MEDICAL GRADE
HEAT SHRINK TUBING
THE ENGINEERS OF
HEAT SHRINK TUBING

1957
the discovery of
crosslinking polymers
by Paul Cook

60+
years of polymeric
science

349,500
SQ. FT
dedicated manufacturing space, 5 sites

15
dedicated polymer
scientists &
engineers

Manufactured to
ISO
10993
standards

FDA
registered master files*

APPLICATION GUIDE
FROM ROBUST ABRASION PROTECTION AND INSULATION TO PEELABLE PROCESS AIDS AND EVERYTHING IN BETWEEN

At TE Connectivity, we don’t just manufacture heat shrink tubing, we design and optimize. We understand the difference advanced polymeric engineering can make to reflowing your complex catheter or protecting and insulating your electrosurgical devices and laparoscopic instruments.

We offer seven medical heat shrink tubing products formulated from a number of materials including FEP, PVDF and PEBAX.

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*Select products
### MEDICAL GRADE HEAT SHRINK TUBING - COMPARISON CHART

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<th>Shrink Ratio</th>
<th>Sterilization</th>
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<td>MT1000</td>
<td>PVDF</td>
<td>Surgical instruments and shafts</td>
<td>195°C (383°F)</td>
<td>&lt;= 2:1</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>N/A</td>
<td>Best</td>
<td>Better</td>
<td>Best</td>
<td>Best</td>
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<tr>
<td>MT2000</td>
<td>HDPE</td>
<td>Surgical instruments and shafts</td>
<td>160°C (320°F)</td>
<td>&lt;= 3:1</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>N/A</td>
<td>Good</td>
<td>Limited</td>
<td>Best</td>
<td>Better</td>
</tr>
<tr>
<td>MT3000</td>
<td>PVDF</td>
<td>Surgical instruments and shafts</td>
<td>150°C (302°F)</td>
<td>&lt;= 4:1</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>N/A</td>
<td>Better</td>
<td>Limited</td>
<td>Better</td>
<td>Good</td>
</tr>
<tr>
<td>MT5000</td>
<td>LDPE</td>
<td>Surgical instruments and shafts</td>
<td>110°C (230°F)</td>
<td>&lt;= 2:1</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>N/A</td>
<td>N/A</td>
<td>Limited</td>
<td>Good</td>
<td>Limited</td>
<td>Standard</td>
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<td>MT5510</td>
<td>EMA</td>
<td>Surgical instruments and shafts</td>
<td>110°C (230°F)</td>
<td>&lt;= 2:1</td>
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<td>•</td>
<td>•</td>
<td>•</td>
<td>N/A</td>
<td>Good</td>
<td>Limited</td>
<td>Better</td>
<td>Limited</td>
</tr>
<tr>
<td>MT-LWA</td>
<td>LDPE</td>
<td>Interventional shafts</td>
<td>110°C (230°F)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Better</td>
<td>Good</td>
<td>Limited</td>
<td>Good</td>
<td>Limited</td>
</tr>
<tr>
<td>MT-FEP</td>
<td>FEP</td>
<td>Surgical &amp; Interventional shafts</td>
<td>270°C (518°F)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Better</td>
<td>Limited</td>
<td>Good</td>
<td>Good</td>
<td>Better</td>
</tr>
<tr>
<td>MT-PBX</td>
<td>PEBA</td>
<td>Surgical &amp; Interventional shafts</td>
<td>190°C (374°F)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Better</td>
<td>72D – Better SSD – Good</td>
<td>Good</td>
<td>72D – Better SSD – Good</td>
<td>Good</td>
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MT-1000 – PVDF

APPLICATION:
Abrasion protection for laparoscopic and in-vivo instruments
Insulation for electrosurgical instruments
Strain relief applications

PROFILE
• Shrink ratio ≤ 2:1
• Full recovery at 175°C (347°F) minimum
• Supports sterilization environments: gamma, ethylene oxide (ETO), steam, dry heat and autoclave
• Manufactured to ISO 10993 standards
• Registered with the FDA: MAF-444
• Custom sizing, colors, finishing and value-add options available
• Radiopacity can be customized

ABOUT
MT-1000 is a crosslinked PVDF heat shrink tubing. PVDF offers excellent chemical and abrasion resistance, high dielectric strength and superior tensile strength. Its homogeneous structure (properties evenly distributed) contributes to its consistency and high performance, making our MT-1000 essentially free from flaws, defects, pinholes, seams, cracks or inclusions.

MT-1000 is rigid and highly lubricious, and works very well at providing abrasion protection for rigid laparoscopic and in-vivo instruments.

