CUSTOM MOULDINGS

A COMPREHENSIVE GUIDE FOR ALL OF YOUR CUSTOM MOULDING & FABRICATION NEEDS

宇航橡胶 YuHang Rubber
RUBBER
南京宇航橡胶有阻公司
NANJING YUHANG RUBBER CO.LTD

Manufacturers · Designers · Distributors

Custom Moulding Specialists

Our custom moulding process provides almost endless manufacturing possibilities and enables us to produce much more complicated and precise profiles. At The Rubber Company we have over 100 years of experience working with a variety of techiniques, machinery and compounds. We understand that no two requirements will ever be the same, so we tailor each project to suit you. We work directly with customers from a variety of industries all around the world. This enables you to have complete control of the outcome of the profile, which ensures that it perfectly fits your unique requirements.

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WHAT IS MOULDING & FABRICATION?

Bespoke Manufacturing Methods

The rubber moulding process enables us to create complex and highly detailed profiles. One of the key advantages of rubber moulding is that the rubber compounds we use feature naturally elastic properties. This enables the moulded profile or part to easily return to its original shape after applying pressure. The highly durable and resilient nature of rubber enables it to be used in a wide variety of applications and industries. We regularly supply rubber parts for use in: medical, aerospace, industrial, construction and leisure industries. There are many different moulding techniques available, which enables us to tailor each project to suit your unique requirements.

Aside from moulding we also offer a variety of rubber fabrication services. We can pressure bond rubber to metal in order to create a strong and durable connection. We can manufacture and supply a range of rubber coated textiles and can convert them into strips, gaskets or any other format to suit your requirements. Our fabrication service also includes high quality stitched rubber bellows, which are perfect for low pressure applications or as preproduction samples.

Don't hesitate to get in contact with us regarding our bespoke moulding service. We are always happy to assist you in whatever way we can.

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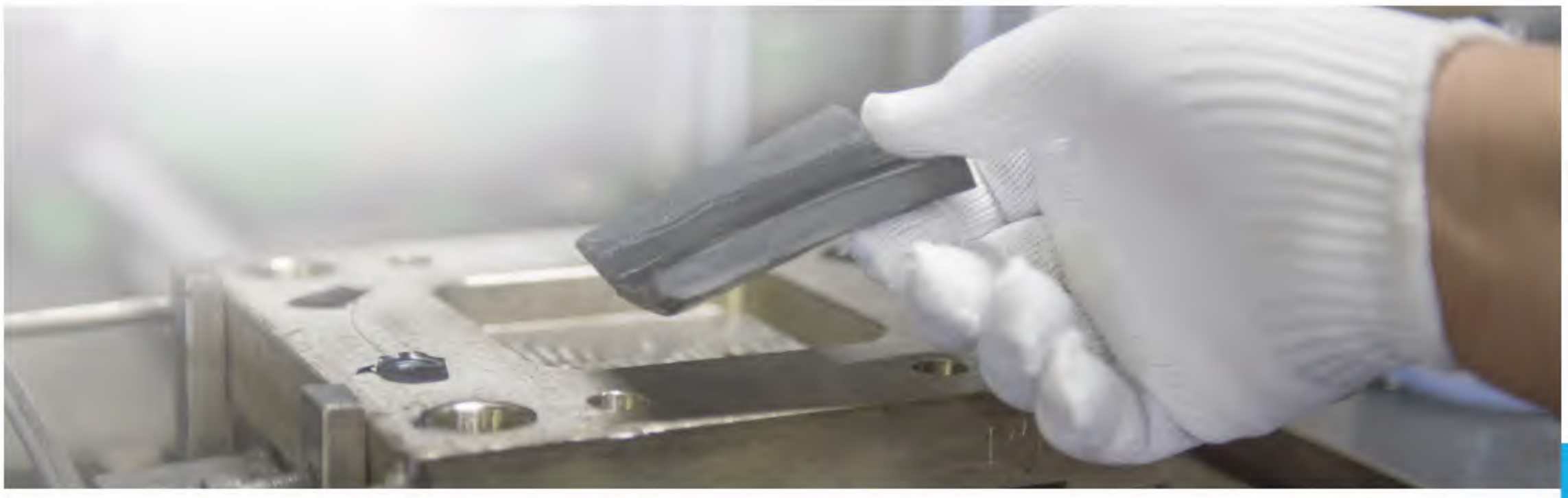
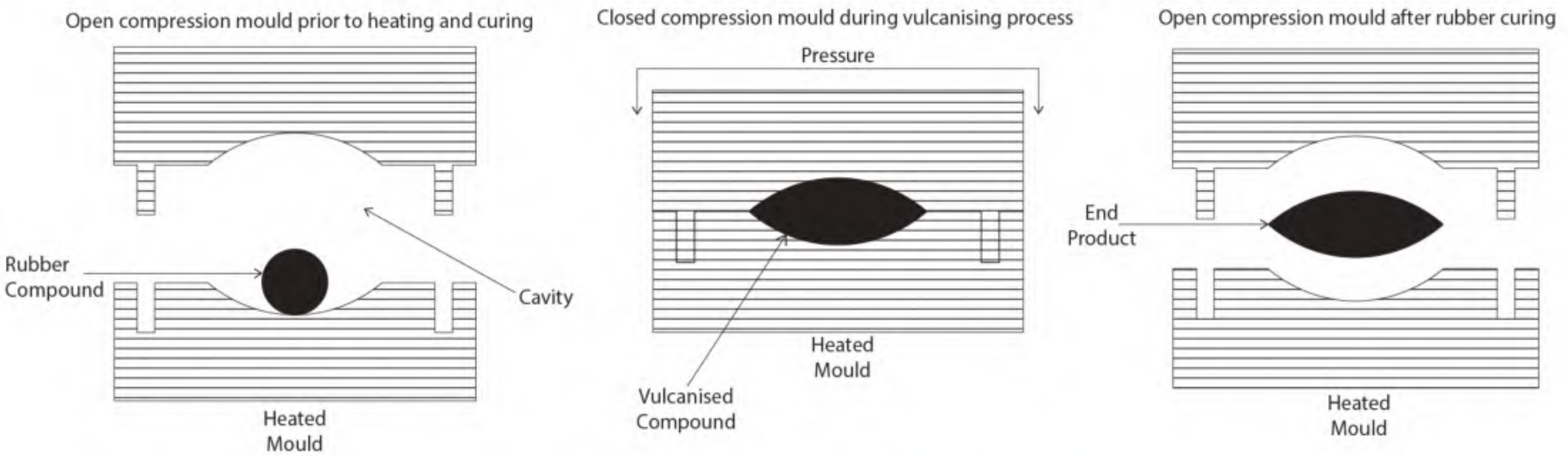
RUBBER COMPRESSION MOULDING



Compression moulding is one of the oldest and simplest techniques for creating a moulded profile. An uncured rubber compound is placed between two heated mould plates within a hydraulic press. A great amount of pressure combined with the heat of the plates forces the rubber into the cavities of the design in order to create the profile. The rubber is then held within the moulding places under pressure and temperatures in order to cure the compound. Once the vulcanisation process is complete the rubber compound will remain in the shape of the mould and is ready to be used.

The simplicity of this method tends to lend itself towards more simplistic designs and low to medium volume production runs. Compression moulding is typically more cost-effective when compared to other moulding techniques. This is due the lack of specialist tools required, as well as the relatively quick production time. Once the mould plates have been created, they can be used many times over.

The Compression Moulding Process



Method Advantages

- More cost-effective than other methods
- Simple to set-up and run
- Unlimited production quantities
- Ideal for larger cross-section designs
- Less waste produced

