



PRODUCT OVERVIEW DICHTOMATIK BRAND



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The information presented here is based on laboratory tests and is not necessarily indicative of the performance of the final product. Full tests and the performance of the final product are the responsibility of the user.

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COMPANY

The Freudenberg Group was founded in 1849 and is still owned by the approximately 300 descendants of the company founder. The resulting financial stability and social consciousness are decisive success factors that create trust. Today, Freudenberg is a global, broadly diversified Group that is divided into Business Groups that operate in a wide variety of different sectors. The company has always been considered an innovation and technology leader, from Vileda® brand household products to technically complex sealing solutions.

Freudenberg Sealing Technologies (FST) is the largest Business Group in the Freudenberg Group and part of the Seals and Vibration Control Technology Division. It is a supplier as well as a development and service partner to customers in a wide range of market segments, such as the automotive industry, civil aviation, mechanical engineering and shipbuilding, the food and pharmaceutical industry and the agricultural and construction machinery industry.

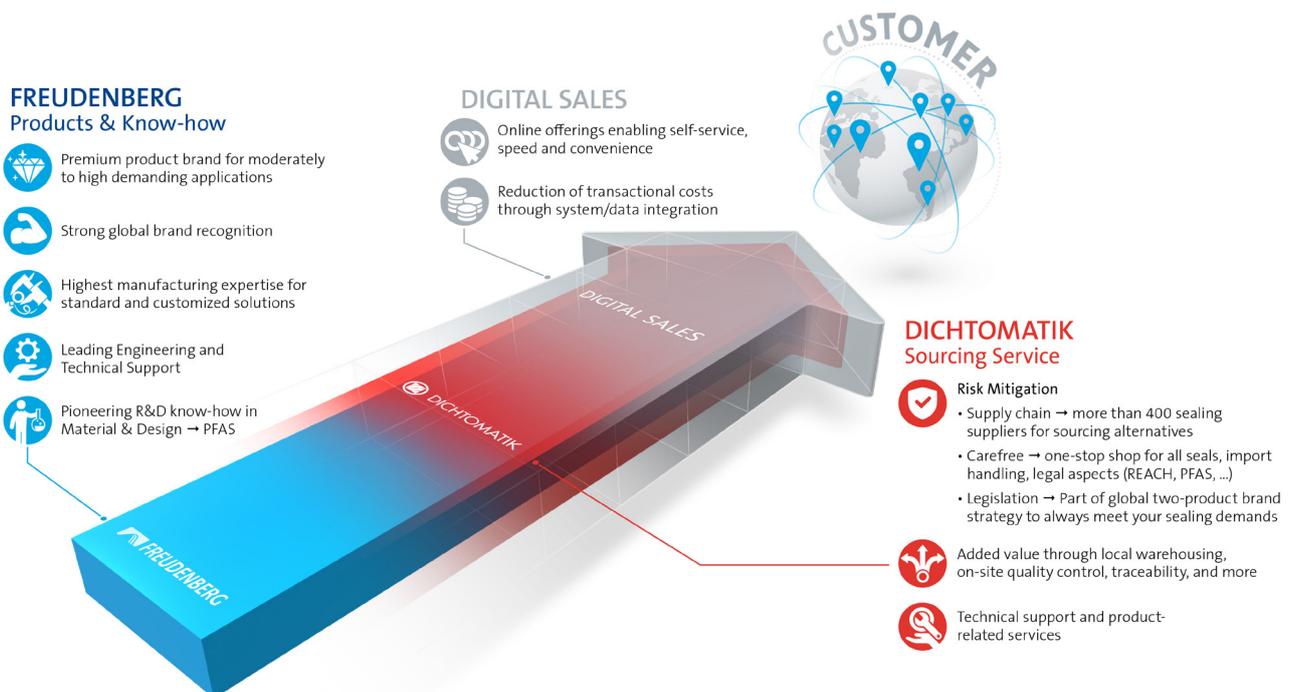
Starting with the Simmerring® developed in 1929, FST can today offer through its Freudenberg product brand a broad, continuously customer-oriented product portfolio of premium sealing technology for moderately to high demanding applications – from tailor-made individual solutions to complete sealing packages. The Freudenberg brand globally stands for uncompromising and high quality as well as state-of-the-art sealing solutions setting market benchmarks. It benefits from FST's more than 175 years of engineering and materials experience in the research, development and introduction of innovative product and process solutions.

