SPEC 44

Product Facts

- Dual wall construction
- 600, 1000 and 2500 voltage rating
- Small size, light weight
- Low smoke and low corrosive gas generation
- Resistant to most chemicals and electrical arc tracking

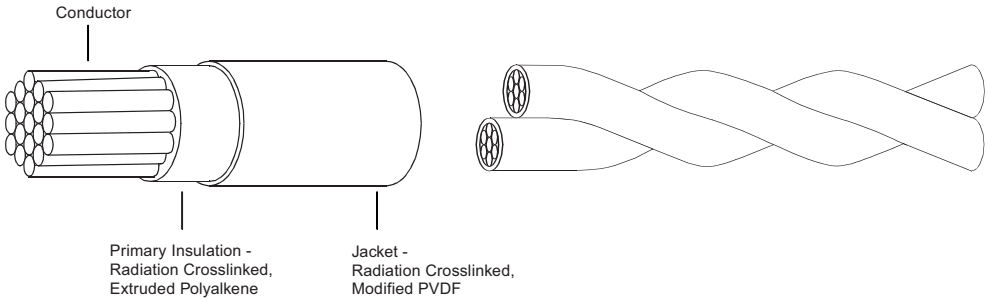
Applications

SPEC 44 wire has a dual wall construction which combines the outstanding physical and electrical characteristics of radiation crosslinked polyalkene with the excellent mechanical and chemical properties of radiation cross-linked polyvinylidene fluoride (PVDF).

The result is a wire insulation system that offers a 150°C [302°F] temperature rating, small size, light weight, solder iron resistance, and resistance to most solvents, fuels and lubricants.

SPEC 44 wire and cable is highly flame retardant, non-melting, does not cold flow, and though mechanically very tough, is easy to handle and install using conventional tools.

Originally developed for aerospace and military requirements in applications of high density and complex circuitry, SPEC 44 wire and cable now finds wide use throughout industry, in commercial and military electronics, avionics, on satellites, aircraft, helicopters, ships, trains, and offshore platforms where environmental conditions demand consistently reliable performance. In airframe applications SPEC 44 constructions can offer a modern dimensional replacement for PVC/Nylon/Glass braid type wire and cables. SPEC 44 wire is offered in a wide range of sizes in stranded conductors, standard materials available being tin or silver-plated copper and high strength copper alloy. Voltage ratings of 600, 1000 and 2500 volts are available as standard. Shielded and jacketed versions include single and multi-conductor constructions and flat braid shields where further size and weight savings are achieved.



Catalog 1308940
Revised 8-06

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

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USA: 1-800-522-6752
Canada: 1-905-470-4425
Mexico: 52-55-1106-0800
C. America: 57-1-254-4444

South America: 55-11-2103-6000
Hong Kong: 852-2735-1628
Japan: 81-44-844-8013
UK: 44-208-420-8341

SPEC 44 (Continued)

Physical Characteristics

Small Size

SPEC 44 equipment wire, 600 volt rated has a 0.19 [.008] nominal wall thickness compared to 0.25 [.010] and 0.38 [.015] for equivalent PTFE and PVC wires in MIL-W-16878, MIL-W-22759 or BS G210.

Light Weight

Because of the thin wall and low density of the insulation materials considerable weight savings are made over similarly rated PTFE wires, eg:- 44A0111-22AWG equipment wire 4.62 grams/meter max
22 AWG PTFE equipment wire, MIL-W-81044
5.54 grams/meter max

General Handling

The flexibility of SPEC 44 and the ease with which it takes a 'set' makes it one of the easiest of the 'high performance' wires to install. Stripping is done with conventional die blade strippers.

For details of appropriate tools see separate wire handling guide. The tin-plated conductor usually specified is easily soldered or crimped. The insulation may be hot stamp marked or printed and does not need etching before potting.

Lengths

SPEC 44 is available in long continuous lengths and can be supplied for use on automatic cut and strip wire preparation machines.

Specifications/Approvals

MIL-W-81044, NEMA-WC-27500 (Cables)
Def Stan. 61-12 Part 18 Issue 4 - Type 1 pliable (Maintenance Range)
Def Stan. 61-12 Part 26 Issue 3 Type 2, 3, 8 & 9 & METS
VG 95218 Parts 20, 21, 22, 23 and 1000
NATO Stock Numbers (NSN's) exist for most standard constructions
Civil Aviation Authority Accessory Approval E11623
Lloyds Register of Shipping
NASA Preferred Product List
Raychem Specification 44

Typical Properties

Temperature rating	-65°C to +150°C [-85°F to +302°F]
Voltage rating (thin wall)	600 V
Voltage rating (thick wall)	2500 V
Tensile strength and elongation of insulation	28 N/mm^2 , 230%, 4000 PSI
Notch propagation, 0.05mm notch	Pass
Solder iron resistance (370°C, 1 minute)	Pass
Shrinkage, 200°C	<1%
Low temperature bend	-65°C [-85°F]
Voltage withstand (thin wall)	2500 V
Resistance: fuels, oils, solvents	Pass

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SPEC 44 (Continued)

Environmental Performance

Temperature Rating

SPEC 44 wire and cable is rated for continuous operation from -65°C to +150°C [-85°F to +302°F] and for short periods at temperatures as high as 300°C [572°F]. Heat ageing tests are routinely performed at temperatures of 200°C [392°F] (168 h) and 300°C [572°F] (6 h). In addition SPEC 44 insulation will not shrink back under repeated cycling.

Mechanical Performance

SPEC 44 wire provides better cut through resistance than some wires with much thicker walls. 600 volt equipment wire 44A0111 (0.19 mm wall) has 40% greater cut through resistance than 600 volt PTFE insulated wire (0.25 mm wall).

Solder Iron/Overload Resistance

The radiation crosslinking of the materials used in SPEC 44 makes them non-melting at high temperature. As a result SPEC 44 wire is resistant to prolonged contact with solder irons and is resistant to current overloads which would melt most thermoplastic insulations.

Chemical Resistance

The irradiated dual wall construction of SPEC 44 wire is highly resistant to many acids, alkalis, hydrocarbon solvents, fuels, lubricants, water, and many missile fuels and oxidizers.

Cold Flow

Radiation cross-linking of SPEC 44 prevents cold flow of the insulation — a recognized problem of some uncrosslinked materials.

Voltage Ratings

Standard available voltage ratings for SPEC 44 wire are 600 volts (0.19 mm wall thickness), 1000 volts (0.28 mm wall) and 2500 volts (0.48 mm wall).

Electrical Arc Track Resistance

SPEC 44 insulation demonstrates a total resistance to arc tracking under both wet and dry conditions at aircraft system voltages.

Low Outgassing

For use in space applications, special constructions of SPEC 44 wire are available with low outgassing characteristics, for use in an environment of high vacuum and high temperature.

Fire Hazard Performance

Flammability	Federal Aviation Reg FAR-25	Pass
	BS4066 vertical flammability	Pass
	S424 14751 (Swedish chimney)	Pass
	NFC 32070 (2) (French chimney)	Pass
	IEC 332 part 3 (Cable ladder)	Pass
Smoke/Toxicity Index	Smoke Index, Def Stan 61-12 (18)	6 per meter of wire
	Toxicity Index, Def Stan 61-12 (18)	0.8 per meter of wire
	Oxygen Index, NES 714	30% Oxygen
	Temperature Index, NES 715	>300°C [572°F]

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Part Numbering System

44 X X X X X- AWG- X/X- X

Basic Product Number

Temperature Rating:
/ - 135˚C (XL-PVF2 cable jacket)
A - 150˚C (XL-PVF2 cable jacket)
AC - 150˚C (same as 44AM with 90% min. shield coverage)
AM - 150˚C (M27500, shielded and/or XL-PVF2 jacketed cable)
B - 150˚C (XL-ETFE cable jacket)

Construction
0 - Primary wire; or unshielded & unjacketed cable
1 - Round braid shielded and jacketed cable**
2 - Tin-coated copper flat braid shielded & jacketed cable
3 - Round braid shielded cable, no jacket**
4 - Jacketed cable, no shield
5 - Spiral braid shielded & jacketed cable**
7-9 - Special constructions

