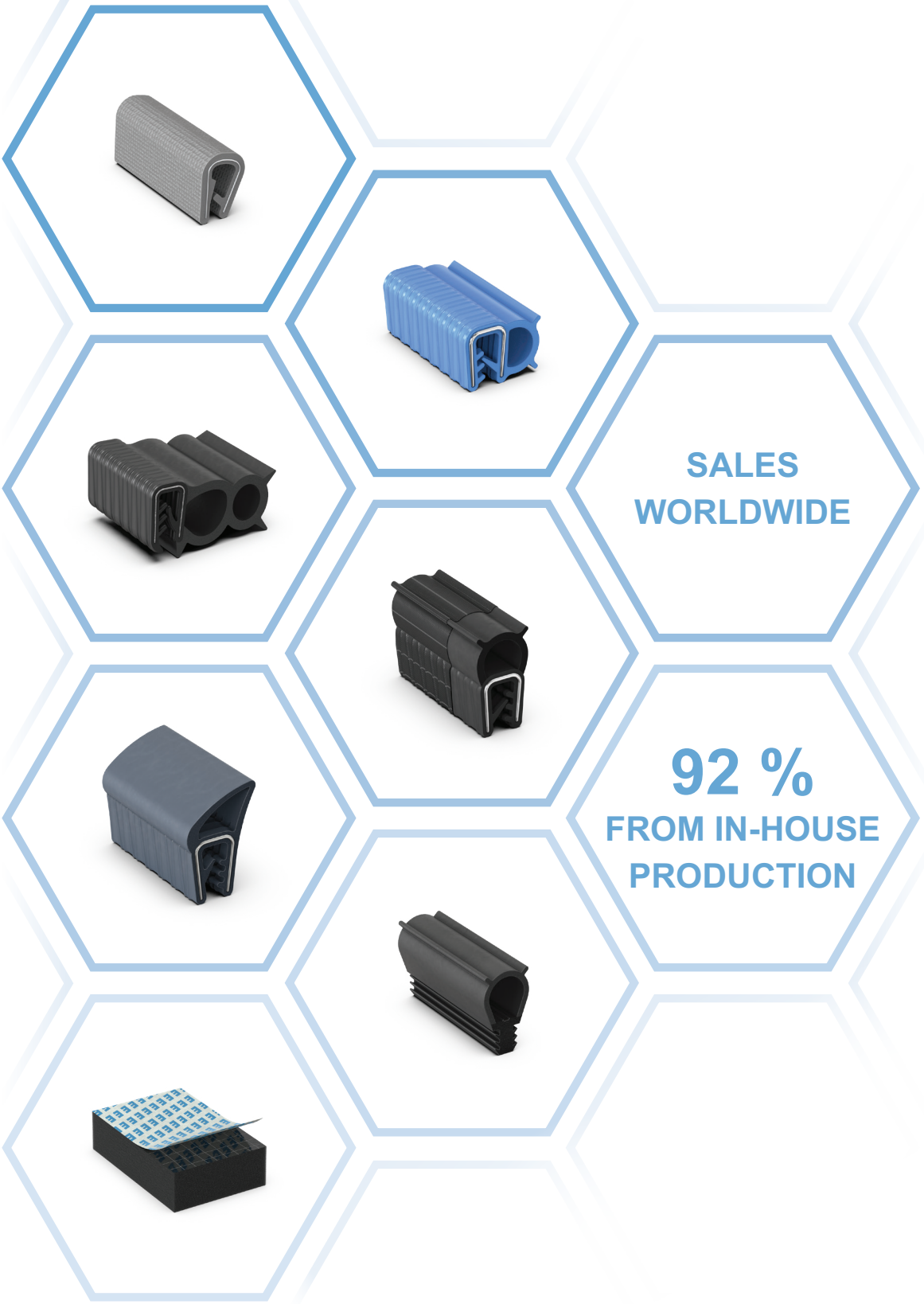
EMKA Beschlagteile

SPECIAL CATALOGUE

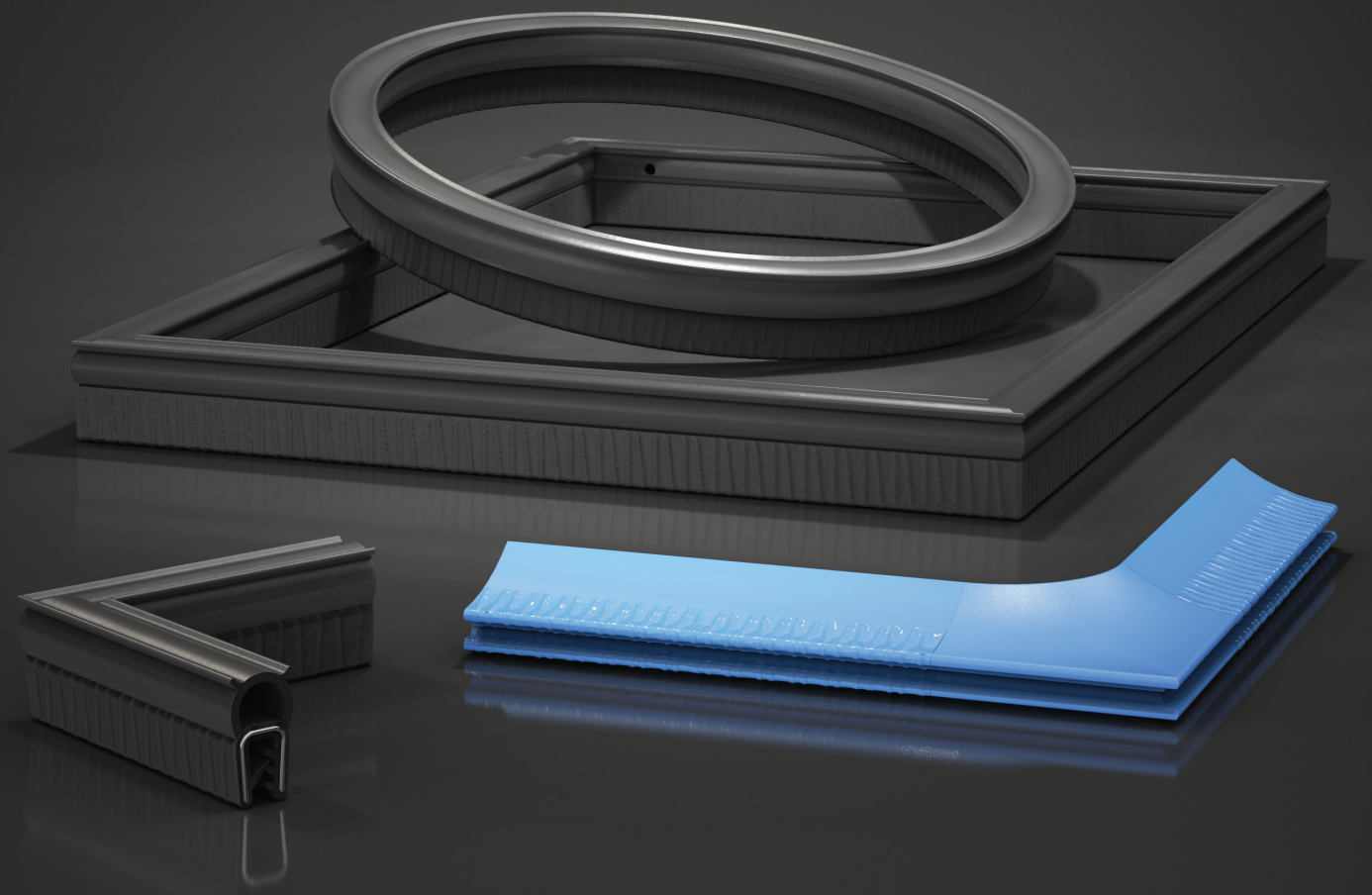


SALES WORLDWIDE

92 % FROM IN-HOUSE PRODUCTION

Sealing technology made to measure

Profiles and frames from in-house production



List of contents

About EMKA

The EMKA GROUP is the world market leader for locks, latches, hinges and seals used in switch and control cabinets. For more than 40 years, the company has been active across all sectors in the fields of industry (switch and control cabinets, HVACR systems, mechanical engineering) and transport (railway and commercial vehicles, caravans, etc.) with conventional and electronic locking solutions.

The total product range comprises 30,000 articles, which are developed, manufactured, finished and assembled at eleven production sites in Germany, France, England, Spain, Bosnia, Serbia, China, Indonesia and India. In one of the two plants in Bosnia, the company produces up to 900 moulds per year for injection moulding and die casting - both for internal use and for external customers.

With 2,100 employees EMKA serves over 36,000 customers in 60 countries. In 2022, the company achieved turnover of over 350 million euros.

EMKA is an expert in the casting of stainless steel, for zinc and aluminum die casting and in the injection moulding of high-performance plastics as well as in the extrusion of rubber and plastic profiles.
The unique production depth is also ensured by in-house punching, bending, turning, milling, surface coating or powder coating, and final assembly of the products of the modular product range.

For the realization of individual customer solutions, an experienced team of designers, developers and engineers is available at the EMKA Technology Center. The company sets standards in quality, production depth, delivery performance and innovation.

EMKA: Ingenious Locking Technology.

EMKA®
Beschlagteile

WirtschaftsWoche
WELT MARKT FÜHRER
Champion
2023
EMKA Beschlagteile
Verschlüsse, Scharniere und Dichtungen für Schalt- und Steuerungsschränke für Elektronik und Elektrotechnik
ADWI Akademie Deutscher Weltmarktführer
Henri B. Meier Unternehmerschule Universität St.Gallen

Worldwide first choice

Henriville, France

2,100 employees

Own production at 11 international locations

Represented in 60 countries worldwide

More than 30,000 catalogue and special products

More than 36,000 customers worldwide

Birmingham, UK

Arnedo, Spain

Goražde (Plant 1), Bosnia-Herzegovina

Goražde (Plant 2), Bosnia-Herzegovina

Company headquarters Velbert, Germany

Wuppertal, Germany

Tianjin, China

Bhilai, India

Mionica, Serbia

Bandung, Indonesia

- Company headquarters
- Production site
- Subsidiary
- Agency

Modular program

The product program by EMKA has a consistently modular structure.

No matter whether made of stainless steel, zinc, aluminium, plastic or rubber, the products meet national as well as international standards, e.g. resistance class RC2 and are available up toprotection class IP 69K.



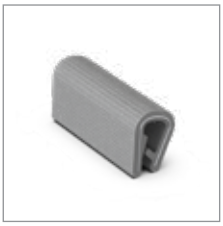
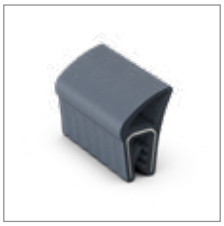
Locks and Latches



Locking Systems

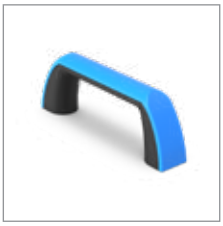


Hinges

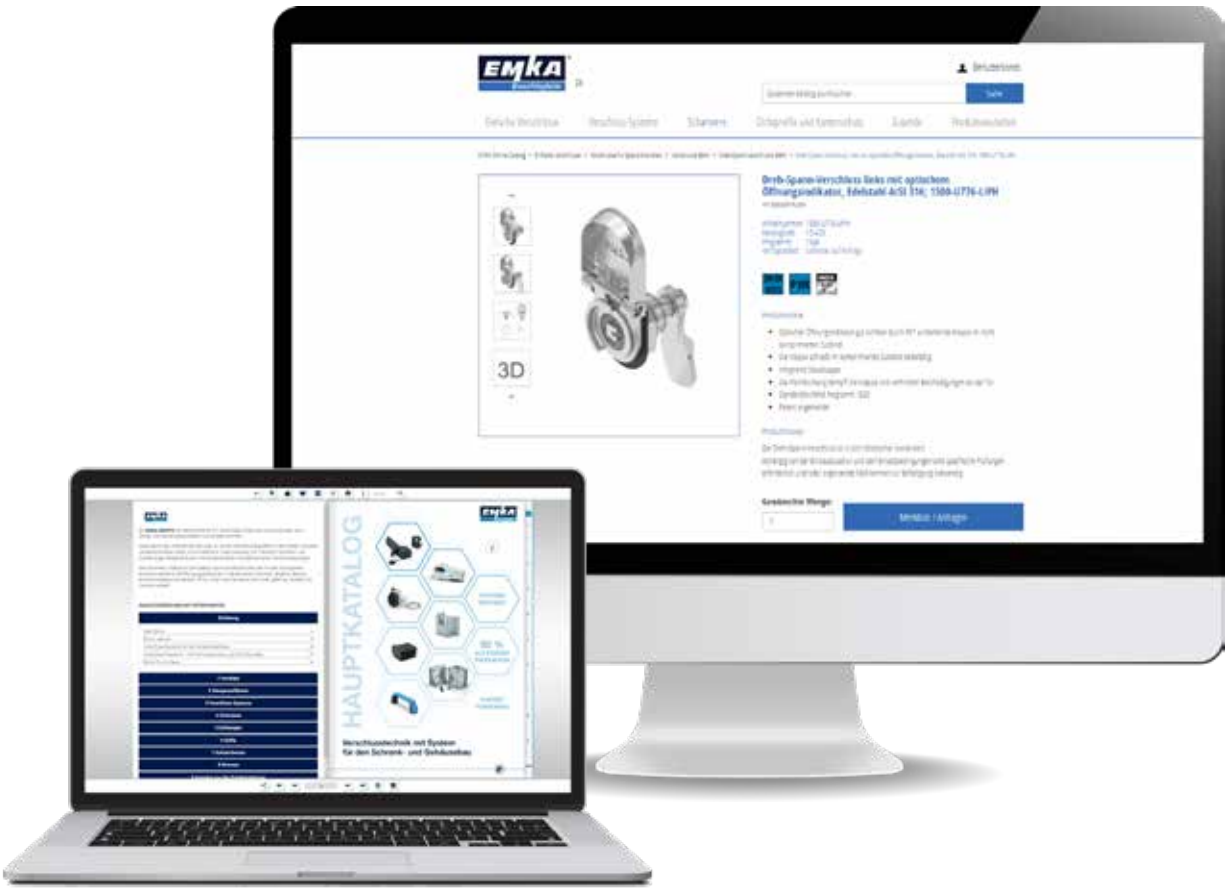




Sealing Profiles and Edge Protection





Accessories



Everything at a glance

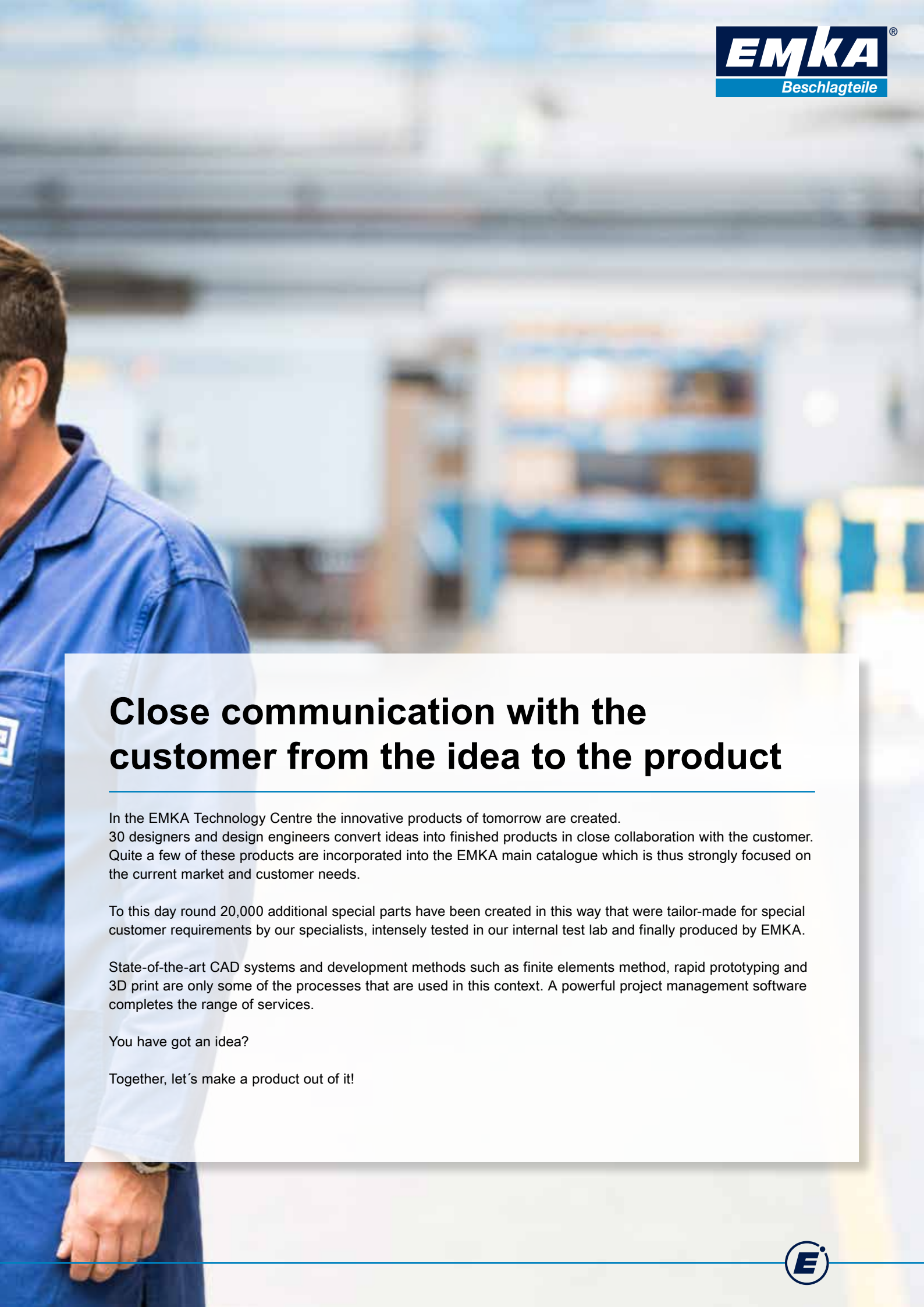
This special catalogue contains a selection of sealing profiles.

You can find many more sealing profiles as well as other EMKA products in the **interactive EMKA main catalogue** and in the **online product database**.

There you also have the possibility to download CAD data in the international exchange formats STEP and IGES as well as detailed product data sheets.

View interactive EMKA main catalogue

View online product database



Close communication with the customer from the idea to the product

In the EMKA Technology Centre the innovative products of tomorrow are created.
30 designers and design engineers convert ideas into finished products in close collaboration with the customer. Quite a few of these products are incorporated into the EMKA main catalogue which is thus strongly focused on the current market and customer needs.

To this day round 20,000 additional special parts have been created in this way that were tailor-made for special customer requirements by our specialists, intensely tested in our internal test lab and finally produced by EMKA.

State-of-the-art CAD systems and development methods such as finite elements method, rapid prototyping and 3D print are only some of the processes that are used in this context. A powerful project management software completes the range of services.

You have got an idea?

Together, let´s make a product out of it!

Sealing profiles by EMKA

Sealing technology is a core business of EMKA.

The company is an expert in extruding rubber and plastic profiles with its own production plants in Spain and England.

EMKA produces more than 1,500 gaskets and rubber profiles made of various materials as catalogue standard as well as countless individual customer solutions after detailed consultation with our sealing experts.

Loops and roll editing tape, stamped steel and reinforcements of textile fibres can be additionally incorporated. For subsequent processing we can also manufacture fixed lengths, rings and corner frames.
The application of adhesive tape, lubricant varnish or flocking, as well as special special coatings for electro-magnetic compatibility (EMC seals) round off the range of services.

EMKA know-how guarantees top quality.

Product range

Edge protection profiles



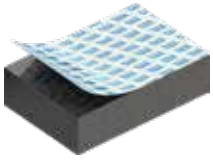
Self-clamping sealing profiles



U-section profiles



Profile with adhesive area


Clamping and holding profiles



Sealing profiles according to industry-specific standards



Production site

EMKA Sealing Systems

Arnedo (La Rioja), Spain

- Certified according to ISO 9001, ISO 14001, IATF 16949
- Production area 12,000 m²
- Processing of: EPDM, CR, NBR, thermoplastics
- 1 salt bath extrusion line
- 4 UHF extrusion lines, 2 PVC, 1 TPE
- 5 components extrudable
- Cutting and punching machines for precise lenghts
- Injection presses for mould corners
- Film vulcanization for corners and rings
- SK film laminator
- Construction, mould making and test laboratory

Production site

EMKA Profiles

Birmingham, England

- Certified according to ISO 9001
- Production area 4,500 m²
- Processing of: EPDM, CR, NBR
- 3 salt bath extrusion lines
- 2 components extrudable
- Cutting and punching machines for precise lenghts
- Injection presses for mould corners
- Film vulcanization for corners and rings
- SK film laminator

Impressions

Mould making

CNC programming

Extrusion die

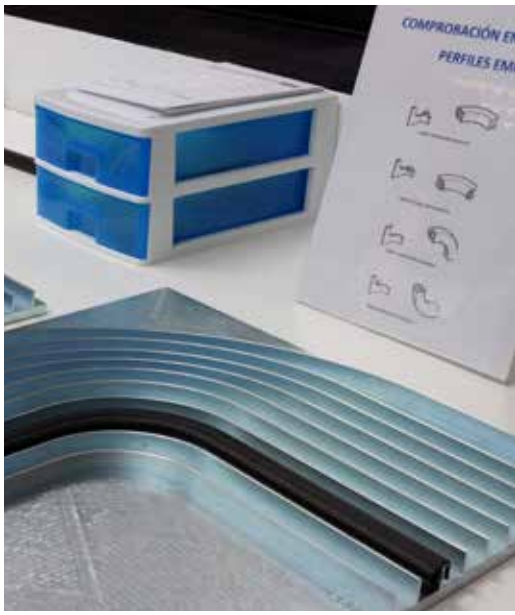
Extruder screw

Impressions

Test laboratory

Flammability test

Acid resistance test



Bending radii test

Impressions

Salt bath and UHF extrusion lines

Wire spiral strip coil
with intermediate storage

Bending roller set for profiling
the metal insert

Extruder

Impressions

Rubber extrusion line with UHF vulcanization

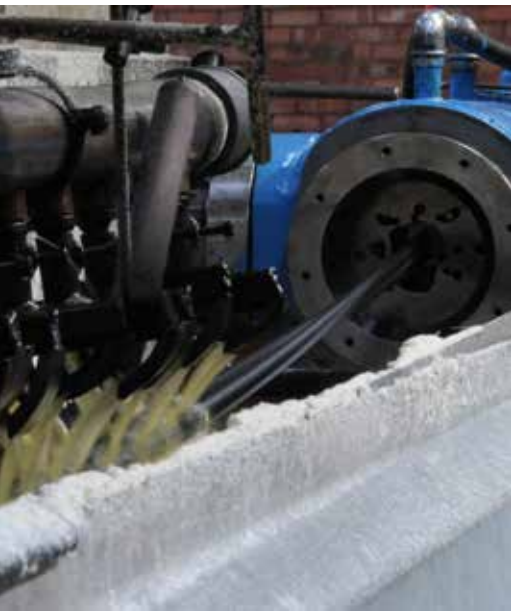
Extrusion die: Extruder with emerging elastomer profile

Permanent camera-based profile geometry monitoring (PIX-Argus)

Automatic rewinder at the end of the line

Impressions

Rubber extrusion line with salt bath vulcanization



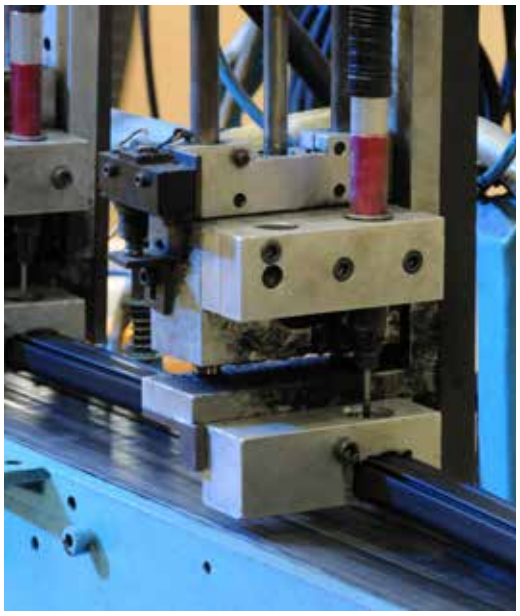
220° salt bath to accelerate the vulcanization process