In addition, Dichtomatik brand products are ideal for several moderately demanding applications in general industry. The wide range of products is characterized by a very good price-performance ratio. Manufactured by certified external suppliers, the sealing products and solutions reliably meet common industrial market standards. Additional services such as general technical support complement the range.

With a worldwide network of more than 400 seal suppliers for the Dichtomatik brand, Freudenberg Sealing Technologies is in a position to offer a suitable procurement alternative at any time and thus avoid supply bottlenecks and risk mitigation. With its sourcing service, FST makes life easier for its customers by offering a crisis-resistant source, reducing the administrative burden, and thus ensuring a carefree supply for industrial standard seals. Quality controls along the supply chain and a good negotiating position thanks to large purchasing volumes create an attractive overall package.

Freudenberg Sealing Technologies offers technical services such as the preparation of drawings, radial force measurements, comprehensive quality and material documentation as well as material modifications and testing to ensure that all seals function reliably even in individual applications. Furthermore, local availability ensures short distances and fast response times to best serve customer needs. Digital service offerings like the online-ordering platform EASY, online configurators and resistance tools enable self-service, speed and convenience.

FREUDENBERG SEALING TECHNOLOGIES SERVES THE ENTIRE SEALING MARKET WITH THIS COMPLEMENTARY PRODUCT PORTFOLIO AND THUS MEETS ALL MARKET REQUIREMENTS – QUICKLY, RELIABLY AND FROM A SINGLE SOURCE



INDUSTRY-SPECIFIC AND CUSTOMIZED SERVICE CONCEPTS

ONLINE ORDERING PLATFORM EASY

The EASY online ordering platform enables straightforward order processing and provides real time information regarding the price, delivery time and availability of stock. The primary details for each product are displayed on a summary page where drawings of the installation space and cross-section are also available for download. The EASY Business Connector is used to transfer your orders directly to your SAP system; this ensures that you are always up to date on the status of your order. Register today if you do not yet have an EASY account.



APPLICATION KNOW-HOW

Dichtomatik brand products are also certified for special applications. This enables us to find the right solution for every application. To ensure the safe functionality of the seals, even in individual applications, our team of specialists offer technical services such as drawing preparation, radial force measurements, comprehensive quality and material documentation as well as material modifications and testing based on their extensive technical and application expertise. Customer-specific sealing solutions, kitting and single packaging are just some of the other services that can be offered (country-specific).



LOGISTICAL SERVICES AND QUALITY STANDARDS

The 6,500 m² warehouse in Hamburg, which functions as a European logistics hub, has just one objective - delivering the uniquely high number of Dichtomatik brand products as quickly as possible to the locations they are needed at. In addition to the roughly 60,000 standard designs, around 15,000 customer-specific seals are available from stock. Additional warehouse locations around the world support the supply chain to ensure rapid delivery to our customers..



Special logistics solutions, such as Kanban or vendor-managed inventory, quality testing and simplified customs processes due to certifications, simplify order processing. The warehouse in Hamburg is certified according to DIN ISO 9001 and DIN ISO 14001, thus guaranteeing standardized processes in the quality and environmental management system. In addition, current processes are analyzed and improved in regular Kaizen workshops. Furthermore, warehouse processes are supported by new technologies.

For example, the forklifts have been converted into mobile workstations by using tablets and portable printers, and innovative glove scanners are used for scanning processes. Our other warehouses also meet the highest quality requirements and are part of regular certifications. Our other warehouses also meet the highest quality requirements and are regularly inspected and certified by internal and external organizations.

PRODUCT PORTFOLIO OF THE DICHTOMATIK BRAND

PRODUCTS FOR STATIC APPLICATIONS



The whole range of static seals – O-rings, cords, x-rings, cover seals, bolt seals, flange and profile seals, etc. – are available in large number of dimensions, in both metric and imperial units, for a wide range of international standards. The variety of materials on offer leaves nothing to be desired, with a selection of materials certified for a diverse cross section of application-specific requirements.

PRODUCTS FOR ROTATING MOVEMENTS



Rotary shaft seals are available in standard profiles with and without protective lips and in the compounds NBR and FKM. In addition to these standard designs, the product range also includes special designs of rotary shaft seals, axial seals, shaft sleeves and radial seals for rotary and swivel movements.

PRODUCTS FOR TRANSLATIONAL MOVEMENTS



Piston seals, rod seals, wipers, guide belts and guide rings for hydraulic applications are readily available in countless standard dimensions in the materials NBR, PTFE, TPU, hard fabric and fabric-reinforced NBR. Application-specific modifications of the design or compound can also be accommodated.

