

**mettex**  
Braids, Strands & Flexible Connectors

[mettex.com](http://mettex.com)



## **A driving force** in the market

Since 1973 Mettex has been producing quality, well engineered and affordable flexible braided wire products for use throughout the electrical industries. We are now the largest UK Company whose activities and skills are focused solely on the manufacture of flexible wire braid, strand and related value added products and services. The growth and success of Mettex is the direct result of our policy of continuous improvement and investment.

Mettex offers a wide range of standard continuously made lines and custom designed and built products for specific applications. We work predominantly with copper but also manufacture from a wide range of other non-ferrous and ferrous materials.

Mettex builds to order and we work closely with our customers to deliver the right technical solution at the right price and at the right time. Our aim is straight forward – that is to serve you by being the best in our field and to offer the finest in value for money, quality of product and customer service.

## **Dedicated to** our future

With the increasing awareness of global warming and our carbon footprint from both individuals and society as a whole, it is important that every company takes on their responsibility for the future.



Here at Mettex we are proud to work with companies that are at the front line of engineering renewable energy sources and power generation technologies, through supplying products that meet their needs for solutions that tackle the harsh environments where these technologies are utilised.

Efficient production methods, minimising wastage and recycling materials are all part of the ideology implementing these throughout the Company structure. Putting these processes in place sets the standards for the company and all employees to be responsible and dedicated to our future.

## Product overview

Description	Typical uses	Key Market Sectors
<b>Sleeving Braid</b> Screening Braid or Cable Sleeve	<ul style="list-style-type: none"> <li>- Screening of cables from electromagnetic, electrostatic and RF interference</li> <li>- Mechanical support</li> <li>- Protection against abrasion and corrosion</li> <li>- EMC &amp; EMH applications</li> </ul>	<ul style="list-style-type: none"> <li>- Defence &amp; Aerospace</li> <li>- Transportation</li> <li>- Electronics &amp; Communication</li> <li>- Cable harness &amp; assembly makers</li> <li>- Component distributors</li> </ul>
<b>Flexible Connectors</b> Flexible Assemblies, Earth Bonding or Ground Straps, Braided Links or Leads	<ul style="list-style-type: none"> <li>- Overcome vibration/alignment problems</li> <li>- Interconnects for L.V. power distribution units</li> <li>- Earth connections</li> <li>- Battery connections</li> <li>- Cable jointing kits</li> </ul>	<ul style="list-style-type: none"> <li>- Defence &amp; Aerospace</li> <li>- Transport</li> <li>- Switchgear &amp; control equipment</li> <li>- Power generation</li> <li>- Electrical equipment manufacturers</li> </ul>
<b>Flexible Busbars</b>	<ul style="list-style-type: none"> <li>- Heavy-duty power interconnection</li> <li>- Overcome vibration/alignment problems</li> <li>- Expansion joints</li> <li>- Variable terminating positions</li> </ul>	<ul style="list-style-type: none"> <li>- Power generation</li> <li>- Power distribution</li> <li>- Switchgear &amp; control panels</li> <li>- Marine propulsion</li> <li>- Rail transportation</li> </ul>
<b>Flat and Round Braid</b>	<ul style="list-style-type: none"> <li>- Earth connections</li> <li>- Power interconnection</li> <li>- Lightning protection</li> <li>- Flexible links</li> <li>- Overcome vibration/alignment problems</li> </ul>	<ul style="list-style-type: none"> <li>- Defence &amp; Aerospace</li> <li>- Rail transportation</li> <li>- Automotive Electronics</li> <li>- General electrical sector</li> </ul>
<b>Flexible Strand or Rope</b>	<ul style="list-style-type: none"> <li>- Earth connections</li> <li>- Power interconnection</li> <li>- Applications involving a high level of flexing</li> <li>- Lightning protection</li> </ul>	<ul style="list-style-type: none"> <li>- Defence &amp; Aerospace</li> <li>- Power generation &amp; control</li> <li>- Transportation</li> <li>- Electronics</li> <li>- General electrical sector</li> </ul>
<b>Stocking Braid</b>	<ul style="list-style-type: none"> <li>- Earth continuity for MV &amp; HV joints</li> </ul>	<ul style="list-style-type: none"> <li>- Power generation</li> <li>- Power distribution</li> <li>- Component suppliers &amp; distributors</li> <li>- Service installers</li> <li>- Electrical component manufacturers</li> </ul>
<b>Knitted Wire Mesh or Tape</b>	<ul style="list-style-type: none"> <li>- EMC/RFI shielding for cables</li> <li>- Cable jointing</li> <li>- Repairing armoured cable</li> </ul>	<ul style="list-style-type: none"> <li>- Rail transportation</li> <li>- Communications</li> <li>- Electronics</li> <li>- Power distribution &amp; service</li> <li>- Electrical component manufacturers</li> </ul>
<b>Overbraiding Service</b>	<ul style="list-style-type: none"> <li>- Alternative method of EMC / RFI protection</li> <li>- Screening flexible conduit</li> <li>- Added electrical and mechanical protection</li> <li>- Complex multiple branch cable harnesses</li> <li>- Screening for specialist and safety critical cables</li> </ul>	<ul style="list-style-type: none"> <li>- Defence &amp; Aerospace</li> <li>- Rail transportation</li> <li>- Cable manufacturers</li> <li>- Flexible conduit manufacturers</li> <li>- Hose suppliers</li> </ul>
<b>Special Products</b>	<ul style="list-style-type: none"> <li>- Electric motor brushes</li> <li>- Audio speaker wire</li> <li>- Medical equipment</li> </ul>	<ul style="list-style-type: none"> <li>- Switchgear manufacturers</li> <li>- General electrical equipment</li> <li>- Speaker manufacturers</li> <li>- Motors &amp; motion products</li> <li>- Research &amp; medical</li> </ul>

