

Shield Termination

SolderSleeve shield terminators



Applications

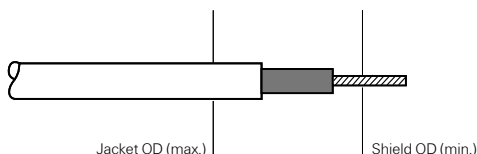
Used for shield-to-ground termination.

Features and benefits

- 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.

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 E on page 8-51 for type descriptions).
4. Select part number (use the selection table indicated for your product series in the Product Options table above).
5. Refer to Table F on page 8-53 for supersession and cross-reference information.



Available in:	Americas	Europe	Asia Pacific
	■	■	■

Product options (refer to Table E on page 8-51 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	85°C	Splash resistant	Cd18	RA	Polyolefin	A
SO63*	150°C	125°C	Immersion resistant	Sn63	RMA	Polyvinylidene fluoride	B
SO1/SO2**	150°C	125°C	Immersion resistant	Sn63	RMA	Polyvinylidene fluoride	C
SO96***	175°C	150°C	Immersion resistant	Sn96	RA	Polyvinylidene fluoride	D

*Meets performance requirements of MIL-S-83519 and NAS 1747, supplied with BiAlloy temperature indicator.

**Qualified to MIL-S-83519, supplied with thermochromic temperature indicator.

***Meets performance requirements of MIL-S-83519 and NAS 1747, supplied with thermochromic temperature indicator.

Fax-on-demand	Fax ID	Description
US only (800) 260-9099	5600	Data sheet
Outside US (650) 257-2301	5000	Data sheet (CWT)

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Table A. CWT Series (125°C rated) (mm/in)

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

Cable OD		Part number	
Jacket OD max.	Shield OD min.	No preinstalled lead	With preinstalled lead (22AWG/0.38 mm ² green)
1.7 (.065)	0.9 (.035)	CWT-3801	-
1.95 (.075)	1.15 (.045)	CWT-3802	-
2.7 (.105)	1.8 (.070)	CWT-3	CWT-3-W122-5
4.5 (.180)	2.3 (.090)	CWT-5	CWT-5-W122-5
6.0 (.235)	3.3 (.130)	CWT-6	CWT-6-W122-5
7.0 (.275)	3.7 (.145)	CWT-7	CWT-7-W122-5
8.7 (.340)	4.2 (.165)	CWT-9	CWT-9-W122-5
10.7 (.420)	7.1 (.280)	CWT-11	CWT-11-W122-5
13.0 (.510)	8.9 (.350)	CWT-13	CWT-13-W122-5

*See Table E on page 8-5 1 for lead description.

Table B. SO63 Series (mm/in)

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

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		Part number					
Jacket OD max.	Shield OD min.	No preinstalled lead	Preinstalled lead option*				
			20 AWG	22 AWG	24 AWG	26 AWG	Braid strap
1.95 (.075)	0.9 (.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
2.7 (.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
4.3 (.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
6.0 (.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
7.0 (.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

*See Table E on page 8-5 1 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)

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Shield Termination

SolderSleeve shield terminators (cont'd.)

Table C. S01/S02 M83519 Series (mm/in)

M83519 is the qualified product listed in 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.

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 number (MIL part number and Raychem part number) 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 E for lead description.

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Description

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Data sheet (CWT)

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Table D. SO96 Series (175°C rated) (mm/in)

The SO96 series is designed for high-temperature applications with operating temperature requirements up to 200°C. This series features a thermochromic temperature indicator and meets performance requirements of MIL-S-835 19. The solder is Sn96 with RA flux compatible with nickel-plated shields.

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.

		Part number		
Cable OD		Preinstalled lead option*		
Jacket OD	Shield OD			
max.	min.	No preinstalled lead	22 AWG	Braid strap
1.95 (0.075)	0.9 (.035)	SO96-1-00	SO96-1-55-22-90	SO96-1-01
2.7 (0.105)	1.40 (.055)	SO96-2-00	SO96-2-55-22-90	SO96-2-01
4.3 (0.170)	2.15 (.085)	SO96-3-00	SO96-3-55-22-90	SO96-3-01
6.0 (0.235)	3.30 (.130)	SO96-4-00	SO96-4-55-22-90	SO96-4-01
7.0 (0.275)	4.30 (.170)	SO96-5-00	SO96-5-55-22-90	SO96-5-01

*See Table E for lead description.

