

Leading the world in knitted mesh technologies



KnitMesh[®]
Technologies

Protecting People, Property and our Planet



An introduction to Knitmesh Technologies

KnitMesh Technologies started life over 80 years ago producing components for non-automotive applications. In that time, a huge range of products have been developed for countless applications in virtually every industry sector. The properties of knitted mesh are almost infinite, and our team of engineers and manufacturing specialists are well versed in the design and development of bespoke solutions for customers who are often market leaders in their own sectors.

Over many decades KnitMesh has developed an enviable reputation for the supply of precision knitted mesh components that meet the exacting needs of their world-class customer base. The products are knitted from a wide range of metallic, mineral or synthetic raw materials and then processed to deliver the specific properties required to meet the demands of the customer's individual application. KnitMesh goes further than simply meeting the required international quality standards and customer expectations, by continually innovating and investing in state-of-the-art design, production and testing capabilities.

Experts in mesh

Our engineers are at their best when working closely with customers to solve their challenging technical problems. With state-of-the-art production and testing facilities in the UK, as well as a manufacturing centre in India, KnitMesh is well placed to support your product development needs.

Our technical team have extensive experience of working with customers across all industrial and commercial sectors.















We're more than just a manufacturer - we're your long-term technology partner.



About our knitted mesh

Knitted mesh is produced from a metal, mineral or synthetic wire or filament that is processed into a structure of interlocking loops. KnitMesh produce a wide range of products incorporating unique properties that have proven suitable for use in even the most extreme operating environments.

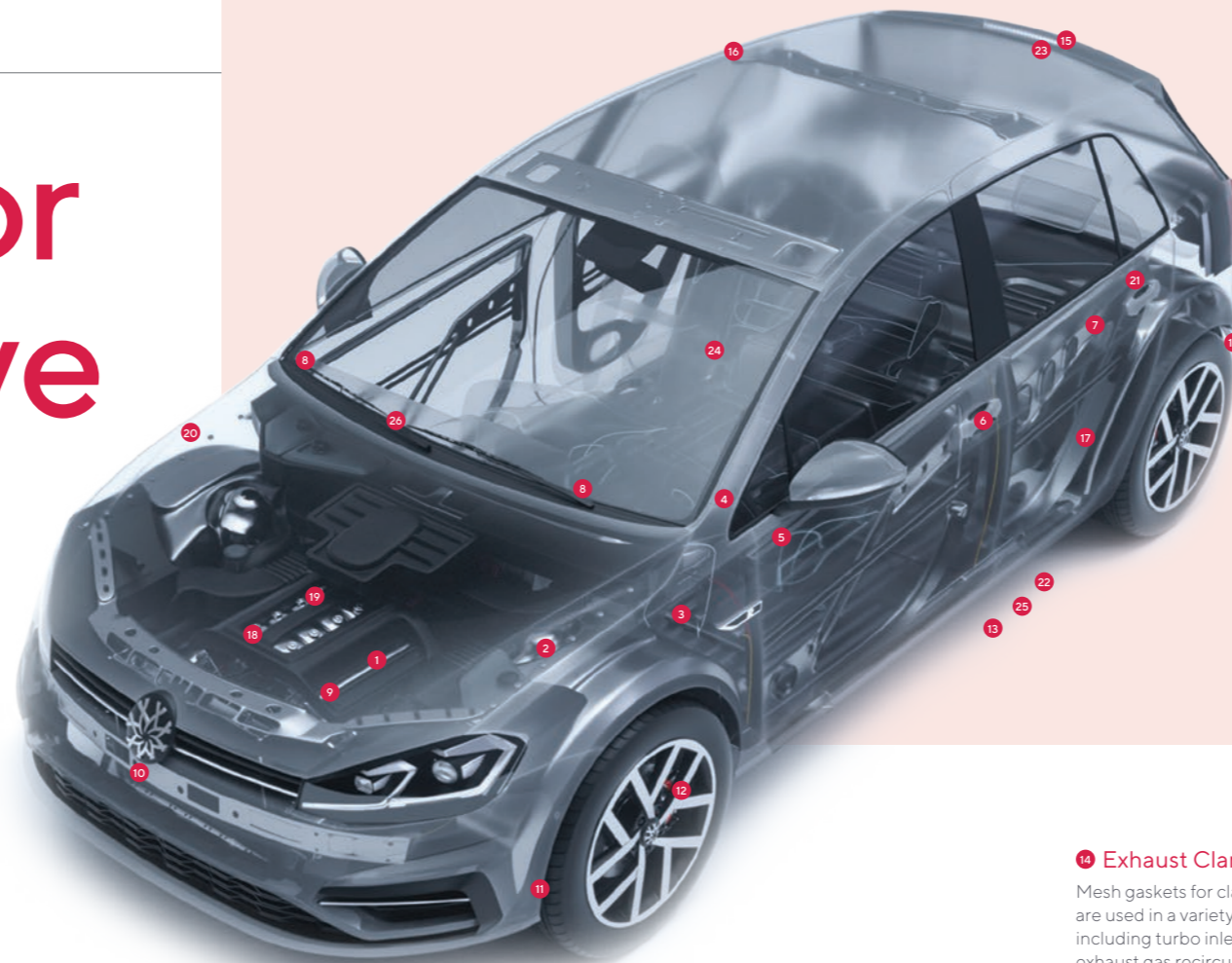
Main properties:

