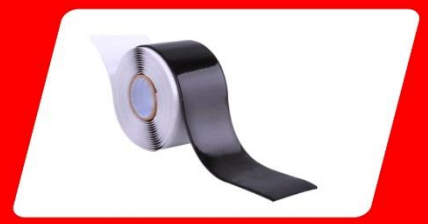
Centroid
Polymer Technologies

Centroid Polymer Technologies

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Chemistry between US

We are experts in the creation of high quality elastomers and Engineering plastics offering solutions for the most demanding markets. We mix, mould, extrude, hand fabricate and formulate rubber and PTFE for all the Engineering Solutions

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What we do, we do well. . .

CENTROID POLYMER TECHNOLOGIES manufacturer of Gaskets, Seals, Rubber mouldings, Silicone Extrusions, Hoses, Rubber mastic tapes, PTFE mouldings and a leading provider of bespoke industrial solutions.

Reach us at…..

- We Centroid Polymer Technologies located atKINFRA Integrated Industrial & Textile Park which is 30 km away from Coimbatore
- The KINFRA Park at Palakkad India hosts the first major defence production unit in Kerala.
- The factory site has the locational and economical advantages being strategically located in the state with proximity to sea port, rail connectivity and airport.

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Your Market is our market

Electrical

Pneumatics

Transmission

Pumps & Valves

Defence

Lighting

Construction

Hydraulics

Off Road Vehicle

Bus & Truck

Renewable Energies

Specialist Vehicle

Marine

Food

Rail

Automotive Sport

Pharmaceutical

Agriculture

Electronics

Converting

Medical

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Teflon®
Only by DuPont

POLYMER IS OUR BUSINESS

"We do not want to sell you our elastomer, we want to sell you the right elastomer."

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Material Selection for Rubber

		Natural Rubber	Styrene Butadiene Rubber	Ethylene Propylene Diene Rubber	Epichorohydrine Rubber	Nitrile Rubber	Hydrogenated Nitrile Rubber	Polyurethane Rubber	Polyacrylate and Ethylene-Acrylate Rubber	Fluorocarbon Rubber	Silicone Rubber	Fluorosilicone
	Abbreviation	**NR**	**SBR**	**EPDM**	**CO/ECO**	**NBR**	**HNBR**	**EU AU**	**ACM/AEM**	**FKM**	**VMQ**	**FVMQ**
	Hardness Range Shore A	30-90	35-95	20-95	40-90	30-95	45-98	55-90	50-90	40-90	30-85	30-80
Thermal Properties	Low-temperature flexibility down to °C	-55	-30	-50	-35	-30	-45	-30	-30	-20	-65	-45
	Max. service temperature °C	80	100	130	130	110	150	120	150	200	200	200
Resistance Properties	Fuel	○	○	○	◔	◔	◑	◔	◔	●	◔	◔
	Mineral Oil (at 100°C)	○	○	○	●	●	◔	◑	◔	●	◔	◔
	Acids (25% sulphuric acid at 50°C)	◔	◔	●	●	◑	●	◑	◑	●	◑	◔
	Water (at 100°C)	◔	◔	●	◔	◑	●	○	◑	●	◔	◔
	Weathering and Ozone	◔	◔	●	●	◔	●	◔	◔	●	●	●
	Air Impermeability	●	◔	◑	◔	◔	◔	◔	◑	●	○	◔

Assessment: ● Very good ◑ Satisfactory ○ Insufficient

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Type of Rubber:	Electrical Resistance	Oil Resistanc	Flame Resistance	Impact Resistance	Abrasion Resistance	Tear Resistance	Oxidation Resistance	Ozone Resistance
Natural Rubber	Poor	Excellent	Poor	Excellent	Excellent	Excellent	Fair	Poor
SBR	Poor	Good	Poor	Good	Very Good	Fair	Good	Fair
Buna–N	Excellent	Poor	Poor	Good	Good	Fair	Good	Fair
Butyl	Poor	Excellent	Excellent	Fair	Good	Good	Excellent	Good
Neoprene	Good	Very Good	Good	Good	Excellent	Good	Excellent	Excellent
ECH	Excellent	Good	Poor	Fair	Good	Fair	Good	Very Good
Hypalon	Good	Excellent	Good	Fair	Excellent	Fair	Excellent	Excellent
EPDM	Poor	Excellent	Poor	Good	Good	Good	Excellent	Excellent
Silicone	Fair	Good	Fair	Fair	Poor	Poor	Excellent	Excellent
Viton	Excellent	Good	Good	Very Good	Good	Fair	Excellent	Excellent
Santoprene	Good		Good	Good	Fair	Good	Excellent	Excellent