IMPORTANT NOTE

Dichtomatik brand products meet common industrial market quality standards and are therefore suitable for moderately demanding and non-safety-critical applications. Dichtomatik products are not approved for use in the automotive industry, aerospace and other safety-critical applications. An overview of complementary premium sealing solutions can be found at www.fst.com.



e-Catalog

STATIC SEALS

The values indicated here are maximum values.

O-RINGS

| Profile | Design | Material | Hardness [Shore A] | Color | Temperature [°C] | Special Feature |
|---|------------|-------------------------|--------------------|-----------------------|--|--|
|  | O-ring | NBR | 70 | black | -30 to +100 | Bag in bag (BiB) packaging is possible |
|  | O-ring | NBR | 75 | black | -30 to +100 | |
|  | O-ring | NBR | 80 | black | -30 to +100 | |
|  | O-ring | NBR | 90 | black | -30 to +100 | |
|  | O-ring | HNBR | 70 | black | -30 to +140 | |
|  | O-ring | EPDM | 70 | black | -45 to +130 | |
|  | O-ring | EPDM | 70 | black | -50 to +150 | Peroxide cross-linked |
|  | O-ring | FKM | 70 | black | -20 to +200 | |
|  | O-ring | FKM | 75 | green | -20 to +200 | |
|  | O-ring | FKM | 80 | black | -20 to +200 | |
|  | O-ring | FKM | 90 | green | -20 to +200 | |
|  | O-ring | FKM | 75 | black | -20 to +200 | Peroxide cross-linked |
|  | O-ring | VMQ | 70 | red | -55 to +200 | |
|  | O-ring | PTFE | | white | static use -200 to +260 dynamic use -100 bis +260 | |
|  | O-ring FEP | FEP-encapsulated FKM | | transparent/ black | -20 to +205 | |
|  | O-ring FEP | FEP-encapsulated VMQ | | transparent/ red | -60 to +205 | |

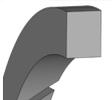
ROUND CORD AND ROUND CORD RINGS

| Profile | Design | Material | Hardness [Shore A] | Color | Temperature [°C] | Special Feature |
|---|--------|----------|--------------------|-------|------------------|---------------------------------|
|  | RS | NBR | 70 | black | -30 to +100 | |
|  | RS | EPDM | 70 | black | -50 to +150 | Peroxide cross-linked |
|  | RS | FKM | 75 | black | -20 to +200 | |
|  | RS | VMQ | 60 | red | -55 to +200 | FDA- and EC 1935/2004-compliant |

X-RINGS

| Profile | Design | Material | Hardness [Shore A] | Color | Temperature [°C] | Special Feature |
|---|--------|----------|--------------------|-------|------------------|-----------------|
|  | X-ring | NBR | 70 | black | -30 to +100 | |
|  | X-ring | FKM | 70 | black | -20 to +200 | |

BACK-UP RINGS

| Profile | Design | Material | Hardness | Color | Temperature [°C] | Special Feature |
|---|---------|----------|--------------|-------|------------------|-----------------|
|  | STU | NBR | 90 Shore A | black | -30 to +100 | |
|  | STR END | PTFE | ≥ 50 Shore D | white | -200 to +260 | |
|  | STR GS | PTFE | ≥ 50 Shore D | white | -200 to +260 | |
|  | STR END | POM | ≥ 80 Shore D | white | -50 to +90 | |
|  | STR GS | POM | ≥ 80 Shore D | white | -50 to +90 | |

BONDED SEALS

| Profile | Design | Material | Hardness [Shore A] | Color | Max. Pressure [MPa (bar)] | Temperature [°C] | Special Feature |
|---|--------|----------|--------------------|-------|---------------------------|------------------|--|
|  | US | NBR | 70 | black | 25 (250) | -30 to +100 | |
|  | US | NBR | 70 | black | 25 (250) | -30 to +100 | Metal ring consists of rust and acid resistant steel 1.4301 (AISI 304) |
|  | US | FKM | 70 | brown | 25 (250) | -20 to +200 | |
|  | USS | NBR | 70 | black | 25 (250) | -30 to +100 | Additional centering |
|  | USS | NBR | 70 | black | 25 (250) | -30 to +100 | Additional centering, Metal ring consists of rust and acid resistant steel 1.4301 (AISI 304) |
|  | USS | FKM | 70 | brown | 25 (250) | -20 to +200 | Additional centering |
|  | USS | FKM | 70 | brown | 25 (250) | -20 to +200 | Additional centering, Metal ring consists of rust and acid resistant steel 1.4301 (AISI 304) |