 Flexible & Malleable	 Energy Absorbing	 Variable Porosity	 Harsh Environments	 Aesthetically Pleasing
 High Resilience	 High Strength	 EMC/RFI Screening	 Cost Efficient	 Electrically Conductive
 Environmentally Friendly	 Material Versatility	 High Surface Area	 Encapsulates & Protects	

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.



1 Anti-Vibration, Sound Attenuation & Heat Shields

In its processed 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, squeak and rattle (BSR) applications. From customer specific prototyping-to-PPAP stage, the products are highly cost effective and available on short lead-times.

2 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.

3 Catalytic Converter Seals

Single-piece compressed mesh seals are designed to protect the delicate, honeycombed ceramic bricks and intumescent mats 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 between the brick and the inner converter shell. They are also used extensively in diesel particulate filter (DPF) assemblies.

4 Catalytic Converter Mesh Wraps

Crimped 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 intumescent mats, the wraps are easily fitted over the ceramic bricks in the canning process. A quick prototyping service is available for these products which offer cost effective protection and recyclability.

5 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 intumescent mats. The products are available in a wide variety of sizes, shapes and material types including co-knit ceramic yarns that improve sealing characteristics.

6 Spacer Rings & Air Gap Seals

Used extensively, on down-pipes 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 in NVH and BSR environments.

7 Silencer & Muffler Packing

In silencer applications the stainless steel, wire wool tubes or pads, are designed to encapsulate the perforated tube within the mufflers to retain the basalt or glass wool resulting in enhanced muffler performance. Use of our exhaust silencer packing materials reduces gas erosion of the fibres resulting in longer service life of the mufflers. The mesh, supplied in roll, 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.

8 Airbag Filters

Uniformly compressed knitted wire mesh filters are routinely incorporated in airbag inflator systems. Acting as an effective heat sink, they are used to cool and control the expanding gas flow following actuation and to trap the resulting propellant particulates in order to prevent the incandescent particles from entering or damaging the airbag. Available in designs to suit all air bag and actuator applications.

9 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 decouplers for use in heat shield applications.

10 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 in protecting ANPR roadside equipment from electromagnetic interference (EMI) and radio frequency interference (RFI).

11 Bump Stops

Bump stops protect a car's suspension system when it is under compression and moving parts come into contact with each other. Compressed knitted metal wire components are often favoured in motoring applications where conditions are not suitable for polymeric or elastomeric alternatives.

12 Alloy Wheel Filters

Knitted wire mesh has a unique interlocking asymmetrical wire loop structure that, in a layered and compressed form, can be produced with an infinitely variable porosity. The resulting media has proved ideally suitable for use in the casting of automotive products such as alloy wheels and high-performance motorsport components.

