## CGPE-105

### Brightly Colored, Shiny, Non-Flame-Retardant Polyolefin Tubing

### Product Facts

- Bright, shiny surface; clear version offers exceptional clarity
- Can be easily hot-stamped
- Economical, yet offers the improved performance of a crosslinked material
- Conforms to substrates more uniformly and with less longitudinal change than most PVC-based materials



**Applications**

Attractive covering for many automotive, appliance, and consumer-goods applications. Commercial grade tubing for applications where a flame-retardant product is not needed. Provides both insulation and protection of components and wires while also providing a smooth, glossy finish with a choice of five standard colors as well as clear. Exceptional transparency of clear CGPE-105 makes it an ideal choice for protecting marked surfaces.

**Installation**

Minimum shrink temperature: 85°C [185°F]

Minimum full recovery temperature: 110°C [230°F] for black; 100°C [212°F] for all other colors and clear

**Operating Temperature Range**

-70°C to 105°C
[-94°F to 221°F]

**Specifications/Approvals**

| Series | Raychem |
|---|---|
| CGPE-105 | CGPE-105 SCD |

| Available in: | Americas | Europe | Asia Pacific |
|---|---|---|---|
| | ■ | | ■ |



Catalog 1654025
Revised 12-04

www.tycoelectronics.com

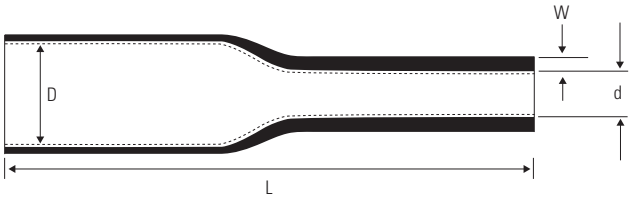
Dimensions are in millimeters and inches unless otherwise specified. Values in brackets are U.S. equivalents.

Dimensions are shown for reference purposes only. Specifications subject to change.

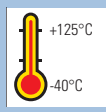
USA: 1-800-522-6752
Canada: 1-905-470-4425
Mexico: 01-800-733-8926
C. America: 52-55-5-729-0425

South America: 55-11-3611-1514
Japan: 81-44-900-5102
Singapore: 65-4866-151
UK: 44-1793-528171

Dual-wall moisture proof, heat-shrinkable tubing to protect electrical splices




W = Jacket only
d = Inner diameter of jacket only






- **Excellent environmental seal**
- **Mechanical protection against flexing, abrasion and cut-through**
- **Small cross-sectional profile**
- **Temperature rated to 125°C continuous**

RBK-ILS-125 is a dual-wall, heat-shrinkable tubing designed to provide moisture proof encapsulation of an electrical splice in an automotive environment. Moisture may enter a splice area directly or indirectly via a capillary action between individual wires, thus causing corrosion.

The tubing is centred over the splice area and on heating the adhesive melts and is squeezed around where the wires are crimped or welded and between the conductors, by the shrinking action of the sleeve. The installed product provides low profile mechanical protection against flexing, abrasion and cut-through as well as electrical insulation. The jacket is flame-retarded. There are five sizes to cover the range of splice profiles found, and up to seven wires may enter either end of the product. The sleeves are marked with size, ie, RBK-1 to aid selection. The compact size of RBK-ILS-125 suits process line harness assembly.

## Ordering information

| Inside diameter | | Wall thickness | | | |
|---|---|---|---|---|---|
| D (min) Expanded as supplied | d (max) Jacket Recovered after heating | W (min) Recovered Jacket after heating | W+ adhesive liner (min)* | L (nom) | |
| mm | mm | mm | mm | m | Ordering description |
| 5.75 | 2.65 | 0.6 | 1.15 | 5 | RBK-ILS-125-NR1-0 |
| 7.5 | 3.45 | 0.7 | 1.4 | 5 | RBK-ILS-125-NR2-0 |
| 11.0 | 4.65 | 0.8 | 1.8 | 6 | RBK-ILS-125-NR3-0 |
| 14.0 | 5.9 | 0.9 | 2.15 | 6 | RBK-ILS-125-3A-0 |
| 18.3 | 7.4 | 0.9 | 2.2 | 7 | RBK-ILS-125-NR4-0 |

Refer to the Installation Guidelines document before selecting size. (PIP-019)

The wall thickness of the tubing will be less than specified if recovery is restricted during shrinkage.

*Nominal values for reference only

| | | |
|---|---|---|
| **Standard colours** | Colour | Black |
| | Code | 0 |

**Installation**

The product may be installed using a Raychem RBK-ILS Processor or other recommended application equipment. Consult your local Tyco Electronics office for more information

| | | |
|---|---|---|
| **Performance** | Longitudinal change: | 0 to -10% |
| | Strain relief: | Insulation resistance does not drop below 2 x $10^8$ ohms (min) after sample loaded to 50 N at 100 mm/min. |
| | Flammability: | Self-extinguishing within 30s (ISO 6722) |
| | Heat ageing: | No cracking of jacket at 125°C after 3000 h<br>Insulation resistance 2 x $10^8$ ohms (min) |
| | Split resistance: | No splitting at +200°C |
| Sequential: | The product must pass insulation resistance test 2 x $10^8$ ohms (min) after each of the following tests: | |
| | Cold impact: | No cracking of jacket at -40°C for 4 h (ISO 6722) |
| | Accelerated ageing: | +130°C for 168 h |
| | Thermal shock: | 5 cycles of +130°C for 1 h followed by immersion in saline solution at 0 to +5°C for 30 mins. |
| | Temperature/humidity cycling: | 5 cycles of<br>+40°C for 12 h at 95% R.H.<br>-40°C for 4 h<br>+40°C for 3 h at 95% R.H.<br>+23°C for 5 h |
| | Mechanical vibration: | IEC 5068-2-6 |
| | Flex test: | Mandril Flex under load<br>5 cycles |
| | Fluid soak: | Samples soaked for 30 mins at 100°C in:<br>Engine oil ISO 1817 No 1<br>Automatic transmission fluid Dexron™ 2<br>Samples soaked for 30 mins at 23°C<br>Diesel fuel ISO 1817 Liquid F<br>Brake fluid Dot 4<br>Gunk degreaser<br>Fuel C ISO 1817, 1985<br>Fuel 3 ISO 1817, 1985<br>Car wash detergent 1%<br>Teepol/water by volume<br>Battery acid BS 3031 (1.25 SG)<br>Anti-freeze 50/50 v/v |
| | All tests conducted are specified in Raychem Specification RK 6638 | |

tyco Electronics

Raychem Interconnect

- Easy to store
- Easy to dispense
- Single wall and adhesive lined tubings
- 2:1 and 3:1 shrink ratios

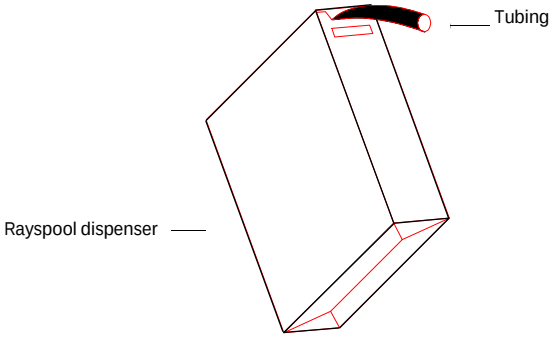
# RaySpool

## Convenient packaging and dispensing system for heat-shrinkable tubing

RaySpool offers a convenient packaging and dispensing option for a range of heat-shrinkable tubings. The tubing is supplied on small reels which are overboxed and feature a dispensing window allowing the tubing to be easily and readily accessed. The RaySpool system will offer an ideal method of storing and using heat-shrinkable tubing for the workshop, service vehicle or laboratory.

A wide selection of different tubings are offered which will cover a diverse range of applications including electrical insulation, strain relief, cable bundling and environmental protection.

Also available are RaySpool kits which comprise 6 boxes of RaySpool of the sizes indicated (x). The boxes are supplied with a mounting rack.




## CGPT

A flexible, flame retarded general purpose heat-shrinkable tubing. Available in 2:1 and 3:1 shrink ratios its unique blend of chemical, electrical and physical properties makes it suitable for a wide range of applications including electrical insulation, strain relief, cable bundling, colour coding and identification of wires, cables, pipes and electrical and electronic components.

## Ordering information


| | Inside diameter | | Wall thickness | Standard package | | |
|---|---|---|---|---|---|---|
| | D (min) Expanded as supplied | d (max) Recovered after heating | W (nom) Recovered after heating | Spool quantity Black | Green/Yellow | |
| | mm | mm | mm | m | m | Ordering description |
| 2:1 Shrink ratio | 1.6 | 0.8 | 0.45 | 10.0 | - | CGPT-R-1.6-colour code |
| | 2.4[x] | 1.2 | 0.50 | 10.0 | - | CGPT-R-2.4-colour code |
| • | 3.2[x] | 1.6 | 0.50 | 10.0 | 5.0 | CGPT-R-3.2-colour code |
| | 4.8[x] | 2.4 | 0.50 | 9.0 | - | CGPT-R-4.8-colour code |
| • | 6.4[x] | 3.2 | 0.65 | 8.0 | 3.5 | CGPT-R-6.4-colour code |
| • | 9.5 | 4.8 | 0.65 | 6.0 | 3.0 | CGPT-R-9.5-colour code |
| • | 12.7[x] | 6.4 | 0.65 | 6.0 | 2.5 | CGPT-R-12.7-colour code |
| • | 19.0 | 9.5 | 0.75 | 5.0 | 2.0 | CGPT-R-19.0-colour code |
| • | 25.4[x] | 12.7 | 0.90 | 3.0 | 1.5 | CGPT-R-25.4-colour code |
| | Kit contains sizes indicated by [x] | | | | | CGPT-R-KIT-2 |

## Standard colours

| Colour | Black | Green/Yellow Striped |
|---|---|---|
| Code | 0 | 45 (Sizes marked •) |

# RaySpool

## CGPT - Ordering information

| | Inside diameter | | Wall thickness | Standard package | |
|---|---|---|---|---|---|
| | D (min) Expanded as supplied | d (max) Recovered after heating | W (nom) Recovered after heating | Spool quantity | |
| | mm | mm | mm | m | Ordering description |
| 3:1 Shrink ratio | 3.0[x] | 1.0 | 0.55 | 10.0 | CGPT-R-3.1-colour code |
| | 6.0[x] | 2.0 | 0.65 | 7.0 | CGPT-R-6.2-colour code |
| | 9.0[x] | 3.0 | 0.75 | 5.0 | CGPT-R-9.3-colour code |
| | 12.0[x] | 4.0 | 0.75 | 4.0 | CGPT-R-12.4- colour code |
| | 18.0[x] | 6.0 | 0.85 | 3.0 | CGPT-R-18.6- colour code |
| | 24.0[x] | 8.0 | 1.00 | 3.0 | CGPT-R- 24.8- colour code |
| | Kit contains sizes indicated by [x] (black only) | | | | CGPT-R-KIT-1 |

## Standard colours

| Colour | Black | Red | Yellow | Blue |
|---|---|---|---|---|
| Code | 0 | 2 | 4 | 6 |

## Temperature rating

| | |
|---|---|
| Operating temperature range: | -40°C to +135°C |
| Minimum shrink temperature: | +80°C |
| Minimum full recovery temperature: | +120°C |

## Performance

| Test | Test method | Test requirement | |
|---|---|---|---|
| Heat ageing: | ISO188 (168 h at 150°C) | Ultimate elongation: | 150% (min) |
| Corrosion resistance: | ASTM D2671 (16h at 175°C) | No corrosion of mirrors | |
| Dielectric strength: | IEC 243 | Ø ≤ 25.4<br>Ø > 25.4 | 20 MV/m<br>10 MV/m |
| [*]Flame retardancy: | ASTM D2671 (Procedure B)<br>UL 224 (All tube flame test) | Duration of burning 60s max. | |
| Fluid resistance: | 24 h at 23°C, ISO 37 | Tensile strength:<br>Ultimate elongation: | 5 MPa (min)<br>175% (min) |
| | Test fluids: | Petrol (100 octane)<br>Lubricating oil (0.148)<br>Hydraulic fluid (H515) | |

[*]Not clear product (X).

## Specifications

Raychem Specification RW 2059.

