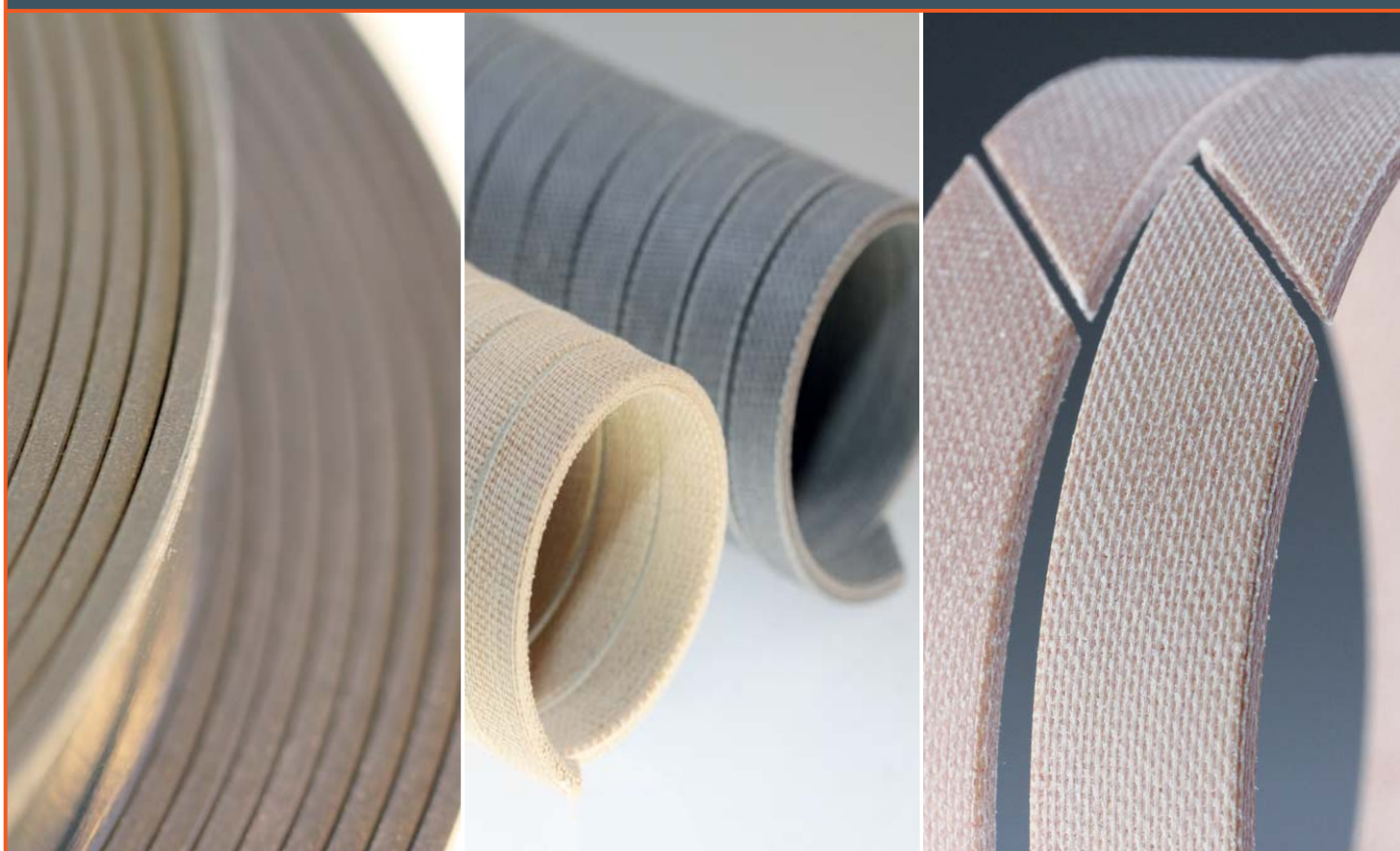


## technologies for hydraulics

guiding elements | ptfe sealing | rotary sealing | backup rings





Ideas turn into products

## Technologies turn into hydraulic solutions

### S.F. COMPONENTS

It all started with hydraulic components. And today our special range of products are backed up with know-how, precision, experience and above all else a sense of new standards and a passion for perfect solutions.

