

Sealing and Plastic Innovations



Welcome to Trygonal

- We are a sealing and plastic parts manufacturer
- We see ourselves as a partner to our customers
- We are independent, holistic and solution-oriented
- We are an international network company and we work world-wide
- We see our company culture like life: varied, complex and exciting
- We value greatly the individuality and the expertise of the staff
- We are committed to high professional ethics and integrity in all we do

All this creates a passionate, innovative and dynamic team to support your business.

About Trygonal

The Trygonal group supplies customers from all industries with machine components from the field of rubber, plastic and sealing technology.

International expertise, combined with local strength

Our internationally linked employees, have set the objective to offer the best service, the highest quality products and solutions to our valued customers.

We fulfil this by

- taking time for them to find the right solution
- getting involved personally
- developing and following any kind of innovation
- being a partner and meeting all possible expectations

Our symbol and name

Is a stable structure built in 3 dimensions: a pyramid. Trygonal as a symbol stands for a triangle of stability, consistency and efficiency. The symbol also represents our material sectors (rubber, polyurethane, plastic) and our different product lines and manufacturing technologies.

Our goal

We want to be an outstanding provider of synergistic, holistic solutions for the rubber, plastic and sealing technology.

Our continuous improvement process

We produce according to DIN EN ISO 9001 and DIN EN ISO 14001. Our effective Quality Management, the know-how of our employees and modern production technologies guarantee the high quality standard of our products.

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Trygonal Seals

We offer over 140 individual sealing profiles and solutions which can be manufactured on the latest CNC lathes. From a production lot size of 1 piece to several thousand units, starting with an inner diameter of 1 mm and up to 2000mm for the outside diameter, we manufacture each sealing profile in any dimension and in a variety of high-quality sealing materials.

Our special manufacturing process also allows fast prototyping of seals, which can be, after functional testing and customer approval, manufactured in-house cost efficiently.

Sealing Profile Classes

- Hydraulic Pneumatic Seals (piston-/rod seals)
- Static Seals
- Rotary Seals
- Gaskets
- High Pressure Seals
- Large Seals
- Miniature Seals
- Special Seals
- Guiding elements
- Back-up elements
- Wiper elements