Switch cabinets for line control

Reprofiling

Impressions

Cleaining and cooling line



Drilling device for vent holes

Laser marking of the elastomer profile according to customer requirements

Robot-controlled insertion of the profile into bulk packaging

Impressions

PVC extrusion line

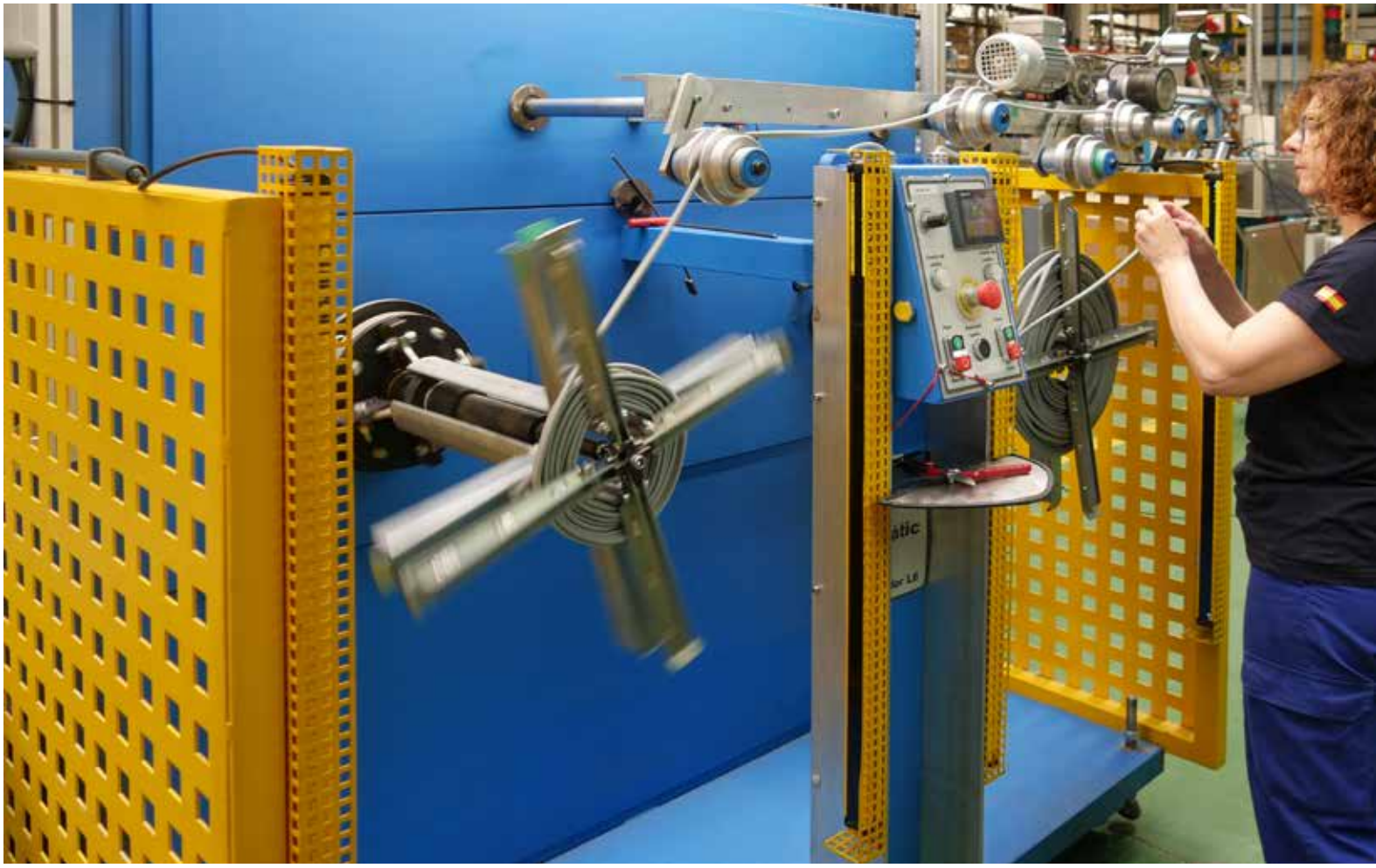
Steel clamping band with middle bridge

Extrusion die: Extrusion with emerging PVC profile

Cooling basin

Impressions

Automatic rewind at the end of the line



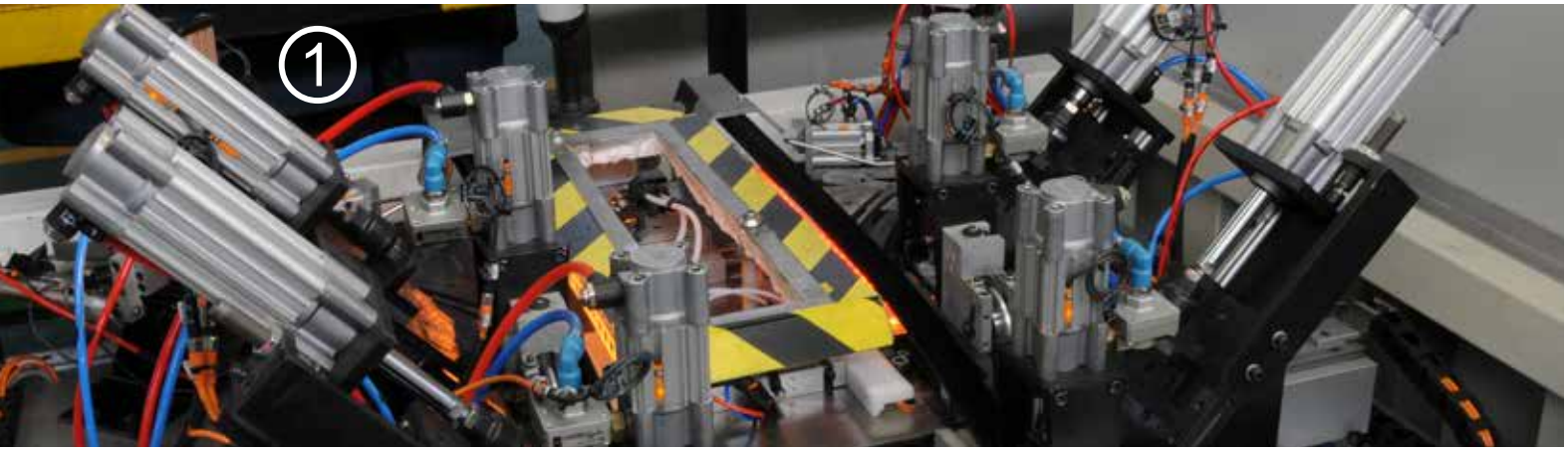
Bending roller set for profiling

Final shaping

Cut to length and packed according to customer requirements

Impressions

Finishing



① Stretch-bending machine

② Stretch-bent seal

Painting of a moulded-on corner

Compression moulding

Adhesive tape laminating machine

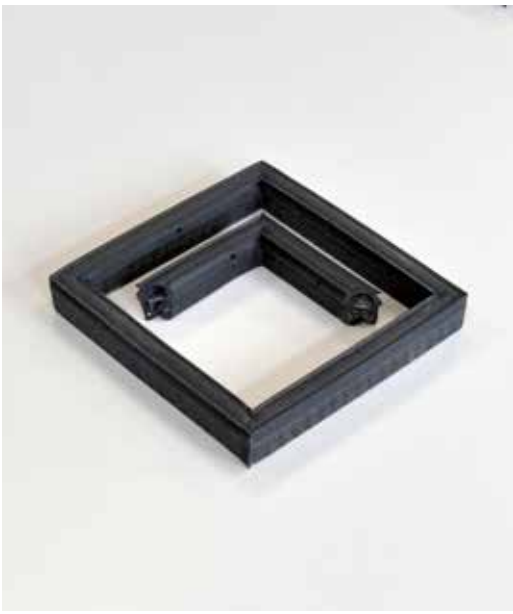
Impressions

Processing options

EPDM film vulcanization for rings and frames

Mitre cut

PE film welding for rings and frames



PE film welded angle and frame

Mounting types

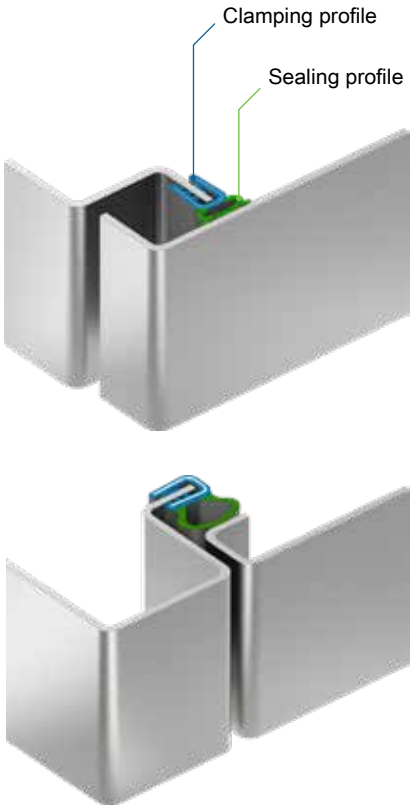
The mounting type is a decisive factor in choosing the right profile.
The profiles distributed by EMKA offer mounting types for every application.
The four standard mounting types are explained and illustrated below.

Self-clamping

Self-clamping profiles have an internal steel or wire clamping strip in the clamping area, which ensures that the seal is held securely on the sheet edge.

The clamping area and the sealing area usually consist of soft rubber in different Shore hardness as well as foam rubber with different density. Depending on the installation situation and requirements, a simple edge protection or a clip-on profile with sealing balloon or sealing lip can be attached to the edge.

In order to achieve a perfect sealing result, it is necessary to adhere to the bending radii specified in the catalogue.
Material buckling or stretching can cause leaks.

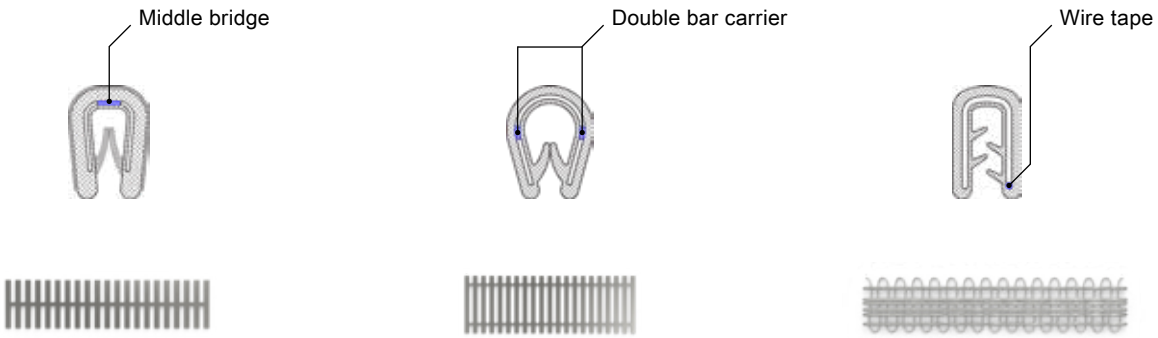


Stamped wire or wire spiral carrier?

Through the use of steel or wire clamping strips, profiles can adhere well even without adhesive bonding.
Steel strapping generally shows a higher clamping effect than wire strapping. However, with "unbroken" profiles, the restricted bending radii laterally over the legs can be disadvantageous.

This can be remedied by breaking the connecting webs; however, this can result in an "unsteady" appearance of the profile strand. In most technical applications the appearance is irrelevant.

The choice between wire or steel clamping band depends on the respective installation situation and the desired appearance.



Plugged

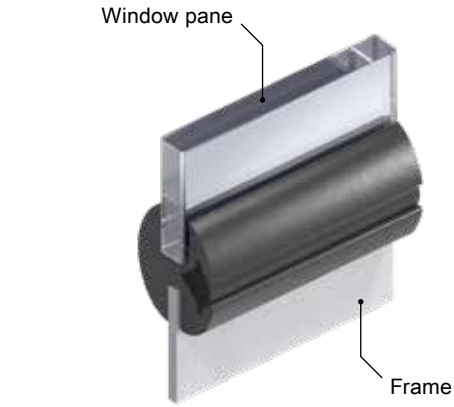
The plugged profile does not have a metal insert and is not glued.

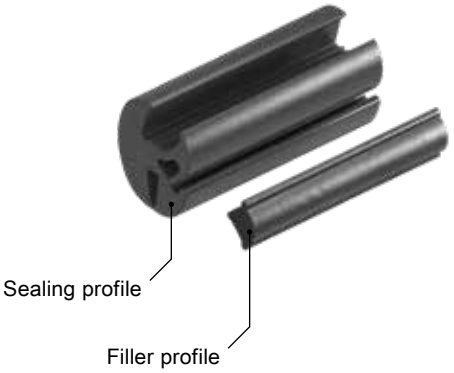
It is plugged into a gap or channel between two edges and safely seals the cavity in this way.

Clamped

Clamping profiles are ideal for screwless insertion of windows into metal or wood cut-outs. The use of a rubber clamping profile guarantees a firm, durable and rattle-free connection in many types of special vehicles, mobile construction site cabins and large machines.

In addition to the filler profile, you can also order the mounting aids from EMKA.



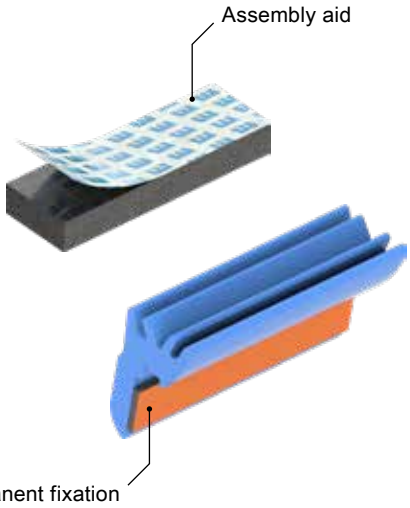


Glued

Bonding technology is particularly suitable for economical and quick fastening. The profile is glued to a flat area.

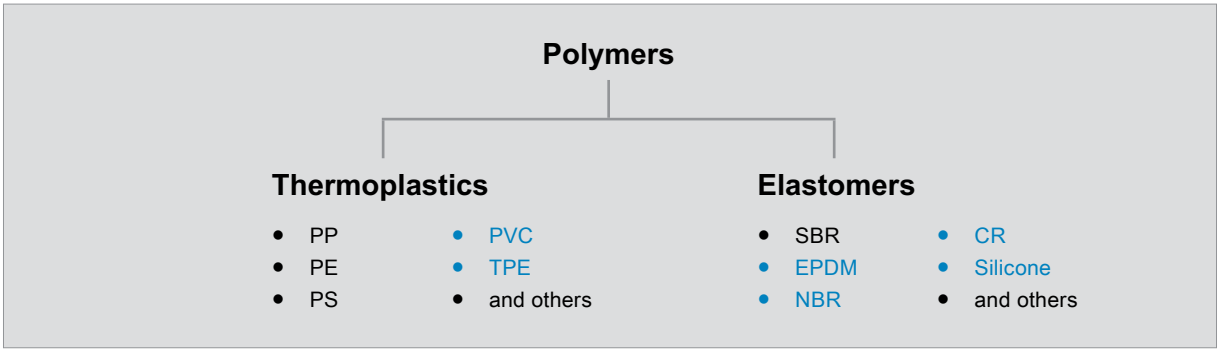
Due to an adhesive strip attached to the profile, the handling is very easy to install.

In the case of the adhesive cellular rubber profiles, integrated cotton threads guarantee a stretch-fee assembly and thus prevent stretching and subsequent shrinkage of the seal.



Materials

In addition to the base material, many characteristics influence the function and quality of the seal.
These include elasticity, residual compression and resistance to chemicals, heat and environmental influences.
EMKA mainly uses the materials EPDM, NBR and silicone. The materials PVC, TPE and CR are also used.



EPDM (ethylene propylene diene monomer rubber)

EPDM elastomers are the most commonly used materials in the "rubber" sector.
The automotive industry is the largest consumer of EPDM products, e.g. for sealing profiles in doors and trunks, windows and headlights, bumpers, hoses and sealing elements. Due to its good resistance to hot water, EPDM is also used in washing machines and dishwashers for seals and hoses etc. EPDM is not resistant to mineral oils and greases, but has good chemical compatibility. The operating temperature is between -40 °C and +100 °C, temporary up to +130 °C.

Characteristics of EPDM

- Very good resistance to aging
- UV resistance
- Very good resistance to weathering
- Good ozone resistance
- Very good electrical insulation properties
- Resistant to alcohols and diluted acids (e.g. brake fluids)
- Application range -40 °C to +100 °C
- Special EPDM compounds also -50 °C to +150 °C with hot water and air

NBR (butadiene acrylonitrile rubber)

Acrylic butadiene rubber (NBR) is characterised by a very high resistance to lubricating oils, while resistance to fuels can only be achieved by special additives. NBR is also not resistant to polar solvents such as acids and alkalis. NBR is therefore generally used when the material is in constant contact with oil and other mineral oil-based greases. The cold resistance of the elastomer can be influenced by certain additives, but the weathering and ozone resistance of NBR is comparatively low. EPDM profiles are therefore the much better choice for outdoor applications.

Characteristics of NBR

- Very good oil resistance
- Small compression set
- Good low temperature behaviour
- Typical application range -30 °C and +100 °C (with special compounds)
- Application in the food industry possible

Silicone

Silicone is difficult to attack chemically, is resistant to high temperatures and at the same time flexible at low temperatures, making it ideal for hygiene applications. In the event of a fire, only little, non-toxic smoke is produced, making it ideal for use in railway technology. Silicone can be coloured in almost any colour.

Characteristics of silicone

- Good elasticity even at very low and high temperatures
- Application range between 60 °C and +200 °C
- Conditional resistance to oils
- Resistance to weathering
- Resistance to aging
- Resistance to ozone
- UV resistance
- Very well suited for medical components
- Colour fastness

Material overview thermoplastics							
Short name	Typical operating temperatures	Resistances (extract)					Characteristics
		Mineral oil	Petrol	Sulphuric acid (conc.)	Water	Ozone	
PVC	approx. -10 °C to +70 °C temporary approx. -40 °C up to +90 °C	2	3	3	1	1	Good chemical resistance and mechanical values, soft PVC hardens in petrol and oil, good weldability and bonding properties.
TPE	approx. -30 °C to +80 °C	3	3	2	1	1	Good mechanical characteristics. TPEs are easy to process, are environmentally friendly and can be recycled. Strong plastic properties at high temperatures.

Material overview elastomers							
Short name	Typical operating temperatures	Resistances (extract)					Characteristics
		Mineral oil	Petrol	Sulphuric acid (conc.)	Water	Ozone	
EPDM	approx. -40 °C to +100 °C temporary up to +130 °C	3	3	1	1	1	Versatile material (seals). Good resistance in hot water, very good resistance to ageing, weathering and ozone.
NBR	approx. -30 °C to +100 °C temporary up to +120 °C	1	2	3	1	3	Versatile material. Seals and moulded parts in contact with mineral oil or fuel. Poor resistance to ozone and weathering.
CR	approx. -25 °C to +100 °C	3	2	3	2	3	Good mechanical properties, resistant to weathering and ozone. Does not burn in its own flame.
Silicone	approx. -60 °C to +200 °C	2	3	3	1	1	High thermal resistance, resistant to ageing, ozone and weathering. Good electrical insulation properties.

1 = Very good resistance, little or no attack (for thermoplastics: swelling < 3 % or weight loss <0.5 %)
2 = Good resistance, weak to moderate attack (for thermoplastics: swelling 3-8 % or weight loss 0.5-5 %)
3 = Not resistant, strong attack to complete destruction (for thermoplastics: swelling 3-8 % or weight loss >5 %)

Finishing

Insertion of vent holes

Vent holes are made at regular intervals in sealing profiles intended for ready-made rings or frames. Thus, when the seal is compressed, the air can escape from the seal balloon. With a closed hose, the compression force would increase.

Application of adhesive tape

The toolless mounting by gluing sealing profiles is used for more and more applications. The bonding of completely different materials as well as low-stress bonding due to large-area glued joints are major advantages here.
Double-sided adhesive tapes can be applied subsequently for the respective application.

Coating

The natural, high friction coefficients of an elastomer can be significantly reduced with a bonded coating. This operation can be performed online - in the running production line - or subsequently, e.g. after corner vulcanization.
The coating is transparent and therefore hardly visible.

Flocking

The flock fibers reduce the friction coefficients, which are very high in rubber.
In addition, small unevenness and tolerances can be compensated.
Typical applications are, for example, window seals in automotive engineering.
Depending on the application, the flocking may wear off. Profile flocking changes the optical and haptic characteristics.

Sheathing / EMC sealing

A conductive foil is wrapped around the rubber profile and firmly bonded to the surface. The conductive connection of frame and door reduces electromagnetic interference. The attainable shielding effectiveness depends on numerous influencing factors.

Processing options

Cutting to length

Upon customer request, profiles can be cut and packed online - i.e. in the running production line - or subsequently to lengths between 5 - 500 cm.

Cutting to length with further options

Bevel cuts, mitre cuts and notches are also possible.

Special profile ends

According to customer requirements, individual profile ends can be vulcanized to sealing profiles using the compression moulding process.

Frames or rings

In principle, dimensionally accurate frames and rings can be made from all sealing profiles. The use of frames or rings on the cabinet carcass enables simple, quick and seamless installation of the seal. The 90° mitre cut allows the gasket frame to be pressed on right into the corners without kinking or compressing the gasket.

Packing according to customer requirements

In small cartons with PVC edge protection profile and inserted installation instructions or in large cartons with 4,000 m sealing profile - everything is possible.

Processing options

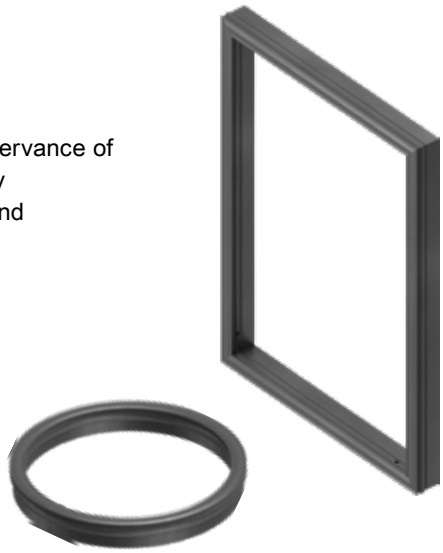
Information about frames and rings

Readily customised frames and rings according to customer specifications

We offer numerous assembly possibilities for the known profiles in fixed lengths.
For frames and rings the butt and corner joints can be glued, film vulcanized or realised by injection moulding (formed corners / end feeds).For frames and rings the butt and corner joints can be glued, film vulcanized or realised by injection moulding (formed corners / end feeds).
Possibly arising tool costs needs to be clarified beforehand due to the required assembly option. Vent holes should be made in rings or frames, otherwise the compression force may increase during sealing.

Product benefits

- The extact and time-intensive mitre-cutting of the gasket or the observance of the given minimum bending radius of the gaskets are not necessary
- The assembled frames and rings facilitate the mounting on doors and cabinets frames
- No leakiness at butt ends and mitre joints



Glueing

Gluing is the simplest method of joining two profile ends together. A special adhesive is applied to the profile ends and glued together by pressing the ends together.

For all rings, vent holes are strongly recommended as the compression force increases in a closed ring.

A better and more durable process is film vulcanization.

Film vulcanizing

Film vulcanization is a durable and long-lasting process.

A foil of the same material is inserted between the profile ends that are to be vulcanized. By applying heat, the components are heated and, with the aid of a device, pressed together, causing them to bond.

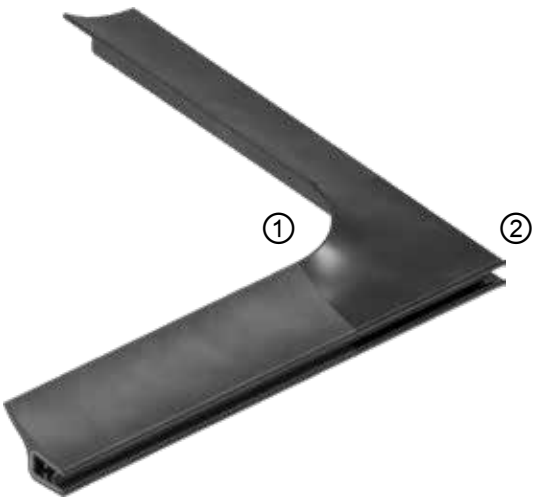
The time required for film vulcanization is higher than for bonding.

Injection moulding

Injection molding stands for mould corners and end feeds.

Injection moulding is a process for creating special corners for a frame, for example.

In the example shown, a lip profile is formed round in the corners ① while the clamping area ② of the profile is formed in a right angle. This is not possible when vulcanizing profile ends with mitre joint.



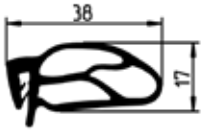
Extrusion components

Extrusion of up to 5 components

Glass run seal

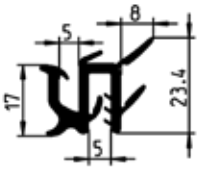
- EPDM 70 ± 5 Shore A
- Inserted steel sping core
- Flocking foil

Engine compartment seal



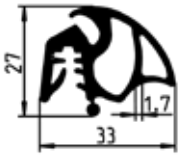
- EPDM 95 ± 5 Shore A
- TPE 60 ± 5 Shore A

Belt guide



- Polypropylene
- TPE 67 ± 5 Shore A
- Flocking foil

Door seal

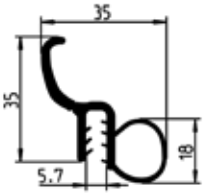


- EPDM 60 ± 5 Shore A
- Foam rubber
- Inserted steel sping core
- Sliding polymer
- Fiberglass strand

Door seal

- Foam rubber

Door seal



- EPDM 60 ± 5 Shore A
- Foam rubber
- Inserted steel sping core
- Sliding polymer

Explanations

- Soft rubber
- Polypropylene
- TPE
- Foam rubber
- Inserted steel sping core
- Sliding polymer
- Flocking foil
- Fiberglass strand

Material characteristics

Sealing profile and clamping profile made of 100 % EPDM

EMKA successively changes the material for the self-clamping sealing profiles of the 1011 program to EPDM (ethylene propylene diene elastomer). Until now, the gaskets were made of a mixture of EPDM and polyvinyl chloride (PVC).

With the changeover, the EMKA gaskets once again gain significantly in quality. The EPDM material has a wider thermal application range with high resistance to weathering, UV radiation and acids, which makes them particularly durable. The higher quality gaskets, which EMKA produces in its own factories in Spain and Great Britain, are manufactured without extra charge. The conversion of the profiles will take place successively.

EMKA offers a wide range of seals for housing and control cabinets as well as for railway, HVACR and hygiene applications. The material is very well suited for sealing control cabinets, as it has a high compressive elasticity and good resilience. After stretching or compression, the elastomer returns approximately to its original state. Foam rubber profiles are soft, offer a good contact surface to the case under light pressure and thus provide an ideal seal. Many tolerances on the control cabinet door can thus be bridged. EMKA sealing profiles are particularly high-quality and safe, as numerous certificates according to DIN, VDI, UL or fire protection standards prove.

Advantages of the elastomer EPDM

The material is highly resistant to ozone, aging and weathering and is also highly resistant to hot water and steam.

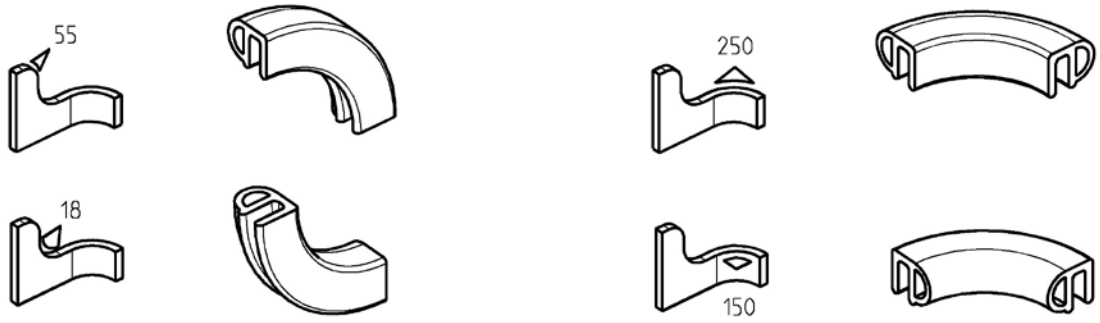
EPDM is not resistant to mineral oils and fats, but has a high chemical compatibility.

