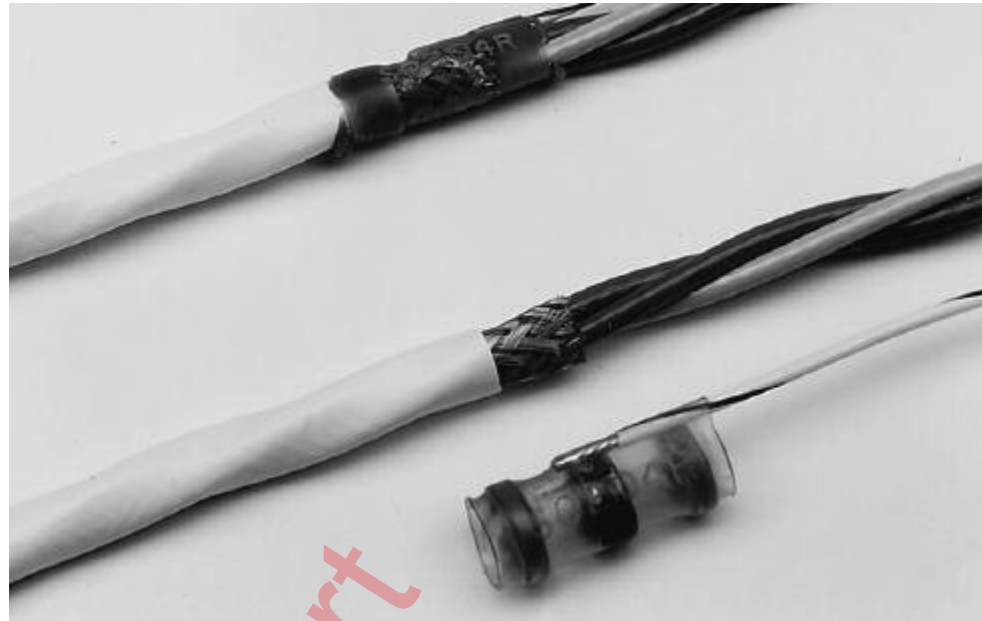


SolderSleeve Shield Terminators

Product Facts

- Transparent insulation sleeve provides encapsulation, inspectability, strain relief, and insulation
- Prefluxed solder preform provides a controlled soldering process
- One-piece design offers easy installation and lower installed cost
- Optional preinstalled ground leads provide convenience and ease of installation

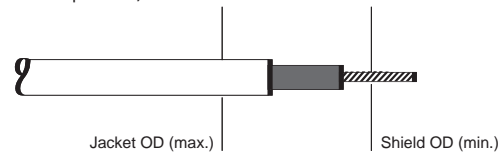


Applications

Used for shield-to-ground termination.

Product Selection Process

1. Select product series from the Product Options table below.
2. Determine cable dimensions.
3. Optional: Select preinstalled wire lead type (see Table G on page 8-47 for type descriptions).
4. Select part number (use the selection table indicated for your product series in the Product Options table below).
5. Refer to Table H on page 8-49 for cross-reference information.



Product Options (Refer to Table G on Page 8-47 for Additional Information)

Product Series	System Oper. Temperature (Max.)	Used on Cables Rated (Min.)	Environmental Protection	Solder Alloy	Flux Type	Insulation Material	Part No. Selection Table
CWT	125°C [257°F]	85°C [185°F]	Splash resistant	Cd18	RA	Polyolefin	A
SO63*	150°C [302°F]	125°C [257°F]	Immersion resistant	Sn63	RMA	Polyvinylidene fluoride	B
SO1/SO2**, S03	150°C [302°F]	125°C [257°F]	Immersion resistant	Sn63	RMA	Polyvinylidene fluoride	C, D
SO96***	175°C [347°F]	150°C [302°F]	Immersion resistant	Sn96	RA	Polyvinylidene fluoride	E
SO175****	175°C [347°F]	150°C [302°F]	Immersion resistant	Sn96	RA	Polyvinylidene fluoride	F

\*Meets performance requirements of SAE-AS83519 (formerly MIL-S-83519) and NAS 1747, supplied with BiAlloy temperature indicator.  
 \*\*Qualified to SAE-AS83519 (formerly MIL-S-83519), supplied with thermochromic temperature indicator.  
 \*\*\*Meets performance requirements of SAE-AS83519 (formerly MIL-S-83519) and NAS 1747, supplied with thermochromic temperature indicator.  
 \*\*\*\*Meets performance requirements of SAE-AS83519 (formerly MIL-S-83519), supplied with BiAlloy temperature indicator.  
 Note: Cadmium-free option (B-152 series) is available for operating temperature of 125°C [257°F]. Consult Tyco Electronics for details.

