

Fax-on-Demand: (800) 260-9099
(650) 361-6523

FAX ID	Description
6000	Data sheet
6001	RT-Spec 44

Before ordering check with factory for most current data.

SPEC 44

High-performance wire and cable insulation system for -65°C to 150°C

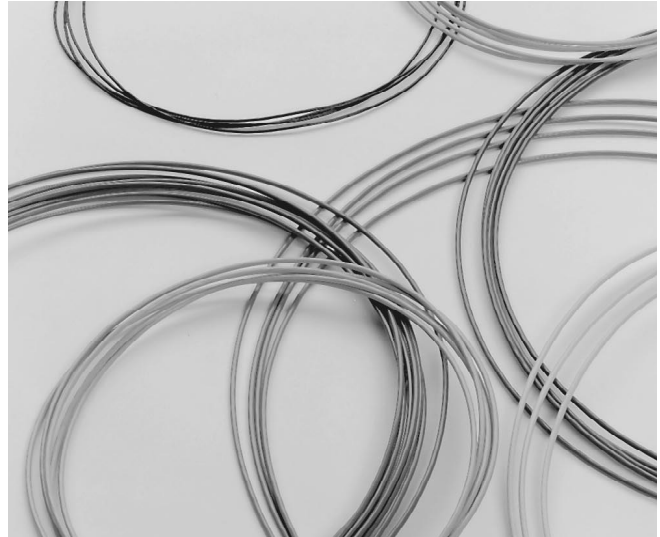
Applications

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

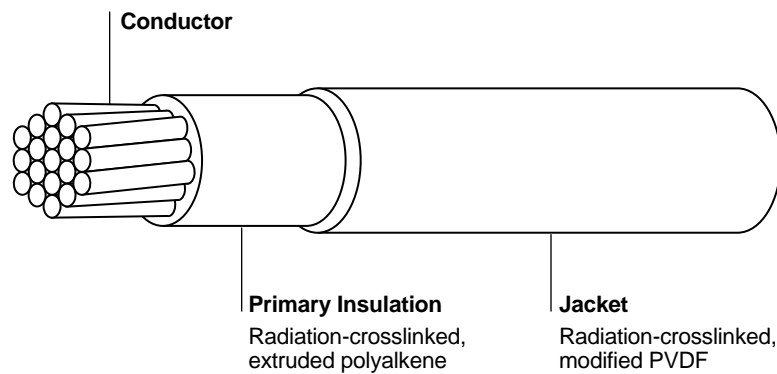
Originally developed for aerospace and military requirements in applications of high density and complex circuitry, SPEC 44 wire and cable now finds wide use throughout industry, in commercial and military electronics, in avionics, and on satellites, aircraft, helicopters, ships, trains, and offshore 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.

Features/Benefits

- Dual-wall construction.
- Voltage ratings of 600, 1000, and 2500.
- Small size, light weight.
- Low smoke and low corrosive gas generation.
- Resistance to most chemicals and electrical arc tracking.



SPEC 44 Insulation System



Specifications/Approvals

Military	Industry	Agency	Raychem
MIL-W-81044, MIL-C-27500 (cables)	Lloyd's Register of Shipping	VG 95218 Part 1000	SPEC 44
Def. Stan. 61-12, Part 18, Issue 3, Type 1	TDE 74/P/74 and TDE 75/R/6 (British Rail)	MTV6145-005	
Def. Stan. 61-12, Part 26		NASA preferred product list	
NATO stock numbers (NSNs) exist for most standard constructions.		Civil Aviation Authority Accessory Approval E11623	
MSV 34401			

Typical Properties

Physical characteristics

Operating temperature range	-65°C to 150°C
Tensile strength (primary insulation)	30 N/mm ² (3500 psi)
Elongation (primary insulation)	250% minimum
Accelerated aging (6h/300°C)	Passes mandrel wrap and dielectric test per MIL-W-81044
Electrical arc tracking	Tested to ASTM D 3032