Advantages of the seal made of 100 % EPDM

- Equivalent insertion and holding force
- Large deformation on hose seal
- Lower compression force
- Better temperature range from -40 °C to +100 °C, temporary up to +130 °C
- Better UV and media resistance
- Customized vulcanization of rings and frames
- Possibility to produce the profiles according to standards UL, EN 45545-2 or VDI 6022 (new tools may be necessary)

Minimum bending radii

In the technical data sheets, the smallest possible bending radii of the respective profiles are specified in order to avoid material compression and thus leakage.



Standards and certifications

EMKA sealing profiles are particularly high quality and safe, as shown by numerous certificates according to DIN, VDI, UL or fire protection standards. These play an important role in the use of the seals in order to define their quality or suitability for different applications - also country-specific.

The high quality and product standards are ensured by the excellent manufacturing competence and the ISO 9001:2008 certified process control. In principle, the production sites are also certified in accordance with the ISO 14001:2009 and IATF 16949:2016 standards.

EMKA profiles comply with the following standards, among others:

Standard	Explanation
VDI 6022	Hygiene requirements for ventilation and air conditioning systems
PMMA compatible according to Röhm	Stress crack resistance ("Röhm test method" by bending test)
DIN 7863	Technical delivery conditions of the visible profiles for window and facade construction
UL 50 and UL 50E	Regulation in USA and Canada for components and the construction of certified switchgear and control cabinets
UL 94-HB	Regulation in USA and Canada: Standard test for investigating the burning properties and fire safety of plastics
EN 45545-2	Standard for fire protection in railway vehicles - Part 2: Requirements for the fire behavior of materials and components
ASTM C 1166-06 (2011)	Flame propagation testing for compact and porous elastomeric seals and sealing accessories
Bombardier SMP 800-C Rev. 6:2009.08.31	Generation of toxic gases through material combustion
ASTM E 1354:2016a	Standard test method for heat and visible smoke emission for materials and products using an oxygen consumption calorimeter
ASTM E 662:2015	Standard test method for the specific optical density of smoke generated by solid materials
BSS 7239:1988	Test method for the determination of toxic gases during the combustion of materials
BSS 7242:1989	Determination of the concentration of cyanide, chloride and fluoride ions in solutions from combustion processes
FDA CFR 21 177.2600 (FDA = Food and Drug Administration)	Code of Federal Regulations CFR 21 Compliant mixtures to FDA CFR 21 177.2600

Tolerances of the sealings and further information

Tolerances of the profiles

Profiles are tolerated in accordance with DIN ISO 3302-1. Soft rubber usually according to 'E2' and sponge rubber according to 'E3'.

You will find examples on the right.

Info

The appropriate storage is important (optimal storage temperature +5 °C to +20 °C).
For the storage of seals, **ISO 2230** (guidelines for storage, maintenance and cleaning of rubber products) must be observed. If possible, wrong storage in respect to long lay days or storing times should be avoided, since the mechanical characteristics may change.

Examples

Nominal dimension		Tolerance class DIN ISO 3302-1 E2	Tolerance class DIN ISO 3302-1 E3
over	up to		
0	1.5	±0.25	±0.40
1.5	2.5	±0.35	±0.50
2.5	4.0	±0.40	±0.70
4.0	6.3	±0.50	±0.80
6.3	10	±0.70	±1.00
10	16	±0.80	±1.30
16	25	±1.00	±1.60
25	40	±1.30	±2.00
40	63	±1.60	±2.50

Recommended compression for sealing profiles:

The compression of our sealing profiles should be 50% max., since otherwise the function (tightness) and the restoring forces are affected. In practice, the profiles are compressed between 30-50%. It does not matter, whether it is a EPDM, NBR or a silicone profile. The mechanical properties are quite comparable (unlike the chemical resistances). If the seal is deformed beyond these limitations, there is the risk of the compression set (DVR) becoming too big, because the material deforms plastically as well. The seal would be designed too small then.

Resistances

Because of the large variety of possible chemicals, solvent (concentrations), operating temperatures and times, no evaluations concerning the possible resistances can be made at this point.
In every individual case, a test under the present circumstances, like concentration, temperature and duration of the impact, is recommended.

Fire protection

We supply materials certified according to the current fire protection standards for railway vehicles.
e.g. according to DIN EN 45545-2, ASTM E1354, ASTM E662, ASTM C1166, BSS 7239, SMP 800C.
Whether the achieved categories fit to the respective requirements or vehicle classes has to be verified for the individual case.

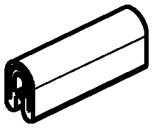
Exclusion of liability

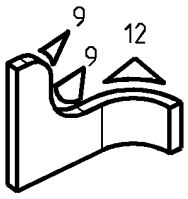
Disclosed values are generally guide values determined on test panels and correlate with our respective state of knowledge. However, they do not release the end user of individual and thorough tests.

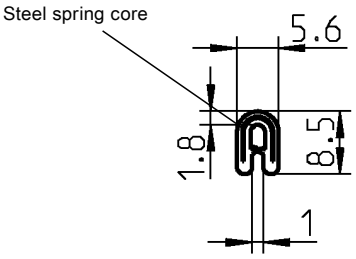
List of contents

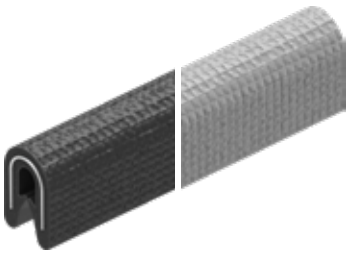
Edge protection

PROGRAM 1010









Edge protection PVC 70 ± 5 Shore A, colour of choice	
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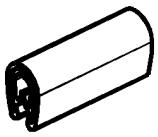
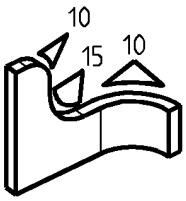
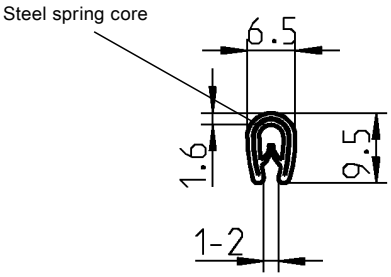
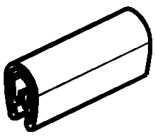
light grey	1010-03-01

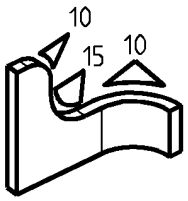


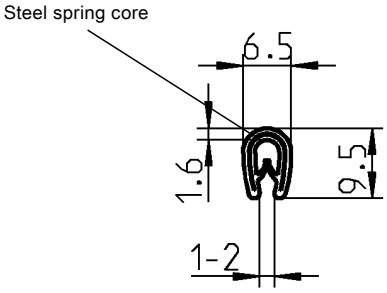


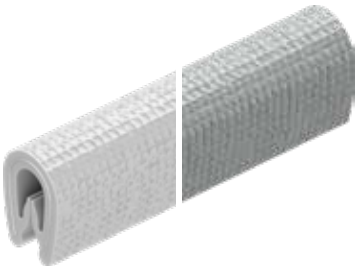


Edge protection PVC 70 ± 5 Shore A, black	
	1010-02

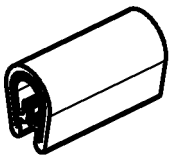


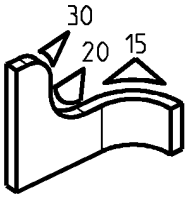


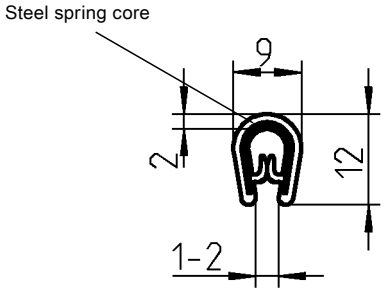




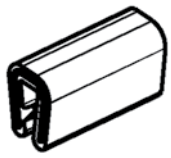
Edge protection PVC 70 ± 5 Shore A, colour of choice	
white	1010-04-01
silver	1010-04-02

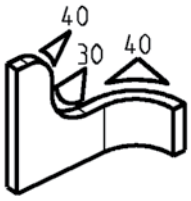


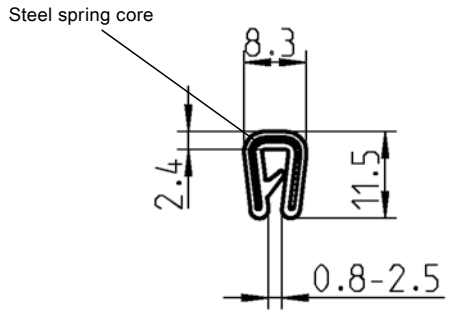




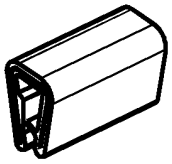
Edge protection PVC 70 ± 5 Shore A, black	
	1010-10

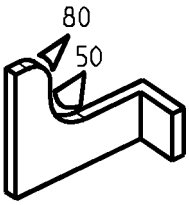


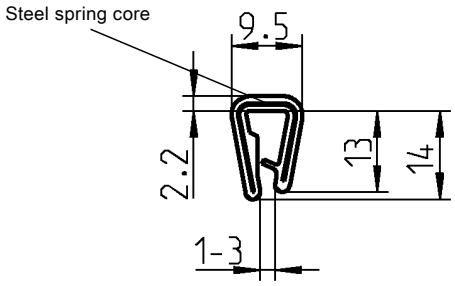


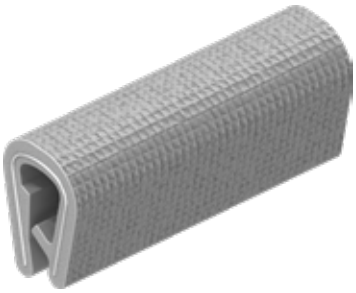


Edge protection EPDM 60 ± 5 Shore A, black	
	1010-12

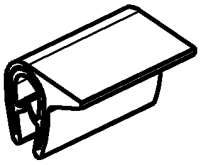


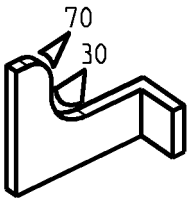


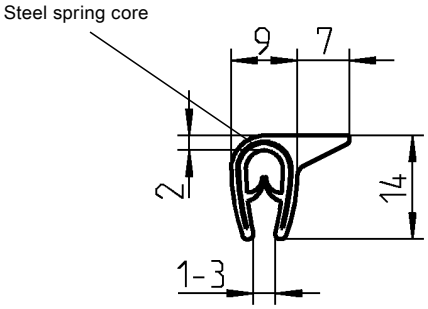




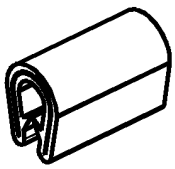
Edge protection PVC 70 ± 5 Shore A, light-grey	
Steel spring core, continuous	1010-05

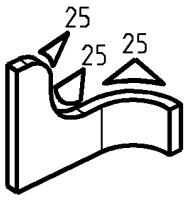


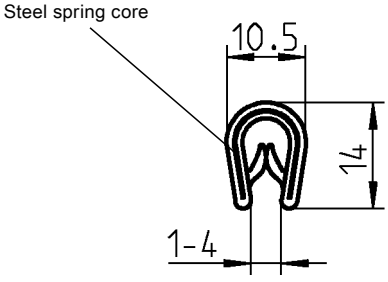




Edge protection PVC 70 ± 5 Shore A, anthracite	
Steel spring core, continuous	1010-09

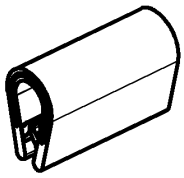


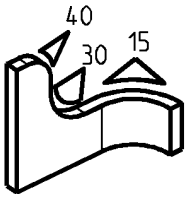


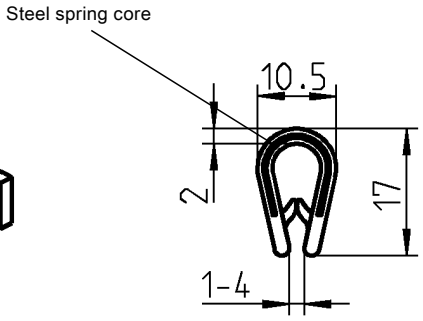


Edge protection PVC 70 ± 5 Shore A, black	
	1010-01

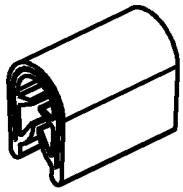
Notes:

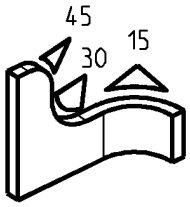


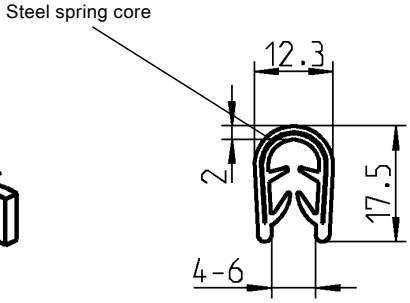




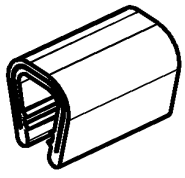
Edge protection PVC 70 ± 5 Shore A, black	
	1010-08

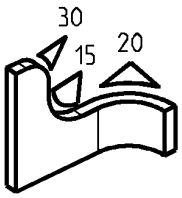


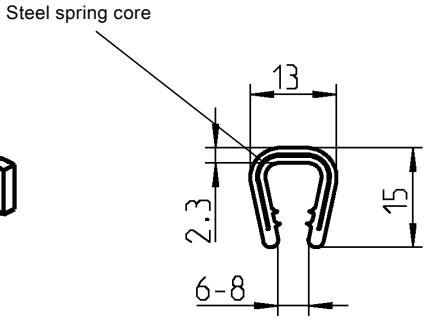


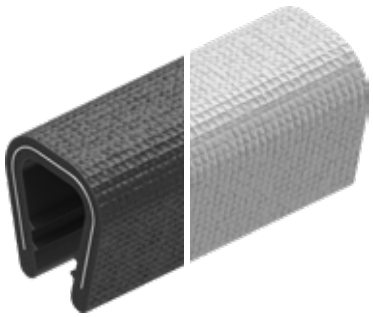


Edge protection PVC 70 ± 5 Shore A, colour of choice	
black	1010-11
dark grey	1010-11-01





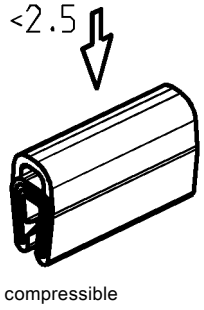


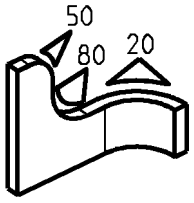


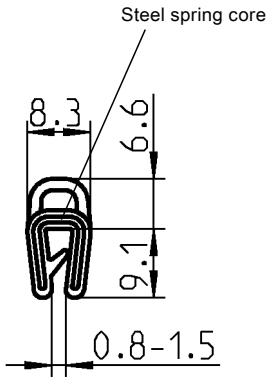
Edge protection PVC 70 ± 5 Shore A, colour of choice	
black	1010-06
light grey	1010-06-01

Seals, self-clamping

PROGRAM 1011

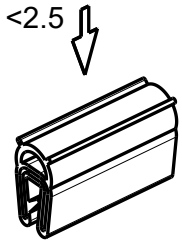


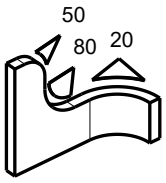


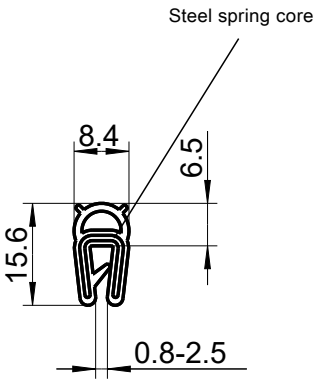


Sealing profile foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black	
	1011-24-01

c UL us *

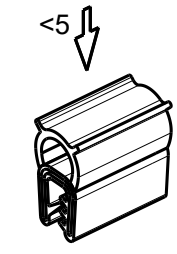


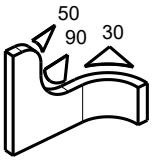




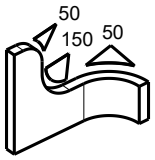
Sealing profile foam rubber, clamping profile material of choice	
Foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black	1011-10*
Foam rubber NBR, clamping profile NBR 60 ± 5 Shore A, black	1011-50

c UL us *

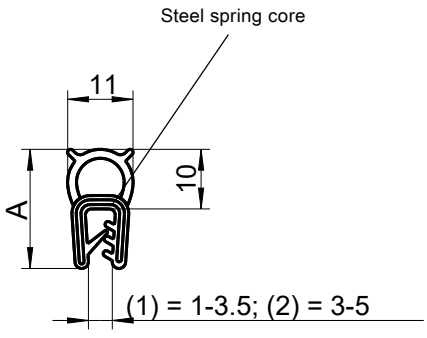




1011-05, -15

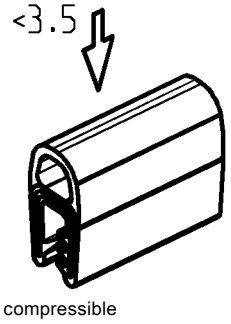


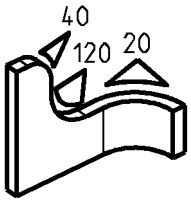
1011-47, -49

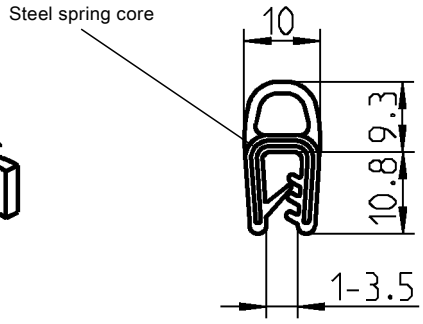


Sealing profile foam rubber, clamping profile material of choice	A	
Foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black	20	1011-05* (1)
Foam rubber NBR, clamping profile NBR 60 ± 5 Shore A, black	21	1011-15 (1)
Foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black	21	1011-49 (2)
Foam rubber NBR, clamping profile NBR 60 ± 5 Shore A, black	21	1011-47 (2)

* c UL us
UL 50
UL 94-HB

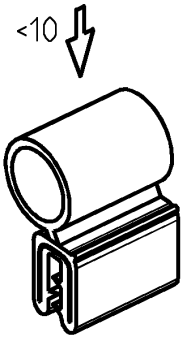


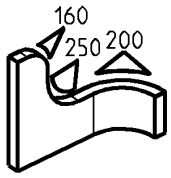


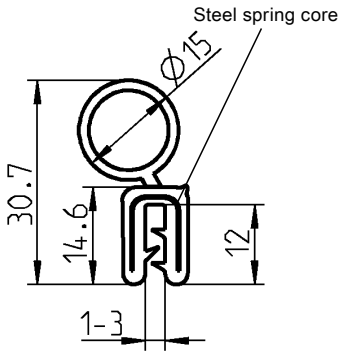


Sealing profile foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black

1011-18-01

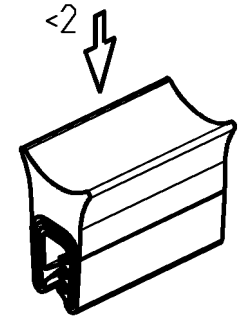


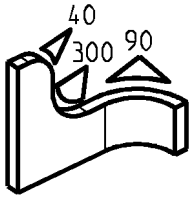


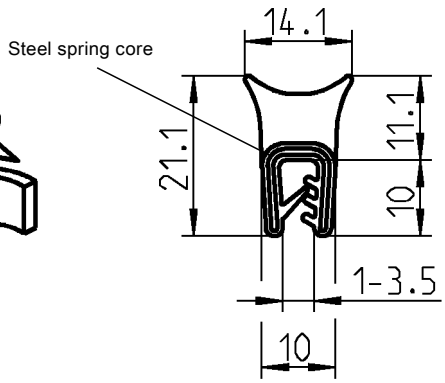


Sealing profile foam rubber EPDM, clamping profile EPDM 60 ± 5 Shore A, black

1011-34



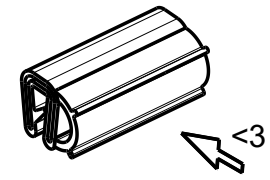


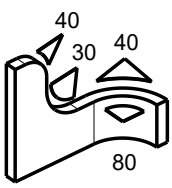


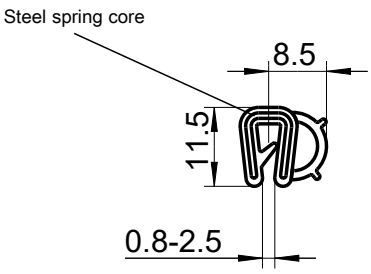
Sealing profile foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black

1011-21-01

c UL us *







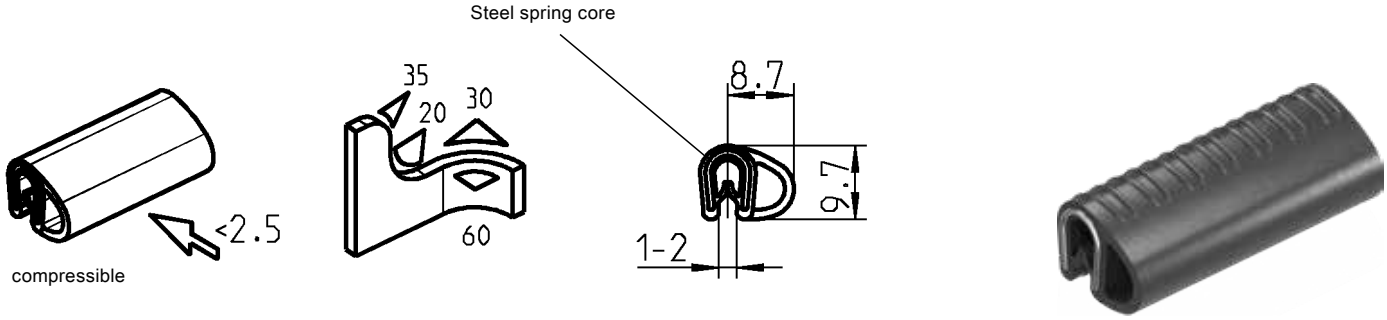
* c UL us
UL 50
UL 94-HB

Sealing profile foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black

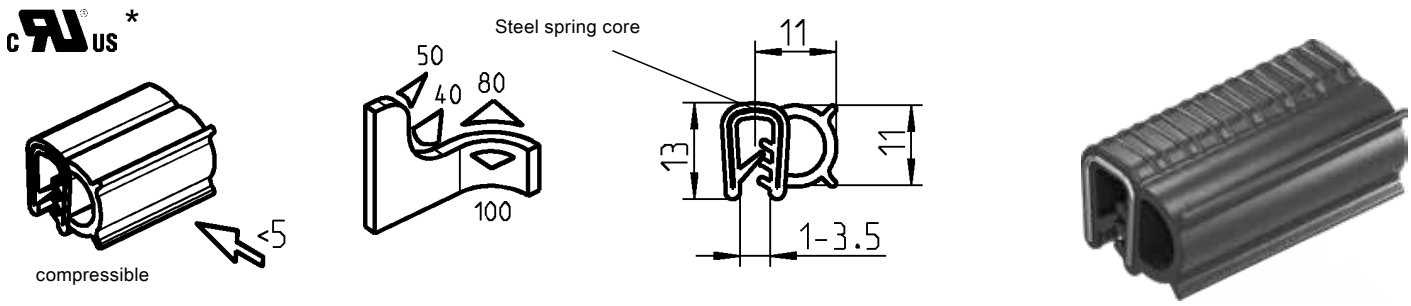
1011-09*

Seals, self-clamping

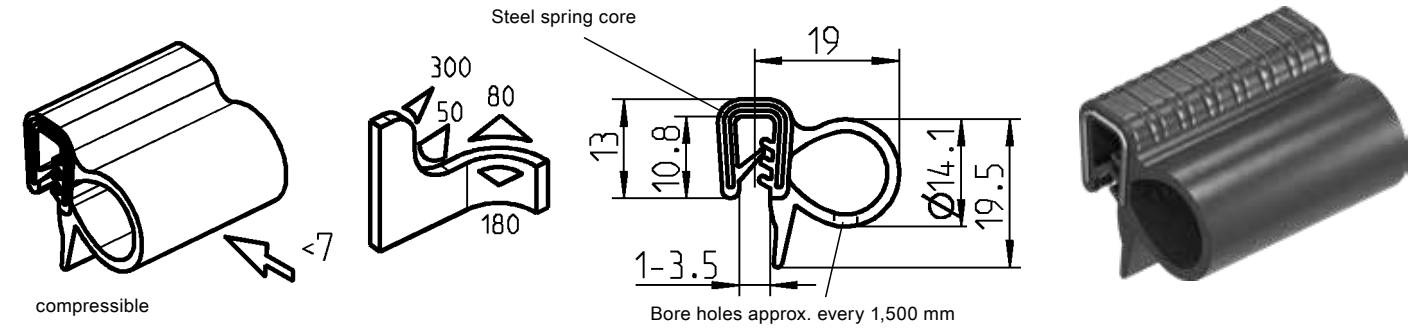
PROGRAM 1011



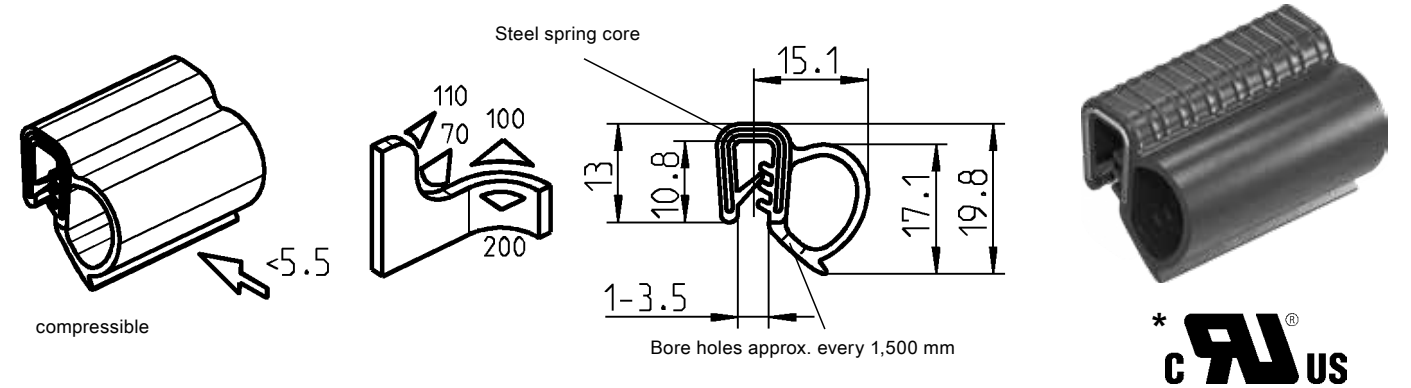
Sealing profile foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black	
	1011-20-01