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MATERIAL SELECTION PTFE

Material Name	Main Properties	Notes	Temperature Range
VIRGIN PTFE	Very low coefficient of friction and excellent chemical resistance.	FDA approved	-40°C to 260°C
15% Glass Filled PTFE	Decreased compressive strength and lower deformation under load than virgin PTFE.	Abrasive material	-40°C to 260°C
25% Glass Filled PTFE	Similar to 15% Glass better wear resistance, higher compressive strength and lower deformation under load.	Abrasive material	-40°C to 260°C
Stainless Steel Filled PTFE	Extremely hard wearing. Excellent strength and stability under extreme loads and elevated temperatures.	Can be used on steam and thermal fluid applications	-40°C to 260°C

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Material Name	Main Properties	Notes	Temperature Range
TFM	Much denser polymer structure than Virgin PTFE. Displays better stress recovery.	Modified TFE Polymer	-40°C to 260°C
Carbon Graphite filled TFM	Lower thermal expansion-contraction rate than conventional TFM.	Ideal for use on steam and thermal fluid applications	-40°C to 260°C and even 320°C on Thermal Fluid applications
UHMWPE	Highly resistant to corrosive chemicals, with the exception of oxidising acids and organic solvents.	Also known as High Modulus Polyethylene (HMPE) or High Performance Polyethylene (HPPE)	-40°C to +80°C
PCTFE	Excellent for cryogenic and Oxygen use.	A homo-polymer of Chlorotrifluoroethylene	-270°C to 260°C
Virgin PEEK 450G	Excellent chemical resistance and mechanical properties at elevated temperatures.	An organic polymer thermoplastic	-40°C to 260°C

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Material Name	Main Properties	Notes	Temperature Range
Carbon Filled PEEK	Many similar properties to Virgin PEEK. Particularly suitable for elevated temperatures and high load situations.	Low coefficient of friction and suitable for many extremely corrosive applications	-40°C to 260°C
PEEK HT	Retains all key features and benefits of PEEK 450G but retains physical properties to a higher temperature.	Can be supplied in both virgin unfilled or as filled compounded material	up to 260°C
Acetal and Delrin	Displays good resistance to wear and deformation under load.	Excellent for valve seat applications	up to 80°C

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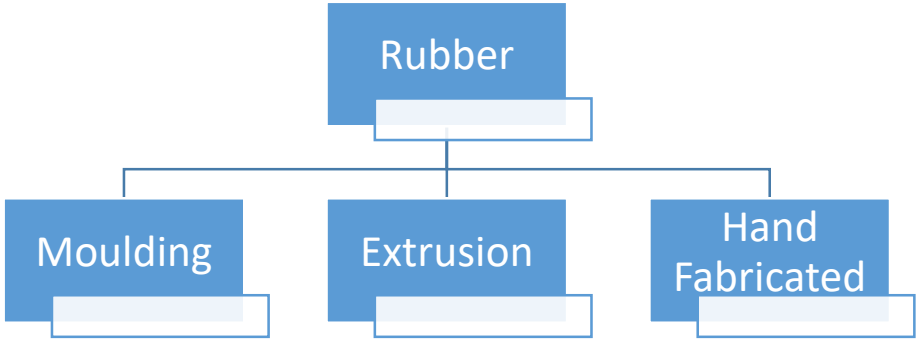
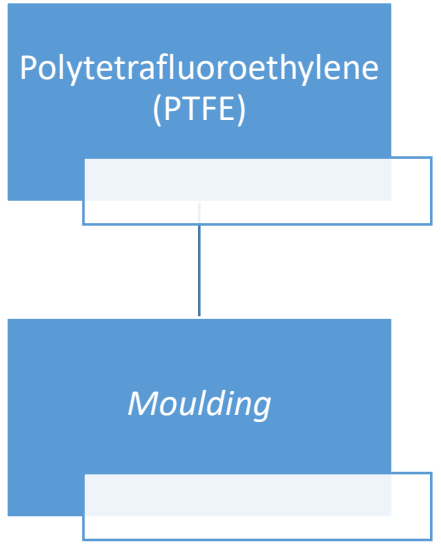
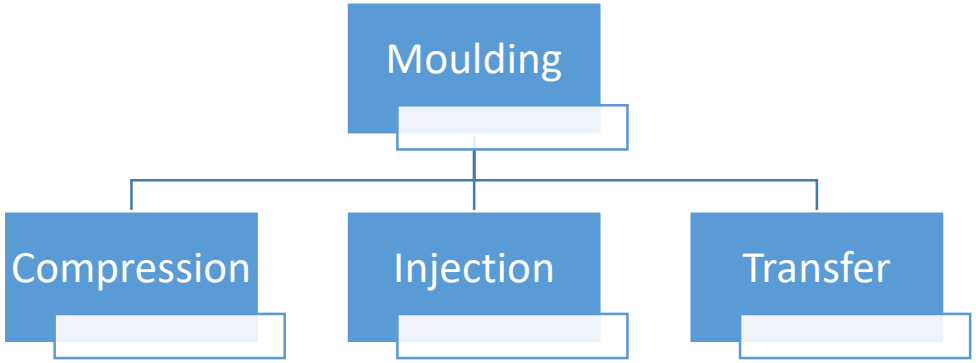
EXPERIENCE IN MANUFACTURING