With this principle, S.F. Components is today a worldwide partner for technically developed, high-quality guidance and sealing solutions of complex hydraulic applications.

The product portfolio covers a special, innovative range of guide elements, seals, diverse special parts as well as complex technical individual solutions according to customer requirements, which are the result of many years of experience, consistent product development and modern production technologies.

As direct sales partner of modern, specialised and leading development, construction and production cooperations for challenging precision parts out of laminated materials and fabric-base materials, S.F. Components refers, in the product division of guides, seals and bushings for hydraulics, according to the state-of-the-art resources, the material of high quality and the complex processing technologies of experienced enterprises.

#### Quality & accuracy

To S.F. Components, high-quality products along with our products' long life-cycles and high performance ratio as well as a high technical quality level have top priority when it comes to our product range. A continuous optimisation of our products and services along with a reliable acting are part of our basic business principles.

This means that a high quality level regarding the choice of our suppliers and manufacturing partners of raw and construction materials, of processes as well as the whole production technology is indispensable – for our customers' satisfaction.

#### Perfect with the results

The high technical quality level and technical know-how of S.F. Components GmbH, company processes and quality management comply with international standards EN ISO 9001:2015. They are subject to constant company internal monitoring regarding sticking to and efficiency of processes.

Thus, this certification is a testimony of the high quality and reliable functionality of our products.





Quality products for high requirements

Guiding & sealing systems

#### S.F. Components – your benefit

S.F. Components means reliable products developed in accordance with the latest technical criteria, high storage capacities, the highest functional reliability, flexibility, performance and economic efficiency – a solid basis for a variety of industries and a multiplicity of technical fields of application:

- Agricultural machinery industry
- Construction machinery industry
- Cylinder construction
- Drive technology
- Heavy industry
- Industrial trucks
- Mechanical and plant engineering
- Mining
- Mobile hydraulics
- Renewable energies
- Ship technology
- Stationary hydraulics


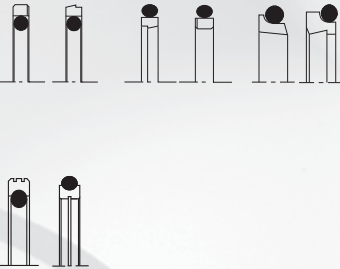
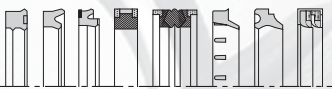
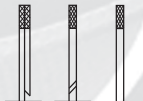

Moreover, the S.F. Components accompanies projects from the individual problem solution to construction, prototyping, tests and production right through to finished hydraulic components.


An intensive, co-operative dialogue with customers concerning their technical requirements plus high performance and an enthusiasm for innovation –the basis for mutual success– are decisive in this.





S.F. Components is a provider of highly mechanised, high-quality hydraulic components with classic guidings and sealing systems, special parts as well as customised individual solutions, geared towards a variety of hydraulic application industries. In doing so, we draw upon five core technologies:

Core technologies	Product type	Shape	Material
<b>Guide elements</b> 	Piston guiding Rod guiding Plunger guiding Bushing	standard individual	Fabric-base laminate Cotton fabric / Phenolic resin Synthetic fibre / Phenolic resin with PTFE Polyester / Polyester resin Aramid-fabric / high temp. phenolic PTFE - Compounds Polyacetal
<b>PTFE-sealing</b> 	Piston sealings Rod sealings  Wipers  Rotary sealings	single and double acting  single and double acting  external sealing action internal sealing action	PTFE - Bronze PTFE - Carbon fibre PTFE - Fibre glas PTFE - Food compatible compound  Special material (e.g. PEEK, Ekonol) Polyurethane  PTFE - Bronze PTFE - Carbon fibre PTFE - Fibre glas PTFE - Food compatible compound Special material (e.g. PEEK, Ekonol)
<b>Hydraulic sealing systems</b> 	Piston sealings Rod sealings Wipers		Standard material, such as Polyurethane, PTFE, NBR/FPM Special material
<b>Backup rings</b> 	continuous spiral slotted		PTFE - Bronze PTFE - Carbon fibre PTFE - Fibre glas PTFE - Food compatible compound Polyurethan POM Special material (e.g. PEEK, Ekonol)
<b>Special sealing systems</b> <b>Special components</b> <i>Individual manufacturing</i> 	Piston sealings Rod sealings Wipers Special sealings Special components Flat gaskets Designed parts	single and double acting  customer request single and double acting acc. as design and construction	Standard material, such as Polyurethane, PTFE, NBR/FPM Polyethylene POM, PA Special material PU + MoS2