Sealing profile foam rubber, clamping profile material of choice	
Foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black	1011-06*
Foam rubber NBR, clamping profile NBR 60 ± 5 Shore A, black	1011-16

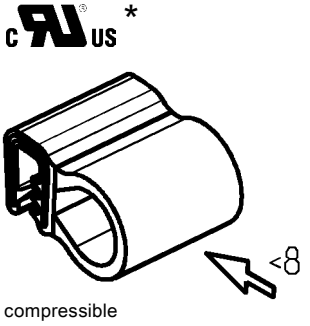


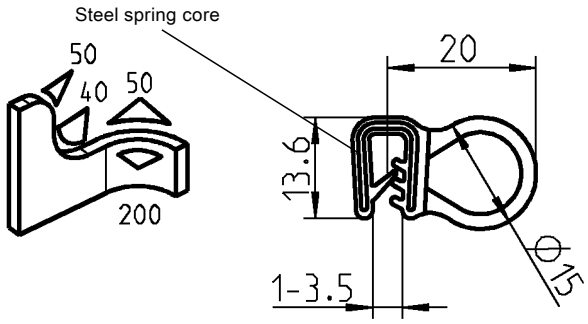
Sealing profile foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black	
	1011-25-01



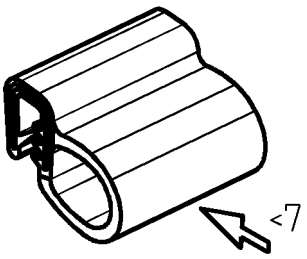
Sealing profile foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black	
	1011-23-01

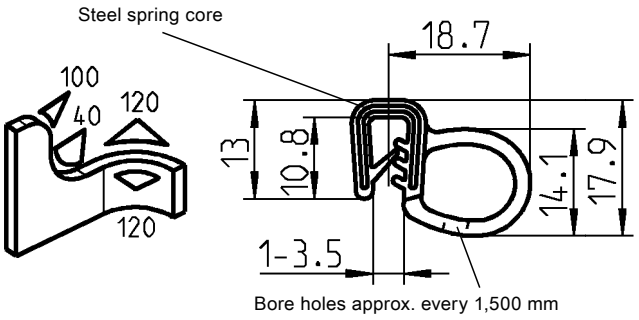
* c US
UL 50
UL 94-HB



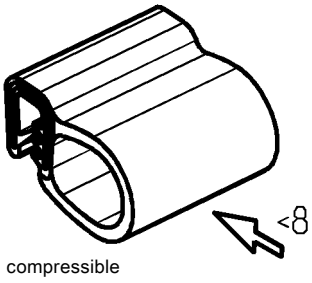


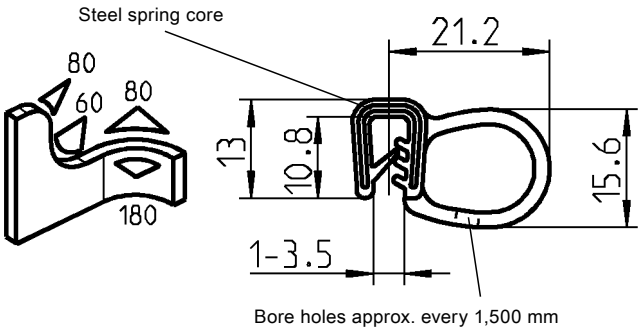
Sealing profile foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black	
	1011-12*



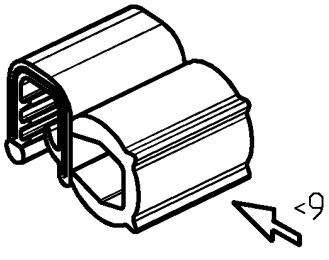


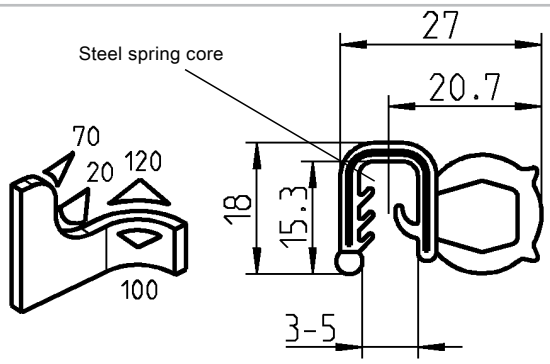
Sealing profile foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black	
	1011-19-01





Sealing profile foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black	
	1011-22-01



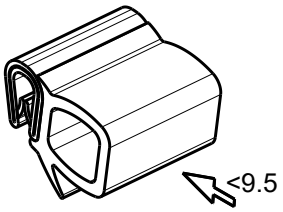


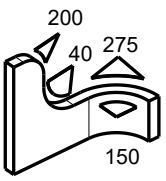
* c US
UL 50
UL 94-HB

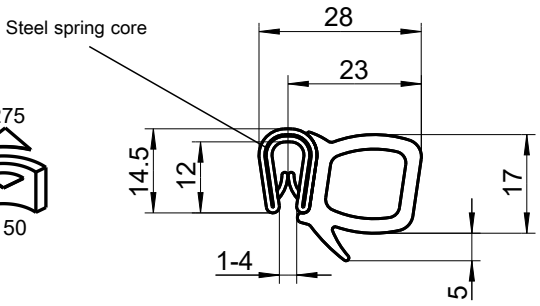
Sealing profile foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black	
Bore holes approx. every 300 mm	1011-45

Seals, self-clamping

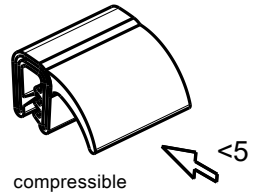
PROGRAM 1011

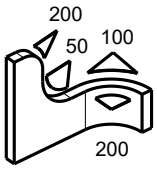


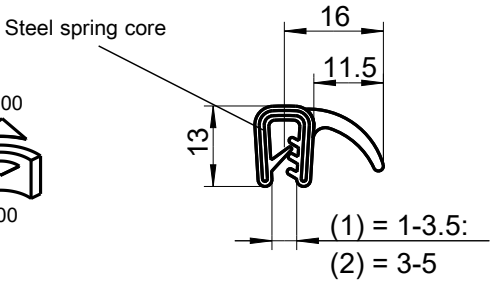




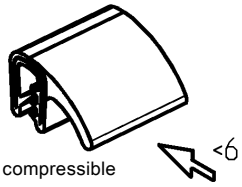
Sealing profile foam rubber EPDM, clamping profile PVC 70 ± 5 Shore A, black	
	1011-26

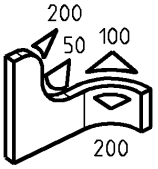


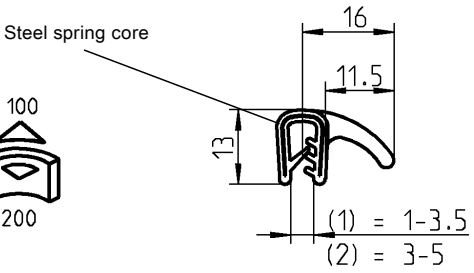




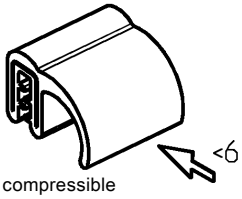
Sealing profile foam rubber EPDM, clamping profile EPDM 60 ± 5 Shore A, black	
	1011-08*

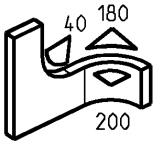


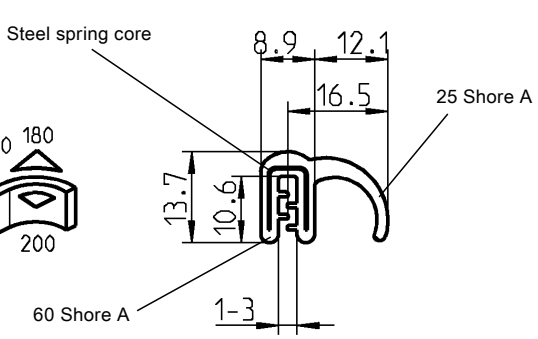




Sealing profile foam rubber NBR, clamping profile NBR 60 ± 5 Shore A, black	
(1)	1011-46
(2)	1011-48



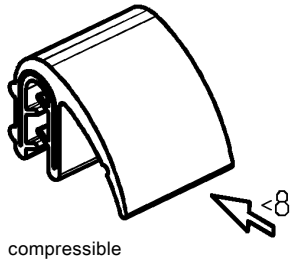


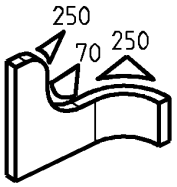


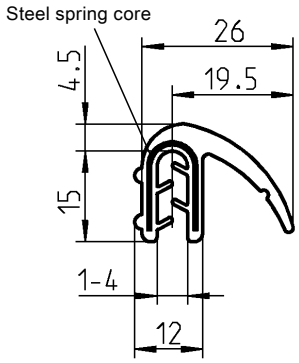
* c UL us

UL 50
UL 94-HB

Sealing profile foam rubber EPDM 25 Shore A, clamping profile EPDM 60 ± 5 Shore A, black	
	1011-41

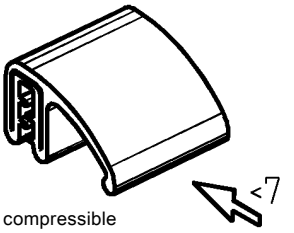


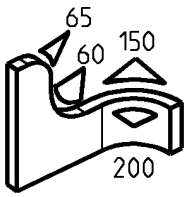


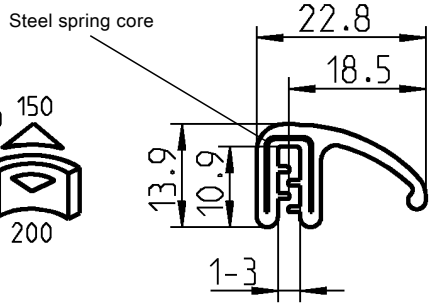


Sealing profile foam rubber EPDM, clamping profile EPDM 60 ± 5 Shore A, black

	1011-40

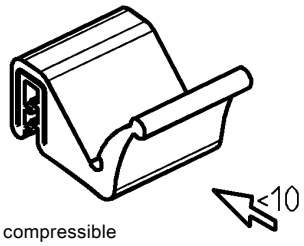


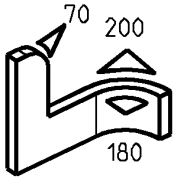


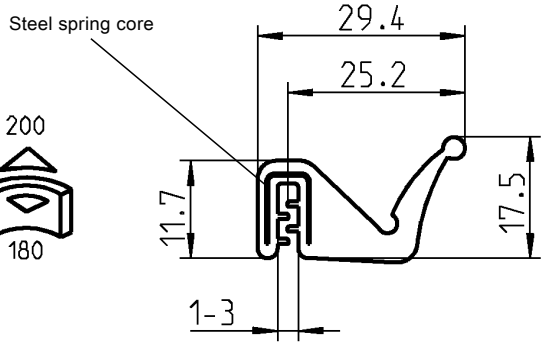


Sealing profile foam rubber EPDM, clamping profile EPDM 60 ± 5 Shore A, black

	1011-33

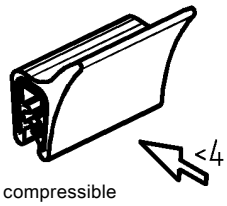


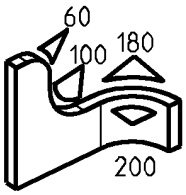


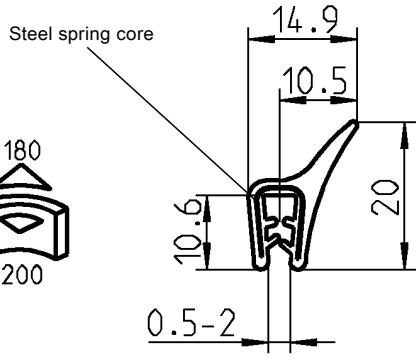


Sealing profile foam rubber EPDM, clamping profile EPDM 60 ± 5 Shore A, black

	1011-35





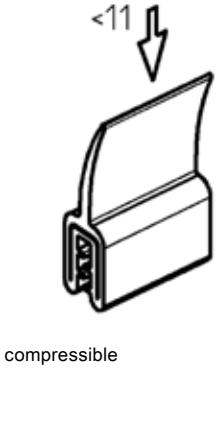


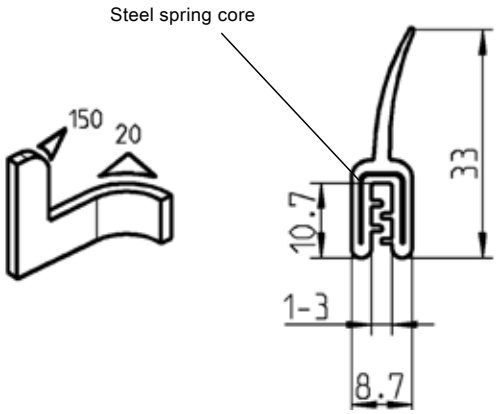
Sealing profile foam rubber EPDM, clamping profile EPDM 60 ± 5 Shore A, black

	1011-44

Seals, self-clamping

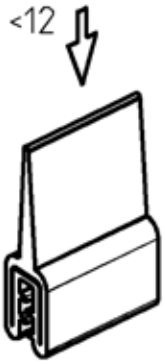
PROGRAM 1011

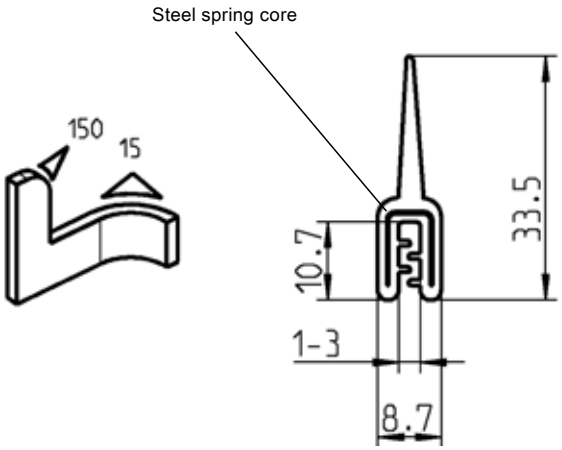




Sealing profile EPDM 60 ± 5 Shore A, black

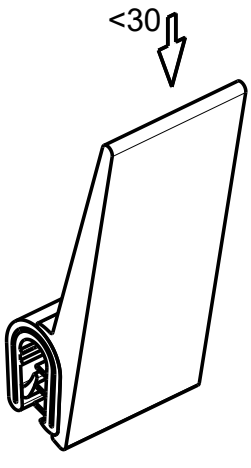
	1011-30

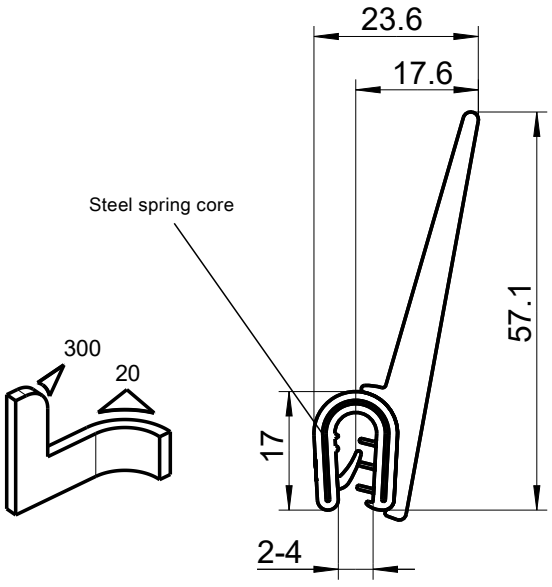




Sealing profile and clamping profile EPDM 60 ± 5 Shore A, black

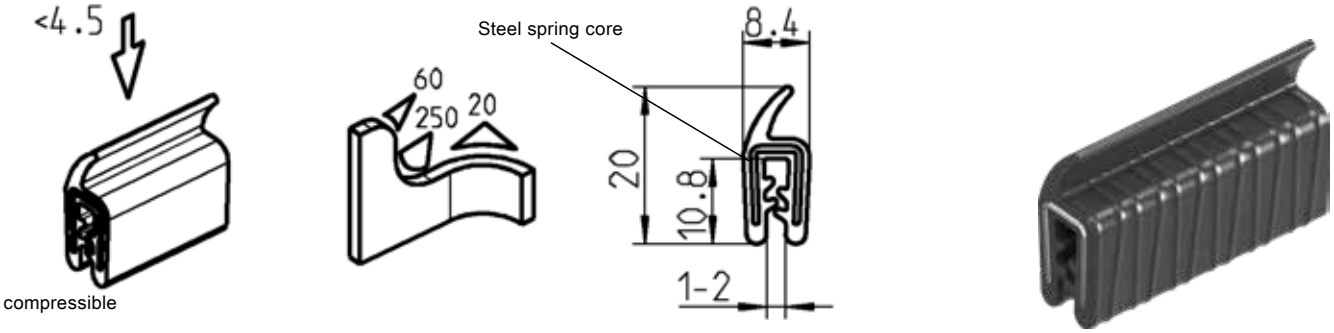
	1011-36



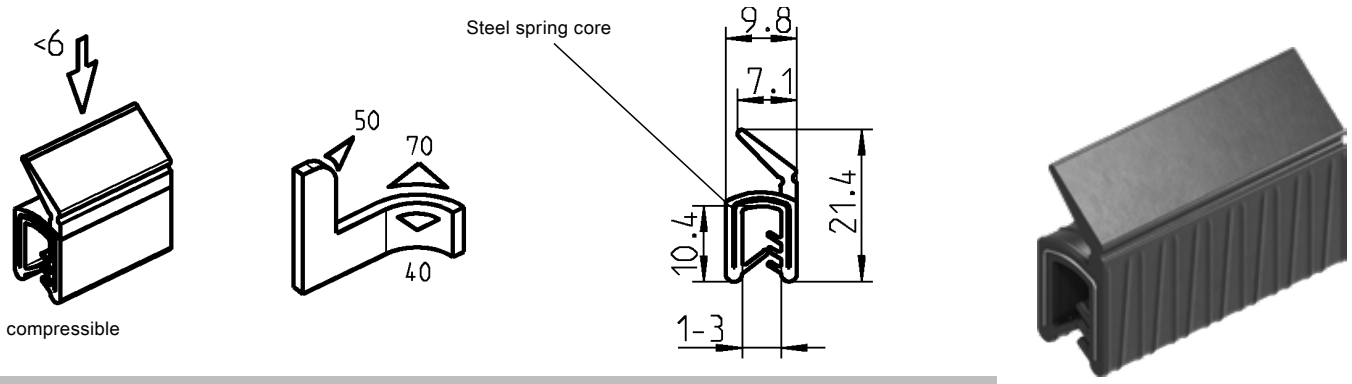


Sealing profile foam rubber EPDM, clamping profile PVC 70 ± 5 Shore A, black

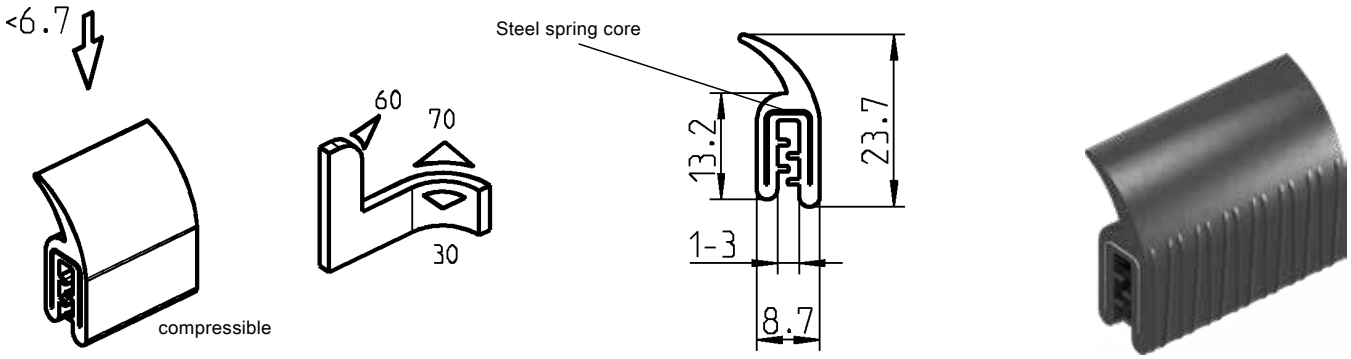
	1011-27



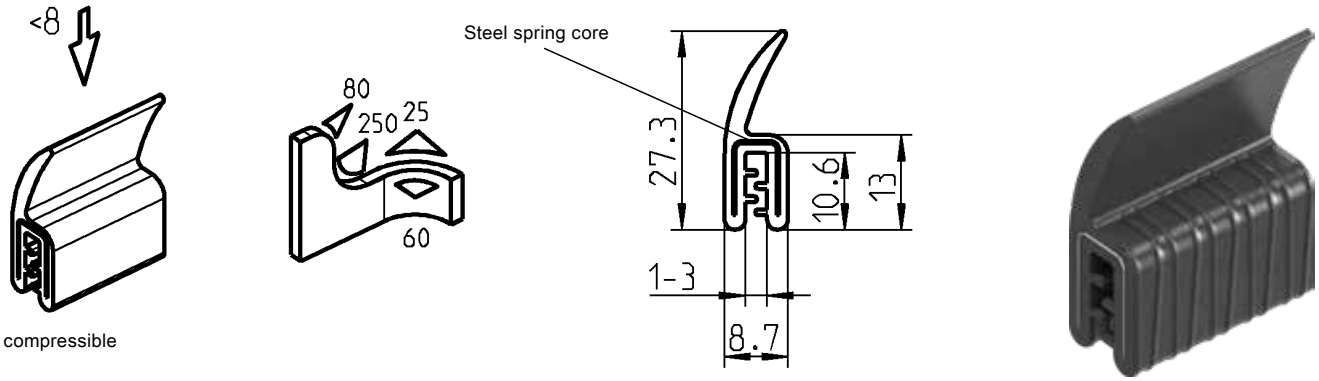
Sealing profile and clamping profile EPDM 60 ± 5 Shore A, black	
	1011-31



Sealing profile EPDM, clamping profile EPDM 60 ± 5 Shore A, black	
	1011-37



Sealing profile and clamping profile EPDM 60 ± 5 Shore A, black	
	1011-29

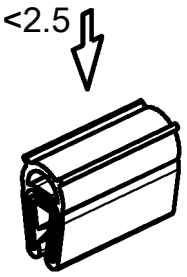


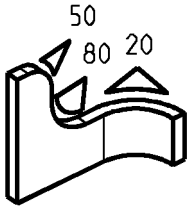
Sealing profile and clamping profile EPDM 60 ± 5 Shore A, black	
	1011-32

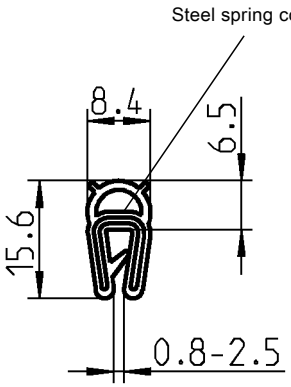
EMC seals

PROGRAM EMC

EMC seals







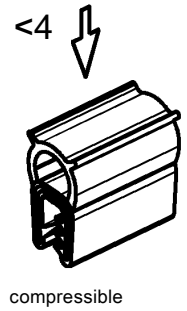
Attention:

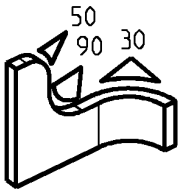
Please provide a contact area for all EMC seals.

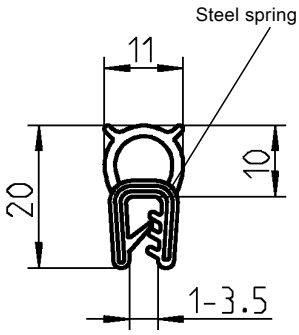
Further profiles on request.

Sealing profile foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black	
	1011-10-E

EMC seals





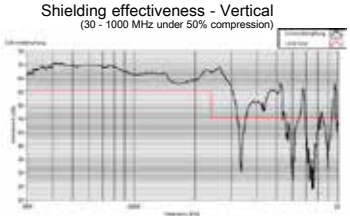


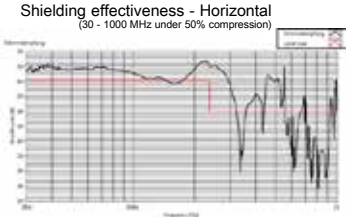
Sealing profile foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black	
	1011-05-E

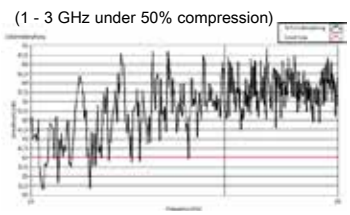
Shield electromagnetic radiation

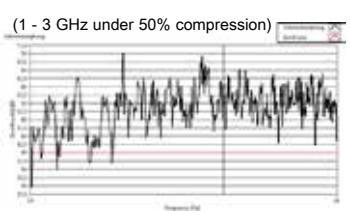
Electrical and electromagnetic fields can become a source of interference for technical equipment. Current carrying cables, electrical appliances and electronic controls generate such electromagnetic fields during operation. It may therefore be necessary to shield switch and control cabinets with EMC protection measures. In principle, it is always a matter of forming a kind of "Faraday cage" that prevents either the propagation or the irradiation of electromagnetic waves. The solution offered by EMKA consists of a completely jacketed EPDM seal and an EMC conductive tape. This combination closes the slot antenna created by the door opening and diverts induced eddy currents to ground. To ensure full-surface electrical contact with the housing, the contactive tape of metallized fleece is bonded to the housing (frame edge and door contact surface) with electrically conductive adhesive before powder coating. After stove enamelling, the mask is removed. This results in a corrosion-resistant, electrically conductive surface.