Electrical

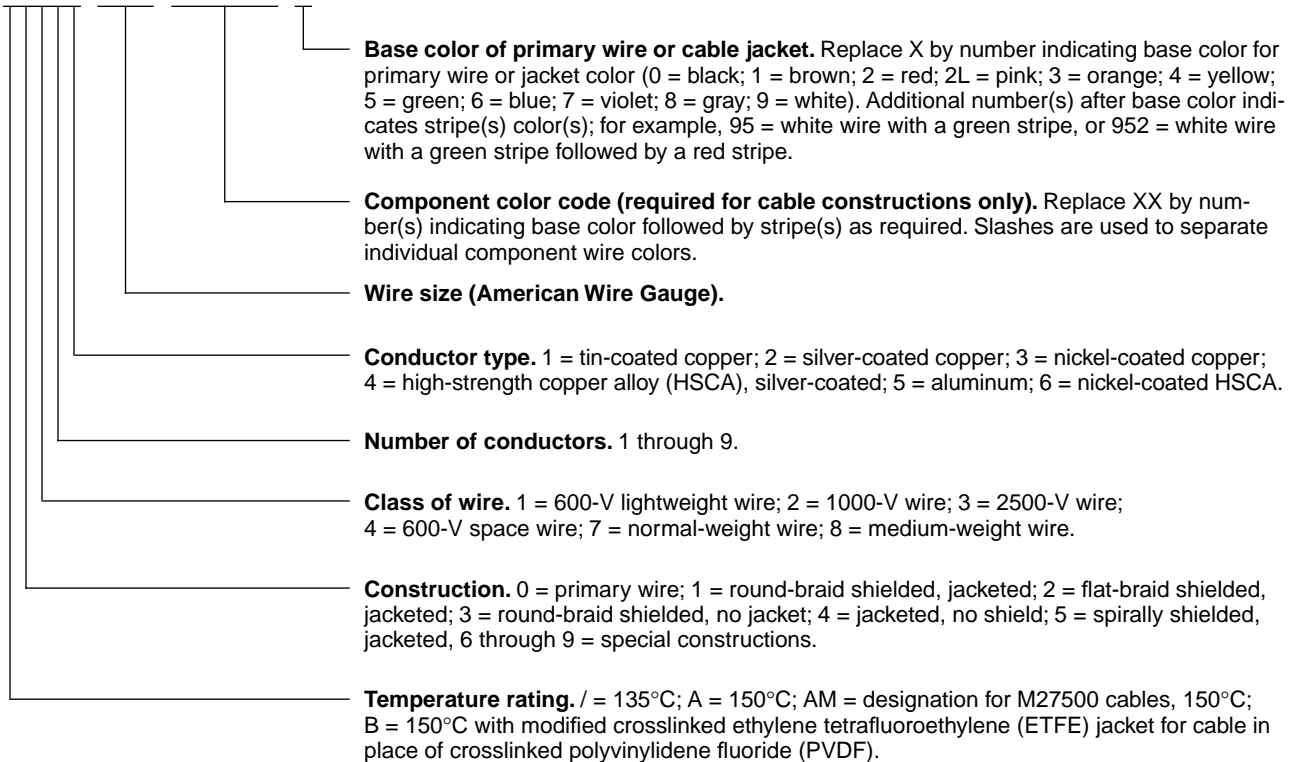
Voltage rating	600, 1000, and 2500 volts
Insulation resistance (min.)	1500 Mohms/km (5000 megohms/1000 ft)
Voltage withstand	2500, 3000, and 5000 volts for 5 minutes, 60 Hz, rms

Fire Hazard Performance

Flammability	Federal Aviation Reg. FAR-25	Pass
	MIL-W-81044	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	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

SPEC 44 Part Numbering System

44 XXXXX - AWG - XX/XX/XX - X



Example: 44AM1131-22-9/96/93-9

Round-braid shielded and jacketed cable per M27500 with three conductors of 600-V, lightweight, 22 AWG tin-coated copper wires. Components are coded white, white with a blue stripe, and white with an orange stripe with an overall white crosslinked PVDF jacket.

