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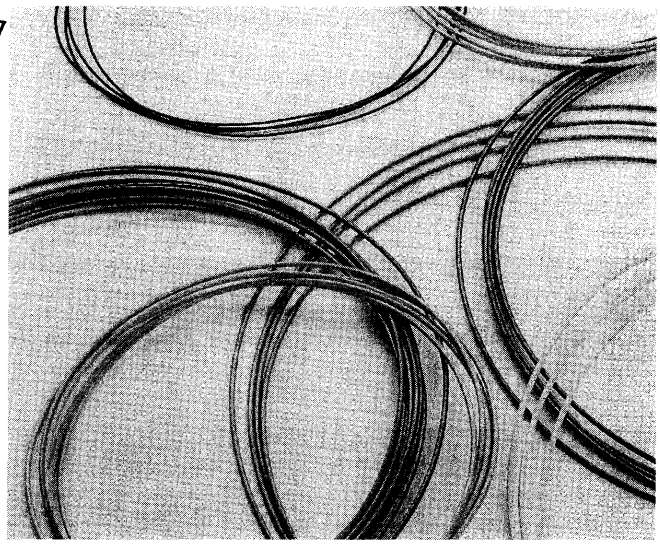
Before ordering check with factory for most current data.

FAX ID	Description
6000	Data sheet
6001	RT-Spec 44

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).

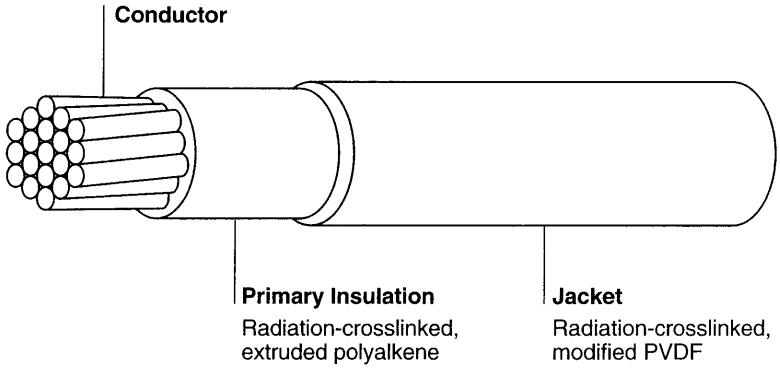
Originally developed for aerospace and military requirements in applications of high density and complex circuitry, SPEC 44 wire and cable now finds wide use throughout industry, in commercial and military electronics, in avionics, and on satellites, aircraft, helicopters, ships, trains, and offshore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

CAA Approval E11623

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

Base color of primary wire or cable jacket. Replace X by number indicating base color for primary wire or jacket color (0 = black; 1 = brown; 2 = red; 2L = pink; 3 = orange; 4 = yellow; 5 = green; 6 = blue; 7 = violet; 8 = gray; 9 = white). Additional number(s) after base color indicates stripe(s) color(s); for example, 95 = white wire with a green stripe, or 952 = white wire with a green stripe followed by a red stripe.

Component color code (required for cable constructions only). Replace XX by number(s) indicating base color followed by stripe(s) as required. Slashes are used to separate individual component wire colors.

Wire size (American Wire Gauge).

Conductor type. 1 = tin-coated copper; 2 = silver-coated copper; 3 = nickel-coated copper; 4 = high-strength copper alloy (HSCA), silver-coated; 5 = aluminum; 6 = nickel-coated HSCA.

Number of conductors. 1 through 9.

Class of wire. 1 = 600-V lightweight wire; 2 = 1000-V wire; 3 = 2500-V wire; 4 = 600-V space wire; 7 = normal-weight wire; 8 = medium-weight wire.

Construction. 0 = primary wire; 1 = round-braid shielded, jacketed; 2 = flat-braid shielded, jacketed; 3 = round-braid shielded, no jacket; 4 = jacketed, no shield; 5 = spirally shielded, jacketed, 6 through 9 = special constructions.

Temperature rating. / = 135°C; A = 150°C; AM = designation for M27500 cables, 150°C; B = 150°C with modified crosslinked ethylene tetrafluoroethylene (ETFE) jacket for cable in place of crosslinked polyvinylidene fluoride (PVDF).

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-	

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)*

[a]X = Conductor type (see Part Numbering System on page 10-2).

[b]Y = 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	

[c]Weight is for tin-coated copper conductor.

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)*

[a]X = conductor type (see Part Numbering System on page 10-2).

[b]Y = 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	

[c]Weight is for tin-coated copper conductor.

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