Class of Wire
1 - 600 V, general purpose
2 - 1000 V, general purpose
3 - 2500 V, general purpose
4 - 600 V, outerspace*
5 - 1000 V, outerspace*
6 - 2500 V, outerspace*
7 - 600 V, airframe
8 - 600 V, medium weight

Number of Conductors
1 through 10 (designator for 10 conductor = 0)

Conductor Type
1 - Tin-coated copper
2 - Silver-coated copper
3 - Nickel-coated copper
4 - Silver-coated high strength copper alloy
5 - Aluminum
6 - Nickel-coated high strength copper alloy
A - Silver-coated CS95
C - Silver-coated high strength copper alloy (cadmium-free)
D - Nickel-coated high strength copper alloy (cadmium-free)

Conductor Size (AWG)

Primary Wire Insulation Color
(code per MIL-STD-681)
0 - Black
1 - Brown
2 - Red
3 - Orange
4 - Yellow
5 - Green
6 - Blue
7 - Violet
8 - Gray
9 - White

Jacket Color
(codes same as for Primary Wire Insulation Color)

* Classes 4, 5 and 6 available only as "44/" constructions. 44/7xxx and 44A7xxx will be available as indicated on the applicable SCD.
**Shield coating same as conductor coating except: - for Conductor Type 4, 6, C and D, shield shall be tin-coated copper

Typical ordering example	3 conductors, brown, yellow with green stripe, blue, white jacket. If 600 volt, round braid, 20 AWG tinned conductor, 44A1131-20-1/45/6-9.
Ordering information	Other constructions and custom designed wire and cable are available on request.

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NEMA WC-27500 Cable Part Numbering System

M27500 X AWG XX X X XX

Basic Specification Number

Component Wire ID/Shield Coverage Code

Shield Coverage 85%	Shield Coverage 90%	Component Wire Identification
-	C	Colored Stripes on White Wire (9/96/93/95/92/90/94/97/98/91... etc.)
A	D	Solid Color Wires (9/6/3/5/2/0/4/7/8/1...etc.)
B	E	Band Marks on Solid Colors (by AWG)
F	H	Alternate Colored Stripes (92/96/94/95/9/90/91/93/97/98...etc)
G	J	Alternate Solid Colors (2/6/4/5/9/0/1/3/7/8...etc.)
K	M	Number Marking on Solid Colors (by AWG)
L	N	Number Marking on White Wires
P	R	Band Marks on Colored Stripes (by AWG)
S	T	Band Marks on White Wires

Conductor Size (AWG)

Basic Wire Spec Code (MIL-W-81044) and Slash Sheet

MD - M81044/5 (44A0712)
ME - M81044/6 (44A0711)
MF - M81044/7 (44A0714)
MG - M81044/8 (44A0812)
MH - M81044/9 (44A0811)
MJ - M81044/10 (44A0814)
MK - M81044/11 (44A0112)
ML - M81044/12 (44A0111)
MM - M81044/13 (44A0114)

Number of Component Wires

Shield Material and Style Code

U - No shield
T - Tin-coated copper, round
J - Tin-coated copper, flat
S - Silver-coated copper, round
G - Silver-coated copper, flat
N - Nickel-coated copper, round

Jacket Material and Style Code

00 - No jacket
08 - Crosslinked, white PVDF
23 - Crosslinked, white Modified ETFE

Example: **M27500-22ML3T08 = 44AM1131-22-9/96/93-9**

Raychem Part No.
Military Part No.

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SPEC 44 (Continued)

Primary Wires/Twisted Pair

44A011X (600 V) Primary Wire

44A021X (1000 V) Primary Wire

Wire Size (AWG)	Stranding (mm)	Stranding #/AWG	CSA (mm^2)	44A011X (600 V) Nom. OD	44A011X (600 V) Max. Weight (g/m) lb/kft	44A021X (1000 V) Nom. OD	44A021X (1000 V) Max. Weight (g/m) lb/kft
30	7/0.10	7/38	0.06	0.68 [0.027]	1.06 [0.71]	—	—
28	7/0.13	7/36	0.09	0.76 [0.030]	1.43 [0.96]	—	—
26*	19/0.10	19/38	0.15	0.86 [0.034]	2.08 [1.4]	1.02 [0.040]	2.38 [1.6]
24	19/0.13	19/36	0.25	1.02 [0.040]	2.98 [2.0]	1.17 [0.046]	3.57 [2.4]
22	19/0.16	19/34	0.40	1.19 [0.047]	4.46 [3.0]	1.37 [0.054]	5.20 [3.5]
20	19/0.20	19/32	0.60	1.40 [0.055]	6.70 [4.5]	1.57 [0.062]	7.59 [5.1]
18	19/0.25	19/30	1.00	1.65 [0.065]	10.12 [6.8]	1.85 [0.073]	11.46 [7.7]
16	19/0.29	19/29	1.25	1.83 [0.072]	12.80 [8.6]	2.06 [0.081]	14.58 [9.8]
14	19/0.36	19/27	2.00	2.26 [0.089]	19.64 [13.2]	2.49 [0.098]	21.88 [14.7]
12	37/0.32	37/28	3.00	2.74 [0.108]	30.06 [20.0]	2.97 [0.117]	32.89 [22.1]
10	37/0.40	37/26	5.00	3.28 [0.129]	46.28 [31.1]	3.71 [0.146]	52.98 [35.6]
8	133/0.29	133/29	—	—	—	5.23 [0.206]	91.97 [61.8]

*For 44A0211-26 the stranding is 7/0.16mm 7/34 AWG

44A031X (2500 V) Primary Wire

44A081X (600 V) Airframe Wire

44A012X (600 V) Twisted Pair

Wire Size (AWG)	Stranding (mm)	Stranding #/AWG	CSA (mm^2)	44A031X (2500 V) Nom. OD	44A031X (2500 V) Max. Weight (g/m) lb/kft	44A081X (600 V) Nom. OD	44A081X (600 V) Max. Weight (g/m) lb/kft	44A012X (1000 V) Nom. OD	44A012X (1000 V) Max. Weight (g/m) lb/kft
30	7/0.10	7/38	0.06	—	—	—	—	1.37 [0.054]	2.38 [1.6]
28	7/0.13	7/36	0.09	—	—	—	—	1.52 [0.060]	3.13 [2.1]
26*	19/0.10	19/38	0.15	1.35 [0.053]	3.13 [2.1]	1.22 [0.048]	2.98 [2.0]	1.73 [0.068]	4.47 [3.0]
24	19/0.13	19/36	0.25	1.44 [0.057]	4.46 [3.0]	1.37 [0.054]	3.87 [2.6]	2.03 [0.080]	6.69 [4.5]
22	19/0.16	19/34	0.40	1.75 [0.069]	6.40 [4.3]	1.57 [0.062]	5.65 [3.8]	2.38 [0.094]	9.82 [6.6]
20	19/0.20	19/32	0.60	1.98 [0.078]	9.08 [6.1]	1.78 [0.070]	8.04 [5.4]	2.79 [0.110]	14.73 [9.9]
18	19/0.25	19/30	1.00	2.23 [0.088]	12.95 [8.7]	2.03 [0.080]	11.91 [8.0]	3.30 [0.130]	22.32 [15.0]
16	19/0.29	19/29	1.25	2.46 [0.097]	16.22 [10.9]	2.26 [0.089]	14.73 [9.9]	3.65 [0.144]	28.42 [19.1]
14	19/0.36	19/27	2.00	2.92 [0.115]	24.10 [16.2]	2.74 [0.108]	22.17 [14.9]	4.52 [0.178]	44.35 [29.8]
12	37/0.32	37/28	3.00	3.32 [0.131]	36.01 [24.2]	3.20 [0.126]	32.59 [21.9]	5.48 [0.216]	69.00 [46.5]
10	37/0.40	37/26	5.00	4.09 [0.161]	54.32 [36.5]	3.94 [0.155]	52.08 [35.0]	—	—
8	133/0.29	133/29	—	96.20 [0.219]	96.73 [65.0]	92.94 [0.214]	93.46 [62.8]	—	—

*For 44A0211-26 the stranding is 7/0.16mm 7/34 AWG

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SPEC 44 (Continued)