PROFILE RINGS

| Profile | Design | Material | Hardness [Shore A] | Color | Max. Pressure [MPa (bar)] | Temperature [°C] | Special Feature |
|---|--------|----------|--------------------|--------|---------------------------|------------------|----------------------------|
|  | PRR | NBR | 85 | black | 60 (600) | -30 to +100 | DIN EN 549 B1/H3 certified |
|  | PRR | EPDM | 80 | violet | 60 (600) | -45 to +150 | Peroxide cross-linked |
|  | PRR | FKM | 80 | green | 60 (600) | -20 to +200 | DIN EN 549 B1/H3 certified |

SAE FLANGE SEALS

| Profile | Design | Material | Hardness [Shore A] | Max. Pressure [MPa (bar)] | Temperature [°C] | Special Feature |
|---|--------|----------|--------------------|---------------------------|------------------|-----------------|
|  | FLAN89 | TPU | 95 | 40 (400) | -30 to +100 | |

FORMED PARTS

Formed parts (design FOR) are customer-specific sealing elements. They can be manufactured based on a reference sample, a drawing or a special layout. In this way, they can be adjusted to the precise installation conditions. Elastomers and thermoplastics are available in a variety of grades.



ASSORTMENT BOXES

These boxes are equipped with various selections of seals, providing the required dimension for every repair needed on-site.

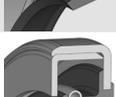
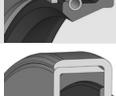
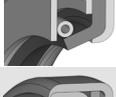
| Box | Design | Material | Hardness [Shore A] | Color |
|---|--------|----------|--------------------|-------|
|  | BOX OR | NBR | 70 90 | black |
| | BOX OR | FKM | 80 | black |
| | BOX OR | EPDM | 70 | black |
| | BOX OR | VMQ | 70 | red |
| | BOX RS | NBR | 70 | black |
| | BOX RS | FKM | 75 | black |
| | BOX XR | NBR | 70 | black |
| | BOX XR | FKM | 70 | black |

ROTATING SEALS

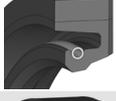
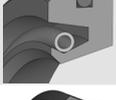
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RADIAL SHAFT SEALS

| Profile | Design | Material | Hardness [Shore A] | Color | Max. Speed [m/s] | Max. Pressure [MPa (bar)] | Temperature [°C] |
|---|--------|----------|--------------------|-------|------------------|---------------------------|------------------------------|
|  | WA | NBR | 70 | black | 10 | 0,05 (0,5) | -40 to +80 (briefly +100) |
|  | WA | FKM | 80 | brown | 34 | 0,05 (0,5) | -25 to +150 |
|  | WAS | NBR | 70 | black | 8 | 0,05 (0,5) | -40 to +80 (briefly +100) |
|  | WAS | FKM | 80 | brown | 8 | 0,05 (0,5) | -25 to +150 |
|  | WAK | NBR | 70 | black | 10 | 0,05 (0,5) | -40 to +80 (briefly +100) |
|  | WAK | FKM | 80 | brown | 34 | 0,05 (0,5) | -25 to +150 |
|  | WAG | NBR | 70 | black | 8 | 0,05 (0,5) | -40 to +80 (briefly +100) |
|  | WAG | FKM | 80 | brown | 8 | 0,05 (0,5) | -25 to +150 |
|  | WAY | NBR | 80 | blue | 10 | 1 (10) | -40 to +80 (briefly +100) |
|  | WAY | FKM | 80 | brown | 10 | 1 (10) | -25 to +150 |
|  | WASY | NBR | 80 | blue | 8 | 1 (10) | -40 to +80 (briefly +100) |
|  | WASY | FKM | 80 | brown | 8 | 1 (10) | -25 to +150 |
|  | WAD | NBR | 70 | black | 6 | 0,03 (0,3) | -40 to +80 (briefly +100) |
|  | WAO | NBR | 70 | black | 6 | 0 (0) | -40 to +80 (briefly +100) |

