Kemtron
Proven EMC Shielding Solutions
Kemtron Ltd. is now part of

TE connectivity

KNITTED WIRE MESH

Knitted Wire Mesh

Overview

Kemtron Limited (Kemtron), now part of TE Connectivity, 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 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 radio frequency interference (RFI)/electromagnetic interference (EMI) shield between two metallic surfaces. A range of wire types is available to allow for good galvanic compatibility thereby reducing or limiting the possibility of corrosion.

Kemtron's knitted wire mesh is available in 2 options

- Solid Knitted Wire Mesh
- Elastomer Cored Knitted Wire Mesh

Summary	Solid Knitted	Elastomer Cored Knitted Wire Mesh
RFI/EMI shield	•	•
EMP survivability		
Environmental seal	• Dust only	• Dust only
Frequent opening		
Continuous lengths		•
Cut to length	•	•
Fabricated gasket	•	•
Mesh over elastomer core	•	• •

Production Capabilities

Kemtron has developed its knitted wire mesh production facility and expertise in this area to enable it to produce RFI/EMI gaskets in a wide range of materials and in many different size configurations. Together with our extensive fabrication capabilities and large stocks of raw materials, we can manufacture knitted wire mesh gaskets to suit many applications that support electromagnetic pulse (EMP) survivability.

We offer a bespoke service, which can also produce economical gaskets, with good delivery times, in prototype quantities or for short, medium or large commercial production runs.

Solid Knitted Wire Mesh

Product Overview

The product consists of a knitted wire that is formed into an all wire profile forming a continuous gasket strip.

Application

Solid knitted mesh gaskets provide an excellent RFI/EMI gasket shield between two metallic surfaces and with the choice of wire mesh material available allows for a good galvanic match with mating flanges, thereby limiting the possibility of corrosion between gasket and flange.

- RFI/EMI applications
- Panel seals in screened rooms
- Areas with infrequent access
- Cable Shielding (Wrapping with flat bandage)

Availability

- In continuous lengths, cut to length in continuous lengths or cut to length
- Variety of profiles and sizes available
- Self adhesive backing is not recommended with this version of mesh

Design Considerations

- Consideration should be given to the termination of cut mesh ends. Sometimes loose wires are evident after cutting. If you choose to cut the mesh yourself loose wires can be avoided by:

  - Dipping the end in glue
  - Spot welding the cut end
  - Sewing the cut end

- Sufficient compression forces are required to achieve good contact. Contact seal between the metalwork
- Galvanic compatibility can be achieved by choosing a suitable wire type
- Water and moisture sealing is not possible with this product. However it does offer a limited dust seal
- Solid knitted wire mesh suffers from compression set. So it is not recommended for frequent opening of panels. If you require this feature, refer to the knitted wire mesh over an elastomer core section

Typical Shielding Performance

H Field (Magnetic)				
	10 kHz	100 kHz	1.0 MHz	10.0 MHz
Monel	28	45	64	>104
TCS	47	67	88	>104
S/St	35	43	50	

E Field (Electric)				
	0.1 MHz	1.0 MHz	10.0 MHz	100 MHz
Monel	>118	>136	>123	99
TCS	>118	>136	>126	109
S/St	119	102		

P Field (Plain Wave)			
	400 MHz	1.0 GHz	10.0 GHz
Monel	96	84	46
TCS	98	77	43
S/St	85	62	36

Materials

Monel Alloy 400 Wire (Mon)

Wire diameter 0.11mm
UK Specification to BS3075 NA13
USA Specification to AMS 4730

Tin Plated Copper Clad Steel (TCS)

Wire diameter 0.11mm
UK Specification, BS4087*, BS EN 50117-10-1*
USA Specification ASTM B277*, ASTM B452*,
ASTM B520, ASTM B33*, AISI 1010

* There is no complete specification for this material.
Processes have been derived from parts of the above where applicable.

Stainless Steel (S/St)

UK Specification BS EN 10088-3 2005 316 S19
Wire diameter 0.11mm

Tolerances

- Width & Height ± 0.8mm
- Diameter ± 0.8mm
- Fin Dimensions ± 1.5mm

Flat Bandage

Note: This product is approx 0.5mm thick.

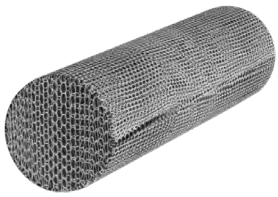
Profile

Material Codes Part Number

Width	Mon	TCS	S/St
	142	144	146
12.7mm	2423849-1	2423852-1	2423855-1
25.4mm	2423850-1	2423853-1	2423856-1
50.8mm	2423851-1	2423854-1	2423857-1

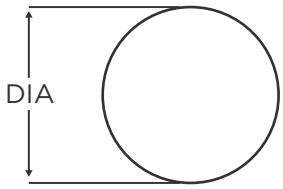
All products shown will be supplied in 25m length
Other sizes are available on request