Shielded and Jacketed Cable

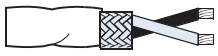
44A111X (600 V)
1 Conductor

44A121X (600 V)
1 Conductor

Wire Size (AWG)	Stranding		44A111X (600 V)		44A121X (600 V)	
	(mm)	#/AWG	Nom. OD	Max. Weight (g/m) lb/kft	Nom. OD	Max. Weight (g/m) lb/kft
30	7/0.10	7/38	1.47 [0.058]	5.20 [3.5]	—	—
28	7/0.13	7/36	1.55 [0.061]	5.80 [3.9]	1.60 [0.063]	5.65 [3.8]
26	19/0.10	19/38	1.57 [0.065]	6.84 [4.6]	1.73 [0.068]	6.85 [4.6]
24	19/0.13	19/36	1.83 [0.072]	8.63 [5.8]	1.98 [0.078]	9.67 [6.5]
22	19/0.16	19/34	2.01 [0.079]	10.71 [7.2]	2.24 [0.088]	12.35 [8.3]
20	19/0.20	19/32	2.26 [0.089]	14.73 [9.9]	2.54 [0.100]	17.41 [11.7]
18	19/0.25	19/30	2.62 [0.103]	20.68[13.9]	2.82 [0.111]	22.62 [15.2]
16	19/0.29	19/29	2.79 [0.110]	24.55 [16.5]	3.02 [0.119]	26.64 [17.9]
14	19/0.36	19/27	3.22 [0.127]	34.08 [22.9]	3.45 [0.136]	36.16 [24.3]
12	37/0.32	37/28	3.70 [0.146]	47.77 [32.1]	4.14 [0.155]	49.56 [33.3]

Other sizes are also available in some constructions depending on conductor type and construction required.

44A181X (600 V)
1 Conductor



44A112X (600 V)
2 Conductor

Wire Size (AWG)	44A181X (600 V)		44A112X (600 V)	
	Nom. OD	Max. Weight (g/m) lb/kft	Nom. OD	Max. Weight (g/m) lb/kft
30	—	—	2.23 [0.088]	8.63 [5.8]
28	—	—	2.38 [0.094]	9.82 [6.6]
26	—	—	2.59 [0.102]	12.05 [8.1]
24	2.26 [0.089]	11.76 [7.9]	2.99 [0.118]	16.82 [11.3]
22	2.57 [0.101]	15.48 [10.4]	3.35 [0.132]	21.57 [14.5]
20	2.77 [0.109]	19.19 [12.9]	3.76 [0.148]	27.97 [18.8]
18	3.02 [0.119]	24.11 [16.2]	4.32 [0.170]	38.24 [25.7]
16	3.25 [0.128]	28.13 [18.9]	4.67 [0.184]	44.94 [30.2]
14	3.73 [0.147]	38.69 [26.0]	5.53 [0.218]	64.28 [43.2]
12	4.19 [0.165]	52.38 [35.2]	6.50 [0.256]	91.51 [61.5]

Other sizes are also available in some constructions depending on conductor type and construction required.

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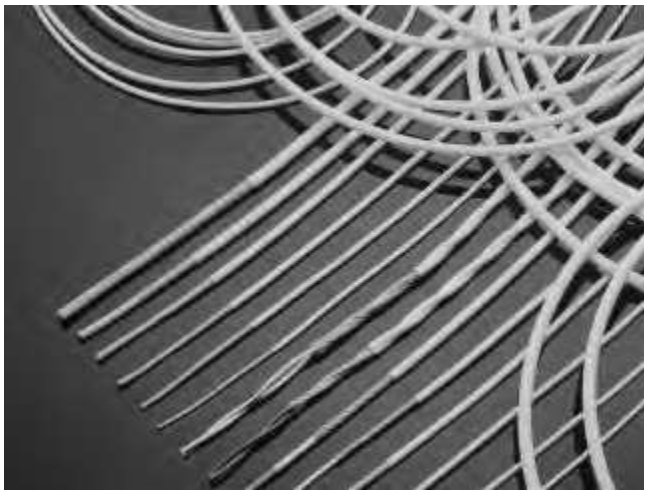
SPEC 55

Product Facts

- **Resistant to electrical arc tracking in wet or dry conditions**
- **Single or dual wall constructions**
- **Small size, ultra light weight**
- **Exceptional chemical resistance**
- **-65°C to 200°C [-85°F to 392°F]**



Applications

SPEC 55 wire is insulated with modified radiation cross-linked ETFE polymer. It has a temperature rating of -65°C to 200°C [-85°F to 392°F] continuous using a silver plated copper conductor, and combines the easy handling of a flexible wire with excellent scrape abrasion and cut-through characteristics.

The dual wall airframe construction of SPEC 55 wire is currently used on numerous aircraft programs. It has a choice of two total wall thicknesses, 0.25 [.010] (55A08XX 10 mil) and 0.2 [.008] (55A02XX 8 mil). Both have a contrasting core color to act as a damage indicator. Chosen for its balance of properties, SPEC 55 wire has outstanding resistance to chemicals and solvents, excellent electrical arc track resistance, and is not susceptible to UV and moisture degradation. Single wall equipment wire constructions are available in 0.10 [.004] (55/03XX 4 mil) and 0.15 [.006] (6 mil) wall thicknesses for use inside black boxes where flexibility and soldering iron resistance make it a wire which is very easy to install reliably.

Both single and dual wall insulated wires are available in twisted pairs, triples, etc., and as shielded and jacketed cables.

Physical Characteristics

Size and Weight

SPEC 55 wire provides one of the most comprehensive wiring product ranges for aerospace users, with a wide choice of conductor sizes and insulation wall thicknesses.The dual wall airframe wire has an insulation wall thickness of either 0.2 [.008] or 0.25 [.010] for robustness in unprotected harnesses and has excellent wire to wire abrasion properties.

The single wall equipment wire has a 0.15 [.006] wall thickness for use inside equipment and protected harnesses. For high density, interconnect wiring, the 450 volt 55M041X series of equipment wire has a nominal 0.1 [.004] wall and provides considerable weight and size savings over other comparable wires.

Handling

The excellent flexibility and handleability makes SPEC 55 the ideal wire to install, both in new aircraft and equipment and for maintenance purposes. The wire is easily stripped with conventional tooling. The insulation is readily marked by hot stamp, ink jet or laser, and can be potted without pre-etching.

SPEC 55PC Wire and Cable Insulation System

This product was originally developed to meet Boeing's material standard BMS13-48 for the 777 airliner. SPEC 55PC provides lightweight, compact insulation that matches the proven performance of our SPEC 55 wire. Today, 55PC is specified and utilized on the majority of aerospace platforms worldwide.

Tyco Electronics' rigorous, statistical-process-controlled manufacturing has produced Raychem wiring that is rugged and versatile enough for a wide range of commercial and defense aerospace applications, including electronic hook-ups in harsh, open airframe environments.

SPEC 55PC wire and cable systems feature an 8-mil airframe wire that is lighter and smaller than typical 10-mil wire, with little reduction in key mechanical performance features. SPEC 55PC wire offers flame resistance superior to FAA standards and also resists scrape abrasion, notch, propagation, cut-through, and electrical arc tracking.

- Meets Boeing material standard BMS 13-48.
- Exceeds FAR 25 test requirements for flame resistance and smoke density.

