Leading the world in knitted mesh for automotive components
An introduction to Knitmesh Automotive

KnitMesh Technologies has over 60 years heritage in the design, manufacture and supply of critical environmental and safety components to our global, industry-leading automotive sector partners.

Proudly meeting the requirements of TS16949 – the automotive industry standard – our engineering and manufacturing teams work closely with OEM’s, and both Tier-1 and Tier-2 suppliers, to develop bespoke products that meet their exacting requirements. Our knitted mesh components are used around the world in the production of vehicles that achieve the highest specifications in terms of both performance and passenger, pedestrian and environmental safety.

Experienced in automotive

Over six decades KnitMesh has developed an enviable reputation for the supply of precision knitted mesh components that meet the precise needs of our prestigious automotive customer base.

With a product range that includes components used in everything from airbag filters and actuators, to seals and vibration/sound attenuation and heatshield isolators, KnitMesh goes further than meeting the minimum required international quality standards and customer expectations. We aim to excel in all that we do.

Continuous product innovation and investment in state-of-the-art design, production and testing equipment ensure our products are best-in-class. At KnitMesh we take pride in exceeding customer expectations. We do this by paying obsessive attention to detail and constantly driving to exceed the highest quality standards. This has helped underpin our continuous growth whilst ensuring that relationships with our customers are stronger than ever.

About our knitted mesh

Knitted mesh is a metal, ceramic or synthetic wire that is knitted into a mesh of interlocking loops. With incredible heat and corrosion resistance, and the ability to reduce vibration, shock and noise, these strong, lightweight, flexible and resilient materials are ideal for use in a wide variety of automotive applications.

The technology is to be found in a number of niche, but highly specialised vehicle applications, including where improvements to Noise, Vibration and Harshness (NVH) characteristics are required.
About our knitted mesh

Knitted mesh is a metal, ceramic or synthetic wire which is knitted into a mesh of interlocking loops. With fantastic heat and corrosion resistance, not to mention the ability to reduce vibration, shock and noise, this strong, flexible and resilient material is ideal for all kinds of automotive applications.

Main properties:

- Flexible & Malleable
- Energy Absorbing
- Variable Porosity
- High Resilience
- High Strength
- EMC/RFI Screening
- Harsh Environments
- Aesthetically Pleasing
- High Surface Area
- Low Cost
- Electronically Conductive
- Encapsulates & Protects
- Environmentally Friendly
- Material Versatility
Innovations for the automotive industry

As KnitMesh Technologies has been involved with the international automotive industry for over 60 years, many leading automotive component manufacturers from all around the world rely on us for their mesh products.

Working with both OEMs, and first-/second-tier suppliers, we enjoy an outstanding reputation for both quality and reliability. Proudly meeting TS16949 – the automotive industry standard – these are just some of the automotive components where our knitted mesh is used.

- **Anti-Vibration, Sound Attenuation & Heat Shields**
  - In its proprietary form, knitted mesh has unique, energy-absorbing properties that enable it to reduce vibration, dissipate or absorb heat and attenuate sound even in the most hostile operating environments.
  - Automotive Engineers routinely specify these components where improved noise, vibration, and harshness (NVH) characteristics are required, and for Remedies in buzz, rattle and squeak (RQS) applications. From customer-specific prototyping to R&D stage, the products are highly cost effective and available on short-lead-times.

- **Exhaust Decoupling Rings & Mesh Bellows Sleeves**
  - Knitted mesh rings are used in exhaust decoupling joints, and load support assemblies, to absorb vibration, reduce noise and accommodate thermal expansion.
  - Mesh sleeves for use with bellows serve to reduce both vibration and noise. Design, versatility, and high levels of temperature and corrosion resistance, result in the products proving highly cost effective in use.

- **Catalytic Converter Seals**
  - Single-piece compressed mesh seals are designed to protect the delicate, honeycomb ceramic bricks and in-mat materials from damage due to either vibration and/or gas erosion. The custom designed seals, available in a range of metal or synthetic materials, prevent gas bypass through the brick and the inlet converter shell. They are also used extensively in diesel particulate filter (DPF) assemblies.

- **Catalytic Converter Mesh Wraps**
  - Compressed wire mesh wraps are designed specifically to protect delicate catalytic converter assemblies from damage by shock and/or vibration. Typically manufactured as one-piece, low-to-high nickel alloy ‘tubes’. Often incorporating intrumentation mats, the wraps are easily fittted over the ceramic bricks in the catalytic pipe. A quick prototyping service is available for these products which offer cost effective protection and recyclability.

