

ETM-M2 Mil-spec heat shrinkable wire markers

expressMARK ETM-M2 sleeves are designed to meet the wire and cable marking needs of customers with high performance requirements. Made from durable, highly flame retardant, self-extinguishing, radiation cross-linked heat-shrinkable polyolefin. The marks are permanent immediately after printing and remain legible even when exposed to abrasion, aggressive cleaning solvents and military fuels & oils. Suitable for aerospace, military and defence specified applications.

expressMARK

Technical Data

SAE AS81531:1998 4.6.2

SAE-AMS-DTL-23053/5 Class 1&3

MIL-STD-202 Method 215J

UL224 VW-1 recognised file E203950

CSA certified file 220127

Operating temperature -40°C to +135°C

Minimum shrink temperature +85°C

Shrink ratio 3:1



Standard Colours

Part Number (WHITE)

ETM-9-024050-B-M2

ETM-9-032050-B-M2

ETM-9-048050-B-M2

ETM-9-064050-B-M2

ETM-9-095050-B-M2

ETM-9-127050-B-M2

ETM-9-190050-B-M2

ETM-9-254050-A-M2

ETM-9-381050-A-M2

Part Number (YELLOW)

ETM-4-024050-B-M2

ETM-4-032050-B-M2

ETM-4-048050-B-M2

ETM-4-064050-B-M2

ETM-4-095050-B-M2

ETM-4-127050-B-M2

ETM-4-190050-B-M2

ETM-4-254050-A-M2

ETM-4-381050-A-M2

Diameter x Length

2.4 x 50

3.2 x 50

4.8 x 50

6.4 x 50

9.5 x 50

12.7 x 50

19.0 x 50

25.4 x 50

38.1 x 50

Pack Size

1000pcs

1000pcs

1000pcs

1000pcs

1000pcs

1000pcs

1000pcs

250pcs

250pcs

Cable Range (mm²)*

0.50 to 1.00

1.00 to 4.00

4.00 to 6.00

6.00 to 16.00

16.00 to 35.00

35.00 to 120.00

120.00 to 185.00

185.00 to 400.00

(*based upon BS6231 cable)

Sleeve length options

ETM-X-XXX 050 -X-M2

1 x 50.0mm sleeves per 50mm strip

ETM-X-XXX 025 -X-M2

2 x 25.0mm sleeves per 50mm strip

ETM-X-XXX 017 -X-M2

3 x 16.6mm sleeves per 50mm strip

ETM-X-XXX 012 -X-M2

4 x 12.5mm sleeves per 50mm strip

Colour options

ETM- 0 -XXXXXX-X-M2

ETM- 2 -XXXXXX-X-M2

ETM- 3 -XXXXXX-X-M2

ETM- 5 -XXXXXX-X-M2

ETM- 6 -XXXXXX-X-M2

ETM- 7 -XXXXXX-X-M2

ETM- 8 -XXXXXX-X-M2



Printer Ribbon Part Numbers

TMS-RJS-RIBBON-4RPSCE TE Standard black ribbon

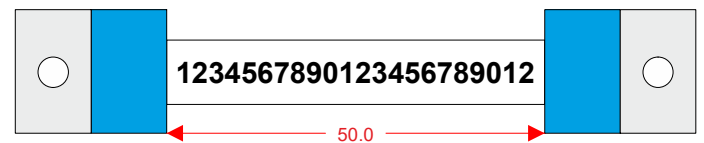
1966-RIBBON TE High performance black ribbon

EMR-0-RIBBON-A EM High performance black ribbon

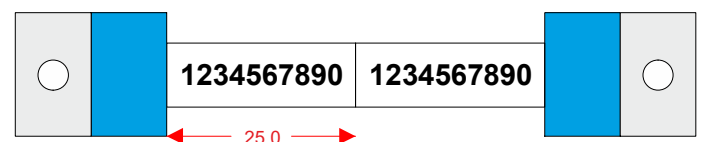
EMR-9-RIBBON-A EM High performance white ribbon

(all ribbons suitable for T200-IDENT, TE3112, TE3124, T6112DS, T3212 and T3224 printers)

