INCH-POUND
MIL-DTL-24643/15F
1 October 2009
SUPERSEDING
MIL-DTL-24643/15E
22 August 2002

DETAIL SPECIFICATION SHEET

CABLE, ELECTRICAL, -20 °C TO +105 °C, 1000 VOLTS, TYPE LSDSGU

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, Watertight with Circuit Integrity

First	-	Copper conductor, coated or uncoated (see table I for size).
Second	-	Thermoset insulation, extruded or taped (see table I for thickness).
Third	-	Optional glass braid.
Fourth	-	Optional covering (unless required by 3.3.5 of MIL-DTL-24643).
Fifth	-	The two conductors shall be cabled together in accordance with 3.4.4 of MIL-DTL-24643. Fillers may be used as necessary to form a firm well-rounded assembly. Standard identification code applied by Method 1, 3, or letter identification code applied by Method 5. If identification Method 1 is used, outer surface to be printed shall appear black.
Sixth	-	An optional binder.
Seventh	-	Cross-linked polyolefin jacket (see table I for thickness).

TABLE I. Details.

Military part no. M24643/15	Type and size	Conductor size		Cable overall diameter max. (inch)	Insulation thickness min. avg. (inch)	Jacket thickness min. avg. (inch)	Conductor resistance (ohms)	Insulation resistance (megohms)	Accelerated service loading ampere
		Navy std	AWG						
-01UN	LSDSGU-3		16 (Class B)	0.391	0.018	0.030	4.3	500	
-02UN	LSDSGU-4		14 (Class B)	0.427	0.018	0.030	2.68	500	
-03UN	LSDSGU-9		10 (Class B)	0.544	0.015	0.040	1.08	500	
-04UN	LSDSGU-14		9 (Class B)	0.670	0.018	0.040	0.859	500	100
-05UN	LSDSGU-23		7 (Class B)	0.781	0.035	0.050	0.543	500	130
-06UN	LSDSGU-50		3 (Class C)	0.911	0.035	0.050	0.210	200	215
-07UN	LSDSGU-75		1 (Class C)	1.074	0.035	0.050	0.134	175	285
-08UN	LSDSGU-100		0 (Class D)	1.167	0.035	0.050	0.106	160	335
-09UN	LSDSGU-200		0000 (Class D)	1.583	0.050	0.060	0.053	125	525
-10UN	LSDSGU-300		300 MCM (Class D)	1.841	0.050	0.075	0.0377	110	700
-11UN	LSDSGU-400	400 (127)		2.069	0.050	0.075	0.0273	100	835

REQUIREMENTS:

Qualification required.

INSPECTION:

Basic Electricals:	
Conductor resistance (ohms/1000 feet at 25 °C, max.)	See table I
Voltage withstand (volts, root mean square, min.)	
Conductor to conductor	
Sizes 3 through 9	3000
Sizes 14 and larger	5000
Insulation resistance (megohms/1000 feet, min.)	
Conductor to conductor	See table I
Conductor continuity	No failure
Group A:	
Visual and dimensional	No failure
Watertightness (see MIL-DTL-24643 for limits of water leakage)	No failure
Abrasion resistance – scrapes minimum (Sizes 40 and smaller) (extruded insulation only)	No damage
Crack resistance (Sizes 3 through 100) (extruded insulation only)	No damage
Group B:	
Cold bending cable	No failure
Thermoset proof test (percent, max.)	
Insulation (extruded insulations only)	50
Jacket (when tested at 200 °C)	50
Drip (95±1 °C)	Zero
Physicals (unaged)	
Insulation (extruded insulation only)	
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^2 thickness, min.)	35
Gas flame (1 hour)	No failure

Group C:	
Physicals (aged) air oven	
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
Cable fill (sealant) removability	No failure
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:	
Cold working (minus 20±2 °C)	No damage
Gas flame (3 hours)	No failure
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, 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 (extruded insulations only)	No failure

UNIT ORDERING LENGTHS:

Type	Size	Feet (nominal)
LSDSG	3	2500
LSDSGU	4 through 23	2000
LSDSGU	50	1500
LSDSGU	75 and 100	1000
LSDSGU	200 through 400	800

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 6145-2008-018)

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.