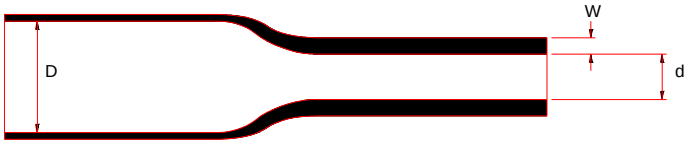
# RaySpool

## LSTT

A highly flexible low shrink temperature heat-shrinkable tubing. Easy to handle and install, its low shrink temperature (80°C) offers exceptionally fast recovery and suitability for use on or near delicate temperature sensitive materials. Although not flame retarded, LSTT meets the automotive flame propagation standard MVSS 302.

LSTT gives good physical and electrical performance.
Typical applications are electrical termination insulation, covering of heat sensitive devices, cosmetic coverings and mechanical protection.

## Ordering information




| | Inside diameter | | Wall thickness | Standard package | |
|---|---|---|---|---|---|
| | D (min) Expanded as supplied | d (max) Recovered after heating | W (nom) Recovered after heating | Spool quantity | |
| | mm | mm | mm | m | Ordering description |
| 2:1 Shrink ratio | 2.4[x] | 1.2 | 0.55 | 10.0 | LSTT-R- 2.4-0 |
| | 3.2[x] | 1.6 | 0.55 | 10.0 | LSTT-R-3.2-0 |
| | 4.8[x] | 2.4 | 0.55 | 9.0 | LSTT-R-4.8-0 |
| | 6.4[x] | 3.2 | 0.65 | 8.0 | LSTT-R-6.4-0 |
| | 9.5 | 4.8 | 0.65 | 6.0 | LSTT-R-9.5-0 |
| | 12.7[x] | 6.4 | 0.65 | 6.0 | LSTT-R-12.7-0 |
| | 19.0 | 9.5 | 0.80 | 5.0 | LSTT-R-19.0-0 |
| | 25.4[x] | 12.7 | 0.95 | 3.0 | LSTT-R-25.4-0 |
| | Kit contains sizes indicated by [x] | | | | LSTT-R-KIT -1 |

## Standard colours

| | |
|---|---|
| Colour | Black |
| Code | 0 |
| | To ensure dimensional stability, LSTT should be stored at temperatures not exceeding 40°C. |

## Temperature rating

| | |
|---|---|
| Operating temperature range: | -40°C to +105°C |
| Minimum recovery temperature: | +80°C |

# RaySpool

## Performance

| Test | Test method | Requirement | |
|---|---|---|---|
| Heat Ageing: | ISO 188 (168h at 125°C) | Tensile strength:15 MPa (min)<br>Ultimate elongation:300% (min) | |
| Corrosion resistance: | ASTM D2671 (16h at 150°C) | No corrosion of mirrors | |
| Flame retardancy: | MVSS 302 | 100 mm/min (max) | |
| Fluid resistance: | 24 h at 23°C, ISO 37<br>Ultimate elongation | Tensile strength: | 15 MPa (min)<br>200% (min) |
| | | Hydraulic fluid (J1703)<br>Battery acid<br>Anti freeze | |

For full product performance details consult Raychem Specification RW 2051.

To ensure dimensional stability, LSTT should be stored at temperatures not exceeding 40°C.

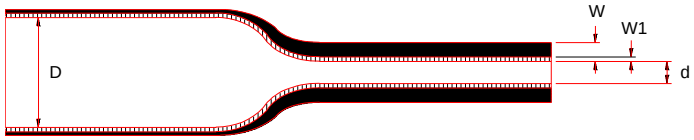
## Specifications

Raychem Specification RW 2051.

## CGAT

A flexible adhesive lined heat-shrinkable tubing. It has a flame retarded jacket and offers a balance of both electrical insulation and environmental sealing. Typical applications are environmental sealing for electrical components, wire breakouts and cable jackets.

## Ordering information




| | Inside diameter | | Wall thickness | | Standard package | |
|---|---|---|---|---|---|---|
| | D (min) Expanded as supplied | d (max) Recovered after heating | W (nom) Recovered after heating | W1 (nom) Meltable wall recovered after heating | Spool quantity | |
| | mm | mm | mm | mm | m | Ordering description |
| 3:1 Shrink ratio | 3.0[x] | 1.0 | 1.00 | 0.5 | 5.0 | CGAT-R-3/1-0 |
| | 6.0[x] | 2.0 | 1.00 | 0.5 | 3.5 | CGAT-R-6/2-0 |
| | 9.0[x] | 3.0 | 1.35 | 0.6 | 3.0 | CGAT-R-9/3-0 |
| | 12.0[x] | 4.0 | 1.50 | 0.7 | 2.5 | CGAT-R-12/4-0 |
| | 18.0[x] | 6.0 | 1.70 | 0.8 | 2.0 | CGAT-R-18/6-0 |
| | 24.0[x] | 8.0 | 1.95 | 1.0 | 1.5 | CGAT-R-24/8-0 |
| | Kit contains sizes indicated by [x] | | | | | CGAT-R-KIT-1 |

## Standard colours

| | |
|---|---|
| Colour | Black |
| Code | 0 |

## Temperature rating

| | |
|---|---|
| Operating temperature range: | -30°C to +80°C |
| Minimum shrink temperature: | +80°C |
| Minimum full recovery temperature: | +115°C |

# RaySpool

## Performance

| | |
|---|---|
| Heat ageing: | 168 h at 150°C ISO188 |
| Corrosion resistance: | Non-corrosive ASTM D2671 |
| Dielectric strength: | 12 MV/m (min) IEC 243 |
| Fluid resistance: | Meets requirements of ISO 37, |

For full product performance details consult Raychem Specification RW 2050

## Specifications

Raychem Specification RW 2050.



Raychem Interconnect
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Swindon, Wiltshire SN2 2QE
Tel: (44)-1793-528171
Fax: (44)-1793-616652

## HF

### High-Flex, Heavy-Wall, Heat-Shrinkable Tubing

### Product Facts

- Offers high flexibility
- Provides excellent insulation and abrasion-protection
- Flame-retardant
- HF has the following agency approvals:
  - ABS (American Bureau of Shipping)
  - DNV (Det Norske Veritas)
  - Lloyd's (Lloyd's Register of Shipping)

### Applications

Developed for cable jacketing applications where cable flexibility is important, high-flex (HF) tubing is ideal for jacketing cables where sharp bends or turns are required. Also ideal for situations where the cable is subject to motion. Such situations are common for industrial machinery, transportation equipment, robotics, welding, and many other cabling applications. To complete the cable jacket seal, the ends may be sealed for further water and corrosion protection by using available tape sealant or adhesive.

### Installation

Minimum shrink temperature: 80°C [176°F]

Minimum full recovery temperature: 121°C [250°F]

### Operating Temperature Range

-55°C to 110°C [-67°F to 230°F]

### Specifications/Approvals

| Series | Military | Raychem |
|---|---|---|
| HF | AMS-DTL-23053/15* Class 1** | RW-2023 |

*Formerly MIL-I-23053/15 and MIL-DTL-23053/15.
**For uncoated tubing only.

| Available in: | Americas | Europe | Asia Pacific |
|---|---|---|---|
| | ■ | ■ | ■ |





Catalog 1654025
Revised 10-06

www.tycoelectronics.com

Dimensions are in millimeters and inches unless otherwise specified. Values in brackets are U.S. equivalents.

Dimensions are shown for reference purposes only. Specifications subject to change.

USA: 1-800-522-6752
Canada: 1-905-470-4425
Mexico: 01-800-733-8926
C. America: 52-55-5-729-0425

South America: 55-11-3611-1514
Japan: 81-44-900-5102
Singapore: 65-4866-151
UK: 44-1793-528171

## HF (Continued)

### Product Dimensions

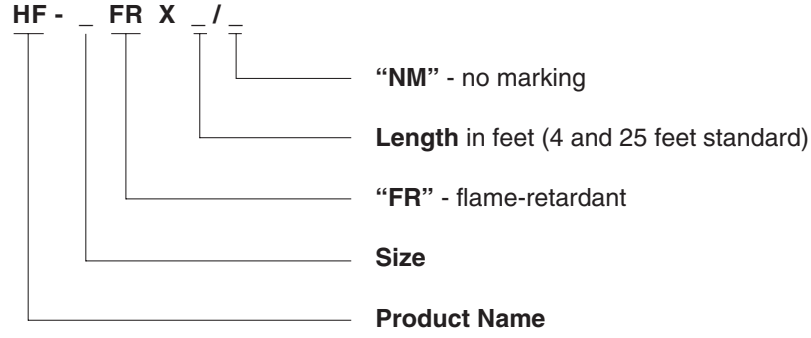
| Size | Standard Nominal Length (m/ft) | Inside Diameter | | Wall Thickness** |
|---|---|---|---|---|
| | | Minimum Expanded as Supplied | Maximum Recovered After Heating | Nominal Recovered After Heating |
| HF04 | 1.2, 7.5 [4, 25] | 10.16 [0.40] | 3.81 [0.150] | 1.52 [0.060] |
| HF07 | 1.2, 7.5 [4, 25] | 19.05 [0.75] | 5.59 [0.220] | 1.52 [0.060] |
| HF11 | 1.2, 7.5 [4, 25] | 27.94 [1.10] | 9.52 [0.375] | 2.67 [0.105] |
| HF13 | 1.2, 7.5 [4, 25] | 33.02 [1.30] | 9.52 [0.375] | 2.67 [0.105] |
| HF15 | 1.2, 7.5 [4, 25] | 38.10 [1.50] | 12.70 [0.500] | 3.05 [0.120] |
| HF17 | 1.2, 7.5 [4, 25] | 43.14 [1.70] | 12.70 [0.500] | 3.05 [0.120] |
| HF20 | 1.2, 7.5 [4, 25] | 50.80 [2.00] | 19.05 [0.750] | 3.56 [0.140] |
| HF27 | 1.2, 7.5 [4, 25] | 68.58 [2.70] | 22.86 [0.900] | 3.94 [0.155] |

**Wall thickness will be less if tubing recovery is restricted during shrinkage.

### Ordering Information

| | |
|---|---|
| Color | Standard Black |
| Size selection | Always order the largest size that will shrink snugly over the component to be covered. |
| Standard packaging | 1.2-meter [4-foot] or 7.5-meter [25-foot] lengths. Nonstandard lengths are available upon request. |
| Ordering description | See below. |

### Part Numbering System




**Example: HF-17FRX25/NM**



Catalog 1654025
Revised 10-06

www.tycoelectronics.com

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Dimensions are shown for reference purposes only. Specifications subject to change.

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C. America: 52-55-5-729-0425

South America: 55-11-3611-1514
Japan: 81-44-900-5102
Singapore: 65-4866-151
UK: 44-1793-528171

tyco Electronics

Raychem

- Excellent sealing
- Fluid resistant
- Mechanically tough

# DSPL

Commercial, dual wall heat shrink tubing to seal and protect splices

DSPL is a commercial, heat-shrinkable, dual wall tube. It is designed to seal and protect electrical splices, terminals and other components in areas where they will be exposed to moisture. It performs well at elevated temperatures and in aggressive environments.

To install the tubing, it is placed over the centre of the substrate, heat is then applied to shrink the jacket and melt the adhesive lining, which flows between the wires and conductors, providing a moisture proof encapsulation.

DSPL also provides excellent environmental sealing from dust, dirt and many fluids, which can cause wire splices to corrode or electrical systems to fail.

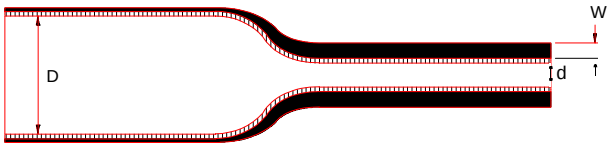
Once DSPL is installed it also provides good mechanical protection from flexing and abrasion. The jacket is flame retarded (black only)

DSPL is available in 4 sizes in black and 3 sizes in clear, which are suitable for a wide range of applications. The sleeves are number coded to help operators select the right size.