Competence und high-tech  
for precision materials and  
intelligent technologies

[www.sf-components.com](http://www.sf-components.com)

Processed with phenol resins and polyester resins in special technological processes, the cotton, the synthetic fibre fabric-base laminate and the polyester fabric, carries conviction every time on account of maximum resistances. As a result, it is acting as a substitute for metallic materials in many fields. Prefabricated parts of these fabric-base laminates are used especially in hydraulic, mechanical and bearings engineering as well as in mining, heavy industry and renewal technology.

Guide rings  
Guide band  
Hybrid fabric  
Bushings  
Spherical Bearings

Technical innovations are dynamic, orientate themselves to what is technically feasible and aim for developments that bring about improvements. This principle is looked upon as the prime requirement for producing its precision, technically perfected, duroplastic synthetic components and laminates. Thanks to the combination of cotton fibres, polyester fibres and synthetic fibres with several resins, high-grade, productive laminated materials can be produced under the most up-to-date perfected manufacturing technologies.

Tubes, profile sections, rods and panels – precision parts standardised according to ISO EN 61212 – are finding their way into many varied application fields in engineering industries.

Guiding elements

fabric-base laminate | ptfe compounds | polyurethane | nbr



From laminated material and fabric-base material to precise guidance and sealing solutions of complex hydraulic applications.

[www.sf-components.com](http://www.sf-components.com)



### KT Guide rings

Piston and rod guide rings made of fabric-reinforced KT-material have made a name for themselves in international hydraulic engineering.

S.F. - guide rings are made of different resin-bonded fabric material. The manufacturing process evolves the complete line, starting with the raw material to the resulting in finished piston and rod guide rings with excellent tolerances. This procedure includes prepreg fabrication, tube production on modern winding machines and CNC revolving automatons, each step supported by quality control. Therefore our reaction is fast and flexible to special requests in dimensions and basic material of our clients.

Guide rings have the task to guide precisely the piston rod of a hydraulic-cylinder and to absorb the existing lateral forces. There must be no metallic contact between the sliding parts, i.e. with the counter surface. Our guide elements have a preserved behaviour towards the counter surface and carry conviction on account of maximum resistances and are acting as a substitute for metallic materials in many fields. Thanks to maximum tolerance adherence, excellent sliding properties caused by additional lubrication like PTFE or graphite and very low-friction surfaces, this material is constantly tapping new applications.

KT guide rings have become indispensable, particularly for absorbing extremely high lateral forces in side-stressed hydraulic cylinders - for the applications in the classical hydraulic cylinder production, mining, construction machinery industry, mechanical and plant engineering.

### KT Piston and rod guide rings

- Cotton-, synthetic fibre fabric, polyester fabric and aramid fabric
- Processed with specialized phenol resins and polyester resins in technological processes
- Additional lubrication as PTFE, graphite or MoS<sub>2</sub>
- Maximum resistances, high bearing strengths, good sliding properties, temperature resistance
- Substitutes metallic material

**KT100:** Cotton fabric + phenolic resin

**KT107:** Cotton fabric + phenolic resin + graphite

**KT200:** Synthetic fibre fabric + modified phenolic resin + PTFE

**KT200B:** Polyester fabric + epoxy resin

**KT500:** Polyester fabric + polyester resin + graphite (alt. + PTFE)

**KT700:** Aramid fabric + graphite + modified phenolic resin for high temperature

- Standard dimensions
- Individual dimensions
- Individual diameters

**EXPRESS availability:**

**KT200B:** Polyester fabric + epoxy resin

Individual dimensions: Single production - small series

# KT220T guide band spool

## KT500T

## KT220TS

## KT500TS

### KT Guide band *by meter*

Our range of guide rings, made of the well-known fabric-reinforced KT-material, is supplemented by tapes with high and very high diameters in the field of the classical hydraulic cylinder production. Tape material is applicable also for maintenance and repair for single pieces production with individual dimensions.