| Profile | Design | Material | Hardness [Shore A] | Color | Max. Speed [m/s] | Max. Pressure [MPa (bar)] | Temperature [°C] |
|---|--------|----------|--------------------|-------|------------------|-------------------------------|------------------------------|
|  | WAO | FKM | 80 | brown | 8 | 0 (0) | -25 to +150 |
|  | WAOK | NBR | 70 | green | 6 | 0 (0) | -40 to +80 (briefly +100) |
|  | WAOK | FKM | 80 | brown | 8 | 0 (0) | -25 to +150 |
|  | WB | NBR | 70 | black | 10 | 0,05 (0,5) | -40 to +80 (briefly +100) |
|  | WBS | NBR | 70 | black | 8 | 0,05 (0,5) | -40 to +80 (briefly +100) |
|  | WBD | NBR | 70 | black | 6 | 0,03 (0,3) | -40 to +80 (briefly +100) |
|  | WBO | NBR | 70 | black | 6 | 0 (0) | -40 to +80 (briefly +100) |
|  | WBO | FKM | 80 | brown | 8 | 0 (0) | -25 to +150 |
|  | WC | NBR | 70 | black | 10 | 0,05 (0,5) | -40 to +80 (briefly +100) |
|  | WC | FKM | 80 | brown | 34 | 0,05 (0,5) | -25 to +150 |
|  | WCS | NBR | 70 | black | 8 | 0,05 (0,5) | -40 to +80 (briefly +100) |
|  | WCL | NBR | 70 | black | 10 | 0,05 (0,5) optional 1 (10) | -40 to +80 (briefly +100) |
|  | WCL | FKM | 75 | black | 15 | 0,05 (0,5) optional 1 (10) | -25 to +150 |
|  | WCP | PTFE | | grey | 25 | 1 (10) | -90 to +250 |

RADIAL SHAFT SEALS

| Profile | Design | Material | Hardness [Shore A] | Color | Max. Speed [m/s] | Max. Pressure [MPa (bar)] | Temperature [°C] |
|---|--------|----------|--------------------|-------|------------------|---------------------------|---------------------------------------|
|  | WE5 | NBR | 80 | black | 20 | 0,05 (0,5) | -30 to +80 (briefly +100) |
|  | WE5 | HNBR | 80 | black | 25 | 0,05 (0,5) | -30 to +130 |
|  | WE5 | FKM | 80 | black | 25 | 0,05 (0,5) | -20 to +180 |
|  | WE6 | NBR | 80 | black | 20 | 0,05 (0,5) | -30 to +80 (briefly +100) |
|  | WE6 | FKM | 80 | black | 25 | 0,05 (0,5) | -20 to +180 |
|  | WE7 | NBR | 80 | black | 20 | 0,05 (0,5) | -30 to +80 (briefly +100) |
|  | WE7 | FKM | 80 | black | 25 | 0,05 (0,5) | -20 to +180 |
|  | WEPO | PTFE | | black | 15 | 1 (10) | depending on the selected OR material |
|  | WAX | NBR | 70 | black | 10 | 0,05 (0,5) | -40 to +80 (briefly +100) |

AXIAL SEALS

| Profile | Design | Material | Hardness [Shore A] | Color | Max. Speed [m/s] | Temperature [°C] |
|---|--------|----------|--------------------|-------|------------------|---------------------------|
|  | VRM01 | NBR | 70 | black | 12 | -40 to +80 (briefly +100) |
|  | VRM01 | FKM | 70 | brown | 12 | -30 to +180 |
|  | VRM02 | NBR | 70 | black | 12 | -40 to +80 (briefly +100) |
|  | VRM02 | FKM | 70 | brown | 12 | -30 to +180 |

V-RINGS

| Profile | Design | Material | Hardness [Shore A] | Color | Temperature [°C] | Special Feature |
|---|--------|----------|--------------------|-------|------------------|-----------------|
|  | VA | NBR | 60 | black | -40 to +100 | ozone-resistant |
|  | VA | FKM | 60 70 | brown | -20 to +200 | |
|  | VS | NBR | 60 | black | -40 to +100 | ozone-resistant |
|  | VS | FKM | 60 | brown | -20 to +200 | |
|  | VL | NBR | 60 | black | -40 to +100 | ozone-resistant |
|  | VL | FKM | 60 | brown | -20 to +200 | |
|  | VE | NBR | 60 | black | -40 to +100 | ozone-resistant |
|  | VE | FKM | 60 70 | brown | -20 to +200 | |

Circumferential speed [m/s]

NBR: ≤ 8 ; axially secured starting at ≥ 8 ; radially secured starting at ≥ 12

FKM: ≤ 6.5 ; axially secured starting at ≥ 6.5 ; radially secured starting at ≥ 10