## Temperature rating

| | |
|---|---|
| Operating temperature range: | -40°C to +125°C |
| Minimum full recovery temperature: | +135°C |

## Ordering information




| Inside diameter | | Wall thickness | | |
|---|---|---|---|---|
| D (min) Expanded as supplied | d (max) Recovered after heating | W (min) Recovered after heating | | Standard Lengths |
| mm | mm | mm | Ordering description | |
| 5.7 | 1.27 | 1.15 | DSPL-NR1-Colour code | 50mm |
| 7.5 | 1.65 | 1.40 | DSPL-NR2-Colour code | 50mm |
| 10.8 | 2.40 | 1.80 | DSPL-NR3-Colour code | 65mm |
| 17.5 | 4.50 | 2.10 | DSPL-NR4-Black only (-0) | 75mm |

The wall thickness of the tubing will be less than specified if recovery is restricted during shrinkage.

1220mm lengths (-STK) are also available for all sizes

## Standard colours

| Colour | Black | Clear | |
|---|---|---|---|
| Code | 0 | x | NR4 in Black only |

# DSPL

## Specifications

| | |
|---|---|
| | Raychem Specification RK 6755. |
| | Installation instructions available on request. |



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Swindon, Wiltshire SN2 2QE
Tel: (44)-1793-528171
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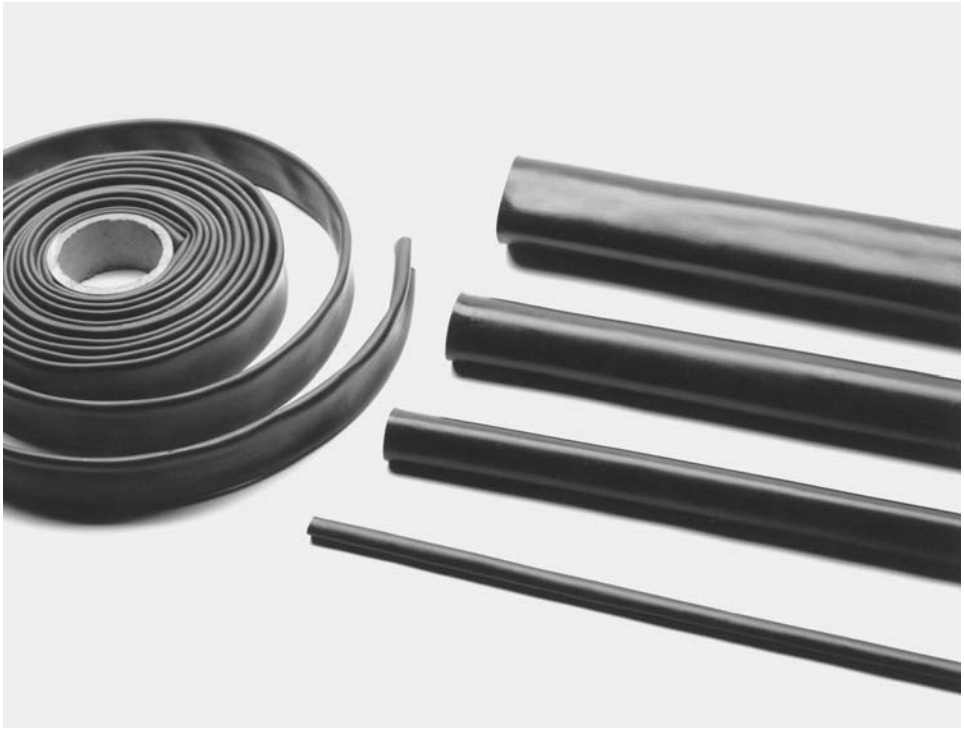
## BSTS/BSTS-FR

### General Purpose, Heat-Shrinkable Tubing

### Product Facts

- Excellent thick-wall insulation and abrasion protection
- No adhesive – can be removed easily
- Expansion ratios as high as 3:1
- Availability in flame-retardant material with FR callout (see "Ordering information and Part numbering system" on the next page)
- BSTS has the following agency approvals:
  - ABS (American Bureau of Shipping)
  - DNV (Det Norske Veritas)
  - Lloyd's (Lloyd's Register of Shipping)



### Applications

BSTS heat-shrinkable tubing is made of a rugged polymer that resists moisture, fungus and weathering. It also has excellent electrical properties. This tubing is useful in applications where insulation, abrasion resistance, and strain relief are important. When used with sealant tape (S-1305 for flame retardant or S-1278 for non-flame retardant), it can provide a watertight system in non-pressurized applications.

### Installation

Minimum shrink temperature: 90°C [194°F]

Minimum full recovery temperature: 121°C [250°F]

### Operating Temperature Range

-55°C to 110°C [-67°F to 230°F]

### Specifications/Approvals

| Series | Military | Industry | Raychem |
|---|---|---|---|
| BSTS | — | — | RW-2017 |
| BSTS-FR | AMS-DTL-23053/15*, Class 1 and Class 2** | ASTM D 635, nonburning | RW-2017 |

*Formerly MIL-I-23053/15 and MIL-DTL-23053/15.
**Except for coatings requirement. Refer to SST-FR when coating is required.

| Available in: | Americas | Europe | Asia Pacific |
|---|---|---|---|
| | ■ | ■ | ■ |





Catalog 1654025
Revised 10-06

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Dimensions are in millimeters and inches unless otherwise specified. Values in brackets are U.S. equivalents.

Dimensions are shown for reference purposes only. Specifications subject to change.

USA: 1-800-522-6752
Canada: 1-905-470-4425
Mexico: 01-800-733-8926
C. America: 52-55-5-729-0425

South America: 55-11-3611-1514
Japan: 81-44-900-5102
Singapore: 65-4866-151
UK: 44-1793-528171

## BSTS/BSTS-FR (Continued)

### Product Dimensions

| Size | Inside Diameter | | Wall Thickness (Nominal) | |
|---|---|---|---|---|
| | Minimum Expanded as Supplied | Maximum recovered After Heating | Expanded as Supplied | Recovered After Heating**** |
| BSTS-03 | 7.62 [0.300] | 2.54 [0.100] | 0.63 [0.025] | 1.78 [0.070] |
| BSTS-04 | 10.16 [0.400] | 3.81 [0.150] | 0.63 [0.025] | 1.78 [0.070] |
| BSTS-07M*** | 19.05 [0.750] | 5.59 [0.220] | 0.51 [0.020] | 1.52 [0.060] |
| BSTS-07 | 19.05 [0.750] | 5.59 [0.220] | 0.76 [0.030] | 2.41 [0.095] |
| BSTS-11M | 27.94 [1.100] | 9.52 [0.375] | 0.76 [0.030] | 2.67 [0.110] |
| BSTS-11 | 27.94 [1.100] | 9.52 [0.375] | 1.02 [0.040] | 3.05 [0.120] |
| BSTS-13M | 33.02 [1.300] | 9.52 [0.375] | 0.63 [0.025] | 2.67 [0.110] |
| BSTS-13 | 33.02 [1.300] | 9.52 [0.375] | 0.89 [0.035] | 3.05 [0.120] |
| BSTS-15M | 38.10 [1.500] | 12.70 [0.500] | 0.89 [0.035] | 3.05 [0.120] |
| BSTS-15 | 38.10 [1.500] | 12.70 [0.500] | 1.27 [0.050] | 3.56 [0.140] |
| BSTS-17M | 43.18 [1.700] | 12.70 [0.500] | 1.02 [0.040] | 3.05 [0.120] |
| BSTS-17 | 43.18 [1.700] | 12.70 [0.500] | 1.14 [0.045] | 3.56 [0.140] |
| BSTS-20M | 50.80 [2.000] | 19.05 [0.750] | 1.27 [0.050] | 3.05 [0.120] |
| BSTS-20 | 50.80 [2.000] | 19.05 [0.750] | 1.27 [0.050] | 3.94 [0.160] |
| BSTS-27 | 65.58 [2.700] | 22.86 [0.900] | 1.27 [0.050] | 3.94 [0.160] |
| BSTS-30 | 76.20 [3.000] | 31.75 [1.250] | 1.27 [0.050] | 3.94 [0.160] |
| BSTS-35 | 88.90 [3.500] | 31.75 [1.250] | 1.27 [0.050] | 3.94 [0.160] |
| BSTS-40 | 101.60 [4.000] | 44.45 [1.750] | 1.27 [0.050] | 3.94 [0.160] |
| BSTS-45 | 114.30 [4.500] | 44.45 [1.750] | 1.27 [0.050] | 3.94 [0.160] |

***M = Medium wall tubing. ****Wall thickness will be less if tubing recovery is restricted during shrinkage. Medium wall tubing is a non-standard tubing.

### Ordering Information

| | | |
|---|---|---|
| Color | Standard | Black, White, Yellow, Red and Clear (Clear is non-flame retardant) |
| Size selection | Always order the largest size that will shrink snugly over the component to be covered. Special order sizes are available upon request. | |
| Standard packaging | 1.2-meter [4-foot] or 7.5-meter [25-foot] lengths. | |
| Ordering description | See below. | |

### Part Numbering System

**BSTS - _ _ x _ _ / _ / _**

**"NM"** - no marking
**Color**
Black / leave blank (standard)
White / WHT
Red / RED
Yellow/YLW
Clear / CL (non-flame retardant)
**"FR"** - flame-retardant
**Length** in feet (4 and 25 feet standard)
**"M"** medium wall
**Size**
**Family**

**Example: BSTS-11X4/NM**



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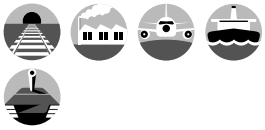
## SolderShield Shielded and Coaxial Cable Splices

### Product Facts

- **Flux-coated, solder-impregnated copper shield braid encased in a transparent heat-shrinkable insulation sleeve provides a controlled soldering process, encapsulation, inspectability, strain relief, and insulation**
- **One-piece design provides easy installation and lower installed cost**
- **Circumferential (360°) shielding results in EMI protection and shield continuity equal to or better than the original cable**
- **Conductor splices are made using Raychem MiniSeal crimp products, which are recognized by MIL-S-81824 and MIL-W-5088**



### Applications

Used for splicing a wide range of cables, including coaxial and multiconductor cables.

SolderShield devices can be used to repair or splice shielded or coaxial cables. These products consist of a MiniSeal crimp splice plus a flux-coated, solder-impregnated copper shield encased in a heat-shrinkable sealing sleeve, for splicing the shields. SolderShield kits terminate single- or multiple-conductor cables, eliminate EMI problems at the splice, and provide strain relief for the cable.

### Product Selection Process

For splicing multiconductor cables refer to Table A.

For splicing coaxial cables refer to Table B.

### Installation

For proper installation of these devices, the correct heating tool and reflector attachment must be used. Any one of the following Raychem heating tools is recommended:

- HL1802E
- IR-1759 MiniRay
- CV-1981

Refer to Raychem installation procedure RCPS 150-02 (D-150 series) and RPIP 699-00 (B-202 series) for detailed instructions and recommended reflector attachment.

You will find ordering information for most of these tools in Section 10.

### Specifications/Approvals

| Series | Military | Raychem |
|---|---|---|
| D-150 | US: M81824 (conductor splice only)<br>UK: RAF AP 1130-2008-1 | RT-1404 |

| Available in: | |
|---|---|
| Americas | ■ |
| Europe | ■ |
| Asia Pacific | ■ |



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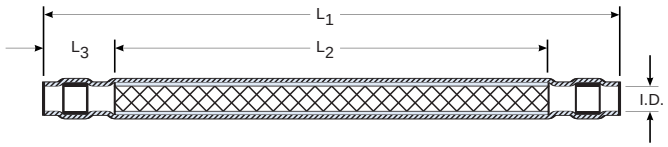
## SolderShield Shielded and Coaxial Cable Splices (Continued)

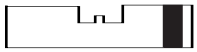
### Table A. Multiconductor Cable Splices

Each SolderShield part consists of a SolderShield splice and one or more conductor splices. Refer to information below for description and numbers of conductor splices.

