quality is the top priority: product quality and the quality of our Simrit Distributors.

Exclusivity – all-inclusive

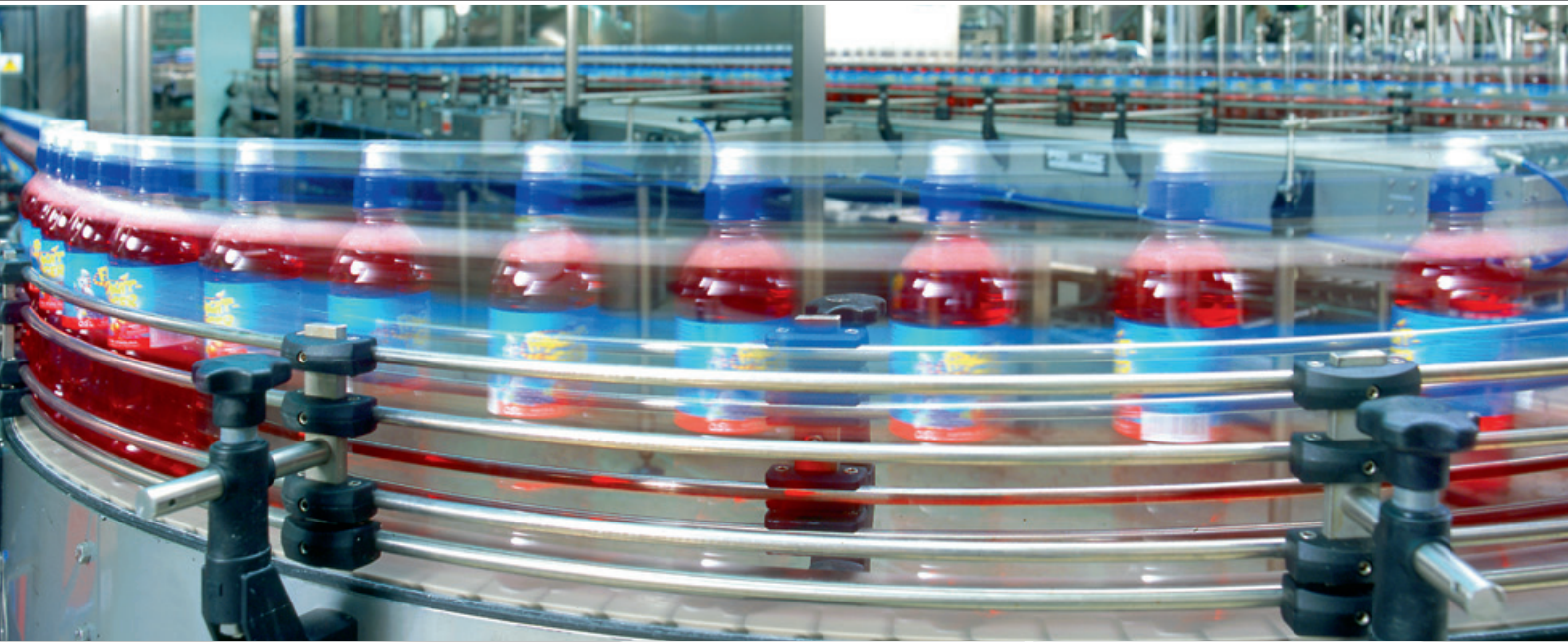
In terms of this partnership, exclusivity means you can only receive Simrit and Process Seals products from a few well selected distributors. In turn, these distributors are integrated in our logistics processes and are able to draw from the sealing expertise of both partners.

Always the best choice

Your trade partners offer the services you need on site: stockkeeping, application analysis, materials and design optimization, maintenance concepts, immediate support, and always the right seal for your specific application. The specific goals are to optimize your plant's operating times, to carry out maintenance at scheduled intervals, to avoid downtime and to satisfy all applicable hygienic and legal requirements.



SPOTLIGHT ON THE FOOD AND BEVERAGE INDUSTRY



Processing plants used in the food and beverage industry are characterized by a diverse range of different components and assemblies. From a sealing perspective, this means they require solutions such as double seated and diaphragm valves, pumps and simple pipe couplings like clamp and aseptic couplings, all of which must be able to withstand exposure to various media and operating conditions.