EMKA has carried out extensive test series according to DIN EN 61587-3 "Shielding tests for cabinets and subracks" to determine the shielding effectiveness with closed metal enclosures (see graphics below).

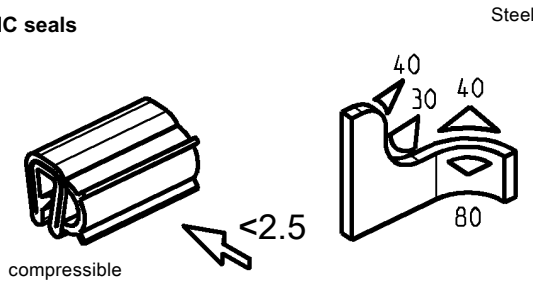








EMC seals



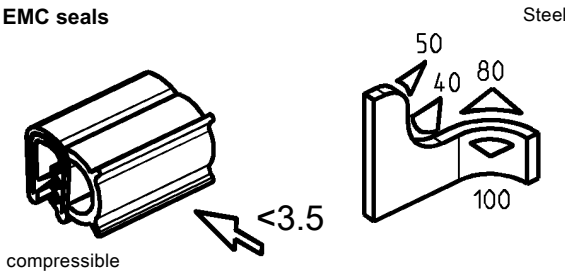
Attention:

Please provide a contact area for all EMC seals.

Further profiles on request.

Sealing profile foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black	
	1011-09-E

EMC seals



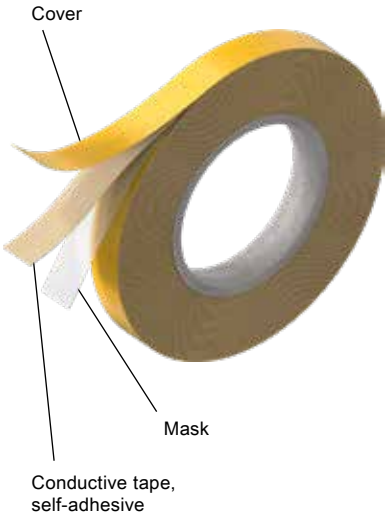
Sealing profile foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, black	
	1011-06-E

EMC conductive tape

- For painting and contact
- Highly-conductive adhesive for creating paint-free contact areas
- Length 25 m

Note:

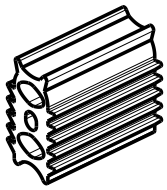
- The surface to be coated must be free of grease and dust.
- Remove the cover from the contact strip and stick the conductive tape onto the contact surfaces on the door and frame with some pressure.
  For better adhesion the conductive tape is wider than the mask.
- Powder-coating can then be applied, whereby the mask prevents the coating adhering to the conductive tape. The baking temperature for powder-coating should be as low as possible.
- After powder-coating, the mask can be easily removed (preferably while still warm) while the conductive contact tape remains securely in place.
- The continuous operating temperature should not exceed 90° C.

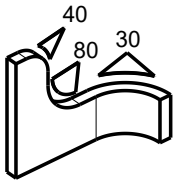


EMC conductive tape		
Width in mm	**Suitable for EMC seal**	
12.7	for contact surface on door side	1016-220-127E
22	1011-09-E; 1011-10-E	1016-220-220E
25.4	1011-05-E; 1011-06-E	1016-220-254E
Further dimensions on request		

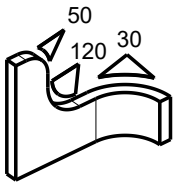
Seals secured in a U-section

PROGRAM 1003

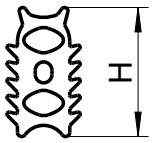


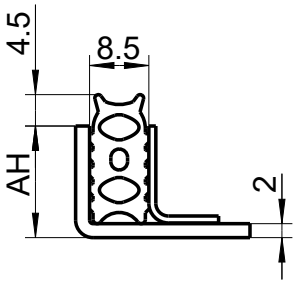


1003-11-N - 1003-13-N

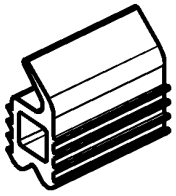


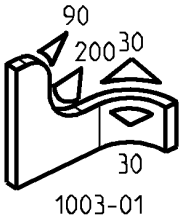
1003-14-N - 1003-24-N



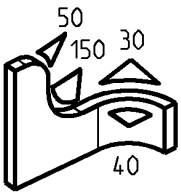


4-Lip profile foam rubber EPDM 25 Shore A, black		
AH	**Height H**	
16	18.5	1003-11-N*
18	20.5	1003-12-N*
20	22.5	1003-13-N*
22	24.5	1003-15-N*
24	26.5	1003-24-N*
26	28.5	1003-14-N*

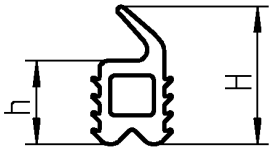


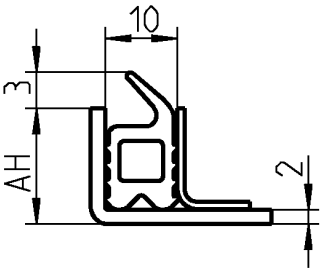


1003-01



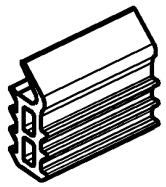
1003-02 - 1003-04

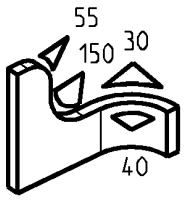


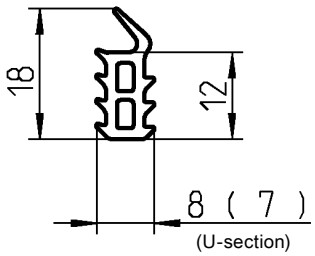


Lip profile EPDM 55 Shore A, black				
AH	**H**	**h**	**Number of chambers**	
16	17	9.5	1	1003-04
18	19	11.5	1	1003-03
20	21	13.5	2	1003-02
26	27	19.5	3	1003-01

* c UL us
UL 50
UL 94-HB

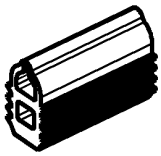


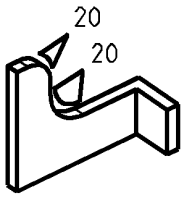


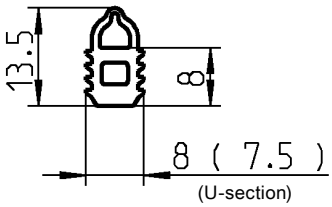


Lip profile EPDM 55 Shore A, black

	1003-07

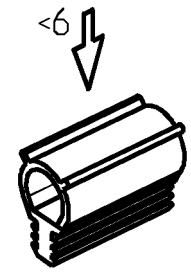




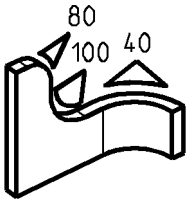


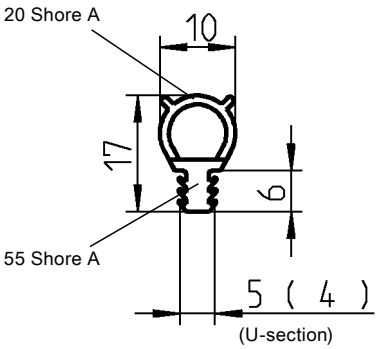
Sealing profile EPDM 55 Shore A, black

	1038-01



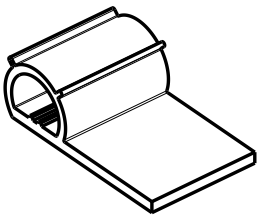
compressible

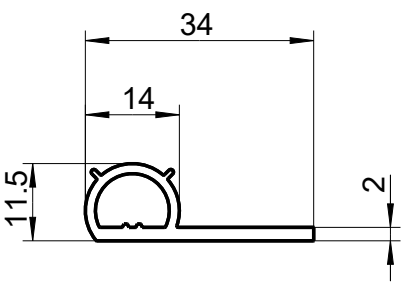




Sealing profile foam rubber EPDM, clamping profile EPDM 55 ± 5 Shore A, black

	1101-03



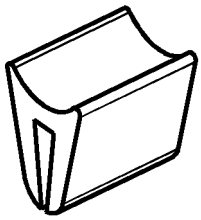


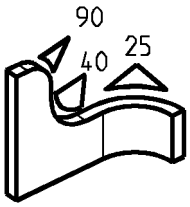
Sealing profile EPDM 55 Shore A, black

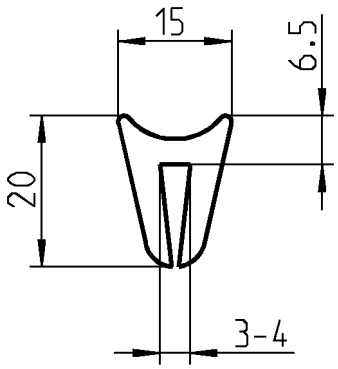
	1038-10

Seals

PROGRAM 1038, 1101

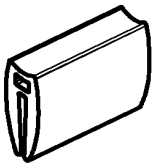


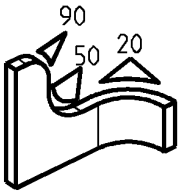


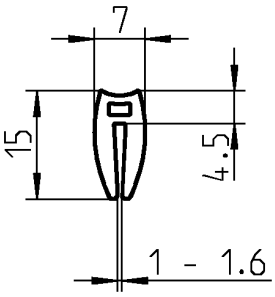


Sealing profile EPDM 55 Shore A, black	
	1038-07

c UL us *

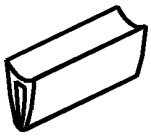


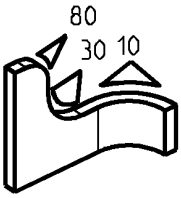


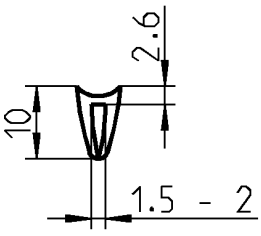


Sealing profile EPDM 55 Shore A, black	
	1038-02*

c UL us *







* c UL us
UL 50
UL 94-HB

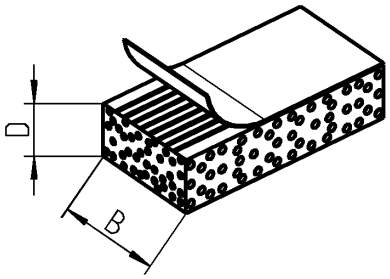
Sealing profile EPDM 55 Shore A, black	
	1038-06*

Cell sponge rubber

PROGRAM 1016

Delivery lengths:

For depths	3 – 7 = Coil length	a	10 m
For depths	8 – 10 = Coil length	a	5 m
For depths	11 = in stripes	a	1 m



Dimension available from stock.
All other dimensions available in 2 to 3 weeks.

Special lengths available in 6 to 8 weeks. Minimum order quantity on request
(Item no.: 1016- ... - L mm) e.g. 1016-118-1400

Cell sponge rubber material of choice, stretch-free and self-adhesive, black

Dim.				Dim.			
Width	**Depth**	**EPDM**	**CR**	**Width**	**Depth**	**EPDM**	**CR**
10	3	1016-13	1016-61	30	10	1016-123	1016-159
	4	1016-14	1016-62		12	1016-124	1016-160
	5	1016-15	1016-63		15	1016-125	1016-161
10	6	1016-75	1016-99		20	1016-126	1016-162
	8	1016-76	1016-100		25	1016-127	1016-163
	10	1016-77	1016-101	40	5	1016-128	1016-164
15	3	1016-16	1016-64		10	1016-129	1016-165
	4	1016-17	1016-65		15	1016-130	1016-166
	5	1016-18	1016-66		20	1016-131	1016-167
15	6	1016-78	1016-102		25	1016-132	1016-168
	8	1016-79	1016-103		30	1016-133	1016-169
	10	1016-80	1016-104	50	5	1016-134	1016-170
	12	1016-81	1016-105		10	1016-135	1016-171
	15	1016-82	1016-106		15	1016-136	1016-172
20	3	1016-19	1016-67		20	1016-137	1016-173
	4	1016-20	1016-68		25	1016-138	1016-174
	5	1016-21	1016-69		30	1016-139	1016-175
20	6	1016-83	1016-107	60	5	1016-140	1016-176
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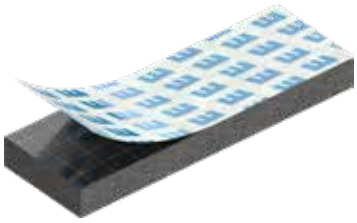
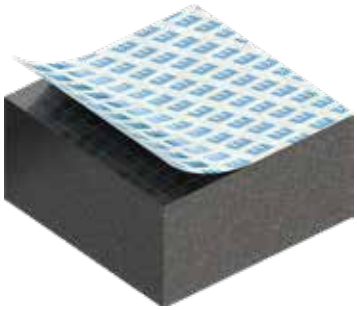
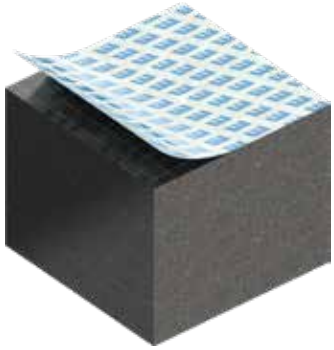
	8	1016-98	1016-122		40	1016-158	1016-194

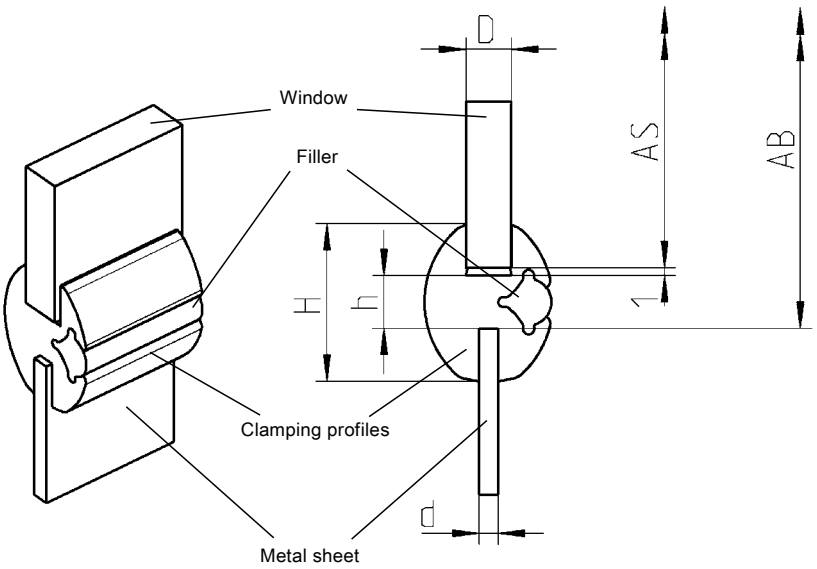






Clamping profile with filler

PROGRAM 1030



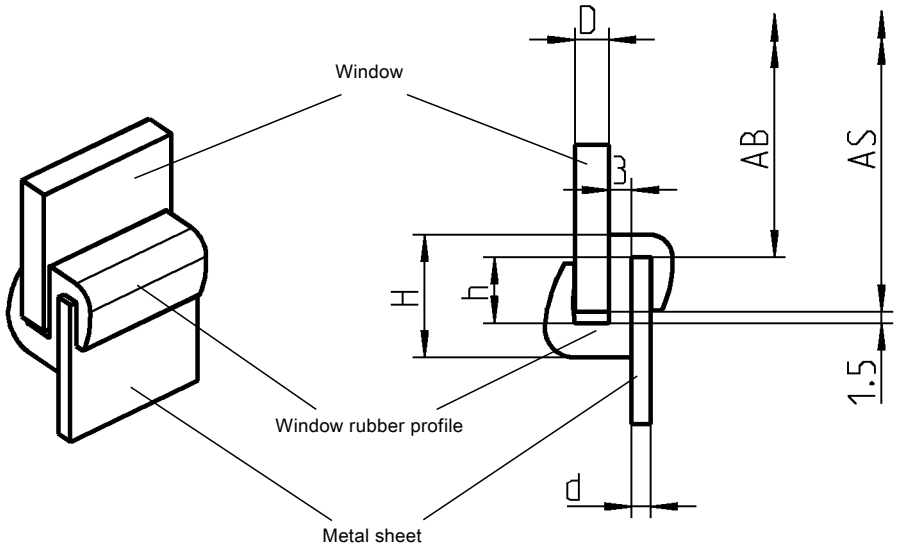
The information of the bending radius addresses
to the glass channel = AS +1 mm

AS = Dimension of the window
AB = Dimension of the metal sheet cut out

Clamping profile EPDM 75 + 5 Shore, black; with filler EPDM 85 ± 5 Shore, black								
D	**d**	**H**	**h**	**Bending radius**	**AB in mm**	**Clamping profile**	**+**	**Filler**
4	2	15	4	>30	AS+10	1030-01	+	1030-04
4	2.5	21	7	>70	AS+16	1030-02	+	1030-05
6	2.5	21	7	>70	AS+16	1030-03	+	1030-05
5	2	17	5	>50	AS+12	1030-07	+	1030-10
2 insertion tools for window and filler								
								1030-U1

Window rubber profile 1074

PROGRAM 1074



AB + 14.5 mm = AS

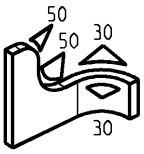
AS = Dimension of the window
AB = Dimension of the metal sheet cut out

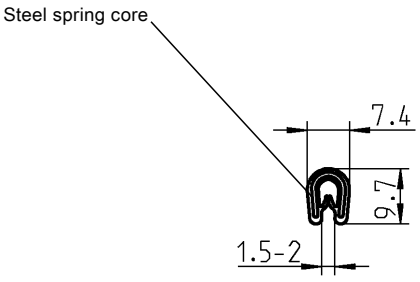
Window rubber profile material of choice						
	D	**d**	**H**	**h**	**Bending radius**	**Window rubber profile**
EPDM 60 Shore A, black	4	2	16.2	8.7	≥ 40	1074-01
NBR 80 Shore A, black	4	2	16.2	8.7	≥ 40	1074-03
EPDM 60 Shore A, black	6	2	16.2	8.7	≥ 40	1074-02
NBR 80 Shore A, black	6	2	16.2	8.7	≥ 40	1074-04

List of contents

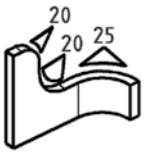
Edge protection made of fire protection material, self-clamping

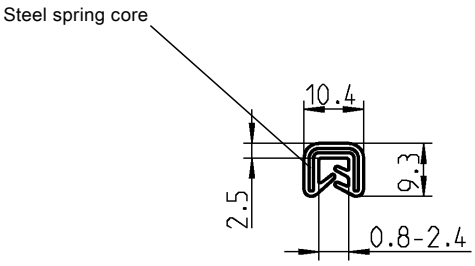
PROGRAM 1010





Edge protection EPDM 70 ± 5 Shore A, made of fire protection material, black	
①	1010-HP479-FR01





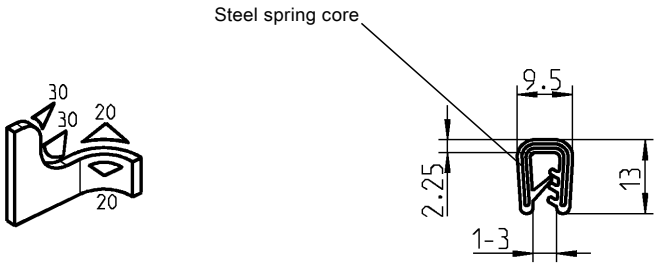
Edge protection EPDM 60 ± 5 Shore A, made of fire protection material, black	
① Coil 50 m length	1010-S14-01
① Coil 100 m length	1010-S14-FR01

Fire protection standards

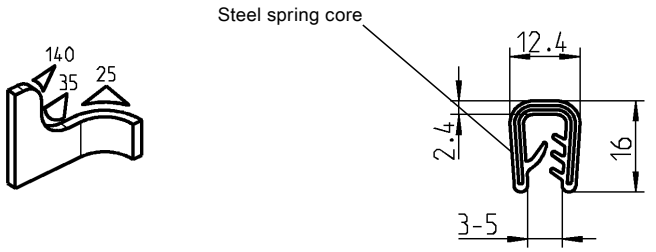
①	DIN EN 45545-2
②	-
③	ASTM C1166
④	ASTM E662
⑤	SMP 800-C
⑥	BSS 7239
⑦	ASTM E1354

Edge protection made of fire protection material, self-clamping

PROGRAM 1010



Edge protection EPDM 60 ± 5 Shore A, made of fire protection material, black	
①	1010-S18-FR01



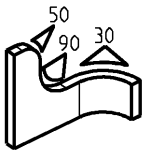
Edge protection EPDM 60 ± 5 Shore A, made of fire protection material, black	
①	1010-S19-FR01

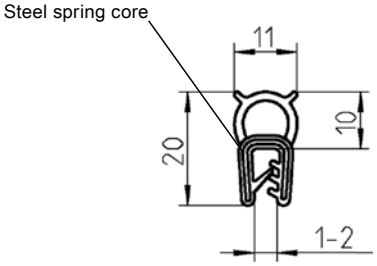
Fire protection standards

①	DIN EN 45545-2
②	-
③	ASTM C1166
④	ASTM E662
⑤	SMP 800-C
⑥	BSS 7239
⑦	ASTM E1354

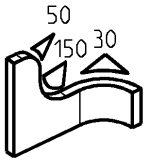
Seals made of fire protection material, self-clamping

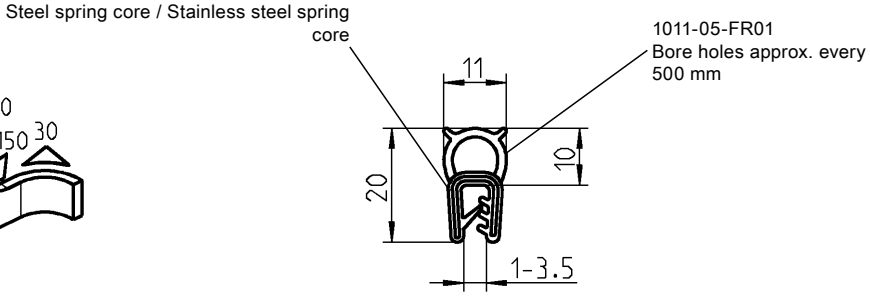
PROGRAM 1011



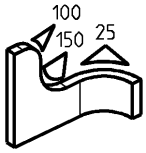


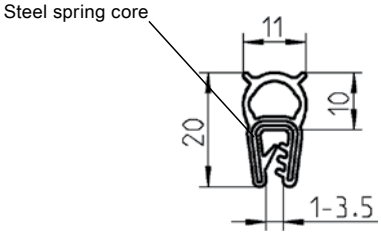
Sealing profile foam rubber EPDM, clamping profile foam rubber EPDM, made of fire protection material, black		
③④⑤⑥⑦		1011-S19





Sealing profile foam rubber EPDM, clamping profile EPDM 60 ± 5 Shore A, made of fire protection material, black		
①	Steel spring core	1011-05-FR01
①	Stainless steel spring core	1011-S140-FR01





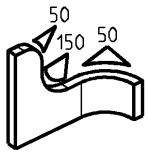
Sealing profile silicone solid material, made of fire protection material		
①③④⑥⑦	70 ± 5 Shore A, blue-black	1011-S47-BF
①	75 ± 5 Shore A, white	1011-S47-HA
①	60 ± 5 Shore A, black	1011-S80

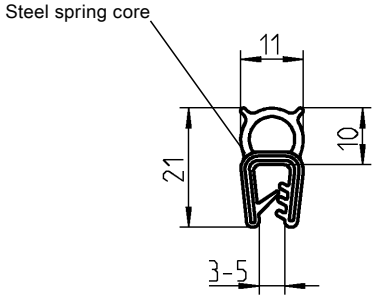
Fire protection standards

①	DIN EN 45545-2
②	-
③	ASTM C1166
④	ASTM E662
⑤	SMP 800-C
⑥	BSS 7239
⑦	ASTM E1354

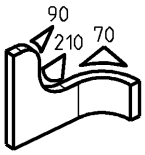
Seals made of fire protection material, self-clamping

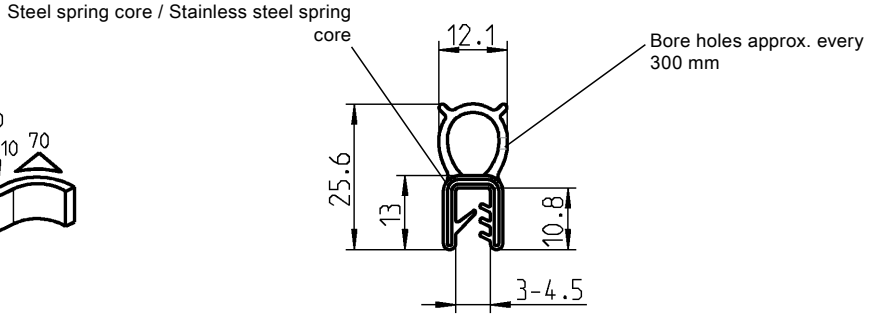
PROGRAM 1011



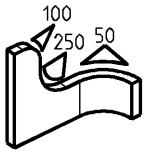


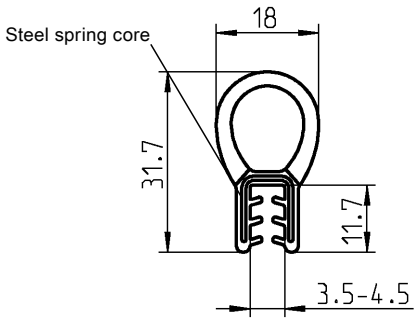
Sealing profile foam rubber EPDM, clamping profile EPDM 60 ± 5 Shore A, made of fire protection material, black	
①	1011-S127-FR01





Sealing profile foam rubber EPDM, clamping profile EPDM 60 ± 5 Shore A, made of fire protection material, black	
①	1011-S118-FR01