SolderShield Splice




Crimp Splice



**SolderShield Product Dimensions**

| Part No. | | Dimensions | | | | Conductor Splice Size Range CMA [mm²] Min.–Max. | Color Code | Quantity Per Kit |
|---|---|---|---|---|---|---|---|---|
| Tin Plated | Nickel Plated | L1 Max. | L2 Nom. | L3 Min. | ID Min. | | | |
| D-150-0168 | D-150-0228 | 80.50 [3.17] | 50.00 [1.97] | 10.20 [.400] | 3.00 [.118] | 304–1510 [0.15–0.75] | Red | 1 |
| D-150-0169 | D-150-0229 | 80.50 [3.17] | 50.00 [1.97] | 10.20 [.400] | 4.00 [.157] | 779–2680 [0.39–1.34] | Blue | 1 |
| D-150-0170 | D-150-0230 | 80.50 [3.17] | 50.00 [1.97] | 10.20 [.400] | 5.00 [.197] | 1900–6755 [0.95–3.37] | Yellow | 1 |
| D-150-0174 | D-150-0231 | 10.60 [4.17] | 75.00 [2.95] | 10.20 [.400] | 4.00 [.157] | 304–1510 [0.15–0.75] | Red | 2 |
| D-150-0175 | D-150-0232 | 10.60 [4.17] | 75.00 [2.95] | 10.20 [.400] | 5.00 [.197] | 779–2680 [0.39–1.34] | Blue | 2 |
| D-150-0176 | D-150-0233 | 10.60 [4.17] | 75.00 [2.95] | 10.20 [.400] | 6.00 [.236] | 1900–6755 [0.95–3.37] | Yellow | 2 |
| D-150-0177 | D-150-0234 | 10.60 [4.17] | 75.00 [2.95] | 10.20 [.400] | 9.00 [.356] | 304–1510 [0.15–0.75] | Yellow | 2 |
| D-150-0178 | D-150-0235 | 10.60 [4.17] | 75.00 [2.95] | 10.20 [.400] | 4.00 [.157 ] | 304–1510 [0.15–0.75] | Red | 4 |
| D-150-0179 | D-150-0236 | 10.60 [4.17] | 75.00 [2.95] | 10.20 [.400] | 5.00 [.197] | 779–2680 [0.39–1.34] | Red | 4 |
| D-150-0180 | D-150-0237 | 10.60 [4.17] | 75.00 [2.95] | 10.20 [.400] | 6.00 [.236] | 1900–6755 [0.95–3.37] | Blue | 4 |
| D-150-0181 | D-150-0238 | 10.60 [4.17] | 75.00 [2.95] | 10.20 [.400] | 9.00 [.353] | 1900–6755 [0.95–3.37] | Yellow | 4 |

**Note:** The SolderShield splice kits listed in this table are for 1:1 cable splices. The kits can be used on cables with tin-, silver-, and nickel-plated copper conductors. All the kits have environmental-sealing capability. The cable temperature rating must be 125°C minimum.

To find the splice kit part number for your application:
1. Determine the number of conductors in the cable to be spliced.
2. Determine the gauge of each conductor or the maximum jacket OD.
3. Determine the conductor plating.
4. Select the appropriate part number from the table above.





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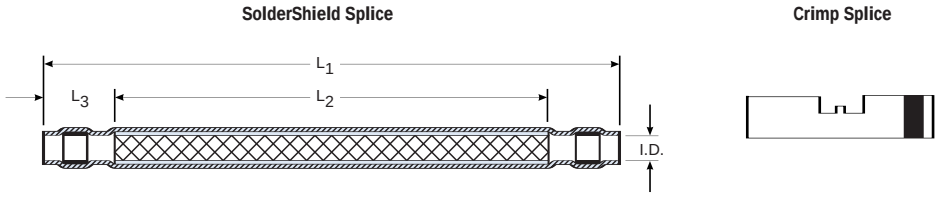
## SolderShield Shielded and Coaxial Cable Splices (Continued)

### Table B. Coaxial Cable Splices

Each SolderShield part consists of a SolderShield splice and one or more conductor splices. Refer to information below for description and numbers of conductor splices.




| RG Cable No. | Raychem Cable Description | Conductor Splice Qty/Kit | Part No. | SolderShield Dimensions | | |
|---|---|---|---|---|---|---|
| | | | | L1 Max | L2 Min | ID Min |
| 8A, 9B, 11 | 5012A3311 | 1 | D-150-0214 | 80.50 [3.170] | 50.00 [1.970] | 12.00 [.472] |
| 13, 26, 31 | 5012E1339 | | | | | |
| 115, 144, 149 | 7518A1311 | | | | | |
| 165, 213, 214 | — | | | | | |
| 216, 235, 391 | — | | | | | |
| 393, 397 | — | | | | | |
| 178, 196, | 5028A1317 | 1 | D-150-0094 | 80.50 [3.170] | 50.00 [1.970] | 3.00 [.118] |
| 179, 187, 188, | 7528A1317 | | | | | |
| 316, 404, M17/138-00001, | 5030A1317 | | | | | |
| M17/136-00001 | 7530A1317 | | | | | |
| 180, 195 | 5024A1311 | 1 | D-150-0095 | 80.50 [3.170] | 50.00 [1.970] | 4.00 [.157] |
| M17/137-00001 | 7526A1311 | | | | | |
| M17/139-00001 | 9527A1318 | | | | | |
| — | 9530E1014 | | | | | |
| 124, 140, 141 | 5020A1311 | 1 | D-150-0096 | 80.50 [3.170 ] | 50.00 [1.970] | 5.00 [.236] |
| 159, 302, 303 | 5022A1311 | | | | | |
| — | 7522A1311 | | | | | |
| — | 7523D1331 | | | | | |
| — | 7524A1311 | | | | | |
| 29, 30, 55B | 5019D3318 | 1 | B-202-81* | 56.00 [2.200] | 23.00 [.900] | 7.00 [.275] |
| 58, 223 | 5021D1331 | | | | | |
| — | 5022A1311 | | | | | |
| 59, 62, 71 | 7523D1331 | 1 | B-202-82* | 56.00 [2.200 ] | 23.00 [.900] | 7.00 [.275] |
| — | 7524A1311 | | | | | |
| — | 9524A1311 | | | | | |

*These kits use solder to terminate the center conductors. All other kits use crimp.
All kits are for one-to-one coaxial cable splices, and all kits have environmental sealing capability. Each kit contains products to splice conductors, build up dielectric, splice the shield, and provide insulation.



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## SolderShield Shielded and Coaxial Cable Splices (Continued)

### Product Characteristics

| | |
|---|---|
| **Materials** | |
| Insulation sleeve | Radiation-crosslinked polyvinylidene fluoride |
| Meltable inserts | Fluorocarbon-based thermoplastic |
| MiniSeal crimp splice | Base metal: Copper alloy C10200 per ASTM B75<br>Plating: Tin per MIL-T-10727 or nickel per QQ-N-290 |
| SolderShield shield splice | Base metal: Tin-plated copper wire braid per ASTM B3<br>Solder and flux coating: Type Sn63 Pb37. Flux: ROM1 per ANSI - J - STD - 004 (RA flux) |

| Parameter | Test Method | Requirement |
|---|---|---|
| **Electromechanical Performance** | | |
| Dielectric strength (shield connection) | — | No breakdown or arcing at 1000 Vac (RMS) |
| Dielectric strength (conductor connection) | — | 2.5 kV |
| Voltage drop | MIL-S-81824 | Less than 2.0-millivolt increase |
| Insulation resistance (shield connection) | — | 1000 megohms minimum at 500 Vdc |
| Insulation resistance (conductor connection) | — | 5000 megohms |
| Tensile strength for MiniSeal | MIL-S-81824 | Exceed yield strength (pounds) of wire. |
| Tensile strength for SolderShield | MIL-S-81824 | 75% of strength (pounds) of unspliced cable |
| Temperature rating | — | -55°C to 150°C [-67°F to 302°F] |
| **Environmental Resistance** | | |
| Salt spray | MIL-STD-202 M101 | Meet voltage drop requirement. |
| Heat aging | 750 hours at 150°C [302°F] | Meet all electromechanical requirements. |
| Temperature cycling | MIL-STD-202 M107C | Meet all electromechanical requirements. |
| Altitude immersion | Immersion at 22,860m [75,000 ft] | Meet insulation-resistance requirement. |
| Corrosion resistance | — | No evidence of corrosion after testing in accordance with MIL-STD-202, Method 101, Test Condition A |





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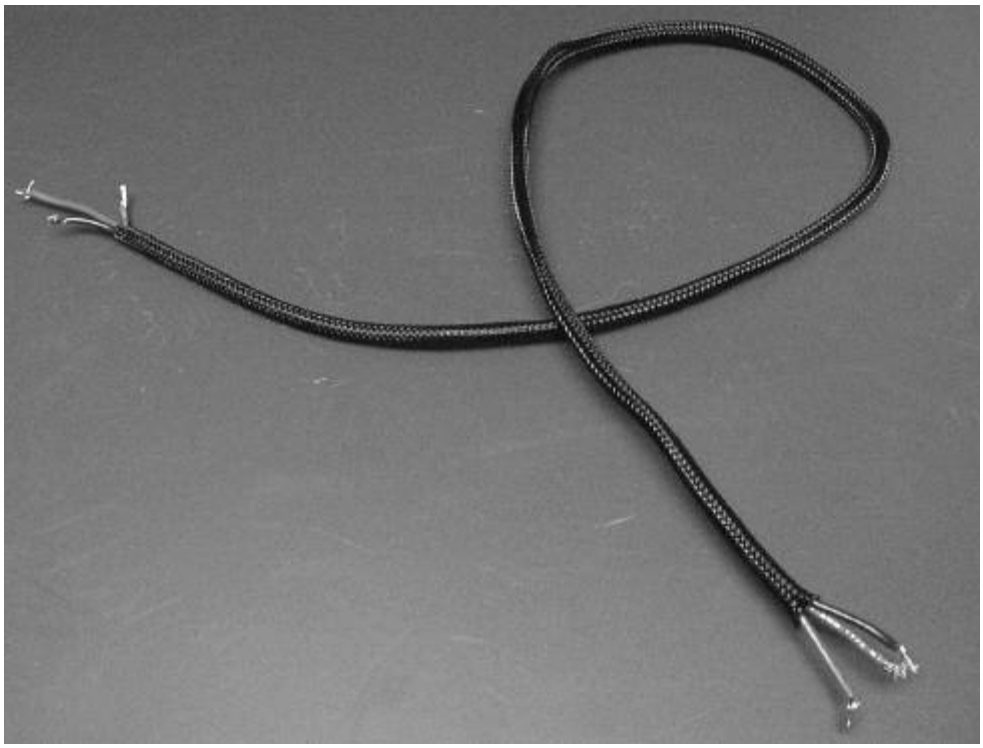
## Rayflex Tubing

### PET and PFR Expandable, Braided, Polyester Sleeving



### Product Facts

- Excellent abrasion and cut-through resistance
- Lightweight
- Flexible (even at low temperatures)
- Fungus-proof
- Not affected by most chemicals and solvents, non-hygroscopic
- PFR meets UL VW-1, FAR25, and is Self-Extinguishing
- Fiber diameter is 0.254 [0.010]

### Applications

Rayflex tubing is suited for the mechanical protection of wire harnesses, hoses, and all other applications where exceptional flexibility combined with superior abrasion/cut resistance is required. It also serves as an economical means for wire bundling that will not trap heat or moisture; expanding easily to fit over irregular shapes, then contracting to conform and grip. To prevent fraying, these products should be cut to length using a hot knife.

### Installation

This product is cold applied.

