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**Before ordering check with
factory for most current data.**

Type 99T Wire and cable

Applications

Type 99T wire has a dual-wall construction of modified polyester. This combines excellent mechanical performance and chemical resistance with a range of enhanced fire hazard properties. Type 99T wire is designed to meet the stringent low-hazard performance standards now being specified by many authorities, in particular for naval, mass transit, and industrial control panel wiring.

For example, specifications such as Def. Stan. 61-12 (Part 18) and many mass transit specifications require improved performance of wires and cables under fire conditions. This has led to a tightening of the requirements for flame-retardance and reduced smoke generation, corrosive gas generation, and hazardous fume emission. Type 99T wire achieves these improvements in performance, yet offers small size, light weight, flexibility, handleability, resistance to carbon arc tracking, and resistance to chemicals and fluids.

Features/Benefits

- Low flammability.
- Low smoke generation.
- Low toxicity index.
- Low generation of corrosive gases.
- Small size, light weight.



Specifications/Approvals

Military	Raychem
A014000 Australian Navy	WCD 282
	WCD 395

Product Dimensions (nominal)

Primary Wires

Size AWG	Stranding in mm (in)		99T011X (600 V) primary wire		99T021X (1000 V) primary wire					
			Outside diameter in mm (in)		Weight in g/m (lb/1000 ft)		Outside diameter in mm (in)		Weight in g/m (lb/1000 ft)	
22	19 x 0.15	(19 x 0.006)	1.21	(.048)	4.4	(1.35)	1.41	(0.056)	4.9	(1.51)
20	19 x 0.20	(19 x 0.008)	1.46	(.057)	6.8	(2.09)	1.65	(0.065)	7.3	(2.25)
18	19 x 0.25	(19 x 0.010)	1.71	(.067)	9.9	(3.05)	1.89	(0.074)	10.9	(3.35)
16	19 x 0.30	(19 x 0.012)	1.96	(.077)	14.9	(4.58)	2.1	(0.083)	14.5	(4.46)
14	37 x 0.25	(37 x 0.010)	2.25	(.089)	19.6	(6.03)	2.5	(0.098)	21.8	(6.71)
12	37 x 0.32	(37 x 0.013)	2.71	(.107)	25.7	(7.91)	2.97	(0.117)	31.3	(9.63)

Product Dimensions (nominal)

Shielded (Screened) and Jacketed cable

99T111X (600 V)
one conductor cable



99T1121X (600 V)
two conductor cable



Size AWG	Stranding in mm (in)	Outside diameter in mm (in)	Weight in g/m (lb/1000 ft)	Outside diameter in mm (in)	Weight in g/m (lb/1000 ft)
22	19 x 0.15 (19 x 0.006)	2.31 (.091)	11.1 (3.42)	3.52 (.138)	20.5 (6.31)
20	19 x 0.20 (19 x 0.008)	2.56 (.101)	14.6 (4.49)	4.02 (.158)	27.7 (8.52)
18	19 x 0.25 (19 x 0.010)	2.81 (.111)	19.3 (5.94)	4.52 (.178)	37.1 (11.42)
16	19 x 0.30 (19 x 0.012)	3.06 (.120)	24.9 (7.66)	5.02 (.198)	48.5 (14.92)
14	37 x 0.25 (37 x 0.010)	3.36 (.132)	30.9 (9.51)	5.62 (.221)	60.5 (18.62)
12	37 x 0.32 (37 x 0.013)	3.81 (.150)	43.4 (13.35)	6.52 (.257)	86.0 (26.46)

Physical Characteristics

Handleability

Type 99T wire has been designed to be readily handleable by modern wiring and harnessing techniques. It is a flexible wire with virtually no springback once set. It is easily stripped with tools such as conventional die-blade strippers.

Small size

Type 99T wire has a normal 0.2-mm insulation wall thickness, which is comparable to other established thin-wall wires, such as SPEC 44 wire.

Light weight

Type 99T wire is designed to weigh the same as SPEC 44 wire.

Typical Properties

Test	Method	Typical value
Temperature rating	BS 2G230	105°C
Voltage rating	Raychem	600 V thin wall
Tensile strength/elongation of insulation at break		30 MPa/>250%
Notch propagation (0.05 mm notch)	BS 2G230	Pass
Shrinkage 200°C	BS 2G230	<1%
Low-temperature bend	BS 2G230	-40°C
Voltage withstand	BS 2G230	2.5 kV
Insulation resistance (20°C)	UITP	1000 megohms/km (min.)
Pliability rating	Def. Stan. 61-12 (18)	82 - Pliable
Fluid resistance	Def. Stan. 61-12 (18)	
Oils (ASTM No. 3)	100°C/72 hours	Pass
De-ionized water	50°C/7 days	Pass

Environmental Properties

Mechanical performance

The scrape abrasion and cut-through resistance of Type 99T wire outperforms the well-established performance of SPEC 44 wire throughout its operating temperature range.