Available in:

- Americas ■
- Europe ■
- Asia Pacific ■

SolderSleeve Shield Terminators (Continued)

Table A. CWT Series  
(125°C [257°F] rated)

Cable OD		Part Nos.	
Jacket OD Max.	Shield OD Min.	No Preinstalled Lead	With Preinstalled Lead (22AWG/0.38 mm <sup>2</sup> green)
1.7 [.065]	0.9 [.035]	CWT-3801	—
1.95 [.075]	1.1 [.043]	CWT-3802	—
2.7 [.105]	1.5 [.059]	CWT-3	CWT-3-W122-5
4.5 [.180]	2.0 [.079]	CWT-5	CWT-5-W122-5
6.0 [.235]	3.3 [.130]	CWT-6	CWT-6-W122-5
7.0 [.275]	3.3 [.130]	CWT-7	CWT-7-W122-5
8.7 [.340]	4.5 [.177]	CWT-9	CWT-9-W122-5
10.7 [.420]	4.5 [.177]	CWT-11	CWT-11-W122-5
13.0 [.510]	7.0 [.276]	CWT-13	CWT-13-W122-5

\*See Table G on page 8-47 for lead description.

Note: The CWT series is suitable for applications using low-temperature wires (typically rated at 85°C [185°F] to 125°C [257°F]) with bare copper or tin plating.

Table B. SO63 Series

**BiAlloy Temperature Indication System**

This system greatly enhances the reliability and repeatability of SO63 series terminators while reducing installed cost. The heat-shrinkable thermoplastic sleeve contains a precisely engineered, fluxed solder band that is visible through the sleeve. The band provides exactly the amount of solder and flux required to terminate the ground lead to the cable shield. Encircling the band is a small temperature indicator ring. This ring melts only when the surfaces to be joined have reached the correct soldering temperature, thus ensuring a properly soldered connection. Process control is built into each sleeve.

Cable OD		No Preinstalled Lead	Part Nos.					
Jacket OD Max.	Shield OD Min.		Preinstalled Lead Option*				Braid Strap	
			20 AWG	22 AWG	24 AWG	26 AWG	Nickel Plated	Tin Plated
1.95 [0.075]	0.90 [.035]	SO63-1-00	SO63-1-55-20-90	SO63-1-55-22-90	SO63-1-55-24-90	SO63-1-55-26-90	SO63-1-01	SO63-1-9030
2.7 [0.105]	1.40 [.055]	SO63-2-00	SO63-2-55-20-90	SO63-2-55-22-90	SO63-2-55-24-90	SO63-2-55-26-90	SO63-2-01	SO63-2-9030
4.3 [0.170]	2.15 [.085]	SO63-3-00	SO63-3-55-20-90	SO63-3-55-22-90	SO63-3-55-24-90	SO63-3-55-26-90	SO63-3-01	SO63-3-9030
6.0 [0.235]	3.30 [.130]	SO63-4-00	SO63-4-55-20-90	SO63-4-55-22-90	SO63-4-55-24-90	SO63-4-55-26-90	SO63-4-01	SO63-4-9030
7.0 [0.275]	4.30 [.170]	SO63-5-00	SO63-5-55-20-90	SO63-5-55-22-90	SO63-5-55-24-90	SO63-5-55-26-90	SO63-5-01	SO63-5-9030

\*See Table G on page 8-47 for lead description. Color of wire lead is denoted by the last two digits of the part number as follows:

90 = White with a black stripe 9 = White 0 = Black 6 = Blue (24 AWG only) 5 = Green (20, 22, 24 AWG)

The SO63 series is immersion resistant, features the Raychem BiAlloy temperature indication system, and meets the performance requirements of SAE-AS83519 (formerly MIL-S-83519) .

**Table C. S01/S02 M83519 Series**

**SolderSleeve Shield Terminators (Continued)**

**Thermochromic Temperature Indicator**

The M83519 (S01 and S02) series terminators contain a colored thermochromic temperature indicator that exhibits a distinct color change when surfaces have reached wetting temperature. This color change gives both manufacturing and Quality Control an aid in the inspection of the completed termination.