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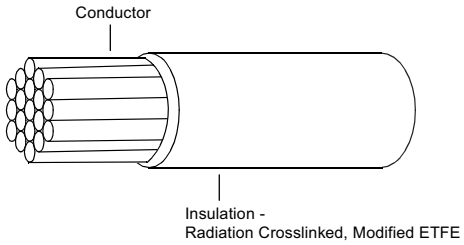
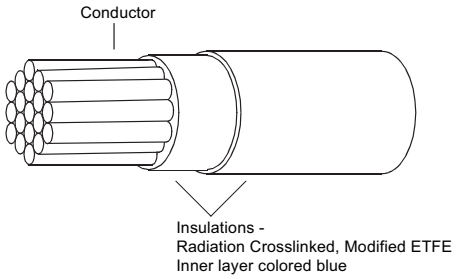
SPEC 55 (Continued)

Specifications



SPEC 55 Insulation System - Single Wall



SPEC 55 Insulation System - Dual Wall

MIL-W-22759/32-35 and /41 to /46 and NEMA-WC-27500 (Cables)
Defense Standard 61-12 Part 33 Issue 4
Part 1001 and Part 1002
VDE 9426, 9427, 9428
British Standard 3G233
Civil Aviation Authority Accessory Approval E11749
Boeing BMS 13-48
Airbus ABS 0820 to 0826
NASA preferred product list
European Space Agency 3901/012, 3901/020 and 3901/022
Raychem Specification 55

Typical Properties

Temperature rating (Tin plated conductor)		-65°C to +150°C [-85°F to +302°F]
(Silver or nickel plated conductor)		-65°C to +200°C [-85°F to +392°F]
Thermal endurance		200 °C [392°F], 10000 h
Scrape abrasion (BS 3G233)		>100 cycles at 150°C [302°F]
Flexing endurance (Boeing BSS 7324)		>1000 cycles
Voltage rating		600 V, 450V
Tensile strength + elongation (core only)		(Dual wall wire) 35 N/mm^2, 125% min.
Tensile strength + total elongation (core & primary jacket)		(Dual wall wire) 35 N/mm^2, 75% min.
Notch propagation BS 3G230 0.05 mm notch		Pass
Solder iron resistance (370 °C, 1 minute)		Pass
Solderability -	Tin plated copper conductor BS 3G233 conditions	<0.8 secs to wet
Shrinkage		<1%
Long term water resistance		Will not hydrolyze
Permitivity 1 KHz (ASTM D150)		2.7
Dissipation factor (ASTM D150)		0.001
FAR 25 Afterburn (sec) Burn length		~~O~~ 30 sec. max. 75 mm [3 in.] max.

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Japan: 81-44-844-8013
UK: 44-208-420-8341

SPEC 55 (Continued)

Environmental Performance

Temperature Rating

SPEC 55 wire and cable is rated for continuous operation from -65°C to +200°C [-85°F to +392°F] and for short periods at temperatures as high as 400°C [752°F].

Mechanical Performance

Radiation crosslinking of the SPEC 55 insulation significantly improves the following mechanical characteristics; scrape (sharp edges), cross wire abrasion, cut-through resistance and creep resistance.

Solder Iron/Overload Resistance

Radiation crosslinking ensures that the insulation resists melting at high temperatures. As a result SPEC 55 wire is resistant to hot solder irons and current overloads which would melt most thermoplastic insulations.

Chemical Resistance

SPEC 55 is unaffected by all commonly used chemicals, eg. fuels, hydraulic fluids, defluxing agents, cleaners, coolants and de-icers. It also shows excellent resistance to weathering (UV, ozone, pollutants, water).

Space Wire

SPEC 55 is available in special versions suitable for use in outer space meeting both ESA and NASA requirements for outgassing.

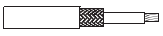
Flammability

Special additives increase the flame retardance of SPEC 55 compared to unirradiated ETFE so that it meets the latest high performance tests, eg. BS 3G230 vertical test FAR 25.

Electrical Arc Tracking Resistance

SPEC 55 insulation demonstrates resistance to arc tracking under both wet and dry conditions at aircraft system voltages.

SPEC 55 Wire & Cable: Standard Constructions, Nominal Sizes, Strandings, Diameters and Weights

Conductor	Primary Wire	Twisted Pair	Shielded & Jacketed	
			Single	Pair
				

55PC - Extra Light Weight Constructions

For applications where weight is critical, light weight tight tolerance conductors and insulations are available. These are manufactured using statistical process control methods and achieve weights that are equal or lighter than the equivalent polyimide/PTFE constructions.

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SPEC 55 (Continued)

55A - AWG Conductor: Equipment/Interconnect Wires & Cables

Wire Size (AWG)	Stranding (mm)	55A011X		55A012X	
		Nom. OD	Max. Weight (g per m/lbs per kft)	Nom. OD	Max. Weight (g per m/lbs per kft)
30	7/0.102	0.61 [0.024]	0.98 [0.66]	1.27 [0.048]	1.94 [1.3]
28	7/127	0.68 [0.027]	1.35 [0.91]	1.42 [0.054]	2.68 [1.8]
26	19/102	0.81 [0.032]	2.08 [1.4]	1.67 [0.064]	4.16 [2.8]
24	19/127	0.94 [0.037]	2.98 [2.0]	1.93 [0.074]	5.96 [4.0]
22	19/0.16	1.09 [0.043]	4.17 [2.8]	2.23 [0.086]	8.63 [5.8]
20	19/0.203	1.27 [0.050]	6.40 [4.3]	2.66 [0.102]	13.24 [8.9]
18	19/0.25	1.52 [0.060]	9.67 [6.5]	3.20 [0.122]	20.09 [13.5]
16	19/287	1.73 [0.068]	12.35 [8.3]	3.58 [0.138]	25.75 [17.3]
14	19/0.36	2.20 [0.085]	19.34 [13.0]	4.47 [0.172]	39.58 [26.6]
12	37/0.32	2.62 [0.103]	29.32 [19.7]	5.38 [0.208]	59.97 [40.3]
10	37/0.403	3.25 [0.128]	47.32 [31.8]	6.65 [0.256]	96.58 [64.9]
8	133/0.287	4.77 [0.188]	87.50 [58.8]	9.80 [0.376]	178.58 [120.0]

Wire Size (AWG)	55A111X		55A112X	
	Nom. OD	Max. Weight (g per m/lbs per kft)	Nom. OD	Max. Weight (g per m/lbs per kft)
30	1.51 [0.057]	5.06 [3.4]	2.12 [0.081]	7.74 [5.2]
28	1.59 [0.060]	5.80 [3.9]	2.27 [0.087]	8.90 [6.0]
26	1.71 [0.065]	6.85 [4.6]	2.53 [0.097]	11.32 [7.6]
24	1.84 [0.070]	8.19 [5.5]	2.80 [0.107]	13.84 [9.3]
22	1.99 [0.076]	10.27 [6.9]	3.07 [0.119]	17.86 [12.0]
20	2.20 [0.084]	13.40 [9.0]	3.50 [0.135]	23.81 [16.0]
18	2.45 [0.094]	17.86 [12.0]	4.10 [0.155]	32.60 [21.9]
16	2.67 [0.102]	21.73 [14.6]	4.43 [0.171]	39.73 [26.7]
14	3.10 [0.119]	30.36 [20.4]	5.30 [0.205]	57.00 [38.3]
12	3.55 [0.137]	42.41 [28.5]	6.30 [0.243]	81.10 [54.5]
10	4.20 [0.161]	62.65 [42.1]	—	—
8	5.80 [0.223]	110.42 [74.2]	—	—

55A - AWG Conductor: Airframe Wires & Cables

Wire Size (AWG)	Stranding (mm)	55A081X		55A082X	
		Nom. OD	Max. Weight (g per m/lbs per kft)	Nom. OD	Max. Weight (g per m/lbs per kft)
26	19/102	1.01 [0.040]	2.5 [1.7]	2.10 [0.080]	5.06 [3.4]
24	19/127	1.14 [0.045]	3.4 [2.3]	2.33 [0.090]	6.84 [4.6]
22	19/0.16	1.27 [0.050]	4.8 [3.2]	2.64 [0.102]	9.98 [6.7]
20	19/0.203	1.47 [0.058]	7.0 [4.7]	3.07 [0.118]	14.73 [9.9]
18	19/0.25	1.78 [0.070]	10.7 [7.2]	3.63 [0.140]	21.88 [14.7]
16	19/287	1.96 [0.077]	13.4 [9.0]	4.06 [0.156]	27.53 [18.5]
14	19/0.36	2.40 [0.094]	20.5 [13.8]	4.90 [0.190]	42.26 [28.4]
12	37/0.32	2.82 [0.111]	30.5 [20.5]	5.80 [0.224]	63.00 [42.3]
10	37/0.403	3.40 [0.134]	48.3 [32.4]	7.10 [0.272]	98.96 [66.5]