Method Disadvantages

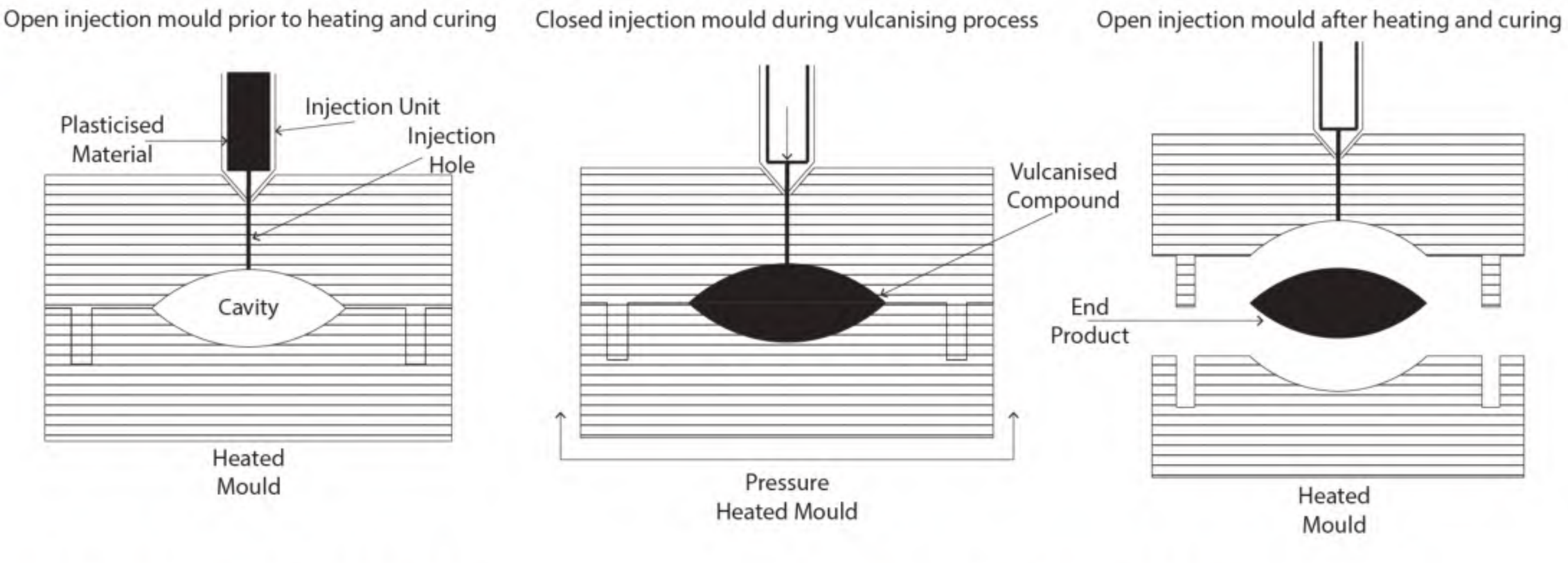
- Profile tolerance can vary
- Not suitable for highly detailed designs
- Slower cure times
- Coloured rubber can be contaminated

RUBBER INJECTION MOULDING

The injection moulding process is generally considered to be more complicated than compression and transfer moulding. However, this method is able to achieve higher dimensional tolerances across a variety of design size and complexities. The initial set-up costs are typically higher than compression moulding, but the actual unit cost can be much more economical.

The process involves "injecting" a soft and pliable rubber compound through a small hole into a heated mould cavity. A combination of heat and pressure is then applied to the compound within the mould in order to vulcanise the material. The part can then be removed from the mould to cure while manufacturing of the next part begins. The speed and accuracy of production enables injection moulding to be utilised for medium to high production runs. Not only does this method create more accurate parts but it also produces significantly less waste material.

The Injection Moulding Process



Method Advantages

- Faster cycle times
- Suitable for high production runs
- Can produce high precision components
- Low levels of flash
- Less waste produced

Method Disadvantages

- Higher cost to set up machine
- Not economical for small production runs
- Potential size restrictions

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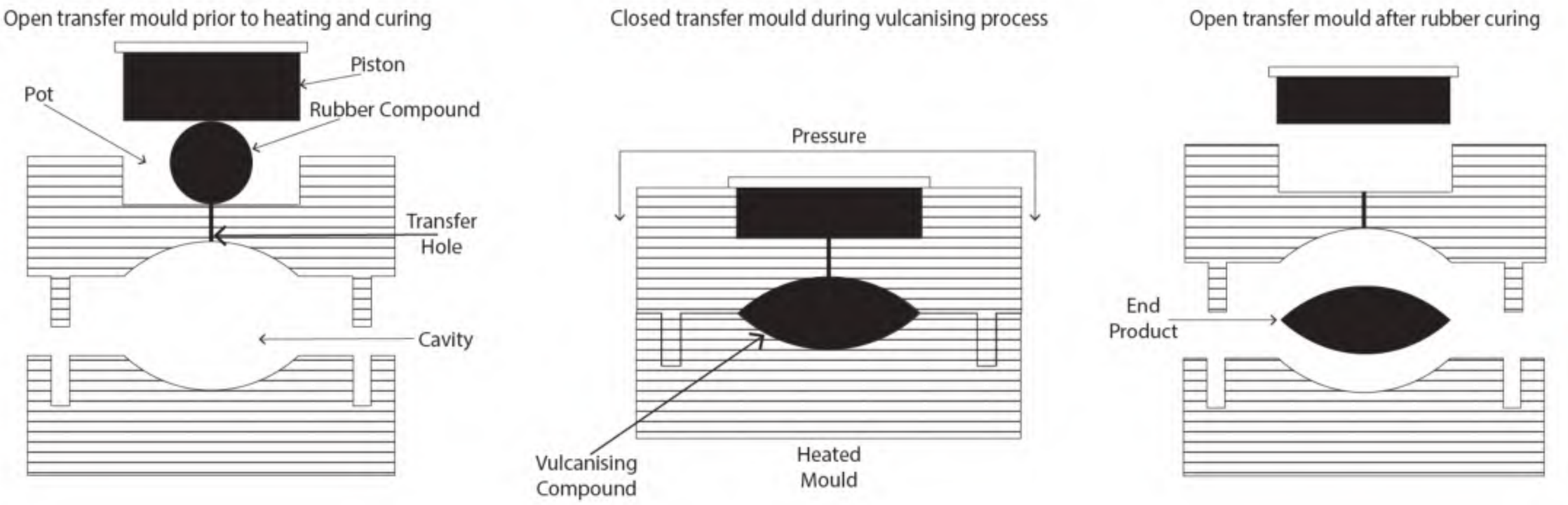
RUBBER TRANSFER MOULDING

Despite being less commonly used than Compression and Injection moulding, the Transfer moulding process provides unique manufacturing possibilities. Transfer moulding enables us to achieve higher tolerances and sharp edges on intricate designs. We can also use it to create composite parts, such as rubber to metal bonding. The potential of composite moulded parts is particularly popular for use in Natural Gas, Electrical and Hydraulic industries.

The process involves a piece of uncured rubber compound that has been pre-formed into a controlled weight and shape. This compound is placed into the upper section of the mould called a "pot". A varying degree of pressure is applied to the material to evenly distribute it through the transfer holes into the cavity of the mould. Once in place, the material is held under high pressure and temperature in order to vulcanise (cure) the material. After the curing process is complete the parts are removed from the cavities for the next cycle to begin.

The Transfer Moulding Process



Method Advantages

- Short production cycle
- Greater design flexibility
- High cavity count
- Suitable for high precision parts
- Advantages for coloured compounds
- Ability to create composite parts

Method Disadvantages

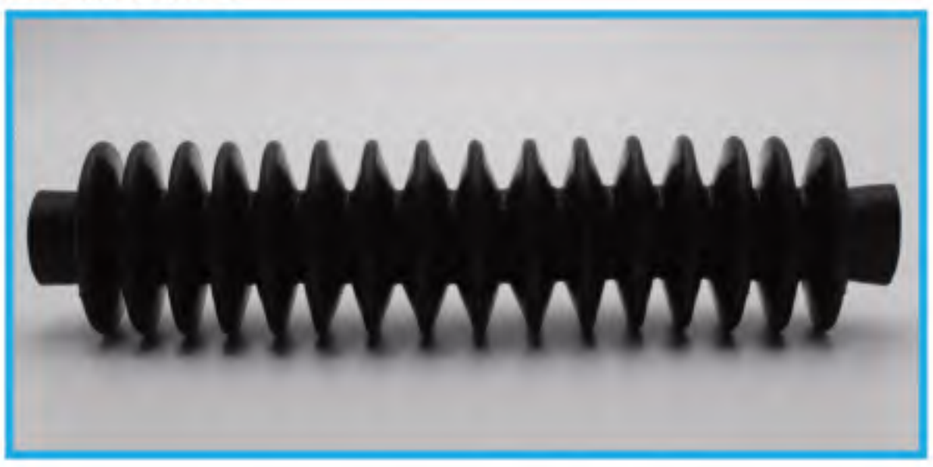
- Higher tooling costs on average
- Some waste material produced
- Requires mould tool maintenance
- Not suitable for small production runs

PRODUCTS WE CAN MANUFACTURE

From our years of experience, we have found that almost every moulding and fabrication requirement is unique to each customer. As a result of this, we have launched a service that is dedicated to producing custom parts. This ensures that you can get a product that has been tailor-made to suit your specific application and environment.

Our custom moulding capabilities include, but are not limited to:

Bellows

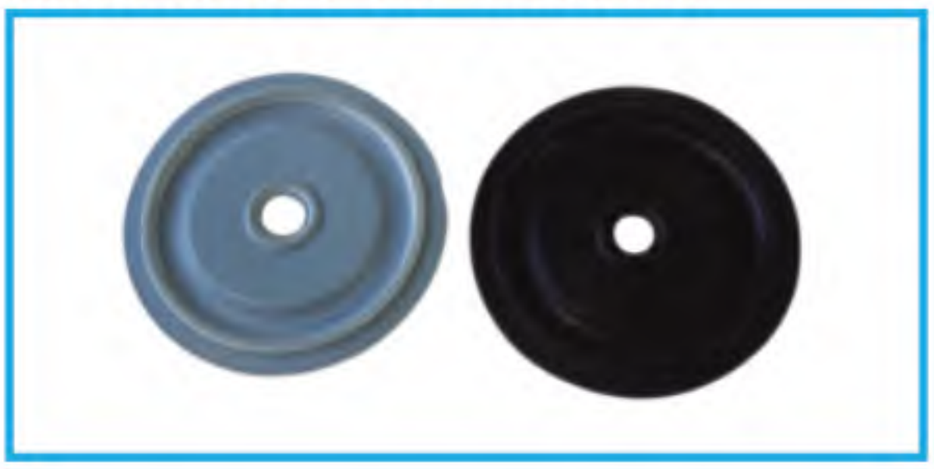


Diaphragms

Moulded & Formed Hoses

Vibration Mounts

Rubber to PTFE Bonded



Suction Cups

Rubber Balls

Hydraulic Seals

With over 100 years of experience, our informative staff can ensure that you always get the best moulding possible. This gives you peace of mind knowing that the part is tailor-made to suit your application and working environment.

