

TECHNICAL DATA SHEET

DESCRIPTION

TTMS (-2X) & TTMS-MP heat-shrinkable identification tubing

APPLICATION / USE

Thin wall flame retarded radiation cross-linked modified polyolefin heat-shrinkable tubing, flattened and spooled.

Most sizes of TTMS & TTMS-MP tubing have a 3:1 shrink ratio; TTMS-2X has a 2:1 shrink ratio, see tables 1 & 2 for details.

Used in the identification of wires and cables by computer-based printing onto the tube. Tubing can also provide terminal insulation and strain relief. Suitable for a variety of applications, where wiring system complexity is relatively low.

TTMS-MP variant is flattened to an oval shape for ease of installation

RECOMMENDED PRINTER & RIBBONS

New Applications

Printer T2000CT-PRINTER or T6112DS-PRINTER (Optional cutter perforator)

Ribbon 2000P-4TT (black) or 2000P-4AG (silver) and 2000P-WH (white)

Legacy system

Printer TMS-2000Plus printer,

Ribbon 2000P-4TT (black) or 2000P-4AG (silver) and 2000P-WH (white)

Software TE Connectivity WinTotal software v4.5 or later.

APPROVALS

Tubing meets the material and performance requirements of SAE AMS-DTL-23053/5 Classes 1 & 3.

TTMS-2X product also meets dimensional

UL recognized Standard 224 (File E35586).

CSA certified (File 31929).

See TE Connectivity specification RW 2517 for full performance & dimensional details.

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PRODUCT SIZE RANGE

Table 1: TTMS and TTMS-MP

| Size TTMS- or TTMS-MP | Minimum Internal diameter as supplied mm (inch) | Maximum Internal diameter after Full Recovery mm (inch) | Wall Thickness After Full Recovery mm \pm 0.08 (inch \pm 0.003) |
|--------------------------------------|--|--|--|
| 2.4 | 2.4 (3/32) | 0.79 (0.031) | 0.58 (0.023) |
| 3.2 | 3.2 (1/8) | 1.06 (0.042) | 0.58 (0.023) |
| 4.8 | 4.8 (3/16) | 1.57 (0.062) | 0.58 (0.023) |
| 6.4 | 6.4 (1/4) | 2.11 (0.083) | 0.58 (0.023) |
| 9.5 | 9.5 (3/8) | 3.17 (0.125) | 0.61 (0.023) |
| 12.7 | 12.7 (1/2) | 4.21 (0.166) | 0.61 (0.024) |
| 19.0 | 19.0 (3/4) | 6.35 (0.250) | 0.61 (0.024) |
| 25.4 | 25.4 (1.0) | 8.45 (0.333) | 0.64 (0.025) |
| 38.1 | 38.1 (1.5) | 19.0 (0.750) | 0.51 (0.020) |
| 50.8 | 50.8 (2.0) | 25.4 (1.000) | 0.64 (0.025) |

Table 2: TTMS-2X

| Size TTMS-2X | Minimum Internal diameter as supplied mm (inch) | Maximum Internal diameter after Full Recovery mm (inch) | Wall Thickness After Full Recovery mm \pm 0.08 (inch \pm 0.003) |
|-------------------------|--|--|--|
| 2.4 | 2.4 (3/32) | 1.20 (0.047) | 0.51 (0.020) |
| 3.2 | 3.2 (1/8) | 1.60 (0.063) | 0.51 (0.020) |
| 4.8 | 4.8 (3/16) | 2.40 (0.094) | 0.51 (0.020) |
| 6.4 | 6.4 (1/4) | 3.20 (0.125) | 0.64 (0.025) |
| 9.5 | 9.5 (3/8) | 4.75 (0.187) | 0.64 (0.025) |
| 12.7 | 12.7 (1/2) | 6.35 (0.250) | 0.64 (0.025) |
| 19.0 | 19.0 (3/4) | 9.50 (0.374) | 0.76 (0.030) |

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PROPERTIES

| Property | | Value | Test Method |
|-----------------------------|----------------|--|--|
| Heat Aging | | 168 hours at 175°C (347°F). 100% UE retained & Print legible | SAE-AMS-DTL-23053/5 |
| Heat Shock | | 4 hours at 250°C (482°F) No cracking, dripping or flowing & print legible | SAE-AMS-DTL-23053/5 |
| Low temperature Flexibility | | 4 hours at -55°C (-67°F), No cracking | SAE-AMS-DTL-23053/5 |
| Colors | | White (-9), yellow (-4) and black (-0) Other colors are available on request. | |
| Tensile Strength | | 10MPa minimum | SAE-AMS-DTL-23053/5 |
| Ultimate Elongation | | 200% minimum | SAE-AMS-DTL-23053/5 |
| Longitudinal Change | | -20% maximum (±5% for TTMS-2X) | SAE-AMS-DTL-23053/5 |
| Mold Growth | | Rating 1 maximum Original tensile strength retained | ASTM G21 |
| Water Absorption | | 0.5% maximum | SAE-AMS-DTL-23053/5 |
| Corrosive Effect | Copper Mirror | Non-corrosive; no pitting or blackening of mirror after 16 hours at 175°C. (347°F) | SAE AMS-DTL-23053 |
| | Copper Contact | | SAE AMS-DTL-23053 |
| Dielectric Strength | | 20MV/m minimum | ASTM D 2671 |
| Flammability | TTMS(-MP) | SAE AMS-DTL-23053 Class 1 UL 224 Rated | ASTM D 2671 Procedure B UL 224, All tube flame test |
| | TTMS-2X | SAE AMS-DTL-23053 Class 1 UL 224 Rated | ASTM D 2671 Procedure B UL 224, VW-1 |

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PRINT PERFORMANCE PROPERTIES

| Property | | Test method | Effect |
|--------------------|---------------------------------|---|---------------|
| Print Adherence | | SAE AS 81531 clause 4.6.2 (50 rubs) | Print Legible |
| Solvent Resistance | | MIL-STD-202F method 215J | Print Legible |
| Fluid Resistance | JP 8 (F34) | All fluid resistance test samples immersed for 24hrs at 23°C (unless otherwise given) then followed by Print Adherence test SAE AS 81531 clause 4.6.2 (20 rubs) | Print Legible |
| | Skydrol 500 B4 | | Print Legible |
| | Methyl Ethyl Ketone | | Print Legible |
| | Hydraulic Fluid (MIL PRF 5606) | | Print Legible |
| | Lubricating Oil (MIL PRF 23699) | | Print Legible |
| | Diesel Fuel | | Print Legible |
| | Water – 1 Hr at 100°C | | Print Legible |
| | Water – 168 hrs at 23°C | | Print Legible |
| | MIL-A-8243 anti-icing fluid | | Print Legible |

ENVIRONMENTAL AND STORAGE PROPERTIES

| Property | Value |
|-----------------------------|------------------------------------|
| Maximum storage temperature | 40°C (104°F). |
| Service Temperature | -55°C to +135°C (-67°F to +275°F). |

Product is compliant to EU RoHS Directive 2002/95/EC. This compliance information is provided based on reasonable inquiry of our suppliers and represents our current actual knowledge based on the information provided by our suppliers. This information is subject to change. For the latest compliance status, visit the TE Connectivity RoHS Customer Support Center - <http://www.te.com/customersupport/rohssupportcenter>

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- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
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- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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