Wire Size (AWG)	55A181X		55A182X	
	Nom. OD	Max. Weight (g per m/lbs per kft)	Nom. OD	Max. Weight (g per m/lbs per kft)
26	1.71 [0.073]	7.89 [5.3]	2.63 [0.113]	14.29 [9.6]
24	1.84 [0.078]	9.37 [6.3]	2.80 [0.123]	16.37 [11.0]
22	1.99 [0.084]	11.76 [7.9]	3.07 [0.135]	20.68 [13.9]
20	2.20 [0.092]	14.88 [10.0]	3.50 [0.151]	27.08[18.2]
18	2.45 [0.103]	19.79[13.3]	4.10 [0.173]	36.46 [24.5]
16	2.67 [0.111]	23.81[16.0]	4.43 [0.189]	42.86 [28.8]
14	3.10 [0.128]	33.03 [22.2]	6.30 [0.225]	61.61 [41.4]
12	3.55 [0.145]	45.09 [30.3]	6.30 [0.259]	85.42 [57.4]
10	4.20 [0.168]	66.97[45.0]	— [0.308]	127.54 [85.7]

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SPEC 55 (Continued)

55PC - AWG Conductor: Statistical Process Controlled Airframe Wires & Cables

Wire Size (AWG)	Stranding (mm)	55PC021X		55PC022X	
		Nom. OD	Max. Weight (g per m/lbs per kft)	Nom. OD	Max. Weight (g per m/lbs per kft)
26	19/102	0.087 [0.045]	2.05 [1.38]	—	—
24	19/127	1.00 [0.0395]	2.95 [1.98]	2.00 [0.079]	5.95 [4.00]
22	19/0.16	1.15 [0.0455]	4.31 [2.90]	2.31 [0.091]	8.74 [5.87]
20	19/0.203	1.37 [0.0540]	6.51 [4.38]	2.74 [0.108]	13.2 [8.87]
18	19/0.25	1.61 [0.0635]	9.81 [6.59]	3.22 [0.127]	19.84 [13.33]
16	19/287	1.80 [0.0710]	12.46 [8.37]	3.60 [0.142]	25.21 [16.94]
14	19/.036	2.18 [0.0860]	19.17 [12.88]	4.36 [0.172]	38.80 [26.07]
12	37/0.32	2.66 [0.1047]	29.36 [19.73]	5.30 [0.209]	59.42 [39.93]
10	37/0.403	3.27 [0.1290]	46.31 [31.12]	6.55 [0.258]	93.92 [63.11]

Wire Size (AWG)	55PC121X		55PC122X	
	Nom. OD	Max. Weight (g per m/lbs per kft)	Nom. OD	Max. Weight (g per m/lbs per kft)
26	1.52 [0.064]	6.54 [4.4]	2.33 [0.100]	11.34 [7.62]
24	1.65 [0.069]	7.86 [5.28]	2.89 [0.109]	13.90 [9.34]
22	1.80 [0.075]	9.81 [6.59]	2.89 [0.122]	17.89 [12.02]
20	2.00 [0.083]	12.83 [8.62]	3.30 [0.139]	23.84 [16.02]
18	2.23 [0.093]	17.01 [11.43]	3.78 [0.158]	32.10 [21.57]
16	2.44 [0.100]	20.36 [13.68]	4.16 [0.174]	39.00 [26.21]
14	2.79 [0.116]	28.69 [19.28]	4.92 [0.204]	55.21 [37.10]
12	3.30 [0.135]	40.73 [27.37]	5.92 [0.244]	80.23 [53.91]
10	3.98 [0.159]	59.90 [40.25]	7.39 [0.297]	123.65 [83.09]

X = 1 -Tin plated copper conductor.
4 -Silver plated high strength copper alloy conductor. (Recommended for size 24 & 26 in airframe applications and mandatory for CAA release.)

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Part Numbering System

55 X X X X X- Size- X/X- X

Jacket Color (in accordance with MIL-STD-681,white preferred)

Primary Wire Insulation Color
(in accordance with MIL-STD-681)

0 - Black	3 - Orange	7 - Violet
1 - Brown	4 - Yellow	8 - Gray
2 - Red	5 - Green	9 - White
2L - Pink	6 - Blue	

Additional number after base color indicates stripe

Conductor Size

Conductor Type
1 - Tin-plated copper
2 - Silver-plated copper
3 - Nickel-plated copper
4 - Silver-plated high strength copper alloy
6 - Nickel-plated high strength copper alloy

Number of Conductors
0 - 10 conductors

Class of Wire
1 - 600 V equipment wire, light weight
2 - 600 V airframe wire, light weight
3 - 600 V 55 space
4 - 450 V equipment wire (55M Only sizes 20-30)
7 - 1000 V heavy duty, airframe wire
8 - 600 V airframe wire, normal weight

Constructions
0 - Primary wire and unshielded, unjacketed cables
1 - Round braid screened & jacketed cable †
2 - Flat braid screened & jacketed cable †
3 - Round braid, screened cable, no jacket †
4 - Jacketed cable, no screen
5 - Spiral screened and jacketed cable †
8 - Special constructions (part numbers not coded)
9 - Special constructions including light weight

† Screen material same as conductor material except all flat screens and screen for conductor types 4 and 6 shall be tin-plated copper. Other combinations are special. (Refer to Wire and Cable Division).

Type
A - General purpose
M - Metric conductor
/ - Space wire
PC - Process control
D - Defense Standard 61-12 Part 33 Issue 4

Basic Specification Number

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SPEC 55 (Continued)

Typical Ordering Example	3 conductors, red, yellow, blue, 600 volt equipment wire with overall round braid, 20 AWG tinned conductor and white jacket: total part number is 55A1131-20-2/4/6-9.
Ordering Information	A list of stock policy items can be identified by contacting Tyco Electronics. Stock policy items are recognized by the use of a suffix, such as (300) defining the pack size, typically 55A0111-22-9(300). UK only.

SPEC 55 Part Numbering System

Temperature Rating	Conductor Material	AWG Range Available	Raychem Part No.	MIL-SPEC No.
600-V Lightweight Single-wall Hookup Wire, .152 [.006] Nominal Wall				
150°C [302°F]	Tin-coated copper	12–30	55A0111	M22759/32
200°C [392°F]	Silver-coated copper	12–28	55A0112	M22759/44
200°C [302°F]	Nickel-coated copper	12–28	55A0113	M22759/45
200°C [392°F]	Silver-coated high-strength alloy	20–30	55A0114	M22759/33
200°C [392°F]	Nickel-coated high-strength alloy	20–28	55A0116	M22759/46
600-V Lightweight Dual-wall Airframe Wire, .203 [.008] Nominal Wall				
150°C [302°F]	Tin-coated copper	6–26	55A0211	—
200°C [392°F]	Silver-coated copper	10–26	55A0212	—
200°C [392°F]	Nickel-coated copper	10–26	55A0213	—
200°C [392°F]	Silver-coated high-strength alloy	18–30	55A0214	—
200°C [392°F]	Nickel-coated high-strength alloy	16–26	55A0216	—
600-V Dual-wall Airframe Wire, .254 [.010] Nominal Wall				
150°C [302°F]	Tin-coated copper	00–24	55A0811	M22759/34
200°C [392°F]	Silver-coated copper	00–26	55A0812	M22759/43
200°C [392°F]	Nickel-coated copper	00–26	55A0813	M22759/41
200°C [392°F]	Silver-coated high-strength alloy	20–26	55A0814	M22759/35
200°C [392°F]	Nickel-coated high-strength alloy	20–26	55A0816	M22759/42
600-V Medium-Weight Dual-wall Airframe Wire, .381 [.015] Nominal Wall				
150°C [302°F]	Tin-coated copper	10–24	55A0711	—
200°C [392°F]	Silver-coated copper	16–24	55A0712	—
200°C [392°F]	Nickel-coated copper	16–24	55A0713	—
200°C [392°F]	Silver-coated high-strength alloy	16–24	55A0714	—
200°C [392°F]	Nickel-coated high-strength alloy	16–26	55A0716	—

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SPEC 55 (Continued)