The material is appropriate for hardest strains, maintenance-free and corrosion resistant. In this case the additional lubrication like PTFE or graphite is responsible for a reduced breakaway force and for optimised running properties.

Strip material could be supplied in spools with a length of about 10.000 mm or in all usual sizes for appropriate diameters. Diameters according customer demands are available. Optionally it is also cut to length for different diameters.

Band material by meter allows our customers to flexibly produce all the dimensions of guide elements they need. The S.F. tapes are available with different additional lubrications, KT500T with graphite and our KT220T with additional lubrication PTFE. The advantage of the additional lubrication is achieving a better coefficient of friction, optimised running features and a smoothing behaviour against the corresponding metallic contact surface. Especially applicable in order to avoid a lubrication deficiency.

#### KT 220T: Synthetic fibre fabric + modified polyester resin + PTFE

Tape colour: brown

Also available in individual colors with additional lubrication PTFE

#### KT500T: Polyester fabric / polyester resin + graphite (alt. graphite + MoS<sub>2</sub> or PTFE)

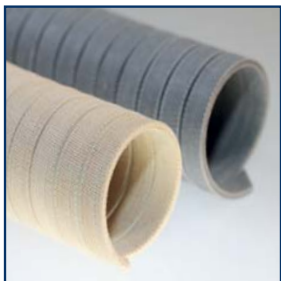
Graphite: Tape colour grey

PTFE: Tape colour white or turquoise

- For cylinder construction in hydraulics
- Standard or individual length
- Standard and individual diameters, up to 3.000 mm
- Appropriate for hardest strains, maintenance free, corrosion resistant
- High bearing strengths
- Applicable to almost all media







#### KT Guide band *spiral version*

The distinguished physical and mechanical properties of this material allow the production of the guide band – KT220TS and KT500T as spiral version also –, for assembling simply still preformed guides for different ranges of fixed diameters.

The advantage of preformed tape in different diameters, which is depending on the widths and thickness, is that the concave outside surface will be minimized against the tape in spool version – especially for using small diameters.

The flexibility of the tape guarantees the possibility to use the respective preformed diameter for a plurality of diameters up and down. The way of assembling for piston guide rings is much more simple. A cutting of length to the respective diameter can be extremely easy.

Spirals are available in all standard dimensions, the respective diameter, that can be produced is depending on the width and thickness of the guide tape. Individual dimensions are possible.

#### **KT500TS: Polyester fabric / polyester resin + graphite (alt. graphite + MoS<sub>2</sub> or PTFE)**

Graphite: Tape colour grey

PTFE: Tape colour white or turquoise

Length of spiral: 5.000 mm

Standard diameter of spiral: 20 / 40 / 60 / 80 / 100 / 150 / 200 mm

(depending on thickness and width of tape)