Seal materials

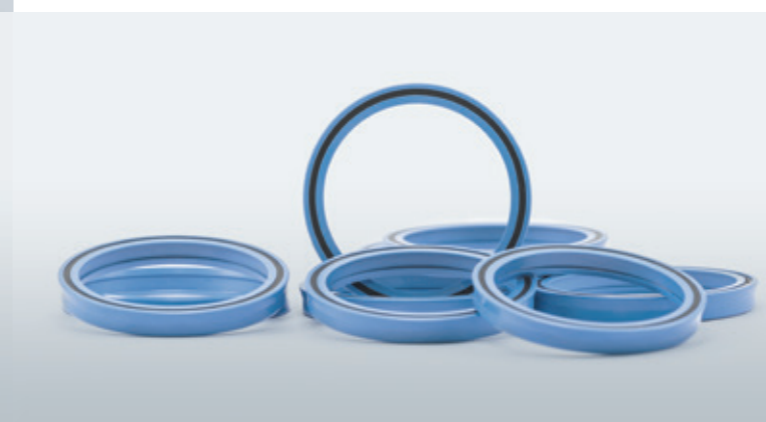
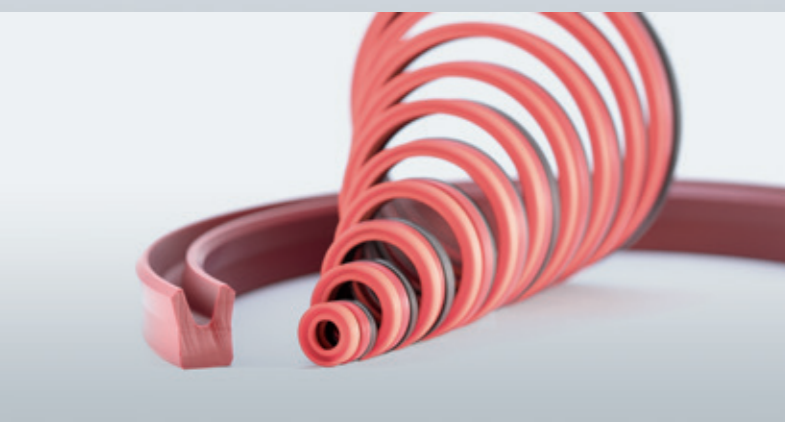
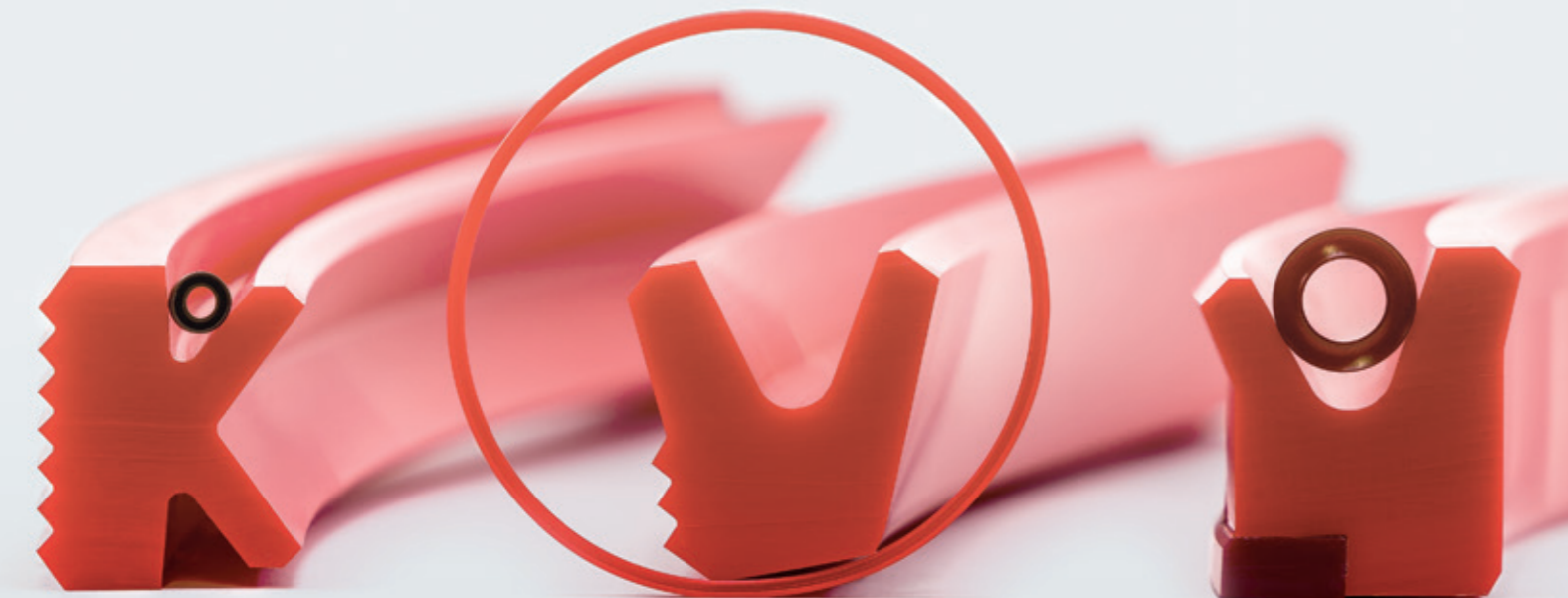
- Elastomers (TPU, TPE) Polyurethane material for high mechanical stress in different hardness and in different material compounds available
- Rubber elastomers (NBR, H-NBR, FPM, MVQ, FVMQ, TFE, FFKM) For high temperatures and chemical stress
- Thermoplastics (PTFE, POM, PA, PEEK) for seals and sealing components

Approvals

FDA, USP, W270, DVGW, UL, EU 1935/2004

Applications

Automotive, construction, mining, railways, power generation, aerospace, semiconductor, power plant, solar and wind power, food & beverage, engineering, medical, mobile hydraulics, oil & gas, paper, pharmaceutical, steel works



Trygonal

Customised & Large Sealing Solutions



Trygonal supports you with bespoke solutions. We develop and produce innovative customised sealing solutions for challenging applications.

Based on thermoplastics, as well as elastomers, we develop large gaskets for hydroelectric power plants or miniature seals for high pressure applications. From prototypes in small quantities right up to large-scale volumes we can offer you the best manufacturing solution.