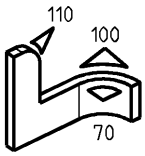
Sealing profile foam rubber EPDM, clamping profile EPDM 60 ± 5 Shore A, made of fire protection material, black	
①	1011-S119-FR01

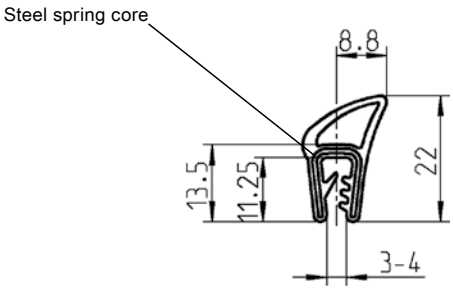
Fire protection standards

①	DIN EN 45545-2
②	-
③	ASTM C1166
④	ASTM E662
⑤	SMP 800-C
⑥	BSS 7239
⑦	ASTM E1354

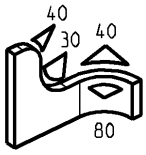
Seals made of fire protection material, self-clamping

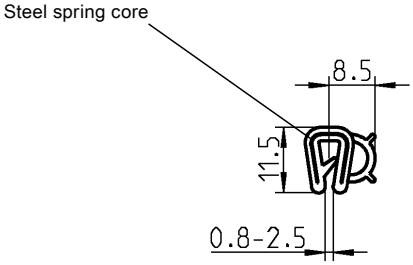
PROGRAM 1011



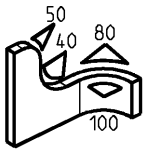


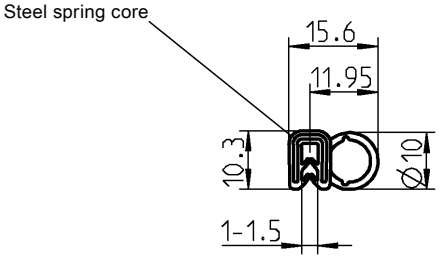
Sealing profile silicone solid material 70 ± 5 Shore A, made of fire protection material, blue-black	
①③④⑥⑦	1011-S56-BF





Sealing profile foam rubber EPDM, clamping profile EPDM 60 ± 5 Shore A, made of fire protection material, black	
①	1011-09-FR01





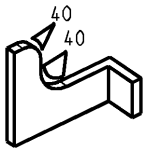
Sealing profile foam rubber EPDM, clamping profile EPDM 60 ± 5 Shore A, made of fire protection material, black	
①	1011-S34-FR01

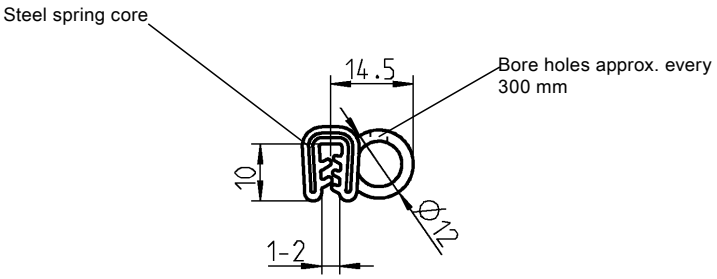
Fire protection standards

①	DIN EN 45545-2
②	-
③	ASTM C1166
④	ASTM E662
⑤	SMP 800-C
⑥	BSS 7239
⑦	ASTM E1354

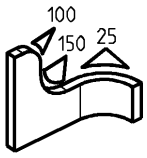
Seals made of fire protection material, self-clamping

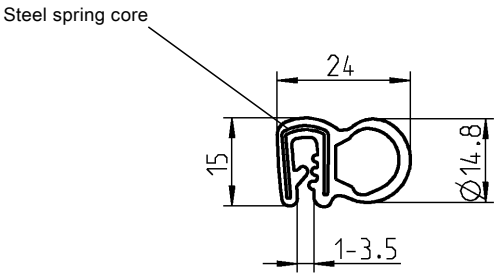
PROGRAM 1011



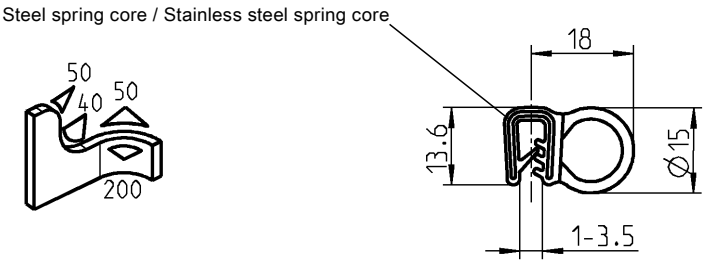


Sealing profile foam rubber EPDM, clamping profile foam rubber EPDM, made of fire protection material, black		
③④⑤⑥⑦		1011-S23





Sealing profile silicone solid material, made of fire protection material		
①③④⑥⑦	70 ± 5 Shore A, blue-black	1011-S42-BF
①	75 ± 5 Shore A, white	1011-S42-HA



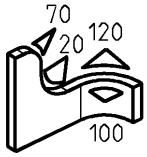
Sealing profile foam rubber EPDM, clamping profile EPDM 65 ± 5 Shore A, made of fire protection material, black		
①	Steel spring core	1011-51-FR01
①	Stainless steel spring core	1011-S141-FR01

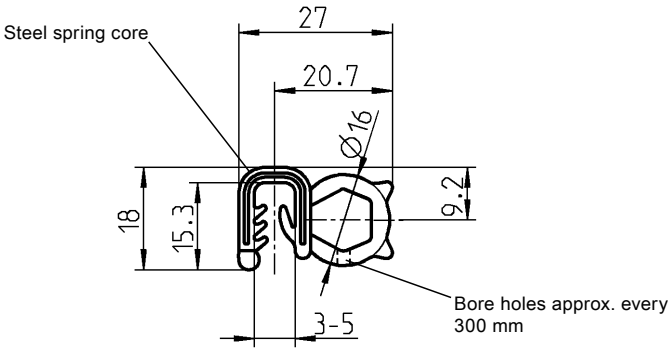
Fire protection standards

①	DIN EN 45545-2
②	-
③	ASTM C1166
④	ASTM E662
⑤	SMP 800-C
⑥	BSS 7239
⑦	ASTM E1354

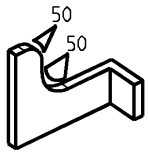
Seals made of fire protection material, self-clamping

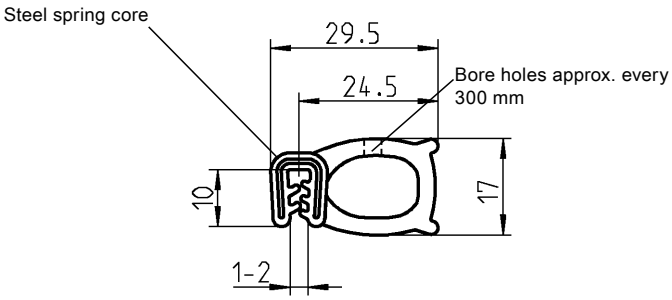
PROGRAM 1011



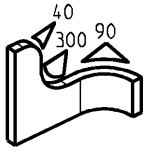


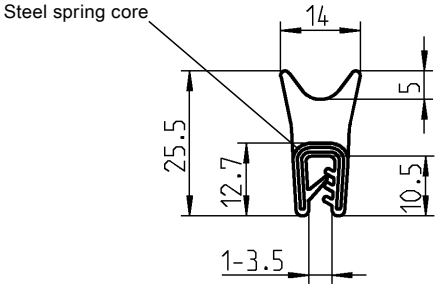
Sealing profile foam rubber EPDM, clamping profile EPDM 60 ± 5 Shore A, made of fire protection material, black	
①	1011-45-FR01





Sealing profile foam rubber EPDM, clamping profile foam rubber EPDM, made of fire protection material, black	
③④⑤⑥⑦	1011-S24





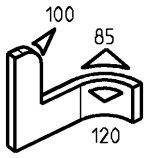
Sealing profile foam rubber EPDM, clamping profile EPDM 60 ± 5 Shore A, made of fire protection material, black	
①	1011-S124-FR01

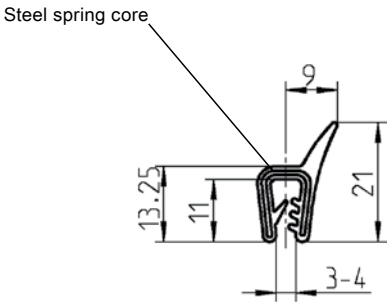
Fire protection standards

①	DIN EN 45545-2
②	-
③	ASTM C1166
④	ASTM E662
⑤	SMP 800-C
⑥	BSS 7239
⑦	ASTM E1354

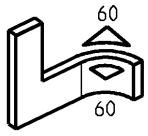
Seals made of fire protection material, self-clamping

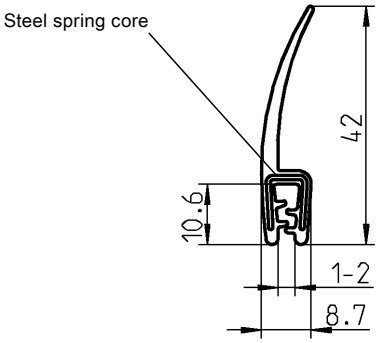
PROGRAM 1011





Sealing profile silicone solid material 70 ± 5 Shore A, made of fire protection material, blue-black	
①③④⑥⑦	1011-S53-BF





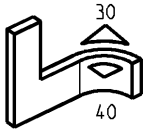
Sealing profile silicone solid material 70 ± 5 Shore A, made of fire protection material, blue-black	
①③④⑥⑦	1011-S83-BF

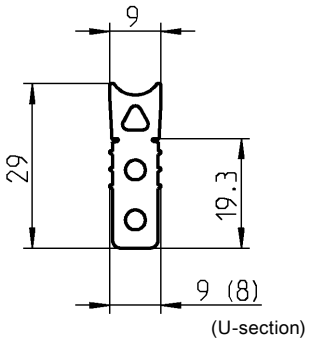
Fire protection standards

①	DIN EN 45545-2
②	-
③	ASTM C1166
④	ASTM E662
⑤	SMP 800-C
⑥	BSS 7239
⑦	ASTM E1354

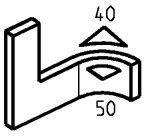
Seals made of fire protection material fixed by securing in an U-section

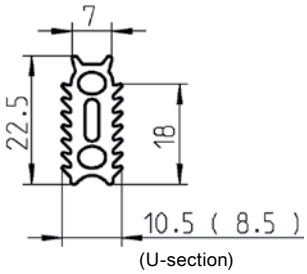
PROGRAM 1003



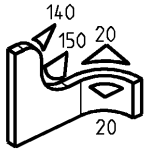


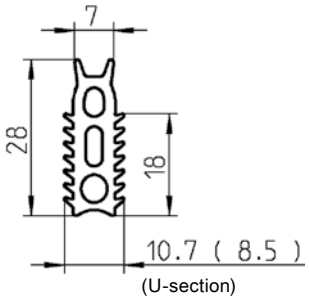
Sealing profile silicone foam, made of fire protection material, blue-black	
①③④⑥⑦	1003-S32-BF





Sealing profile silicone solid material 50 ± 5 Shore A, made of fire protection material, blue-black	
①	1003-S30-BF





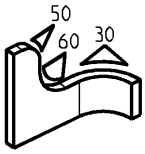
Sealing profile silicone solid material 50 ± 5 Shore A, made of fire protection material, blue-black	
①	1003-S29-BF

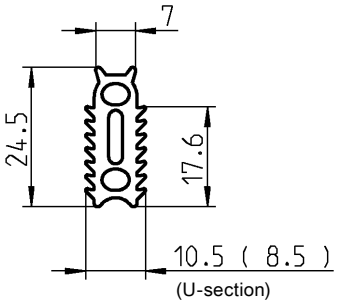
Certificate DIN EN 45545-2 EPDM

①	DIN EN 45545-2
②	-
③	ASTM C1166
④	ASTM E662
⑤	SMP 800-C
⑥	BSS 7239
⑦	ASTM E1354

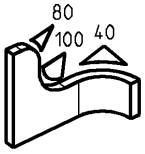
Seals made of fire protection material fixed by securing in an U-section

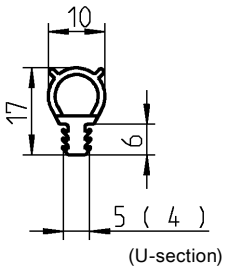
PROGRAM 1003, 1101, 1038



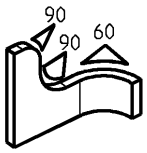


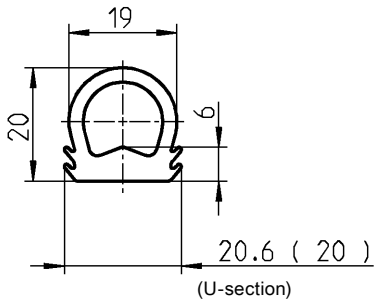
Sealing profile foam rubber EPDM 25 ± 5 Shore A, made of fire protection material, black	
①	1003-15-FR01





Sealing profile foam rubber EPDM, plug-in profile EPDM 60 ± 5 Shore A, made of fire protection material, black	
①	1101-03-FR01



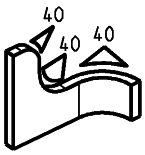


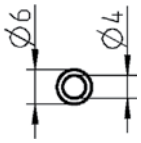
Sealing profile foam rubber EPDM, made of fire protection material, black	
①	1038-S52-FR01

①	DIN EN 45545-2
②	-
③	ASTM C1166
④	ASTM E662
⑤	SMP 800-C
⑥	BSS 7239
⑦	ASTM E1354

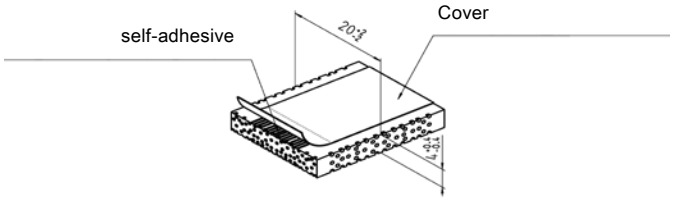
Seals made of fire protection material

PROGRAM 1016





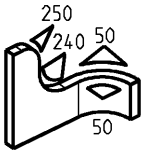
Sealing profile silicone solid material, made of fire protection material		
①③④⑥⑦	70 ± 5 Shore A, blue-black	1016-S4-BF
①	75 ± 5 Shore A, white	1016-S4-HA

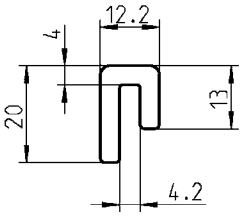


Silicone foam, density 0.4 ± 0.05 g/cm³

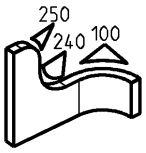
Sealing profile silicone foam, stretch-free and self-adhesive, made of fire protection material, blue-black		
①③④⑥⑦	Coil length 50 m	1016-S128

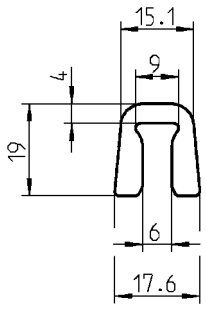
①	DIN EN 45545-2
②	-
③	ASTM C1166
④	ASTM E662
⑤	SMP 800-C
⑥	BSS 7239
⑦	ASTM E1354





Clip-on profile EPDM 60 ± 5 Shore A, made of fire protection material, black	
①	1038-S49-FR01





Clip-on profile EPDM 60 ± 5 Shore A, made of fire protection material, black	
①	1038-S50-FR01

①	DIN EN 45545-2
②	-
③	ASTM C1166
④	ASTM E662
⑤	SMP 800-C
⑥	BSS 7239
⑦	ASTM E1354

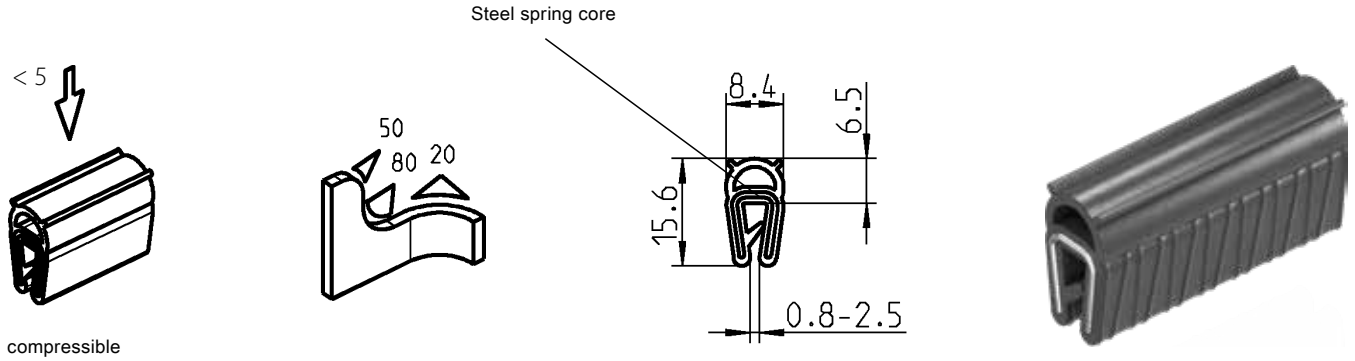

Geprüft
VDI 6022
Certified in

List of contents

Seals, self-clamping

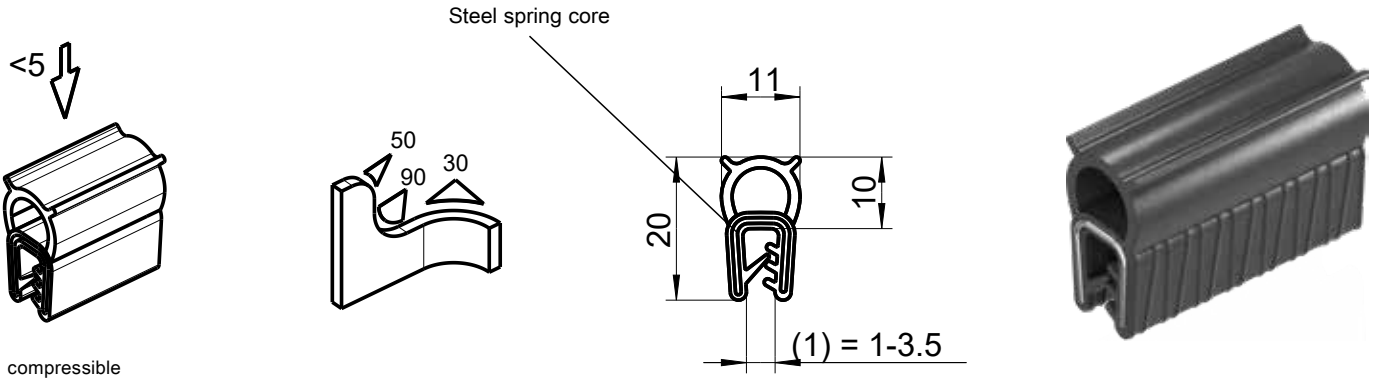
PROGRAM 1011

According to VDI 6022



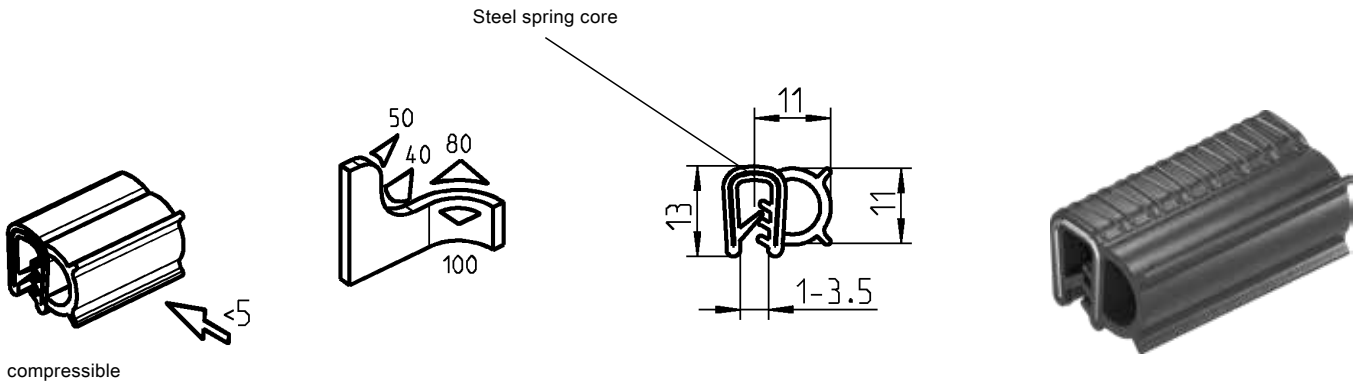
Sealing profile EPDM 45 ± 5 Shore A, clamping profile EPDM 60 ± 5 Shore A, black	
	1011-10-09

According to VDI 6022



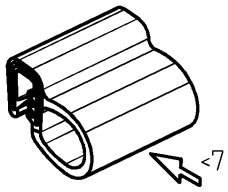
Sealing profile EPDM 45 ± 5 Shore A, clamping profile EPDM 60 ± 5 Shore A, black	
	1011-05-09

According to VDI 6022



Sealing profile EPDM 45 ± 5 Shore A, clamping profile EPDM 60 ± 5 Shore A, black	
	1011-06-09

According to VDI 6022



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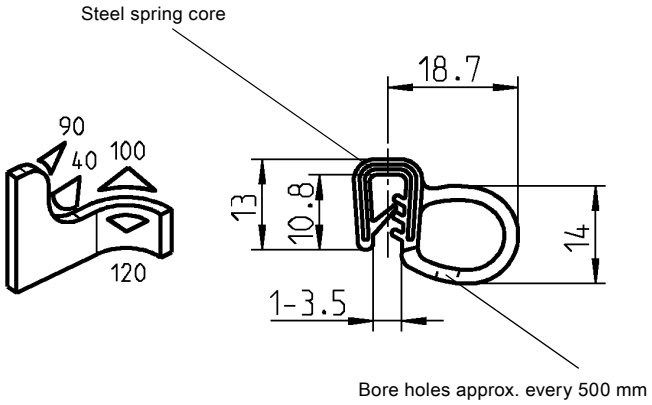
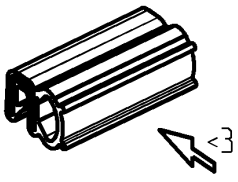


Sealing profile foam rubber EPDM, clamping profile EPDM 64 ± 5 Shore A, black	
	1011-19-09

According to VDI 6022



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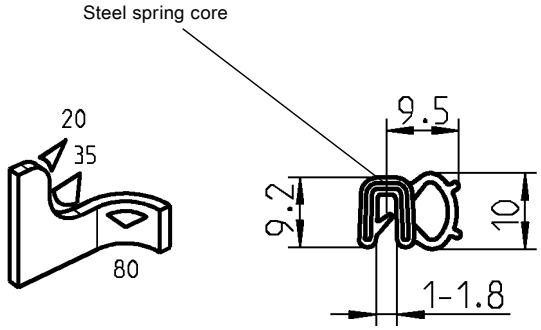
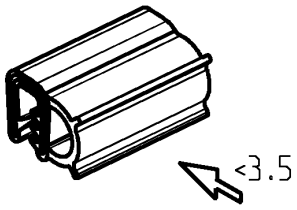


Sealing profile foam rubber EPDM, clamping profile EPDM 64 ± 5 Shore A, black	
	1011-S102

According to VDI 6022



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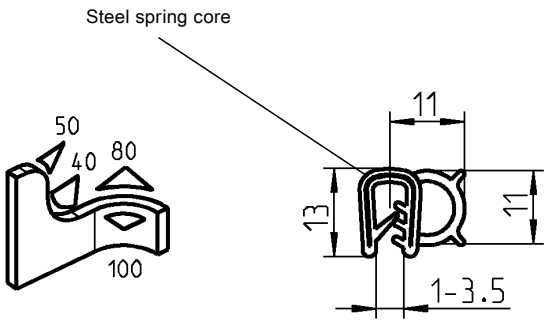
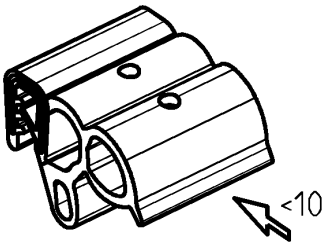


Sealing profile foam rubber EPDM, clamping profile EPDM 64 ± 5 Shore A, black	
	1011-S122

Seals, self-clamping;
Seals secured in a U-section

PROGRAM 1003, 1011

According to VDI 6022



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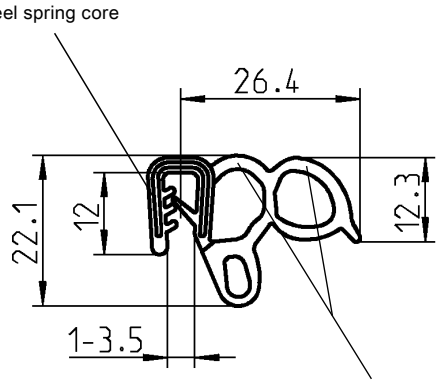
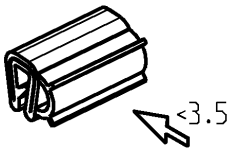


Bore holes approx. every 600 mm

Sealing profile foam rubber EPDM, clamping profile EPDM 64 ± 5 Shore A, black	
	1011-S154

According to VDI 6022



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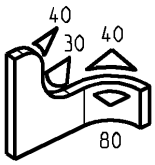
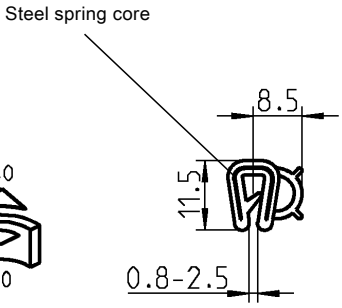
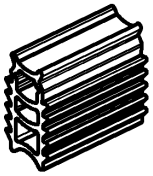
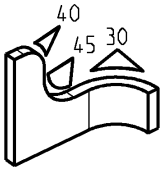


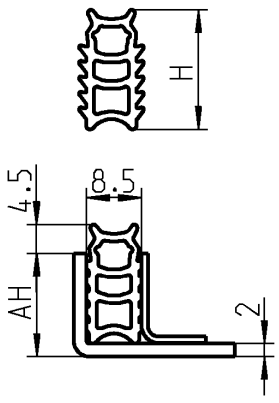


Sealing profile EPDM 45 ± 5 Shore A, clamping profile EPDM 60 ± 5 Shore A, black	
	1011-09-09

According to VDI 6022







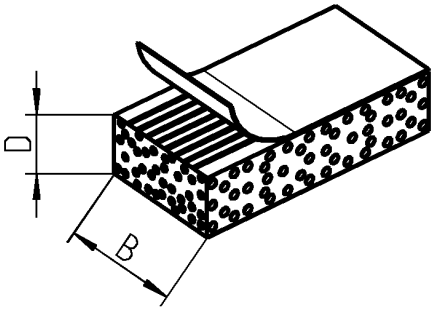
4-Lip profile EPDM 45 ± 5 Shore A, black		
AH	**Height H**	
16	18.5	1003-11-N9
18	20.5	1003-12-N9

Cell sponge rubber according to VDI 6022

PROGRAM 1016

Delivery lengths:

For depths	3 – 7 = Coil length	a	10 m
For depths	8 – 10 = Coil length	a	5 m
For depths	11 = in stripes	a	1 m



Dimension available from stock.
All other dimensions available in 2 to 3 weeks.