13 Alternative Fuel Vehicles

KnitMesh is working with several manufacturers in this rapidly growing market. Knitted mesh has many properties that render it suitable for new generation fuel cell and battery technology applications. These include high surface area-to-volume ratio and resiliency, variable porosity, conductivity and compressibility, and superb heat and corrosion resistance. With extensive experience in electrochemical and catalyst applications we would welcome the opportunity to participate in your development projects.

14 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 JV company in India.

15 Mesh & Graphite Components

Mesh and graphite components can be designed and manufactured to your individual requirements. The addition of graphite to our knitted mesh results in enhanced lubrication and gas sealing properties in a wide range of products including gaskets, seals, bearings, bushings, isolators and anti-resonance de-couplers.

16 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.

17 Anti-Slosh

Knitted wire 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.

18 Engine Breathers

Increasingly stringent legislation is placing considerable demands on internal combustion engine (ICE) manufacturers to reduce emissions from crankcase breather systems. KnitMesh can supply breathers that can remove oil droplets in the 3-10 micron range at >99% efficiency with negligible pressure drop. Also used as breathers in oil filler caps we can supply in a variety of materials and forms including galvanised steel or stainless steel where high temperature or corrosion resistance is required.

19 EGR Clamps & Splitrings

Supplied with or without mesh our engineers will be happy to assist in the design of your specific requirement for support clamps, fastenings and associated mesh split-rings (C rings).

20 Actuators

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

21 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 typical NVR applications mesh sleeves are used with flexible bellows to reduce both vibration and noise.

22 Fuel Cell Substrates

As the development of hydrogen and hydrocarbon 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.

23 Graphite Seals

KnitMesh has developed proprietary production techniques for integrating graphite with knitted wire mesh. This greatly enhances the properties of these components and increases their utility in a wide range of applications.

24 Gasket & Seals

The malleability of knitted wire 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.

25 Small Engine Catalyst Substrates

With increasingly stringent legislative and environmental controls being placed on engine exhaust emissions, our compressed wire mesh components have proved ideally suited for use as catalyst substrates for small two stroke and four stroke engines.

26 Knitted Wire Mesh Tapes

The KnitMesh range of knitted wire mesh tapes are used by our global customer base primarily for electromagnetic interference (EMI) shielding of electrical and electronic cable assemblies. Applications include cable jointing, electrical grounding, static discharge and within electrical connector assemblies.

Innovations for other industries

Working with customers who are world-class in their chosen fields, KnitMesh Technologies supplies highly innovative products to many national and global organisations across the electronics, aerospace, military, commercial, industrial consumables, telecommunications, medical, test equipment and enclosure industries.



< Aerospace

Our knitted wire mesh is the ideal choice for aerospace applications where few materials will withstand the challenging environmental conditions typically encountered. Commercial, military and general aviation aircraft all use wire mesh in their critical systems. These include filtration for aviation castings, incorporation in composite materials, temperature resilient cores for airframe door, window and hatch seals, and support bushings for engine fuel injector pipes.

Filtration

KnitMesh manufactures mesh with a unique interlocking asymmetrical wire loop structure that offers many advantages over other materials used in air or liquid filtration and mist elimination or de-misting. Our knitting processes produce materials that, when layered, spiral-wound or compressed, create a tortuous path that, whilst exhibiting minimal pressure drop, is highly effective for both particle capture and the elimination of entrained materials and droplets in fluid flows.



^ Oil & Gas

KnitMesh Technologies is a long-standing and respected supplier to the oil and gas sector. We use our extensive manufacturing and product testing capabilities to offer a wide range of knitted wire mesh products. Capable of operating at extreme temperatures (high and low), as well as in corrosive and hostile environments, previous oil and gas applications have included: HVAC, flame arresting, spark arresting, filtration, mist elimination (demisting), gas detection, hazard signalling and insulation.



^ Electronics & Telecoms

Modern electronic technologies require security and protection against electromagnetic interference (EMI) and radio frequency interference (RFI). With over 60 years of expertise in Electromagnetic Compatibility (EMC) shielding, KnitMesh designs, develops and manufactures a wide range of high-resilience knitted mesh products that meet the suppression needs of the electronics, aerospace, military, commercial, telecommunications and medical industries.