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Products

*SOFT **MATERIAL** IN A TOUGH **ENVIRONMENT***

Rubber Moulded Products

- Rubber Gasket
- Rubber O Rings
- Rubber Bellows
- Rubber Grommets
- Rubber Diaphragms
- Rubber Boots
- Rubber to Metal Bonded
- Rubber Anti Vibration Mounts

Extrusions

- Rubber Mastic Tapes
- Silicone Tubings
- Silicone Cords
- Silicone Door Seals
- Silicone Rubber P Tape Extrusions

Rubber Hand Fabricated

- Silicone Hose

Polytetrafluoroethylene (PTFE) Moulding

- PTFE O rings & Gaskets
- PTFE Diaphragms
- PTFE Machined Components
- PTFE Sheets
- Skived PTFE Sheets
- PTFE Strips Guide Chains

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RUBBER MOULDED PRODUCTS

O RINGS and Gaskets

O-ring is a solid-rubber seal shaped like a doughnut or torus.
When compressed between mating surfaces, an O-ring blocks the passage of liquids or gases.
A rubber gasket is placed in between two objects in order to prevent leakage of any kind of the pressurized or not pressurized media. the gasket requires resistance against media and temperature within the range of the given application.2

- Nitrile O-Rings and Gaskets
- Neoprene O -Rings and Gaskets
- EPDM O-Rings and Gaskets
- FKM O-Rings and Gaskets
- Metal detectable rubber O-Rings

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Rubber Grommet

Centroid Polymer Technologies manufactures a wide assortment of high-quality rubber grommets to fit most industrial applications. Rubber grommets are often used in automotive and industrial applications to protect, cable, wire, hose, pipe or other objects which pass through a panel hole. By surrounding the object with a rubber “cushion”, the grommet prevents the abrasion and vibration which results from the object contacting the edges of the hole through which it passes.

Our rubber grommets are used in a wide range of applications, including electronics, aerospace, healthcare, construction, transportation, and defense applications.

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Specification Grades

We manufacture our rubber grommets using commercial grades of SBR, nitrile, silicone, Neoprene® 1, and EPDM. Materials are available in commercial and specification grades including:

- NASM 3036 Composition A and B
- Mil Spec
- ASTM
- AMS
- SAE
- And Others

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Rubber Bellows & Boots

Rubber bellows and boots can be produced in a range of materials and if required a variety of colours (depending on the elastomer). These products can be used to protect, shield and isolate sliding and rotating mechanisms.

Rubber bellows and boots are an essential part of many different industrial systems. They are flexible seals used in a range of applications for sealing dust and other environmental elements in applications with a calculated range of motion
Our custom rubber bellows and boots are designed to protect against:

- dust
- water
- oil
- grease
- acids
- bleaches
- spatter and pressure
- moisture
- chemicals
- UV
- other environmental elements

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Rubber to Metal Bonded Parts

Rubber to metal bonding is a method where rubber is mechanically bonded to metal during the rubber moulding process to achieve a successful bond, much of the value lies in mould tooling design, surface preparation processes, primer selection and curing configuration (temperature, pressure and duration).