Any of the above products can be configured to meet your exact technical requirements.

## Customer care & pricing policy

Our internal processes are set to focus on delivering a high level of customer care and support.

The key benefits to working with Mettex are:

- A rapid response to enquiries
- Immediate technical advice and assistance
- Prototype sample service
- Fast turnaround

Mettex products are competitively priced with no hidden incidental costs.

## Manufacturing capability

Our manufacturing processes and capacity provide for fast turnaround from order to despatch. We meet tight deadlines and deliver within sensible, short timeframes. Where appropriate Mettex deliver on a JIT or Kanban basis. Wire and component parts such as terminals and heatshrink tubing are readily available from stock.

We supply in batch sizes ranging from a few to many thousands.

## Product diversity

Mettex manufactures a comprehensive range of flexible wire based products from a wide selection of materials. The business falls into two primary groups. Firstly, our continuously manufactured standard lines of flat and round braid, strand and screening braid. Secondly, affordable value added products, custom-built to meet specific mechanical and electrical performance criteria.

## Mettex quality

Mettex is accredited to the globally recognised and well-respected quality standard ISO9001:2008. In addition we also carry approvals and other related awards from international 'blue chip' companies. Constant monitoring during manufacturing forms an important part of our quality policy, as does the continuous review of all processes with particular emphasis on:

- Production capability
- Identifying areas for improvement
- Reducing manufacturing times
- Supply chain management