Mining

KnitMesh wire mesh can be designed and developed with our customers to provide customised equipment for a diverse range of applications in both surface (open cast) and underground mining. With safety being of critical importance, our high-quality knitted wire mesh products are used throughout the world to help ensure safe working conditions and optimum productivity in these most challenging environments.



^ Military

KnitMesh offers an extensive range of specialist knitted wire mesh products that will satisfy the safety-critical needs of many defence applications. The special challenges posed by demanding military applications require high performance materials that are lightweight and able to perform in harsh environments. Being self-extinguishing, our products are characterised by their flame resistance, shock resistance and low outgassing. All of our metal meshes are fundamentally inert and inherently safe.

> Animal Enclosures

Our knitted wire mesh forms a strong, lightweight and flexible barrier which is ideally suited to the unique requirements of aviaries and animal enclosures. Unlike heavy rigid barriers, the unique energy absorbing properties of our lightweight knitted wire mesh provides a forgiving containment media that minimises injury, whilst still protecting the animals or birds from the environment and dangerous predators or pests.

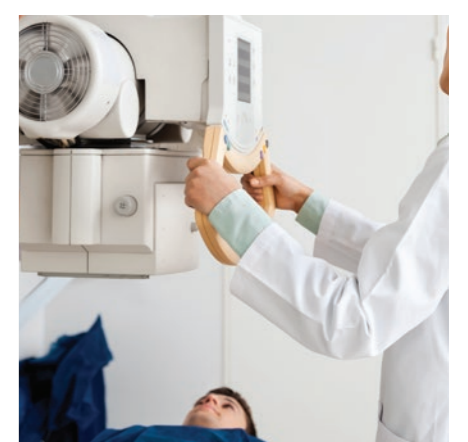


^ Electrochemical

Our knitted wire mesh has many uses in both existing and new horizon electrochemical industries such as fuel cell production and the latest generation of battery developments. Crimped knitted mesh is a conductive, compressible fabric, where its resilience, heat and corrosion resistance and excellent geometric properties render it an ideal medium for the electrical contact and compensation elements used in alkaline electrolysis processes within the chlor-alkali, fuel cell, power-to-gas and the water electrolysis industrial sectors.

> Composites

KnitMesh Technologies works closely with a range of advanced materials and component manufacturers that require products that are lightweight and strong. These raw materials are often used in composites that are engineered specifically for use in the harshest environments. Applications range from composite support layers and forming devices, to physical barriers in security composites as well as mesh and graphite combinations for use as valve seals.



^ Medical

KnitMesh wire mesh is an extremely versatile material that lends itself perfectly for use in the fields of medicine, medical research and healthcare equipment. We have worked with research organisations engaged in the development of medical implants and stents, tissue cultivation and prostheses, as well as supplying to manufacturers of complex medical equipment ranging from body scanners to X-ray devices and nebulisers.



^ Marine

We offer a range of knitted wire mesh products for use in aggressive marine applications. Their reliable performance in these harsh environments and safety-critical conditions have led to our products being specified by the Royal Navy and the RNLI. They feature in fire control systems in engine rooms, flame arresters in survival equipment, gaskets and tapes for Electromagnetic Compatibility (EMC) screening or electrical sealing of marine electronic equipment, and sea mist filters used in engine room air intakes.

> Cleaning

The knitted mesh in our KleenKnit™ family of products - manufactured in both flattened and round wire - is ideal for use in a wide variety of cleaning applications. Available in an extensive array of materials, grades and sizes, the KleenKnit™ range is used widely across industrial (particularly plastics extrusion) janitorial, professional and domestic catering, hospitality and DIY/decorating applications.