### Operating Temperature Range

-50°C to 150°C
[-58°F to 302°F]

(220°C [428°F] for short periods)

### Specifications/Approvals

| Series | UL | CSA | Raychem |
|---|---|---|---|
| Rayflex PET | | | RW-2069 |
| Rayflex PFR | E197586<br>Rated 125˚C | LR31929<br>Rated 125˚C | |

| Available in: | Americas | Europe | Asia Pacific |
|---|---|---|---|
| | | ■ | ■ |





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## Rayflex Tubing (Continued)

### Product Dimensions

| Size | Nominal Size | Size Range |
|---|---|---|
| **RAYFLEX PET expandable polyester braid** | | |
| 1/8 | 3 [0.125] | 2.4-6.4 [0.094-0.250] |
| 1/4 | 6 [0.250] | 3.2-9.5 [0.125-0.375] |
| 3/8 | 10 [0.375] | 4.7-16 [0.188-0.630] |
| 1/2 | 13 [0.500] | 6.4-19 [0.250-0.750] |
| 3/4 | 19 [0.750] | 13-32 [0.500-1.250] |
| 1-1/4 | 32 [1.250] | 19-45 [0.750-1.750] |
| 1-3/4 | 45 [1.750] | 32-70 [1.250-2.750] |
| 2 | 51 [2.000] | 38-76 [1.500-3.000] |
| **RAYFLEX PFR flame-retardant, expandable polyester braid** | | |
| 1/8 | 3 [0.125] | 2.4-6.4 [0.094-0.250] |
| 1/4 | 6 [0.250] | 3.2-9.5 [0.125-0.375] |
| 3/8 | 10 [0.375] | 4.7-16 [0.188-0.630] |
| 1/2 | 13 [0.500] | 6.4-19 [0.250-0.750] |
| 3/4 | 19 [0.750] | 13-32 [0.500-1.250] |
| 1-1/4 | 32 [1.250] | 19-45 [0.750-1.750] |
| 1-3/4 | 45 [1.750] | 32-70 [1.250-2.750] |
| 2 | 51 [2.000] | 38-76 [1.500-3.000] |

### Ordering Information

| | | |
|---|---|---|
| Color | Standard | RF-PET: Black (-0)<br>RF-PFR: Black with white X-Cross tracers (-09) |
| Standard packaging | On spools. | |
| Ordering description | Specify product name, size and color (for example, RF-PET 1/8-0). | |



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## NT

### Flexible, General Purpose Modified Elastomeric Tubing

### Product Facts

- Remains flexible at temperatures as low as -55°C [-67°F]
- Offers good resistance to abrasion and physical abuse while providing the flexibility and strain relief needed in general-purpose harnessing applications
- Resistant to most common fluids and solvents



**Applications**

Widely used for insulation, strain relief, and abrasion protection on cable harnesses and wire bundles in the commercial electronics industries where a reliable general-purpose tubing is needed. Suitable for applications requiring some exposure to common fluids and solvents.

**Installation**

Minimum shrink temperature: 90°C [194°F]

Minimum full recovery temperature: 135°C [275°F]

**Operating Temperature Range**

-55°C to 90°C
[-67°F to 194°F]

**Specifications/Approvals**

| Series | UL | CSA | Raychem |
|---|---|---|---|
| NT | UL E35586<br>600V, 90°C | CSA LR31929<br>600V, 90°C | RT-510 |

| Available in: | Americas | Europe | Asia Pacific |
|---|---|---|---|
| | ■ | ■ | ■ |



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**NT** (Continued)

## Product Dimensions

| Size | Inside Diameter | | Recovered Wall Thickness** After Heating |
|---|---|---|---|
| | Minimum Expanded as Supplied | Maximum Recovered After Heating | |
| 1/8 | 3.2 [0.125] | 1.6 [0.061] | 0.69 ± 0.20 [0.027 ± 0.008] |
| 3/16 | 4.8 [0.187] | 2.5 [0.100] | 0.84 ± 0.25 [0.033 ± 0.010] |
| 1/4 | 6.4 [0.250] | 3.6 [0.143] | 0.89 ± 0.25 [0.035 ± 0.010] |
| 3/8 | 9.5 [0.375] | 5.4 [0.211] | 1.01 ± 0.25 [0.040 ± 0.010] |
| 1/2 | 12.7 [0.500] | 7.3 [0.286] | 1.21 ± 0.38 [0.048 ± 0.015] |
| 5/8 | 15.9 [0.625] | 9.1 [0.357] | 1.32 ± 0.38 [0.052 ± 0.015] |
| 3/4 | 19.1 [0.750] | 10.9 [0.428] | 1.44 ± 0.38 [0.057 ± 0.015] |
| 7/8 | 22.2 [0.875] | 12.7 [0.500] | 1.65 ± 0.38 [0.065 ± 0.015] |
| 1 | 25.4 [1.000] | 14.5 [0.570] | 1.77 ± 0.51 [0.070 ± 0.020] |
| 1 1/4 | 31.8 [1.250] | 18.1 [0.714] | 2.20 ± 0.51 [0.087 ± 0.020] |
| 1 1/2 | 38.1 [1.500] | 21.8 [0.857] | 2.41 ± 0.51 [0.095 ± 0.020] |
| 1 3/4 | 44.5 [1.750] | 25.4 [1.000] | 2.71 ± 0.51 [0.107 ± 0.020] |
| 2 | 50.8 [2.000] | 29.0 [1.140] | 2.79 ± 0.51 [0.110 ± 0.020] |
| 3 | 76.2 [3.000] | 43.4 [1.710] | 3.17 ± 0.51 [0.125 ± 0.020] |
| 4 | 101.6 [4.000] | 57.9 [2.280] | 3.55 ± 0.51 [0.140 ± 0.020] |

**Wall thickness will be less if tubing recovery is restricted during shrinkage.

## Ordering Information

| | |
|---|---|
| Color | Standard Black (-0) |
| Size selection | Always order the largest size that will shrink snugly over the component to be covered. Special order sizes are available upon request. |
| Standard packaging | On spools. |
| Ordering description | Specify product name, size and color (for example, NT 1/4-0). |



Catalog 1654025
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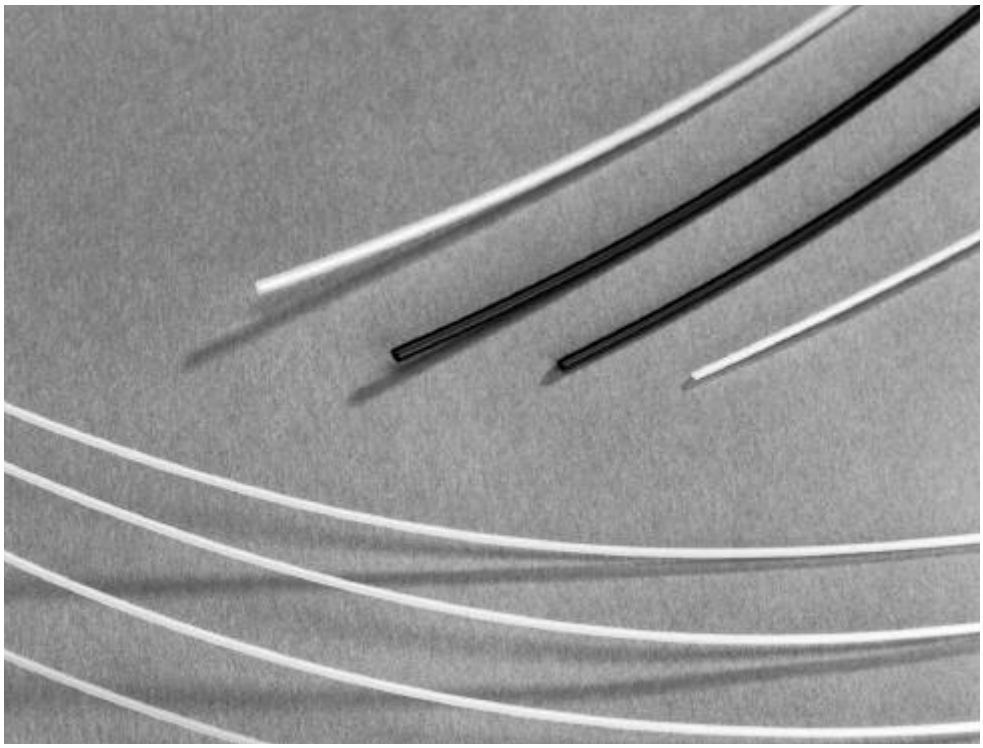
USA: 1-800-522-6752
Canada: 1-905-470-4425
Mexico: 01-800-733-8926
C. America: 52-55-5-729-0425

South America: 55-11-3611-1514
Japan: 81-44-900-5102
Singapore: 65-4866-151
UK: 44-1793-528171

## MT1000

**Altera Medical-Grade, USP Class VI, High-Temperature, Semirigid, Fluoropolymer Tubing**



### Product Facts

- 2:1 shrink ratio
- Tough, semirigid, very-thin-wall insulation
- Excellent resistance to a variety of fluids
- Optional inner adhesive lining in sizes 1/8" and larger (MT1000A)
- USP Class VI material, no heavy metals
- Double-bagged packaging
- Compatibility with gamma, ETO, steam, and dry-heat sterilization

### Applications

Ideal for electrical insulation and strain relief of components that are exposed to high temperatures - either during operation or during sterilization.

Thin-wall construction is well suited for applications with clearance constraints.

### Installation

Minimum shrink temperature: 155°C [311°F}

Minimum full recovery temperature: 175°C [347°F]

### Operating Temperature Range

-55°C to 175°C
[-67°F to 347°F]

### Specifications/Approvals

| Series | Material | Master File Number | Raychem |
|---|---|---|---|
| MT1000 | USP Class VI | MAF-444 | MT1000 SCD |
| MT1000A | USP Class VI | MAF-798 | MT1000A SCD |

| Available in: | Americas | Europe | Asia Pacific |
|---|---|---|---|
| | ■ | ■ | ■ |





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Japan: 81-44-900-5102
Singapore: 65-4866-151
UK: 44-1793-528171

## MT1000 (Continued)

### Product Dimensions

| Size | Inside Diameter | | Recovered Wall Thickness** After Heating |
|---|---|---|---|
| | Minimum Expanded as Supplied | Maximum Recovered After Heating | |
| 3/64** | 1.17 [0.046] | 0.58 [0.023] | 0.25 ± 0.05 [0.010 ± 0.002] |
| 1/16 | 1.6 [0.063] | 0.8 [0.031] | 0.25 ± 0.05 [0.010 ± 0.002] |
| 3/32 | 2.4 [0.093] | 1.2 [0.046] | 0.25 ± 0.05 [0.010 ± 0.002] |
| 1/8 | 3.2 [0.125] | 1.6 [0.062] | 0.25 ± 0.05 [0.010 ± 0.002] |
| 3/16 | 4.7 [0.187] | 2.4 [0.093] | 0.25 ± 0.05 [0.010 ± 0.002] |
| 1/4 | 6.4 [0.250] | 3.2 [0.125] | 0.33 ± 0.05 [0.013 ± 0.002] |
| 3/8 | 9.5 [0.375] | 4.7 [0.187] | 0.33 ± 0.05 [0.013 ± 0.002] |
| 1/2 | 12.7 [0.500] | 6.4 [0.250] | 0.33 ± 0.05 [0.013 ± 0.002] |
| 3/4** | 19.1 [0.750] | 9.5 [0.375] | 0.43 ± 0.08 [0.017 ± 0.003] |
| 1** | 25.4 [1.000] | 12.7 [0.500] | 0.48 ± 0.08 [0.019 ± 0.003] |

*Wall thickness will be less if tubing recovery is restricted during shrinkage.
**Nonstandard size; available by special order only.

### Ordering Information

| | | |
|---|---|---|
| Color | Standard | Translucent (-X) |
| | Nonstandard | Black (-0) |
| Size selection | Always order the largest size that will shrink snugly over the component to be covered. Special order sizes are available upon request. | |
| Standard packaging | In 1.2-meter (4-foot) lengths, double bagged. | |
| Ordering description | Specify product name, size and color (for example, MT1000-1/8-X). Specify MT1000A for adhesive-lined constructions (special order). | |



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## MicroFit

### Small-Diameter, High-Shrink-Ratio Tubing

**Product Facts**

- Small diameter
- High shrink ratio
- Thin wall
- Polyolefin and fluoropolymer materials



**Applications**

The MicroFit family of small-diameter, high-shrink-ratio tubing is ideal for electrical insulation, mechanical protection, and strain relief in smaller, more compact medical devices and commercial electronics products. Offered in a variety of materials. The RW-175 version of MicroFit tubing is suitable for use in space applications.