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# Sleeving Braid

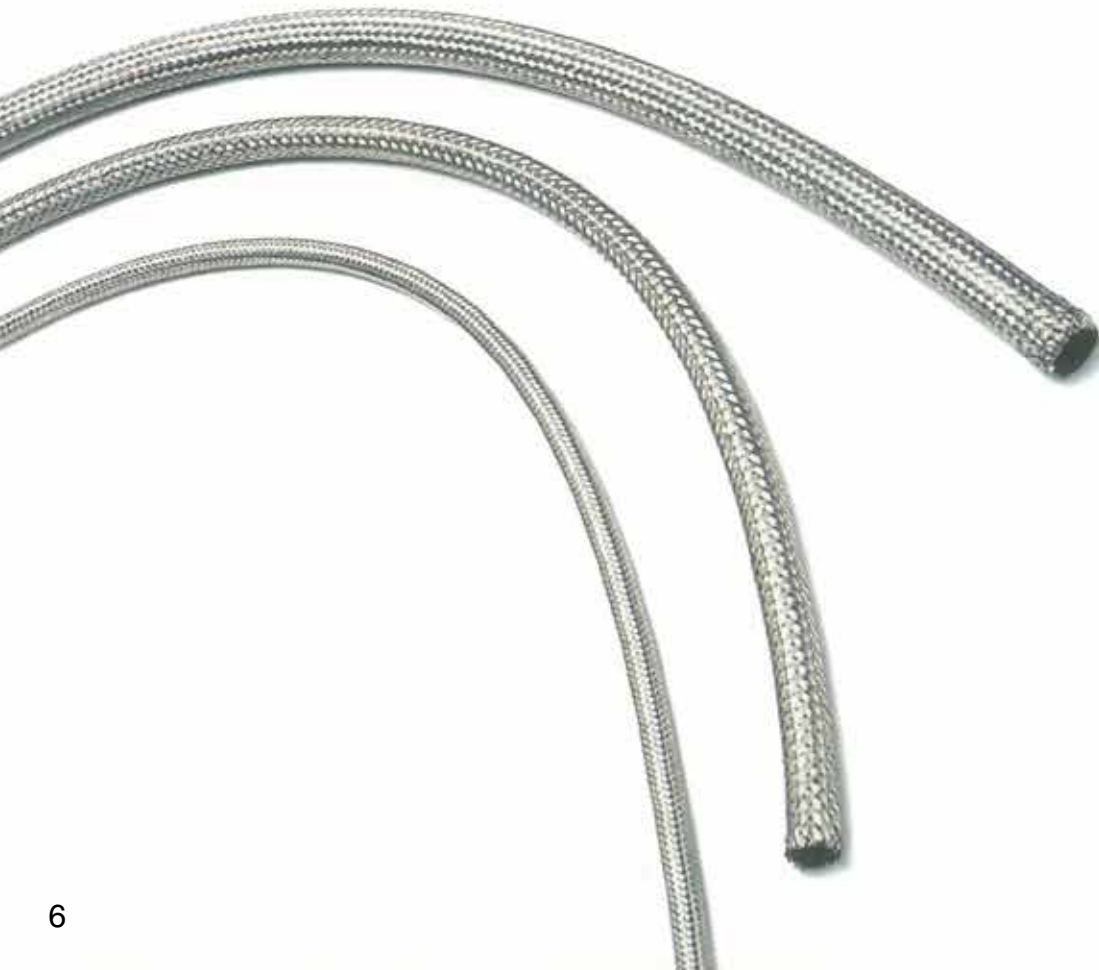
The primary use of wire sleeving braid is to provide sensitive cables with an EMC screen to shield them against electromagnetic, electrostatic and radiofrequency interference. Optimum screening performance is obtained using copper wire braid that can also be used for earth continuity purposes. Nickel-plated copper is suitable for use at elevated temperatures and for harsh environments or where abrasion is likely to be encountered, stainless steel or galvanised wire is an option.

## Features

- Industry standard coverage of 90% or 95%
- Wide range - from 2mm up to 70mm Ø
- Excellent expansion ratios
- Normally supplied on removable PVC former
- Also available off former in flat form
- Options for bespoke requirements
- Sample packs available for prototyping
- Packed on reels
- Option to supply in pre cut lengths

## Choice of Materials

- Electro tin-plated copper
- Nickel-plated copper
- Stainless steel
- Galvanised steel
- Alternative non-ferrous & ferrous materials on request





### Standard Sleeving Braid

Reference	Former O/D mm	Minimum Optical Coverage	Wire Ø mm	Usable Ø mm		Approx. Weight kg per 100m (ex-former)
				Min	Max	
MBS 3.0	3.0	90%	0.13	2.0	3.5	1.00
MBS 4.0	4.0	90%	0.13	3.0	5.0	1.45
MBS 5.0	5.0	90%	0.13	4.0	6.0	1.90
MBS 6.0	6.0	90%	0.13	5.0	7.0	2.20
MBS 10.0	10.0	90%	0.16	7.0	12.0	4.40
MBS 12.5	12.5	90%	0.16	11.0	13.0	4.80
MBS 15.0	15.0	90%	0.20	13.0	18.0	8.30
MBS 20.0	20.0	90%	0.13	17.0	23.0	10.00
MBS 25.0	25.0	90%	0.13	22.0	28.0	11.25
MBS 30.0	30.0	90%	0.16	27.0	36.0	19.30
MBS 95 3.0	3.0	95%	0.10	2.5	5.0	1.25
MBS 95 4.0	4.0	95%	0.13	3.5	7.5	2.20
MBS 95 6.0	6.0	95%	0.13	4.5	9.5	2.80
MBS 95 7.5	7.5	95%	0.13	7.0	14.0	4.40
MBS 95 10.0	10.0	95%	0.13	8.0	22.0	5.00
MBS 95 12.5	12.5	95%	0.13	11.0	24.0	7.50
MBS 95 20.0	20.0	95%	0.13	16.0	38.0	10.00
MBS 95 25.0	25.0	95%	0.13	22.0	38.0	11.25
MBS 95 30.0	30.0	95%	0.16	27.0	40.0	19.30
MBS 95 35.0	35.0	95%	0.16	30.0	50.0	20.00
MBS 95 40.0	40.0	95%	0.20	35.0	60.0	33.00

