

INCH-POUND
MIL-DTL-16878/33B
w/AMENDMENT 1
12 January 2016
SUPERSEDING
MIL-DTL-16878/33B
11 August 2000

DETAIL SPECIFICATION SHEET

WIRE, ELECTRICAL, POLYETHYLENE INSULATED, 75 DEGREE C,
600 VOLTS, POLYAMIDE COVERING, ABRASION RESISTANT

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:

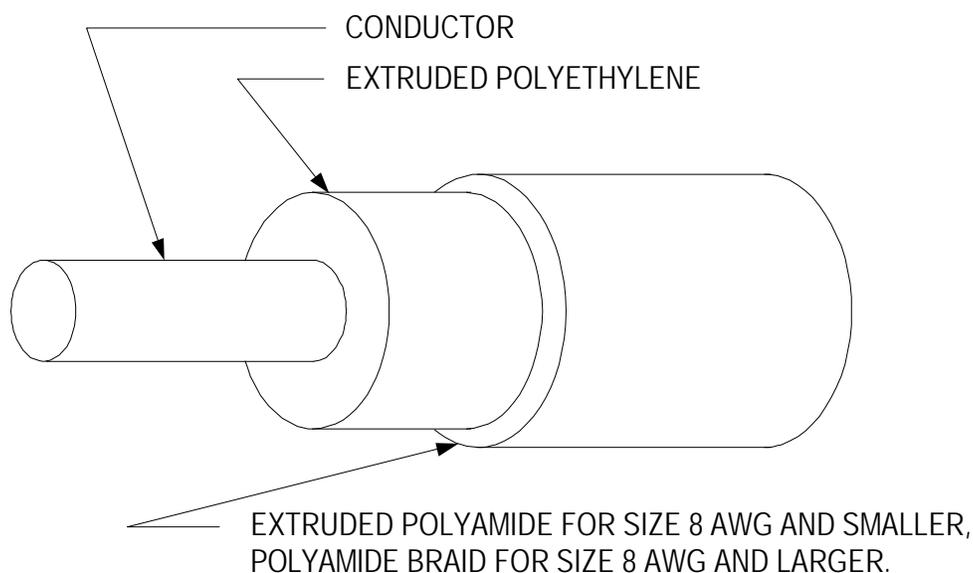


FIGURE 1. Wire configuration.



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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/}	Coating		Min	Max	Min	Max
M16878/33BEA*	24	1 X 24	Copper	Tin	.0201	.045	.057	.002	.004
M16878/33CEA*	24	1 X 24	C.C. steel	Tin	.0201	.045	.057	.002	.004
M16878/33BEB*	24	7 X 32	Copper	Tin	.0240	.049	.061	.002	.004
M16878/33BEE*	24	19 X 36	Copper	Tin	.0250	.049	.061	.002	.004
M16878/33BFA*	24	1 X 22	Copper	Tin	.0254	.051	.064	.002	.004
M16878/33CFA*	22	1 X 22	C.C. steel	Tin	.0254	.051	.064	.002	.004
M16878/33BFB*	22	7 X 30	Copper	Tin	.0300	.056	.068	.002	.004
M16878/33BFE*	22	19 X 34	Copper	Tin	.0320	.056	.068	.002	.004
M16878/33BGA*	20	1 X 20	Copper	Tin	.0320	.060	.072	.002	.004
M16878/33BGB*	20	7 X 28	Copper	Tin	.0380	.066	.078	.002	.004
M16878/33BGE*	20	19 X 32	Copper	Tin	.0400	.066	.078	.002	.004
M16878/33BHA*	18	1 X 18	Copper	Tin	.0403	.068	.081	.002	.004
M16878/33BHB*	18	7 X 26	Copper	Tin	.0480	.076	.088	.002	.004
M16878/33BHE*	18	19 X 30	Copper	Tin	.0500	.076	.088	.002	.004
M16878/33BHD*	18	16 X 30	Copper	Tin	.0470	.075	.087	.002	.004
M16878/33BRL*	4	33 X 25	Copper	Tin	.2690	.349	.363	.007	.014
M16878/33BSL*	2	33 X 23	Copper	Tin	.3350	.413	.443	.007	.014
M16878/33BTN*	1	59 X 25	Copper	Tin	.3780	.461	.493	.007	.014
M16878/33BUN*	0	59 X 24	Copper	Tin	.4240	.509	.539	.007	.014
M16878/33BWN*	00	59 X 23	Copper	Tin	.4770	.579	.613	.007	.014
M16878/33BZN*	0000	59 X 21	Copper	Tin	.6010	.704	.738	.007	.014

Notes:

- 1/ PIN stands for part or identifying number (see figure 2).
- 2/ C.C. stands for copper-clad.

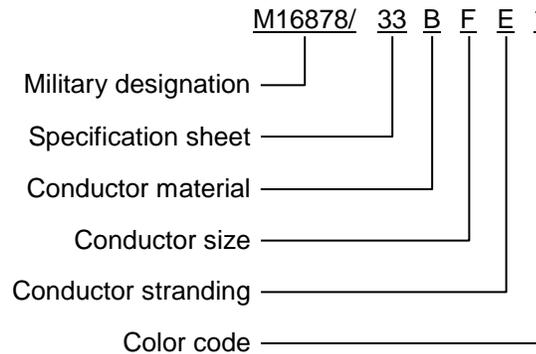


FIGURE 2. Example of PIN (see MIL-DTL-16878G).

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Operating voltage: Up to 600 volts
 Operating temperature: Up to 75 degrees C
 Insulation: Extruded polyethylene
 Covering: Extruded polyamide or polyamide braid (see figure 1)
 Spark test voltage: 3.4 kV
 Impulse dielectric test voltage: 8.0 kV, or 5.7 kV using the 3.0 kHz spark test
 Dielectric withstanding voltage: 2.2 kV
 Insulation resistance: $IR = K \log_{10} D/d$
 Where: IR = Minimum insulation resistance in megohms-1000 feet at 20 degrees C
 K = 50,000
 D = Maximum average diameter of finished wire
 d = Conductor diameter
 Cold bend: Condition 4 hours at -65 ± 1 degrees C (see table II)

TABLE II. Cold bend mandrel sizes.

Wire size	Cold bend mandrel diameter (inches, maximum)
24, 22	1
20 through 12	2
10 through 6	3
4 through 1	4.5
0, 00	6
0000	10

Surface resistance: 5 megohm-inches (minimum) for braided jackets (size 6 and larger)
 Heat resistance: Condition at 95 degrees C for 48 hours. Cracking of the jacket shall constitute a failure
 Heat aging: 25 percent change (maximum) in 48 hours at 95 degrees C
 Insulation tensile strength: 1400 pounds force per square inch (minimum)
 Insulation elongation: 100 percent (minimum)
 Fungus resistance: Not required
 Marking and stripe durability: Not required

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.

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CONCLUDING MATERIAL

Custodians:

Navy - SH
Air Force - 85
DLA - CC

Preparing activity:
DLA - CC

(Project 6145-2015-046)

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>.