Cable OD		Part No. (MIL Part Number and Raychem Part No.) by Lead Option					
Jacket OD Max	Shield OD Min	No Preinstalled Lead		Preinstalled Lead Option*			
		MIL	Raychem	20 AWG		22 AWG	
				MIL	Raychem	MIL	Raychem
1.95 [0.075]	0.9 [.035]	M83519/1-1	S01-01-R	M83519/2-1	S02-01-R	M83519/2-6	S02-06-R
2.7[0.105]	1.40 [.055]	M83519/1-2	S01-02-R	M83519/2-2	S02-02-R	M83519/2-7	S02-07-R
4.3 [0.170]	2.15 [.085]	M83519/1-3	S01-03-R	M83519/2-3	S02-03-R	M83519/2-8	S02-08-R
6.0 [0.235]	3.30 [.130]	M83519/1-4	S01-04-R	M83519/2-4	S02-04-R	M83519/2-9	S02-09-R
7.0 [0.275]	4.30 [.170]	M83519/1-5	S01-05-R	M83519/2-5	S02-05-R	M83519/2-10	S02-10-R
Jacket OD Max.	Shield OD Min.	Preinstalled Lead Option*					
				24 AWG		26 AWG	
1.95 [0.075]	0.9 [.035]			M83519/2-11	S02-11-R	M83519/2-16	S02-16-R
2.7 [0.105]	1.40 [.055]			M83519/2-12	S02-12-R	M83519/2-17	S02-17-R
4.3[0.170]	2.15 [.085]			M83519/2-13	S02-13-R	M83519/2-18	S02-18-R
6.0 [0.235]	3.30 [.130]			M83519/2-14	S02-14-R	M83519/2-19	S02-19-R
7.0 [0.275]	4.30 [.170]			M83519/2-15	S02-15-R	M83519/2-20	S02-20-R

\*See Table G for lead description.

M83519 is the qualified product listed in SAE-AS83519 (formerly MIL-S-83519) . The series features a thermochromic temperature indicator to assist in termination and inspection. The Raychem part number is permanently marked on the sleeve.

**Table D. S03 Series**

**Thermochromic Temperature Indicator**

The S03 series terminators contain a colored thermochromic temperature indicator that exhibits a distinct color change when surfaces have reached wetting temperature. This color change gives both Manufacturing and Quality Control an aid in the inspection of the completed termination.

Cable OD		Part No.	
Jacket OD Max.	Shield OD Min.	Preinstalled Lead Option*	
		Tin plated Braid Strap	Nickel plated Braid Strap
1.95 [0.075]	0.9 [.035]	S03-01-R	S03-06-R
2.7 [0.105]	1.40 [.055]	S03-02-R	S03-07-R
4.3 [0.170]	2.15 [.085]	S03-03-R	S03-08-R
6.0 [0.235]	3.30 [.130]	S03-04-R	S03-09-R
7.0 [0.275]	4.30 [.170]	S03-05-R	S03-10-R

\*See Table G for lead description.

**Table E. SO96 Series  
(175°C [347°F] rated)**

**Thermochromic  
Temperature Indicator**

The SO96 series terminators contain a colored thermochromic temperature indicator that exhibits a distinct color change when surfaces have reached wetting temperature. This color change gives both manufacturing and Quality Control an aid in the inspection of the completed termination.

Cable OD		Part No.		
Jacket OD Max.	Shield OD Min.	No Preinstalled Lead	Preinstalled Lead Option*	
			22 AWG	Braid Strap
1.95 [0.075]	0.9 [0.035]	SO96-1-00	SO96-1-55-22-90	SO96-1-01
2.7 [0.105]	1.40 [0.055]	SO96-2-00	SO96-2-55-22-90	SO96-2-01
4.3 [0.170]	2.15 [0.085]	SO96-3-00	SO96-3-55-22-90	SO96-3-01
6.0 [0.235]	3.30 [0.130]	SO96-4-00	SO96-4-55-22-90	SO96-4-01
7.0 [0.275]	4.30 [0.170]	SO96-5-00	SO96-5-55-22-90	SO96-5-01

\*See Table G for lead description.  
The SO96 series is designed for high-temperature applications with operating temperature requirements up to 200°C [392°F]. This series features a thermochromic temperature indicator and meets performance requirements of SAE-AS83519 (formerly MIL-S-83519). The solder is Sn96 with RA flux compatible with nickel-plated shields.