# Flexible Connectors

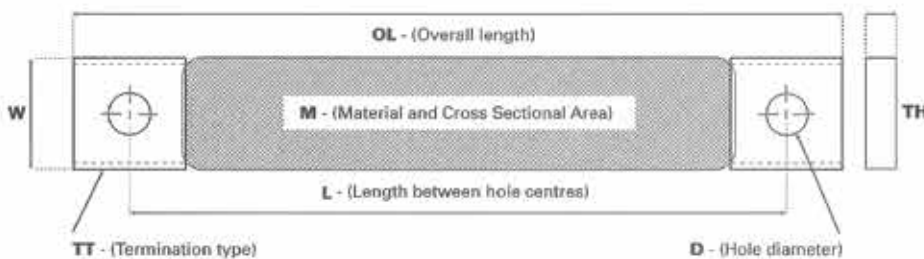
Custom made for form and fit to meet individual unique applications. Flexible connectors are made from either braid or strand and suitably terminated. When called for, flexible connectors are supplied insulated for protection and identification purposes. Where the continuous current rating is likely to exceed 400 amps then this is generally accommodated within our Flexible Busbar range of products. Technical assistance is available to ensure Mettix supplies the optimum solution for your specific application.

## Features

- Complete product ready to fit
- Custom built to meet specific mechanical and electrical performance criteria
- Option to manufacture to drawing or replicate existing product
- Current ratings up to 400A
- Very wide range of terminations available to suit all requirements
- Can be supplied with solder 'water block' barrier to prevent moisture absorption
- Available with various types of insulation
- Option to fit identification markers

## Choice of Materials

- Electro tin-plated copper
- Plain copper
- Nickel-plated copper
- Stainless steel
- Alternative non-ferrous & ferrous materials on request



### How to order

When ordering Connectors, please supply the following information:

- OL - Overall length
- L - Length between hole centres
- D - Hole diameter
- M - Material and cross sectional area
- TT - Termination type
- W - Width
- TH - Thickness





# Terminations

A wide range of termination types is available. This ensures that the correct mechanical bond between the conductor and the fixing down point is attained.



## FLAT TUBE COMPRESSED FERRULE



- Excellent mechanical properties: compaction creates a solid end
- Compressed onto braid without altering braid dimensions
- Maximum conductivity with minimum volt drop = reduced thermal resistance
- Ends can be drilled, milled, machined and profiled to meet mechanical demands
- Custom design configurations for individual applications

## CRIMP TERMINAL



- Economical solution for low current applications
- Wide range of sizes held in stock
- Varying types to meet most applications - tube, ring, sheet, bootlace
- Insulated options available
- Option to fit customer nominated versions

## SWAGED FERRULE



- Customised for dimensionally critical applications i.e. distribution boards
- Reduced assembly costs
- Excellent conductive performance
- Minimal heat-rise
- Varying lengths, diameters and profiles

## ULTRASONICALLY WELDED ENDS



- Low cost alternative to the swaged ferrule
- No reduction in technical performance
- Forms solid end throughout the whole of the material
- Consistent results - ultra low rejects
- Lower unit costs owing to high manufacturing productivity

## SOLDER DIPPED ENDS



- Alternative to compressed ferrules
- Suitable for low current applications
- Excellent electrical performance
- Provides direct contact with conductor
- Acts as a moisture block

## SPECIAL TERMINATIONS



- Custom designed solutions for bespoke applications
- Built for optimum results
- Reduces technical risk for critical applications
- Modified standard options utilising stock components
- High current applications e.g. 480mm<sup>2</sup> 32kA earth terminal

## Flexible Busbar Assemblies

Multiple layers of flat braid are used and assembled in a parallel or stacked format to achieve the required cross sectional area or agreed current density. In certain circumstances flexible strand is a practical alternative. Busbars can be supplied insulated either over the whole assembly or individual layers of braid. Technical assistance is available to ensure Mettex supplies the optimum solution for your specific application.