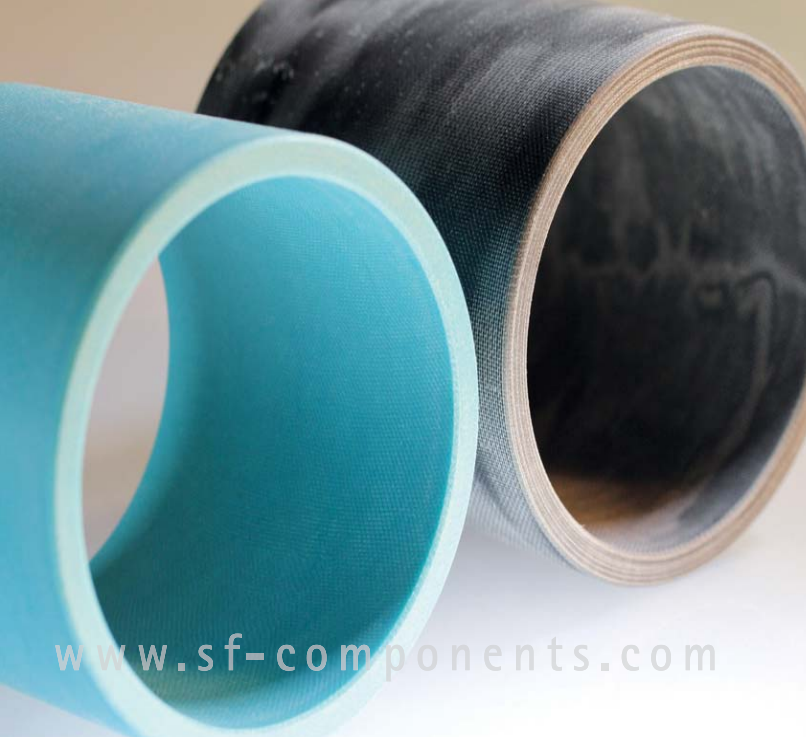
#### **KT220TS: Synthetic fibre fabric + modified polyester resin + PTFE**

Tape colour: brown

KT220TS relates to the dimensions of KT500TS

- For cylinder construction in hydraulics
- Standard or individual length
- Standard and individual diameters
- Appropriate for hardest strains, maintenance free, corrosion resistant
- High bearing strengths
- Applicable to almost all media





Innovative and individual  
material for every application

[www.sf-components.com](http://www.sf-components.com)

bushing | spherical bearings | plate material

### Bushings

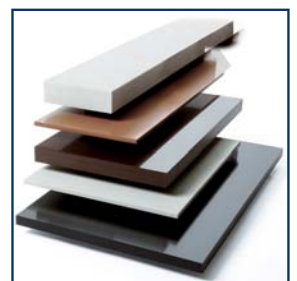
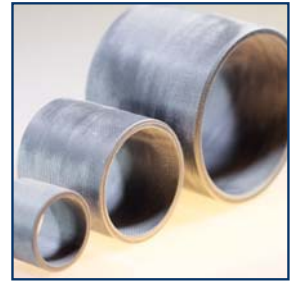
Guide bushes and bearing bushes KT500B are manufactured in high loadable resin-bonded fabric composite. This combination of material has an excellent flexibility, much more as bearings or bushes made in metallic material. Thereby it is possible to absorb and compensated one-side load. Plain bearing can be used for linear, rotating and oscillating movements.

The material combination of polyester textile woven and modified polyester resin is produced for high requirements and provides perfect physical terms.

Our bushes are dimensionally stable and provide an excellent wear resistance. By adding additional lubricants such as graphite or PTFE, the friction coefficient will be reduced, thereby running properties improved in case of deficient lubrication or dry running. Initial lubrication achieves interesting performance improvements and an extended service life.

**KT500B: Polyester fabric / polyester resin + graphite (color grey)**

**KT500BT: Polyester fabric / polyester resin + PTFE (color turquoise)**



### Spherical bearings

Spherical bearings made of fabric composite materials are used for connecting rigid and moving shafts or in hydraulic cylinders. Bearings in one or two parts are produced – depending on customer requirements – if necessary with a gap of zero.

### Plate material

Plates made of a wide range of materials can be produced according to customer requirements. Woven fabrics with different types of mixed fabrics are used in a variety of applications.

Guiding elements

Sealing systems

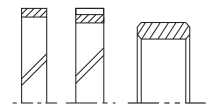
Backup rings

Special sealings

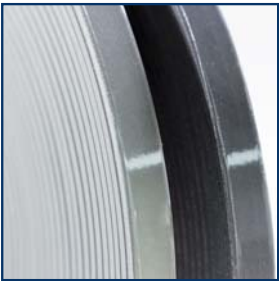
Semi-finished products

Moulding compounds

 S.F. COMPONENTS

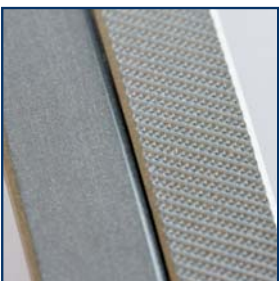


The PTFE guiding and sealing elements, with their very sound gliding properties, good load-bearing strengths and dimensional stabilities, very solid thermal and chemical resistance and material abrasion resistance, open up a diverse range of possible applications for sophisticated to extremely high-performance applications of the hydraulics industry.



