

INCH-POUND

MIL-DTL-24643/24B

22 August 2002

SUPERSEDING

MIL-C-24643/24A

14 March 1994

DETAIL SPECIFICATION SHEET

CABLE, ELECTRICAL, TYPES LSTCJX, LSTCKX AND LSTCTX

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and the issue of MIL-DTL-24643 listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation.

REQUIREMENTS:

Qualification required.

Construction (watertight with circuit integrity)

- First - Stranded conductor, uncoated (see table I for size and stranding).
- Second - Extruded silicone rubber insulation (see table I for dimensions).
- Third - Glass braid, color identified (see table II). (see table I for dimensions).
- Fourth - Transparent braid covering. Two conductors cabled together to form a pair with lay not greater than 2.25 inches. For LSTCJX, one iron conductor and one constantan conductor. For type LSTCKX, one chromel and one alumel conductor. For LSTCTX, one copper conductor and one constantan conductor. Type J, K and T thermocouple conductors shall be in accordance with ANSI MC96.1. Color code applied by method 4, see table II for color code sequence.
- Fifth - The specified number of pairs (see table I) cabled together with a lay not greater than 10 inches. Fillers saturated with non-charring silicone base compound to form a firm, well-rounded assembly.
- Sixth - A binder tape applied helically with overlap.
- Seventh - Silicone rubber jacket colored orange or red. (see table I for thickness)
- Eighth - Braided metal armor.

TABLE I. Details.

Military part no. M24643/24	Type and size	Conductors				Cable jacket thickness min avg (in)	Overall dia max (in)	Cold bending mandrel dia max (in)
		No. of pairs	Number of strands and strand diameter (inch)	Diameter over insulation nominal (inch)	Diameter over braid covering maximum (inch)			
-01AN	LSTCJX-3	3	7/.0201	0.100	0.125	0.050	0.742	9.0
-02AN	LSTCJX-7	7	7/.0201	0.100	0.125	0.062	0.983	11.0
-03AN	LSTCJX-12	12	7/.0201	0.100	0.125	0.062	1.269	15.0
-04AN	LSTCKX-1	1	7/.0201	0.100	0.125	0.038	0.456	5.0
-05AN	LSTCKX-3	3	7/.0201	0.100	0.125	0.050	0.742	9.0
-06AN	LSTCKX-7	7	7/.0201	0.100	0.125	0.062	0.983	11.0
-07AN	LSTCKX-12	12	7/.0201	0.100	0.125	0.062	1.269	15.0
-08AN	LSTCTX-1	1	7/.0113	0.065	0.085	0.038	0.350	4.25
-09AN	LSTCTX-3	3	7/.0113	0.065	0.085	0.038	0.552	6.5
-10AN	LSTCTX-7	7	7/.0113	0.065	0.085	0.050	0.731	8.0
-11AN	LSTCTX-12	12	7/.0113	0.065	0.085	0.063	0.964	11.0

TABLE II. Color identification code.

Pair number	Constantan or alumel	Iron, copper or chromel pair	
		Base color	Tracer color
1	Red	White	----
2	Red	Black	----
3	Red	Green	----
4	Red	Orange	----
5	Red	Blue	----
6	Red	White	Black
7	Red	White	Green
8	Red	White	Orange
9	Red	White	Blue
10	Red	White	Red
11	Red	Black	White
12	Red	Green	White

EXAMINATION AND TESTS:

Basic electrical:

Voltage withstand - volts, root mean square, minimum2000
 Insulation resistance - megohms -1000 feet, minimum
 Conductor to conductor500

Requirements:

ANSI MC96.1 calibration limits of error:

(a) types LSTCJX	$\pm 2.2^{\circ}\text{C}$
(b) types LSTCKX, minus 32 to 530°F	$\pm 4^{\circ}\text{C}$
532 to 2300°F.....	
(c) Types LSTCTX.....	$\pm 1^{\circ}\text{C}$
Conductor continuity	No failure

Group A:

Visual and dimensional.....	No failure
Watertightness - see MIL-DTL-24643 for limits of water leakage	No failure

Group B:

Cross-linked proof test (percent, maximum)	
Insulation	50
Jacket (when tested at 200 °C).....	50
Gas flame - 1 hour at 120/70 volt root mean square.....	No failure
Cold bending, cable - (see Table I for mandrel diameter)	No damage

Physicals (unaged)

Insulation (extruded)	
Tensile strength - lb/in ² , minimum	750
Elongation - percent, minimum	125
Jacket (cable)	
Tensile strength - lb/in ² , minimum	800
Elongation - percent, minimum	250
Durometer (type A) hardness, minimum (ASTM D 2240).....	60

Group C:

Physicals - cable aging (260 \pm 10°C)

Jacket	
Tensile strength - lb/in ² , minimum	600
Elongation - percent, minimum	150

Group D:

Flame propagation (cable)	No failure
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QUALIFICATION INSPECTION:

Qualification inspection shall include basic electrical, all of groups A, B, C and D, plus the following:

	<u>Requirements:</u>
Gas flame (3 hours) at 120/70 volts RMS	No failure
Aging and compatibility (cable)(125 \pm 5°C).....	No failure
For this test, omit all references to watertightness and fillers.	
Armor - conformance to material, construction and coverage	No failure
Specific gravity of extruded silicone insulation, maximum	1.55
Halogen content - percent, maximum	
Jacket	0.2
Fillers	0.2

MIL-DTL-24643/24B

Smoke index, maximum	
Jacket	35
Fillers	45
Insulation	35
Toxicity index, maximum	
Jacket	5
Fillers	5
Insulation	1.5

UNIT ORDERING LENGTHS: All types and sizes 100 feet minimum.

NOTE: Not for AIR FORCE use.

Custodians:
 Army - MI
 Navy - SH

Preparing Activity:
 Navy - SH
 (Project 6145-2308-022)

Review Activities:
 Army - AV, CR
 Navy - CG, EC
 DLA - CC