INCH-POUND

MIL-C-24643/6E
22 November 1994
SUPERSEDING
MIL-C-24643/6D
14 March 1994

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).

Table I. Details

Military part no. M24643/6	Type and size	Conductors	Insulation thickness minimum average	Inner cable Jacket Thickness min avg	Diameter over armor nominal	Cable Jacket Thickness minimum average	Overall Diameter		Conductor resistance per 1000 feet	Insulation resistance per 1000 feet	Cold bending mandrel diameter
		Size AWG	(inch)	(inch)	(inch)	(inch)	minimum (inch)	maximum (inch)	maximum (ohms)	minimum (megohms)	maximum (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

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 (with outer jacket, binder and armor removed)	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^2, minimum	700
Elongation - percent, minimum	250
Cross-linked polyethylene	
Tensile strength - lb/in^2, minimum	1800
Elongation - percent, minimum	250
Jacket (cable)	
Tensile strength - lb/in^2, 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

EXAMINATION AND TESTS (continued):

	Requirements
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, method 1 only) - cycles, minimum	25
Heat distortion - percent of unaged, maximum	30
Cable sealant removability	No failure

Group D:

Flame propagation (cable)	No failure

QUALIFICATION INSPECTION:

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

	Requirements
Aging and compatibility (cable) (125 ±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

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.

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Army - MI
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Review Activities:
Army - AV, CR, ER, ME, AR, AL
Navy - EC, CG
DLA - IS

Preparing Activity:
Navy - SH

Agent:
DLA-IS

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