

Semirigid, Encapsulant-Lined, Polyolefin Tubing

Product Facts

- 3:1 shrink ratio
- Splash-resistant, moisture-resistant covering; not intended for use where immersion in fluids is required
- Rugged protection against abrasion, vibration, and flexing
- Excellent strain relief and insulation of weak points
- RoHS compliant

SCL



Applications

Encapsulates components, splices, and terminations where moisture resistance and mechanical protection are required. Encapsulant melts and flows to fill surface irregularities of the substrate. While still hot, the tubing can be blocked to form a wire breakout.

Installation

Minimum shrink temperature: 125°C [257°F]
 Minimum full recovery temperature: 135°C [275°F]

Operating Temperature Range

-55°C to 110°C
 [-67°F to 230°F]

Specifications/Approvals

Series	UL 	Military	Raychem
SCL	E85381 600 V, 125°C	AMS-DTL-23053/4*, Class 1	RT-1301

*Formerly MIL-I-23053/4 and MIL-DTL-23053/4.

Available in:	Americas	Europe	Asia Pacific
	■	■	■

SCL (Continued)

Product Dimensions

Size	Additional Standard Color	Inside Diameter		Recovered Wall Thickness**	
		Minimum Expanded as Supplied	Maximum Recovered After Heating	Total Wall After Heating	Melttable Wall After Heating (Nominal)
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	4.8 [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]	1.02 [0.040]
1	N/A	25.4 [1.000]	10.2 [0.400]	1.90 ± 0.18 [0.075 ± 0.007]	1.02 [0.040]

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

Ordering Information

Color	Standard	Black (-0) for all sizes, plus one additional color per size per Product Dimensions table.
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, SCL 1/4-0).	

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

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 melttable 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

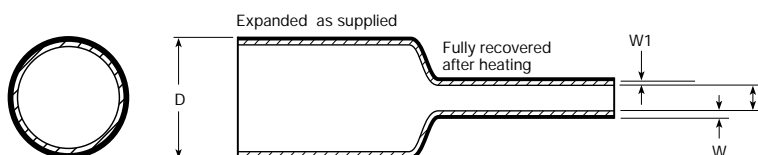
Full recovery temperature:	135°C
Continuous operating temperature:	-55°C to 110°C

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.) Expanded as supplied	d (max.) Recovered after heating	W Total wall**	Recovered wall thickness	W1 (nom.) Melttable wall	W1 (nom.) Melttable 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
Physical	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 (-55°C/-67°F)		No failure	ASTM D 746 Procedure B
	Heat shock (4 hours at 250°C/482°F)		No dripping, flowing, or cracking of outer wall	AMS-DTL-23053
Heat resistance (168 hours at 175°C/347°F)		No dripping, flowing, or cracking of outer wall	AMS-DTL-23053	
Electrical	Dielectric strength	volts/mil	500 minimum	ASTM D 149
	Volume resistivity	ohm-cm	10 ¹⁵ minimum	ASTM D 257
Chemical	Corrosive effect (16 hours at 121°C/250°F)		Noncorrosive	ASTM D 2671
	Fungus resistance		Rating of 1 or less	ASTM G 21
	Water absorption (24 hours at 23°C/73°F)	percent	0.1 maximum	ASTM D 570
	Fluid resistance (24 hours at 23°C/73°F) in: JP-8 fuel (MIL-T-5624) Skydrol 500 Hydraulic fluid (MIL-H-5606) Aviation gasoline 100/130 Water			ASTM D 2671
	Followed by tests for:			
	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

300 Constitution Drive
Menlo Park, CA 94025-1164
USA
Tel: (800) 926-2425 (US & Canada)
Tel: +1 (650) 361-3860 (All other countries)

Faraday Road
Dorcan, Swindon, SN3 5HH
United Kingdom
Tel: +44 1793 528171

3816 Noborito, Tama-ku
Kawasaki, Kanagawa 214-8533
Japan
Tel: +81 44 900 5102

Asia Pacific Headquarters
26 Ang Mo Kio, Industrial Park 2
Singapore 569507
Tel: +65 4866 151

All information, including illustrations, is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their application. Tyco Electronics Corporation makes no warranties as to the accuracy or completeness of the information, and disclaims any liability regarding its use. Tyco Electronics Corporation's only obligations are those in the Standard Terms and Conditions of Sale for these products and in no case will Tyco Electronics Corporation be liable for any incidental, indirect, or consequential damages arising from the sale, resale, use, or misuse of the product. Tyco Electronics Corporation's Specifications are subject to change without notice. In addition, Tyco Electronics Corporation reserves the right to make changes in materials or processing without notification to the Buyer which do not affect compliance with any applicable specification.

For more information about this product visit www.tycoelectronics.com