Table E. Preinstalled lead description

Series	Lead type	Remarks	Plating	Stranding	Min. length (mm/in)
M835 19, SO63	55A0111	MIL-W-22759/32	Tin	Stranded	150 (6)
SO96	55A0813	MIL-W-22759/41	Nickel	Stranded	150 (6)
SO63, SO96	Braid strap	Uninsulated	Nickel	40 x 38 AWG	150 (6)
CWT	XL polyethylene	UL Listed	Tin	Stranded (W1)	150 (6)

Users should independently evaluate the suitability of the product for their application.
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SolderSleeve shield terminators (cont'd.)

Product characteristics

Material

Insulation		
SO, M83519	Radiation-crosslinked, heat-shrinkable polyvinylidene fluoride	
CWT	Radiation-crosslinked, heat-shrinkable polyolefin	
Solder and flux		
SO63, M83519	Solder: Sn63 Pb37	Flux: ROL1 per ANSI - J - 004 (RMA Flux)
SO96 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)
Ground lead		
CWT series	XL polyethylene	
SO, M83519	MIL-W-22759/32 or /41	

Typical performance

Voltage drop	2.5 mV
Tensile strength	Exceeds strength of ground lead
Dielectric strength	1.0 kV immersed
Temperature rating	
CWT	-55°C to 125°C
SO63/M83519	-55°C to 150°C
SO96 series	-55°C to 175°C
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

*Meets performance requirements of MIL-S-83519 and NAS 1747, supplied with BiAlloy temperature indicator.

**Qualified to MIL-S-83519, supplied with thermochromic temperature indicator.

***Meets performance requirements of 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 (SO1/SO2)	RCPS 100-70
SO96	RCPS 100-70

You will find ordering information for these tools in the Application Equipment section (Section 10) of this catalog.

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Description

Data sheet

Data sheet (CWT)

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Inactive NAS part number	Military part number	Raychem S01/S02* series	Raychem S063** series	D-1XX series	NAS series
1745-1	M83519/1-1	S01-01-R	S063-1-00	D-144-25	
1745-2	M83519/1-2	S01-02-R	S063-2-00	D-100-00	
1745-3	M83519/1-3	S01-03-R	S063-3-00	D-101-00	
1745-17	M83519/1-4	S01-04-R	S063-4-00	D-107-00	
1745-4	M83519/1-5	S01-05-R	S063-5-00	D-103-00	
1745-9					NAS1745-13
1745-10					NAS1745-14
1745-11					NAS1745-15
1745-12					NAS1745-16
1745-13***	M83519/1-1			D-142-83***	
1745-14***	M83519/1-2			D-142-50***	
1745-15***	M83519/1-3			D-142-51***	
1745-23***	M83519/1-4			D-142-56***	
1745-16***	M83519/1-5			D-142-52***	
1746-1	M83519/1-1	S01-01-R	S063-1-00	D-144-25	
1746-2	M83519/1-2	S01-02-R	S063-2-00	D-144-00	
1746-3	M83519/1-3	S01-03-R	S063-3-00	D-144-01	
1746-9	M83519/1-4	S01-04-R	S063-4-00	D-144-46	
1746-4	M83519/1-5	S01-05-R	S063-5-00	D-144-02	
	M83519/2-1	S02-01-R	S063-1-55-20-90		
	M83519/2-2	S02-02-R	S063-2-55-20-90		
	M83519/2-3	S02-03-R	S063-3-55-20-90		
	M83519/2-4	S02-04-R	S063-4-55-20-90		
	M83519/2-5	S02-05-R	S063-5-55-20-90		
	M83519/2-6	S02-06-R	S063-1-55-22-90		
	M83519/2-7	S02-07-R	S063-2-55-22-90		
	M83519/2-8	S02-08-R	S063-3-55-22-90		
	M83519/2-9	S02-09-R	S063-4-55-22-90		
	M83519/2-10	S02-10-R	S063-5-55-22-90		
	M83519/2-11	S02-11-R	S063-1-55-24-90		
	M83519/2-12	S02-12-R	S063-2-55-24-90		
	M83519/2-13	S02-13-R	S063-3-55-24-90		
	M83519/2-14	S02-14-R	S063-4-55-24-90		
	M83519/2-15	S02-15-R	S063-5-55-24-90		
	M83519/2-16	S02-16-R	S063-1-55-26-90		
	M83519/2-17	S02-17-R	S063-2-55-26-90		
	M83519/2-18	S02-18-R	S063-3-55-26-90		
	M83519/2-19	S02-19-R	S063-4-55-26-90		
	M83519/2-20	S02-20-R	S063-5-55-26-90		

*QPL listed to MIL-S-83519. **Meets performance requirements of MIL-S-83519.

***The CWT series is the recommended replacement.

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