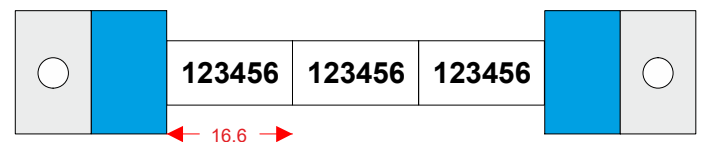
50.0mm sleeve option (example: 11 point Arial with 22 digits)



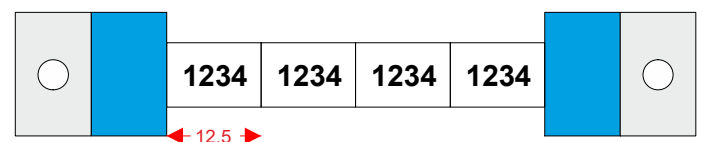
25.0mm sleeve option (example: 11 point Arial with 10 digits)



16.6mm sleeve option (example: 11 point Arial with 6 digits)



12.5mm sleeve option (example: 11 point Arial with 4 digits)



Inner core design

Sized to the same width as the carrier allowing markers to be loaded directly within the printer media guides.



Write-on side carrier

You can hand write information relating to the printed markers directly on the side carrier. Also shows part number and QA code.



Perforated edges

Remove markers without the need to remove the coloured side tapes. This leads to less mess and a faster install time.



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ETM-M2 Mil-spec thermal printable heat shrink tubing

The ETM-M2 printable heat shrink tubing is manufactured from flame retardant, self-extinguishing, flexible polyolefin tubing optimised for thermal transfer printing. Suitable for high performance wire identification in aerospace, military and defence applications. The product is UL 224 VW-1 recognised, CSA certified and complies to AMS-DTL-23053/5 Class 1&3.

Physical

Properties	Test Method	Typical Value
Tensile strength	ASTM D 638	≥14 N/mm ²
Elongation at break	ASTM D 638	≥400%
Longitudinal change	SAE-AMS-DTL-23053	0% - -2%
Specific gravity	ASTM D 792	1.34g/cm ³
Secant modulus	ASTM D 882	65 Mpa

Electrical

Properties	Test Method	Typical Value
Dielectric strength	UL 224	15 kV/mm ²
Volume resistivity	ASTM D 876	3.1 x 10 ¹⁴ Ω cm
Voltage rating	UL 224	600V
Dielectric voltage resistance (2.5kV x 60s)	UL 224	Pass. No breakdown.

Chemical

Properties	Test Method	Typical Value
Fungus resistance	ASTM G 21	Pass. No growth.
Fluid resistance (after 24hrs immersion at 23°C)	SAE-AMS-DTL-23053	7.25 - 14 MPa

Thermal

Properties	Test Method	Typical Value
Heat shock (4hrs at 250°C)	SAE-AMS-DTL-23053	Pass. (no dripping, cracking or flowing)
Elongation after heat ageing (4hrs at 158°C)	SAE-AMS-DTL-23053	≥400%
Copper corrosion (168hrs at 158°C)	SAE-AMS-DTL-23053	Pass
Stability against copper (168hrs at 158°C)	SAE-AMS-DTL-23053	Pass
Low temperature flexibility (4hrs at -55°C)	SAE-AMS-DTL-23053	No cracking
Flammability	UL 224	VW-1 pass

Standard Colours

Yellow and white.
Other colours upon request.

Material

Radiation cross linked polyolefin.
Shrink ratio 3:1

Operating temperature

-40°C up to +135°C.

Minimum shrink temperature

+85°C.

Specifications

Mark permanence

SAE AS81531:1998, point 4.6.2.

Chemical and solvent resistance

MIL-STD-202F method 215J.

Standard

UL 224 125°C 600V VW-1
(recognised file E203950)

CSA 125°C 600V Certified
(certified file 220127)

SAE-AMS-DTL-23053/5 Class 1&3

Storage

Store in original packaging.
Recommended storage environment is +10°C to +25°C and 45-55% relative humidity.

Printing method

Thermal transfer

Packaging

Supplied on printer ready reels.

Inner cores are sized to allow loading inside most printers.

Edge perforations as standard to allow easy removal of markers.



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Notes:

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