The know-how of our sales and engineering teams, as well as our production network, gives you a local partner who is able to find the most suitable solution for your sealing application.



Sealing Profile Classes

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Trygonal O-rings and Static Sealing Profiles

The most commonly used sealing element is the O-ring. Trygonal offers a wide range of O-rings and static seals. Each O-ring size is available in metric or inch dimensions, and custom sizes are possible. The smallest size starts at a cord thickness and internal diameters of less than 1 mm. The largest O-rings are manufactured in cross sections of 30mm or larger and up to a diameter larger than 3m.

Materials

We have a wide range of materials, both for standard and specialty applications. A selection of our materials is EPDM, FKM, NBR, HNBR, CR, MVQ, FVMQ, TFE, FFKM. For special applications, we also manufacture O-rings made out of UHMWPE, PTFE, PEEK, polyurethane, FEP-coated or metallic materials.

Static sealing profiles

- Dairy Fittings
- Square profiles
- Roof edge profiles
- Double roof edge profiles
- Back-up rings

Delivery standards

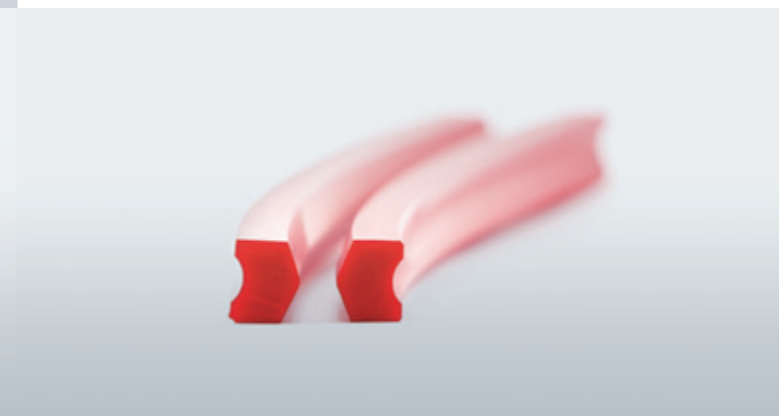
All O-rings are available in accordance with DIN 3771, ISO 3601, AS 568 B, BS 1806, BS 4518 and other standards.

Approvals

BAM, BfR, with DVGW W 270, FDA, MIL, KTW, NSF, UL, USP, WRAS, 3-A Sanitary Standards

Applications

Automotive, construction, mining, railways, power generation, aerospace, semiconductor, power plant, solar and wind power, food & beverage, engineering, medical, mobile hydraulics, oil & gas, paper, pharmaceutical, steel works



Trygonal Materials & Semi-Finished Products



We produce semi-finished products of polyurethane and rubber materials. In cooperation with industry and universities we are continually improving our materials. These materials are tailored to your needs, tested under the harshest conditions and tested by recognised institutions for compliance such as the FDA, KTW, W270, 3-A Sanitary. As different as the demands on seals often are, we have the right material for you. Currently we have more than 25 different material selections and we can offer for each of them over 600 different dimensions. Special sizes in various materials are also possible.

Specific properties of the Trygonal polyurethanes

- Hydrolysis resistant
- Low temperature
- Food approval
- Reduces friction
- High hardness
- High temperature

Up to a diameter of 2000mm, in different levels of hardness and a variety of colours

Trygonal rubber elastomers

FPM, EPDM, NBR, HNBR, VMQ, FVMQ, TFE, and so on up to a diameter of 1500mm

Approvals

DVGW, KTW D1 D2, FDA, NSF, UL, MIL

Applications

Automotive, construction, mining, railways, power generation, aerospace, semiconductor, power plant, solar and wind power, food & beverage, engineering, medical, mobile hydraulics, oil & gas, paper, pharmaceutical, steel works



Trygonal Machines, Software & Tools

Our high-quality CNC twister machine systems allow the rapid processing of Trygonal materials to produce our high quality seals and turned plastic parts.