Special lengths available in 6 to 8 weeks. Minimum order quantity on request
(Item no.: 1016- ... - L mm) e.g. 1016-118-1400

Cell sponge rubber material of choice, black, stretch-free and self-adhesive

Dim.				Dim.			
Width	**Depth**	**EPDM**	**CR**	**Width**	**Depth**	**EPDM**	**CR**
10	3	1016-13-09	1016-61-09	30	10	1016-123-09	1016-159-09
	4	1016-14-09	1016-62-09		12	1016-124-09	1016-160-09
	5	1016-15-09	1016-63-09		15	1016-125-09	1016-161-09
10	6	1016-75-09	1016-99-09		20	1016-126-09	1016-162-09
	8	1016-76-09	1016-100-09		25	1016-127-09	1016-163-09
	10	1016-77-09	1016-101-09	40	5	1016-128-09	1016-164-09
15	3	1016-16-09	1016-64-09		10	1016-129-09	1016-165-09
	4	1016-17-09	1016-65-09		15	1016-130-09	1016-166-09
	5	1016-18-09	1016-66-09		20	1016-131-09	1016-167-09
15	6	1016-78-09	1016-102-09		25	1016-132-09	1016-168-09
	8	1016-79-09	1016-103-09		30	1016-133-09	1016-169-09
	10	1016-80-09	1016-104-09	50	5	1016-134-09	1016-170-09
	12	1016-81-09	1016-105-09		10	1016-135-09	1016-171-09
	15	1016-82-09	1016-106-09		15	1016-136-09	1016-172-09
20	3	1016-19-09	1016-67-09		20	1016-137-09	1016-173-09
	4	1016-20-09	1016-68-09		25	1016-138-09	1016-174-09
	5	1016-21-09	1016-69-09		30	1016-139-09	1016-175-09
20	6	1016-83-09	1016-107-09	60	5	1016-140-09	1016-176-09
	8	1016-84-09	1016-108-09		10	1016-141-09	1016-177-09
	10	1016-85-09	1016-109-09		15	1016-142-09	1016-178-09
	12	1016-86-09	1016-110-09		20	1016-143-09	1016-179-09
	15	1016-87-09	1016-111-09		25	1016-144-09	1016-180-09
	20	1016-88-09	1016-112-09		30	1016-145-09	1016-181-09
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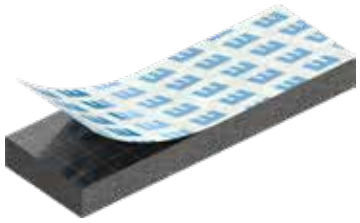
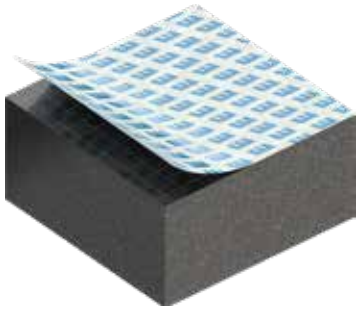
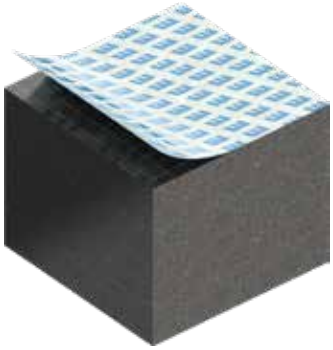
	15	1016-95-09	1016-119-09	80	5	1016-152-09	1016-188-09
	20	1016-96-09	1016-120-09		10	1016-153-09	1016-189-09
30	3	1016-22-09	1016-70-09		15	1016-154-09	1016-190-09
	4	1016-23-09	1016-71-09		20	1016-155-09	1016-191-09
	5	1016-24-09	1016-72-09		25	1016-156-09	1016-192-09
	6	1016-97-09	1016-121-09		30	1016-157-09	1016-193-09
	8	1016-98-09	1016-122-09		40	1016-158-09	1016-194-09







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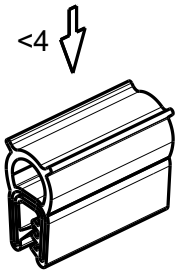
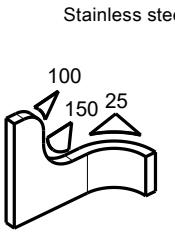
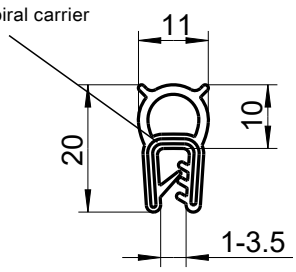
Seals made of FDA compliant materials

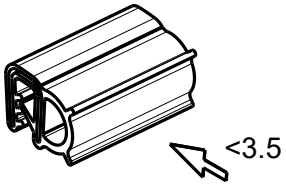
PROGRAM 1011

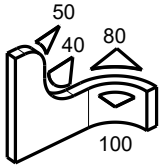


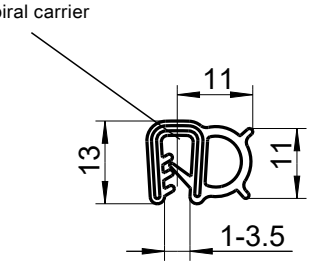




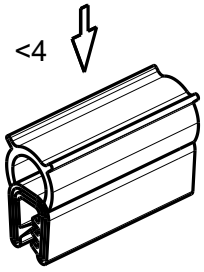
Sealing profile silicon solid material 60 ± 5 Shore A, clamping profile silicon solid material 60 ± 5 Shore A, blue	
	1011-S142

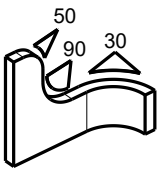


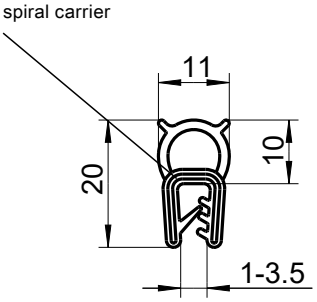




Sealing profile silicon solid material 60 ± 5 Shore A, clamping profile silicon solid material 60 ± 5 Shore A, blue	
	1011-S143



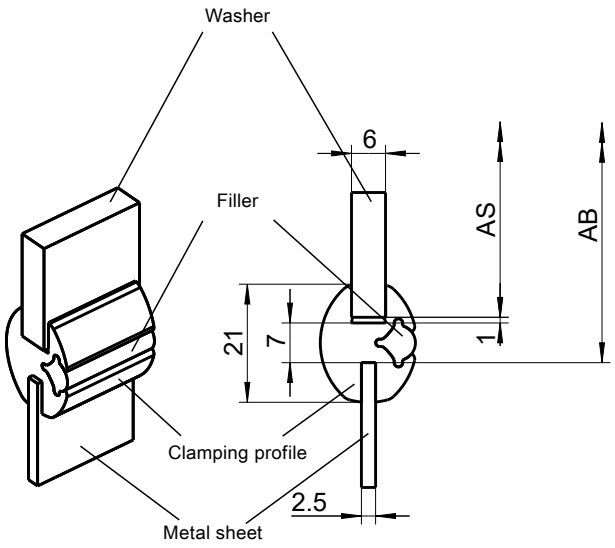


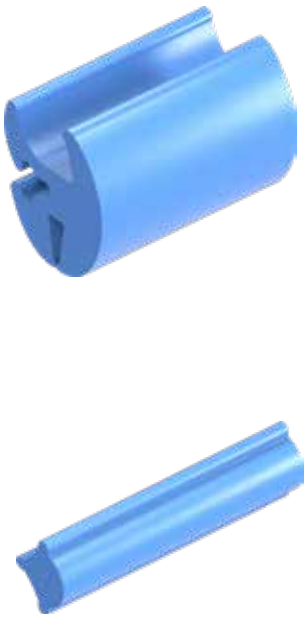


Sealing profile foam rubber NBR 70 ± 5 Shore A, clamping profile NBR 70 ± 5 Shore A, blue	
	1011-S180

Clamping profile with filler made of FDA compliant material

PROGRAM 1030





The information of the bending radius addresses to the glass channel = AS +1 mm

AS = Dimension of the window
AB = Dimension of the metal sheet cut out

Clamping profile silicon solid material 60 ± 5 Shore A, blue; with filler silicon solid material 85 ± 5 Shore A, blue	
Clamping profile	1030-S14
Filler	1030-S13
2 insertion tools for window and filler	
	1030-U1


1000ml
APPROX.
900
800
700
600
500
400
500ml
APPROX.
400
300
200
250ml
APPROX.
200
150
100

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Information

The individual specifications mean:

1 = Excellent resistance
The medium has little or no effect on the material. Environmental changes such as temperature, concentration etc. can change the resistance.

2 = Good resistance
The material has a satisfactory serviceability. The medium can have a negative influence on the hose material after continuous use. Discoloration may also occur. Environmental changes such as temperature, concentration etc. can change the resistance.

3 = Medium resistance to short-term contact with the medium
Long-term contact with the medium will destroy the material.

4 = Not resistant, strong attack to complete destruction
Can not be recommended

- = Resistance not known

Comments:

The values given are test results and are only for guidance. This information enables a preselection to be made, and practical tests must be carried out in the case of safety-relevant or extreme cases.

The values are based (unless otherwise stated) on concentrated or saturated solutions.

The standard test temperature is 20 °C unless otherwise specified.
If your particular application does not meet these specifications, a test should be carried out.

If chemicals are mixed with other solvents or water, the compatibility of these solvents should also be checked.

There is no rule about discoloration. If discoloration occurs, please inform us and we will be happy to make a recommendation for use.

The permeability must also be checked. It may be that some media in the gaseous state attack material, although the medium in the liquid state is suitable.

Fire protection:

We supply materials certified according to the current fire protection standards.
e.g. according to DIN EN 45545-2 and NFPA 130

Whether the achieved categories fit to the respective requirements has to be verified for the individual case.
In general, higher fire protection classes can be achieved with silicone profiles than with EPDM.

Note:

The indicated resistances and material properties are only guide values and do not relieve the customer from the responsibility of executing their own tests for evaluating the utilisability.

Please note that elastomers have a limited life due to e.g. ageing. This is why we recommend regular inspection and replacement intervals.

All information is correct to our current knowledge. However, we do not guarantee the correctness and completeness of the information. Furthermore, we reserve the right to change names, values and validity.

Resistance list of elastomers and thermoplastics against chemical media

Medium [1] if as food, then demand food-acceptable qualities	Elastomer / Thermoplastic (short name)				
	Aethylene-Propylene rubbers (EPM, EPDM)	Neoprene / Chloroprene (CR)	Nitrile rubber (NBR)	Silicone rubbers (Q, MQ)	PVC soft (PVC)
Acetaldehyde	2	3	4	1	4
Acetic acid 10%	1	1	2	3	3
Acetic acid 100% (conc.)	3	4	4	3	4
Acetic acid 25%	1	2	4	3	4
Acetic acid 50%	2	3	4	3	4
Acetic acid alumina: see aluminium acetate	-	-	-	-	-
Acetic acid ethyl ester: see ethyl acetate	-	-	-	-	-
Acetic acid hydride 50%	1	3	3	1	4
Acetic ether / acetic ester: see ethyl acetate	-	-	-	-	-
Acetone	1	3	4	2	3
Acetylacetone	1	1	4	4	4
Acetylene gas	1	1	1	1	1
Acids: see special designation. Generally valid	1-2	2-3	3	2	2-3
Acrylic acid pathyl ester: s. Aethylacrylct	-	-	-	-	-
Acrylonitrile	1	1	4	2	4
Adipic acid	1	1	1	-	1
Adipinstiurediethyl ester	1	3	4	-	-
Aethanol: see Aethylol alcohol	-	-	-	-	-
Aethanolamine	1	1	2	3	-
Aether (Aethyloether, Diaethylaether)	4	3	4	-	3
Aethon(gas)	4	2	1	3	1
Aethyl alcohol (denatured = spirit) [1]	1	1	1	1	1
Aethyl bromide	1	1	1	-	4
Aethyl chloride	-	-	-	-	3
Aethyl glycol acetate	2	-	-	-	-
Aethyl mercaptan	3	3	4	3	-
Aethylacetot	2	3	-	2	-
Aethylacrylate	2	3	4	2	4
Aethylaether: see Aether	-	-	-	-	-
Aethylbenzene	4	4	3	-	-
Aethylene chloride	2	3	3	-	-
Aethylene glycol	1	1	1	1	1
Aethylene oxide	3	4	4	-	4
Aethylene oxide, liquid	3	4	4	-	-
Aethylene(gas) (Aethene)	-	2	1	2	1
Aethylenediamine	1	1	2	3	4
Aethylglycol	2	2	4	-	4
Aetzkolk: s. Calcium hydroxide/Aetzkali: s. Potassium hydroside/Aetznatron: s Sodium hydroxide	-	-	-	-	-
Air, atmospheric, oil-free, up to 4°C	120	90	90	175	70

Medium [1] if as food, then demand food-acceptable qualities	Elastomer / Thermoplastic (short name)				
	Aethylene-Propylene rubbers (EPM, EPDM)	Neoprene / Chloroprene (CR)	Nitrile rubber (NBR)	Silicone rubbers (Q, MQ)	PVC soft (PVC)
Air, oily, up to +°C	4	90	100	175	70
Alcohols: see specific designations The following generally applies [1]	1	1	1	2	2
Aliphates:. s. Benzenes and homologues: Generally speaking	4	3	1	4	3
Allyl chloride	4	4	4	1	4
Alum: see potassium aluminium sulphate	-	-	-	-	-
Aluminium acetate, aqueous (acetic acid alumina)	1	1	1	4	1
Aluminium chloride, aqueous	1	1	1	4	1
Aluminium fluord	1	1	1	1	1
Aluminium hydroxide	1	1	1	1	1
Aluminium nitrate, aqueous	1	1	1	2	1
Aluminium phosphate, aqueous (phosphoric acid alumina)	1	1	1	1	1
Aluminium sulphate aqueous	1	1	1	1	1
Ammonia gas 20°C	1	1	1	1	1
Ammonia in water (ammonia solution)	1	I	1	1	1
Ammonia liquid	1	2	2	3	3
Ammonium carbonate, aqueous	1	1	2	2	1
Ammonium chloride, aqueous (sal ammoniac)	1	1	1	1	1
Ammonium diphosphate, aqueous	-	1	1	1-2	1
Ammonium hydroxide, aqueous: see ammonia in water	-	-	-	-	-
Ammonium metaphosphate	1	1	1	1	1
Ammonium nitrate, aqueous	1	1	1	1	1
Ammonium nitrite	1	1	1	2	-
Ammonium persulphate, aqueous	1	1	1	1	1
Ammonium phosphate, aqueous	1	1	1	1	1
Ammonium sulphate	1	1	1	1	1
Ammonium thiocyanate	1	1	1	1	1
Amyl alcohol	1	1	1	1	1
Amyl borate	4	1	1	-	-
Amyl chloride	4	4	4	3	4
Amylocetate [1]	2	4	3	3	4
Aniline (aminobenzene)	4	3	4	2	2
Aniline dyes	2	3	4	2	1
Animal fat: see Oils and fats, animal	-	-	-	-	-
Anol: s. Cyclohexanol/Anon s. Cyclohexanone	-	-	-	-	-
Antichlor: see sodium biosulphate	-	-	-	-	-
Antifreeze: see exact chemical designation	-	-	-	-	-
Antimony chloride 50%	1	1	3	4	1

1 = No to low effect, 0 to 5 % volume swell / very good
2 = Low to moderate effect, 5 to 10 % volume swell / good
3 = Moderate to strong effect, 10 to 20 % volume swell / moderate
4 = Not recommended / poor
- = No values available

All values and descriptions are indicative and not binding for every case of application. Any warranty is excluded.

Resistance list of elastomers and thermoplastics against chemical media

EMKA Beschlagteile

Medium [1] if as food, then demand food-acceptable qualities	Elastomer / Thermoplastic (short name)				
	Aethylene-Propylene rubbers (EPM, EPDM)	Neoprene / Chloroprene (CR)	Nitrile rubber (NBR)	Silicone rubbers (Q, MQ)	PVC soft (PVC)
Aqua regia	3	4	2	3	2
Argon gas	1	1	1	1	1
Aromatics: see benzene,toluene, xylene and homologues: generally applicable	4	4	3-4	4	4
Arsenic acid (arsenic acid)	1	I	1	1	1
Arttone = Freon types of ICI: Ask for our detailed application advice.	-	-	-	-	-
Asphalt (earth pitch)	4	2	2	2	2
Ate brake fluid	4	3	2	4	2
Bacon [1]	4	3	1	2	-
Barium hydroxide	1	1	1	1	1
Barium sulphate (baryte)	I	1	1	1	1
Barium sulphide	1	1	1	1	1
Battery acid: see sulphuric acid 30%	-	-	-	-	-
Beer [1]	1	1-2	1	1	1
Benzaldehyde	2	4	4	3	3
Benzene	4	4	3-4	4	4
Benzoic acid, aqueous	4	4	4	4	1
Benzyl alcohol	1	3	4	1	3
Benzyl benzoate	2	4	4	-	-
Benzyl chloride	4	3	4	2	4
Biphenyls, polychlorinated: see oils, transformer oils	-	-	-	-	-
Bismuth carbanate (bismuth carbonate)	1	1	1	1	1
Bismuth carbonate (bismuth carbonate)	1	1	1	1	1
Bisulphite run SO -containing2	1	-	3	-	1
Bitumen 20°C (see also hot bitumen)	4	3	2	4	4
Blancfix: see barium sulphate	-	-	-	-	-
Bleaching lye Uovelle lye s. colium hypochlorite	-	-	-	-	-
Boric acid, aqueous	1	1	1	1	1
Borium chloride, aqueous	1	1	1	1	1
Brake oils: see greases and oils	-	-	-	-	-
Brine (saline solution)	1	1	1	1	1
Bromenzol	4	4	4	4	4
Bromine	4	4	3-4	4	4
Bromine water	4	4	4	4	4
Bromochloromethane	3	4	4	4	4
Butadiene	3	2	4	-	3
Butane gas (butagas)	2	1	1	3	1
Butane liquid	4	1	1	3	2
Butanolis Butyl alcohol BUi011011 s. Methylaeth Iketone	-	-	-	-	-
Butter [1]	1	2	1	1	2

Medium [1] if as food, then demand food-acceptable qualities	Elastomer / Thermoplastic (short name)				
	Aethylene-Propylene rubbers (EPM, EPDM)	Neoprene / Chloroprene (CR)	Nitrile rubber (NBR)	Silicone rubbers (Q, MQ)	PVC soft (PVC)
Buttermilk [1]	1	1	1	1	1
Butyl acetate	2	4	4	3	4
Butyl alcohol	1	1	1	2	1
Butyl benzoate	1	4	4	-	-
Butyl glycol	1	3	1	2	4
Butyl oleate	2	4	-	-	-
Butyl stearate	3	4	2	1	1
Butylaether	3	2	1	3	1
Butylamine	4	4	3	2	-
Butylcarbitol	1	2	1	-	-
Butylene, liquid	2	3	2	-	1
Butyraldehyde	2	2	3	3	-
Butyric acid, aqueous [1]	2	3	4	2	1
Calcined soda: see sodium carbonate	-	-	-	-	-
Calcium acetate	1	2	2	-	-
Calcium bisulphate, aqueous	1	1	1	1	1
Calcium bisulphite	1	2	3	2	1
Calcium carbonate	1	1	1	1	1
Calcium chloride, aqueous	1	1	1	1	1
Calcium hydroxide, aqueous (slaked lime)	1	1	2	2	1
Calcium hypochlorite, aqueous	1	4	1	3	1
Calcium nitrate red	1	1	1	2	1
Calcium oxide Lime, burnt	1	1	1	2	1
Calcium sulphide	1	1	2	2	-
Calcium sulphot (gypsum), aqueous	1	1	1	1	1
Calcium: see Calcium	-	-	-	-	-
Carbitol: see dioethylene glycol monoaethylaether	-	-	-	-	-
Carbolic acid: see phenol	-	-	-	-	-
Carbolineum, aqueous	2	2	2	4	3
Carbolineum: see Carbolineum / Carbolic acid: see Phenol	-	-	-	-	-
Carbon dioxide solid (dry ice -80°C) resistant, but elastomers and plastomers become stiff to brittle	-	-	-	-	-
Carbon dioxide, gaseous, and wet and dry	1	1	1	1	1
Carbon disulphide	4	4	4	4	2
Carbon disulphide: see carbon disulphide	-	-	-	-	-
Carbon monoxide	3	2	2	1	1
Carbon tetrachloride (carbon tetrachloride)	4	4	3	4	4
Carbon tetrachloride (carbon tetrachloride)	4	4	3	4	4
Carbonic acid: see carbon dioxide	-	-	-	-	-

1 = No to low effect, 0 to 5 % volume swell / very good
2 = Low to moderate effect, 5 to 10 % volume swell / good
3 = Moderate to strong effect, 10 to 20 % volume swell / moderate
4 = Not recommended / poor
- = No values available

All values and descriptions are indicative and not binding for every case of application. Any warranty is excluded.

Resistance list of elastomers and thermoplastics against chemical media

Medium [1] if as food, then demand food-acceptable qualities	Elastomer / Thermoplastic (short name)				
	Aethylene-Propylene rubbers (EPM, EPDM)	Neoprene / Chloroprene (CR)	Nitrile rubber (NBR)	Silicone rubbers (Q, MQ)	PVC soft (PVC)
Castor oil [1]	2	1	1	1	-
Caustic potash solution: see potassium hydroxide / potassium nitrate: see colium nitrate red	-	-	-	-	-
Cellulose acetate	2	3	1	1	-
Cellulube hydraulic oil: see phosphate ester-based hydraulic oil	-	-	-	-	-
Chloraethyl: see Aethyl chloride/ Chlorobenzene: see Monochlorobenzene	-	-	-	-	-
Chlorcalcium: see calcium chloride	-	-	-	-	-
Chloric acid, aqueous	2	4	4	-	1
Chlorinated hydrocarbons: see individual designations. Generally applies	4	4	2-3	4	4
Chlorinated water 3%	3	2	3	2	1
Chlorine dioxide	3	4	4	3	-
Chlorine, dry	3	4	3	4	1
Chlorine, moist	3	4	4	4	4
Chloroacetic acid: see Monochloroacetic acid/Chlorine lime: see Colcium hypochlorite	-	-	-	-	-
Chlorobutadiene	4	4	4	-	-
Chlorodiphenyl (Clophen)	4	4	4	2	4
Chloroform (trichloromethane)	4	4	4	4	4
Chloromethyl: see methyl chloride	-	-	-	-	-
Chlorosulfonic acid	4	4	4	4	4
Chlorothenes: s.Trichloraethane	-	-	-	-	-
Chromic acid 10%	2	4	4	3	1
Chromic acid 25%	2	4	4	4	2
Chromic acid 50%	2	4	4	4	4
Chromium trioxide: see chromic acid	-	-	-	-	-
Citric acid [1]	1	1	1	1	1
Citric acid, aqueous [1]	1	1	1	1	1
Clophen: see chlorodiphenyl	-	-	-	-	-
Coal tar (see also hot tar)	4	3	2	1	2
Coconut fat and Cl	1	2	1	1	1
Cod liver oil (oil) [1]	1	2	1	2	4
Colium bicarbonate	1	1	1	1	1
Colium bichromate: see potassium dichromate	-	-	-	-	-
Colium bromide, aqueous	1	1	1	1	1
Compressed air: see Air, oily	-	-	-	-	-
Copper acetate	1	2	2	-	-
Copper chloride, aqueous	1	1	1	1	1
Copper cyanide	1	1	1	1	-
Copper hydroxide: see mountain blue	-	-	-	-	-

Medium [1] if as food, then demand food-acceptable qualities	Elastomer / Thermoplastic (short name)				
	Aethylene-Propylene rubbers (EPM, EPDM)	Neoprene / Chloroprene (CR)	Nitrile rubber (NBR)	Silicone rubbers (Q, MQ)	PVC soft (PVC)
Copper nitrate, aqueous	1	1	1	1	3
Copper sulphate, aqueous (copper vitriol)	1	1	1	1	2-3
Cottonseed oil [1]	1	1-2	1	1-2	1
Creosols (cresylic acid)	4	3	3	2	4
Creosote	2	4	4	2	2-3
Cresol: see cresol	-	-	-	-	-
Crude oil, strongly womausch	4	3	1-2	4	3
Cyanide: see potassium cyanide	-	-	-	-	-
Cyclohexane (hexohydrobenzene)	4	4	1	4	1
Cyclohexonol	4	1	2	2	4
Cyclohexonone	3	4	4	2	4
Decalin (decohydronaphthalene)	4	4	1-2	4	1
Detergent, synth. 20°C	1	1	1	1	1
Developer fluids (general)	2	1	1	1	-
Dextrose. s. Glucose	-	-	-	-	-
Dextrose: see glucose	-	-	-	-	-
Diacetone alcohol	1	3	4	1	-
Diaethyl sebacate	2	4	4	2	-
Diaethylamine	2	3	3	2	-
Diaethylbenzene	4	4	4	4	1
Diaethylenalycol monoaethylaether (Corbitol)	2	2	2	2	-
Diaethylene glycol	1	1	1	2	1
Dibenzylaether	2	4	4	2	4
Dibutyl phthalate	2	3	3	2	3
Dibutylamine	4	4	4	3	-
Dibutylsebazat	2	4	4	1	3
Dichlorobenzene	4	4	3	4	4
Dichloroethylene	4	4	4	4	4
Dichloroisopropyl ether	3	4	4	4	-
Dichloromethane	4	4	3	4	4
Diesel oil	4	2-3	1	3	3
Diglycol: see diathylene glycol	-	-	-	-	-
Dimethyl ether	4	3	3	-	4
Dimethylamine	2	4	4	-	4
Dimethylaniline	2	4	4	2	-
Dimethylformamide	2	3	2	2	-
Dimothylphtholate	2	4	4	-	-
Dioclyphthalate	2	4	4	3	3
Dioctylsebazot	2	4	4	3	-
Dioethonolamine	1	-	3	-	-
Dioethylaether: see ether	-	-	-	-	-
Dioxane	2	4	4	4	4

