

INCH-POUND

MIL-C-24643/17D
22 November 1994
SUPERSEDING
MIL-C-24643/17C
14 March 1994

MILITARY SPECIFICATION SHEET

CABLE, ELECTRICAL, 1000 VOLTS, TYPE LSFSGU
(INCLUDING VARIATION LSFSGA)

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 with circuit integrity)

Sizes 3 to 100 inclusive, extruded silicone rubber insulation 1/

- First - Copper conductor, uncoated, (see table I for size)
- Second - Extruded Silicone rubber insulation (see table I for diameter).
- Third - Glass braid providing 80% coverage.
- Fourth - Braid covering (see table I for diameter). Standard identification code applied by method 1 or method 3.

Sizes 23 to 400 inclusive, silicone rubber-glass tape insulation 1/

- First - Copper conductor, uncoated, (see table I for size)
- Second - Silicone rubber - glass tape insulation (see table I for diameter). Letter identification code applied by method 5.
- Third - The four conductors shall be cabled together with a lay not greater than 24 times the pitch diameter. Fillers shall be used as necessary to form a firm, well rounded assembly.
- Fourth - A binder.

1/ Size 23 through 100 may be glass tape or extruded silicone rubber insulation.

AMSC N/A

1 of 5

FSC 6145

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

TABLE I. Details.

Military part no. M24643/17	Size 2/ 1/	Conductor Size AWG	Overall diameter (inches)				Diameter over outer insulation Tape nom. (inches)	Diameter over insulation min avg (inches)	Diameter over braid covering max (inches)	Jacket thickness min avg (inches)	Conductor resistance (ohms)	Insulation resistance (megohms)	Cold bending mandrel diameter max (inches)	Accel. service loading (amps)
			Type's		Type's									
			min	max	min	max								
-01UN	3	16 (class B)	0.447	0.497	0.096	0.130	0.030	4.3	500	-----	-----	-----	-----	
-02UN	4	14 (class B)	.513	.563	.112	.143	.040	2.68	500	-----	-----	-----	-----	
-03UN	9	10 (class B)	.630	.680	.154	.187	.040	1.08	500	-----	-----	-----	-----	
-04UN	23	7 (class B)	.890	.940	.271	.310	.050	.543	500	-----	-----	-----	115	
-05UN	50	3 (class C)	1.050	1.100	.380	.335	.050	.21	200	13	185	-----	-----	
-06UN	75	1 (class C)	1.240	1.290	.440	.407	.050	.134	175	15	250	-----	-----	
-07UN	100	0 (class D)	1.358	1.408	.500	.453	.060	.106	160	16	295	-----	-----	
-08UN	150	000 (class D)	1.625	1.675	-----	-----	.060	.0674	135	19	400	-----	-----	
-09UN	200	0000 (class D)	1.820	1.870	-----	.634	.060	.0536	125	21	465	-----	-----	

1/ Unarmored. When armored option is required, see MIL-C-24643 for configuration of part number.

2/ Type LSFSGU and LSFSGA

Construction (watertight with circuit integrity) (continued)

Construction variant type LSFSGU

Sizes 3 to 100 inclusive, extruded silicone rubber insulation 1/

- Fifth - The four conductors shall be cabled together with a lay not greater than 24 times the pitch diameter. Fillers shall be used as necessary to form a firm, well rounded assembly
- Sixth - Binder or combination binder and barrier.
- Seventh - Cross-linked polyolefin jacket. (see table I for thickness).

Sizes 23 to 200 inclusive, silicone rubber-glass tape insulation 1/

- Fifth - Cross-linked polyolefin jacket. (see table I for thickness).

Construction variant type LSFSGA

- Fifth - Cross-linked polyolefin jacket. (see table I for thickness).
- Sixth - Braided metal armor

1/ Size 23 through 100 may be glass tape or extruded silicone rubber insulation at the manufacturer's option.

EXAMINATION AND TESTS:

	<u>Requirements</u>
<u>Basic electrical:</u>	
Conductor Resistance - ohms/1000 feet at 25°C, maximum	(see table I)
Voltage withstand - volts, root mean square, minimum	
Sizes 3 through 9	3000
Sizes 23 and larger	5000
Insulation resistance - megohms/1000 feet, minimum	(see table I)
Conductor continuity	No failure
<u>Group A:</u>	
Visual and dimensional	No failure
Watertightness - see MIL-C-24643 for limits of water leakage	No failure
* Abrasion resistance - sizes 3 through 100 (extruded silicone rubber) scrapes, minimum	250
* Crack resistance - sizes 3 through 100 (extruded silicone rubber)	No damage

EXAMINATION AND TESTS (continued):

<u>Group B:</u>	<u>Requirements</u>
Cross-linked proof test (percent, maximum)	
Insulation	50
Jacket (When tested at 200°C)	50
Gas Flame - 1 hour	No failure
Drip - 95 + 1°C	Zero
Tear - pounds per inch thickness, minimum (ASTM D 470).....	35
Cold bending, cable - see table I for mandrel diameter	No damage
 Physicals (unaged)	
Insulation (extruded)	
Tensile strength - lb/in ² , minimum	700
Elongation - percent, minimum	250
Jacket (cable)	
Tensile strength - lb/in ² , minimum	1300
Elongation - percent, minimum	160
 <u>Group C:</u>	
Physicals (aged)	
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
Heat distortion - percent of unaged, maximum	30
* Permanence of printing (conductor, method 1 only) - cycles, minimum (extruded silicon rubber only)	25
* Permanence of printing (jacket) - cycles, minimum	125
Cable sealant removability	No failure
* Armor (type LSFSGA only) - conformance to material, construction and coverage	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:

QUALIFICATION INSPECTION:

Requirements

Cold working (minus 20 ± 2°C)	No damage
Gas flame (3 hours)	No failure
Specific gravity of extruded silicone insulation, maximum	1.55
Accelerated service - sizes 14 and larger (see table I for load current)	No failure
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	35
Toxicity index, maximum	
Jacket	5
Fillers	5
Insulation	1.5
Durometer (jacket) - (type A) hardness, minimum	80
Weathering (jacket)	No failure

UNIT ORDERING LENGTHS:

<u>Type and Size</u>	<u>Feet (nominal)</u>
LSFSGU - 3	2500
LSFSGU - 4 and 9	2000
LSFSGU - 23 and 50	1500
LSFSGU - 75 through 150	1000
LSFSGU - 200	500

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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