Materials used include;

- Mild steel
- Carbon steel
- Aluminum
- Brass

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Rubber Anti Vibration Mounts

Rubber Anti Vibration Mounts provide support and help to protect the equipment from destructive vibration forces. Our range includes primary suspension, sandwich mounts, chevrons, secondary air spring emergency mounts, engine, motor, gearbox and raft vibration control mounts.

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Rubber Diaphragms

We are manufacturer and supplier of high quality rubber diaphragms, also referred to as diaphragm seals. Our company's reputation for excellence has been built on our ability to provide our valued customers with the most effective designing, engineering and manufacturing solutions to meet their most demanding applications.

Rubber diaphragms and fabric reinforced rubber diaphragms are critical to the operation of equipment and systems in the industrial, automotive, aerospace, oil, gas, medical instrumentation, and pump and valve industries

The construction of fabric reinforced rubber diaphragms is achievable using special reinforcement materials including:

1. Polyester (Dacron)
2. Polyamide (Nylon, High Strength)
3. Cotton
4. High-Temp Polyamide (Nomex®)
5. Liquid Crystal
6. Polymer based fabrics (Vectran®)

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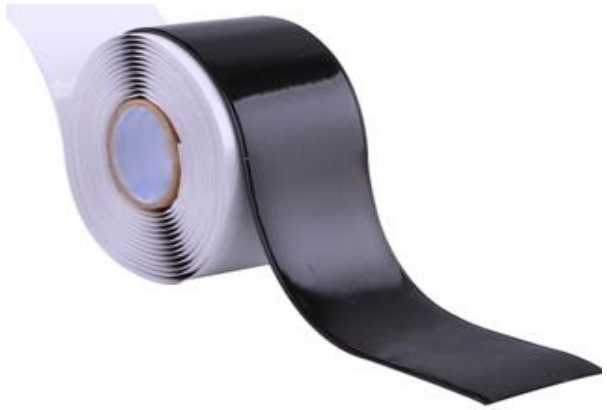
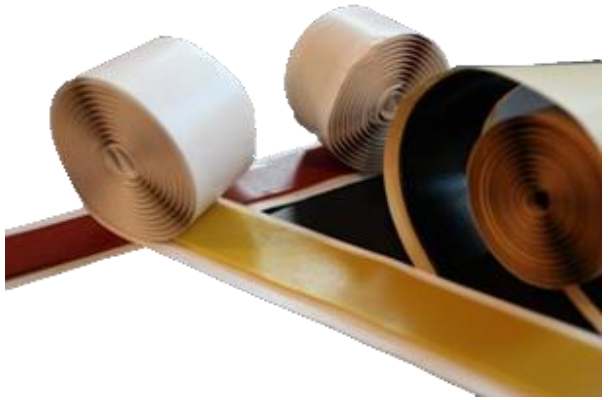
Rubber Extruded Products…

Rubber Mastic Sealent Tapes





BUTYL MASTIC TAPE

Butyl mastic is a highly viscous industrial sealant. As a tape, butyl sealants adhere to most materials creating a watertight bond. The butyl sealant tape is applied by hand directly from the roll onto clean, dry, grease-free surfaces. The butyl mastic strip is supplied on a roll with a silicone release paper for easy application and storage; and roll lengths can be converted to your requirements subject to minimum quantities.

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Outstanding Properties

The outstanding properties that Butyl mastic sealant offers are:

- Sealant with adhesive properties
- Service temperature ranges from – 40°C to + 90°C
- Non-hardening, permanently elastic
- Excellent joint movement
- Extremely durable
- No fumes, solvent free
- Includes a silicone release paper

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Many Applications

Black mastic sealant tape, butyl mastic sealant, mastic caulk, mastic putty and hot melt mastic can be used for many applications and in many industries, such as a:

- Electrical and Cable Jointing Sealant
- Water and Pond Liner Sealant, Underlayments
- Roofing and Cladding Sealant
- Caravans, Motor Homes and Holiday Homes Sealant
- Automotive Weather-Strip, Glass Trim and Membrane Liners Sealant
- Ducting Sealant, HVAC Duct Sealer

Standard, OEM, and Custom Formulations

We can also custom create Butyl masticand other sealants based on your company's formulations; or we can engineer any formula to meet your specifications. We have a wide range of Butyl-based products, including pumpables, extrudables and other sealant and adhesive products to meet the needs of automotive, manufacturing, HVAC, refrigeration, agribusiness, construction and other businesses involved in assembly or industrial manufacturing.