**Table F. SO175 Series  
(175°C [347°F] rated)**

**BiAlloy Temperature Indication System**

This system greatly enhances the reliability and repeatability of SO175 series terminators while reducing installed cost. The temperature indicator ring, encircling the solder preform, melts to indicate the very minimum amount of heat.

Cable OD		Part No.		
Jacket OD Max.	Shield OD Min.	No Preinstalled Lead	Preinstalled Lead Option*	
			22 AWG	Braid Strap
1.95 [0.075]	0.90 [0.035]	SO175-1-00	SO175-1-1-55-22-90	SO175-1-01
2.7 [0.105]	1.40 [0.055]	SO175-2-00	SO175-2-1-55-22-90	SO175-2-01
4.3 [0.170]	2.15 [0.085]	SO175-3-00	SO175-3-1-55-22-90	SO175-3-01
6.0 [0.235]	3.30 [0.130]	SO175-4-00	SO175-4-1-55-22-90	SO175-4-01
7.0 [0.275]	4.30 [0.170]	SO175-5-00	SO175-5-1-55-22-90	SO175-5-01

\*See Table G for lead description.

**Table G. Preinstalled Lead Description**

Series	Lead Type	Remarks	Plating	Stranding	Min. Length
M83519, SO63	55A0111	MIL-W-22759/32	Tin	Stranded	150 [6.00]
SO96, SO175	55A0813	MIL-W-22759/41	Nickel	Stranded	150 [6.00]
SO63, SO96, S03	Braid strap	Uninsulated	Nickel	40 x 38 AWG	150 [6.00]
CWT	XL polyethylene	UL Listed	Tin	Stranded (W1)	150 [6.00]
SO63, S03	Braid Strap	Uninsulated	Tin	Stranded	150 [6.00]

Product Characteristics

Shield Termination

SolderSleeve Shield Terminators (Continued)

<b>Material</b>		
<b>Insulation</b>		
SO, M83519	Radiation-crosslinked, heat-shrinkable polyvinylidene fluoride	
CWT	Radiation-crosslinked, heat-shrinkable polyolefin	
<b>Solder and flux</b>		
SO63, M83519, S03	Solder: Sn63 Pb37	Flux: ROL1 per ANSI - J - 004 (RMA Flux)
SO96, SO175 series	Solder: Sn96 Ag4	Flux: ROM1 per ANSI - J - 004 (RA Flux)
CWT	Solder: Sn50 Pb32 Cd18	Flux: ROM1 per ANSI - J - 004 (RA Flux)
<b>Ground lead</b>		
CWT series	XL polyethylene	
SO, M83519, SO175	MIL-W-22759/32 or /41	
<b>Typical Performance</b>		
Voltage drop	2.5 mV	
Tensile strength	Exceeds strength of ground lead	
Dielectric strength	1.0 kV immersed	
<b>Temperature rating</b>		
CWT	-55°C to 125°C [-67°F to 257°F]	
SO63/M83519/S03	-55°C to 150°C [-67°F to 302°F]	
SO96/SO175 series	-55°C to 175°C [-67°F to 347°F]	
Insulation resistance	1000 megohms	

Specifications/Approvals

Series	Agency	Raychem
CWT	—	D-5023
SO63*	NAS 1747	RT-1404
M83519**	MIL-S-83519/1&2	RT-1404
SO96***	NAS 1747	RT-1404
SO175		RT-1404

\* Meets performance requirements of SAE-AS83519 (formerly MIL-S-83519) and NAS 1747, supplied with BiAlloy temperature indicator.

\*\* Qualified to SAE-AS83519 (formerly MIL-S-83519), supplied with thermochromic temperature indicator.

\*\*\*Meets performance requirements of SAE-AS83519 (formerly MIL-S-83519) and NAS 1747, supplied with thermochromic temperature indicator.

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
- AA-400 Super Heater
- CV-1981
- MiniRay
- IR-1759

For detailed instructions and recommended reflector attachments, refer to the appropriate Raychem installation procedure:

Series	Procedure
CWT	RPIP 655-00-D
SO63	RCPS 100-70
M83519 (S01/S02)	RCPS 100-70
SO96	RCPS 100-70
S03	RCPS 100-70
SO175	RCPS-100-70

You will find ordering information for these tools in section 10.