- **Slipper & Muffler Packing**
  - In applications the stainless steel, wire wool tubes or pads, are designed to encapsulate the perforated tube within the muffler’s return the basic or glass wool resulting in enhanced muffler performance. Use of our exhaust siencer packing materials reduces gas erosion of the fibres resulting in longer service life of the mufflers. The mesh, supplied in net and tubular or die-cut form, can also be used as a wrap to the wool in order to provide a better shape definition and to ease installation.

- **Separation Rings**
  - Twin-brick catalytic converters require the use of a metallic knitted wire mesh separation ring. These ensure a constant gap between the ceramic honeycomb bricks and prevent gas erosion of the intrument mat. The products are available in a wide variety of sizes, shapes and material types including non-ceramic yams that improve sealing characteristics.

- **Spacer Rings & Air Gap Seals**
  - Used extensively on down-pipe and dual-pipe exhaust systems, to reduce vibration and noise by maintaining a constant gap between the pipes. Available in a limitless range of profiles they are designed to accommodate thermal expansion in high temperature environments of up to and exceeding 1000°C. The spacer rings also act as extremely effective vibration dampers that prevent damage to NVH and RQS environments.

- **Isolators: Mesh welded to Washer**
  - Our proprietary mesh-to-washer welding technology results in dramatically improved process efficiency and reduced scrap rates in the production of isolators and dockplates for fire-flame shield applications.

- **Exhaust Clamp Gaskets**
  - Mesh gaskets for clamps and jointing solutions are used in a variety of automotive applications including turbo inlet and outlet connections, exhaust gas recirculation (EGR) systems and in diesel particulate filter system connections. We can also supply your bespoke clamping solutions via our UK company in India.

- **ANPR**
  - KnitMesh has over 60 years’ experience in the manufacture of knitted mesh products for EMC (electromagnetic compatibility) shielding applications. We supply a global customer base with a range of bespoke products for use protecting ANPR, vital equipment from electromagnetic interference (EMI) and radio frequency interference (RFI).

- **Bump Stops**
  - Bump stops protect a car’s suspension system when it’s under compression and is often fitted into contact with each other. Compressed knitted metal wire components are often found in motion applications where conditions are not suitable for polymeric or elastomeric alternatives.

- **Non-Mesh Products**
  - KnitMesh Technologies offers non-mesh products that are used to support, encapsulate, integrate with or provide attachment to knitted wire mesh components. These include metal components such as exhaust mesh gasket support rings and exhaust gas recirculation (EGR) pipe clamps and brackets.

- **Anti-Slosh**
  - Knitted mesh may be considered as an alternative material for anti-slosh devices and baffles that control adverse fuel ‘slosh’ or destabilising and undesirable movement within fuel tanks.

- **Gasket & Seals**
  - The myriad of knitted mesh means that it can be formed into a gasket of almost any shape. When combined with the properties of high temperature and corrosion resistance this results in an ideal sealing or gasket material for use in the harshest of operating environments.

- **Small Engine Catalyst Substrates**
  - The high pressure, temperature, and environmental controls being placed on engine exhaust emissions, our compressed wire mesh components have proved ideally suited for use as catalyst supports for small two stroke and four stroke engines.

- **KnitMesh Wire Mesh Tapes**
  - Small Engine catalyst substrates and Y-Pipe shielding of electrical and electronic cable assemblies. Applications include valve timing electrical grounding, static discharge and within electrical connector assemblies.

- **Actuators**
  - Utilising state-of-the-art production techniques, KnitMesh supplies knitted mesh filters, for use in actuator applications, that ensure high levels of consistency in an uniformly compressed structure.

- **Exhaust Systems**
  - Our knitted mesh exhaust decoupling rings are used in decoupling joints and load support assemblies to absorb vibration, reduce noise and accommodate thermal expansion. In exhaust gas recirculation (EGR) applications these sleeves are used with flexible bellows to reduce both vibration and noise.

- **Fuel Cell Substrates**
  - As the development of hydrogen and hydrocarbons gas fuel cells accelerates on a global scale, so does the search for materials and components that will aid in the reduction of costs and increased efficiencies. The unique properties of knitted mesh render this material ideally suitable for further research (see alternative fuel vehicles above) and we would welcome the opportunity to participate in your development projects.

- **Graphite Seals**
  - KnitMesh have developed proprietary production techniques for integrating graphite with knitted wire mesh technology. This may be used to increase the permeability of these components and increases their usability in a wide range of applications.

- **Isolators**
  - Heat and corrosion resistance is required.

- **EXR Clamps & Splittings**
  - Supplied with or without mesh our engineers would be happy to assist in the design of your specific requirement for support clamps, fastening rings and associated mesh split-rings (L rings).

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For more information on any of our products, please don’t hesitate to contact us.

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