

INCH-POUND

MIL-DTL-24643/7E

22 August 2002

SUPERSEDING

MIL-C-24643/7D

22 November 1994

DETAIL SPECIFICATION SHEET

CABLE, ELECTRICAL, 600 VOLTS, TYPE LSMHOF

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 (non-watertight)

- First - Copper conductor - AWG size No. 16, class K stranding, uncoated.
- 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. Minimum average wall thickness 0.020 inch. Standard identification code shall be applied by method 1 or method 3. If identification method 1 is used, insulation color shall be black.
- Fourth - The specified number of conductors (see table I) cabled together in one or more layers, all in left hand direction, with the minimum amount of fillers necessary, to obtain a firm well-rounded assembly. Cabling sequence to be consecutive, starting with No. 1, from center outward. The length of lay shall be determined to permit a completed cable to meet the twisting and bending endurance tests. A single conductor shall not be used as center for the cable core.
- Fifth - Binder tape applied helically with overlap.
- Sixth - Cross-linked polyolefin jacket. Minimum average wall thickness 0.060 inch.

TABLE I. Details.

Military part no. M24643/7	Type and size	Number of conductors	Overall diameter		Bending endurance roller diameter (maximum) (inches)
			min (inches)	max (inches)	
-01UN	LSMHOF-7	7	0.465	0.500	2.50
-02UN	LSMHOF-10	10	0.540	0.585	2.50
-03UN	LSMHOF-14	14	0.585	0.635	3.00
-04UN	LSMHOF-19	19	0.650	0.705	3.00
-05UN	LSMHOF-24	24	0.735	0.795	3.50
-06UN	LSMHOF-30	30	0.775	0.835	4.00
-07UN	LSMHOF-37	37	0.855	0.925	4.00
-08UN	LSMHOF-44	44	0.925	1.000	4.50
-09UN	LSMHOF-61	61	1.100	1.175	5.00

EXAMINATION AND TESTS:

Basic electrical:Requirements:

Conductor resistance - ohms/1000 feet at 25°C, maximum	4.59
Voltage withstand - volts, root mean square, minimum	2000
Insulation resistance - megohms -1000 feet, minimum	500
Conductor continuity	No failure

Group A:

Visual and dimensional	No failure
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Group B:

Cross-linked proof test (percent, maximum)	
Insulation	50
Jacket (When tested at 200°C)	50
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
Twisting and bending endurance -	
At 75°C, cycles, minimum	6000
At minus 30 ± 2°C, cycles, minimum	2000

Group C:

Physicals (aged)

Insulation

Ethylene propylene

Air oven

Tensile strength - percent of unaged, minimum75

Elongation - percent of unaged minimum75

Cross-linked polyethylene

Air oven

Tensile strength - percent of unaged, minimum80

Elongation - percent of unaged minimum80

Jacket (cable)

Air oven

Tensile strength - percent of unaged, minimum60

Elongation - percent of unaged minimum60

Hot oil immersion

Tensile strength - percent of unaged, minimum50

Elongation - percent of unaged minimum50

Shrinkage No failure

Permanence of printing (jacket) - cycles, minimum125

Permanence of printing (conductor, method 1 only) - cycles, minimum25

Heat distortion - percent of unaged, maximum30

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:

Aging and compatibility (cable) (125 ± 5°C) No failure

Abrasion resistance (jacket) - scrapes, minimum75

Acid gas equivalent - percent, maximum

Jacket2

Fillers2

Insulation18

Halogen content - percent, maximum

Jacket0.2

Fillers0.2

Immersion (jacket)

Tensile strength - percent of unaged, minimum50

Elongation - percent of unaged, minimum50

Smoke index, maximum

Jacket25

Fillers45

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:
All sizes 1500 feet nominal

Custodians:
Army - MI
Navy - SH

Preparing Activity:
Navy - SH
(Project 6145-2308-005)

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