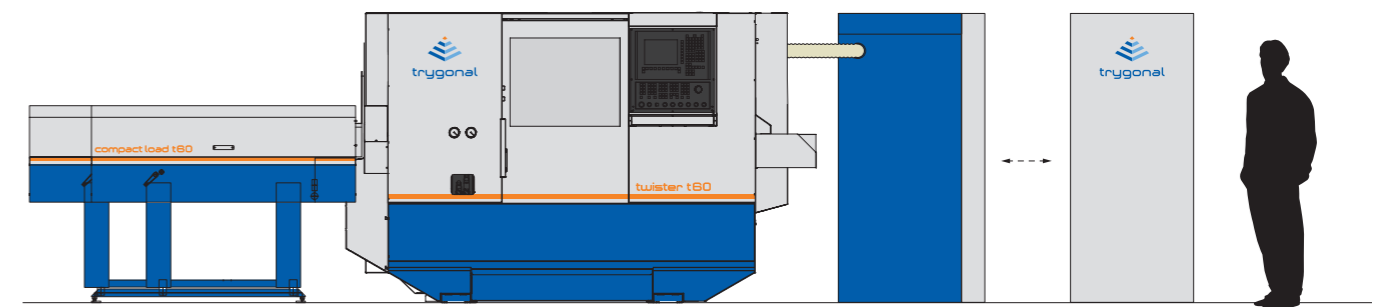
The new machinery product line, «twister» stands for dynamism, speed, strength and functionality. These are modern and compact CNC lathes, which can be used to manufacture hydraulic and pneumatic seals, special turned parts out of all plastomers and elastomers, as well as metals.

Machine types

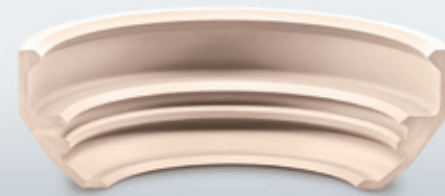
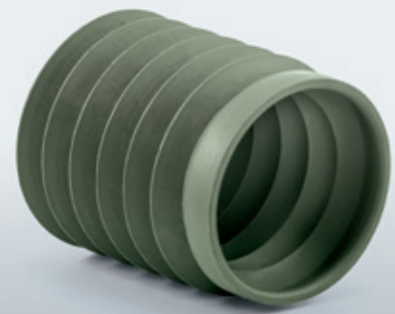
- Trygonal twister t40 to 400mm
 - Trygonal twister t40 dt to 400mm, with live tooling and bar feeder.
 - Trygonal twister t60 to 600mm
 - Trygonal twister t140, t180, t200 to 2000mm turning diameter
 - Accessories: Manufacturing facilities
-

Trygonal SealCAM

This sealing profile software allows more than 140 different hydraulic and pneumatic seals to be easily programmed. Also special profiles can be programmed on demand.



Trygonal Rubber Parts and Membranes



We develop and manufacture molded rubber parts and membranes out of all known rubbery materials. Therefore we use the most modern CNC-controlled vacuum molding, injection molding (compression, injection, transfer-molding) as well as CAD/CAM systems. The required form tools are manufactured in our own tool shop.