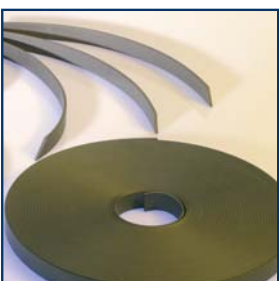
The wide range of piston, rod and rotary seals, wipers and support rings with the most varied PTFE material composition can therefore be adapted to the respective requirements. Used as a guide band, the material can fulfil the special requirements as an alternative to metallic guides.

With standardised PTFE guiding and sealing components in many dimensions as well as in individual, customer-specific dimensions and in the PTFE compounds required accordingly, S.F. Components makes every effort to provide precise and functionally reliable hydraulic solutions.



The S.F. sealing elements have a decisive influence on the design, function and service lifetime of hydraulic cylinders. The various material combinations possible within the PTFE segment offer high functional reliability and durability adapted to each requirements profile.

- Chemical resistance, wide range of application of temperature, abrasion resistance
- Appropriate for hard strains, high rigidity, good sliding properties
- Special compounds also applicable for food-, medical- und pharmaceutical industry

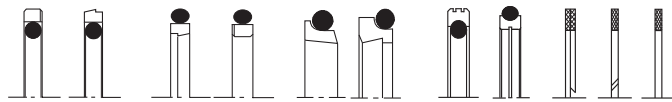




# guiding elements

# sealing

# backup rings



## PTFE-Compounds

### PTFE

- Guide band
- Sealing systems
- Backup rings
- Special sealings
- Moulding compounds
- Semi-finished products

