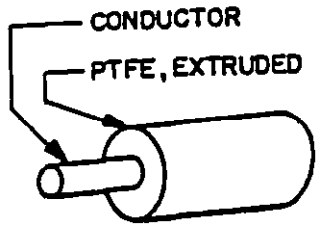
MILITARY SPECIFICATION SHEET

WIRE, ELECTRICAL, POLYTETRAFLUOROETHYLENE (PTFE) INSULATED, 200°C, 1000 VOLTS, EXTRUDED INSULATION

This specification sheet is approved for use by the Naval Sea Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

The complete requirements for acquiring the wire described herein shall consist of this document and the latest issue of MIL-W-16878.



SH 11875

FIGURE 1. Construction.

TABLE I. Construction details.

Wire size	Stranding	Conductor		Conductor diameter (nominal) (inch)	Finished wire Diameter (inch)	
		Material 2/ 3/	Coating		Min	Max
32	1 X 32	Copper	Silver	0.0080	0.034	0.042
32	1 X 32	H.S.C.A.	Silver	.0080	.034	.042
32	1 X 32	C.C. Steel	Silver	.0080	.034	.042
32	7 X 40	Copper	Silver	.010	.036	.044
32	7 X 40	H.S.C.A.	Silver	.010	.036	.044
30	1 X 30	Copper	Silver	.0100	.036	.044
30	1 X 30	H.S.C.A.	Silver	.0100	.036	.044

See footnotes at end of table.

FSC 6145

TABLE I. Construction details.- Continued

Wire size	Stranding	Conductor		Conductor diameter (nominal) (inch)	Finished wire	
		Material 2/ 3/	Coating		Diameter (inch)	
					Min	Max
30	1 X 30	C.C. Steel	Silver	0.0100	0.036	0.044
30	7 X 38	Copper	Silver	.012	.038	.046
30	7 X 38	H.S.C.A.	Silver	.012	.038	.046
28	1 X 28	Copper	Silver	.0126	.039	.047
28	1 X 28	H.S.C.A.	Silver	.0126	.039	.047
28	1 X 28	C.C. Steel	Silver	.0126	.039	.047
28	7 X 36	Copper	Silver	.015	.041	.049
28	7 X 36	H.S.C.A.	Silver	.015	.041	.049
26	1 X 26	Copper	Silver	.0159	.042	.050
26	1 X 26	H.S.C.A.	Silver	.0159	.042	.050
26	1 X 26	C.C. Steel	Silver	.0159	.042	.050
26	7 X 34	Copper	Silver	.019	.045	.053
26	7 X 34	H.S.C.A.	Silver	.019	.045	.053
26	19 X 38	Copper	Silver	.020	.045	.053
26	19 X 38	H.S.C.A.	Silver	.020	.045	.053
24	1 X 24	Copper	Silver	.0201	.046	.054
24	1 X 24	H.S.C.A.	Silver	.0201	.046	.054
1/ 24	1 X 24	C.C. Steel	Silver	.0201	.046	.054
24	7 X 32	Copper	Silver	.024	.050	.058
24	7 X 32	H.S.C.A.	Silver	.024	.050	.058
24	19 X 36	Copper	Silver	.025	.050	.058
24	19 X 36	H.S.C.A.	Silver	.025	.050	.058
22	1 X 22	Copper	Silver	.0254	.051	.060
22	1 X 22	H.S.C.A.	Silver	.0254	.051	.060
1/ 22	1 X 22	C.C. Steel	Silver	.0254	.051	.060
22	7 X 30	Copper	Silver	.030	.056	.064
22	7 X 30	H.S.C.A.	Silver	.030	.056	.064
22	19 X 34	Copper	Silver	.032	.056	.064
22	19 X 34	H.S.C.A.	Silver	.032	.056	.064
20	1 X 20	Copper	Silver	.0320	.058	.066
20	1 X 20	H.S.C.A.	Silver	.0320	.058	.066
1/4/ 20	1 X 2	C.C. Steel	Silver	.0320	.058	.066
20	7 X 2	Copper	Silver	.038	.064	.072
20	7 X 2	H.S.C.A.	Silver	.038	.064	.072
20	19 X 3	Copper	Silver	.0403	.064	.072
20	19 X 3	H.S.C.A.	Silver	.0403	.064	.072
18	1 X 1	Copper	Silver	.0403	.066	.076
18	7 X 2	Copper	Silver	.048	.074	.084
18	19 X 3	Copper	Silver	.050	.074	.084
16	1 X 1	Copper	Silver	.0508	.077	.089
4/ 16	19 X 29	Copper	Silver	.057	.083	.095