Materials

FPM, NBR, HNBR, EPDM, FFKM, TFE, and many others, in various levels of hardness

Material approvals

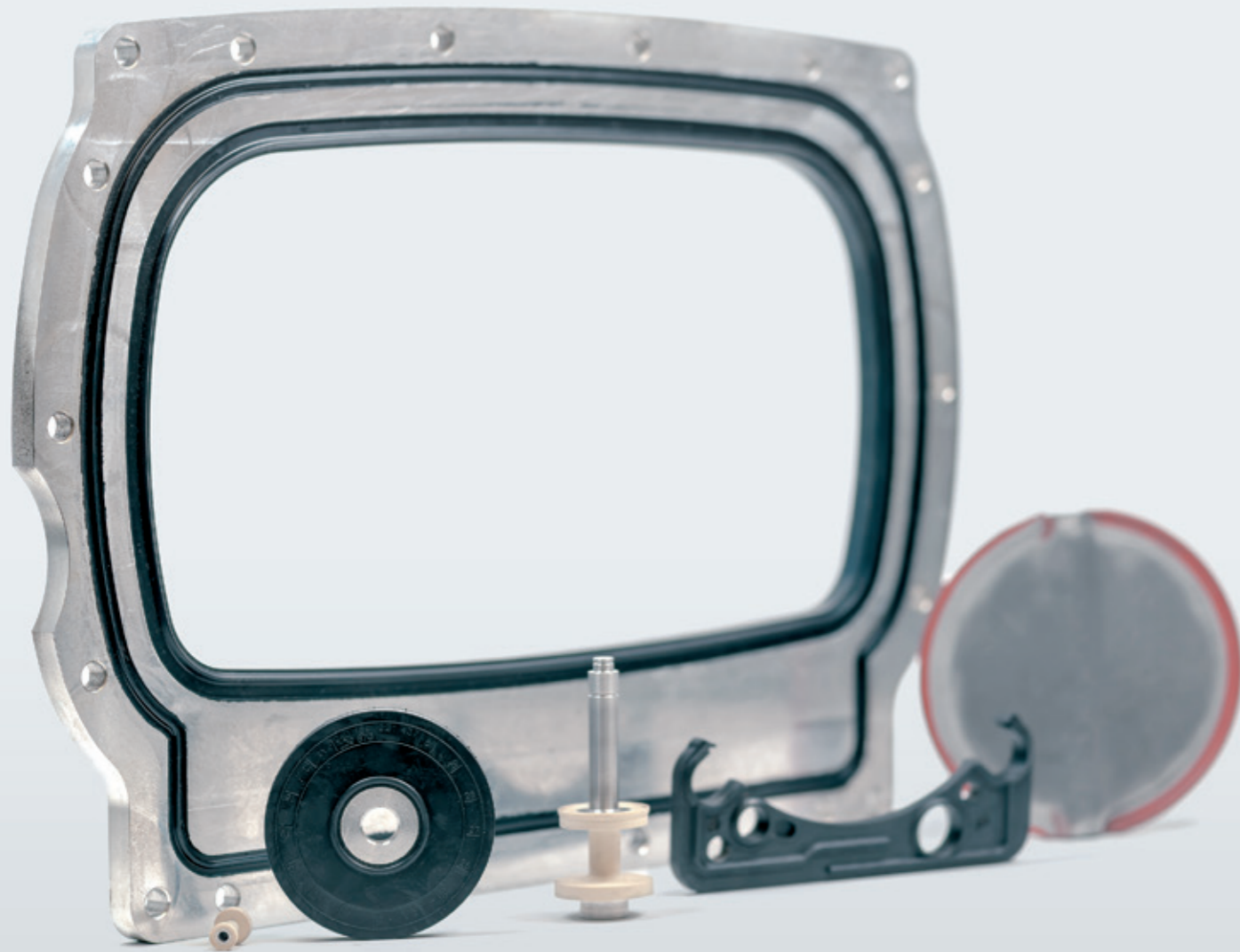
KTW, WRC, FDA, DVGW and more

Applications

Automotive, construction, mining, railways, power generation, aerospace, semiconductor, power plant, solar and wind power, food & beverage, engineering, medical, mobile hydraulics, oil & gas, paper, pharmaceutical, steel mill



Trygonal Rubber-Metal & Rubber- Plastic Components



We develop and manufacture high quality rubber and rubber metal plastic parts in accordance with the customer's request. Carrier materials are steel, stainless steel, aluminum, brass, and various plastics. All known rubber elastomeric are used as sealing materials. A variety of material combinations is possible.

Materials

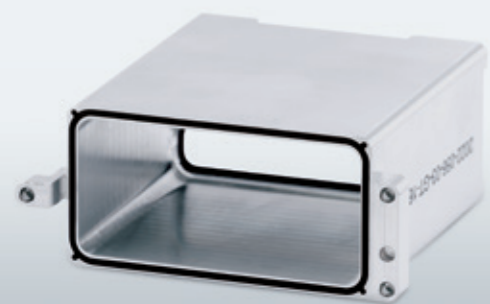
- Elastomers (TPU, TPE) Polyurethane for maximum mechanical material stress in different hardness and in different material compounds available
- Rubber elastomers (NBR, H-NBR, FPM, MVQ, FVMQ, TFE, FFKM) for high temperatures and chemical stress

Approvals

DVGW, KTW D1 D2, FDA, NSF, UL, MIL

Applications

Automotive, construction, mining, railways, power generation, aerospace, semiconductor, power plant, solar and wind power, food & beverage, engineering, medical, mobile hydraulics, oil & gas, paper, pharmaceutical, steel works



Trygonal Vibration Technology and Gripper Rails



The continued mechanisation of our environment can be seen through the increasing use of machinery and equipment.

