

## Semirigid, encapsulant-lined, heat-shrinkable tubing

SCL is encapsulant-lined, heat-shrinkable tubing that provides moisture resistance, strain relief, and electrical insulation for electrical splices, terminations, breakouts, and mechanical connections.

SCL is constructed as a dual-wall tubing. The outer wall is a semirigid, crosslinked polyolefin, while the inner wall is a meltable polyolefin that flows with the application of heat.

Heating SCL shrinks the outer jacket and melts the inner “encapsulant” wall to flow and fill surface irregularities. While still hot, the tubing can be pinched and blocked to form a wire breakout. SCL provides a splash-resistant, moisture-resistant covering suitable for many applications. SCL also performs satisfactorily if briefly exposed to common solvents or chemicals.

The installed tubing provides rugged protection against abrasion, vibration, and flexing. A wide range of applications can be accommodated with only a few sizes of SCL tubing.

SCL tubing is UL-recognized at 125°C, 600 V, and meets the requirements of AMS-DTL-23053/4, Class 1.

### Temperature rating

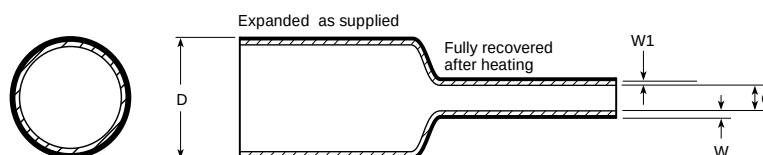
|                                   |                |
|-----------------------------------|----------------|
| Full recovery temperature:        | 135°C          |
| Continuous operating temperature: | –55°C to 110°C |

### Specifications\*

| Type | Raychem | Military                 | UL     |
|------|---------|--------------------------|--------|
| SCL  | RT-1301 | AMS-DTL-23053/4, Class 1 | E85381 |

\* When ordering, always specify latest issue.

### Dimensions (millimeters/inches)



| Size | Additional standard color | Inside diameter                     |                                        | Recovered wall thickness |               |                               |       |
|------|---------------------------|-------------------------------------|----------------------------------------|--------------------------|---------------|-------------------------------|-------|
|      |                           | D (min.)<br>Expanded as<br>supplied | d (max.)<br>Recovered after<br>heating | W<br>Total<br>wall**     |               | W1 (nom.)<br>Meltable<br>wall |       |
| 1/8  | Brown                     | 3.2 0.125                           | 0.6 0.023                              | 0.96 ± 0.15              | 0.038 ± 0.006 | 0.51                          | 0.020 |
| 3/16 | Gray                      | 4.7 0.187                           | 1.5 0.060                              | 1.09 ± 0.15              | 0.043 ± 0.006 | 0.64                          | 0.025 |
| 1/4  | White                     | 6.4 0.250                           | 2.0 0.080                              | 1.19 ± 0.15              | 0.047 ± 0.006 | 0.69                          | 0.027 |
| 3/8  | Red                       | 9.5 0.375                           | 3.4 0.135                              | 1.27 ± 0.18              | 0.050 ± 0.007 | 0.76                          | 0.030 |
| 1/2  | Blue                      | 12.7 0.500                          | 5.0 0.195                              | 1.39 ± 0.18              | 0.055 ± 0.007 | 0.89                          | 0.035 |
| 3/4  | Yellow                    | 19.1 0.750                          | 8.0 0.313                              | 1.65 ± 0.18              | 0.065 ± 0.007 | 1.01                          | 0.040 |
| 1    | N/A                       | 25.4 1.000                          | 10.2 0.400                             | 1.90 ± 0.18              | 0.075 ± 0.007 | 1.01                          | 0.040 |

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

### Ordering information

|                      |                                                                                         |
|----------------------|-----------------------------------------------------------------------------------------|
| Standard colors      | Black for all sizes, plus one additional color per size as per dimensions table         |
| Size selection       | Always order the largest size that will shrink snugly over the component being covered. |
| Standard packaging   | 4-foot lengths                                                                          |
| Ordering description | Specify product name, size, and color; for example, SCL1/4-0 (0=Black).                 |

**Specification values**

|                   | Property                                                                                                                                                                                 | Unit                 | Requirement                                        | Method of test            |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------------------------------------|---------------------------|
| <b>Physical</b>   | Dimensions                                                                                                                                                                               | mm ( <i>inches</i> ) | See reverse                                        | ASTM D 2671               |
|                   | Longitudinal change                                                                                                                                                                      | percent              | +1, -10 maximum                                    | ASTM D 2671               |
|                   | Flow of inner wall                                                                                                                                                                       |                      | No openings upon reheating                         | AMS-DTL-23053/4           |
|                   | Tensile strength                                                                                                                                                                         | psi ( <i>MPa</i> )   | 1500 ( <i>10.3</i> ) minimum                       | ASTM D 2671               |
|                   | Ultimate elongation                                                                                                                                                                      | percent              | 200 minimum                                        | ASTM D 2671               |
|                   | Low-temperature brittleness<br>(-55°C/-67°F)                                                                                                                                             |                      | No failure                                         | ASTM D 746<br>Procedure B |
|                   | Heat shock<br>(4 hours at 250°C/482°F)                                                                                                                                                   |                      | No dripping, flowing, or<br>cracking of outer wall | AMS-DTL-23053             |
|                   | Heat resistance<br>(168 hours at 175°C/347°F)                                                                                                                                            |                      | No dripping, flowing, or<br>cracking of outer wall | AMS-DTL-23053             |
| <b>Electrical</b> | Dielectric strength                                                                                                                                                                      | volts/mil            | 500 minimum                                        | ASTM D 149                |
|                   | Volume resistivity                                                                                                                                                                       | ohm-cm               | 10 <sup>15</sup> minimum                           | ASTM D 257                |
| <b>Chemical</b>   | Corrosive effect<br>(16 hours at 121°C/250°F)                                                                                                                                            |                      | Noncorrosive                                       | ASTM D 2671               |
|                   | Fungus resistance                                                                                                                                                                        |                      | Rating of 1 or less                                | ASTM G 21                 |
|                   | Water absorption<br>(24 hours at 23°C/73°F)                                                                                                                                              | percent              | 0.1 maximum                                        | ASTM D 570                |
|                   | Fluid resistance<br>(24 hours at 23°C/73°F) in:<br>JP-8 fuel (MIL-T-5624)<br>Skydrol 500<br>Hydraulic fluid (MIL-H-5606)<br>Aviation gasoline 100/130<br>Water<br>Followed by tests for: |                      |                                                    | ASTM D 2671               |
|                   | Dielectric strength                                                                                                                                                                      | volts/mil            | 400 minimum                                        | ASTM D 2671               |
|                   | Tensile strength                                                                                                                                                                         | psi                  | 1000 minimum                                       | ASTM D 2671               |
|                   |                                                                                                                                                                                          |                      |                                                    |                           |
|                   |                                                                                                                                                                                          |                      |                                                    |                           |

Note: Consult RT-1301 for specific details about test procedures.

Skydrol is a trademark of Monsanto Company.  
Raychem is a trademark of Tyco Electronics Corporation.

**Users should independently evaluate the suitability of the product for their application.****Tyco Electronics Corporation**

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