

INCH-POUND  
MIL-DTL-16878/36A  
w/AMENDMENT 1  
12 January 2016  
SUPERSEDING  
MIL-DTL-16878/36A  
11 August 2000

DETAIL SPECIFICATION SHEET

WIRE, ELECTRICAL, LOW SMOKE, CROSSLINKED POLYOLEFIN  
(XLPO) INSULATED, 105 DEGREE C, 600 VOLTS

Inactive for new design after 08 December 2014. For new design, use  
National Electrical Manufacturers Association (NEMA) HP 8.

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.

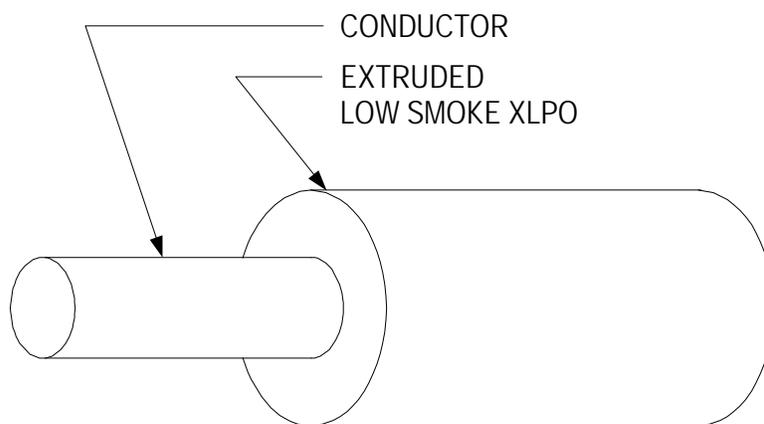


FIGURE 1. Wire configuration.



MIL-DTL-16878/36A  
w/AMENDMENT 1

TABLE I. Wire construction details.

PIN <sup>1/</sup>	Wire size	Stranding	Conductor		Conductor diameter (nominal) (inch)	Finished wire diameter (inch)	
			Material <sup>2/, 3/</sup>	Coating		Min	Max
M16878/36BAA*	32	1 X 32	Copper	Tin	.0080	.024	.030
M16878/36CAA*	32	1 X 32	C.C. steel	Tin	.0080	.024	.030
M16878/36BAB*	32	7 X 40	Copper	Tin	.0100	.026	.032
M16878/36DAB*	32	7 X 40	H.S.C.A	Silver	.0100	.026	.032
M16878/36BBA*	30	1 X 30	Copper	Tin	.0100	.026	.032
M16878/36DBA*	30	1 X 30	H.S.C.A	Silver	.0100	.026	.032
M16878/36CBA*	30	1 X 30	C.C. steel	Tin	.0100	.026	.032
M16878/36BBB*	30	7 X 38	Copper	Tin	.0120	.026	.034
M16878/36DBB*	30	7 X 38	H.S.C.A	Silver	.0120	.028	.034
M16878/36BCA*	28	1 X 28	Copper	Tin	.0126	.028	.035
M16878/36DCA*	28	1 X 28	H.S.C.A	Silver	.0126	.029	.035
M16878/36CCA*	28	1 X 28	C.C. steel	Tin	.0126	.029	.035
M16878/36BCB*	28	7 X 36	Copper	Tin	.0150	.029	.037
M16878/36DCB*	28	7 X 36	H.S.C.A	Silver	.0150	.031	.037
M16878/36BDA*	26	1 X 26	Copper	Tin	.0159	.031	.038
M16878/36DDA*	26	1 X 26	H.S.C.A	Silver	.0159	.032	.038
M16878/36CDA*	26	1 X 26	C.C. steel	Tin	.0159	.032	.038
M16878/36BDB*	26	7 X 34	Copper	Tin	.0190	.032	.041
M16878/36ddb*	26	7 X 34	H.S.C.A	Silver	.0190	.035	.041
M16878/36BDE*	26	19 X 38	Copper	Tin	.0210	.035	.041
M16878/36DDE*	26	19 X 38	H.S.C.A	Silver	.0210	.035	.041
M16878/36BEA*	24	1 X 24	Copper	Tin	.0201	.035	.043
M16878/36DEA*	24	1 X 24	H.S.C.A	Silver	.0201	.036	.043
M16878/36CEA*	24	1 X 24	C.C. steel	Tin	.0201	.036	.043
M16878/36BEB*	24	7 X 32	Copper	Tin	.0240	.036	.047
M16878/36DEB*	24	7 X 32	H.S.C.A	Silver	.0240	.040	.047
M16878/36BEE*	24	19 X 36	Copper	Tin	.0260	.040	.047
M16878/36DEE*	24	19 X 36	H.S.C.A	Silver	.0260	.040	.047
M16878/36BFA*	22	1 X 22	Copper	Tin	.0253	.041	.048
M16878/36DFA*	22	1 X 22	H.S.C.A	Silver	.0253	.041	.048
M16878/36CFA*	22	1 X 22	C.C. steel	Tin	.0253	.041	.048
M16878/36BFB*	22	7 X 30	Copper	Tin	.0300	.046	.053
M16878/36DFB*	22	7 X 30	H.S.C.A	Silver	.0300	.046	.053
M16878/36BFE*	22	19 X 34	Copper	Tin	.0320	.046	.053
M16878/36DFE*	22	19 X 34	H.S.C.A	Silver	.0320	.046	.053
M16878/36BGA*	20	1 X 20	Copper	Tin	.0320	.048	.055