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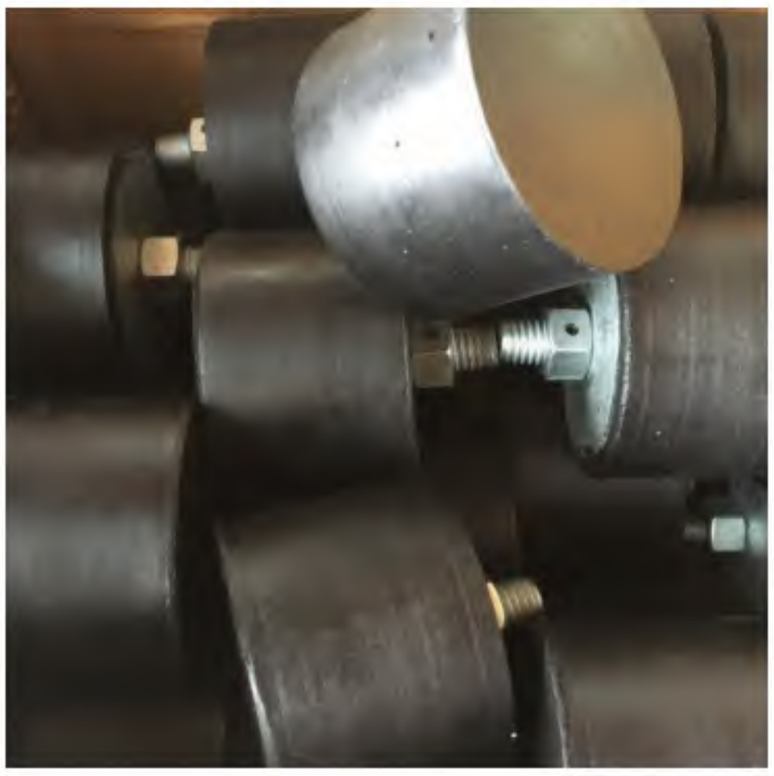
RUBBER TO METAL BONDING

Rubber to metal bonding presents an ideal procedure for fabricating components and parts, including valve assemblies, shafts, and rollers. Further applications of this technique involve the fusion of rubber components with steel, aluminium, and brass. These components find widespread utility within the Rail and Transport sectors.



Rubber-to-metal bonding is a method where rubber becomes mechanically fastened to metal during the rubber moulding process. This incorporation of components into a singular part, as opposed to retaining two or three distinct components, not only results in potential cost savings, but also furnishes a more uniform and technically superior solution.

Parts that are rubber-to-metal bonded can be fashioned in a array of sizes and shapes, tailored to meet your specific requirements.

The bonding process employed for rubber-to-metal depends on the particular application, specifically how the final part is intended to be employed.

The bonding process can vary slightly depending on the size and complexity of both the metal and rubber parts, which are being bonded. Generally, the process consists of the metal insert being thoroughly cleaned and degreased. Once the insert is dry a base primer coat is applied, with a top coat being applied over that. The rubber is then moulded over the insert in order to ensure the best fit possible. High bond strength is achieved under pressure using either: Compression, Injection or Transfer moulding methods.

We provide customised solutions for rubber-to-metal bonding, crafted to meet the individual requirements of our customers. Our team of adept experts can lend assistance in product development, design, and the selection of appropriate rubber-to-metal bonding agents to match the performance prerequisites of the application. Our primary objective in each project is to manufacture top-quality products with the utmost efficiency.

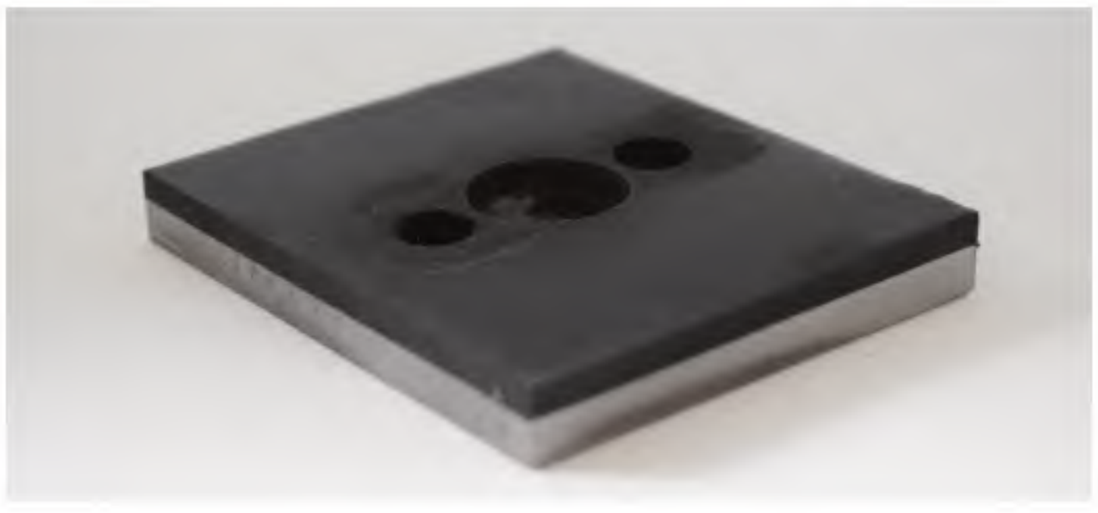
RUBBER TO METAL BONDING

We supply rubber to metal bonded parts to the following industries:

- Food
- Automotive
- Valve
- Packaging
- Water and Sewage
- Railway and General Engineering

Material used include:

- Mild Steel
- Carbon Steel
- Aluminium
- Brass



KEY FEATURES

- Bond strength far superior to any adhesive
- Ideal for complex parts
- Perfect for all scale production runs
- Avoids fitment problems (seals can be fitted the wrong way round in error)
- Wide variety of material options available
- Reduces assembly time
- We are happy to bond customer free issue components

Typical applications for rubber to metal bonding include any component requiring the **flexible** nature of rubber combined with the **stability** of metal.

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CUSTOM SILICONE MOULDING

We offer a wide range of silicone rubber moulding solutions, including seals, gaskets, keypads, bellows, gaiters, instrument covers, and more. Our manufacturing process utilizes cutting-edge compression and transfer moulding techniques, incorporating the latest advancements in materials

Silicone rubber is an incredibly versatile material for moulding applications, known for its excellent temperature resistance, outstanding weather resistance, and water repellent properties. We can supply silicone rubber mouldings that meet various materials approvals, such as FDA, WRAS, UL, and more. Additionally, our silicone rubber mouldings can be customised to match specific colour requirements using RAL or Pantone references.

Silicone rubber mouldings are among the most commonly used synthetic rubber mouldings. They are primarily composed of silicone, hydrogen, carbon, and oxygen. Silicone moulding strikes a balance between mechanical and chemical properties, making it suitable for a wide range of industries. Its temperature range of -100°C to +300°C makes it applicable across various sectors.

Due to its high inertness, silicone mouldings find use in medical and food processing applications. Silicone rubber is available in a range of shore A hardness levels, from 10 to 100, providing flexibility in design. Moreover, silicone mouldings exhibit exceptional UV and ozone resistance, making them ideal for outdoor use, surpassing the performance of natural rubbers in this regard.

CUSTOM SILICONE MOULDING

The unique properties of silicone rubber mouldings are achieved through the use of additives. WACKER, for instance, offers approximately 1,000 different silicone rubber products, each tailored to specific needs by incorporating different additives. These additives can enhance silicone rubber's performance in various ways, such as providing extreme temperature resistance, electrical conductivity, flame retardancy, chemical resistance, high tear strength, and more.

Our silicone rubber mouldings are made using HTV (high-temperature-vulcanising) silicone rubbers. High-temperature vulcanisation refers to the process by which silicone rubber is permanently cured within the moulding press after being shaped into the desired part and exposed to high temperatures.

KEY FEATURES

- Bespoke manufacturing to your exact requirements
- Wide variety of manufacturing processes available
- High precision & high tolerance manufacturing
- Quick lead times
- Highest quality production capabilities
- Designed to fit & manufactured to last

SILICONE MOULDING EXAMPLES

- Gaskets
- Diaphragms
- Flame Retardant Seals
- Conductive Rubber Gaskets
- Wiper Blades
- Lip Section
- Edge Protection Strips
- Extruded Profiles

If you are considering silicone moulding for your project, we are here to offer expert advice on silicone selection and provide you with a competitive quotation.