#### PTFE, PTFE-Compounds – Guide band

Guide band by meter / spool / all edges chamfered

Surface of the tape without structure (standard) or including structure

Guide band cut to individual length by specification

Standard dimensions and individual, customized dimensions

Individual diameters

#### PTFE, PTFE-Compounds – Sealings, backup rings

Sealings, standard and special types

Backup rings are produced continuous, slotted or spiralled

Standard materials as, PTFE-bronze, carbon, glass filled, virgin

Special material, e.g. PTFE filled with mineral, Econol, PEEK

#### PTFE, PTFE-Compounds – moulding compounds, semi-finished products

Semi-finished products in all current PTFE-Compounds

Moulding compounds produced individual by drawings





## Standard sealing systems

## Individual design special sealings

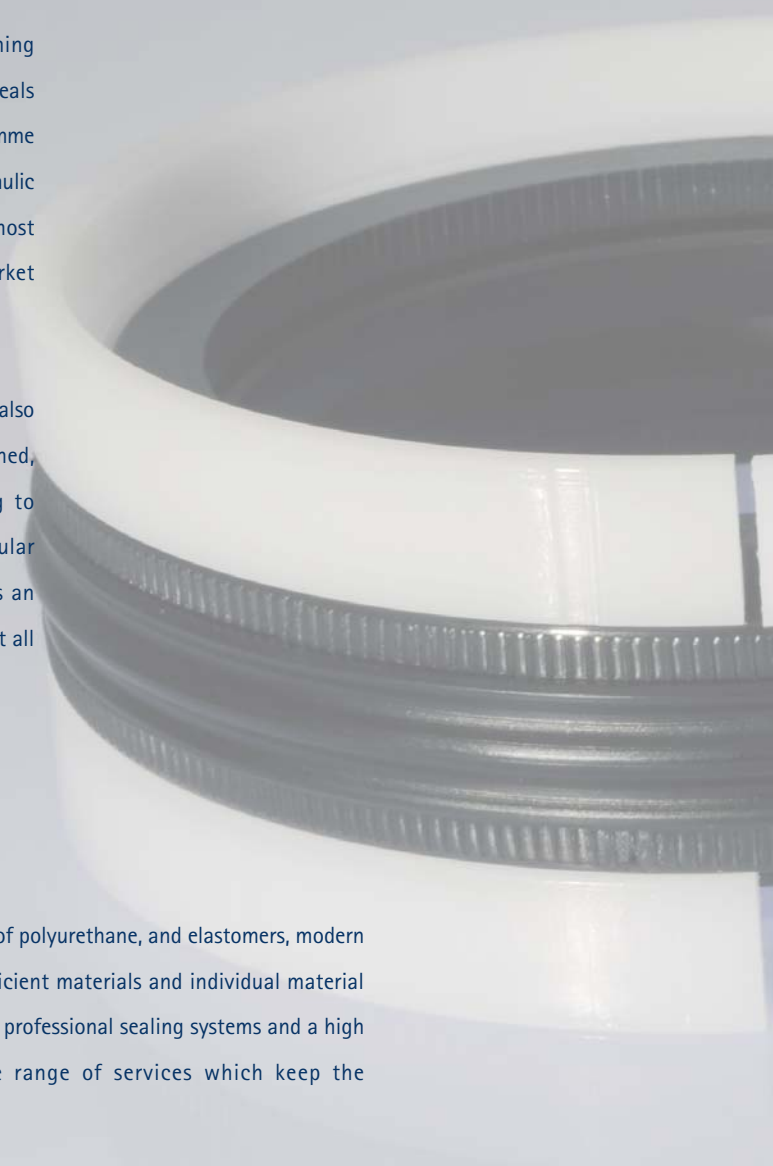
## Individual design lathed, injection-moulded special sealings



Through having a wide and deep-reaching product range of piston, rod and rotary seals and wipers available, the S.F. sealing programme guarantees sophisticated and reliable hydraulic solutions, from a single source, for the most varied of operating conditions and market segments.

Special seals and special components are also individually designed and produced (lathed, pressed, injection-moulded) according to customer specifications, and in a modular manner, either as a single module or as an entire sealing system – and this for almost all hydraulic applications.

Sophisticated technologies made of polyurethane, and elastomers, modern construction tooling, reliable, efficient materials and individual material innovations, an extensive store of professional sealing systems and a high service standard make up the range of services which keep the S.F. Components GmbH busy.





fpm

polyurethane

nbr – nbr fabric

pom

special material

Piston sealings

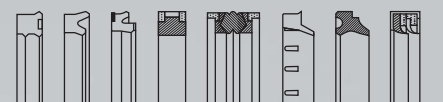
Rod sealings

Rotary sealings

Special sealings

Wipers

S.F. COMPONENTS



#### S.F. - that means

Reliable and demanding sealings for hydraulics

Developed and manufactured based on latest technological criteria

High product range and depth

High storage capacities

Fast delivery

High product availability

Adequate price / performance ratio

Technically mature functional securities

Special sealings in high quantity but as single piece also

With 22.000 standard seals we offer in collaboration with our sales partner the most complete range of standard seals on the market with highest quality, numerous major dimensions, hydraulic seals made from FPM and a wide range of other materials (Polyurethane, PTFE, Elastomere, fabric-reinforced Elastomere).

