

Materials and Semi-Finished Products



Trygonal

Materials and Semi-Finished Products

- 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.

We are a dynamic international organisation of independent seal manufacturers and plastics processors. In our group, we produce all types of gaskets and plastic parts such as O-rings, moulded rubber parts, metal rubber compounds, foam moulded parts, semi-finished products and machines for machining seals. We use the latest production techniques.

We produce semi-finished products of polyurethane and rubber materials. In cooperation with industry and universities we are continually developing and upgrading our materials and processes. All materials are tailored to your needs, tested under the harshest conditions 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 45 different material selections and we can offer for each of them over 600 different dimensions. In addition 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.

Elastomers

Elastomers are plastics that keep their shape but are flexible under pressure. These plastics can be elastically deformed under heat and tensile or compressive load, but after that they return back to their original shape. Elastomers are materials that can be easily deformed but they return to their original shape without any permanent effect. Principally the elastomers can be subdivided in two main groups:

- Chemically crosslinked elastomers (rubber materials)
- Thermoplastic elastomers (polyurethane materials)

Conventional elastomers don't melt. On the other hand, in certain temperatures and conditions, thermoplastic elastomers are malleable. It must be understood that at very cold temperatures elastomers become as hard as glass and lose these reversible properties.

Applications

Rod seals, piston seals, wipers, rotary seals, gaskets, o-rings, damping elements, springs, coupling elements, rollers, moulded parts, etc.

Thermoplastics

Thermoplastics are also called plastomers, and these are plastics which can be deformed in certain temperature ranges. This process is reversible and can be repeated by cooling and reheating; being careful to ensure the temperature does not affect the material's molecular properties which change when the material melts.

This is the major difference between thermoplastics and elastomers. Another unique feature is the ability of thermoplastics to be used in welding.

Applications

Sealing elements, back-up rings, guide rings, pressure and back-up rings and bushes, etc.



Special solutions

With our flexible production process, we are in a position to produce for our customers any desired inner and outer diameter raw material:

- Elastomers (rubber) up to 2000mm in diameter
- Thermoplastic elastomers (polyurethane) up to 2000mm in diameter
- Plastomers and PTFE Materials up to 2000mm in diameter

Other special sizes are available on request

Material development

All standard materials can be modified to your specific application so that the ideal material compound can always be found. Other materials, including colour selection and approvals, can be developed with our material technologists.

Manufacturing processes

For different materials different manufacturing processes are available:

- injection molding process
- vulcanisation process
- casting process

Availability

Most materials are available in rod, sheet or tubes. Due to our production philosophy we are able to produce from 1 piece to very large series of tubes, according to our customers wishes.

For more detailed information please contact our specialists.



Operating limits and capabilities

This illustration shows what materials are produced and are available to be produced by Trygonal.

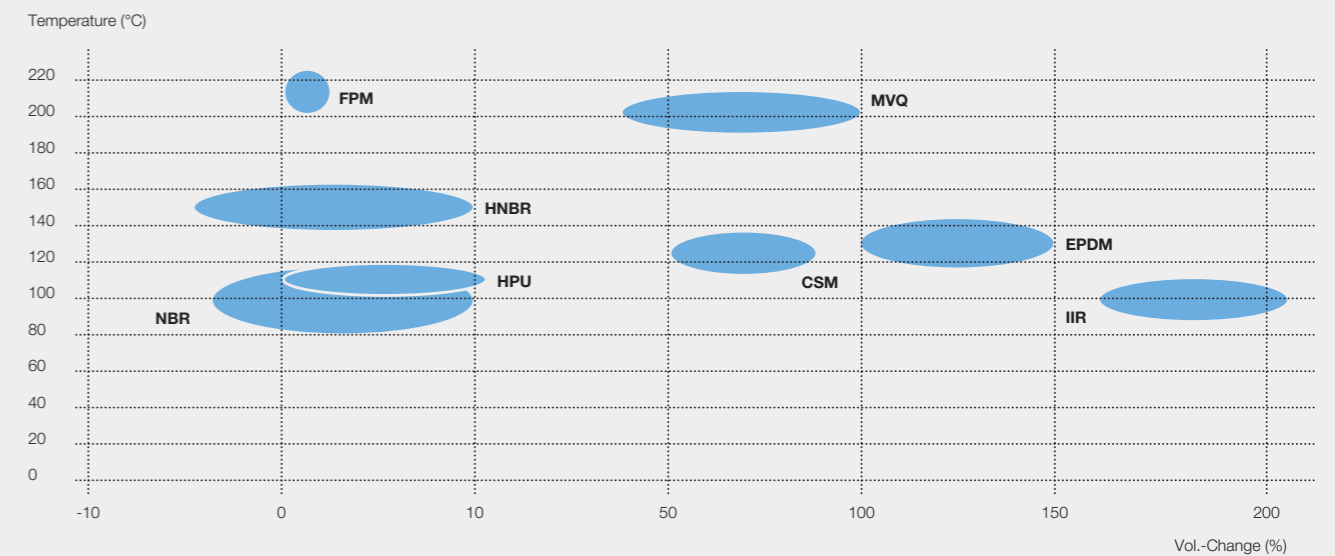
The diagram below shows the temperature limits as well as the volume change expected when the material is placed in mineral oil. This is shown as a percentage for each respective material.