**Installation**

Minimum full recovery temperature:

175°C [347°F] (MT1000)

140°C [284°F] (MT2000)

175°C [347°F] (RW-175)

**Operating Temperature Range**

MT1000: -55°C to 175°C [-67°F to 347°F]

MT2000: -40°C to 105°C [-40°F to 221°F]

RW-175: -55°C to 175°C [-67°F to 347°F]

**Specifications/Approvals**

| Series | Material | Master File Number | Raychem |
|---|---|---|---|
| Altera MicroFit | USP Class VI (MT1000)<br>USP Class VI (MT2000) | MAF-444 (MT1000)<br>MAF-727 (MT2000) | Altera MicroFit SCD |
| RW-175 MicroFit | — | — | RW-175 MicroFit SCD |

| Available in: | Americas | Europe | Asia Pacific |
|---|---|---|---|
| | ■ | ■ | ■ |



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Japan: 81-44-900-5102
Singapore: 65-4866-151
UK: 44-1793-528171

## MicroFit (Continued)

### Product Dimensions

| Size | Inside Diameter | | Wall Thickness | |
|---|---|---|---|---|
| | Minimum Expanded as Supplied | Maximum Recovered After Heating | As Supplied (Nominal) | Recovered*** (Maximum) |
| MFT-*-No. 1-** | 0.356 [0.014] | 0.178 [0.007] | 0.076 [0.003] | 0.127 [0.005] |
| MFT-*-No. 2-** | 0.610 [0.024] | 0.305 [0.012] | 0.064 [0.0025] | 0.152 [0.006] |
| MFT-*-No. 33-** | 1.143 [0.045] | 0.432 [0.017] | 0.064 [0.0025] | 0.178 [0.007] |
| MFT-*-No. 65-** | 0.635 [0.025] | 0.254 [0.010] | 0.127 [0.005] | 0.330 [0.013] |

*Replace single asterisk with material type: MT1000, MT2000, or RW-175.
**Replace double asterisk with color-code number.
***Wall thickness will be less if tubing recovery is restricted during shrinkage.

### Ordering Information

| | | MT1000 | MT2000 | RW-175 |
|---|---|---|---|---|
| Color | Standard | Translucent (-X) | Black (-0), clear (-X) | Translucent (-X) |
| | Nonstandard | Black (-0) | White (-9), red (-2), yellow (-4), blue (-6), orange (-3) | Black (-0) |
| Size selection | Always order the largest size that will shrink snugly over the component to be covered. | | | |
| Standard packaging | On plastic spools**** | | | |
| Ordering description | Specify product name, material, size and color (for example, MFT-MT2000-NO.1-0). | | | |

****MFT-MT1000 and MFT-MT2000 are double bagged.



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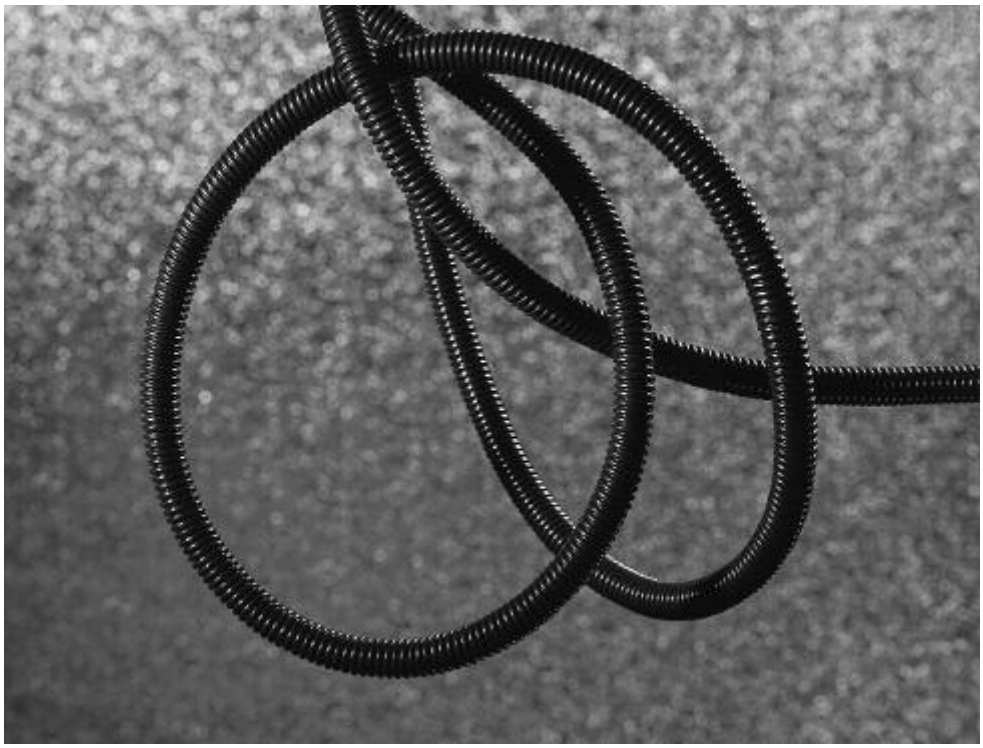
Singapore: 65-4866-151
UK: 44-1793-528171

## HCTE

### Helical Convolex Tubing with a High Crush Resistance

### Product Facts

- Highly flame-retardant
- Highly flexible and fluid resistant
- Not heat-shrinkable
- High crush resistance
- System 300 conduit tubing





### Applications

Used as a conduit to provide mechanical protection for electrical wiring systems in applications requiring flexibility, high-temperature performance and good resistance to a variety of fluids. Widely used in the military and commercial aerospace industries. Can be used in conjunction with other Raychem components to form an integrated harnessing system.

### Installation

It is recommended that no more than 70% of the internal area (“fill factor”) of the HCTE conduit be occupied by wires in any application.

### Operating Temperature Range

-55°C to 200°C
[-67°F to 392°F]

### Specifications/Approvals

| Series | Military | Raychem |
|---|---|---|
| HCTE | VG 96936 Part 6 | RT-1162 |

| Available in: | Americas | Europe | Asia Pacific |
|---|---|---|---|
| | ■ | ■ | ■ |



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Mexico: 01-800-733-8926
C. America: 52-55-5-729-0425

South America: 55-11-3611-1514
Japan: 81-44-900-5102
Singapore: 65-4866-151
UK: 44-1793-528171

## HCTE (Continued)

### Product Dimensions

| Size | Inside Diameter Minimum | Outside Diameter Maximum | Maximum Wall Thickness |
|---|---|---|---|
| 0187 | 4.60 [0.181] | 8.10 [0.320] | 0.46 [0.018] |
| 0281 | 6.90 [0.273] | 10.50 [0.414] | 0.46 [0.018] |
| 0312 | 7.70 [0.306] | 11.80 [0.450] | 0.46 [0.018] |
| 0375 | 9.20 [0.364] | 12.90 [0.510] | 0.46 [0.018] |
| 0437 | 10.80 [0.427] | 14.50 [0.571] | 0.46 [0.018] |
| 0500 | 12.30 [0.485] | 16.50 [0.650] | 0.58 [0.023] |
| 0625 | 15.40 [0.608] | 19.50 [0.770] | 0.58 [0.023] |
| 0750 | 17.90 [0.730] | 23.60 [0.930] | 0.58 [0.023] |
| 0875 | 21.80 [0.860] | 27.20 [1.073] | 0.58 [0.023] |
| 1000 | 24.70 [0.975] | 31.10 [1.226] | 0.58 [0.023] |
| 1250 | 30.70 [1.210] | 35.30 [1.539] | 0.58 [0.023] |
| 1500 | 36.50 [1.437] | 46.50 [1.832] | 0.58 [0.023] |
| 1625 | 39.60 [1.562] | 50.17 [1.975] | 0.58 [0.023] |
| 1750 | 42.67 [1.688] | 52.88 [2.082] | 0.58 [0.023] |
| 2000 | 49.20 [1.937] | 59.23 [2.332] | 0.58 [0.023] |

### Ordering Information

| | |
|---|---|
| Color | Standard Black (-0) |
| Size selection | Always order a conduit size that will ensure that a “fill factor” of 70% is not exceeded. |
| Standard packaging | On spools. |
| Ordering description | Specify product name, size and color (for example, HCTE-0187-0). |



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Singapore: 65-4866-151
UK: 44-1793-528171

## DR-25

**Heat-Shrinkable, Flexible, Chemical and Abrasion Resistant Tubing**

**Product Facts**

- **Flame-retardant**
- **System 25 tubing**
- **Shrink ratio 2:1**



### Applications

Specially formulated for optimum high temperature fluid resistance, and long term heat resistance. Resistant to aviation and diesel fuels, hydraulic fluids and lubricating oils.

Particularly suitable as a jacketing material for military ground vehicle cables and harnesses. It is also ideally suited for the demands of motorsport cable harnesses. When used in conjunction with System 25 heat-shrinkable molded shapes and S1125 high performance adhesive, these products provide a complete cable harness system.

### Installation

Minimum shrink temperature: 150°C [302°F]

Minimum full recovery temperature: 175°C [347°F]

### Operating Temperature Range

-75°C to 150°C [-103°F to 302°F] (per VG 95343 Part 5 Type D)

### Specifications/Approvals

| Series | Military | Raychem |
|---|---|---|
| DR-25 | AMS-DTL-23053/16* | RT-1116 |
| | VG95343 Part 5 Type D | RK-6008/1 |
| | VDE 0341/Pt 9005 | |
| | Def Stan 59-97 Issue 3 Type 6B | |
| | BS 4G-198 Part 3 10A | |

*Formerly MIL-I-23053/16 and MIL-DTL-23053/16.

| Available in: | Americas | Europe | Asia Pacific |
|---|---|---|---|
| | ■ | ■ | ■ |



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South America: 55-11-3611-1514
Japan: 81-44-900-5102
Singapore: 65-4866-151
UK: 44-1793-528171

## DR-25 (Continued)

### Product Dimensions

| Size | Inside Diameter | | Recovered Wall Thickness** After Heating |
|---|---|---|---|
| | Minimum Expanded as Supplied | Maximum Recovered After Heating | |
| 1/8 | 3.2 [0.125] | 1.6 [0.062] | 0.76 ± 0.15 [0.030 ± 0.006] |
| 3/16 | 4.8 [0.187] | 2.4 [0.093] | 0.84 ± 0.15 [0.033 ± 0.006] |
| 1/4 | 6.4 [0.250] | 3.2 [0.125] | 0.89 ± 0.15 [0.035 ± 0.006] |
| 3/8 | 9.5 [0.375] | 4.8 [0.187] | 1.02 ± 0.20 [0.040 ± 0.008] |
| 1/2 | 12.7 [0.500] | 6.4 [0.250] | 1.22 ± 0.20 [0.048 ± 0.008] |
| 3/4 | 19.0 [0.748] | 9.5 [0.375] | 1.45 ± 0.28 [0.057 ± 0.011] |
| 1 | 25.4 [1.000] | 12.7 [0.500] | 1.78 ± 0.28 [0.070 ± 0.011] |
| 1 1/2 | 38.0 [1.500] | 19.0 [0.748] | 2.41 ± 0.41 [0.095 ± 0.016] |
| 2 | 51.0 [2.000] | 25.4 [1.000] | 2.79 ± 0.41 [0.110 ± 0.016] |
| 3 | 76.0 [3.000] | 38.0 [1.500] | 3.18 ± 0.50 [0.125 ± 0.020] |

**Wall thickness will be less if tubing recovery is restricted during shrinkage.

### Ordering Information

| | |
|---|---|
| Color | Standard Black (-0) |
| Size selection | Always order the largest size that will shrink snugly over the component to be covered. Special order sizes are available upon request. |
| Standard packaging | On spools. |
| Ordering description*** | Specify product name, size and color (for example, DR-25 1/8-0) |

***Europe only. For supply to Def Stan and BS add -DS or -BS to ordering description.



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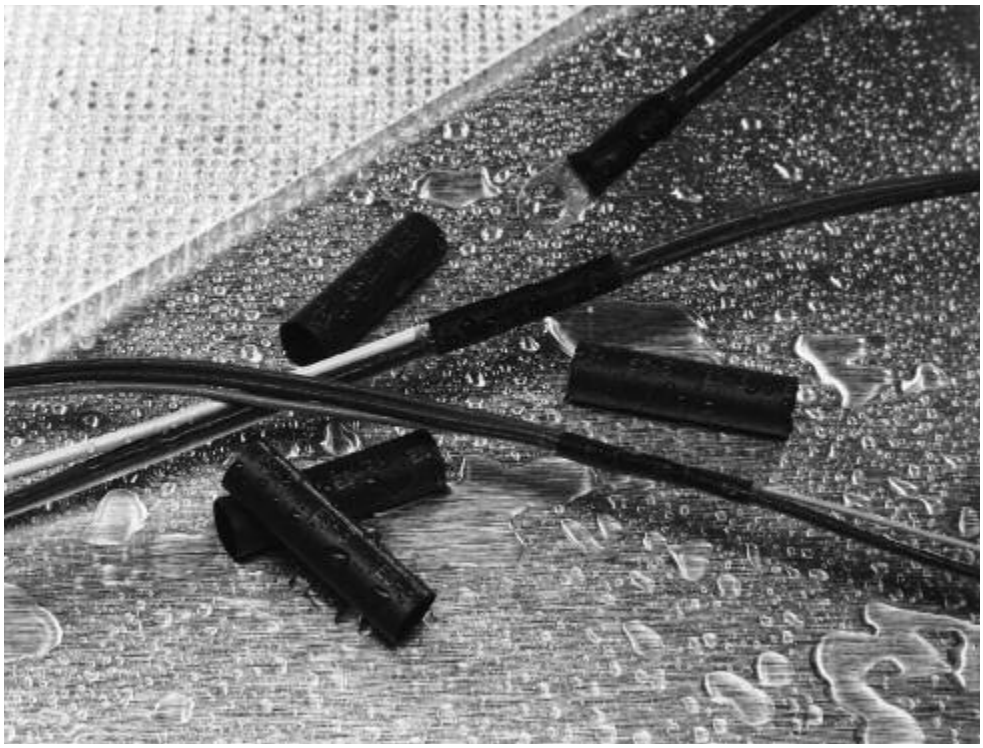
Japan: 81-44-900-5102
Singapore: 65-4866-151
UK: 44-1793-528171

## ES2000

**Flame-Retardant, High-Shrink-Ratio, Adhesive-Lined Semirigid Polyolefin Tubing**

### Product Facts

- **4:1 shrink ratio allows a few sizes to cover a wide range of splice and component diameters**
- **Flame-retardant and mechanically tough, the tubing provides strain relief and abrasion protection of wire splices, terminals, and other components**
- **Thick adhesive liner forms an effective barrier against fluids and moisture and performs well at an extended temperature range**
- **UL recognized**



### Applications

Specially designed for environmental sealing and electrical insulation of wire splices, terminations, and components.