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POLYURETHANE MOULDING

Polyurethane moulding is a type of pressure-sensitive moulding often used for larger-scale applications, such as automotive parts and furniture, but can also be used for smaller objects like toys and medical devices. It is a thermoset plastic, meaning it can be reheated and reshaped multiple times. This makes it a versatile material for creating products with complex shapes.

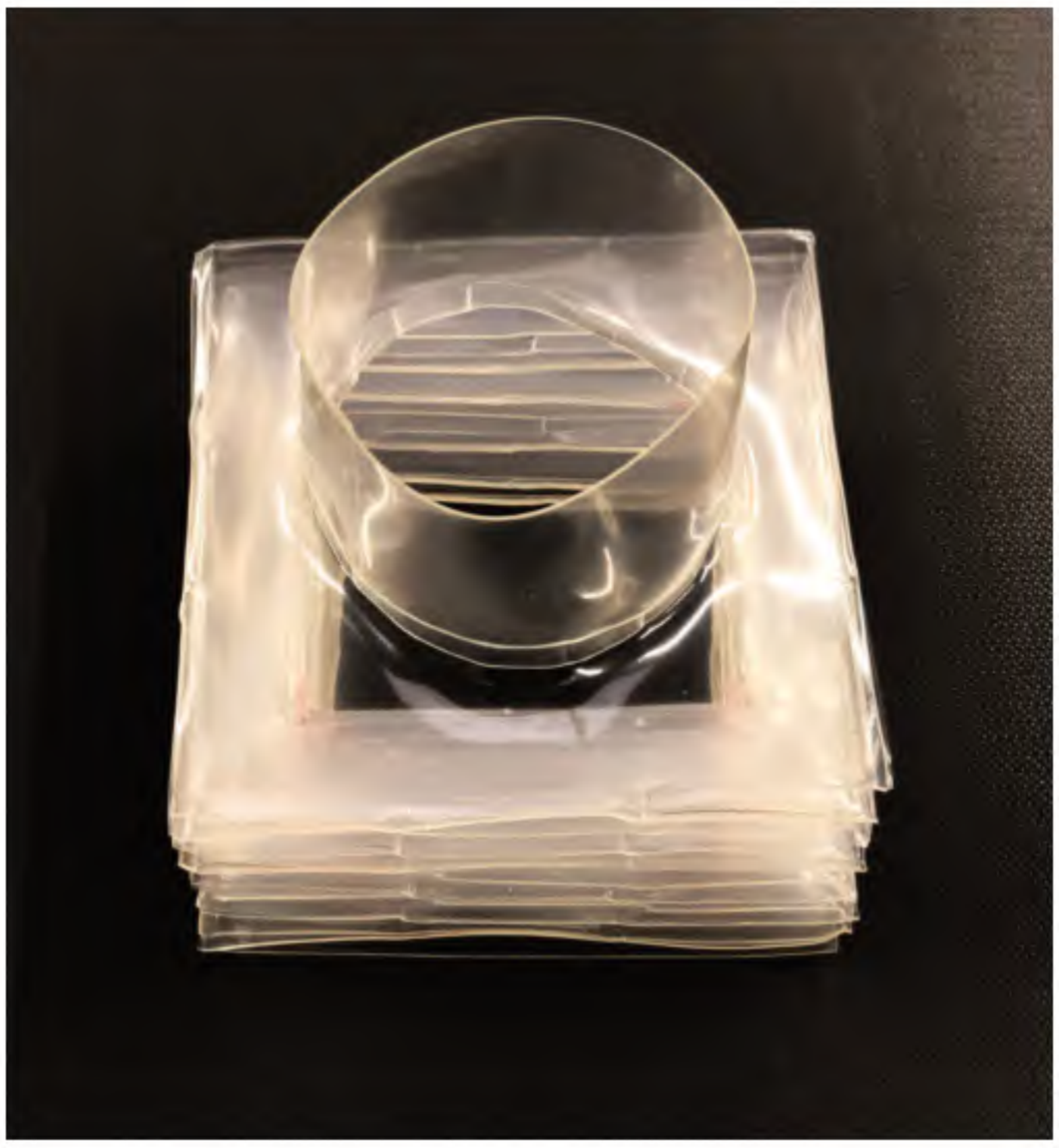
With in-house design and tooling facilities, The Rubber Company can manufacture many different grades and colours, as well as provide a range of cast polyurethane mouldings in multiple sizes and suitability for a vast range of technical applications.

Our custom polyurethane moulding manufacturing service enables us to produce bespoke parts to your exact specifications. To replace an existing part, we can produce polyurethane mouldings either from a drawing or an existing sample. Alternatively, we can assist in the design and material selection process for new parts. With over 100 years of experience, our informative staff can ensure that you always get the best moulding possible. This gives you peace of mind knowing that the part is tailor-made to suit your application and working environment.

As every custom moulding enquiry is different, please be aware that there are no standard stock sizes. Our manufacturing process is subject to minimum order quantities depending on the size of the part and the material specification required. If you require further information on polyurethane moulding, please do not hesitate to give us a call or fill out our online contact form.

Along with expert technical advice, our team can also incorporate bespoke additions including company logos, part numbers and much more. Speak to our team today to discuss your exact requirements and let us help you find the right solution using our expertise and manufacturing capabilities.

POLYURETHANE MOULDING



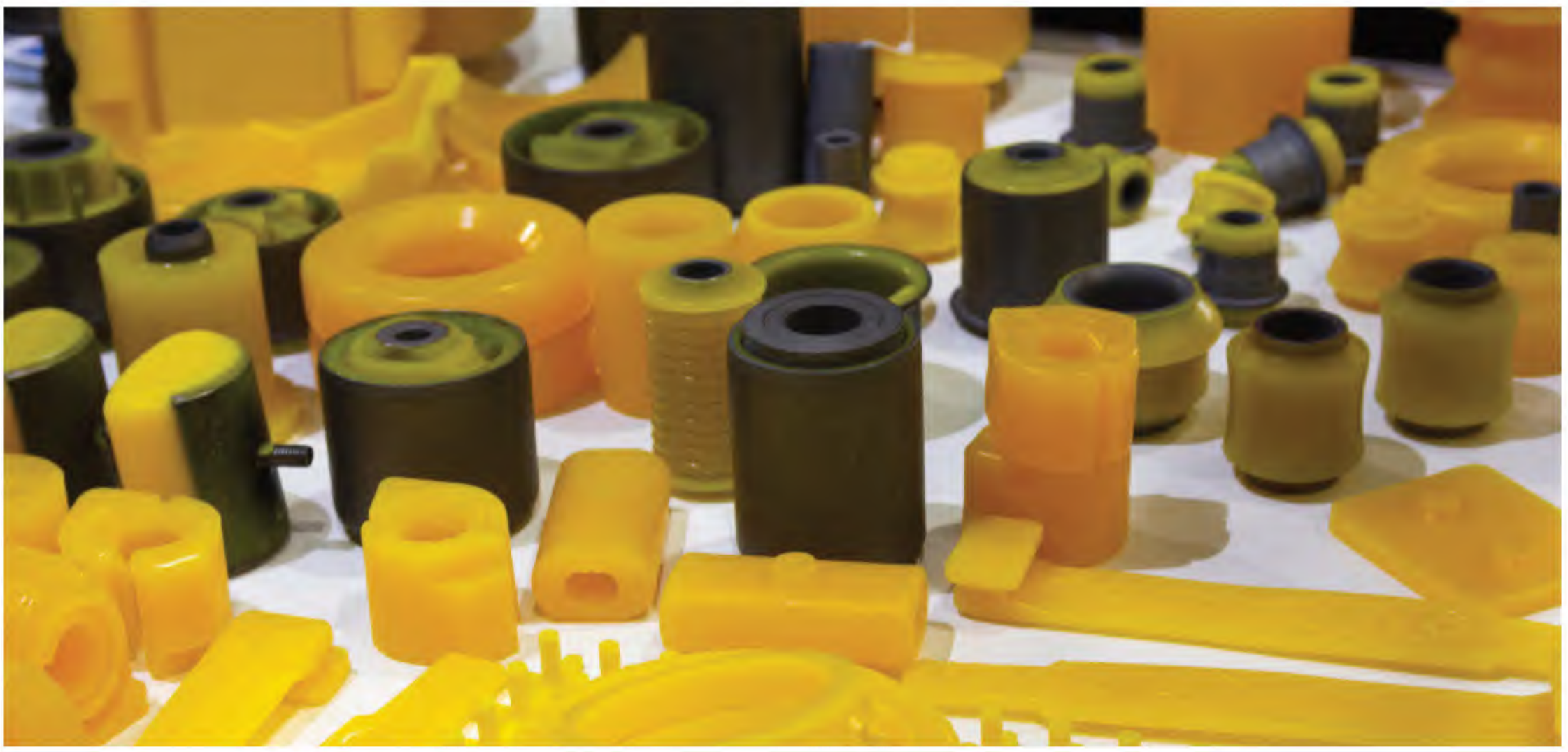
From our years of experience, we have found that almost every moulding and fabrication requirement is unique to each customer. As a result of this, we have launched a service that is dedicated to producing custom parts. This ensures that you can get a product that has been tailor-made to suit your specific application and environment.

