

MILITARY SPECIFICATION SHEET

WIRE, ELECTRIC, FLUOROCARBON/POLYIMIDE INSULATED
• LIGHT WEIGHT, SILVER COATED COPPER, 600 VOLTS,
NOMINAL 4.6 MIL WALL

The complete requirements for wire described herein shall consist of this document and the issue in effect of specification MIL-W-81381.

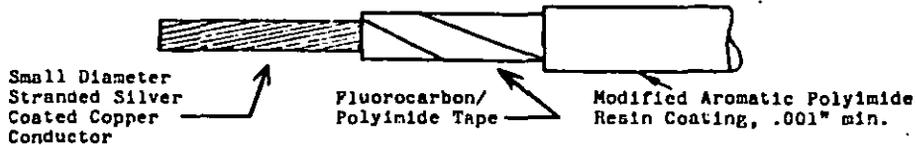


TABLE I CONSTRUCTION DETAILS

PART NUMBER 2/	CONDUCTOR			FINISHED WIRE			INSULATION 1/	
	SIZE	STRANDING	DIAMETER MAXIMUM (INCHES)	MAX. RES. AT 20°C (OHMS/ 1000 FT)	DIAMETER (INCHES) (MIN.-MAX.)	WEIGHT MAXIMUM (LBS/ 1000 FT)	ONE WRAP	
							TAPE CODE	MIN. OVER- LAP
M81381/17-26-*	26	19/38	.019	38.4	.028-.030	1.2	.1-1-.1	67.0
M81381/17-24-*	24	19/36	.024	24.3	.032-.035	1.8		
M81381/17-22-*	22	19/34	.030	15.1	.038-.041	2.7		
M81381/17-20-*	20	19/32	.038	9.19	.046-.049	4.2		
M81381/17-18-*	18	19/30	.048	5.79	.055-.058	6.4		
M81381/17-16-*	16	18/28	.054	4.52	.062-.065	8.0		
M81381/17-14-*	14	19/27	.068	2.88	.075-.078	12.5		
M81381/17-12-*	12	37/28	.087	1.90	.094-.098	19.2		

1/ TAPE CODE

.1-1-.1: .1 MIL FEP-FLUOROCARBON RESIN; 1 MIL POLYIMIDE FILM; .1 MIL FEP-FLUOROCARBON RESIN.

2/ *COLOR IDENTIFICATION NUMBER PER MIL-STD-681. OPAQUE DARK YELLOW SHALL BE DESIGNATED BY THE LETTER "H".

TABLE II PERFORMANCE DETAILS

PART NUMBER	DURABILITY TEST LOAD (GMS)	ADRASION RESISTANCE (PROCEDURE II)				BEND TESTING					
		WEIGHT SUPPORT BRACKET	WEIGHT (LBS)	TENSION LOAD (LBS)	MINIMUM INCHES OF TAPE	MANDREL DIA (IN MAX)			TEST LOAD (LBS)		
						LIFE CYCLE TEST	COLD BEND TEST	WRAP TEST	LIFE CYCLE TEST	COLD BEND TEST	
M81381/17-25-*	100	A	.125	1	9	1/4	1/4	1/8	1/2	1/2	
M81381/17-24-*									3/4	3/4	
M81381/17-22-*	3/4								3/4		
M81381/17-20-*	150			B	2	12	3/8	3/8	1/4	1	1
M81381/17-18-*							1/2	3/8	3/8	2	2
M81381/17-16-*							3/4	3/4	3/8	2	2
M81381/17-14-*											
M81381/17-12-*											

Part Number: The asterisk, *, in the part number shown in the tables shall be replaced with a color identification number in accordance with MIL-STD-681, to indicate the color desired.

Example:

M81381/XX-20-9 Size 20 wire, white, without stripes or bands.
M81381/XX-20-93 Size 20 wire, base color white, with orange stripe or band.

MIL-W-81381/17(AS)

RATINGS:

Temperature Rating: 200°C (392°F) max conductor temperature

Voltage Rating: 600 volts (rms) at sea level

ADDITIONAL REQUIREMENTS:

Blocking: Oven temperature, $200 \pm 2^\circ\text{C}$ ($392 \pm 3.6^\circ\text{F}$)

Color: As specified in contract or order in accordance with MIL-W-81381

Flammability: Extinguishing time, 3 seconds (max); travel, 3 inches (max);
no flaming of tissue paper

Humidity Resistance: 5 megohms-1000 ft, min insulation resistance
after humidity exposure

Identification of Product: Required for sizes 22 and larger

Identification, Striping, or Banding Durability: 125 cycles (250 strokes) (min);
see Table II for test load.

Impulse Dielectric Test: 100% test; impulse voltage as specified in MIL-W-81381

Insulation Resistance: 2500 megohms-1000 ft (min)

Lamination Sealing: Oven temperature, $230 \pm 2^\circ\text{C}$ ($446 \pm 3.6^\circ\text{F}$) for 48 hours

Life Cycle: Oven temperature, $230 \pm 2^\circ\text{C}$ ($446 \pm 3.6^\circ\text{F}$) for 500 hours

Minimum Wall Thickness: 4.3 mils

Polyimide Cure Test: Required

Propellant Resistance: Test not required

Resin Coating Durability: 250 cycles (500 strokes) (min ave), 200 cycles (400 strokes)
(min single reading) of 6 readings; see Table II for test load.

Shrinkage: 0.031 inch (max) at $230 \pm 2^\circ\text{C}$ ($446 \pm 3.6^\circ\text{F}$)

Surface Resistance: 5 megohms - inches (min), initial and final readings

Thermal Shock: Oven temperature, $200 \pm 2^\circ\text{C}$ ($392 \pm 3.6^\circ\text{F}$)
Change in measurement, 0.031 inch (max)

Wet Dielectric Test: 2500 volts (rms)

NOTES:

- (1) This wire is intended for use in electronic chassis hookup applications. It is also intended for use in bundles under a protective jacket for airframe interconnecting applications.
- (2) This wire should not be subjected to hypergolic propellants.

Preparing Activity
Navy - AS

(Project No. 6145-N205)

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