SPEC 55 Cable Constructions

Construction	Number of Components	Component Conductor[1]	Shield Material[1]	Part Number	
				Light Wt.[2]	Medium Wt.
Unshielded, unjacketed	2–10 	1	—	55*01X1-AWG-Y	55*08X1-AWG-Y
		2	—	55*01X2-AWG-Y	55*08X2-AWG-Y
		3	—	55*01X3-AWG-Y	55*08X3-AWG-Y
		4	—	55*01X4-AWG-Y	55*08X4-AWG-Y
		6	—	55*01X6-AWG-Y	55*48X6-AWG-Y
Unshielded, jacketed	2–10 	1	—	55*41X1-AWG-Y	55*48X1-AWG-Y
		2	—	55*41X2-AWG-Y	55*48X2-AWG-Y
		3	—	55*41X3-AWG-Y	55*48X3-AWG-Y
		4	—	55*41X4-AWG-Y	55*48X4-AWG-Y
		6	—	55*41X6-AWG-Y	55*48X6-AWG-Y
Shielded (round braid), jacketed	1–10 	1	1	55*11X1-AWG-Y	55*18X1-AWG-Y
		2	2	55*11X2-AWG-Y	55*18X2-AWG-Y
		3	3	55*11X3-AWG-Y	55*18X3-AWG-Y
		4	1	55*11X4-AWG-Y	55*18X4-AWG-Y
		6	3	55*11X6-AWG-Y	55*18X6-AWG-Y
Shielded (flat braid), jacketed	1–10 	1	1	55*21X1-AWG-Y	55*28X1-AWG-Y
		2	1	55*21X2-AWG-Y	55*28X2-AWG-Y
		3	1	55*21X3-AWG-Y	55*28X3-AWG-Y
		4	1	55*21X4-AWG-Y	55*28X4-AWG-Y
		6	1	55*21X6-AWG-Y	55*28X6-AWG-Y

[1]Type of conductor or shield material:
1 = tin-coated copper
2 = silver-coated copper
3 = nickel-coated copper
4 = silver-coated high-strength copper alloy
6 = nickel-coated high-strength copper alloy
* = A or PC

[2]X = no. of wire components
Y = color code
For complete part number, see Part Numbering System on page 10-15.

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Nema WC-27500 Cable Part Numbering System

M27500 X AWG XX X X XX

Basic Specification Number

Component Wire ID/Shield Coverage Code

Shield Coverage 85%	Shield Coverage 90%	Component Wire Identification
-	C	Colored Stripes on White Wire (9/96/93/95/92/90/94/97/98/91... etc.)
A	D	Solid Color Wires (9/6/3/5/2/0/4/7/8/1...etc.)
B	E	Band Marks on Solid Colors (by AWG)
F	H	Alternate Colored Stripes (92/96/94/95/9/90/91/93/97/98...etc)
G	J	Alternate Solid Colors (2/6/4/5/9/0/1/3/7/8...etc.)
K	M	Number Marking on Solid Colors (by AWG)
L	N	Number Marking on White Wires
P	R	Band Marks on Colored Stripes (by AWG)
S	T	Band Marks on White Wires

Conductor Size (AWG)

Basic Wire Spec Code (MIL-W-22759) and Slash Sheet

SB - 32 = 55A0111
SC - 33 = 55A0114
SD - 34 = 55A0811
for 2 AWG and larger, use 55A8039
SE - 35 = 55A0814
SM - 41 = 55A0813
for 2 AWG and larger, use 55A8595
SN - 42 = 55A0816
SP - 43 = 55A0812
for 2 AWG and larger, use 55A6089
SR - 44 = 55A0112
SS - 45 = 55A0113
ST - 46 = 55A0116

Number of Component Wires

1 through 9; 10 Components = 0

Shield Material and Style Code

U - No shield
T - Tin-coated copper, round
J - Tin-coated copper, flat
S - Silver-coated copper, round
G - Silver-coated copper, flat
N - Nickel-coated copper, round
V - Tin-coated copper, round, double shield
W - Silver-coated copper, round, double shield

Jacket Material and Style Code

00 - No jacket
23 - Single jacket crosslinked, modified ETFE, white
73 - Double jacket crosslinked, modified ETFE, white

Example: **M27500-22SB3T23 = 55A1131-22-9/96/93-9**

Raychem Part No.
Military Part No.

Catalog 1308940
Revised 8-06
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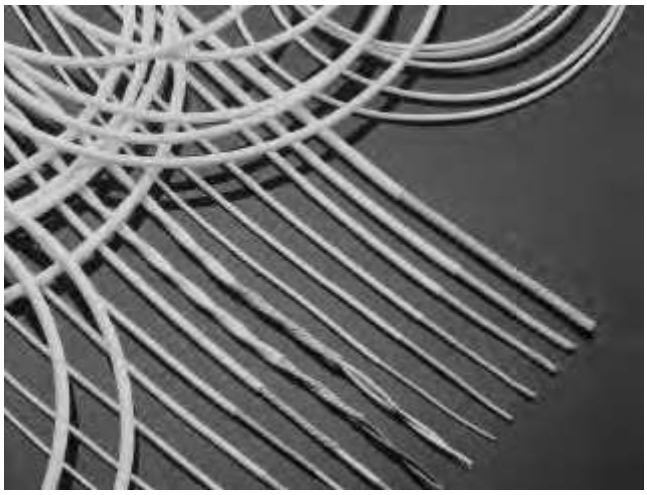
Hong Kong: 852-2735-1628
Japan: 81-44-844-8013
UK: 44-208-420-8341

RCW

Product Facts

- -65°C to +260°C [-85°F to +500°F]
- Small size, ultra light weight
- Resistant to electrical arc tracking in wet or dry conditions
- Excellent cut-through resistance
- Exceptional chemical resistance



Applications

Raychem Composite Wire (RCW) is insulated with a combination of PTFE and Polyimide materials. It has a temperature rating of -65˚C to +260˚C [-85˚F to +500˚F] continuous using a nickel-plated conductor, and combines the easy handling of a flexible wire with excellent cut-through characteristics.

Chosen for its balance of properties, RCW has outstanding resistance to chemicals and solvents, excellent arc track resistance, and is not susceptible to UV and moisture degradation.

RCW can be supplied in a thin wall, lightweight construction which provides considerable weight and size savings over comparable wires.

RCW is available in twisted pairs, triples, etc. and shielded and jacketed constructions.

Physical Characteristics

Size and Weight

RCW provides one of the most comprehensive wiring product ranges for aerospace users with a wide choice of conductor sizes and insulation wall thicknesses.

RCW airframe wire has an insulation wall thickness of either .006" or 0.008" for robustness in unprotected harnesses and has excellent wire-to-wire abrasion properties.

Handling

Excellent flexibility and handleability makes RCW ideal for installation in new aircraft and equipment, and is easily replaced during maintenance procedures.

RCW is easily stripped with conventional tooling, and readily marked by laser or ink jet.

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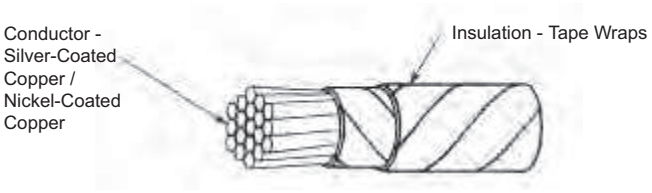
RCW (Continued)

Specifications



RCW insulation system

MIL-DTL-22759/81-92
Lockheed Martin Selected C-Specs

Typical Properties

	Lightweight / Normal Weight
Conductor	Silver Copper / Nickel Copper
Temperature	-65°C to +200°C [-85°F to +392°F] / -65°C to +260°C [85°F to +500°F]
Voltage Rating	600V
Dielectric Strength	4,000 volts/mil (avg. min.)
Wet Arc Propagation Resistance	MIL-STD-2223 Method 3006 *
Dry Arc Propagation Resistance	MIL-DTD-2223 Method 3007 *
Dynamic Cut-Through	ASTM D 3032 Section 22 *
Flammability	MIL-STD-2223, Method 1006, Procedure A *
Insulation Resistance	5000 megohms for 1000 ft. (min.)
Life Cycle	500 hours @ 230°C [446°F] / 500 hrs @ 290°C [554°F]
Low Temperature (Cold Bend)	-65°C [-85°F] (4 hrs)
Smoke	200°C [392°F] / 260°C [500°F] No visible smoke
Thermal Index	200°C [392°F] min. / 260°C min. [500°F] 10,000 hrs.

*as defined by the applicable MIL-Spec slash sheets

Environmental Performance

Temperature Rating

RCW wire and cable is rated for continuous operation from -65°C to +260°C [-85°F to +500°F] and for short periods at temperatures as high as 320°C [608°F].