Here at the rubber company we can manufacture polyurethane bellows and connectors to your exact specifications. These bellows offer excellent strength and flexibility while also being able to be manufactured in complex and non-standard shapes. Aside from standard material grades we can also manufacture our polyurethane bellows in FDA compliant grades.

POLYURETHANE MOULDING EXAMPLES

- Cutting Sticks
- Scrapers
- Brick Grabs
- Bespoke Mouldings
- Hammer
- Star Wheel
- Screening Mat
- Polyurethane Bonded to Metal
- Soft Touch Wheel
- Buffers
- Suction Cups
- Filter Caps

If you are considering polyurethane moulding for your project, we are here to offer expert advice on polyurethane selection and provide you with a competitive quotation.



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FFKM (PERFLUOROELASTOMER) SEALS

FFKM compounds exhibit remarkable durability in the face of corrosive fluids and gases. They serve a crucial role in scenarios demanding resistance to harsh chemicals, even when exposed to temperatures as high as 300°C.

Perfluoroelastomers (FFKM) offer exceptional resistance to both chemicals and high temperatures. Their ability to endure a wide range of harsh chemicals makes them an ideal choice for even the most challenging chemical sealing needs.

The conventional FFKM8740 compound displays impressive heat resistance, boasting a service temperature range spanning from -5°C to +260°C. It showcases remarkable chemical resistance properties.

All FFKM compounds are produced in a dedicated clean room facility and vacuum packed into foil bags to avoid contamination.

Product Code	Colour	Temp Range	Shore Hardness	Description
RC0-FFKM8701	Black	-10°C to +230°C continuous (260°C Peak)	60	For general use offering universal chemical resistance.
RC0-FFKM8702	Black	-10°C to +230°C continuous (260°C Peak)	70	For general use with outstanding resistance to aggressive media.
RC0-FFKM8703	Black	-10°C to +230°C continuous (260°C Peak)	80	Developed for food and pharmaceutical processing, automated CIP and SIP systems and is FDA compliant to 21 CFR 177.2600. Offers outstanding resistance to aggressive media.
RC0-FFKM8705	Black	-10°C to +230°C continuous (260°C Peak)	75	High chemical resistance, particularly in hydrofluoric acid (HF). Optimum performance in photovoltaic (PV) processing environments. Low particle generation.
RC0-FFKM8706	Black	-10°C to +230°C continuous (260°C Peak)	90	For general use with outstanding resistance to aggressive media.
RC0-FFKM8707	White	-10°C to +230°C continuous (260°C Peak)	70	Outstanding resistance to aggressive media. Developed for food and pharmaceutical processing, automated CIP and SIP systems. In accordance with USP Class VI and FDA 21 CFR 177.2600 requirements.
RC0-FFKM8708	White	-10°C to +230°C continuous (260°C Peak)	80	Developed for food and pharmaceutical processing, automated CIP and SIP systems. In accordance with FDA 21 CFR 177.2600 requirements.

Product Code	Colour	Temp Range	Shore Hardness	Description
RC0-FFKM8713	Black	-10°C to +230°C continuous (260°C Peak)	75	Developed for food and pharmaceutical processing, automated CIP and SIP systems. In accordance with FDA 21 CFR 177.2600 requirements.
RC0-FFKM8714	Black	-10°C to +230°C continuous (260°C Peak)	60	General use - with high chemical resistance.
RC0-FFKM8716	Ivory	-10°C to +230°C continuous (260°C Peak)	75	Very high chemical resistance and developed for very demanding sealing applications. Resistant to hot amines.
RC0-FFKM8717	Black	-10°C to +230°C continuous (260°C Peak)	90	High chemical resistance: developed for the oil & gas industry. Explosive decompression resistant (Norsok M-710 Annex B approved).
RC0-FFKM8720	Black	-40°C to +230°C continuous (260°C Peak)	75	High chemical resistance, in particular to oilfield liquid. Good sealing performance when operating conditions change during the process lifetime. Very low temperature capability.
RC0-FFKM8722	Black	-40°C to +230°C continuous (260°C Peak)	75	Developed for oil and gas industries. High chemical resistance. Very low temperature capability.
RC0-FFKM8726	Ivory	-10°C to +230°C continuous (260°C Peak)	80	Specifically developed for semiconductor applications. Good mechanical properties, low particle generation and low weight loss in plasmas. Specific cleaning and packaging in ultra pure environment.
RC0-FFKM8727	Ivory	-5°C to +300°C continuous (320°C Peak)	70	Good mechanical properties, low particulate generation and low weight loss in plasmas. Specific cleaning and packaging in ultra pure environment.
RC0-FFKM8732	Black	-45°C to +250°C continuous	90	High chemical resistance and low temperature capability. Developed for the oil & gas industry. Explosive decompression resistant, tested to NORSOK M-710.
RC0-FFKM8733	Black	-10°C to +230°C continuous (260°C Peak)	80	An upper chemical resistant material, developed for very demanding sealing applications. Hydrofluoric acid resistant.
RC0-FFKM8741	Black	-5°C to +275°C (continuous operating temperature)	75	Improved chemical resistance grade. Designed for mid and high temperature chemical resistant applications. Excellent compression set and long term performance. USP Class VI certified for pharmaceutical industry.
RC0-FFKM8742	Black	-30°C to +200°C continuous (+220°C Peak)	75	General purpose material, with outstanding resistance to aggressive media. Low temperature applications.
RC0-FFKM8748	White	-10°C to +230°C continuous (260°C Peak)	70	Specific compound for Quad Ring / X Rings. Developed for food and pharmaceutical processing, automated CIP and SIP systems. In accordance with FDA 21 177.2600 requirements.
RC0-FFKM8749	White	-5°C to +300°C continuous (+320°C Peak)	60	Low sealing force applications in semiconductor thermal processes. Low outgassing properties at elevated temperatures.
RC0-FFKM8752	Translucent Brown	-10°C to 300°C continuous (290°C Peak)	75	Suitable for all semiconductor industry processes. Good mechanical properties and high purity. Extremely low outgassing properties.
RC0-FFKM8753	Black	-10°C to +300°C continuous (330°C Peak)	70	This compound is recommended for general use for high temperatures. It has broad chemical resistance and excellent steam resistance.
RC0-FFKM8755	Black	-10°C to +300°C continuous (330°C Peak)	80	This compound is recommended for general use for high temperatures. It has broad chemical resistance and excellent steam resistance.
RC0-FFKM8759	Light Grey	-10°C to +300°C continuous (330°C Peak)	80	For high upper temperatures with broad chemical resistance. Developed for various semiconductor processes, very low extractable metal ions.
RC0-FFKM8760	Beige Translucent	-5°C to +300°C continuous (320°C Peak)	75	Developed for Semicon Industry and suitable for dry and wet applications. This is a high purity compound without filler. Outstanding resistance to aggressive chemicals and high temperature conditions.

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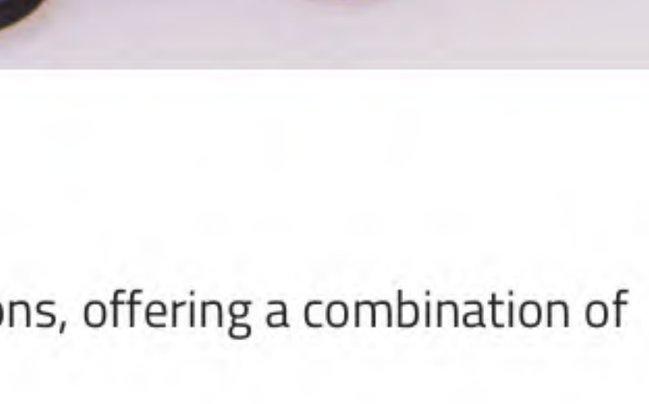
O-RINGS

O-rings stand out as the most frequently utilised sealing solutions, offering a combination of notable effectiveness, affordability, and dependability.

O-rings are designed to offer sealing in both static and dynamic applications.

A diverse selection of elastomers is available, encompassing:

- Nitrile (NBR)
- Hydrogenated Nitrile (HNBR)
- Silicone (VMQ)
- Polyurethane (PU)
- Perfluoroelastomer (FFKM)
- Viton®/FKM
- PTFE



Alongside the conventional variants, numerous derivative options are also at hand.

With an inventory exceeding 80 million rings spanning 10,000 different sizes, we maintain a competitive edge, catering to enquiries ranging from the largest to smallest.

We facilitate same-day dispatch for items in stock and present comparatively brief lead times for non-stock items.

Tailoring to specific needs, we offer packaging based on individual specifications and readily provide certification upon request.

Our entire product range is accompanied by comprehensive traceability.

WRAS Approved. FDA Approved.