Unlike other manufacturers Trygonal can also offer many other modified materials, each with properties to match your needs.

Because of this customer-centric approach Trygonal can offer our customers a tailor-made range of elastomers as well as thermoplastics.

On the following pages the main physical, chemical and ecological features of the materials used in sealing technology are demonstrated.

Temperature limits & Resistance to mineral oils



Elastomers

HPU hydrolysis-resistant polyurethane is wear-resistant and guarantees minimum abrasion, and is suitable for outdoor as well as various oil applications

NBR nitrile butadiene rubber is highly resistance to oils, greases and hydrocarbons

HNBR hydrogenated NBR, has a higher temperature and chemical resistance behaviour than NBR

EPDM ethylene-propylene-diene elastomers are not resistant to mineral oil, but weather and moisture resistant as well as ozone-resistant

FPM fluorine rubbers are characterised by their higher chemical and thermal resistance compared to other rubber materials

MVQ silicones have excellent resistance to oxygen, ozone and UV radiation and is FDA approved

CSM chlorosulphonated PE (CSM) is used as a starting material for ozone resistant synthetic rubber materials.

IIR butyl rubber (IIR) is used in cases where there is low gas permeability and where good resistance to ageing and heat resistance is required.

Materials and Semi-Finished Products

Seals

Customised and Large Sealing Solutions

O-rings and Static Sealing Profiles

Machines, Software and Tools

Rubber Parts and Membranes

Rubber-Metal and Rubber-Plastic Components

Vibration Technology and Gripper Rails

Plastic Turned and Milled Parts,
3D Printer Parts

Form and Foam Parts

Germany

Trygonal Group GmbH

Neue Heimat 22
D-74343 Sachsenheim-Ochsenbach

Phone: +49 (0) 7046-9610-0
Fax: +49 (0) 7046-9610-33
info@trygonal.com

Switzerland

Trygonal Schweiz AG

Joweid Zentrum 2
CH-8630 Rüti ZH

Phone: +41 (0) 55 212 45 00
rueti@trygonal.com

Austria

Trygonal GmbH

Industriering 5
A-9020 Klagenfurt

Phone: +43 (0) 463/310095
klagenfurt@trygonal.com

Spain

Trygonal Iberia SL

Polígono Borda Berri, nº 13 Módulo C4
E-20140 Andoain (Gipuzkoa)

Phone: +34 (0) 943 303 900
iberia@trygonal.com

Trygonal
Kunststoffinnovationen GmbH

Tragösser Straße 53
A-8600 Bruck an der Mur

Phone: +43 (0) 3862 27722-0
office@trygonal.com

France

Technical consulting & sales

Phone: +33 (0) 6 44 39 61 80
france@trygonal.com

Trygonal ATYP SERVICE

Beethoven Straße 1
A-2231 Strasshof

Phone: +43 (0) 2287/22235
atyp@atyp.com

Your Contact