See footnotes at end of table.

TABLE I. Construction details. - Continued

Wire size	Stranding	Conductor		Conductor diameter (nominal) (inch)	Finished wire	
					Diameter (inch)	
		Material 2/ 3/	Coating		Min	Max
14	19 X 27	Copper	Silver	0.072	0.098	0.114
12	19 X 25	Copper	Silver	.091	.117	.133
12	37 X 28	Copper	Silver	.089	.115	.131
10	37 X 26	Copper	Silver	.111	.137	.153
8	133 X 29	Copper	Silver	.169	.199	.219
6	133 X 27	Copper	Silver	.213	.253	.273

1/ Inactive for new design.
2/ H.S.C.A. stands for high strength copper alloy.
3/ C.C. Steel stands for copper clad steel.
4/ Under MPD-1506, 16 AWG wire was heavier.

REQUIREMENTS:

Visual and mechanical inspection: Applicable.
Spark test: 5.0 kilovolts (kV).
Impulse dielectric test: 8.0 kV.
Tank test: 3.0 kV.
Dielectric withstanding voltage: 3.0 kV.
Insulation resistance: $IR = K \log_{10} D/d$.

Where: IR = Minimum insulation resistance in megohms per 1000 feet at 20°C.
K = 50,000
D = Maximum average diameter of finished wire.
d = Conductor diameter

Cold bend: Condition 4 hours at minus 65°C ± 1°C (see table II).

TABLE II. Cold bend mandrel sizes.

Wire size	Cold bend mandrel (maximum diameter) (inches)
32 through 16	1
14, 12	2
10, 8, 6	3

Concentricity: 70 percent (minimum).
Surface resistance: 5 megohms (minimum).
Wrap back: Applicable.
Heat resistance: Condition at 290°C.
Flammability: Not applicable.
Soldering: Applicable.
Heat aging: Not applicable.
Insulation tensile strength: 3000 pounds force per square inch (minimum).
Insulation elongation: 150 percent (minimum).
Stripe durability: Applicable.
Fungus resistance: Applicable.
Maximum direct current resistance of finished wire: See table I of MIL-W-16878.

TABLE III. Put-up tabulation. 1/

AWG size	Percentage of order	Length (ft) one continuous length	Max. no. of lengths (per spool or reel) 500 ft	1000 ft
32 to 22	25	Under 75		
	25	75 - 300	3	4
	50	301 or more		
20 to 16	Unacceptable	Under 75		
	20	75 - 100	4	5
	50	101 - 300		
	30	301 or more		
14 to 10	Unacceptable	Under 50		
	40	50 - 100	5	6
	50	101 - 300		
	10	301 or more		
8 and larger	10	Under 50		
	70	50 - 100	6	7
	20	100 or more		

1/ Each spool or reel shall be marked accordingly with the length in feet and location of each piece.

Military part number (see MIL-W-16878):

M16878/ 5 B C B 905

Military designation — M16878/
Specification sheet — 5
B — Conductor material
C — Conductor size
B — Conductor stranding
905 — Color code

Supersession data: The wire covered by this specification sheet supersedes MIL-W-16878/5A(NAVY), type EE, 200°C rating, extruded without jacket.

Review activities:
Navy - AS, EC

User activities:
Navy - OS, MC

Preparing activity:
Navy - SH
(Project 6145-N300-5)