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Rubber Mastic Sealent Tapes

Silicone tapes are produced from specially formulated silicone rubber. They bond irreversibly to provide an insulative barrier that is resistant to moisture, oxygen, ozone and corona over a wide temperature range (-65°F up to +500°F). Our products provide superior electrical insulation with a dielectric strength of 300 VPM minimum at 356°F/180°C.

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Silicone Extrusions

What is Silicone Extrusion?

Silicone extrusion is the process whereby silicone is forced through a shaped die (a stainless steel disc with a pattern cut out) to produce cords, complex profiles and cross-sections.

Silicone extrusions typically show a huge improvement over other materials – they last longer, come in a multitude of colours, and stand up to a wider variety of environmental conditions. We can produce simple extrusions, or make custom sizes with complex cross-sections

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Material Benefits Resulting from the Polymer/Filler Structure

Silicone rubber usually contains pyrogenic silica as filler, Pyrogenic silica is structurally very similar to the polymer. They both consist predominantly of Si and O which leads to very interesting properties:

- High transparency
- Good mechanical properties thanks to effective polymer-filler interaction
- Good flame resistance; non-toxic combustion products in the case of fire

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General Properties of Silicone Rubber

- Broad operating-temperature range from –50 °C to +250 °C, (specialty grades: –110 °C to +300 °C)
- Only slight changes in physical properties between –50 and +180 °C
- Excellent compression set
- Odorless and tasteless (many grades are BfR and FDA compliant)
- Can be pigmented as desired
- Can be easily processed
- Can be adjusted electrically from insulating to semiconducting High radiation resistance

Typical Range of Mechanical Properties

- Density 1.05 – 1.60 g/cm3
- Shore A hardness 3 – 90
- Tensile strength 5 – 11 N/mm2
- Elongation at break 100 – 1,100%
- Tear strength (ASTM D 624) 5 – 55 N/mm
- Compression set (22 h /175 °C) 5 – 25%
- Rebound resilience 30 – 70%

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Typical Applications Silicone Extrusions

Silicone extrusions are used in many applications and industries throughout the world. Have vast experience in designing and manufacturing for virtually any requirement including:

- Industrial And Commercial Food Oven And Cart Seals , Gaskets And Fluid Handling
- Washers And Seals For Electronics And Electrical Equipment
- Architectural And Window Seals
- Electrical Connector Seals
- Fiberoptic Sheathes
- Industrial Louvers And HVAC Equipment
- Automotive Electrical Enclosure Weather Seal
- Outdoor Electrical Enclosures
- Outdoor Cellular Telecommunications Enclosures
- Water Purification and Filtration Seals And Tubing

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Typical Applications Silicone Extrusions

- Silos And Storage Tank Seals And Tubing
- Medical Equipment Seals And Tubing
- Aerospace and Military Seals And Gaskets
- Dairy Seals And Fluid Handling Tubing
- Peristaltic Tubing
- Plastic Case Seals

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Centroid Polymer can produce extrusions for a wide variety of applications and will be pleased to quote for requirements to sketch/drawing details or existing sample to match. New tooling and samples typically takes 2-3 weeks. The examples below are by no means an exhaustive list, merely a sample of some of the profiles Centroid Polymer can produce. If you cannot find what you require please give us a ring and we will do our best to meet your requirements.

Tubing

0.3mm - 75mm inner diameter
0.2mm - 25mm wall thickness

Cord

0.2mm - 50mm diameter

Keyhole Section

3mm - 40mm height
6mm - 20mm base

Autoclave Seal

3mm - 40mm height
6mm - 20mm base

Triangular Section

6.4mm - 50mm height
6.4mm - 50mm base

Channel Tube

4mm - 20mm tube section
Various channel dimensions
from 1mm - 6mm gap

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Flap Seal

From 1mm - 6mm channel gap
Various flap dimensions

Omega Tube Section

4mm - 20mm tube section
Various 'T' section base dimensions

'P' Tape

3.5mm OD - 33mm OD (bulb)