Temperature rating	Conductor material	AWG range available	Raychem part no.	MIL-SPEC no.
150°C				
600-V lightweight single-wall hookup wire, .1905 mm (.0075 inch) nominal wall				
	Tin-coated copper	12–30	44A0111-	MIL-W-81044/12
	Silver-coated copper	12–30	44A0112-	MIL-W-81044/11
	Nickel-coated copper	12–30	44A0113-	
	Silver-coated high-strength copper alloy	20–30	44A0114-	MIL-W-81044/13
	Nickel-coated high-strength copper alloy	20–26	44A0116-	
150°C				
1000-V lightweight dual-wall hookup wire, .254 mm (.010 inch) nominal wall				
	Tin-coated copper	4–30	44A0211-	
	Silver-coated copper	4–26	44A0212-	
	Nickel-coated copper	4–26	44A0213-	
	Silver-coated high-strength copper alloy	20–26	44A0214-	
150°C				
2500-V lightweight dual-wall hookup wire, .508 mm (.020 inch) nominal wall				
	Tin-coated copper	0–26	44A0311-	
	Silver-coated copper	0–24	44A0312-	
	Nickel-coated copper	00–24	44A0313-	
	Silver-coated high-strength copper alloy	20–28	44A0314-	
150°C				
600-V medium-weight dual-wall hookup wire, .381 mm (.015 inch) nominal wall				
	Tin-coated copper	0–24	44A0811-	MIL-W-81044/9
	Silver-coated copper	0–24	44A0812-	MIL-W-81044/8
	Nickel-coated copper	12–24	44A0813-	
	Silver-coated high-strength copper alloy	20–26	44A0814-	MIL-W-81044/10
	Aluminum	00–8	44A0815-	
150°C				
600-V normal-weight dual-wall hookup wire, .508 mm (.020 inch) nominal wall				
	Tin-coated copper	0–24	44A0711-	MIL-W-81044/6
	Nickel-coated copper	0–24	44A0713-	
	Silver-coated high-strength copper alloy	20–26	44A0714-	MIL-W-81044/7
	Aluminum	0–8	44A0715-	

Product Dimensions (SPEC 44 Primary Wire)

Wire size (AWG)	Raychem part number ^{a,b}	Conductor stranding (no. × AWG)	Nom. diameter in mm/in	Max. weight ^c in kg/km (lb/1000 ft)
Light weight				
600-volt 44A011X^a .1905 mm (.0075 inch) wall thickness				
30	44A011X-30-Y	7 × 38	.69 (.027)	1.06 (.71)
28	44A011X-28-Y	7 × 36	.76 (.030)	1.48 (.96)
26	44A011X-26-Y	19 × 38	.86 (.034)	2.08 (1.40)
24	44A011X-24-Y	19 × 36	1.02 (.040)	2.98 (2.00)
22	44A011X-22-Y	19 × 34	1.19 (.047)	4.46 (3.00)
20	44A011X-20-Y	19 × 32	1.40 (.055)	6.7 (4.50)
18	44A011X-18-Y	19 × 30	1.65 (.065)	10.12 (6.80)
16	44A011X-16-Y	19 × 29	1.83 (.072)	12.80 (8.60)
14	44A011X-14-Y	19 × 27	2.26 (.089)	19.64 (13.20)
12	44A011X-12-Y	37 × 28	2.75 (.108)	30.06 (20.20)
1000-volt 44A021X^a .254 mm (.010 inch) wall thickness				
24	44A021X-24-Y	19 × 36	1.17 (.046)	3.57 (2.40)
22	44A021X-22-Y	19 × 34	1.37 (.054)	5.21 (3.50)
20	44A021X-20-Y	19 × 32	1.57 (.062)	7.54 (5.10)
18	44A021X-18-Y	19 × 30	1.85 (.073)	11.46 (7.70)
16	44A021X-16-Y	19 × 29	2.06 (.081)	14.58 (9.80)
14	44A021X-14-Y	19 × 27	2.49 (.098)	21.88 (14.70)
12	44A021X-12-Y	37 × 28	2.97 (.117)	32.89 (22.10)
10	44A021X-10-Y	37 × 26	3.71 (.146)	52.98 (35.60)
8	44A021X-8-Y	133 × 29	5.23 (.206)	91.97 (61.80)
2500-volt 44A031X^a .508 mm (.020 inch) wall thickness				
24	44A031X-24-Y	19 × 36	1.45 (.057)	4.46 (3.00)
22	44A031X-22-Y	19 × 34	1.75 (.069)	6.40 (4.30)
20	44A031X-20-Y	19 × 32	1.98 (.078)	9.08 (6.10)
18	44A031X-18-Y	19 × 30	2.24 (.088)	12.95 (8.70)
16	44A031X-16-Y	19 × 29	2.46 (.097)	16.22 (10.90)
14	44A031X-14-Y	19 × 27	2.92 (.115)	24.11 (16.20)
12	44A031X-12-Y	37 × 28	3.33 (.131)	36.01 (24.20)
10	44A031X-10-Y	37 × 26	4.09 (.161)	54.32 (36.50)
8	44A031X-8-Y	133 × 29	5.56 (.219)	96.73 (65.00)
6	44A031X-6-Y	133 × 27	6.83 (.269)	153.28 (103.00)
4	44A031X-4-Y	133 × 25	8.26 (.325)	235.13 (158.00)
2	44A031X-2-Y	665 × 30	10.26 (.404)	375.02 (252.00)
0	44A031X-0-Y	1045 × 30	12.55 (.494)	565.50 (380.00)

