

INCH-POUND

MIL-DTL-27072/89D
w/AMENDMENT 1
20 October 2022
SUPERSEDING
MIL-DTL-27072/89D
8 August 2006

DETAIL SPECIFICATION SHEET

CABLE, SPECIAL PURPOSE, ELECTRICAL, MULTICONDUCTOR (3 CONDUCTORS) AND SINGLE SHIELDED

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-27072.

Inactive for new design. For new design use ANSI/NEMA WC 55021.

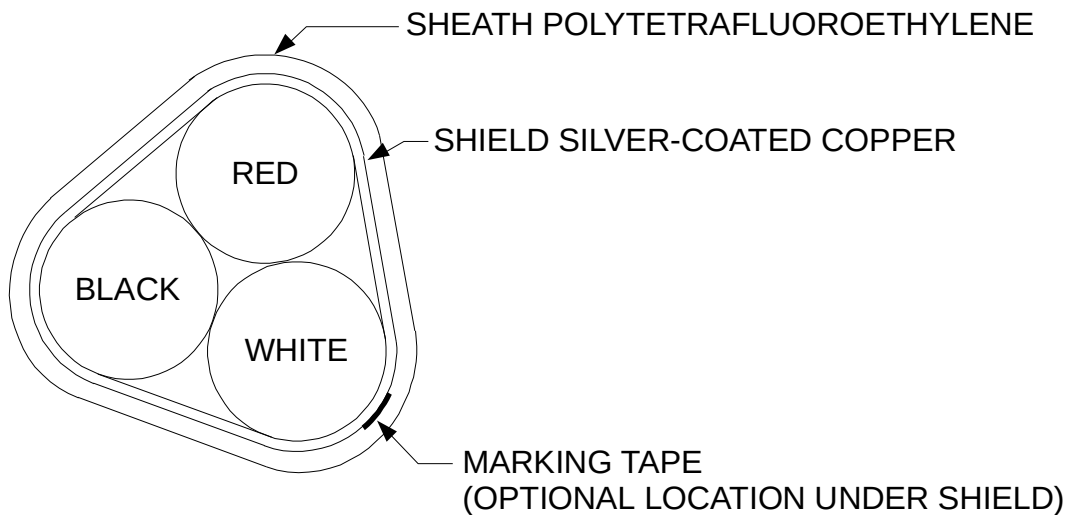


FIGURE 1. Cable configuration.

Note: The Part or Identifying Number (PIN) requires a color code designator (see table I).

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

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REQUIREMENTS:

Design and construction:	See figure 1
Number of conductors:	3
Temperature rating:	200 °C
Components:	
Basic wire:	Either NEMA HP 3 or SAE AS22759 (See table I)
Conductor:	Silver-coated copper
Primary insulation:	Polytetrafluoroethylene
Colors:	White Black Red
Jacket over insulation:	Not applicable
Filler:	Not applicable
Cabling:	Not applicable
Binder tape material:	Not applicable
Marking tape:	Marking tape shall be placed under the sheath or shield
Shield:	
Material:	Silver-coated copper
Construction:	See table I
Braid angle:	Braid 20 to 40 degrees
Jacket undershield:	Not applicable
Sheath:	
Material:	Polytetrafluoroethylene
Wall thickness:	.011 ±.003 inch (.28 ±.08 mm)
Tensile strength:	In accordance with MIL-DTL-27072
Ultimate elongation:	In accordance with MIL-DTL-27072
Accelerated aging:	Not applicable
Color:	See MIL-DTL-27072

Surface resistance (sheath): When tested in accordance with method 6041 of FED-STD-228, the initial surface resistance shall be not less than 5 megohms. The final surface resistance shall be within 50 percent of the initial surface resistance. (NOTE: The specimen for this inspection test shall not be subjected to any other electrical tests.)

Finished cable:	See table I
Cold bend:	Mandrel size in accordance with MIL-DTL-27072
Dielectric withstanding voltage:	2,000 V _{rms}
Conductor resistance:	In accordance with basic wire specification

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Heat resistance: A specimen of finished cable shall be subjected to 250 ±5 °C in an air oven for 96 hours minimum. The specimen shall be removed from the oven and allowed to cool to room temperature. After 1 hour at room temperature, the insulation and jacket shall be checked for shrinkage of not more than .125 inch (3.17 mm). The specimen shall then be wound 5 close turns around the mandrel of 10 times the cable diameter. In this position, the specimen shall be subjected to the dielectric strength test in accordance with MIL-DTL-27072. If the cable fails the dielectric strength test or shrinks more than .125 inch (3.17 mm), the lot shall be rejected.

TABLE I. Construction data.

PIN M27072/89 ^{2/}	Conductor			Nominal cable lay	Overall shield parameters ^{1/}				
	AWG	Stranding AWG	Nominal dia. inch (mm)		d	C	N	P	D
TDDE*	28	7/36	.015 (.38)	1.00	.005	18	4	18	.084
SDDE*	26	7/34	.0189 (.48)	1.10	.005	18	5	17	.093
NDDE*	24	19/36	.0248 (.63)	1.25	.005	18	5	16	.103
LDDE*	22	19/34	.0312 (.79)	1.40	.005	16	5	15	.116
JDDE*	20	19/32	.0396 (1.01)	1.60	.005	16	6	13	.133
GDDE*	18	19/30	.0495 (1.26)	1.90	.005	16	8	12	.159
FDDE*	16	19/29	.057 (1.45)	2.20	.005	16	7	10	.187

PIN M27072/89 ^{2/}	Finished cable dia. inch (mm)		Approx. weight per 1,000ft (lb)	Basic wire (reference) (either / or may be used) ^{2/}		Formerly basic wire M16878/4 or M16878/21 (reference) ^{2/}
	Min.	Max.		SAE AS22759	NEMA HP 3	
TDDE*	.101 (2.57)	.113 (2.87)	12.9	/11-28*	EWBCB*	BCB*
SDDE*	.110 (2.79)	.126 (3.20)	16.2	-	EXBDB* EWBDB*	BDB*
NDDE*	.119 (3.02)	.137 (3.48)	18.9	/11-24*	EWBEE*	BEE*
LDDE*	.133 (3.38)	.149 (3.78)	23.2	/11-22*	EWBFE*	BFE*
JDDE*	.150 (3.81)	.166 (4.22)	29.7	/11-20*	EWBGE*	BGE*
GDDE*	.171 (4.34)	.189 (4.80)	39.9	/11-18*	EWBHE	BHE*
FDDE*	.188 (4.78)	.212 (5.38)	48.6	/11-16*	EWBJE*	BJE*

^{1/} See MIL-DTL-27072, overall shielding for determining braid coverage. Optional shields are acceptable provided the shields in accordance with MIL-DTL-27072.

^{2/} Asterisks (*) shall be replaced by the appropriate color designator in accordance with MIL-STD-681. If a stripe or a band is to be added, it shall be in accordance with MIL-DTL-27072.

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Amendment notations. The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. 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.

Referenced documents. In addition to MIL-DTL-27072, this document references the following:

FED-STD-228
MIL-STD-681
NEMA HP 3
SAE AS22759

CONCLUDING MATERIAL

Custodians:
Army - CR
Navy - SH
Air Force - 85
DLA – CC

Preparing activity:
DLA - CC

(Project 6145-2022-026)

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