O-RINGS

PERFLUOROELASTOMER/FFKM

By default, FFKM demonstrates exceptional resilience to extreme temperatures, spanning from -10°C to +260°C, while certain specialised compounds can function above 330°C.

Its robust resistance extends to nearly all chemical substances, encompassing inorganic acids, alkaline solutions, ketones, esters, alcohols, fuels, and hot water, making it a preferred choice for applications in highly corrosive chemical environments.

Our standard FFKM variant (FFKM75B) stands out due to its remarkable heat resistance, boasting a serviceable temperature range from -10°C to +310°C, coupled with good chemical resistance.

Our array of FFKM materials caters to a spectrum of applications, accommodating various needs.

AEROSPACE / MILITARY SPEC

We source our O-rings from Precix Inc., a prominent supplier of precision O-rings designed to meet the rigorous demands of Aerospace and Defence applications. Our product range includes O-rings that adhere to the latest specifications in the Aerospace and Military sectors.

Each component is produced within the USA, following a Quality Management System compliant with ISO/TS 16343:2009 and AS9100 standards.

AED/EDR/RGD

Explosive decompression (ED), alternatively referred to as rapid gas decompression (RGD), characterises the breakdown of elastomeric O-rings. This occurs when gas infiltrates the material under elevated temperatures and high pressures. Should the decompression rate be rapid, the gas expands beyond the material's capacity to confine the gas bubbles. This leads to cracking and eventual failure of the seal.

We offer Norsok M-710 Certified Anti-Explosive Decompression (AED) O-rings, also known as Explosive Decompression Resistant (EDR) O-rings, at highly competitive prices.

We provide NORSOK M-710 RGD-resistant seals to numerous prominent global enterprises that operate within high-pressure gas environments.

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O-RINGS

Material	Shore Hardness	Standard Compound Working Temperature	FDA	WRAS	Peroxide Cured	USP	AED / Norsok	Metal Detectable
Nitrile (NBR)	40-90	-40°C to +110°C	●	●	●			●
Silicone (SIL)	30-90	-50°C to +204°C	●	●	●	●		●
Fluorocarbon (Viton®/ FKM)	60-90	-20°C to +204°C	●		●	●	●	●
Ethylene Propylene (EPDM)	40-90	-55°C to +135°C	●	●	●	●		
Neoprene (CR)	40-90	-32°C to +149°C	●					
Hydrogenated Nitrile (HNBR)	70-90	-30°C to +150°C					●	
Fluorosilicone (F-SIL)	50-80	-55°C to +177°C						
Perfluoroelastomer (FFKM)	75-90	-10°C to +260°C	●		●	●	●	
Polyacrylate (ACM)	60-80	-10°C to +149°C						
Ethylene Acrylate/ Vamac® (AEM)	60-70	-40°C to +149°C						
Aflas® (TFE/P)	70-80	-9°C to +204°C						
Epichlorohydrin (ECO)	50-90	-40°C to +121°C						
Butyl (IIR)	60-70	-50°C to +121°C						
Natural Rubber (NR)	50-80	-50°C to +70°C						
Polyurethane (PU)	70-90	-40°C to +80°C						
Styrene Butadiene (SBR)	50-80	-45°C to +100°C						
Carboxylated Nitrile (XNBR)	70-80	-30°C to +150°C						

USP CLASS VI:

Frequently sought after by end users, particularly in fields like medical and pharmaceutical processing, due to the enhanced assurance it offers regarding the quality and performance of the materials in use.

PEROXIDE CURE:

The majority of compounds typically undergo sulphur curing. However, certain materials (outlined in the above list) can be peroxide cured upon request.

COLOURS AVAILABLE:

Typically, black serves as the standard colour for most compounds, while red is employed for Silicone. Alternative colours are available upon request.

METAL DETECTABLE:

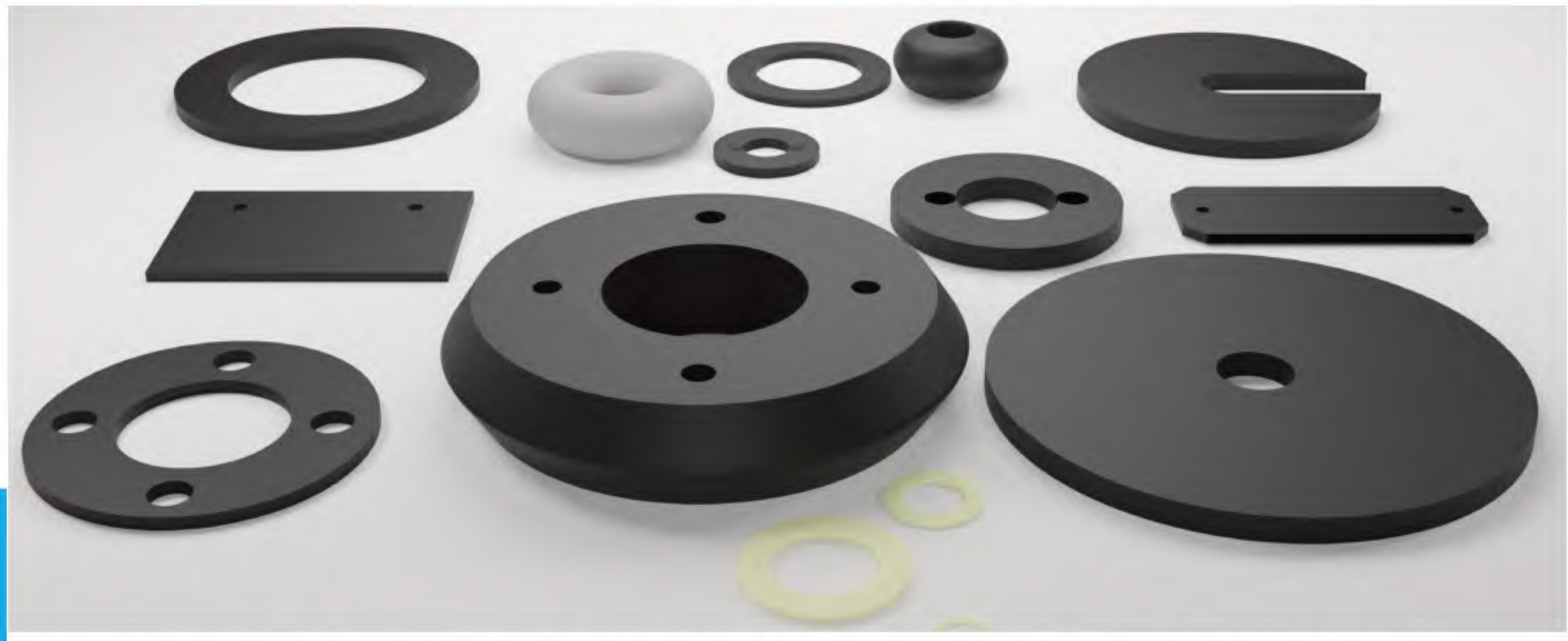
We also offer metal detectable compounds. Feel free to get in touch with us for further information.

WORKING TEMPERATURES:

To provide guidance, we've indicated the operational temperatures for our standard compounds. Should you need temperatures lower or higher than those indicated, we offer specially formulated compounds upon request. For instance, FFKM can accommodate high temperatures as extreme as -330°C.

Just provide us with the ID, cross section, and material specifications, and we'll take care of the rest.

MOULDED GASKETS / WASHERS



In situations involving intricate shapes or the need to seal non-planar gaps, a moulded gasket frequently stands as the sole solution, presenting a unified, fully shaped gasket to perfectly fit the requirements. The repeatability of a moulded gasket, coupled with its absence of joints, splits, and fabricated parts, enhances its integrity, making it a superior choice for achieving an effective seal compared to alternative manufacturing techniques.

A gasket serves as a mechanical seal that occupies the gap between two or more mating surfaces. Its primary purpose is to prevent leakage either from or into the connected objects when subjected to compression.

Gaskets facilitate the accommodation of imperfect mating surfaces on machine parts, effectively filling in irregularities. These components are often manufactured by cutting from sheet materials. Historically, asbestos was widely used as a gasket material, particularly in applications involving high-pressure steam systems. However, due to the health risks associated with asbestos, it has been replaced with compressed non-asbestos fibres (CNAF) for safer alternatives.

Ideally, the gasket should be crafted from a somewhat flexible material, enabling it to deform and effectively occupy the designated space, even accommodating minor irregularities. In certain instances, applying a sealant directly to the gasket's surface might be necessary for optimal functionality of certain joints.

A washer is a slender, usually disk-shaped plate with a hole, primarily employed to evenly distribute the load exerted by a threaded fastener, like a screw or nut. Washers also serve various other purposes, including functioning as spacers, springs, wear pads, preload indicators, locking devices, and tools to minimise vibration.

Washers are typically crafted from metal or plastic materials. Occasionally, rubber or fibre gaskets employed to halt water flow are informally called washers; however, despite their visual resemblance, washers and gaskets are typically intended for distinct purposes. They are manufactured using different methods and are surprisingly affordable given the technical advantages of this product.