Mechanical Performance

RCW incorporates superior abrasion protection and cut-through performance. Like all Raychem products, this latest addition is designed for electrical and electronic applications in tough environments.

Chemical Resistance

RCW is unaffected by all commonly used chemicals, eg. fuels, hydraulic fluids, defluxing agents, cleaners, coolants and de-icers. It also shows excellent resistance to weathering (UV, ozone, pollutants, water). RCW is highly resistant to hydrolysis.

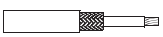
Flammability/Smoke

Advanced combination of materials allow superior performance in areas such as flammability and smoke generation properties. Exceeds FAR 25 test requirements for flame resistance and smoke density.

Electrical Arc Tracking Resistance

RCW insulation demonstrates resistance to arc tracking under both wet and dry conditions at aircraft system voltages.

RCW Wire & Cable: Standard Constructions, Nominal Sizes, Strandings, Diameters and Weights

Conductor	Primary Wire	Twisted Pair	Shielded & Jacketed	
			Single	Pair
				

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RCW (Continued)

RCW - AWG Conductor: Equipment/Interconnect Wires & Cables (Lightweight)

Wire Size (AWG)	Stranding (mm)	RCW59XX		RCWxWx2U00-AWG	
		Nom. OD (max.)	Max. Weight (g per m/lbs per kft)	Nom. OD (max.)	Max. Weight (g per m/lbs per kft)
26	19 x 38	0.48 [0.019]	2.13 [1.43]	1.73 [0.068]	4.35 [2.92]
24	19 x 36	0.61 [0.024]	2.87 [1.93]	1.93 [0.076]	5.86 [3.94]
22	19 x 34	0.76 [0.030]	4.24 [2.85]	2.18 [0.086]	8.65 [5.81]
20	19 x32	0.97 [0.038]	6.52 [4.38]	2.59 [0.102]	13.30 [8.94]
18	19 x 30	1.22 [0.048]	9.82 [6.60]	3.05 [0.120]	20.09 [13.5]
16	19 x29	1.37 [0.054]	12.35 [8.30]	3.40 [0.134]	25.15 [16.9]
14	19x 27	1.73 [0.068]	18.75 [12.6]	4.06 [0.160]	38.25 [25.7]
12	37 x 28	2.21 [0.087]	29.17 [19.6]	5.08 [0.200]	59.53 [40.0]
10	37 x 26	2.79 [0.110]	45.54 [30.6]	6.25 [0.246]	92.86 [62.4]

Wire Size (AWG)	Shield Size (AWG)	RCWxWx1xxx-AWG-x		RCWxWx2xxx-AWG-x	
		Nom. OD max.	Max. Weight@90% (g per m/lbs per kft)	Nom. OD max.	Max. Weight@90% (g per m/lbs per kft)
26	38	1.83 [0.072]	8.27 [5.56]	2.69 [0.106]	13.84 [9.30]
24	38	1.93 [0.076]	9.52 [6.40]	2.89 [0.114]	16.22 [10.9]
22	38	2.06 [0.081]	11.55 [7.76]	3.15 [0.124]	20.24 [13.6]
20	38	2.26 [0.089]	14.88 [10.0]	3.56 [0.140]	26.64 [17.9]
18	38	2.49 [0.098]	19.35 [13.0]	4.01 [0.158]	35.42 [23.8]
16	38	2.67 [0.105]	22.77 [15.3]	4.37 [0.172]	42.12 [28.3]
14	38	2.99 [0.118]	30.95 [20.8]	5.03 [0.198]	58.19 [39.1]
12	38	3.50 [0.138]	44.05 [29.6]	6.15 [0.242]	85.57 [57.5]
10	38	4.09 [0.161]	63.69 [42.8]	7.32[0.288]	124.41[83.6]

RCW - AWG Conductor: Airframe Wires & Cables (Normal Weight)

Wire Size (AWG)	Stranding (mm)	RCW59xx		RCWxWx2U00-AWG	
		Nom. OD max.	Max. Weight (g per m/lbs per kft)	Nom. OD max.	Max. Weight@90% (g per m/lbs per kft)
26	19 x 38	0.52 [0.0204]	2.31 [1.55]	1.88 [0.074]	4.70 [3.16]
24	19 x 36	0.62 [0.0244]	3.19 [2.15]	2.13 [0.084]	6.53 [4.39]
22	19 x 34	0.87 [0.0314]	4.46 [3.00]	2.39 [0.094]	9.11 [6.12]
20	19 x 32	1.00 [0.0394]	6.77 [4.55]	2.79 [0.110]	13.81 [9.28]
18	19 x 30	1.25 [0.0494]	9.97 [6.70]	3.30 [0.130]	20.39 [13.70]
16	19 x 29	1.41 [0.0554]	12.80 [8.60]	3.71 [0.146]	26.04 [17.50]
14	19 x 27	1.76 [0.0694]	19.27 [12.95]	4.37 [0.172]	39.29 [26.40]
12	37 x 28	2.27 [0.0894]	29.91 [20.10]	5.33 [0.210]	61.01 [41.00]
10	37 x 26	2.84 [0.112]	46.73 [31.40]	6.45 [0.254]	95.39 [64.10]
8	133 x 29	4.29 [0.169]	85.72 [57.60]	9.55 [0.376]	174.86[117.50]
6	133 x 27	5.38 [0.212]	131.40 [88.30]	—	—
4	133 x 25	6.81 [0.268]	212.81 [143.0]	—	—

Wire Size (AWG)	Shield Size (AWG)	RCWxWx1xxx-AWG-x		RCWxWx2xxx-AWG-x	
		Nom. OD max.	Max. Weight@90% (g per m/lbs per kft)	Nom. OD max.	Max. Weight@90% (g per m/lbs per kft)
26	38	1.91 [0.075]	8.82 [5.93]	2.84 [0.112]	14.88 [10.0]
24	38	2.03 [0.080]	10.45 [7.02]	3.10 [0.122]	18.01 [12.1]
22	38	2.16 [0.085]	12.28 [8.25]	3.35 [0.132]	21.58 [14.5]
20	38	2.36 [0.093]	15.63 [10.50]	3.76 [0.148]	27.98 [18.8]
18	38	2.62 [0.103]	20.09 [13.50]	4.27 [0.168]	36.76 [24.7]
16	38	2.82 [0.111]	24.11 [16.20]	4.67 [0.184]	44.35 [29.8]
14	38	3.15 [0.124]	32.29 [21.70]	5.33 [0.210]	60.57 [40.7]
12	38	3.63 [0.143]	45.54 [30.60]	6.40 [0.252]	88.25 [59.3]
10	38	4.19 [0.165]	65.33 [43.90]	7.52 [0.296]	127.83 [85.9]

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Part Numbering System — Cable (Per NEMA WC 27500)

RCW X XX # X XX - AWG - X

Basic Product Number

Component Wire ID/Shield Coverage Code (per WC 27500)
(Note: Some ID methods of WC 27500 may not be available - standard codes offered are A, B, D and E, as defined below)

A - 85% min. shield cov. (if applic.); solid wire colors selected in order from the following: White, Blue, Orange, Green, Red, Black, Yellow, Violet, Gray, Brown

B - 85% min. shield coverage (if applic.); band-marked solid wire colors based on AWG size as follows:

AWG	Color	AWG	Color	AWG	Color
26	Black	18	White	10	Brown
24	Blue	16	Blue	8	Red
22	Green	14	Green	6	Blue
20	Red	12	Yellow	4	Yellow

D - Same as A, except 90% min. shield coverage

E - Same as B, except 90% min. shield coverage

Component Wire Code (per WC 27500) and MIL-W-22759 Slash Sheet

WC = 81 = RCW5981
WE = 82 = RCW5982
WJ = 86 = RCW5986
WK = 87 = RCW5987
WM = 89 = RCW5989
WN = 90 = RCW5990
WP = 91 = RCW5991
WR = 92 = RCW5992

Number of Component Wires

Shield Code (per WC 27500)

U - No Shield
T - Tin-coated copper, round
S - Silver-coated copper, round
N - Nickel-coated copper, round
G - Silver-coated copper, flat

Jacket Code (per WC 27500)

00 - No jacket
06 - PTFE tape wrap
24 - FP/PI/FP and PTFE tape wraps

Conductor Size (AWG)