1 = No to low effect, 0 to 5 % volume swell / very good
2 = Low to moderate effect, 5 to 10 % volume swell / good
3 = Moderate to strong effect, 10 to 20 % volume swell / moderate
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Resistance list of elastomers and thermoplastics against chemical media

EMKA Beschlagteile

Medium [1] if as food, then demand food-acceptable qualities	Elastomer / Thermoplastic (short name)				
	Aethylene-Propylene rubbers (EPM, EPDM)	Neoprene / Chloroprene (CR)	Nitrile rubber (NBR)	Silicone rubbers (Q, MQ)	PVC soft (PVC)
Diphenyl	4	4	3	4	4
Diphenyl oxide	4	4	4	2	-
Dipropylene glycol	1	1	1	-	-
Distilled spirits: see ethyl alcohol denatured	-	-	-	-	-
Dodecyl alcohol	1	1	1	-	-
Eau de Javelle: see colium hypochlorite	-	-	-	-	-
Engine oil: see oil and greases, clarify mineral additives	-	-	-	-	-
Epichlorohydrin liquid	2	4	4	4	-
Epsom salt: see magnesium sulphate	-	-	-	-	-
Essential oils [1]	-	4	2	4	4
Ester: see individual designations The following applies in general	2	4	4	4	4
Fats: see oils and fats	-	-	-	-	-
Fatty acids in general	3	2	2	3	1
Ferric chloride (remote), aqueous	1	1	1	1	1
Ferrous sulphate, ferrous vitriol, aqueous	1	1	1	1	1
Fluorine liquid	3	-	-	-	-
Fluorobenzene	4	4	4	4	-
Fluoroboric acid 65	2	2	2	4	1
Formaldehyde	2	2	2	1	2
Formalin (30 - 40% aqueous formaldehyde solution with 8-12 methylol alcohol added)	1	1	2	2	2
Formic acid	1	1	2	2	3
Freone and Frigene: request detailed application advice	-	-	-	-	-
Fruit juices [1]	1	1	1	1	1
Fruit pulp [1]	1	1	1	1	1
Fruit wines fermented [1]	1	1	1	1	1
Fuming sulphuric acids s. Oleum	-	-	-	-	-
Fuorsilicic acid: see silicofluoric acid/ hydrofluoric (acid): Hydrofluoric acid	-	-	-	-	-
Furfuryl alcohol (Furfurol)	2	2	4	2	1
Gallic acid	2	4	4	1	1
Gasoliv: s. Benzine	-	-	-	-	-
Gelatine, aqueous [1]	1	1	1	1	1
Glacial acetic acid: see concentrated acetic acid	-	-	-	-	-
Glauber's salt: see sodium sulphate	-	-	-	-	-
Glucose [1]	1	1	1	1	1
Glue, animal	3	1	1	1	1
Glycerine	1	1	1	1	1
Glycerol: see ethylene glycol pure	-	-	-	-	-

Medium [1] if as food, then demand food-acceptable qualities	Elastomer / Thermoplastic (short name)				
	Aethylene-Propylene rubbers (EPM, EPDM)	Neoprene / Chloroprene (CR)	Nitrile rubber (NBR)	Silicone rubbers (Q, MQ)	PVC soft (PVC)
Glycols: determine exact designation: generally applicable	1	1	1	1	1
Grain oil	2	2	1	1	2
Grape set, unfermented [1]	1	1	1	1	1
Gypsum: see calcium sulphate	-	-	-	-	-
Heating oils	4	2	1	3	3
Heavy petrol (paint. or white spirit): see petrols	-	-	-	-	-
Helium	1	1	1	1	1
Heptane	4	2	1	4	1
Hexaldehyde	2	2	4	3	-
Hexane	4	1	1	4	1
Hexanol - hexyl alcohol	1	2	1	3	3
Hexohydrobenzene: see Cyclohexane / Hexoline: see Cyclohexonol	-	-	-	-	-
Hot air: see air	-	-	-	-	-
Hot bitumen up to °C	4	4	12	4	4
Hot tar up to °C	4	4	100	4	4
Hydraulic oils and fluids - glycol based	1	2	1	2	-
Hydraulic oils and fluids - mineral oil based	4	2	1	3	3
Hydraulic oils and fluids - phosphate ester based	2	4	4	2-3	4
Hydraulic oils based on - mineral oil	4	2	1	3	3
Hydraulic oils on - glycol basis (polyalkylglycols)	1	2	1	2	-
Hydrazine	1	2	2	4	1
Hydrobromic acid	2	2	3	2	4
Hydrochloric (acid) s. Hydrochloric acid	-	-	-	-	-
Hydrochloric acid 15%	1	3	2	1	1
Hydrochloric acid 38% (conc.)	1	3	3	3	2
Hydrochloric acid gas	1	3	2	1	1
Hydrofluoric acid 10%	4	4	3	1	1
Hydrofluoric acid 30%	4	4	4	1	4
Hydrofluoric acid 75%	4	4	4	1-2	4
Hydrogen (gas)	1	1	1	3	1
Hydrogen cyanide (acid): see Hydrogen cyanide / Sodium cyanide s. Sodium cyanide	-	-	-	-	-
Hydrogen cyanide 20%	1	3	3	2	1
Hydrogen cyanide 98% (conc.)	2	3	3	2	1
Hydrogen peroxide 10%	2	4	3	1	1
Hydrogen peroxide 30%	2	4	4	1	4
Hydrogen sulphide, dry	2	3	2	1	4
Hydrogen sulphide, moist	2	3	3	1	4

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Hydrozine hydrate, aqueous	1	3	3	3	1
Illuminating gas: see town gas	-	-	-	-	-
Irradiation, radioactive: generally applies	2	4	4	4	4
Isobutanol = isobutyl alcohol	1	1	2	1	1
Isooctane	4	2	1	1	1
Isooctanol = isoctyl alcohol	2	1	2	2	1
Isophorone	1	4	4	4	-
Isopropanol = isopropyl alcohol	1	1	2	1	3
Isopropyl chloride	4	-	4	-	-
Isopropylbenzene	4	4	4	4	-
Isopropylocetate	2	4	4	2	2
Jovelle lye: see colium hypochlorite	-	-	-	-	-
Keroses (paraffin)	4	3	2	3	1
Ketones: see individual designations: generally applies	2	4	4	2	4
Lactic acid I (sulphuric acid / nitric acid / water)	4	4	4	4	4
Lactic acid II (sulphuric acid / phosphoric acid / water)	2	3	4	-	1
Lactic acid, aqueous [1]	2	3	3	1	3
Lanolin	3	2	1	3	2
Laürylol alcohol: see dodecyl alcohol	-	-	-	-	-
Lead acetate, aqueous	1	1	1	1	1
Lead arsenate, aqueous	1	1	1	1	1
Lead nitrate	1	1	1	2	-
Lead sulphate	1	1	1	1	1
Light petrol: see petrols	-	-	-	-	-
Lignite tar oil: see coal tar	-	-	-	-	-
Lime, burnt s. Calcium oxide / Lime, limed: see Calcium hydroxide / Milk of lime (lime water): see Calcium hydroxide, aqueous	-	-	-	-	-
Limestone: see calcium carbonate	-	-	-	-	-
Linseed oil [1]	2	2	1	1	3
Liquefied petroleum gases (LPG). see corresponding chemical designation of the gas.	-	-	-	-	-
Liquid manure	1	1	1	1	1
LPG: see corresponding chem. Designation of the gas	-	-	-	-	-
Isopropylaether	3	3	3	-	3
Lubricating oils and greases: see oils	-	-	-	-	-
Lyes: see exact designations The following applies in general	1	1-2	2-3	2	1
Machine oils: s. Oils, mineral	-	-	-	-	-

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	Aethylene-Propylene rubbers (EPM, EPDM)	Neoprene / Chloroprene (CR)	Nitrile rubber (NBR)	Silicone rubbers (Q, MQ)	PVC soft (PVC)
Magnesium chloride, aqueous	1	1	1	1	1
Magnesium hydroxide	1	1	2	-	-
Magnesium silicate (talc)	1	1	1	1	1
Magnesium sulphate	1	1	2	1	1
Magnesium sulphite, aqueous	1	1	1	1	1
Maleic acid, aqueous	3	4	4	-	1
Malic acid, aqueous [1]	1	1	1	1	1
Margarine fats and oils [1]	3	2	1	3	2
Mash [1]	1	1	1	1	1
MEK: see methyl ethyl ketone	-	-	-	-	-
Mercury	1	1	1	1	3
Mercury chloride (sublimate)	1	2	3	1	3
Mercury nitrate	1	1	1	1	1
Mesityl oxide	2	4	4	4	-
Methane(gas)	3	3	1	3	1
Methanol: see methyl alcohol	-	-	-	-	-
Methylacetate	2	4	4	4	4
Methyl alcohol	1	1	1	1	1
Methyl chloride	2	4	4	4	3
Methyl ethyl ketone (MEK)	1	4	4	4	3
Methyl glycol acetate	2	-	4	4	-
Methyl gycol (methyl cellosolve)	2	2	-	-	4
Methyl phthalate: see dimethyl phthalate	-	-	-	-	-
Methylamine, aqueous	1	1	4	-	3
Methylene chloride: see dichloromethane	-	-	-	-	-
Methylisobutylketane	3	4	4	3	-
Milk [1]	2	1	1	1	1
Mineral oil: see Oils, mineral	-	-	-	-	-
Molasses [1]	1	1	1	1	1
Monochloroacetic acid	2	4	4	4	4
Monochlorobenzene	4	4	4	3	4
Monochloromethane: see methyl chloride	-	-	-	-	-
Monostyrene: see styrene, monomeric	-	-	-	-	-
Mountain blue (copper hydroxide)	1	1-2	4	1	-
Must, fermented: see fruit wine	-	-	-	-	-
Must, unfermented [1]	1	1	1	1	1
Myristyl alcohol - Myristine alcohol	1	1	1	-	1
Naphtha (petroleum)	4	4	1	2	3
Naphthalene: see rock oil	-	-	-	-	-
Natnummtrit	1	1	1	1	1
Natural gas, dry	1	1	1	4	1
Natural gas, wet	3	1	1	4	1

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	Aethylene-Propylene rubbers (EPM, EPDM)	Neoprene / Chloroprene (CR)	Nitrile rubber (NBR)	Silicone rubbers (Q, MQ)	PVC soft (PVC)
Natural gas: see Natural gas / Petroleum: see Oils, mineral	-	-	-	-	-
Nickel sulphate, aqueous	1	1	1	1	1
Nitrating acid (mixtures of nitric acid and conc. sulphuric acid, see these)	-	-	-	-	-
Nitric acid 10%	1	3	3	3	1
Nitric acid 25%	1	4	4	4	1
Nitric acid 40%	2	4	4	4	2
Nitric acid 60%	3	4	4	4	3
Nitrobenzene	4	4	4	4	4
Nitrogen	1	1	1	1	1
Nitropropane	2	4	4	4	-
Nitrotoluene	3	4	3	-	4
Nitrous oxide (laughing gas)	1	1	1	1	1
Nonyl alcohol (Nonanol)	1	1	4	2	-
Octane	4	3	1	4	-
Octanol = Octyl alcohol	1	1	2	2	4
Oils and fats - animal (animal) [1]	2	2	1	3	2
Oils and fats - mineral, without additives at 20°C	4	2-3	1	2-3	2
Oils and fats - mineral, without additives up to °C	4	4	120	4	4
Oils and fats - vegetable (vegetabile) [1]	3	2	1	3	2
Oils and greases - ASTM oil no. 1 20 °C	4	1	1	2	2
Oils and greases - ASTM Oil No. 2 20 °C	4	2	1	3	2
Oils and greases - ASTM oil no. 3 20 °C	4	2	1	3	2
Oleic (acid): see oleic acid	-	-	-	-	-
Oleic acid	4	3	2	4	1
Oleum (fuming sulphuric acid)	4	4	4	4	4
Oleum vapours	3	4	4	4	3
Olive oil [1]	3	1	1	2	1
Oxalic acid, aqueous	2	2	2	1	2
Oxygen pure up to +°C	120	90	4	175	70
Ozone	1	3	4	1	1
Palm oil [1]	1	2	1	1	3
Palmitic acid	3	2	3	1	4
Paraffin, poroffin oils	3	2	1	2	1
Paraformaldehyde	2	2	2	1	-
Pentachlorophenol	2	4	4	3	-
Pentane	4	1	1	4	1
Perborate: see notriumborate	-	-	-	-	-
Perchloraethylene	4	4	2-3	2	4
Perchloric acid, aqueous	2	3	3	4	1
Perhydrol: see hydrogen peroxide	-	-	-	-	-

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	Aethylene-Propylene rubbers (EPM, EPDM)	Neoprene / Chloroprene (CR)	Nitrile rubber (NBR)	Silicone rubbers (Q, MQ)	PVC soft (PVC)
Permanganate: see potassium permanganate	-	-	-	-	-
Petrol(eum)	4	2	1	2	4
Petrol, aircraft	4	2-3	1	4	1
Petrol, highly aromatic	4	3	1-2	4	3
Petrol, low aromatic	4	2-3	1	4	3
Petroleum ether: see petrol	-	-	-	-	-
Phenol (corbolic acid), aqueous	1	3	4	2	4
Phosphate ester based hydraulic oils	2	4	4	2-3	4
Phosphoric acid 50%	1	1	2	2	1
Phosphoric acid 85	1	1	3	3	1
Phosphorus oxychloride	1	4	4	-	4
Phosphorus soureAlumina: see aluminium phosphate	-	-	-	-	-
Phthalic anhydride, aqueous (phthalic acid)	1	1	4	-	1
Picric acid	1	3	3	1	1
Pig fat: s. Oils and fats, animal	-	-	-	-	-
Pine oil [1]	4	4	2	2	2
Pinhole gas: see nitrous oxide	-	-	-	-	-
Polychlorinated biphenyls (pyranols): see oils, transformer oils	-	-	-	-	-
Potassium acetate, aqueous	1	2	2	4	1
Potassium aluminium sulphate (alum)	1	1	2	2	1
Potassium borate, aqueous	1	1	1	1	1
Potassium carbonate (potash)	1	1	1	1	1
Potassium chlorate, aqueous	1	1	1	2	1
Potassium chloride	1	1	1	1	1
Potassium cyanide (cyanide potassium)	1	1	1	1	4
Potassium dichromate	1	3	2	1	1
Potassium hydroxide (Aetzkali, potassium hydroxide solution)	1	1	1	3	1
Potassium hypochlorite (Javelle)	2	4	2	2	1
Potassium iodide, aqueous	1	1	1	-	3
Potassium nitrate, aqueous	1	1	1	1	1
Potassium permanganate 10 °C, aqueous	1	3	2	1	1
Potassium phosphate (mono and dibasic)	1	2	1	4	
Potassium sulphate	1	1	1	1	1
Potassium sulphite	1	1	1	1	1
Pottosche: see colium carbonate	-	-	-	-	-
Propane gas	1	1	1	4	1
Propane, liquid	4	2	1	3	1
Propanol: see propyl alcohol	-	-	-	-	-
Propionic acid	1	3	4	-	1

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Propyl acetate	1	1	4	-	-
Propyl alcohol	1	1	2	2	3
Propylamine	4	4	4	4	-
Propylene (propene)	4	4	4	4	-
Propylene dichloride	4	4	4	4	-
Propylene glycol	1	1	3	1	3
Propylene oxide	2	4	4	4	-
pure silicone oils and greases	1	1	1	2	4
Pydraul: see Phosphate ester based hydraulic fluids / Pyronole: see Oils, Transformer oils	-	-	-	-	-
Pyridine	1	4	4	4	4
Rapeseed (seed) oil	1	2	2	4	-
Raw sugar juice [1]	1	1	1	1	1
Salmiak: s. Ammonium chloride / Salmiak spirit s. Ammonia in water	-	-	-	-	-
Salt water: see brine or see water, seawater	-	-	-	-	-
Salt: if table salt see sodium chloride	-	-	-	-	-
Sangojol i.Turpentine oil substitute: s. Benzines	-	-	-	-	-
Sea water: see water	-	-	-	-	-
Separating water: see nitric acid	-	-	-	-	-
Silicic acid: see silicon dioxide	-	-	-	-	-
Silicofluoric acid, aqueous	2	3	2	4	1
Silicon dioxide (silicic acid)	1	1	1	1	1
Skydrol: see hydraulic fluids, based on phosphate esters	-	-	-	-	-
Soap solution	1	1	1	1	1
Soda ash, crystallised: see sodium carbanate / soda ash, calcined: see sodium carbonate	-	-	-	-	-
Sodium acetate, aqueous	1	1	1	1	1
Sodium bicarbonate, also double carbonic acid N: see sodium bicarbonate Caustic soda: see sodium hydroxide / sodium nitrate: see sodium nitrate	-	-	-	-	-
Sodium bicarbonate, aqueous	1	1	1	1	1
Sodium bisulphate	1	1	1	1	1
Sodium bisulphite, aqueous	1	1	1	1	1
Sodium borate (borax)	1	1	2	2	1
Sodium carbonate	1	1	1	1	1
Sodium chlorate, aqueous	1	1	1	1	1
Sodium chloride (table salt) [1]	1	1	1	1	1
Sodium cyanide	1	1	1	1	1

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Sodium dichromate	1	2	3	2	-
Sodium fluoride	1	1	1	2	1
Sodium fluoroaluminate 10%	1	1	1	2	1
Sodium hydroxide (caustic soda, aetz soda) 25%, 100°C	2	3	4	4	4
Sodium hydroxide, (caustic soda, aetz soda) 25%, 20°C	1	1	2	2	1
Sodium hypochlorite 10%	1	3	1	1	1
Sodium hypochlorite 30%	1	4	2	3	1
Sodium methaphosphate	1	1	1	1	1
Sodium nitrate	1	1	1	1	1
Sodium perborate	1	1	1	1	2
Sodium peroxide	2	3	2	4	-
Sodium phosphate (see also additionally trisodium phosphate)	1	1	1	1	1
Sodium silicate, aqueous	1	1	1	1	1
Sodium sulphate, aqueous	2	1	1	1	1
Sodium sulphide, aqueous	1	4	1	-	1
Sodium sulphite, aqueous	1	1	1	1	1
Sodium thiosulphate (antichlor)	1	1	1	1	1
Solicylic acid, aqueous	1	1	1-2	-	-
Solvent: see specific designations	-	-	-	-	-
Soybean oil [1]	3	2	1	1	1
Spindle oil. s. Oils, mineral	-	-	-	-	-
Spirit: s. Athyl alcohol, denatured	-	-	-	-	-
Spirits of all kinds [1]	1	1	1	1	1
Starch syrup [1]	1	1	1	1	1
Starch, aqueous [1]	1	1	1	1	1
Steam to °C	130	4	100	-	120
Stearic (acid)	2	2	2	1	1
Stone oil (naphthalene)	4	4	1	3	1
Styrene, monomer	4	4	4	4	4
Sublimate: see mercuric chloride	-	-	-	-	-
Sugar, watery [1] (raw sugar juice, see this)	1	1	1	1	1
Sulphur ether: s. ether / sulphur dioxide s. sulphurous acid	-	-	-	-	-
Sulphur trioxide	2	4	3	3	1
Sulphur, molten, 90 °C	4	4	4	1	4
Sulphuric acid 10%	1	1	1	2	1
Sulphuric acid 30%	1	2	2	4	1
Sulphuric acid 50%	1	3	3	4	1
Sulphuric acid 75%	2	4	4	4	3
Sulphuric acid 90%	3	4	4	4	4

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Sulphuric acid conc. (oleum, fuming S.)	4	4	4	4	4
Sulphurous acid 10%, moist	1	3	3	1	2
Sulphurous acid 75%, moist	2	4	4	3	4
Table salt: see sodium chloride	-	-	-	-	-
Talc(um): s. Magnesium silicot	-	-	-	-	-
Tallow	1	1	1	1	1
Tannic acid (tannin)	2	2	2	2	1
Tannin: see tannic acid	-	-	-	-	-
Tar (see also hot tar)	4	3	2	2	2
Tartaric acid, aqueous [1]	2	1	1	1	1
Tetrachloroethylene (perchloroethylene)	4	4	2	4	4
Tetrahydrofuran	4	4	3	-	4
Tetralin = Tetrahydronaphthalene	4	4	3	4	1
Thinners for paints and varnishes: Determine composition	-	-	-	-	-
Tin II chloride, aqueous	2	1	1	2	1
Tincture of iodine (5-10% alcoholic iodine solution)	2	4	2	4	4
Toluol	4	4	3	4	4
Town gas, illuminating gas (natural gas: see natural gas)	3	3	2	3	1
Tran: see cod liver oil	-	-	-	-	-
Transformer oils (pyranols)	4	4	1	2	3
Transformer oils (pyranols) - Diesel oil	4	2-3	1	3	3
Transformer oils (pyranols) - Heating oil	4	2	1	3	3
Transformer oils (pyranols) - silicone-based	1	1	1	4	1
Transformer oils: see oils	-	-	-	-	-
Triäthanolamine	3	1	2	1	4
Tributyl phosphate	1	4	4	-	4
Trichloroethane (Chlorothene)	4	4	4	4	-
Trichloroethylene	4	4	3	4	4
Trichloromethane: see chloroform	-	-	-	-	-
Tricresyl phosphate	1	3	4	1	4
Triethylamine	4	-	3	-	-
Trioctylphosphot	4	4	2	3	4
Trisodium phosphate	1	1	1	1	1
Turpentine (oil)	4	4	1	4	3
Turpentine substitute: see petrol	-	-	-	-	-
Urine	1	1	1	1	1
Urine: see urine	-	-	-	-	-
Varnishes: be sure to determine composition	-	-	-	-	-
Vaseline: s. Oils and fats, mineral	-	-	-	-	-

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Vegetable oils in general	3	2	1	3	2
Vinegar, (table vinegar) [1]	1	1	1	1	1
Vinyl chloride, monomer	2	4	4	4	4
Vinylocetate	1	1	1	-	4
Vitriol: s. Copper sulphate / Vitriol oil: s. Oleum	-	-	-	-	-
Water - aqua regia: see this	-	-	-	-	-
Water - distilled, demineralised, desalinated, condensed water: does not affect polymer, polymer affects water	-	-	-	-	-
Water - drinking or mineral water, without additives [1] to °C	120	70	110	120	70
Water - mineral water CO. saturated	1	1	1	1	1
Water - Seawater	1	1	1	1	1
Water glass: see sodium silicate	-	-	-	-	-
Water vapour up to °C	130	4	100	120	4
Weathering	1	1-2	4	1	1
White Spirit: s. Benzine	-	-	-	-	-
White spirit: see Benzine	-	-	-	-	-
White spirit: see petrol	-	-	-	-	-
Wines red and white [1]	1	1	1	1	1
Wood oil	4	3	2	3	3
Wool grease: see lanolin	-	-	-	-	-
Xylene	4	4	3-4	4	4
Xylenol	4	4	3-4	4	4
Zinc acetate, aqueous [1]	1	2	2	4	-
Zinc chloride, aqueous [1]	1	1	1	1	1
Zinc sulphate, aqueous	1	1	1	1	1

1 = No to low effect, 0 to 5 % volume swell / very good
2 = Low to moderate effect, 5 to 10 % volume swell / good
3 = Moderate to strong effect, 10 to 20 % volume swell / moderate
4 = Not recommended / poor
- = No values available

All values and descriptions are indicative and not binding for every case of application. Any warranty is excluded.

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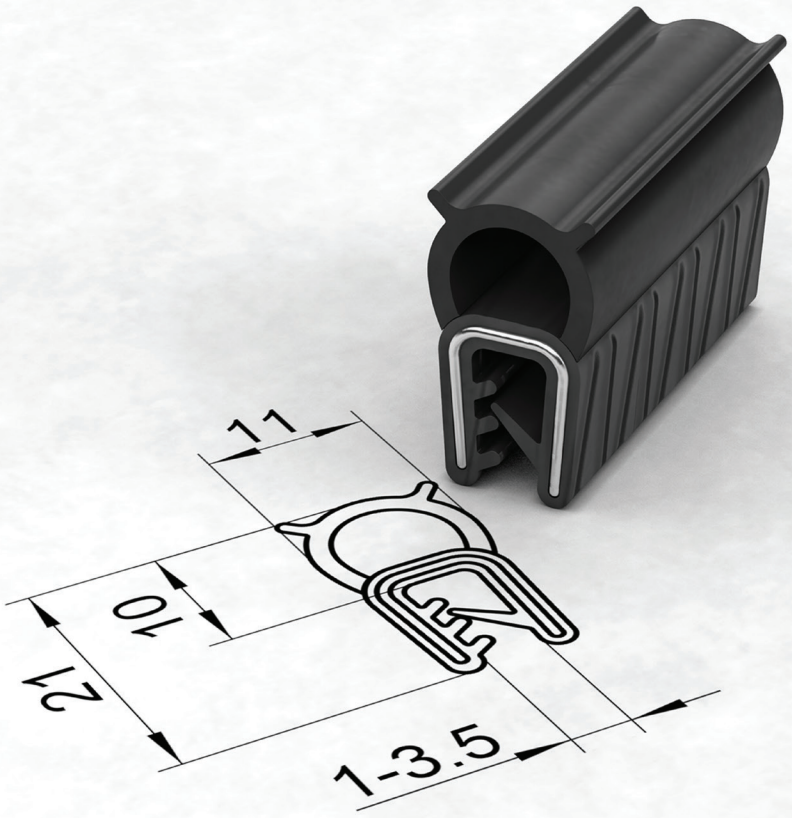

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