We possess the capacity to provide you with any variety of washer or gasket you need, all at highly competitive prices.

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V-RINGS

V-A Style V-L Style V-S Style

V-rings function as axial seals for shafts and bearings. Positioned on a rotating shaft, they create a seal against a complementary surface. This seal variety has demonstrated its dependability and efficiency in safeguarding against dust, dirt, water, oil splashes, and various other substances.

Notably, V-ring shaft seals excel at fending off both dry and wet contaminants. Their presence contributes to reduced wear, extended oil seal and bearing lifespans, and strong performance in scenarios involving dry operation. Thanks to their rubber composition and high elasticity, these seals can be easily stretched over flanges or other components, enabling convenient installation with minimal disassembly required.

V-A STYLE

V-ring type A with a bevelled back functions as an axial, pressureless rotary seal characterised by its compact mounting profile. This type of seal is secured onto a shaft. The adaptable sealing lip effectively seals against a complementary surface situated perpendicular to the shaft, effectively preventing dirt, dust, and splashes into the assembly.
This versatile solution is available across an extensive size spectrum, ranging from .110" (2.7mm) shafts to 79.530" (2020mm) in nitrile and fluoroelastomer materials. It proves particularly suitable for safeguarding gearboxes, electric motors, and drives.

V-S STYLE

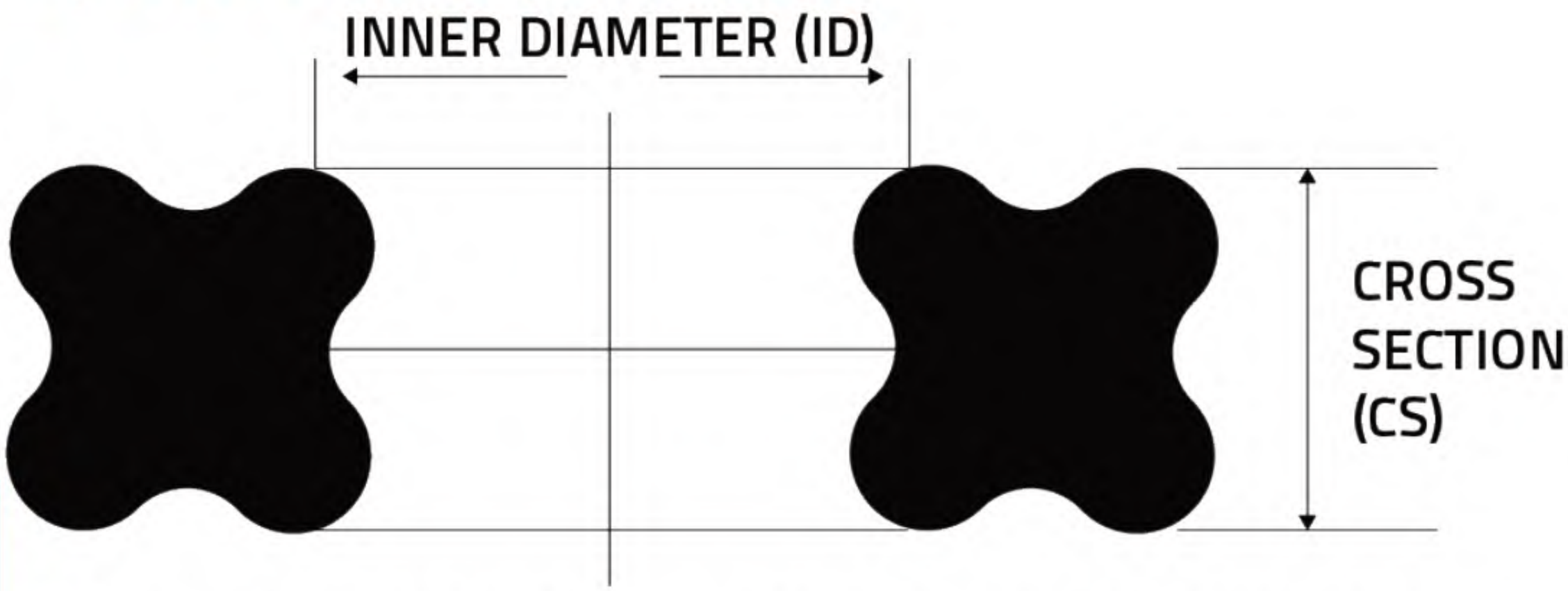
V-ring type S with a bevelled back operates as a pressureless axial rod seal, securely fastened onto a shaft. The adaptable sealing lip effectively seals against a surface positioned at a right angle to the shaft, effectively blocking the intrusion of dirt, dust, and splashes into the structure.
This versatile solution is offered in a range of sizes, starting from .180" (4.5mm) shafts up to 8.270" (210mm). It finds frequent application in agricultural and automotive contexts.

V-L STYLE

V-ring type L with a straight back, functions as a pressureless axial rod seal with an exceptionally compact mounting length, firmly affixed onto the shaft. The flexible sealing lip effectively seals against a surface oriented perpendicular to the shaft, effectively blocking the intrusion of dirt, dust, and splashes into the structure.

Within our inventory, we maintain an extensive selection of V-rings. Each of these has undergone quality assessments and can be traced back to its unique batch number, ensuring absolute confidence in their performance and origin.

QUAD-RINGS (X-RINGS)



Quad-rings, also known as X-Rings or Nu-Lips, are sometimes denoted by a '4- dash' reference. These versatile components find utility across a diverse spectrum of both static and dynamic sealing applications.

The four-lobed configuration offers twice the sealing area when compared to a regular O-ring. This dual-sealing mechanism demands less compression force to uphold an efficient seal. Consequently, this decrease in compression results in lower friction and enhanced longevity of the seal.

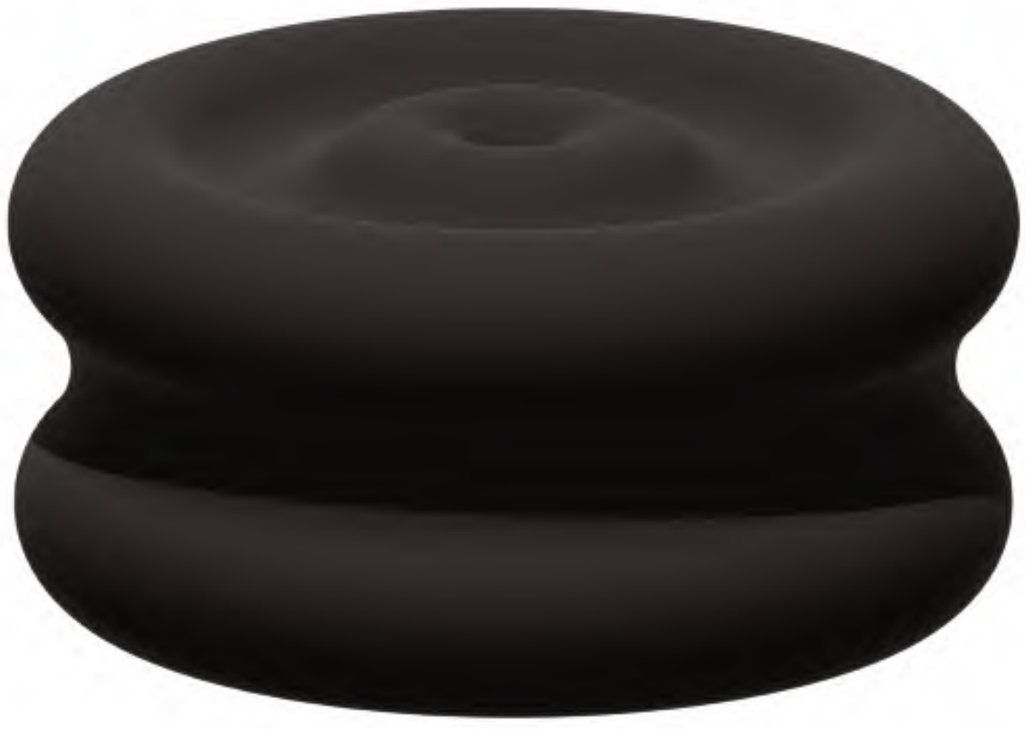
Quad-ring parting lines are positioned between the lobes, distanced from the sealing surface. This strategic placement eradicates the challenges of leakage often associated with the uneven surface of a parting line, which is a common issue with O-rings.

Quad-rings are engineered to surpass the performance of a conventional O-ring in rotary seal applications.

The four-lobed structure establishes a more stable seal, preventing spiral twisting. This enables the utilisation of a narrower groove width compared to a traditional O-ring groove. Nevertheless, it can also be employed within a standard O-ring groove.

Quad-rings share identical dimensions with AS568A O-ring sizes, commonly known as standard-sized O-rings. These Quad-rings are accessible in a diverse range of materials.

Within our inventory, we maintain an extensive selection of Quad-rings. Each of these is entirely traceable through its distinctive batch number, ensuring absolute confidence in their origin and quality.