Round

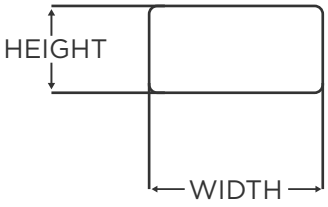


Rectangular

Profile



Profile



Material Codes/Part Number

Diameter	Mon	TCS	S/St
	112	114	116
2.4mm	2423830-1	2423833-1	2423836-1
3.2mm	2423831-1	2423834-1	2423837-1
4.8mm	2423832-1	2423835-1	2423838-1

Other sizes are available on request

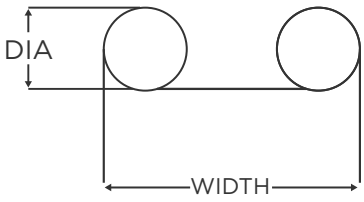
Material Codes/Part Number

Height	Width	Mon	TCS	S/St
		132	134	136
2.4mm	4.8mm	2423839-1	2423842-1	2423845-1
3.3mm	3.2mm	2423840-1	2423843-1	2423846-1
3.2mm	6.4mm	2423841-1	2423844-1	2423847-1

Other sizes are available on request

Profile

Twin Round with Fin



Material Codes/Part Number

Diameter	Width	Mon	TCS
		152	154
3.2mm	25.4mm	2423858-1	2423861-1
4.8mm	25.4mm	2423859-1	2423862-1
6.4mm	25.4mm	2423860-1	2423863-1

Other sizes are available on request

Knitted Wire Mesh

Product Overview

This product is a knitted wire mesh over an elastomer core such as silicone cellular profile. Usually this consists of 2 layers of knitting over the elastomer core. The knitted mesh is then formed into the selected profile making a continuous gasket strip which is flexible and compressible and which makes an excellent RFI/EMI gasket.

Application

In addition to making an excellent EMI/RFI shield between two metallic surfaces the choice of wire mesh material available also allows for a good galvanic match with mating flanges, thereby limiting the possibility of corrosion between gasket and flange. Further, the elastomer core of the gasket allows it to be compressed using low to medium force conforming to uneven surfaces and recovering well after use.

- Groove gaskets such as O-rings
- Due to its resiliency and low compression force, ideal for use in situations where repeated opening and closing operations are necessary

Design Considerations

- Consideration should be given to the termination of cut mesh ends. Sometimes loose wires are evident after cutting. If you choose to cut the mesh yourself loose wires can be avoided by:
  - Dipping the end in glue
  - Spot welding the cut end
  - Sewing the cut end
- Compression forces required to allow good contact. Also the rigidity of the host metalwork
- Galvanic compatibility can be achieved by choosing a suitable wire type
- Water and moisture sealing is not possible with this product. However, it does offer a limited dust seal

Availability

- In continuous lengths
- Cut to length
- Variety of profiles and sizes
- Selection of wire to meet galvanic compatibility requirements
- A selection of elastomer cores are available to meet conditions such as temperature range, compression set, compression force
- Self adhesive backing is not recommended with this type of product

Typical Shielding Performance

H Field (Magnetic)				
	10 kHz	100 kHz	1.0 MHz	10.0 MHz
Monel	28	45	64	>104
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Tin Plated Copper Clad Steel (TCS)
Wire diameter 0.11mm
UK Specification BS EN 50117-10-1*, BS4087*,
USA Specification ASTM B277*, ASTM B452*,
ASTM B520, ASTM B33*, AISI 1010

* There is no complete specification for this material. Processes have been derived from parts of the above where applicable.

Stainless Steel (S/St)
UK Specification BS EN 10088-3 2005 316 S19
Wire diameter 0.11mm

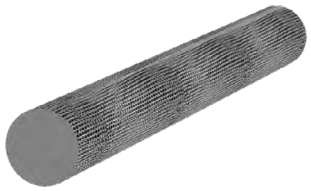
Sponge Silicone Rubber
USA Specification AMS 3195
Temperature range -50°C to +200°C
Service life >20 years

Tolerances on Rubbers

- Round and rectangular mesh sections ± 0.8mm
- Up to 2.0mm diameter or thickness ± 0.5mm
- 2.1mm to 10.0mm diameter or thickness ± 0.8mm
- Above 10.1mm diameter or thickness ± 1.5mm

Note: All sizes listed are that of the elastomer core. Allowances must be made for the wire mesh 1 layer approximately 0.4mm and 2 layers 0.8mm. All products will be supplied in a 25m length

Round Silicone Sponge Core



Material Codes/Part Number

Diameter	Mon	TCS	S/St
	212	214	216
2.4mm	2423864-1	2423868-1	2423872-1
3.2mm	2423865-1	2423869-1	2423873-1
4.8mm	2423866-1	2423870-1	2423874-1
6.4mm	2423867-1	2423871-1	2423875-1

Round Silicone Sponge Core

Material Codes/Part Number

Height	Width	Mon	TCS	S/St
		232	234	236
3.2mm	6.4mm	2423876-1	2423879-1	2423882-1
3.2mm	9.5mm	2423877-1	2423880-1	2423883-1
4.8mm	12.7mm	2423878-1	2423881-1	2423884-1

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