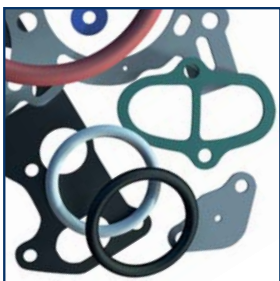
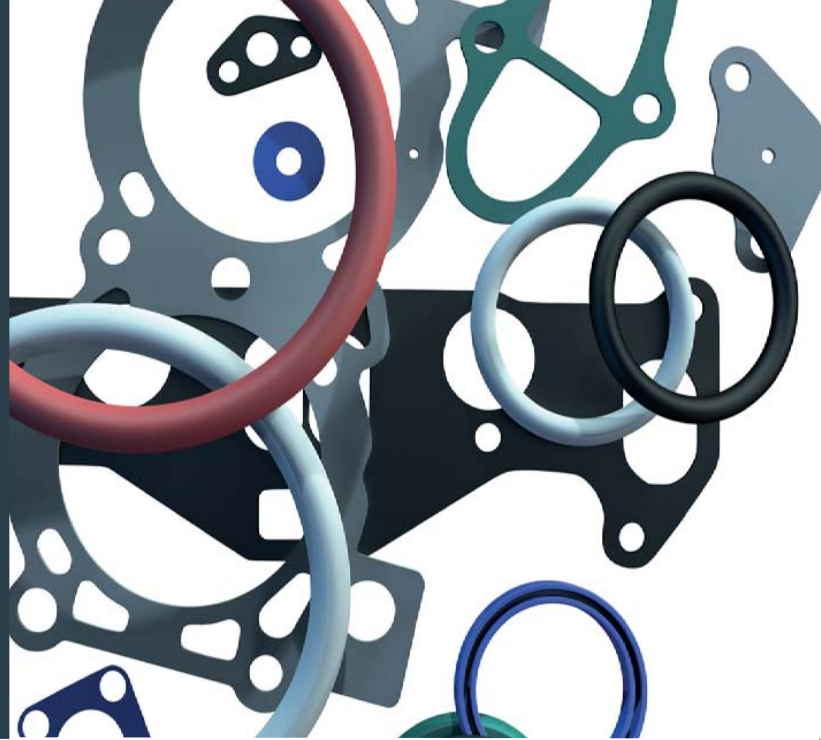


Sealing systems

fabric-base laminate | ptfе compounds | polyurethane | nbr

Special seals  
Blanked parts  
Flat gaskets  
Molded parts

S.F. COMPONENTS



#### Flat gaskets and blanked parts

This product line comprises individual flat gaskets and blanked parts compliant to DIN- and ANSI- regulations, manufactured according drawings or other requirements. Produced on CNC-controlled cutting plotter or individual laser supported machines. Depending on the design and customer construction, on material selection and economics we have the possibility using different production processes as waterjet technique, plotting and stamping and turning machines.

We produce flat gaskets and blanked parts from a large range of different materials as rubber, elastomere, plastics, silicon, paper and others for the most different ranges of applications and customer demands.

#### Gaskets produced from:

Rubber / elastomere

Fluor rubber (FPM; FKM; Viton®)

Plastic material (PTFE; PE; Vulkanfiber; etc.)

Silicon

EPDM

Rubber – cork

Paper

Graphite with- and without metal

High-performance material

#### Flat gaskets and blanked parts for :

Industry, machinery and engineering

Heating, mechanical ventilation, sanitation

Medical industry

Vehicle construction

Building industry

Electrical industry

Technical trade, etc.

fabric-base laminate | ptfе compounds | polyurethane | nbr





## special seals – special parts

### Special seals / special parts

S.F. Components provides special sealings and special parts produced from classic standard material, also individual designed parts made of special materials – adapted to a wide range of applications and produced to customer requirements or drawings. Together with our customers and our manufacturing department we develop individual applications and customer oriented solutions in accordance with the requirements. From prototyping to single production and serial production, all parts from one source on favourable terms.

By using special technologies it is possible to manufacture seals and molded parts in different material combinations shortly. In the area of prototyping there are chances to minimize the time and save additional costs without injection molding.

Because of the wide range of available materials we are more effective and efficient in physical terms, chemical and temperature resistance and have the ability in fulfilling the qualification for challenging applications.



fabric-base laminate | ptfe compounds | polyurethane | nbr

S.F. COMPONENTS

## guiding elements and sealings for hydraulics

S.F. Components GmbH

Kirchbergstr. 14b  
D-82216 Maisach  
Germany

tel +49 / 8141 / 353 54 - 0  
fax +49 / 8141 / 353 54 - 27

[www.sf-components.com](http://www.sf-components.com)  
[info@sf-components.com](mailto:info@sf-components.com)



S.F. COMPONENTS

© S.F. Components GmbH  
09/2020