### Installation

Minimum shrink temperature: 110°C [230°F]

Minimum full recovery temperature: 135°C [275°F]

### Operating Temperature Range

-40°C to 130°C
[-40°F to 266°F]

### Specifications/Approvals

| Series | UL | Raychem |
|---|---|---|
| ES2000 | E85381<br>600 V, 125°C | RT-1112 |

| Available in: | Americas | Europe | Asia Pacific |
|---|---|---|---|
| | ■ | | ■ |





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South America: 55-11-3611-1514
Japan: 81-44-900-5102
Singapore: 65-4866-151
UK: 44-1793-528171

## ES2000 (Continued)

### Product Dimensions

| Part Number | Inside Diameter (Including Core) | | Recovered Wall Thickness* | | |
|---|---|---|---|---|---|
| | Minimum Expanded as Supplied | Maximum Recovered After Heating | Minimum Total Wall After Heating | Minimum Jacket Wall After Heating | Minimum Adhesive Wall After Heating |
| ES2000-No.1 | 5.72 [0.225] | 1.27 [0.050] | 1.20 [0.047] | 0.64 [0.025] | 0.56 [0.022] |
| ES2000-No.2 | 7.44 [0.293] | 1.65 [0.065] | 1.52 [0.060] | 0.76 [0.030] | 0.76 [0.030] |
| ES2000-No.3 | 10.85 [0.427] | 2.41 [0.095] | 1.91 [0.075] | 0.89 [0.035] | 1.02 [0.040] |
| ES2000-No.4 | 17.78 [0.700] | 4.45 [0.175] | 2.41 [0.095] | 1.04 [0.041] | 1.37 [0.054] |

*Wall thickness will be less if tubing recovery is restricted during shrinkage.

### Ordering Information

| | |
|---|---|
| Color | Standard Black (-0) |
| Size selection | Always order the largest size that will shrink snugly over the component to be covered. |
| Standard packaging | Cut pieces. |
| Marking | Tubing will be printed with its numbered size (such as ES-1, ES-2, ES-3, or ES-4). |
| Ordering description | Specify product name, numbered size, color, and cut length (for example, ES2000-NO.2-0-50MM). |



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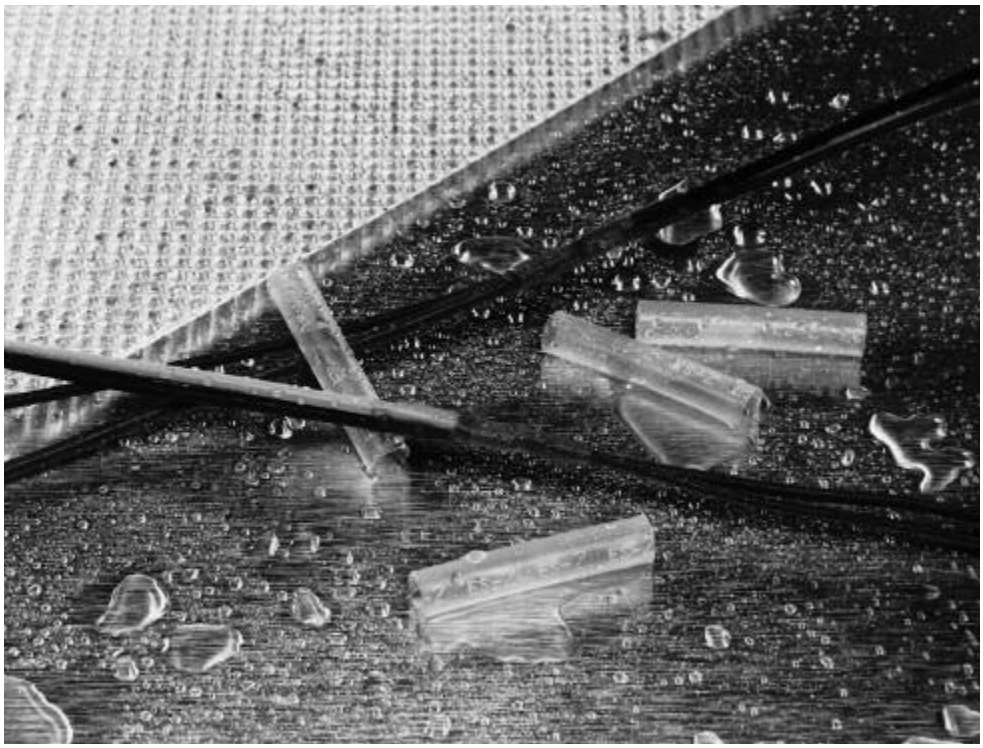
Singapore: 65-4866-151
UK: 44-1793-528171

## ES1000

**Clear, High-Shrink-Ratio, Adhesive-Lined, Semirigid Polyolefin Tubing**

### Product Facts

- **4:1 shrink ratio allows a few sizes to cover a wide range of splice and component diameters**
- **Mechanically tough tubing provides strain relief and abrasion protection of wire splices, terminals and other components**
- **Thick adhesive liner forms an effective barrier against fluids and moisture and performs well at an extended temperature range**



### Applications

Specially designed for environmental sealing and electrical insulation of wire splices, terminations, and components where see-through inspection is required.

### Installation

Minimum shrink temperature: 110°C [230°F]

Minimum full recovery temperature: 135°C [275°F]

### Operating Temperature Range

-40°C to 130°C
[-40°F to 266°F]

### Specifications/Approvals

| Series | UL | Raychem |
|---|---|---|
| ES1000 | E85381<br>600 V, 125°C | RT-1113 |

| Available in: | Americas | Europe | Asia Pacific |
|---|---|---|---|
| | ■ | | ■ |





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Singapore: 65-4866-151
UK: 44-1793-528171

**ES1000** (Continued)

## Product Dimensions

| Part Number | Inside Diameter (Including Core) | | Recovered Wall Thickness* | | |
|---|---|---|---|---|---|
| | Minimum Expanded as Supplied | Maximum Recovered After Heating | Minimum Total Wall After Heating | Minimum Jacket Wall After Heating | Minimum Adhesive Wall After Heating |
| ES1000-No.1 | 5.72 [0.225] | 1.27 [0.050] | 1.20 [0.047] | 0.64 [0.025] | 0.56 [0.022] |
| ES1000-No.2 | 7.44 [0.293] | 1.65 [0.065] | 1.52 [0.060] | 0.76 [0.030] | 0.76 [0.030] |
| ES1000-No.3 | 10.85 [0.427] | 2.41 [0.095] | 1.91 [0.075] | 0.89 [0.035] | 1.02 [0.040] |
| ES1000-No.4 | 17.78 [0.700] | 4.45 [0.175] | 2.41 [0.095] | 1.04 [0.041] | 1.37 [0.054] |

*Wall thickness will be less if tubing recovery is restricted during shrinkage.

## Ordering Information

| | |
|---|---|
| Color | Standard Clear (-X) |
| Size selection | Always order the largest size that will shrink snugly over the component to be covered. |
| Standard packaging | Cut pieces. |
| Marking | Tubing will be printed with its numbered size (such as ES-1, ES-2, ES-3, or ES-4). |
| Ordering description | Specify product name, numbered size, color, and cut length (for example, ES1000-NO.2-X-50MM). |



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Japan: 81-44-900-5102
Singapore: 65-4866-151
UK: 44-1793-528171

## DWP-125

**Flexible, High-Shrink-Ratio, Adhesive-Lined, Polyolefin Tubing**

### Product Facts

- **3:1 shrink ratio allows for insulation and sealing of irregular shapes**
- **Medium wall provides increased mechanical protection while maintaining flexibility when installed**
- **Adhesive bonds to a wide variety of plastics, rubber, and metals, including polyethylene, neoprene, and steel**



### Applications

Environmentally seals and protects a wide variety of electrical applications, including wire splices, breakouts, and connector-to-cable transitions. Ideal for applications where UL recognized/CSA certified adhesive-lined tubing is required.

### Installation

Minimum shrink temperature: 80°C [176°F]

Minimum full recovery temperature: 125°C [257°F]

### Operating Temperature Range

-40°C to 110°C
[-40°F to 230°F]

### Specifications/Approvals

| Series | UL | CSA | Military | Raychem |
|---|---|---|---|---|
| DWP-125 | E35586<br>600 V, 125°C | LR31929<br>600 V, 125°C | AMS-DTL-23053/4*,<br>Class 3 (colors only) | DWP-125 SCD |

*Formerly MIL-I-23053/4 and MIL-DTL-23053/4. Meets the material properties except for Sealing Efficiency.

| Available in: | Americas | Europe | Asia Pacific |
|---|---|---|---|
| | ■ | ■ | ■ |



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UK: 44-1793-528171

## DWP-125 (Continued)

### Product Dimensions

| Size | Inside Diameter | | Recovered Wall Thickness* | |
|---|---|---|---|---|
| | Minimum Expanded as Supplied | Maximum Recovered After Heating | Nominal Total Wall After Heating | Nominal Adhesive Wall After Heating |
| 1/8 | 3.2 [0.125] | 1.0 [0.040] | 1.02 [0.040] | 0.25 [0.010] |
| 3/16 | 4.8 [0.187] | 1.5 [0.060] | 1.40 [0.055] | 0.51 [0.020] |
| 1/4 | 6.4 [0.250] | 2.0 [0.080] | 1.45 [0.057] | 0.56 [0.022] |
| 3/8 | 9.5 [0.375] | 3.0 [0.120] | 1.65 [0.065] | 0.68 [0.027] |
| 1/2 | 12.7 [0.500] | 4.0 [0.157] | 1.78 [0.070] | 0.76 [0.030] |
| 3/4 | 19.1 [0.750] | 6.0 [0.230] | 2.03 [0.080] | 0.76 [0.030] |
| 1 | 25.4 [1.000] | 8.0 [0.320] | 2.50 [0.100] | 0.76 [0.030] |

*Wall thickness will be less if tubing recovery is restricted during shrinkage.