Jacket Color Code (per MIL-STD-681)

0 - Black	5 - Green
1 - Brown	6 - Blue
2 - Red	7 - Violet
3 - Orange	8 - Gray
4 - Yellow	9 - White

Example:
RCWAWJ2G24-22-9 = **M27500A22WJ2G24**

Military Part Number

Raychem Part Number

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RCW (Continued)

Part Numbering System — Primary Wire (Per MIL-W-22759)

RCW59 XX - AWG - X

Basic Product Number

MIL-W-22759 Slash Sheet as follows:

- 81 - Lightweight, silver-coated, high-strength or ultra high-strength copper alloy, AWG 26-20
- 82 - Lightweight, nickel-aoted, high-strength or ultra high-strength copper alloy, AWG 26-20
- 86 - Normal weight, silver-coated copper, AWG 26-4
- 87 - Normal weight, nickel-coated copper, AWG 26-4
- 89 - Normal weight, silver-coated, high-strength or ultra high-strength copper alloy, AWG 26-20
- 90 - Normal weight, nickel-coated, high-strength or ultra high-strength copper alloy, AWG 26-20
- 91 - Lightweight, silver-coated copper, AWG 26-10
- 92 - Lightweight, nickel-coated copper, AWG 26-10

Conductor Size (AWG)

Insulation Color Code (per MIL-STD-681)

(Note: Colors are in accordance with the UV laser markable color limits specified in the applicable MIL-W-22759 slash sheet. Standard wire color is white).

0 - Black	5 - Green
1 - Brown	6 - Blue
2 - Red	7 - Violet
3 - Orange	8 - Gray
4 - Yellow	9 - White

Example:

RCW5991-22-9 = M27559/91-22-9

- M27559/91-22-9 — Military Part Number
- RCW5991-22-9 — Raychem Part Number

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UK: 44-208-420-8341

Part Numbering System — Cable (Per NEMA WC 27500)

M27500 X AWG XX # X XX

Basic Product Number

Component Wire ID/Shield Coverage Code
(Note: Some ID methods may not be available for RCW cable - standard codes offered are A, B, D and E, as defined below)

A - 85% min. shield cov. (if applic.); solid wire colors selected in order from the following: White, Blue, Orange, Green, Red, Black, Yellow, Violet, Gray, Brown

B - 85% min. shield coverage (if applic.); band-marked solid wire colors based on AWG size as follows:

AWG	Color	AWG	Color	AWG	Color
26	Black	18	White	10	Brown
24	Blue	16	Blue	8	Red
22	Green	14	Green	6	Blue
20	Red	12	Yellow	4	Yellow

D - Same as A, except 90% min. shield coverage

E - Same as B, except 90% min. shield coverage

Conductor Size (AWG)

Basic Wire Spec Code (MIL-W-22759 Slash sheet & RCW Wire)

WC = 81 = RCW5981
WE = 82 = RCW5982
WJ = 86 = RCW5986
WK = 87 = RCW5987
WM = 89 = RCW5989
WN = 90 = RCW5990
WP = 91 = RCW5991
WR = 92 = RCW5992

Number of Component Wires

Shield Material and Style Code

U - No Shield
T - Tin-coated copper, round
S - Silver-coated copper, round
N - Nickel-coated copper, round
G - Silver-coated copper, flat

Jacket Material and Style Code

00 - No jacket
06 - PTFE tape wrap, white
24 - FP/PI/FP and PTFE tape wraps, white

Example:

M27500A22WJ2G24 = RCWAWJ2G24-22-9

RCWAWJ2G24-22-9 — Raychem Part Number

M27500A22WJ2G24 — Military Part Number

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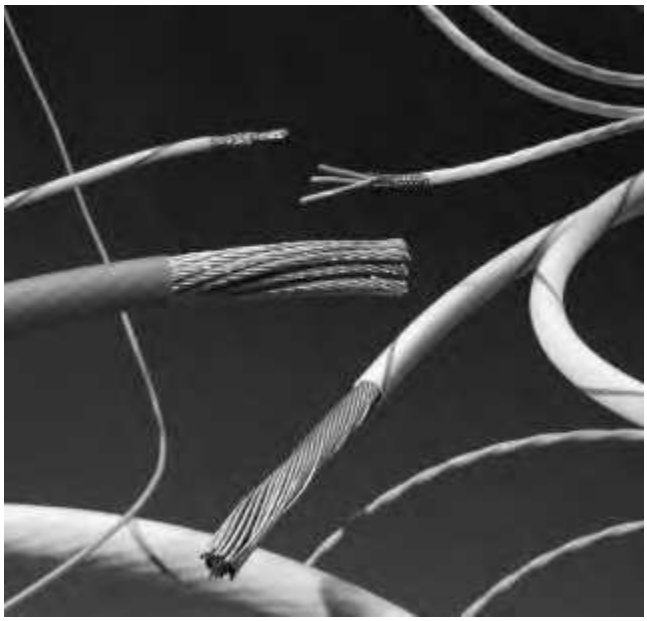
FlexLine (SPEC 80)

Product Facts

- Reduced weight
- Flexibility
- Low outgassing
- Function over a broad temperature range
- Flammability
- Arc track resistance
- Resistance to atomic oxygen
- Radiation resistance
- High quality and reliability
- Ease of fabrication (into Harnesses due to flexibility)
- Agency approvals
- -65°C up to +200°C [-85°F up to +392°F]
- Small size
- 600V rating
- Optional high strand count for increased flexibility
- Variety of insulation/jacket options
- Dual wall and single wall options
- Easy to install
- Mechanically tough
- Compliance with FAR 25 flammability requirements
- Resistance to harsh fluids & solvents per MIL-W-22759



Applications

FlexLine wire (also known as SPEC 80) is insulated with a flexible modified radiation cross-linked ETFE polymer. It has a temperature rating of -65°C to +200°C [-85°F to +392°F] continuous using silver copper conductor, and combines the easy handling of our SPEC 55 wire and cable with additional flexibility. FlexLine wire is used in a broad range of applications, from Hook-up wire to Power Cables.

FlexLine wire constructions provide maximum flexibility similar to the MIL-W-22759 products in Mechanical, Chemical and Thermal properties.

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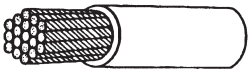
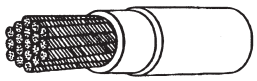
FlexLine (SPEC 80) (Continued)

FlexLine Insulation System



Single Wall



Dual Wall

Single Wall 82 Wire
High strand count conductors
Light weight
AWG sizes 28 to 00
(6-mil nominal insulation thickness)

Dual Wall 81 Wire
Standard M22759 conductor stranding
Increased toughness
AWG sizes 28 to 000
(10-mil nominal insulation thickness)

Part Numbering System

8x X X X X X- Size- X/X- X

Jacket Color Identification Code (in accordance with MIL-STD-681)

Primary Wire Insulation Color
(in accordance with MIL-STD-681)

0 - Black	4 - Yellow	8 - Gray
1 - Brown	5 - Green	9 - White
2 - Red	6 - Blue	
3 - Orange	7 - Violet	

Conductor Size (AWG)

Conductor Type

1 - Tin-coated copper	4 - Silver-coated high strength copper alloy
2 - Silver-coated copper	
3 - Nickel-coated copper	6 - Nickel-coated high strength copper alloy

Number of Conductors
1 through 9

Class of Wire
1 - 600 V general purpose wire, lightweight
8 - 600 V airframe wire, normal weight

Construction
0 - Primary wire & unshielded, unjacketed
1 - Round-braid shielded & jacketed cable*
2 - Flat-braid shielded & jacketed cable*
3 - Round-braid shielded cable, no jacket*
4 - Jacketed cable, no shield
5 - Spiral-shielded & jacketed cable*
6-9 Special constructions

Wire Type
A - General Purpose
/ - Outer Space
AC- 90% Shield Coverage

Basic Specification Number
1 - Normal Stranding
2 - High Stranding

* Shield coating same as conductor coating except for the following:
- shield for conductor type 4 shall be tin-coated copper
- round braid shield constructions for conductor type 6 shall be nickel-coated copper
- flat braid shield constructions for conductor type 6 shall be tin-coated copper

Other shield variations are designated as Special Constructions

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