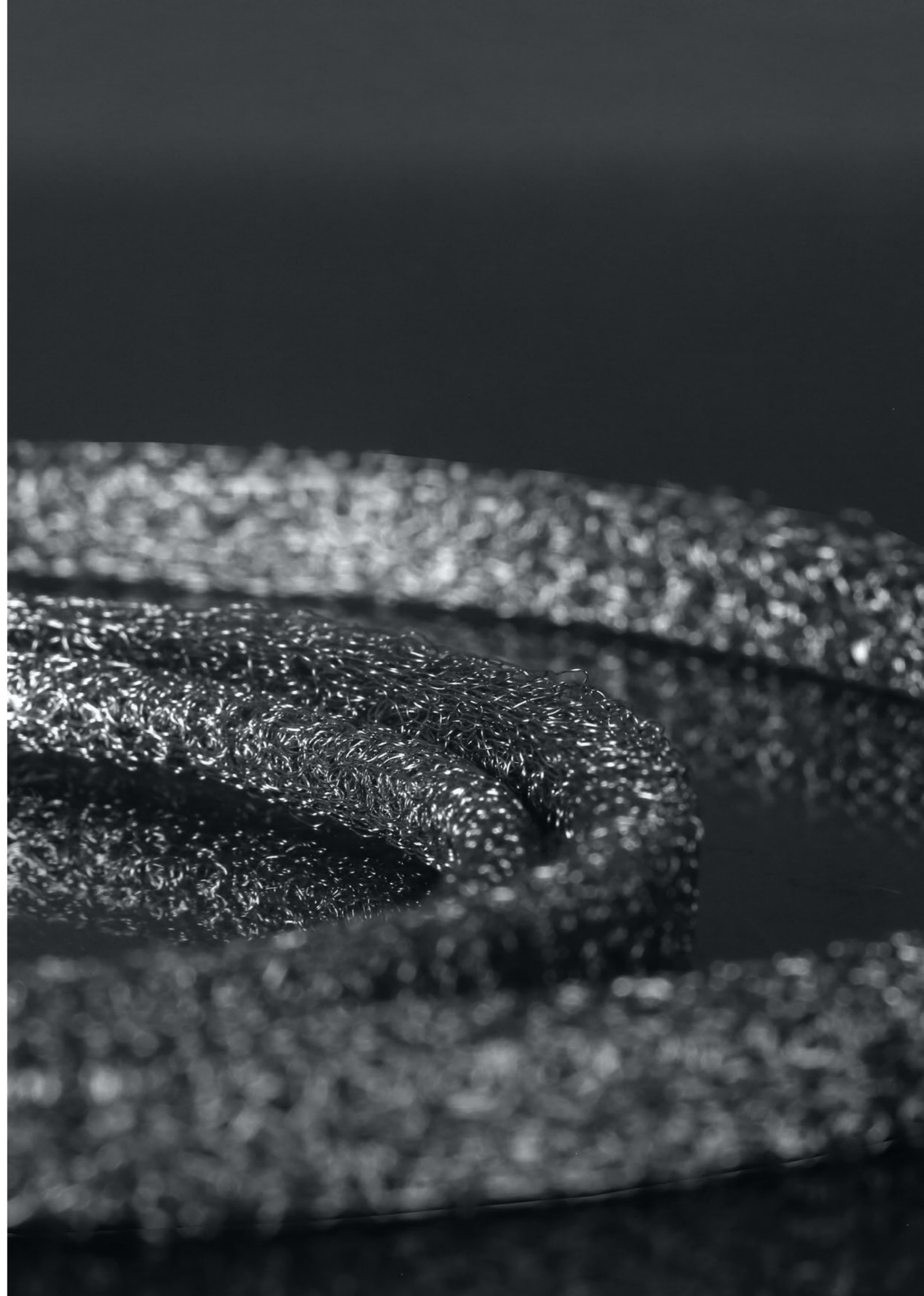
Design

Knitted wire mesh is a product that can be varied by material type, size and profile, and which offers the creative industries a unique resource of infinite variety. Our mesh may have had its origins in the industrial domain, but it has since been embraced by artists, designers, architects and DIY enthusiasts. Across the creative world, knitted wire mesh is renowned for its unique, low-cost and added-value functionality.



^ Transport

Our wire mesh is used extensively within the transport industry. Examples include anti-vibration and acoustic control components for use in mass transit systems e.g. floating floors and seat support in railway and subway rolling stock. Applications also include anti-slash composite fabrics for use against vandalism in passenger seating or illegal entry into curtain-sider (Tautliner) trucks. Knitted mesh offers a unique combination of high-strength and low-weight that makes it the preferred choice.



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

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