### Features

- Complete product ready to fit
- Durable, heavy duty assembly
- Robust design for power applications
- Custom made to meet specific mechanical and electrical performance criteria
- Option to manufacture to drawing or replicate existing product
- Continuous current carrying capacity in excess of 3500 amps
- Available with various forms of insulation as appropriate
- Low resistance heavy duty terminations

### Choice of Materials

- Electro tin-plated copper
- Plain copper
- Nickel-plated copper
- Alternative non-ferrous & ferrous materials on request



# Flat and Round Braid

The range of Mettex flat braids is extensive, from very fine single braids to heavy duty multiple braids. The ability of individual wires to flex without work hardening is why braid is suitable where conditions of vibration or movement are likely to be present. The tight bend radius makes it ideal where alignment problems exist or where space restrictions apply.

## Standard Flat Braid

Reference	Nominal CSA mm <sup>2</sup>	Nominal Dimensions mm	Wire Ø mm	Current Rating amps	Nominal Weight kg per 100m
FLB 2-5-36	2.50	6 x 1.00	0.15 *	36	2.5
FLB 4-52	4.00	10 x 1.00	0.15 *	52	4.0
FLB 6-66	6.00	12 x 1.00	0.15 *	66	6.0
FLB 10-90	10.00	15 x 1.50	0.15 *	90	10.0
FLB 16-120	16.00	19 x 2.00	0.15 *	120	16.0
FLB 25-150	25.00	25 x 3.00	0.15 *	150	25.0
FLB 35-200	35.00	25 x 3.50	0.15 *	200	35.0
FLB 2-6-66	6.00	12 x 1.00	0.20	66	6.0
FLB 2-10-90	10.00	15 x 1.50	0.20	90	10.0
FLB 2-16-120	16.00	19 x 2.50	0.20	120	16.0
FLB 2-25-150	25.00	25 x 3.00	0.20	150	25.0
FLB 2-35-200	35.00	25 x 4.00	0.20	200	35.0
FLB 2-50-250	50.00	30 x 5.00	0.20	250	50.0
FLB 2-70-300	70.00	32 x 6.00	0.20	300	70.0
FLB 2-95-350	95.00	37 x 6.00	0.20	350	95.0
FLB 2-120-400	120.00	45 x 6.00	0.20	400	120.0
FLB 2-150-500	150.00	50 x 8.00	0.20	500	150.0
FLB 2-200-550	200.00	50 x 10.00	0.20	550	200.0

## Features

- Wide choice of sizes
- Bespoke options
- Wire sizes from 0.051mm Ø to 0.4mm Ø
- Current ratings from <12 amps to >550 amps
- Cross sectional areas from 2.5mm<sup>2</sup> to >200mm<sup>2</sup>
- Option for extruded PVC jacket
- Packed on reels
- Option to supply in pre cut lengths

## Standard Round Braid

Reference	Nominal CSA mm <sup>2</sup>	Nominal Ø mm	Wire Ø mm	Current Rating amps	Nominal Weight kg per 100m
CB 05-12	0.50	1.30	0.10	12	0.5
CB 1-15	1.00	1.70	0.10	15	1.0
CB 15-24	1.50	2.10	0.15 *	24	1.5
CB 2-30	2.00	2.50	0.20	30	2.0
CB 3-40	3.00	3.00	0.20	40	3.0
CB 4-45	4.00	3.40	0.15 *	45	4.0
CB 6-60	6.00	4.20	0.20	60	6.0
CB 10-80	10.00	5.40	0.20	80	10.0
CB 16-110	16.00	7.00	0.30	110	16.0
CB 25-140	25.00	8.50	0.20	140	25.0
CB 35-180	35.00	10.50	0.30	180	35.0
CB 50-230	50.00	11.50	0.20	230	50.0
CB 70-280	70.00	14.50	0.20	280	70.0
CB 95-330	95.00	16.00	0.20	330	95.0

## Choice of Materials

- Electro tin-plated copper
- Plain copper
- Nickel-plated copper
- Aluminium
- Stainless steel
- Alternative non-ferrous & ferrous materials on request
- \* 0.15mm plain copper
- \* 0.16mm tinned copper

