

Knitted Wire Mesh Tapes



Description:

Knitex[®] wire mesh EMI shielding tapes are constructed from knitting a fine wire into a double thickness layflat stocking and are available in the widest range of materials and widths available on the market (see table below). The tape is highly flexible, light, corrosion and high temperature resistant but also stronger and more resistant to abrasion and physical damage than other tape materials. Tapes are available in widths from 6mm wide up to 200mm wide and can be produced with a crimp to give greater thickness than standard.

Application

Mesh tapes are primarily used for shielding electrical and electronic cable assemblies, for cable jointing, grounding, static discharge and within connector assemblies. Normally the mesh should be applied to a cable with a 50% overlap to provide a 4 layer shield and terminated at each end by means of clamping, soldering or spot welding.

Materials of Construction - Wires

Knitex EMI shielding materials can be manufactured from any metal that can be drawn into a filament. However the majority of shielding requirements can be satisfied by using the materials listed in the table below.

Material	Wire Diameter	Material Ref.
Monel (BS 3075-NA13)	0.11mm	MO
Tin Plated Copper Clad Steel (SN-FE-CU)	0.11mm	SN-FE-CU
Stainless Steel (AISI 304)	0.11mm	SS
Stainless Steel (AISI 321)	0.15mm	321
Tinned Copper (BS 4109 with 0.7-1 micron tin plate)	0.11mm	TC
Silver Clad Copper (BS 4190 with 0.7-1 micron silver cladding)	0.12mm	SCC
Nickel Plated Copper	0.15mm	NI-CU
Aluminium (ALMG5)	0.14mm	AL
Copper (BS 4109)	0.12mm	CO

Other materials are available to special order such as Phosphor Bronze and Brass.

Knitted Wire Gaskets

Knitted Wire Mesh Tapes



Shielding Effectiveness

Knitex wire mesh tapes in optimum conditions will provide excellent shielding effectiveness, typical figures shown below:

Material	H-Field 100kHz	E-Field 10MHz
Monel (BS 3075-NA13)	-	65 dB
Tin Plated Copper Clad Steel (SN-FE-CU)	45 dB	60 dB

It should be noted that these figures can only be a guide as each application is unique and the shielding effectiveness of the tape should be considered as part of the system as a whole.

Additional Information

Samples are available generally free of charge (please contact the sales department). Delivery lead times are quantity dependant but emergency deliveries can be organised from stock or within a few days.

Ordering

To order, simply state the quantity required, part number and if you have any special roll length or packaging requirements. Use the following table and the material table and the previous page to create the part number.

Width	Part Number
6mm	9002 / Wire Diameter / Material Reference / Nat @ 6mm wide
13mm	9022 / Wire Diameter / Material Reference / Nat @ 13mm wide
25mm	9022 / Wire Diameter / Material Reference / Nat @ 25mm wide
38mm	9028 / Wire Diameter / Material Reference / Nat @ 38mm wide
50mm	9028 / Wire Diameter / Material Reference / Nat @ 50mm wide
75mm	9001 / Wire Diameter / Material Reference / Nat @ 75mm wide
100mm	9001 / Wire Diameter / Material Reference / Nat @ 100mm wide
150mm	9029 / Wire Diameter / Material Reference / Nat @ 150mm wide
175mm	9044 / Wire Diameter / Material Reference / Nat @ 175mm wide
200mm	9044 / Wire Diameter / Material Reference / Nat @ 200mm wide
500mm	9055 / Wire Diameter / Material Reference / Nat @ 500mm wide
1000mm	9090 / Wire Diameter / Material Reference / Nat @ 1000mm wide

Example of how to order a standard Knitex wire mesh tape:

9055 / 0.15 / 321 / Nat @ 500mm wide = 500mm wide mesh tape made from 321 stainless steel wire

Quality Assurance

KnitMesh Technologies® is accredited to:

ISO9001:2008, ISO14001:2004, OHSAS18001:2007, PAS 99:2006 and ISO/TS 16949:2009



Customer Support

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Maximum Service Temperatures in Air for Stainless Steels

The following information is provided by the British Stainless Steel Association^[1].

Introduction

The maximum oxidation service temperatures for heat resisting steels is shown 'for guidance only' in table B.2 of EN 10095. Although helpful, this only covers the steels specifically designed for heat resisting applications. An alternative guide is shown in the ASM Specialty Handbook 'Stainless Steels', where a wider range of stainless steel grades is covered.

A comparison of these maximum service temperatures under intermittent or cyclic oxidation conditions (where protective oxide films produced may be likely to crack, hence reducing the useful service life) is summarized in this article, but it must be stressed that, these figures can only be used for guidance. Selection of stainless steels for oxidation resistant service should also consider the the design strength requirements at the intended service temperature.

Austenitic Stainless Steel Types

There are some apparent contradictions in the data, where EN 10095 suggests that the 321 type (1.4541 / 1.4878) is 'inferior' to the 316 and 304 types, as shown in the ASM data. Based on the chromium content of these three types, the maximum service temperatures would be expected to be the same. (The titanium stabilised 321 type would in fact normally be preferred, as its elevated temperature strength should be marginally better.)

Ferritic and Duplex Stainless Steel Types

The ferritic types may be limited, in practice, to lower temperatures as they have lower strengths at elevated temperatures than the austenitic types. The ferritic types can also suffer from embrittlement with extended exposure to temperatures above about 450°C. Duplex stainless steels can also be prone to embrittlement and so although their chromium levels would suggest they may be useful steels for elevated temperature service. This steel family is limited in the European pressure vessel standard EN 10028-7 to a maximum temperature of 250°C

Grade		Main Alloying Elements (%)		Max Service Temperature (°C)	Source
AISI	EN	Cr	Others		
Ferritic Types					
405	1.4002	12	0.2 Al	815	ASM
	1.4724	12	1.0 Al	850	EN10095
430	1.4016	17		870	ASM
	1.4742	17	1.0 Al	1000	EN10095
446	1.4749	26	0.15 - 0.20 C, 0.2 N	1100	EN10095
Austenitic Types					
304	1.4301	18	8 Ni	870	ASM
321	1.4541	18	9 Ni	870	ASM
	1.4878	18	9 Ni	850	EN10095
316	1.4401	17	11 Ni, 2 Mo	870	ASM
309	1.4833	22	12 Ni	1000	EN10095
310	1.4845	25	20 Ni	1050	EN10095
	1.4835	20	10 Ni, 1.5 Si, 0.15 N, 0.04 Ce	1150	EN10095
330	1.4886	18	34 Ni, 1.0 Si	1100	EN10095

[1] - "Maximum service temperatures in air for stainless steels", British Stainless Steel Association, Retrieved 10 July 2015, <http://www.bssa.org.uk/topics.php?article=42>