

INCH-POUND
MIL-DTL-16878/19B
w/AMENDMENT 1
12 January 2016
SUPERSEDING
MIL-DTL-16878/19B
11 August 2000

DETAIL SPECIFICATION SHEET

WIRE, ELECTRICAL, POLYVINYL CHLORIDE (PVC) INSULATED,
POLYAMIDE JACKET, 105 DEGREE C, 3000 VOLTS (NOT FOR NAVY
SHIPBOARD USE)

Inactive for new design after 08 December 2014. For new design, use
National Electrical Manufacturers Association (NEMA) HP 7.

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-16878.

REQUIREMENTS.

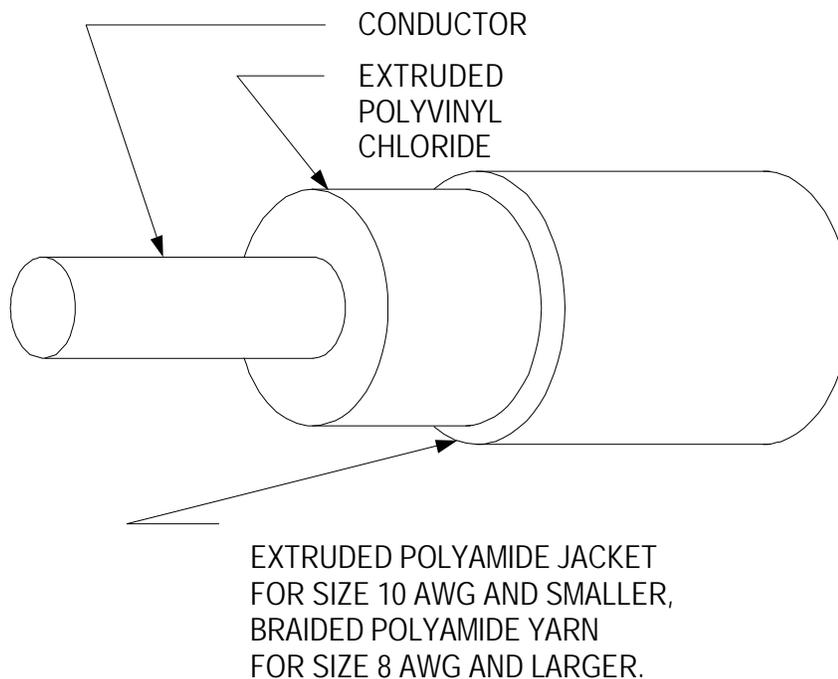


FIGURE 1. Wire configuration.

Note: Not for Navy shipboard use or use in aerospace applications.



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TABLE I. Wire configuration and dimensions.

PIN ^{1/}	Wire size	Stranding	Conductor		Conductor diameter (nominal) (inch)	Finished wire diameter (inch)		Polyamide thickness (inch)	
			Material ^{2/, 3/}	Coating		Min	Max	Min	Max
M16878/19BEA*	24	1 X 24	Copper	Tin	.0201	.076	.095	.0025	.0045
M16878/19DEA*	24	1 X 24	H.S.C.A	Silver	.0201	.076	.095	.0025	.0045
M16878/19BEB*	24	7 X 32	Copper	Tin	.0240	.080	.099	.0025	.0045
M16878/19DEB*	24	7 X 32	H.S.C.A	Silver	.0240	.080	.099	.0025	.0045
M16878/19BEE*	24	19 X 36	Copper	Tin	.0260	.080	.099	.0025	.0045
M16878/19DEE*	24	19 X 36	H.S.C.A	Silver	.0260	.080	.099	.0025	.0045
M16878/19BFA*	22	1 X 22	Copper	Tin	.0254	.081	.101	.0025	.0045
M16878/19DFA*	22	1 X 22	H.S.C.A	Silver	.0254	.081	.101	.0025	.0045
M16878/19BFB*	22	7 X 30	Copper	Tin	.0300	.086	.105	.0025	.0045
M16878/19DFB*	22	7 X 30	H.S.C.A	Silver	.0300	.086	.105	.0025	.0045
M16878/19BFE*	22	19 X 34	Copper	Tin	.0320	.088	.105	.0025	.0045
M16878/19DFE*	22	19 X 34	H.S.C.A	Silver	.0320	.088	.105	.0025	.0045
M16878/19BGA*	20	1 X 20	Copper	Tin	.0320	.088	.107	.0025	.0045
M16878/19DGA*	20	1 X 20	H.S.C.A	Silver	.0320	.088	.107	.0025	.0045
M16878/19CGA*	20	1 X 20	C. C.	Tin	.0320	.088	.107	.0025	.0045
M16878/19BGB*	20	7 X 28	Copper	Tin	.0380	.094	.113	.0025	.0045
M16878/19DGB*	20	7 X 28	H.S.C.A	Silver	.0380	.094	.113	.0025	.0045
M16878/19BGE*	20	19 X 32	Copper	Tin	.0410	.094	.113	.0025	.0045
M16878/19DGE*	20	19 X 32	H.S.C.A	Silver	.0410	.094	.113	.0025	.0045
M16878/19BHA*	18	1 X 18	Copper	Tin	.0403	.096	.116	.0025	.0045
M16878/19BHB*	18	7 X 26	Copper	Tin	.0490	.105	.124	.0025	.0045
M16878/19BHE*	18	19 X 30	Copper	Tin	.0510	.105	.124	.0025	.0045
M16878/19BJA*	16	1 X 16	Copper	Tin	.0508	.018	.129	.0030	.006
M16878/19BJE*	16	19 X 29	Copper	Tin	.0590	.116	.137	.0030	.006
M16878/19BJF*	16	26 X 30	Copper	Tin	.0620	.119	.140	.0030	.006
M16878/19BKA*	14	1 X 14	Copper	Tin	.0641	.121	.142	.0030	.006
M16878/19BKE*	14	19 X 27	Copper	Tin	.0720	.129	.150	.0030	.006
M16878/19BKH*	14	41 X 30	Copper	Tin	.0800	.137	.158	.0030	.006
M16878/19BLA*	12	1 X 12	Copper	Tin	.0808	.159	.171	.0030	.006
M16878/19BLE*	12	19 X 25	Copper	Tin	.0920	.162	.183	.0030	.006
M16878/19BLG*	12	37 X 28	Copper	Tin	.0890	.159	.180	.0030	.006
M16878/19BLJ*	12	65 X 30	Copper	Tin	.0980	.168	.189	.0030	.006
M16878/19BMA*	10	1 X 10	Copper	Tin	.1019	.174	.197	.0040	.008
M16878/19BMG*	10	37 X 26	Copper	Tin	.1110	.183	.206	.0040	.008
M16878/19BMK*	10	105 X 30	Copper	Tin	.1270	.199	.222	.0040	.008
M16878/19BNL*	8	133 X 29	Copper	Tin	.1690	.253	.280	.0060	.012
M16878/19BPL*	6	133 X 27	Copper	Tin	.2130	.300	.329	.0070	.014
M16878/19BRL*	4	133 X 25	Copper	Tin	.2680	.362	.396	.0070	.014