MIL-DTL-16878/36A  
w/AMENDMENT 1

TABLE I. Wire configuration and dimensions - Continued.

PIN <sup>1/</sup>	Wire size	Stranding	Conductor		Conductor Diameter (nominal) (inch)	Finished wire diameter (inch)	
			Material <sup>2/, 3/</sup>	Coating		Min	Max
M16878/36DGA*	20	1 X 20	H.S.C.A	Silver	.0320	.048	.055
M16878/36BGB*	20	7 X 28	Copper	Tin	.0380	.054	.061
M16878/36DGB*	20	7 X 28	H.S.C.A	Silver	.0380	.054	.061
M16878/36BGE*	20	19 X 32	Copper	Tin	.0410	.054	.061
M16878/36BHA*	18	1 X 18	Copper	Tin	.0403	.056	.063
M16878/36BHB*	18	7 X 26	Copper	Tin	.0490	.065	.072
M16878/36BHE*	18	19 X 30	Copper	Tin	.0510	.065	.072
M16878/36BJA*	16	1 X 16	Copper	Tin	.0508	.067	.075
M16878/36BJE*	16	19 X 29	Copper	Tin	.0590	.075	.083
M16878/36BKA*	14	1 X 14	Copper	Tin	.0641	.080	.088
M16878/36BKE*	14	19 X 27	Copper	Tin	.0720	.088	.096

Notes:

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

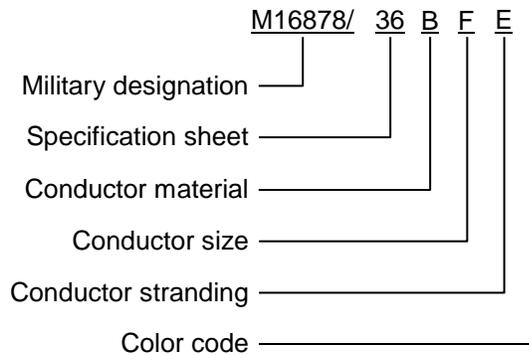


FIGURE 2. Example of PIN (see MIL-DTL-16878).

Configuration and dimensions:	See figure 1 and table I
Operating voltage:	Up to 600 volts
Operating temperature:	Up to 105 degrees C
Insulation	Low smoke crosslinked polyolefin
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:	2.0 kV

MIL-DTL-16878/36A  
w/AMENDMENT 1

Insulation resistance:  $IR = K \log_{10} D/d$   
 Where: IR = Minimum insulation resistance in megohms per 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  $-40 \pm 1$  degrees C (see table II)

TABLE II. Cold bend mandrel sizes.

Wire size	Cold bend mandrel diameter (inches, maximum)
32 through 26	1
24 through 14	2

Surface resistance: Not required  
 Heat resistance: Condition at 150 degrees C  
 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)  
 Marking and stripe durability: Required when tested in accordance with MIL-DTL-24643  
 Smoke index: 45 (maximum) when tested in accordance with MIL-DTL-24643  
 Toxicity index: 1.5 (maximum) when tested in accordance with MIL-DTL-24643  
 Acid gas equivalent: 18 percent (maximum) when tested in accordance with MIL-DTL-24643

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-16878, this document references the following:

MIL-DTL-24643

MIL-DTL-16878/36A  
w/AMENDMENT 1

CONCLUDING MATERIAL

Custodians:

Navy - SH  
Air Force - 85  
DLA - CC

Preparing activity:  
DLA - CC

(Project 6145-2015-047)

Review activity:

Navy – AS, 99

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>.