'U' Channel

0.5mm - 30mm (slot)
Various heights & widths

'e' Section

10mm - 50mm base
6mm - 25mm height
Various channel gaps

'D' Section

6mm - 50mm base
6mm - 25mm height
Solid 'D' sections also available

'L' Section

1mm x 1mm to 10mm x 10mm section
Various height & base dimensions

'H' Section

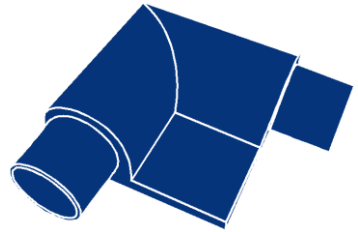
Various channel gaps
From 12mm overall height
Various widths

Double 'P'

3.5mm dia bulbs to 12mm dia bulbs
Various widths to 50mm wide

Custom Design

Custom channel seals are one of thousands available



Vulcanised / Moulded Corners

Corners with the best strength and appearance combination

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EXTRUSIONS

GENERAL PROFILES	Round cords, tubings, squares, rectangles
CUSTOM MADE PROFILES	Production of special profiles to customers drawings or samples. We offer a development service which includes die design and manufacture
TRANSLUCENT MEDICAL GRADE TUBINGS	This high quality non-toxic medical and food grade silicone rubber (B.G.A. F.D.A. approved) tubing is available in a range of sizes to suit most requirements
SILICONE SPONGE EXTRUSIONS	Production of seals and gaskets using non-toxic blowing agents
CABLE COVERINGS	Production of silicone covered cables in single or twin configuration from customer supplied wire
OVEN DOOR GASKETS	Production of complete gaskets including bonding to metals
CORNER MOULDINGS	Production of complete seals and gaskets

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Silicone Hoses (Hand Built Method)

We Centroid Polymer Technologies is not use any automated process for manufacturing our silicone turbo hoses. Each hose is hand crafted and some designs are very time consuming.

Due to the special nature of our material, specialized tooling is required to form the materials. This in turn gives you a product that holds less pressure when under high temperatures.

Turbocharger & CAC (charge air cooled) hoses are manufactured in silicone with an Aramid reinforcing fabric as standard, allowing higher temperature & pressure resistance.

For more demanding requirements, construction can incorporate wire reinforcing, offering greater resistance to profile changes & improved flexibility respectively

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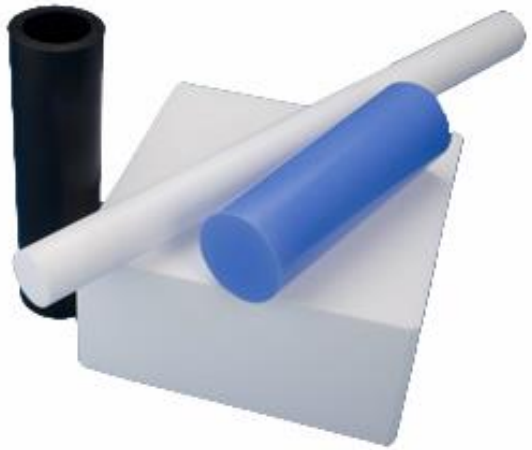
Polytetrafluoroethylene (PTFE) Moulding



Polytetrafluorethylene, PTFE, is a state-of-the- art, high performance plastic, which is used in a broad range of industries. This plastic is also known by trade names such as Teflon™, Dyneon™ or Fluon®.We produces semifinished products and prefabricated components from this material and its compounds for mechanical engineering, the automotive industry, chemical engineering, semiconductor and high voltage technology and for applications in the optical sector.

Convincing properties

The special technical properties of PTFE plastic are crucial for its success.

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PTFE characteristics

- Broad temperature range from -200 °C to +260 °C
- Universal resistance to chemicals, even against aggressive acids such as aqua regia
- Excellent dielectric properties
- A high degree of hydrophobicity
- Extremely non-adhesive
- Low refractive index at ~1.38
- Physiologically harmless
- Excellent for mechanical processing

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CENTROID POLYMER TECHNOLOGIES PRODUCTS MANUFACTURED TO MEET LATEST INDUSTRIAL STANDERDS

SAE INTERNATIONAL

DIN

ASTM INTERNATIONAL
Standards Worldwide

FDA

ISO

afnor

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