

INCH-POUND

MIL-C-24643/6D

14 March 1994

SUPERSEDING

MIL-C-24643/6C

29 May 1987

## MILITARY SPECIFICATION SHEET

CABLE, ELECTRICAL, 600 VOLTS, AC., TYPE LSMDY

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 the following specification listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation: MIL-C-24643.

## REQUIREMENTS:

Qualification required.

Construction (watertight)

- First - Copper conductor, uncoated, (see table I for size). Coated copper may be used at manufacturer's option where required to provide free stripping insulation.
- Second - Separator may be used at manufacturer's option where required to provide free-stripping insulation.
- \* Third - Ethylene propylene rubber or cross-linked polyethylene insulation or at the manufacturer's option a composite with a primary insulation consisting of ethylene propylene rubber or cross-linked polyethylene. The composite layer may be substituted for up to 10 percent of the wall thickness (see table I for wall thickness). Standard identification code shall be applied by method 1 or method 3. If identification method 1 is used, insulation color shall be black.
- Fourth - Nineteen conductors, cabled together with a lay not greater than 24 times the pitch diameter of the layer. Cabling sequence to be consecutive, starting with no. 1 from center outward. Fillers shall be used as necessary to make a firm, well-rounded assembly.
- \* Fifth - Binder tape applied helically with overlap.
- Sixth - Cross-linked polyolefin jacket.
- Seventh- Braided metal armor.
- Eighth - Binder tape applied helically with overlap.
- \* Ninth - Cross-linked polyolefin jacket. (see table I for wall thickness).

AMSC N/A

FSC 6145

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

MIL-C-24643/6D

Table I. Details

Military part no. M24643/6	Type and size	Conductors		Insula- tion thickness minimum average (inch)	Inner cable Jacket Thick- ness min avg (inch)	Diameter over armor nominal (inch)	Cable Jacket Thick- ness minimum average (inch)		Overall Diameter		Conductor resistance per 1000 feet maximum (ohms)	Insulation resistance per 1000 feet minimum (megohms)	Cold bending mandrel diameter maximum (inch)
		Size	AWG				mini- mum (inch)	maxi- mum (inch)					
-01AN	LSMDY-6	12(class B)		0.028	0.050	1.000	0.060	1.120	1.190	1.73	100	15	
-02AN	LSMDY-14	9(class B)		.040	.050	1.380	.060	1.500	1.570	.868	100	21	
-03AN	LSMDY-23	7(class B)		.052	.085	1.710	.075	1.880	1.960	.598	100	25	
-04AN	LSMDY-40	4(class C)		.052	.065	1.960	.075	2.150	2.240	.273	90	29	
--05AN	LSMDY-60	2(class D)		.052	.065	2.250	.075	2.425	2.525	.172	75	33	

## MIL-C-24643/6D

## EXAMINATION AND TESTS:

Basic electrical:Requirements

Conductor Resistance - ohms/1000 feet at 25°C, maximum .(see table I)	
Voltage withstand - volts, root mean square, minimum	
Conductor to conductor.....	2500
Insulation resistance - megohms/1000 feet, minimum.....	(see table I)
Conductor continuity.....	No failure

Group A:

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

Group B:

Cold bending, cable - (see table I for mandrel diameter).....	No damage
* Cross-linked proof test (percent, maximum)	
Insulation.....	50
Jacket (When tested at 200°C).....	50
Drip - 95 ± 1°C.....	Zero
Tear - pounds per inch thickness, minimum (ASTM D 470).....	35
Physicals (unaged)	
Insulation	
Ethylene propylene rubber	
Tensile strength - lb/in <sup>2</sup> , minimum.....	700
Elongation - percent, minimum	250
Cross-linked polyethylene	
Tensile strength - lb/in <sup>2</sup> , minimum.....	1800
Elongation - percent, minimum	250
Jacket (cable)	
Tensile strength - lb/in <sup>2</sup> , minimum.	1300
Elongation - percent, minimum.....	160

Group C:

Physicals (aged)	
Insulation	
Ethylene propylene	
Air oven	
Tensile strength - percent of unaged, minimum.....	75
Elongation - percent of unaged minimum.....	75
Cross-linked polyethylene	
Air oven	
Tensile strength - percent of unaged, minimum.....	80
Elongation - percent of unaged minimum.....	80

## MIL-C-24643/6D

## EXAMINATION AND TESTS (continued):

		<u>Requirements</u>
	Jacket (cable)	
	Air oven	
	Tensile strength - percent of unaged, minimum.....	60
	Elongation - percent of unaged minimum.....	60
*	Hot oil immersion	
	Tensile strength - percent of unaged, minimum.....	50
	Elongation - percent of unaged minimum.....	50
	Shrinkage.....	No failure
*	Permanence of printing (jacket) - cycles, minimum.....	125
*	Permanence of printing (conductor) - cycles, minimum..	25
	Heat distortion - percent of unaged, maximum.....	30
*	Cable sealant removability.....	No failure
*	<u>Group D:</u>	
	Flame propagation (cable).....	No failure

## QUALIFICATION INSPECTION:

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

		<u>Requirements</u>
	Aging and compatibility (cable) (125 $\pm$ 5°C.).....	No failure
	Abrasion resistance (jacket) - scrapes, minimum.....	75
	Acid gas equivalent - percent, maximum	
	Jacket.....	2
	Fillers.....	2
	Insulation.....	18
	Halogen content - percent, maximum	
	Jacket.....	0.2
	Fillers.....	0.2
	Immersion (jacket)	
	Tensile strength - percent of unaged, minimum...	50
	Elongation - percent of unaged, minimum.....	50
	Smoke index, maximum	
	Jacket.....	25
*	Fillers.....	45
	Insulation.....	45
	Toxicity index, maximum	
	Jacket.....	5
	Fillers.....	5
	Insulation.....	1.5
	Durometer (jacket) - (type A) hardness, minimum.....	80
	Weathering (jacket).....	No failure

MIL-C-24643/6D

UNIT ORDERING LENGTH: 1000 feet nominal length for sizes 6, 14 and 23.  
500 feet nominal for sizes 40 and 60.

NOTE: The margins of this specification are marked with asterisks to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodians:

Army - MI  
Navy - SH

Preparing Activity:

Navy - SH

Review Activities:

Army - AV, CR, ER, ME, AR, AL  
Navy - EC, CG  
DLA - IS

Agent:

DLA-IS

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