This can cause different vibration states, including seismic vibration, and for this we can develop and produce different damping elements for these situations.

The finished metal rubber gripper rails from Trygonal have been very successful in the construction industry in lifting heavy stone weights.

Standard quality

NR (Natural Rubber)

Special qualities

NBR = Perbunan® (Nitrile-Butadiene Rubber)

CR = Neoprene® (Chloroprene Rubber)

FPM = Viton® (Fluoro Rubber)

EPDM = Ethylene-Propylene-Diene-Rubber

PUR = Vulkollan® Polyurethan

More qualities on request

Approvals

on request

Application

Buffers are particularly suitable for elastic travel limiting and for cushioning impacts on mobile and non-mobile units, machines and generally as stops.

Gripper Rails are suitable for the storage of the heaviest machines, plants, aggregates and foundations. In addition they are suitable for the storage of marine engines, large stationary motors, lathes, elevator machines and vibrating machines.



Trygonal Plastic Turned and Milled Parts, 3D Printer Parts

We develop and manufacture plastic parts out of all known engineered plastics such as PTFE, PEEK, PPS, POM, PA, PE, PVC etc.

To satisfy your needs even faster and more flexibly we can also offer you high-resolution 3D printing parts.

As an alternative to our turning- and milling parts the inkjet process allows high precision prototypes or final products to be produced without any molding.

Manufacturing process

We have modern CNC-controlled lathes and milling machines, CAD/CAM systems and measuring equipment in use.

Plastic diversity

- Standard Plastic Parts up to 100° C (PP)
 - Engineered Plastic Parts up to 150° C (EPP)
 - Advanced Engineered Plastic Parts up to 300° C (AEPP = Advanced Engineered Plastic Parts)
-

Material modifications

For complex applications, we also provide modified materials with additives such as glass fiber, carbon fiber and friction-modified additives as well as with different material approvals such as FDA, KTW, NSF and so on.

Applications

Aircraft, automotive, construction, fluid power, food & beverage, machine ind., marine, mining, oil & gas industries, petrochemical industries, power generation, pulp and paper, railway, semiconductor, steel



Trygonal Forming and Foam Parts

We develop components in cooperation with our customers. Depending on the application Trygonal determines whether the part must be foamed or casted. Polyurethanes offer a large number of possible solutions. Whether it is a light or an ultra-stable special foam, a casted part with excellent mechanical properties or a particularly tough structural foam Trygonal will develop the right solution.

Foams

- Integral Foam
- Rigid Foam
- Flexible Foam
- Massive Parts

in various densities, hardness and colors

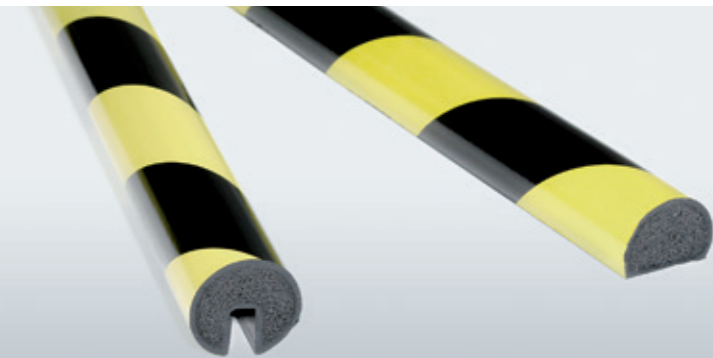
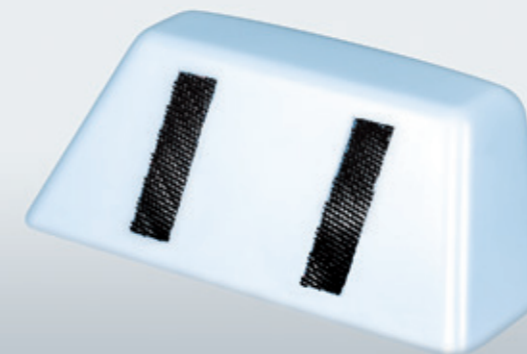
All processed polyurethanes can also be equipped with a flame retardant, anti-static, and many other special additives.

Approvals

Flame retardant, radiation protection, food

Applications

Automotive, construction, railway, aircraft, machinery, mobile hydraulics, medical, oil & gas, paper, pharmaceutical, engineering



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