Fluid resistance

Type 99T wire demonstrates outstanding resistance to most acids, alkalis, hydrocarbon solvents, fuels, lubricants, and water.

Electrical arc tracking

Type 99T wire is resistant to electrical arc tracking under both wet and dry conditions.

Voltage ratings

Standard available voltage ratings for Type 99T wire are 600 V (0.2-mm wall thickness) and 1000 V (0.3-mm wall thickness).

Fire Hazard Characteristics

Low toxicity index

Type 99T wire is designed to meet low hazardous-fume-emission-level requirements, for example, Def. Stan. 61-12 (Part 18).

Flammability

Type 99T wire has passed some of the most stringent flammability tests, such as the test in IEC 332, Part 3 (ladder test) and Underwriters' Laboratory for VW1 (individual wire).

Corrosivity

Type 99T wire has a low corrosive gas emission, demonstrated by its low acid gas value.

Smoke generation

Type 99T wire has been designed to meet stringent smoke tests, such as those specified in Def. Stan. 61-12 (part 18) and in many mass transit specifications

Fire Hazard Properties

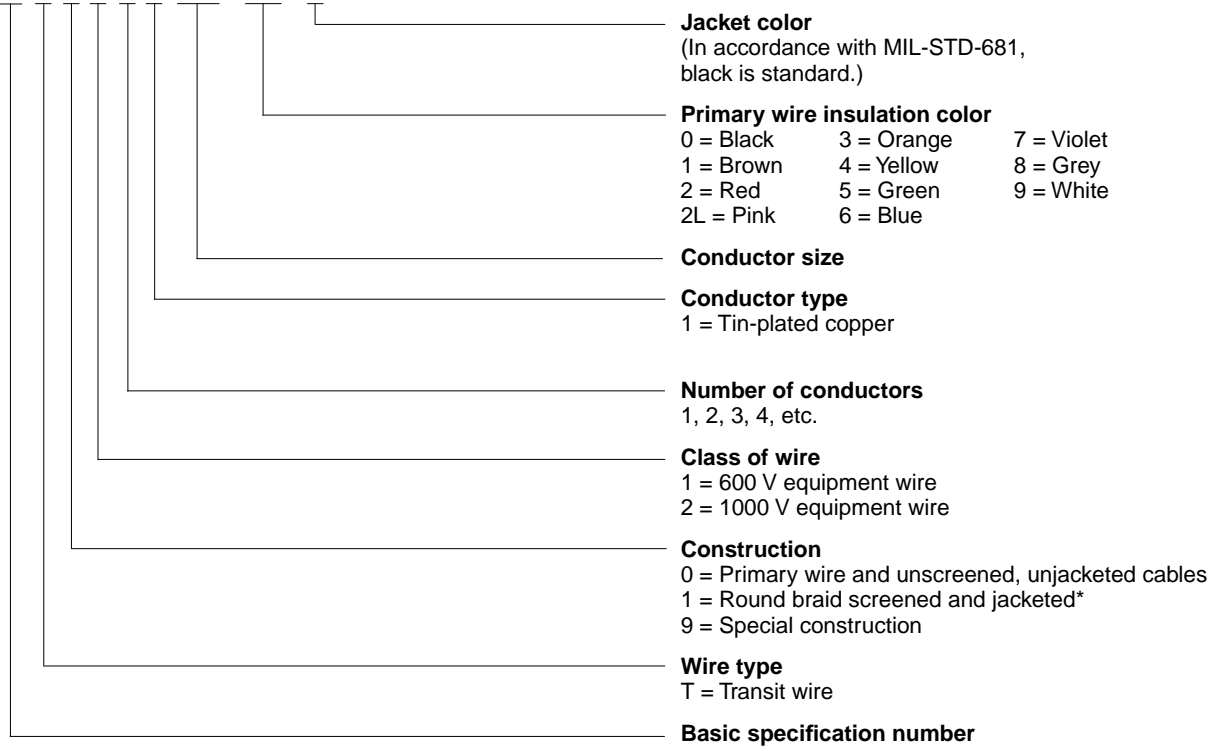
Test	Method	Typical value
Flammability	IEC 332 Pt 3	Pass
Toxicity index	Def. Stan. 61-12 (18)	0.1 per meter of wire
Smoke index	Def. Stan. 61-12 (18)	8 per meter of wire
Acid gas equivalent	TDE 76/P/76	<1.5%

SPEC 44 is a trademark of Raychem Corporation.

Users should independently evaluate the suitability of the product for their application.

Part Numbering System

99 X X X X X Size - X/X - X



*The cable jackets are Raychem Zerohal material and the standard color is black.

Example

99T1121-20-0/2-0 = Two conductors, transit wire, black, red components, black jacket; round-braid shielded (screened), size 20 conductor, 600 volt.

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