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STITCHED RUBBER COATED BELLOWS

Our stitched bellows are a cost-efficient alternative for testing and small production runs. These bellows are bespoke manufactured to any shape, size or quantity, in order to match your exact specifications. We also offer a wide selection of materials and coatings to ensure that the bellow is suitable for your application. The highly versatile nature of these bellows enables them to be used in virtually any application and working environment. It is worth noting however, that applications requiring a watertight seal will require a moulded bellow.

Our stitched bellows provide good abrasion resistance as well as a wide operating temperature range as standard. Depending on the chosen material our bellows can also offer additional; mechanical, oil, acid, alkali and weathering resistance. Don't hesitate to get in contact with us if you are unsure what material best suits your unique requirements. Our dedicated team are on hand in order to ensure that you can always get the best bellows possible.

KEY FEATURES

- Bespoke manufacturing to your exact specifications
- Perfect for testing & small production runs
- Wide variety of material options available
- High temperature resistance
- Good resistance to abrasion deterioration
- Highly versatile
- Lightweight & flexible

UNDERSTANDING SHORE HARDNESS

What Is Shore Hardness?

The shore hardness value of a material is a key factor in determining how hard or soft a particular material is. This is particularly important in safety products, such as rubber fenders as it gives the user an idea of the sort of impacts the fender can absorb. Different hardness values are more suitable for certain products than others and understanding this can help ensure you get the perfect product for your needs.

The Different Hardness Types

The first thing you will probably notice when looking at shore hardness is the letter that comes after the numeric value. This helps to split the varying degrees of hardness into different categories. There are 12 different hardness types in total, with each type having its own scale from 0 - 100. This essentially means that a full hardness scale can have 1200 different values. However, it is important to note that a lot of these hardness types are commonly associated with rubber products. The main shore hardness types we use in our products are: Shore (A), Shore (D) and Shore (OO).

Shore (OO): Comprised predominantly of soft materials, highly flexible materials such as sponge.

Shore (A): Has a wide hardness range. Is able to be used in extremely soft materials and extremely hard materials. Products such as rubber fenders benefit from being solid to touch but can also compress under pressure.

Shore (D): Used exclusively in firm products, due to its solid construction. Hard hats for example, benefit from the superior hardness that shore D offers.

Shore Hardness Comparison Chart

Type	Hardness																				
	Extra Soft					Soft			Medium Soft			Medium Hard			Hard		Extra Hard				
Shore (OO)	0	10	20	30	40	50	60	70	80	90	100										
Shore (A)					0	10	20	30	40	50	60	70	80	90	100						
Shore (D)										0	10	20	30	40	50	60	70	80	90	100	

Jelly Sweets | Gel Insole | Rubber Band | Pencil Eraser | Tyre Grip | Shoe Heel | Trolley Wheel | Hard Hat

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MATERIAL FINISHING OPTIONS

Manufacturing to Material Specifications

For special use applications such as medical, food, construction or transportation industries, we can supply a wide variety of manufacturing material standards and grades. Flame Retardant (EN45545-2), FDA approved or Anti-Static compound specifications, amongst many others, are available to suit application or working environment, or to conform to required health and safety regulations.

RAL Colour Matching

Many of our rubber compounds are available in black as standard, but at The Rubber Company we have the ability to offer a RAL colour matching service to suit branding and aesthetics. This typically applies to Silicone or TPE rubber compounds during the manufacturing process, and in addition, we can also produce certain materials in non-marking grades.

Material Properties Guide

	Natural	SBR	Butyl	Nitrile	Neoprene	EPDM	Silicone	Viton	Polyurethane	Hypalon	Epichlorhydrin	Fluorosilicone
Hardness (Shore A)	30° - 90°	40° - 90°	40° - 70°	40° - 95°	40° - 95°	40° - 90°	30° - 85°	55° - 95°	35° - 99°	40° - 95°	40° - 95°	40° - 80°
Tear Resistance	Very Good	Fair	Good	Fair	Good	Fair	Poor	Fair	Excellent	Excellent	Fair	Fair
Abrasion Resistance	Excellent	Very Good	Good	Excellent	Good	Good	Poor	Good	Outstanding	Excellent	Good	Good
Compression Set	Good	Good	Fair	Good	Fair	Good	Fair	Fair	Fair	Fair	Fair	Fair
Rebound – Cold	Excellent	Good	Poor	Good	Very Good	Very Good	Excellent	Fair	Good	Good	Poor	Excellent
Rebound – Hot	Excellent	Good	Very Good	Good	Very Good	Very Good	Excellent	Good	Good	Good	Poor	Good
Dielectric Strength	Excellent	Excellent	Excellent	Poor	Good	Excellent	Good	Good	Excellent	Excellent	Good	Good
Electrical Insulation	Very Good	Very Good	Very Good	Poor	Fair	Excellent	Excellent	Fair	Fair	Good	Fair	Excellent
Gas Permeability	Fairly Low	Fairly Low	Very Low	Low	Low	Fairly Low	Fairly Low	Very Low	Fairly Low	Fairly Low	Fairly Low	Fairly Low
Adhesion Properties	Good	Good	Good	Good	Good	Poor	Fair	Good	Fair	Fair	Fair	Fair
Water Absorbtion	Very Good	Very Good	Very Good	Good	Good	Very Good	Excellent	Very Good	Good	Very Good	Good	Good
Oxidation	Good	Fair	Excellent	Good	Very Good	Excellent	Excellent	Outstanding	Excellent	Excellent	Good	Excellent
Ozone Resistance	Poor	Poor	Excellent	Fair	Very Good	Outstanding	Excellent	Outstanding	Excellent	Outstanding	Very Good	Excellent
Sunlight Ageing	Poor	Poor	Very Good	Poor	Very Good	Outstanding	Excellent	Outstanding	Good	Outstanding	Good	Very Good
Heat Ageing	+85/-40	+90/-40	+120/-20	+115/-20	+95/-20	+145/-40	+305/-100	+205/-20	+80/-40	+120/-20	+120/-40	+200/-100
Heat Resistance	Good	Fair	Very Good	Good	Very Good	Excellent	Outstanding	Outstanding	Good	Excellent	Very Good	Good
Cold Resistance	Excellent	Very Good	Good	Fair	Good	Excellent	Outstanding	Good	Excellent	Good	Fair	Excellent

RUBBER MOULDING TOLERANCE CHART

Nominal Dimensions		Class M1		Class M2		Class M3		Class M4
Above	Up to and including	F±	C±	F±	C±	F±	C±	F & C±
0	4.0	0.08	0.10	0.10	0.15	0.25	0.40	0.50
4.0	6.3	0.10	0.12	0.15	0.20	0.25	0.40	0.50
6.3	10.0	0.10	0.15	0.20	0.20	0.30	0.50	0.70
10.0	16.0	0.15	0.20	0.20	0.25	0.40	0.60	0.80
16.0	25.0	0.20	0.20	0.25	0.35	0.50	0.80	1.00
25.0	40.0	0.20	0.25	0.35	0.40	0.60	1.00	1.30
40.0	63.0	0.25	0.35	0.40	0.50	0.80	1.30	1.60
63.0	100.0	0.35	0.40	0.50	0.70	1.00	1.60	2.00
100.0	160.0	0.40	0.50	0.70	0.80	1.30	2.00	2.50
160.0	160.0 +	0.3%	0.4%	0.5%	0.7%	0.8%	1.3%	1.5%

F = Fixed dimensions; dimensions created by features on the same part of the tool.
C = Closure dimensions; dimensions that are created across two mating parts of a tool and therefore more prone to variation.

All values in millimetres unless otherwise stated.

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CNC CONVERSION CAPABILITIES

Our diverse range of cutting and manufacturing CNC machinery provides us with the flexibility to tackle projects of different sizes and complexities. Whether you require simple gaskets or intricate designs, our state-of-the-art equipment allows us to deliver precision-engineered solutions that meet your specifications.

Aside from utilising a wide range of moulding tools and techniques, The Rubber Company can also provide an extensive selection of materials and grades. Many of these materials are suitable for use in a variety of applications and industries, however certain materials tend to lend themselves towards more specialist applications. In order to help make the material selection process as quick and easy as possible we offer material sample card. Our material sample card contains 24 of our most popular and versatile materials. Each material is given a brief description as well as important technical information such as: densities, temperature ranges and standard sizes. Our sample card also contains a small cut-out of each material to give you a tactile feel for the material and density.

OVER 350 COMPOUNDS DEVELOPED

QUALITY ASSURANCE STATEMENT

Here at The Rubber Company we enforce and maintain strict quality procedures across all stages of our design, development and manufacturing processes.
We are fully ISO 9001:2015 approved.

We enforce stringent quality control principals and our proactive control processes ensure that our customers are always satisfied. This involves reduced claims (and the costs associated), increased change control as well as prevention of productivity loss and line-stops.

The Rubber Company are constantly striving to develop continuous improvements to our manufacturing facilities and processes. We have a variety of measures in place such as follow up-audits, the implementation of adequate prevention measures, analysis and review of similar products to prevent future issues, effective root cause analysis and preventative actions review.

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Experts in **Rubber**

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