### Ordering Information

| | | |
|---|---|---|
| Color | Standard | Black (-0) |
| | Nonstandard | White (-9), red (-2), blue (-6), yellow (-4), green (-5), clear (-X, non-flame-retardant jacket). Other colors available upon request. |
| Size selection | Always order the largest size that will shrink snugly over the component to be covered. Special order sizes are available upon request. | |
| Standard packaging | In 1.2-meter [4-foot] lengths. | |
| Ordering description | Specify product name, size and color (for example, DWP-125 1/4-0). | |



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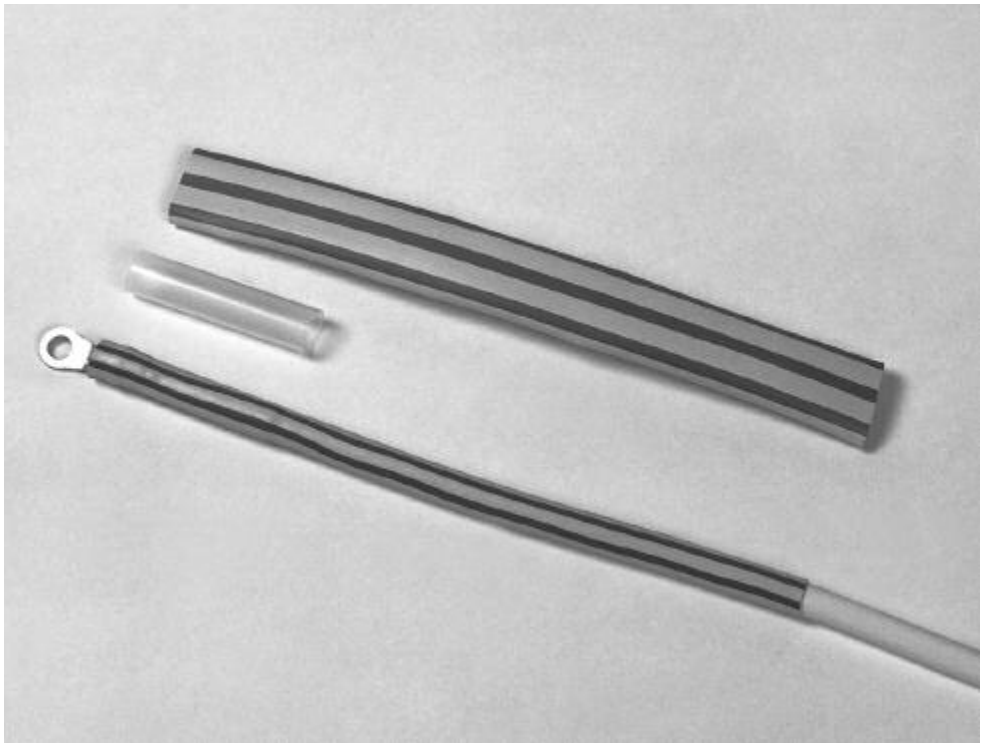
## DCPT

### Flexible, Flame-Retardant, Dual-Color, Polyolefin Tubing



### Product Facts

- 2:1 and 3:1 shrink ratio
- Dual colors (yellow/green) for instant identification
- Co-extrusion of tubing colors, giving color permanence superior to that of conventional ink marking
- Flame-retardance
- Flexibility: able to conform to irregular shapes
- Excellent physical, chemical, and electrical properties that meet industry standards for highly reliable, general purpose tubing

**Applications**

Used to identify “ground” on wires and in cables, and to jacket and insulate light-duty harnesses.

Easily marked by conventional techniques for additional identification of wires and cables.

**Installation**

Minimum shrink temperature: 95°C [203°F]

Minimum full recovery temperature: 120°C [248°F]

**Operating Temperature Range**

-55°C to 135°C
[-67°F to 275°F]

### Specifications/Approvals

| Series | UL | CSA | Military | Agency | Raychem |
|---|---|---|---|---|---|
| DCPT | E35586<br>600 V, 125°C | LR31929<br>600 V, 125°C | Def Stan 59-97 Issue 3 Type 2B<br>VG 95343 Pt 5 Type A | AFS 2270<br>DIN 29807<br>VDE 0341<br>Pt 9005 Type A | RW-2056 |

| Available in: | Americas | Europe | Asia Pacific |
|---|---|---|---|
| | ■ | ■ | ■ |





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## DCPT (Continued)

### Product Dimensions

| Size | Inside Diameter | | Recovered Wall Thickness* After Heating |
|---|---|---|---|
| | Minimum Expanded as Supplied | Maximum Recovered After Heating | |
| **2:1** | | | |
| 3/1.5 | 3 [0.118] | 1.5 [0.059] | 0.51 ± 0.10 [0.020 ± 0.004] |
| 6/3 | 6 [0.236] | 3.0 [0.118] | 0.58 ± 0.10 [0.023 ± 0.004] |
| 8/4 | 8 [0.315] | 4.0 [0.158] | 0.64 ± 0.10 [0.025 ± 0.004] |
| 10/5 | 10 [0.394] | 5.0 [0.197] | 0.64 ± 0.10 [0.025 ± 0.004] |
| 12/6 | 12 [0.472] | 6.0 [0.236] | 0.64 ± 0.10 [0.025 ± 0.004] |
| 19/9 | 19 [0.748] | 9.0 [0.354] | 0.76 ± 0.12 [0.030 ± 0.005] |
| 26/13 | 26 [1.024] | 13.0 [0.512] | 0.89 ± 0.12 [0.035 ± 0.005] |
| 38/19 | 38 [1.500] | 19.0 [0.748] | 1.00 ± 0.12 [0.039 ± 0.005] |
| 51/19 | 51 [2.000] | 19.0 [0.748] | 1.02 ± 0.15 [0.040 ± 0.006] |
| **3:1 (Europe only)** | | | |
| 3/1 | 3.0 [0.118] | 1.0 [0.039] | 0.55 ± 0.10 [0.022 ± 0.004] |
| 6/2 | 6.0 [0.236] | 2.0 [0.079] | 0.65 ± 0.10 [0.026 ± 0.004] |
| 9/3 | 9.0 [0.354] | 3.0 [0.118] | 0.75 ± 0.15 [0.030 ± 0.006] |
| 12/4 | 12.0 [0.472] | 4.0 [0.157] | 0.75 ± 0.15 [0.030 ± 0.006] |
| 18/6 | 18.0 [0.709] | 6.0 [0.236] | 0.85 ± 0.15 [0.033 ± 0.006] |
| 24/8 | 24.0 [0.945] | 8.0 [0.315] | 1.00 ± 0.20 [0.039 ± 0.008] |

*Wall thickness will be less if tubing recovery is restricted during shrinkage.

### Ordering Information

| | |
|---|---|
| Color | Standard Yellow/green stripe (-45) |
| Size selection | Always order the largest size that will shrink snugly over the component to be covered. Special order sizes are available upon request. |
| Standard packaging | On spools. |
| Ordering description** | Specify product name, size and color (for example, DCPT 8/4-45). |

**Europe only. For supply to Def Stan and BS add -DS or -BS to ordering description.



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## CGPE-105

### Brightly Colored, Shiny, Non-Flame-Retardant Polyolefin Tubing

### Product Facts

- Bright, shiny surface; clear version offers exceptional clarity
- Can be easily hot-stamped
- Economical, yet offers the improved performance of a crosslinked material
- Conforms to substrates more uniformly and with less longitudinal change than most PVC-based materials



**Applications**

Attractive covering for many automotive, appliance, and consumer-goods applications. Commercial grade tubing for applications where a flame-retardant product is not needed. Provides both insulation and protection of components and wires while also providing a smooth, glossy finish with a choice of five standard colors as well as clear. Exceptional transparency of clear CGPE-105 makes it an ideal choice for protecting marked surfaces.

**Installation**

Minimum shrink temperature: 85°C [185°F]

Minimum full recovery temperature: 110°C [230°F] for black; 100°C [212°F] for all other colors and clear

**Operating Temperature Range**

-70°C to 105°C
[-94°F to 221°F]

**Specifications/Approvals**

| Series | Raychem |
|---|---|
| CGPE-105 | CGPE-105 SCD |

| Available in: | Americas | Europe | Asia Pacific |
|---|---|---|---|
| | ■ | | ■ |



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UK: 44-1793-528171

## CGPE-105 (Continued)

### Product Dimensions

| Size | Inside Diameter | | Recovered Wall Thickness** After Heating |
|---|---|---|---|
| | Minimum Expanded as Supplied | Maximum Recovered After Heating | |
| 3/64 | 1.2 [0.046] | 0.6 [0.023] | 0.40 ± 0.08 [0.016 ± 0.003] |
| 1/16 | 1.6 [0.063] | 0.8 [0.031] | 0.43 ± 0.08 [0.017 ± 0.003] |
| 3/32 | 2.4 [0.093] | 1.2 [0.046] | 0.51 ± 0.08 [0.020 ± 0.003] |
| 1/8 | 3.2 [0.125] | 1.6 [0.062] | 0.51 ± 0.08 [0.020 ± 0.003] |
| 3/16 | 4.8 [0.187] | 2.4 [0.093] | 0.51 ± 0.08 [0.020 ± 0.003] |
| 1/4 | 6.4 [0.250] | 3.2 [0.125] | 0.64 ± 0.08 [0.025 ± 0.003] |
| 3/8 | 9.5 [0.375] | 4.8 [0.187] | 0.64 ± 0.08 [0.025 ± 0.003] |
| 1/2 | 12.7 [0.500] | 6.4 [0.250] | 0.64 ± 0.08 [0.025 ± 0.003] |
| 3/4 | 19.1 [0.750] | 9.5 [0.375] | 0.76 ± 0.08 [0.030 ± 0.003] |
| 1 | 25.4 [1.000] | 12.7 [0.500] | 0.89 ± 0.12 [0.035 ± 0.005] |
| 1 1/2 | 38.1 [1.500] | 19.1 [0.750] | 1.02 ± 0.15 [0.040 ± 0.006] |
| 2 | 50.8 [2.000] | 25.4 [1.000] | 1.14 ± 0.18 [0.045 ± 0.007] |

**Wall thickness will be less if tubing recovery is restricted during shrinkage.

### Ordering Information

| | | |
|---|---|---|
| Color | Standard | Black (-0), white (-9), clear (-X), red (-2), blue (-6), yellow (-4) |
| | Nonstandard | Green (-5), violet (-7) |
| Size selection | Always order the largest size that will shrink snugly over the component to be covered. Special order sizes are available upon request. | |
| Standard packaging | On spools. | |
| Ordering description | Specify product name, size and color (for example, CGPE-105-1/4-0). | |



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## CGPE-105 (Continued)

### Product Dimensions

| Size | Inside Diameter | | Recovered Wall Thickness** After Heating |
|---|---|---|---|
| | Minimum Expanded as Supplied | Maximum Recovered After Heating | |
| 3/64 | 1.2 [0.046] | 0.6 [0.023] | 0.40 ± 0.08 [0.016 ± 0.003] |
| 1/16 | 1.6 [0.063] | 0.8 [0.031] | 0.43 ± 0.08 [0.017 ± 0.003] |
| 3/32 | 2.4 [0.093] | 1.2 [0.046] | 0.51 ± 0.08 [0.020 ± 0.003] |
| 1/8 | 3.2 [0.125] | 1.6 [0.062] | 0.51 ± 0.08 [0.020 ± 0.003] |
| 3/16 | 4.8 [0.187] | 2.4 [0.093] | 0.51 ± 0.08 [0.020 ± 0.003] |
| 1/4 | 6.4 [0.250] | 3.2 [0.125] | 0.64 ± 0.08 [0.025 ± 0.003] |
| 3/8 | 9.5 [0.375] | 4.8 [0.187] | 0.64 ± 0.08 [0.025 ± 0.003] |
| 1/2 | 12.7 [0.500] | 6.4 [0.250] | 0.64 ± 0.08 [0.025 ± 0.003] |
| 3/4 | 19.1 [0.750] | 9.5 [0.375] | 0.76 ± 0.08 [0.030 ± 0.003] |
| 1 | 25.4 [1.000] | 12.7 [0.500] | 0.89 ± 0.12 [0.035 ± 0.005] |
| 1 1/2 | 38.1 [1.500] | 19.1 [0.750] | 1.02 ± 0.15 [0.040 ± 0.006] |
| 2 | 50.8 [2.000] | 25.4 [1.000] | 1.14 ± 0.18 [0.045 ± 0.007] |

**Wall thickness will be less if tubing recovery is restricted during shrinkage.

### Ordering Information

| | | |
|---|---|---|
| Color | Standard | Black (-0), white (-9), clear (-X), red (-2), blue (-6), yellow (-4) |
| | Nonstandard | Green (-5), violet (-7) |
| Size selection | Always order the largest size that will shrink snugly over the component to be covered. Special order sizes are available upon request. | |
| Standard packaging | On spools. | |
| Ordering description | Specify product name, size and color (for example, CGPE-105-1/4-0). | |



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