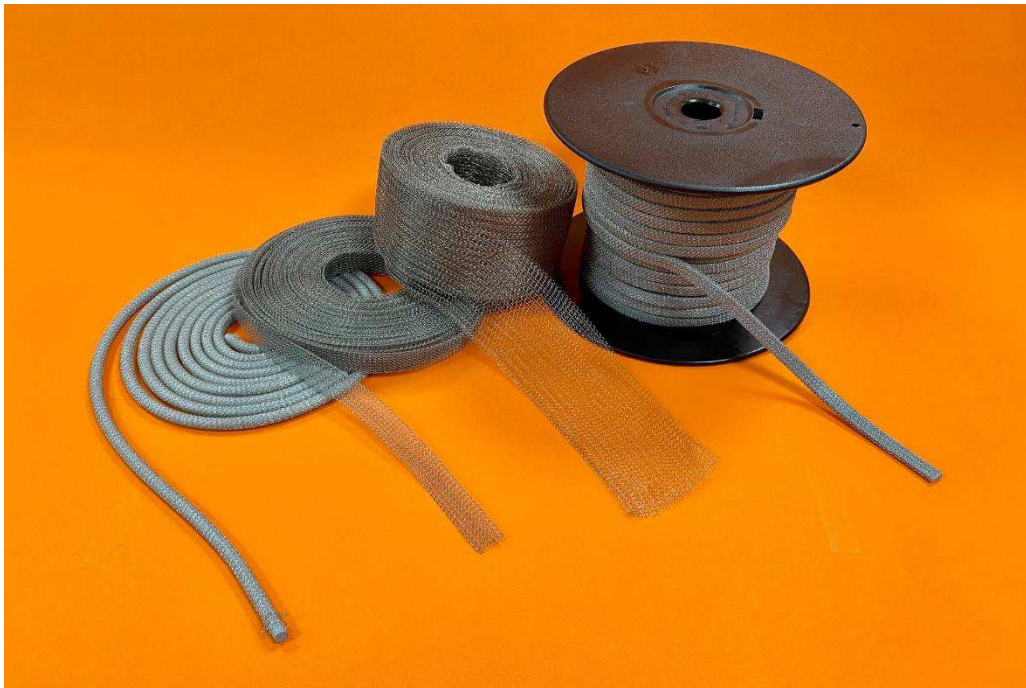


## 1. INTRODUCTION

This specification covers the requirements for application of RFI/EMI Knitted Wire Mesh products which are designed to provide Radio Frequency Interference / Electro-Magnetic Interference (RFI/EMI) shielding / sealing solutions. These products give consistent shielding performance over the life of the application.

The Knitted Wire Mesh products referred to in this specification are manufactured to a specified shape and size and therefore considerations of application must be made to ensure that the appropriate product is selected and utilized correctly, so that the performance of the Knitted Wire Mesh in service is optimized.

This specification will provide technical advice on article selection & design considerations when implementing RFI/EMI Knitted Wire Mesh.



TE Connectivity / Kemtron Ltd manufactures a range of Knitted Wire Mesh products providing a cost-effective solution to high shielding performance applications in both the magnetic and electrical fields.

These products are available in a range of metallic wires including:

- Monel Alloy 400 (Mon) – 0.11mm diameter to UK specification BS3075 NA13 / USA specification AMS 4730
- Tin Plated Copper Clad Steel (TCS) – 0.11mm diameter to UK specification BS EN 50117-10-1\* & BS4087\* / USA specifications ASTM B277\*, ASTM B452\*, ASTM B520, ASTM B33\*, & AISI 1010.
- Stainless Steel (S/St) – 0.11mm diameter to UK specification BS EN 10088-3 2005 316 S19

\*There is not a complete specification for this material. Processes have been derived from parts of the above where applicable.

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## 2. REFERENCE MATERIAL

### 2.1. Engineering Drawings

TE Connectivity Customer Drawings for specific products are available from the service network. The information contained in Customer Drawings takes priority if there is a conflict with this specification or with any other technical documentation supplied by TE Connectivity/Kemtron Ltd.

The appropriate drawings for the product referenced herein are detailed as follows:

- Customer Drawing **ROUND-KNITTED-MESH**
- Customer Drawing **RECTANGULAR-SKW-MESH**
- Customer Drawing **FLAT-BANDAGE-KWM**
- Customer Drawing **TWIN-ROUND-FIN-SKW-MSH**
- Customer Drawing **ROUND-SS-CORE**
- Customer Drawing **RECTANGULAR-SS-CORE**

### 2.2. Specifications

Product specification 108-120073 provides material specific product performance and test specification details.

### 2.3. Instructional Material

The TE Connectivity/Kemtron Ltd catalogue provides extensive instruction on the range of product alternative shapes and sizes that are on offer. If an alternative dimension or shape of product is required that is not covered by the scope of this specification, please consult the catalogue and seek technical sales advice from your customer service representative.

## 3. REQUIREMENTS

### 3.1. Safety

Care should be taken when handling knitted wire mesh products, protective gloves should be worn when handling the material to prevent any sharp or loose wires from causing cuts or abrasions to the product handler.