## Flexible strands

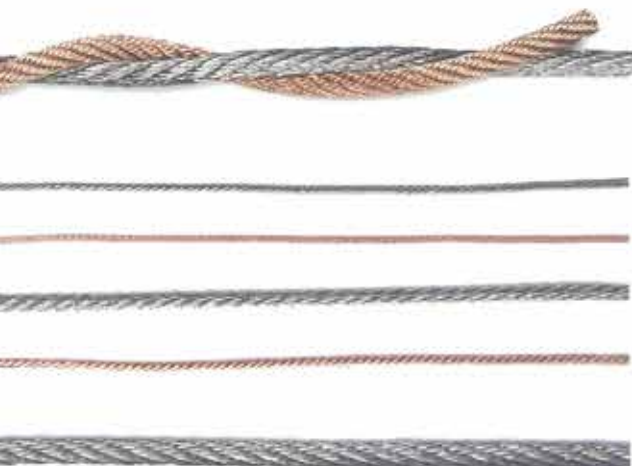
Some applications benefit from wire being stranded rather than woven into a braid. Flexible strand or rope is well suited to cope with complex flexing movements. The ability of individual wires to flex without work hardening is why strand is suitable where vibration or movement is likely to exist. The tight bend radius makes it ideal where alignment problems exist or where space restrictions apply.

### Features

- Extensive choice of sizes
- Options for bespoke products
- Current ratings from <30 amps to >470 amps
- Cross sectional areas from 2mm<sup>2</sup> to 150mm<sup>2</sup>
- Option for extruded PVC jacket
- Supplied on reels
- Option to supply in pre cut lengths

### Choice of Materials

- Electro tin-plated copper
- Plain copper
- Nickel-plated copper
- Alternative non-ferrous & ferrous materials on request
- \* 0.15mm plain copper
- \* 0.16mm tinned copper

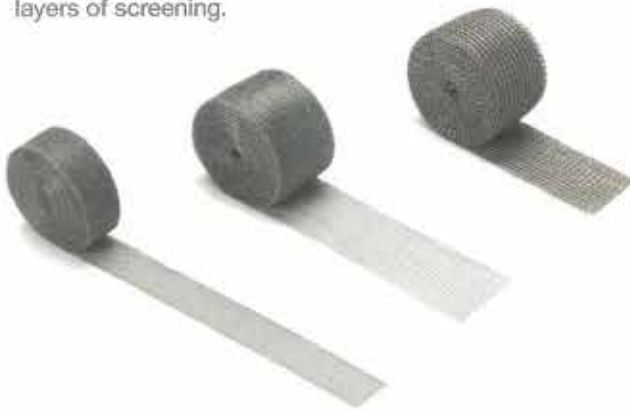


### Standard Circular Flexible Strand

Reference	Nominal CSA mm <sup>2</sup>	Max Ø mm	Wire Ø mm	Current Rating amps
CF 12-02	2.00	2.10	0.122	30
CF 12-04	4.00	3.20	0.122	50
CF 12-06	6.00	4.20	0.122	60
CF 12-10	10.00	5.30	0.122	80
CF 12-16	16.00	7.00	0.122	110
CF 15-06	6.00	4.30	0.15 *	60
CF 15-10	10.00	5.40	0.15 *	80
CF 15-16	16.00	6.80	0.15 *	110
CF 15-25	25.00	8.20	0.15 *	130
CF 15-35	35.00	10.00	0.15 *	180
CF 15-50	50.00	11.75	0.15 *	230
CF 15-70	70.00	14.50	0.15 *	280
CF 20-06	6.00	4.40	0.20	60
CF 20-10	10.00	5.40	0.20	80
CF 20-16	16.00	6.80	0.20	110
CF 20-25	25.00	8.30	0.20	130
CF 20-35	35.00	10.10	0.20	180
CF 20-50	50.00	11.70	0.20	230
CF 20-70	70.00	14.00	0.20	280
CF 20-95	95.00	15.50	0.20	330
CF 20-120	120.00	18.0	0.20	370
CF 20-150	150.00	21.0	0.20	470

## Knitted Wire Mesh Tape

Mesh tape has a number of applications but is used mainly for EMC / RFI screening of electrical power, control, data and communication cables and for earth continuity in cable joints. In addition, the springy nature of the tape lends itself to providing a mechanical cushion against adjacent surfaces. Application is both quick and simple. The tape is wrapped around the item to be protected to give a 50% overlap that produces 4 layers of screening.