END CAPS

| Profile | Design | Material | Hardness [Shore A] | Color | Max. Pressure [MPa (bar)] | Temperature [°C] |
|---|--------|----------|--------------------|-------|---------------------------|------------------|
|  | VER01 | NBR | 70 | black | 0,05 (0,5) | -30 to +100 |
|  | VER01 | FKM | 80 | brown | 0,05 (0,5) | -20 to +200 |
|  | VER02 | NBR | 70 | black | 0,05 (0,5) | -30 to +100 |
|  | VER02 | FKM | 80 | brown | 0,05 (0,5) | -20 to +200 |
|  | VER03 | NBR | 70 | black | 0,05 (0,5) | -30 to +100 |
|  | VER03 | FKM | 80 | brown | 0,05 (0,5) | -20 to +200 |

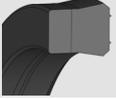
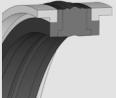
SHAFT SLEEVES

| Profile | Design | Material |
|---|--------|---|
|  | WSH | Rust and acid resistant steel 1.4301 (AISI 304) |

HYDRAULIC SEALS

The values indicated here are maximum values. These peak values should not be implemented simultaneously.

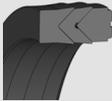
PISTON SEALS

| Profile | Design | Material | Hardness [Shore A] | Max. Speed [m/s] | Max. Pressure [MPa (bar)] | Temperature [°C] |
|---|--------|---------------------------------|--------------------|------------------|---------------------------|------------------|
|  | N21 | NBR | 90 | 0,5 | 16 (160) | -30 to +100 |
|  | N25 | TPU | 95 | 0,5 | 30 (300) | -30 to +100 |
|  | N36 | TPU | 95 | 0,5 | 40 (400) | -30 to +100 |
|  | N05 | NBR | 80 | 0,5 | 20 (200) | -30 to +100 |
|  | KNA23 | NBR | 90 | 0,5 | 16 (160) | -30 to +100 |
|  | KNA28 | TPU | 95 | 0,5 | 40 (400) | -30 to +100 |
|  | KNA16 | NBR | 80 | 0,5 | 50 (500) | -30 to +100 |
|  | KNA44 | PTFE carbon + graphite | | 15 | 35 (350) | -150 to +250 |
|  | KPOR04 | PTFE-bronze with NBR O-ring* | | 2 | 16 (160) | -30 to +100 |
|  | KPOR30 | PTFE-bronze with NBR O-ring* | | 15 | 40 (400) | -30 to +100 |
|  | KPOR31 | PTFE-bronze with NBR O-ring* | | 15 | 40 (400) | -30 to +100 |
|  | K70 | TPU | 95 | 0,5 | 25 (250) | -30 to +100 |
|  | K84 | TPU | 98 | 0,5 | 40 (400) | -30 to +100 |
|  | KK03 | NBR | 80 | 0,5 | 40 (400) | -30 to +100 |

* other O-ring compounds available upon request



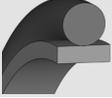
PISTON SEALS

| Profile | Design | Material | Hardness [Shore A] | Max. Speed [m/s] | Max. Pressure [MPa (bar)] | Temperature [°C] |
|---|--------|----------|--------------------|------------------|---------------------------|------------------|
|  | KK22 | NBR F* | 90 | 0,5 | 40 (400) | -30 to +100 |
|  | KDS01 | NBR F* | 90 | 0,5 | 40 (400) | -30 to +100 |
|  | KDS01 | FKM F* | 75 | 0,5 | 40 (400) | -15 to +150 |

* F: fabric (fabric-reinforced material)

ROD SEALS

| Profile | Design | Material | Hardness [Shore A] | Max. Speed [m/s] | Max. Pressure [MPa (bar)] | Temperature [°C] |
|---|--------|----------|--------------------|------------------|---------------------------|------------------|
|  | N21 | NBR | 90 | 0,5 | 16 (160) | -30 to +100 |
|  | N25 | TPU | 95 | 0,5 | 30 (300) | -30 to +100 |
|  | N36 | TPU | 95 | 0,5 | 40 (400) | -30 to +100 |
|  | N05 | NBR | 80 | 0,5 | 20 (200) | -30 to +100 |
|  | SNI24 | NBR | 90 | 0,5 | 16 (160) | -30 to +100 |
|  | SNI30 | TPU | 95 | 0,5 | 40 (400) | -30 to +100 |
|  | SNI35 | TPU | 95 | 0,5 | 40 (400) | -30 to +100 |
|  | SNI39 | TPU | 95 | 0,5 | 40 (400) | -30 to +100 |
|  | SNI07 | NBR | 80 | 0,5 | 40 (400) | -30 to +100 |
|  | S72 | TPU | 95 | 0,5 | 40 (400) | -30 to +100 |