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TABLE I. Wire configuration and dimensions. - Continued

PIN ^{1/}	Wire size	Stranding	Conductor		Conductor diameter (nominal) (inch)	Finished wire diameter (inch)		Polyamide thickness (inch)	
			Material ^{2/, 3/}	Coating		Min	Max	Min	Max
M16878/19BSP*	2	665 X 30	Copper	Tin	.3420	.436	.470	.0070	.014
M16878/19BTR*	1	817 X 30	Copper	Tin	.3820	.486	.520	.0070	.014
M16878/19BUS*	0	1045 X 30	Copper	Tin	.4310	.525	.545	.0070	.014

Notes:

- 1/ PIN stands for part or identifying number (see figure 2).
- 2/ H.S.C.A. stands for high-strength copper alloy.
- 3/ C.C. stands for copper-clad.

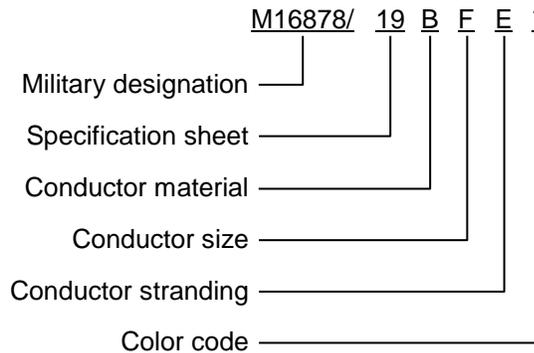


FIGURE 2. Example of PIN (see MIL-DTL-16878).

Configuration and dimensions:	See figure 1 and table I
Operating voltage:	Up to 3000 volts
Operating temperature:	Up to 105 degrees C
Insulation:	Polyvinyl chloride
Insulation jacket:	Polyamide
Spark test voltage:	8.0 kV
Impulse dielectric test voltage:	12.0 kV, or 8.5 kV using the 3.0 kHz spark test
Dielectric withstanding voltage:	6.0 kV
Insulation resistance:	IR = K log ₁₀ D/d Where: IR = Minimum insulation resistance in megohms-1000 feet at 20 degrees C K = 2,000 D = Maximum average diameter of finished wire d = Conductor diameter
Cold bend:	Condition 4 hours at -54±1 degrees C (see table II)

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TABLE II. Cold bend mandrel sizes.

Wire size	Cold bend mandrel diameter (inches, maximum)
24, 22	2
20 through 14	3
12, 10	4.5
8	6
6, 4	10
2, 1, 0	18

Surface resistance: 5 megohms-inches (min) for braided jacket (size 8 AWG or larger)
Heat resistance: Condition at 150 degrees C, Cracking of the jacket shall constitute a failure
Heat aging: 25 percent change (maximum) in 96 hours at 135 degrees C
Insulation tensile strength: 1800 pounds force per square inch (minimum)
Insulation elongation: 100 percent (minimum)

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: This document references MIL-DTL-16878.

CONCLUDING MATERIAL

Custodians:
Navy - SH
Air Force - 85
DLA - CC

Preparing activity:
DLA - CC

(Project 6145-2015-045)

Review activity:
Navy – AS

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 <https://assist.dla.mil>.