### Features

- Standard sizes of 25mm and 50mm wide
- Ideal for use on complex, irregular surfaces
- Light weight and easy to apply
- 10M or 25M coils
- Option to supply in pre cut lengths

### Choice of Materials

- Electro tin-plated copper
- Nickel-plated copper
- Galvanised steel
- Alternative non-ferrous & ferrous materials on request



## Stocking Braid

Designed specifically to maintain earth continuity on medium and high voltage jointing systems. The braid is fastened to one end of the exposed armouring. The braids' construction allows it to be pushed back to open and form a cylinder of sufficient diameter to enable the stocking braid to slide over the joint section. Having covered the joint area, the braid is then pulled tight and fastened back over the armouring.

### Features

- Choice of sizes to satisfy a range of applications
- Wide range of diameters up to 220mm 'push back'
- Cross sectional areas from 6mm<sup>2</sup> to 150mm<sup>2</sup>
- High short term fault current capacity
- Continuous rating from 60 amps to 470 amps
- Option for ends to be separated and swaged
- Custom design available
- Supplied in flat form
- Option to supply in pre cut lengths

### Choice of Materials

- Electro tin-plated copper
- Plain copper
- Galvanised steel
- Alternative non-ferrous & ferrous materials on request

### Stocking Braid

Reference	Nominal CSA mm <sup>2</sup>	Current Rating Amps	Wire Ø mm	Usable Ø mm	
				Min	Max
MSB 6-40	6.0	66	0.20	6	40
MSB 10-40	10.0	90	0.20	10	40
MSB 16-60	16.0	120	0.30	15	60
MSB 25-120	25.0	150	0.30	20	120
MSB 35-120	35.0	200	0.30	25	120
MSB 50-120	50.0	250	0.30	30	120
MSB 95-120	95.0	350	0.20	30	120
MSB 150-120	150.0	500	0.20	35	120

# Overbraiding

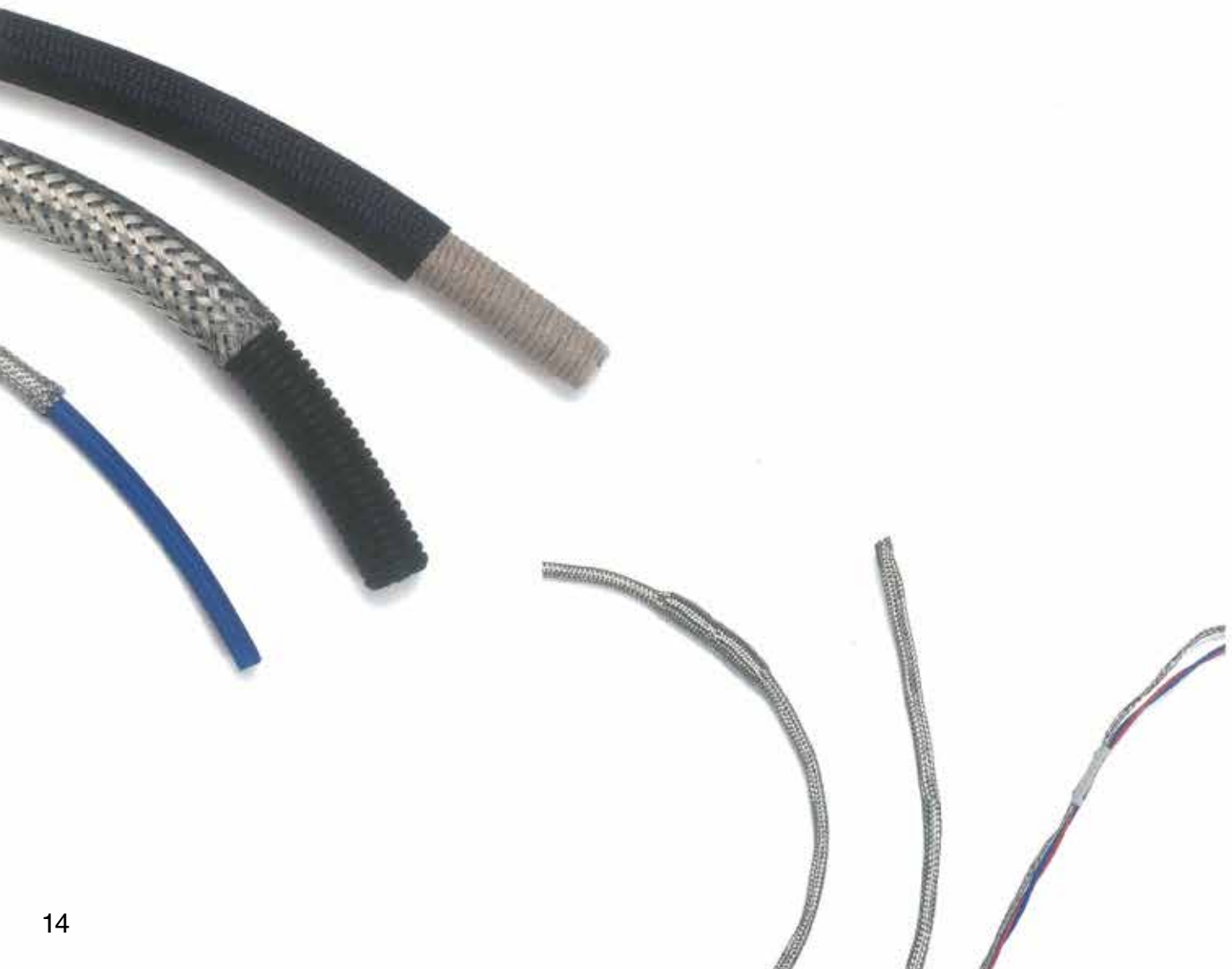
Mettex offers a comprehensive overbraiding service to cover customers free issue material. We braid directly onto cable harnesses, flexible conduit, hose or cable to provide an outer sheath for screening or mechanical protection. The degree of screening coverage will relate to a given application but 95% optical coverage or better is typical.