| Profile | Design | Material | Hardness [Shore A] | Max. Speed [m/s] | Max. Pressure [MPa (bar)] | Temperature [°C] |
|--|-----------|-------------------------------|--------------------|------------------|---------------------------|------------------|
|  | SNI43 | PTFE carbon + graphite | | 15 | 35 (350) | -150 to +250 |
|  | SPOR06 | PTFE-bronze with NBR O-ring** | | 2 | 16 (160) | -30 to +100 |
|  | SPOR30 | PTFE-bronze with NBR O-ring** | | 15 | 40 (400) | -30 to +100 |
|  | SPOR31 | PTFE-bronze with NBR O-ring** | | 15 | 40 (400) | -30 to +100 |
|  | SDS01 3/2 | NBR F*/NBR | 90 | 0,5 | 40 (400) | -30 to +100 |

* F: fabric (fabric-reinforced material)

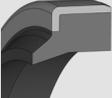
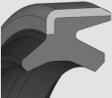
** other O-ring compounds available upon request

ROTARY/SWIVEL SEALS

| Profile | Design | Material | Circumferential speed [m/s] | Max. Pressure [MPa (bar)] | Temperature [°C] |
|---|---------|---|-----------------------------|---------------------------|------------------|
|  | RPORI32 | PTFE carbon + graphite with NBR O-ring* | ≤ 2 | 30 (300) | -30 to +100 |
|  | RPORA32 | PTFE carbon + graphite with NBR O-ring* | ≤ 2 | 30 (300) | -30 to +100 |

* other O-ring compounds available upon request

WIPERS

| Profile | Design | Material | Hardness [Shore A] | Max. Speed [m/s] | Temperature [°C] |
|---|--------|------------------------------|--------------------|------------------|------------------|
|  | AE40 | NBR | 90 | 1 | -30 to +100 |
|  | AE42 | TPU | 90 | 2 | -30 to +100 |
|  | AE41 | NBR | 90 | 1 | -30 to +100 |
|  | AE47 | TPU | 90 | 2 | -30 to +100 |
|  | AM43 | NBR | 90 | 1 | -30 to +100 |
|  | AM44 | TPU | 95 | 2 | -30 to +100 |
|  | AM45 | NBR | 90 | 1 | -30 to +100 |
|  | AM54 | TPU | 95 | 1 | -30 to +100 |
|  | AE80 | PTFE-bronze with NBR O-ring* | | 15 | -30 to +100 |
|  | AD60 | PTFE-bronze with NBR O-ring* | | 15 | -30 to +100 |
|  | AD61 | PTFE-bronze with NBR O-ring* | | 15 | -30 to +100 |
|  | AD48 | TPU | 95 | 1 | -30 to +100 |
|  | AD51 | NBR | 90 | 1 | -30 to +100 |
|  | ADM55 | TPU | 95 | 1 | -30 to +100 |

*other O-ring compounds available upon request

GUIDE ELEMENTS

| Profile | Design | Material | Sliding Speed [m/s] | Contact Pressure [N/mm ²] | Temperature [°C] | Delivered Form | Surface |
|---|--------|---------------------|---------------------|---------------------------------------|------------------|-------------------------|------------|
|  | GS01 | PTFE, bronze-filled | ≤ 15 | dynamic: ≤ 15 | -60 to +200 | Roll | structured |
|  | GS10 | PTFE, bronze-filled | ≤ 15 | dynamic: ≤ 15 | -60 to +200 | Roll | smooth |
|  | FRK01 | PTFE, bronze-filled | ≤ 15 | dynamic: ≤ 15 | -60 to +200 | Strip, 30° diagonal cut | structured |
|  | FRS01 | PTFE, bronze-filled | ≤ 15 | dynamic: ≤ 15 | -60 to +200 | Strip, 30° diagonal cut | structured |



INSTALLATION AND DISMANTLING TOOLS

Installation tools facilitate easy assembly and disassembly of seals and are available on the EASY online ordering platform.



Set of dismantling tools for O-rings and U-rings. Robust 8-part set with protective case.

Application areas:

The dismantling tools are suited for use with nearly any dimension.



Set of installation tools for U-rings.

5-part set, incl. case and a holding block which locks the pliers in position.

Application areas:

The installation pliers can be used for U-rings with a diameter of up to 165 mm.

| | |
|--------------------------------|-----------|
| Installation pliers S: | 22–30 mm |
| Installation pliers M: | 30–50 mm |
| Installation pliers L: | 50–70 mm |
| Installation pliers XL: | 70–165 mm |



Calibration pliers for PTFE seals

Application areas:

Calibration pliers can be used on PTFE seals within the range of 50 – 360 mm.