^aX = Conductor type (see Part Numbering System on page 10-2).

^bY = Color as specified (see color code below):

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

^cWeight is for tin-coated copper conductor.

Product Dimensions (SPEC 44 Primary Wire)

Wire size (AWG)	Raychem part number ^{a,b}	Conductor stranding (no. × AWG)	Nom. diameter in mm/in		Max. weight ^c in kg/km (lb/1000 ft)	
Medium weight						
600-volt 44A081X^a .381 mm (.0150 inch) wall thickness						
26	44A081X-26-Y	19 × 38	1.22	(.048)	2.83	(1.90)
24	44A081X-24-Y	19 × 36	1.37	(.054)	4.20	(2.70)
22	44A081X-22-Y	19 × 34	1.57	(.062)	5.80	(3.90)
20	44A081X-20-Y	19 × 32	1.78	(.070)	8.18	(5.50)
18	44A081X-18-Y	19 × 30	2.03	(.080)	11.91	(8.00)
16	44A081X-16-Y	19 × 29	2.26	(.089)	15.03	(10.10)
14	44A081X-14-Y	19 × 27	2.74	(.108)	23.07	(15.50)
12	44A081X-12-Y	37 × 28	3.20	(.126)	34.23	(23.00)
10	44A081X-10-Y	37 × 26	3.94	(.155)	58.13	(35.70)
8	44A081X-8-Y	133 × 29	5.44	(.214)	93.46	(62.80)
6	44A081X-6-Y	133 × 27	6.71	(.264)	147.77	(99.30)
4	44A081X-4-Y	133 × 25	8.13	(.320)	227.69	(153.00)
2	44A081X-2-Y	665 × 30	10.16	(.400)	367.58	(247.00)
0	44A081X-0-Y	1045 × 30	12.45	(.490)	561.09	(377.00)

Normal weight



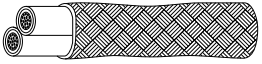
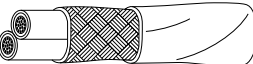

600-volt 44A071X^a .508 mm (.020 inch) wall thickness						
26	44A071X-26-Y	19 × 38	1.35	(.053)	3.27	(2.20)
24	44A071X-24-Y	19 × 36	1.45	(.057)	4.46	(3.00)
22	44A071X-22-Y	19 × 34	1.75	(.069)	6.40	(4.30)
20	44A071X-20-Y	19 × 32	1.98	(.078)	9.08	(6.10)
18	44A071X-18-Y	19 × 30	2.24	(.088)	12.95	(8.70)
16	44A071X-16-Y	19 × 29	2.46	(.097)	16.22	(10.90)
14	44A071X-14-Y	19 × 27	2.92	(.115)	24.11	(16.20)
12	44A071X-12-Y	37 × 28	3.33	(.131)	36.01	(24.20)
10	44A071X-10-Y	37 × 26	4.09	(.161)	54.32	(36.50)
8	44A071X-8-Y	133 × 29	5.56	(.219)	96.73	(65.00)
6	44A071X-6-Y	133 × 27	6.83	(.269)	153.28	(103.00)
4	44A071X-4-Y	133 × 25	8.26	(.325)	235.13	(158.00)
2	44A071X-2-Y	665 × 30	10.26	(.404)	375.02	(252.00)
0	44A071X-0-Y	1045 × 30	12.55	(.494)	565.50	(380.00)

^aX = conductor type (see Part Numbering System on page 10-2).

