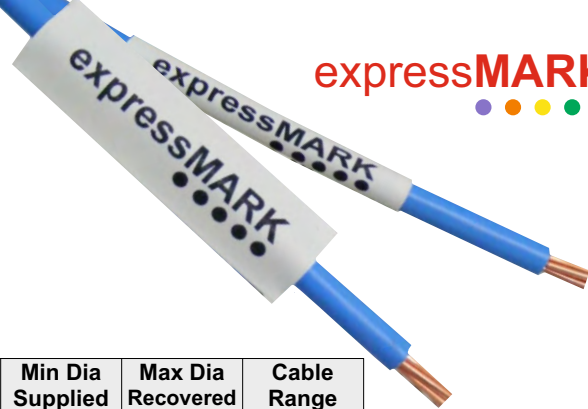


ETM-M2 Mil-spec heat shrinkable wire markers

expressMARK

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.



Ordering information

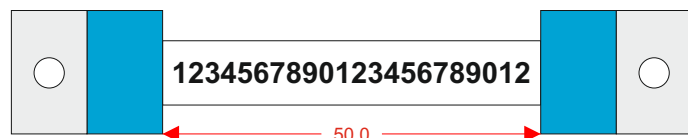
Part Number (WHITE)	Part Number (YELLOW)	Pack Size	Sleeve Size (mm)	Sleeve Length (mm)	Min Dia Supplied (mm)	Max Dia Recovered (mm)	Cable Range (mm ²)*
ETM-9-024050-B-M2	ETM-4-024050-B-M2	1000pcs	2.4	50	2.79	0.79	<0.5
ETM-9-032050-B-M2	ETM-4-032050-B-M2	1000pcs	3.2	50	3.64	1.0	0.5 to 1
ETM-9-048050-B-M2	ETM-4-048050-B-M2	1000pcs	4.8	50	5.26	1.6	1 to 4
ETM-9-064050-B-M2	ETM-4-064050-B-M2	1000pcs	6.4	50	6.92	2.4	4 to 6
ETM-9-095050-B-M2	ETM-4-095050-B-M2	1000pcs	9.5	50	10.2	3.2	6 to 16
ETM-9-127050-B-M2	ETM-4-127050-B-M2	1000pcs	12.7	50	13.5	4.75	16 to 35
ETM-9-190050-B-M2	ETM-4-190050-B-M2	1000pcs	19.0	50	20.1	6.4	35 to 120
ETM-9-254050-A-M2	ETM-4-254050-A-M2	250pcs	25.4	50	26.7	8.47	120 to 185
ETM-9-381050-A-M2	ETM-4-381050-A-M2	250pcs	38.1	50	39.8	12.9	185 to 400

(*based upon customer usage for BS6231 cable)

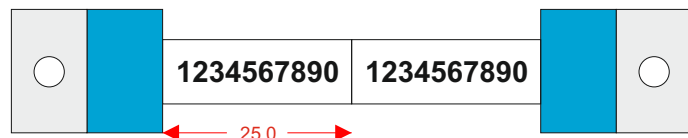
Sleeve length options (change part number above with relevant length)

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

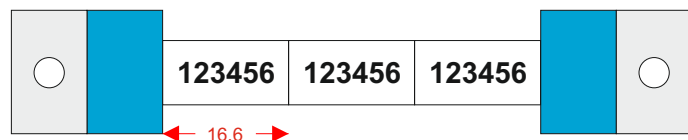
50.0mm sleeve option (example: 11 point Arial with 22 digits)



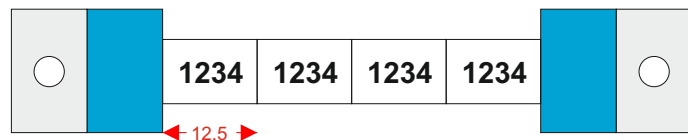
25.0mm sleeve option (example: 11 point Arial with 10 digits)



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

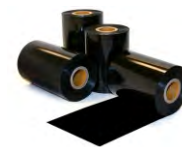


12.5mm sleeve option (example: 11 point Arial with 4 digits)



Colour options (change part number above with relevant colour)

ETM-0-XXXXXX-X-M2	BLACK
ETM-2-XXXXXX-X-M2	RED
ETM-3-XXXXXX-X-M2	ORANGE
ETM-4-XXXXXX-X-M2	YELLOW
ETM-5-XXXXXX-X-M2	GREEN
ETM-6-XXXXXX-X-M2	BLUE
ETM-7-XXXXXX-X-M2	VIOLET
ETM-8-XXXXXX-X-M2	GREY
ETM-9-XXXXXX-X-M2	WHITE



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

Ribbons are compatible with the following printer models : T200-IDENT, EOS1, EOS2, TE3112, TE3124, T6112DS, T3212 and T3224.

Printer External Reel Holders

PRINTER-UNI-REEL-M
expressMARK external reel holder. Designed to hold and feed large spools of markers to the printer.



UNIVERSAL-REEL-HOLDER
T.E. external reel holder. Designed to hold and feed larger spools of markers supplied on plastic drums.



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.

ETM-M2 Mil-spec heat shrinkable wire markers

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 found in aerospace, military and defence applications, and is also widely used within electrical contracting projects. 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
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

Pre-printed Markers Service

You need ETM markers but don't have a printer on site? No problem, we have the answer. Simply email us your data and let us print your markers and dispatch within 24 hours to site. Available to purchase online or contact a member of our team to discuss your requirements. More details on our pre-print services can be found on page 22.



email
data



print &
pack



deliver
on time

U.K. Office : Tel: +44 (0)141 941 3689

sales@expresselectrical.co.uk

www.expresselectrical.co.uk

U.A.E. Office : Tel: +971 (0)4 887 5570

info@expresselectrical.ae

www.expresselectrical.ae

Technical Datasheet



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-202G 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.