MT-2000 – HDPE

APPLICATIONS:
Abstraction protection for electrosurgical devices
High performance insulation for electrosurgical devices

PROFILE
• Shrink ratio ≤ 3:1 *
• Full recovery at 140°C (284°F) minimum
• Supports sterilization environments: gamma and ethylene oxide (ETO)
• Manufactured to ISO 10993 standards
• Registered with the FDA: MAF-727
• Custom sizing, colors, finishing and value-add options available
• Radiopacity can be customized

ABOUT
MT-2000 is a crosslinked high density polyethylene (HDPE) heat shrink tubing. HDPE offers excellent abrasion protection and high performance insulation.

Its homogeneous structure (properties evenly distributed) contributes to its consistency and high performance, making our MT-2000 essentially free from flaws, defects, pinholes, seams, cracks or inclusions. MT-2000 is semi-rigid and mechanically tough, combined with high insulating properties, making our MT-2000 a great option for electrosurgical device applications.

*Select sizes
MT-3000 – PVDF

APPLICATIONS:
- Abrasion protection for surgical and in-vivo instruments
- Strain relief applications

PROFILE
- Shrink ratio ≤ 3:1
- Full recovery at 150°C (302°F) minimum
- Supports sterilization environments: gamma, ethylene oxide (ETO), steam, dry heat and autoclave
- Manufactured to ISO 10993 standards
- Registered with the FDA: MAF-472
- Custom sizing, colors, finishing and value-add options available
- Radiopacity can be customized

ABOUT
MT-3000 is a crosslinked PVDF heat shrink tubing. PVDF offers excellent chemical and abrasion resistance, high dielectric strength and superior tensile strength. Its homogeneous structure (properties evenly distributed) contributes to its consistency and high performance, making our MT-3000 essentially free from flaws, defects, pinholes, seams, cracks or inclusions. MT-3000 is semi-lubricious and more flexible than our other PVDF heat shrink tubing. MT-3000 offers abrasion protection for surgical and in-vivo instruments.

MT-5000 – LDPE

APPLICATIONS:
- Strain relief applications

PROFILE
- Shrink ratio ≤ 4:1
- Full recovery at 110°C (230°F) minimum
- Supports sterilization environments: gamma and ethylene oxide (ETO)
- Manufactured to ISO 10993 standards
- Registered with the FDA: MAF-469
- Custom sizing, colors, finishing and value-add options available
- Radiopacity can be customized
- Adhesive-layer option available

ABOUT
MT-5000 is a crosslinked low density polyethylene (LDPE) heat shrink tubing. LDPE offers excellent flexibility and is a great option for strain relief applications. Its homogeneous structure (properties evenly distributed) contributes to its consistency and high performance, making our MT-5000 essentially free from flaws, defects, pinholes, seams, cracks or inclusions. MT-5000 is flexible with a high shrink ratio making it a great option for strain relief applications.
MT-FEP

APPLICATIONS:
- Process aid for catheter shaft reflow
- Process aid for reflowing catheter shafts

PROFILE
- Shrink ratio ≤ 1.6:1
- Full recovery at 210°C (410°F) minimum
- Tight longitudinal change control ± 4%
- Manufactured to ISO 10993 standards
- Custom sizing, finishing options available
- Translucent for high optical clarity
- Color blending option available

ABOUT
MT-FEP is a fluorinated ethylene propylene heat shrink tubing. FEP offers excellent consistency, high dielectric strength and is chemically inert. MT-FEP is lubricious and semi-rigid with shrink ratios up to 2:1*.

FEP is the industry gold standard for reflowing catheter shafts and bonding joints. For our MT-FEP, we can control longitudinal growth ± 2% ensuring consistency on lot to lot, reducing cost and waste.

*Upper limit on select applications. Optimal shrink ratio is 1.6:1

MT-LWA

APPLICATIONS:
- Process aid for catheter shaft reflow
- Process aid for balloon & joint bonding

PROFILE
- Shrink ratio ≤ 4:1
- Full recovery at 110°C (230°F) minimum
- Manufactured to ISO 10993 standards
- Custom sizing, finishing options available
- Radiopacity can be customized
- Adhesive-layer option available
- Translucent for high optical clarity
- Color blending option available

ABOUT
MT-LWA is a cross-linked modified polyolefin heat shrink tubing designed for use as a process aid in minimally invasive applications.

Its homogeneous structure (properties evenly distributed) contributes to its consistency and high performance, making our MT-LWA essentially free from flaws, defects, pinholes, seams, cracks or inclusions. MT-LWA offers customizable compression strengths, shrink ratios ≤ 4:1, is peelable with axial tear propagation and you can remove it while it’s warm, making it an excellent choice for reflowing catheter shafts when MT-FEP isn’t suitable.