Table H. NAS, M83519, and Raychem Cross-Reference

SolderSleeve Shield Terminators (Continued)

NAS Part No.	Raychem D Series Part No.	NAS Comment
1744-1	D-1744-01	
1744-2	D-1744-02	
1744-3	D-1744-03	
1744-4	D-1744-04	
1744-5	D-1744-05	
1744-6	D-1744-06	
1744-7	D-1744-07	
1744-8	D-1744-08	
1745-1	D-144-25	Inactive, Use SAE-AS83519/1-1 (formerly MIL-S-83519)
1745-2	D-100-00	Inactive, Use SAE-AS83519/1-2 (formerly MIL-S-83519)
1745-3	D-101-00	Inactive, Use SAE-AS83519/1-3 (formerly MIL-S-83519)
1745-4	D-103-00	Inactive, Use SAE-AS83519/1-5 (formerly MIL-S-83519)
1745-5	D-144-26	
1745-6	D-100-31	
1745-7	D-101-31	
1745-8	D-103-31	
1745-9		Obsolete - Use NAS1745-13
1745-10		Obsolete - Use NAS1745-14
1745-11		Obsolete - Use NAS1745-15
1745-12		Obsolete - Use NAS1745-16
1745-13	D-142-83	Inactive, Use SAE-AS83519/1-1 (formerly MIL-S-83519)
1745-14	D-142-50	Inactive, Use SAE-AS83519/1-2 (formerly MIL-S-83519)
1745-15	D-142-51	Inactive, Use SAE-AS83519/1-3 (formerly MIL-S-83519)
1745-16	D-142-52	Inactive, Use SAE-AS83519/1-5 (formerly MIL-S-83519)
1745-17	D-107-00	Inactive, Use SAE-AS83519/1-4 (formerly MIL-S-83519)
1745-18	D-104-00	
1745-19	D-105-00	
1745-20	D-107-31	
1745-21	D-104-31	
1745-22	D-105-31	
1745-23	D-142-56	Inactive, Use SAE-AS83519/1-4 (formerly MIL-S-83519)
1745-24	D-142-65	
1745-25	D-142-66	
1746-1	D-144-25	Inactive, Use SAE-AS83519/1-1 (formerly MIL-S-83519)
1746-2	D-144-00	Inactive, Use SAE-AS83519/1-2 (formerly MIL-S-83519)
1746-3	D-144-01	Inactive, Use SAE-AS83519/1-3 (formerly MIL-S-83519)
1746-4	D-144-02	Inactive, Use SAE-AS83519/1-5 (formerly MIL-S-83519)
1746-5	D-144-26	
1746-6	D-144-03	
1746-7	D-144-04	
1746-8	D-144-05	
1746-9	D-144-46	Inactive, Use SAE-AS83519/1-4 (formerly MIL-S-83519)
1746-10	D-144-37	
Military Part No.	Raychem S01/S02 Series* Part No.	Raychem SO63 Series** Part No.
M83519/1-1	S01-01-R	SO63-1-00
M83519/1-2	S01-02-R	SO63-2-00
M83519/1-3	S01-03-R	SO63-3-00
M83519/1-4	S01-04-R	SO63-4-00
M83519/1-5	S01-05-R	SO63-5-00
M83519/2-1	S02-01-R	SO63-1-55-20-90
M83519/2-2	S02-02-R	SO63-2-55-20-90
M83519/2-3	S02-03-R	SO63-3-55-20-90
M83519/2-4	S02-04-R	SO63-4-55-20-90
M83519/2-5	S02-05-R	SO63-5-55-20-90
M83519/2-6	S02-06-R	SO63-1-55-22-90
M83519/2-7	S02-07-R	SO63-2-55-22-90
M83519/2-8	S02-08-R	SO63-3-55-22-90
M83519/2-9	S02-09-R	SO63-4-55-22-90
M83519/2-10	S02-10-R	SO63-5-55-22-90
M83519/2-11	S02-11-R	SO63-1-55-24-90
M83519/2-12	S02-12-R	SO63-2-55-24-90
M83519/2-13	S02-13-R	SO63-3-55-24-90
M83519/2-14	S02-14-R	SO63-4-55-24-90
M83519/2-15	S02-15-R	SO63-5-55-24-90
M83519/2-16	S02-16-R	SO63-1-55-26-90
M83519/2-17	S02-17-R	SO63-2-55-26-90
M83519/2-18	S02-18-R	SO63-3-55-26-90
M83519/2-19	S02-19-R	SO63-4-55-26-90
M83519/2-20	S02-20-R	SO63-5-55-26-90

\* QPL listed to SAE-AS83519 (formerly MIL-S-83519)

\*\* Meets performance requirements of SAE-AS83519 (formerly MIL-S-83519)