Quality from the very start

Process Seals' familiarity with the demands of the food and beverage industry is demonstrated by the fact that our products and materials are also selected as original equipment by leading machinery and plant manufacturers.

Beverage bottling

CIP/SIP cleaning systems, as well as fla-

voraging agents, can pose serious challenges for sealing materials, and as such, for beverage bottlers. In this regard, our innovative materials offer a number of advantages, such as preventing the transfer of flavors or smells.

Dairies

The high concentrations of fat found in some dairy products, together with the high temperatures involved in the sterilization of production facilities, are critical factors when it comes to selecting the right sealing materials. Our broad assortment of sealing materials ensures that we find the right solution for each individual application.

Breweries

Aqueous media and CIP/SIP cleaning procedures are common elements of operating conditions in breweries. During the brewing

process, essential oils from hops for example can have detrimental effects on sealing materials. To prevent this, we offer tailor-made solutions for all critical applications.

Candy

The candy industry involves a number of different requirements: Chocolate production involves the use of different high fat ingredients. If powders need to be processed, low friction materials and/or Hygienic Design radial seals are recommended.

Convenience products

The processes and facilities used in the food and beverage industry are as varied as the products themselves. From soup to frozen products, to baby food: No matter how specific the sealing application, we can offer you a solution.

SIMPLY COMPLETE – OUR PRODUCT RANGE FOR MANU

O-rings



The advantages at a glance:

- Can be used universally
- Easy to install
- Highly Economical
- Available in all sizes and elastomer types (DIN 3771, DIN 11864 and AS568-A)
- Innovative surface finishing (RFN™, lubricating varnishes)



FEP encapsulated O-rings



The advantages at a glance:

- FDA-compliant
- Highly resistant to nearly all media
- Can be used in a broad thermal range (-60 °C to +200 °C)
- In stock in all standard sizes

Clamp seals



The advantages at a glance:

- Complies with DIN 32676, series A, B and C
- Standardized sealing elements
- Quick and easy installation
- Available in various certified material variations

PTFE rotary shaft seals



The advantages at a glance:

- Hygienic Design variants available (free of dead spaces)
- Adaptable and reliable use in the food and beverage industry
- Highly resistant to extreme media and temperatures
- Low friction
- Available in all standard sizes

FACTURING PROCESSES

V-Seal set packings



i The advantages at a glance:

- Can be used in a broad range of applications
- High pressure resistance
- Excellent temperature range (-200 °C to +260 °C)
- No tooling costs for PTFE/ PTFE compound variants
- Low cold flow and extrusion thanks to PTFE fabric
- Universal chemical resistance

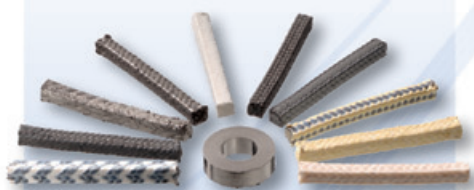
Flat gaskets



i The advantages at a glance:

- FDA-approved, EU 1935/2004-compliant
- Further approvals: DVGW/KTW/WRAS/W270/VP401/GL/BAM (max. +110 °C/130 bar)/TA Luft/SVGW
- Excellent resistance in the pH 0–14 range
- Very broad thermal range: -210 °C to +260 °C

Stuffing box packings



i The advantages at a glance:

- Can be flexibly optimized: e.g. for plunger pumps up to 300 bar, for centrifugal pumps up to 30 m/s
- Easy to install
- Excellent temperature range (-200 °C to +550 °C)
- Various economical standard sizes available
- FDA-compliant materials and special solutions in keeping with TA Luft

Hygienic Usit rings

HYGIENIC
USIT®



i The advantages at a glance:

- Hygienic sealing
- Prevents bacterial buildup
- FDA-approved
- Tested and approved by the EHEDG
- Available in DIN EN 1665 design in the standard sizes M5, M6, M8, M10, M12 and M16

Machined parts



i The advantages at a glance:

