

INCH-POUND

MIL-DTL-24643/51F

1 October 2009

SUPERSEDING

MIL-DTL-24643/51E

22 August 2002

DETAIL SPECIFICATION SHEET

CABLE, ELECTRICAL, -20 °C TO +90 °C, 1000 VOLTS, TYPE LSMNW

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 MIL-DTL-24643.

Construction, Non-Watertight

- First - Copper conductor, coated or uncoated 18 AWG, Class B stranding, in accordance with ASTM B8.
- Second - Separator may be used at manufacturer's option where required to provide free-stripping insulation.
- Third - Thermoset insulation 0.020 inch minimum average thickness. Standard identification code shall be applied by Method 1 or Method 3. If identification Method 1 is used, the insulation color shall be black.
- Fourth - The required number conductors (see table I), cabled together with a lay in accordance with 3.4.4 of MIL-DTL-24643, except that the lay of the two outer layers for Size 44 shall not be greater than 18 times the pitch diameter of the layer. Cabling sequence shall be consecutive, starting with no. 1, from the center outwards. Fillers may be used as necessary to form a firm well-rounded assembly.
- Fifth - An optional binder.
- Sixth - Cross-linked polyolefin jacket. Cable jacket thickness 0.050 inch minimum average.

TABLE I. Details.

Military part no. M24643/51	Type and size	Number of conductors	Overall diameter	
			min. (inch)	max. (inch)
-01UN	LSMNW-7	7	0.370	0.400
-02UN	LSMNW-10	10	0.457	0.495
-03UN	LSMNW-14	14	0.494	0.535
-04UN	LSMNW-19	19	0.545	0.590
-05UN	LSMNW-24	24	0.633	0.685
-06UN	LSMNW-30	30	0.670	0.725
-07UN	LSMNW-37	37	0.726	0.785
-08UN	LSMNW-44	44	0.823	0.890

REQUIREMENTS:

Qualification required.

INSPECTION:

Basic Electricals:

Conductor resistance (ohms/1000 feet at 25 °C, max.)	7.07
Voltage withstand (volts, root mean square, min.)	
Conductor to conductor	3000
Insulation resistance (megohms/1000 feet, min.)	
Conductor to conductor	1000
Conductor continuity	No failure

Group A:

Visual and dimensional	No failure
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Group B:

Cold bending cable	No failure
Thermoset proof test (percent, max.)	
Insulation	50
Jacket (when tested at 200 °C)	50

Physicals (unaged)

Insulation (extruded)	
Tensile strength (lb/in ² , min.)	700
Elongation (percent, min.)	150

Jacket (cable)	
Tensile strength (lb/in ² , min.)	1300
Elongation (percent, min.)	160
Tear (lb/in thickness, min.)	35
Group C:	
Physicals (aged) air oven	
Insulation (extruded)	
Tensile strength (percent of unaged, min.)	75
Elongation (percent of unaged, min.)	75
Jacket (cable)	
Tensile strength (percent of unaged, min.)	60
Elongation (percent of unaged, min.)	60
Permanence of printing (insulation), Method 1 only (cycles, min.)	25
Permanence of printing (jacket) (cycles, min.)	125
Heat distortion (percent of unaged, max.)	30
Shrinkage	No failure
Group D:	
Flame propagation (cable)	No failure
Qualification Inspection:	
Qualification inspection shall include basic electricals; groups A, B, C, and D; plus the following:	
Aging and compatibility (cable) (125±5 °C)	No failure
Abrasion resistance (jacket) (scrapes, min.)	75
Acid gas equivalent (percent, max.)	
Jacket	2
Fillers	2
Insulation	18
Halogen content (percent, max.)	
Jacket	0.2
Fillers	0.2
Insulation	0.2
Immersion (jacket)	
Tensile strength (percent of unaged, min.)	50
Elongation (percent of unaged, min.)	50

Smoke index (max.)	
Jacket	25
Fillers	45
Insulation	45
Toxicity index (max.)	
Jacket	5
Fillers	5
Insulation	1.5
Durometer (jacket) - Type A (hardness, min.)	80
Weathering (jacket)	No failure
Electrical moisture absorption	No failure

UNIT ORDERING LENGTHS:

<u>Type</u>	<u>Size</u>	<u>Feet (nominal)</u>
LSMNW	7	1500
LSMNW	10	1500
LSMNW	14 through 44	1000

CHANGES FROM PREVIOUS ISSUE: Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodians:

Army – MI
Navy – SH

Preparing Activity:

Navy – SH
(Project 6145-2008-055)

Review Activities:

Army – AR, AV, CR
Navy – CG, EC
DLA – CC

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <http://assist.daps.dla.mil>.