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### 3.2. Storage & Handling

Knitted wire mesh products should be packaged in clean & dry clear polythene bags, or where appropriate wound on a reel or spool. The packaging should protect the product from exposure to debris, dirt, or any fluid contaminants.

When handling or repackaging, care should be taken not to stretch the material, which could cause damage to the weave of the knit. Carefully unwind the desired length from the product package and cut appropriately as per the product handling advice.

Protective gloves and eye protection should be worn when handling the product to protect the product handler from any cuts or abrasions.

Knitted wire mesh products should be stored under the following conditions:

- In original packaging or equivalent packaging to protect the product from contamination
- Free from compression by another product
- At ambient temperature and humidity
- Isolated from corrosive materials

Under these conditions, knitted wire mesh products have a shelf-life of 20 years.

## 4. KNITTED WIRE MESH

These products are manufactured on a circular wire knitting machine using a single wire. The mono-filament interlocking-loop construction gives strength while allowing it to conform to almost any size or shape. The range of solid knitted wire mesh products are not suitable in applications that require regular opening and closing. If you require this feature please look at products with a sponge elastomer core.

Solid knitted mesh products provide an excellent RFI/EMI shield between two metallic surfaces. A range of wire types are available to allow for good galvanic compatibility thereby reducing or limiting the possibility of corrosion.

Typical applications for these products include;

- RFI/EMI applications
- Panel seals in shielded rooms
- Areas with infrequent access
- Cable shielding (wrapping with flat bandage)

These products are available in continuous lengths or cut to a specific length. A variety of sizes is available. We do not recommend applying self adhesive backing.

Considerations should be given to the termination of cut mesh ends. Sometimes loose wires are evident after cutting. If you choose to cut the mesh you can limit loose wires by either dipping the cut end in glue, spot welding the cut end, or sewing the cut end.

Sufficient compression forces are required to achieve a good contact seal between the metalwork. We recommend commencing your own trials to achieve the desired results.

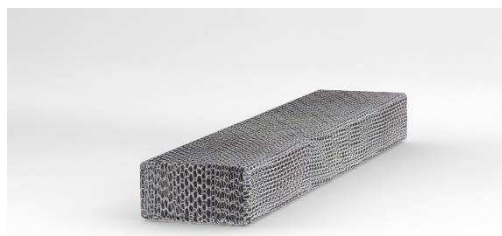
Fluid sealing is not possible with these types of products. However, a limited dust seal can be achieved.

Solid knitted wire mesh will suffer from compression set. This means that when formed into a shape, it will only partially recover. If this feature is required, use a product from the Knitted Wire Mesh Over an Elastomer Core section.

Variations within this product range include:



**11X – Round Solid Knitted Wire Mesh**



**13X – Rectangular Solid Knitted Wire Mesh**



**14X – Flat Bandage Knitted Wire Mesh**



**15X – Twin Round with Fin Solid Knitted Wire Mesh**

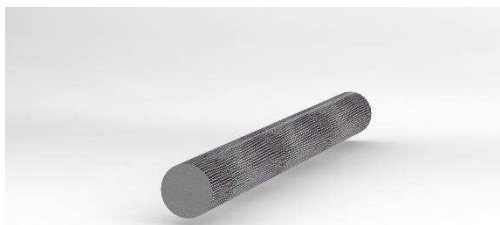
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## 5. KNITTED WIRE MESH OVER AN ELASTOMER CORE

This product is a knitted wire mesh over a silicone sponge elastomer core. These products consist of a core with a double layer of knitted wire mesh. The knitted mesh is then formed into the selected profile making a continuous strip which is flexible and compressible. This makes an excellent RFI/EMI gasket for applications that require regular opening and closing. The elastomer core allows this product to be compressed in general applications with an additional benefit where the product will conform to uneven surfaces and recover well after use.

Temperature range of elastomer core: -50°C to 200°C

Variations within this product range include:



**21X – Round Silicone Sponge Core**



**23X – Rectangular Silicone Sponge Core**

## 6. TOLERANCES:

### **11X, 13X, 14X, 15X:**

Diameter:  $\pm 0.8\text{mm}$

Width & Height:  $\pm 0.8\text{mm}$

Fins:  $\pm 1.5\text{mm}$

### **12X, 23X:**

Round and rectangular mesh sections:  $\pm 0.8\text{mm}$

Up to 2.0mm diameter or thickness:  $\pm 0.5\text{mm}$

2.1mm to 10.0mm diameter or thickness:  $\pm 0.8\text{mm}$

Above 10.1mm diameter or thickness:  $\pm 1.5\text{mm}$

## 7. COVER OPENING:

Knitted Wire Mesh = 2-3 times over the life of the product

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Knitted Wire Mesh Over an Elastomer Core = Unlimited\*

\*Depending on the wire selection, environment, and the application.

## 8. REVISION HISTORY

Revision number	Change request	Date	Incorporated By
A	-	27-Jul-2022	Dominic Hemmings
A1	Drawing reference names changed	12AUG2022	Dominic Hemmings