## Features

- 'Added value' service
- Overbraiding up to 70mm Ø
- Protection for bunched cables or flexible conduit
- Custom manufactured
- Cost effective solution for screening/mechanical protection

## Choice of Materials

- Electro tin-plated copper
- Plain copper
- Nickel-plated copper
- Stainless steel
- Galvanised steel
- Alternative non-ferrous & ferrous materials on request
- P.T.F.E. and synthetic materials



## Braided Strand & Fine Braid

### Braided Strand

Produced by overbraiding flexible copper strand.

The outer braid prevents the strand from distorting when flexed and the tight bunching ensures maximum flexibility.

### Fine Braid

A special product manufactured from fine wire (0.071mm Ø) offers a high level of flexibility coupled with mechanical integrity and suitable for use where high vibration is likely to be encountered.

#### Features

- Cross sectional areas from 1mm<sup>2</sup> to 70mm<sup>2</sup>
- Current ratings from 3A to 300A
- Fine wire flexible product: Class 5 or 6 conductors
- Economical production of small quantities

#### Choice of Materials

- Electro tin-plated copper
- Plain copper
- Alternative non-ferrous & ferrous materials on request

## Material Standards

The different wires listed under each Mettix product are the standard materials held in stock and normally used in the manufacture of those particular groups. For specialised applications, Mettix manufactures using materials such as aluminium, beryllium, phosphor bronze, brass & nickel alloys, silver plated copper and other high performance copper alloys.

Material standards will be appropriate for the task or according to customer requirements. Most products are made from tinned or plain copper wires conforming to BS EN13602:2013 and ASTM B33. Nickel-plated copper wire is generally to ASTM B355, Stainless Steel wire is 304 or 316 Grade and Aluminium conforms to EN573-3. Wire diameters range between 0.051mm and 0.4mm according to the degree of flexibility required.

Options exist to conduct pull off and volt drop tests - typically Def Stan 59-71 / BSG 178, BS4759. We can also provide resistance and heat rise figures to verify the efficacy of our products.

### Definitions

#### Cross Sectional Area

This is the sum of the cross sectional area of one wire end multiplied by the total number of wires in mm<sup>2</sup>.

#### Flexibility

Generally, the smaller the wire diameter, the greater the degree of flexibility but each application can be influenced by a number of external factors such as vibration, frequency and pattern, shock loading, other cables present and method of tying down.

Flexibility can be split into three categories:

Category	Wire $\phi$ mm
Highly Flexible	0.051 – 0.071
Very Flexible	0.10 – 0.16
Flexible	0.20 – 0.30

#### Temperature Ratings

Current ratings are given as a guide only and are approximate values based on a 56°C rise above an ambient temperature of 20°C for bare conductors suspended horizontally in free, still air.

Thorpe Way  
Banbury, Oxon  
OX16 4SP  
United Kingdom

T: +44 (0)1295 250826  
F: +44 (0)1295 268643  
E: sales@mettex.com



**mettex**  
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mettex.com