^bY = color as specified (see color code below):

0 = Black	3 = Orange	7 = Violet
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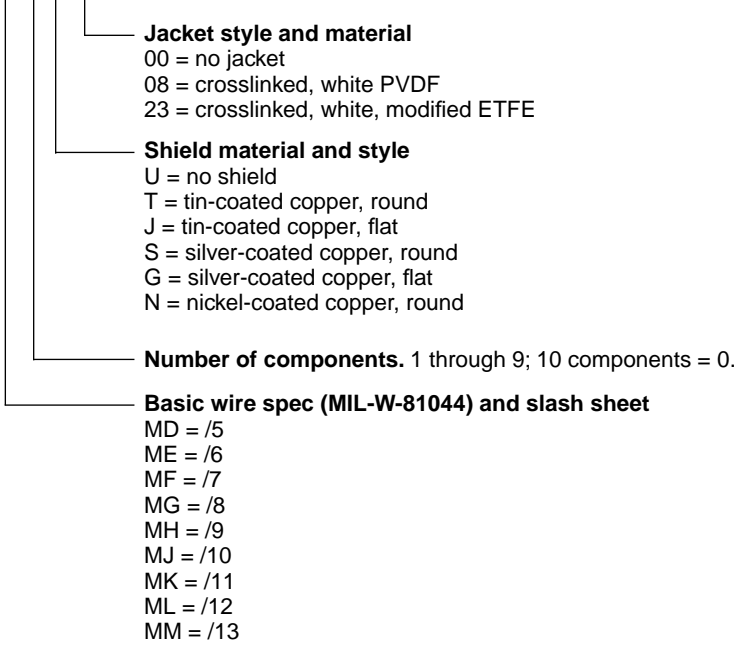
^cWeight is for tin-coated copper conductor.

Construction	Number of components	Component conductor ^a	Jacket material	Shield material ^a	Cable part numbers ^b	
					Light wt.	Medium wt.
Unshielded, unjacketed 	2-9	1			44A01X1-	44A08X1-
		2			44A01X2-	44A08X2-
		3			44A01X3-	44A08X3-
		4			44A01X4-	44A08X4-
Unshielded, jacketed 	2-9	1	Radiation-crosslinked polyvinylidene fluoride (PVDF)		44AM41X1-	44AM48X1-
		2			44AM41X2-	44AM48X2-
		3			44AM41X3-	44AM48X3-
		4			44AM41X4-	44AM48X4-
		1	Radiation-crosslinked modified ethylene tetrafluoroethylene (ETFE)		44B41X1-	44B48X1-
		2			44B41X2-	44B48X2-
		3			44B41X3-	44B48X3-
		4			44B41X4-	44B48X4-
Shielded (round braid), unjacketed 	1-9	1			44AM31X1-	44AM38X1-
		2			44AM31X2-	44AM38X2-
		3			44AM31X3-	44AM38X3-
		4			44AM31X4-	44AM38X4-
Shielded (round braid), jacketed 	1-9	1	Radiation-crosslinked PVDF		44AM11X1-	44AM18X1-
		2			44AM11X2-	44AM18X2-
		3			44AM11X3-	44AM18X3-
		4			44AM11X4-	44AM18X4-
		1	Radiation-crosslinked modified ETFE		44B11X1-	44B18X1-
		2			44B11X2-	44B18X2-
		3			44B11X3-	44B18X3-
		4			44B11X4-	44B18X4-
Shielded (flat braid), jacketed 	1-9	1	Radiation-crosslinked PVDF		44AM21X1-	44AM28X1-
		2			44AM21X2-	44AM28X2-
		3			44AM21X3-	44AM28X3-
		4			44AM21X4-	44AM28X4-
		1	Radiation-crosslinked modified ETFE		44B21X1-	44B28X1-
		2			44B21X2-	44B28X2-
		3			44B21X3-	44B28X3-
		4			44B21X4-	44B28X4-

^a 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

^b X = Number of components in cable.
 For complete part number see Part Numbering System on page 10-2.

M27500 - AWG XX X X XX



Example:

M27500-22ML3T08 = 44AM1131-22-9/96/93-9

Military part no. _____

Raychem part no. _____