- machined parts made of original standard materials
- Materials: 75 Fluoroprene® XP 40, 88 NBR 156, 85 EPDM 292, 94 AU 21730
- Allows a consistent material concept to be applied, even in small batches

THE RIGHT MATERIAL FOR EVERY APPLICATION

EPDM

The standard compound with anything but standard. Our EPDM is characterized by its outstanding performance in critical media common to the process industries. It is resistant to all conventional CIP/SIP media and demonstrates excellent resistance to prolonged steam exposure at 180 °C. Our EPDM materials have also received all relevant approvals for applications involving drinking water (NSF 61, KTW, etc.), but also approvals for food and beverage applications (FDA, EG1935/2004, 3-A[®] Sanitary Standards Class II and ADI[®]-free certification).

Silicone

Silicone is commonly used in the process industries, particularly in dairy processing applications. Our 70 VMQ 117055 variant stands out for its excellent resistance to extreme heat, and its flexibility at extremely low temperatures. It is often used in high-fat media and at temperatures of up to 200 °C.

75 Fluoroprene[®] XP 40

The all rounder for the food and beverage industry. Fluoroprene[®] XP 40 is an especially fluorinated material with a unique monomer composition, giving it performance that nearly matches that of a perfluoroelastomer. In applications where extremely aggressive CIP/SIP media, high steam sterilization temperatures, and high fat concentrations collide, the advantages of Fluoroprene[®] XP 40 becomes apparent. Thanks to its broad application range, this material has great potential as a substitute for a broad range of materials, as the specific requirements for nearly any application scenario can be reliably addressed using Fluoroprene[®] XP 40.

Simriz[®] (perfluoroelastomers)

Perfluoroelastomers like Simriz[®] represent the High-End solution in the field of sealing materials technologies. These materials offer chemical resistance comparable to that of PTFE, without sacrificing

the resilience and flexibility of an elastomer. Special variants like Simriz[®] 494, Simriz[®] 506 and Simriz[®] 509 have been developed for use in the food and beverage industry; accordingly, they are FDA-approved and comply with the criteria laid out in EG 1935/2004.

NBR and HNBR

70 NBR 150 has demonstrated excellent performance in applications involving oils, fats and waxes in combination with severe mechanical strains. In hot-water applications, it can be used up to 100 °C; for temperatures up to 150 °C, 75 HNBR 231142 is the better option. It is well suited to use in oils, waxes and fats, in CIP/SIP cleansers (excluding caustic media), and in steam up to 150 °C.

Compounds	Shore A-Hardness	Color	FDA	EU VO 1935/2004	3-A [®] Sanitary Standards	ADI free	USP		Others
							Chapter 87 (in vitro)	Chapter 88 (in vivo) Class VI – 121 °C	
70 EPDM 291	70	Black	x	x	Class II	x	x	x	KTW, DVGW, W270, ÖVGW, ACS, WRc-NSF, NSF 61, BAM
70 EPDM 253815	70	White	x	x		x	x	x	
85 EPDM 292	85	Black	x	x	Class II	x	x	x	KTW, DVGW, W270, WRc-NSF, NSF 61
75 Fluoroprene [®] XP 40	75	Blue	x	x	Class I	x		x	
75 Simriz [®] 494	75	Black	x	x	Class I	x	x	x	
75 Simriz [®] 506	75	White	x			x	x	x	
75 Simriz [®] 509	75	White	x				x		
70 NBR 150	70	Black	x	x	Class II	x			KTW, DVGW, W270, ACS, WRc-NSF, NSF 61
88 NBR 156	88	Black	x	x	Class II	x			
75 HNBR 231142	75	Black	x	x	Class I	x			
70 VMQ 117055	70	Transparent	x	x	Class I	x	x	x	
FEP O-Rings (Coat)		Transparent							
With FKM (Core)		Black							
Or VMQ (Core)		Red	x	x	Class I	x		x	Core: FDA conformity 21 CFR 177.2600, Coat: FDA conformity 21 CFR 177.1550
94 AU 21730	94	Blue	x	x					KTW, W 270

Photographs: Freudenberg Process Seals, Ruland Engineering & Consulting GmbH

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