**Dismantling tool for radial shaft seals, U-rings and end caps****Application areas:**

These dismantling tools are suited for use with nearly any dimension.

**PTFE cutter for PTFE guide band**

Application areas: The cutting pliers cut the PTFE guide band at a 45° angle. The cleanly cut edges require no additional surface refinement. The maximum width of the PTFE guide band is 25 mm.

Replacement blades for PTFE cutter (10 units)

CERTIFIED MATERIALS

LAST UPDATED: JULY 2025

GAS DEVICES AND SYSTEMS IN DOMESTIC INSTALLATIONS OR IN HOME APPLIANCES

| Certified | Temperature range | Compound |
|-----------------|------------------------|-------------|
| DVGW DIN EN 549 | B1/H3 (0 to +80 °C) | NB 90 18 03 |
| DVGW DIN EN 549 | B1/H3 (0 to +80 °C) | NB 70 28 22 |
| DVGW DIN EN 549 | B2/H3 (-20 to +80 °C) | NB 70 28 07 |
| DVGW DIN EN 549 | B2/H3 (-20 to +80 °C) | NB 70 27 17 |
| DVGW DIN EN 549 | C2/H3 (-20 to +100 °C) | HN 70 27 04 |
| DVGW DIN EN 549 | C2/H3 (-20 to +100 °C) | HN 70 18 10 |
| DVGW DIN EN 549 | D2/H3 (-20 to +125 °C) | HN 70 78 01 |
| DVGW DIN EN 549 | E1/H3 (0 to +150 °C) | FP 80 18 01 |
| DVGW DIN EN 549 | E1/H3 (0 to +150 °C) | FP 80 18 04 |

DRINKING WATER

| Certified | Temperature range | Compound |
|-----------------------|-------------------|-------------|
| DVGW type examination | WA/WB | EP 70 39 04 |
| ACS | up to +60 °C | EP 70 39 04 |
| WRAS BS6920 | up to +85 °C | EP 70 39 04 |
| ÖNORM | up to +85 °C | EP 70 39 04 |

FOOD CONTACT AND PHARMACEUTICAL INDUSTRY

| Conformity | Specification | Compound |
|------------------------|------------------------|-------------|
| FDA 21 CFR | § 177.2600 | SI 70 18 07 |
| FDA 21 CFR | § 177.2600 | SI 70 27 14 |
| FDA 21 CFR | § 177.2600 | EP 70 39 04 |
| FDA 21 CFR | § 177.2600 | SI 60 41 01 |
| FDA 21 CFR | § 177.2600 | FP 75 94 25 |
| EG1935/2004 & BfR XV* | 1935/2004 BfR XV | SI 70 18 07 |
| EG1935/2004 & BfR XV | 1935/2004 BfR XV | SI 70 27 14 |
| EG 1935/2004 & BfR XXI | 1935/2004 XXI cat. 4 | EP 70 39 04 |
| EG 1935/2004 & BfR XV | 1935/2004 BfR XV | SI 60 41 01 |
| EG 1935/2004 & BfR XXI | 1935/2004 BfR XXI cat. | FP 75 94 25 |

* Certificate in progress

| Elastomer | Hardness [Shore A] | Color |
|-----------|--------------------|--------|
| NBR | 90 | black |
| NBR | 70 | black |
| NBR | 70 | black |
| NBR | 70 | black |
| HNBR | 70 | black |
| HNBR | 70 | black |
| HNBR | 70 | yellow |
| FKM | 80 | black |
| FKM | 80 | green |

| Elastomer | Hardness [Shore A] | Color |
|-------------|--------------------|-------|
| EPDM perox. | 70 | black |

| Elastomer | Hardness [Shore A] | Color |
|-------------|--------------------|-------|
| VMQ | 70 | red |
| VMQ | 70 | red |
| EPDM perox. | 70 | black |
| VMQ | 60 | red |
| FKM perox. | 75 | black |
| VMQ | 70 | red |
| VMQ | 70 | red |
| EPDM perox. | 70 | black |
| VMQ | 60 | red |
| FKM perox. | 75 | black |



Current Status
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INDUSTRY PROVEN



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Freudenberg Sealing Technologies has a broad, customer-oriented product portfolio of premium Freudenberg brand products for all applications – from customized individual solutions to complete sealing packages.

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Published by

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Publishing date

February 2026

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