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AS22759™/80

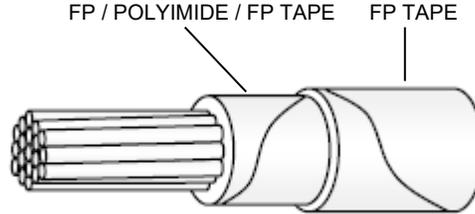
FEDERAL SUPPLY CLASS
6145

RATIONALE

REMOVAL OF THE INTENDED USE LIMITATION FOR NAVAL AIRCRAFT AND NAVAL AIR SYSTEMS APPLICATION IS REQUIRED TO SYNCHRONIZE THIS DOCUMENT WITH THE REQUIREMENT OF AS50881.

NOTICE

THE COMPLETE REQUIREMENTS FOR PROCURING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS DOCUMENT AND THE LATEST ISSUE OF AS22759.



FP – FLUOROCARBON POLYMER MODIFIED POLYTETRAFLUOROETHYLENE (PTFE)
CONDUCTOR – STRANDED TIN COATED COPPER

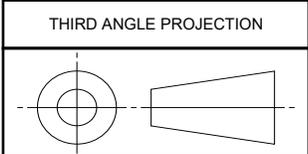
FIGURE 1 - AS22759/80 CONFIGURATION

TABLE 1 - CONSTRUCTION DETAILS FOR FINISHED WIRE

PART NO. 1/	WIRE SIZE	CONDUCTOR 3/			FINISHED WIRE					
		STRANDING (NUMBER OF STRANDS X SIZE GAUGE OF STRANDS)	DIAMETER (IN)		RESISTANCE AT 20 °C (68 °F) (OHMS/1000 FEET MAX)	DIAMETER (IN)		WEIGHT (LB/1000 FEET) 2/		
			MIN	MAX		MIN	MAX	MIN	TARGET	MAX
M22759/80-26-*	26	19 X 38	.0175	.0204	41.3	.030	.034	1.16	1.31	1.45
M22759/80-24-*	24	19 X 36	.0225	.0244	26.2	.034	.038	1.70	1.85	2.00
M22759/80-22-*	22	19 X 34	.0285	.0314	16.2	.040	.043	2.55	2.75	2.95
M22759/80-20-*	20	19 X 32	.0365	.0394	9.88	.048	.051	4.05	4.25	4.45
M22759/80-18-*	18	19 X 30	.0455	.0494	6.23	.056	.060	6.15	6.40	6.65
M22759/80-16-*	16	19 X 29	.0515	.0554	4.81	.063	.067	7.75	8.05	8.35
M22759/80-14-*	14	19 X 27	.0645	.0694	3.06	.076	.080	12.0	12.4	12.8
M22759/80-12-*	12	37 X 28	.0835	.0894	2.02	.096	.100	18.3	19.3	20.3
M22759/80-10-*	10	37 X 26	.106	.112	1.26	.119	.123	28.8	30.1	31.4

- 1/ PART NUMBER: THE ASTERISKS IN THE PART NUMBER COLUMN OF TABLE 1 SHALL BE REPLACED BY COLOR CODE DESIGNATORS IN ACCORDANCE WITH MIL-STD-681. EXAMPLES: M22759/80-20-93 IS A 20 AWG WHITE WITH ORANGE STRIPE.
- 2/ THE ACCEPTABLE VALUE FOR THE CPK FOR THE FINISHED WIRE WEIGHT LISTED SHALL BE 1.3, USING A NORMAL (GAUSSIAN) DISTRIBUTION TO OBTAIN THOSE CPK VALUES.
- 3/ CONDUCTOR SHALL CONFORM TO AS29606 TYPE TCC SMALL DIAMETER TIN COATED COPPER CONDUCTOR.

For more information on this standard, visit
<https://www.sae.org/standards/content/AS22759/80/>



CUSTODIAN: AE-8/AE-8D

PROCUREMENT SPECIFICATION:



AEROSPACE STANDARD

WIRE, ELECTRICAL, POLYTETRAFLUOROETHYLENE/
POLYIMIDE INSULATED, LIGHT WEIGHT, TIN COATED,
COPPER CONDUCTOR, 150 °C, 600 VOLT, ROHS

AS22759™/80
SHEET 1 OF 4

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ISSUED 2000-06 REAFFIRMED 2019-10 REVISED 2022-03

REQUIREMENTS: ALL REQUIREMENTS SHALL CONSIST OF THIS DOCUMENT AND THE LATEST ISSUE OF AS22759.

1. WIRE CONSTRUCTION:

WIRE CONSTRUCTION SHALL BE IN ACCORDANCE WITH FIGURE 1 AND TABLES 1, 2, 3, AND 4.

TABLE 2 - WIRE INSULATION MATERIALS

TAPE CODE	THICKNESS (NOM)	MATERIAL
1	.0012	.00045 (FP)/.00065 (POLYIMIDE)/.0001 (FP)
2	.0020	FP (UNSINTERED)
3	.0025	FP (UNSINTERED)

TABLE 3 - TAPE OVERLAP REQUIREMENTS 1/

WIRE SIZE	WRAP 1				WRAP 2			NOMINAL WALL THICKNESS (MILS)
	TAPE CODE	PERCENT OVERLAP		TAPE CODE	PERCENT OVERLAP			
		MIN	MAX		MIN	MAX		
26	1	50.5	54.0	2	50.5	54.0	5.8	
24	1	50.5	54.0	2	50.5	54.0	5.8	
22	1	50.5	54.0	2	50.5	54.0	5.8	
20	1	50.5	54.0	2	50.5	54.0	5.8	
18	1	50.5	54.0	2	50.5	54.0	5.8	
16	1	50.5	54.0	2	50.5	54.0	5.8	
14	1	50.5	54.0	2	50.5	54.0	5.8	
12	1	50.5	54.0	3	50.5	54.0	6.7	
10	1	50.5	54.0	3	50.5	54.0	6.7	

1/ WRAP 1 IS INNERMOST TAPE WHICH IS IN CONTACT WITH THE CONDUCTOR. THAT INNERMOST TAPE SHALL HAVE THE .00045 INCH FP LAYER AGAINST THE CONDUCTOR.

2. WIRE PERFORMANCE RATING:

TEMPERATURE RATING: 150 °C (302 °F) MAXIMUM CONDUCTOR CONTINUOUS TEMPERATURE.

VOLTAGE RATING: 600 VOLTS (RMS) AT SEA LEVEL. THIS INSULATION SYSTEM HAS BEEN USED IN AEROSPACE APPLICATIONS USING 115 VOLTS (PHASE TO NEUTRAL), 400 HERTZ AC AND 28 VOLTS DC. VERIFICATION OF THE SUITABILITY OF THIS PRODUCT FOR USE IN OTHER ELECTRICAL SYSTEM CONFIGURATIONS IS THE RESPONSIBILITY OF THE USER.

3. MATERIALS AND PHYSICAL PROPERTIES:

REFER TO AS22759 FOR MATERIAL REQUIREMENT. MATERIALS USED IN THE MANUFACTURE OF THESE PRODUCTS SHALL COMPLY WITH THE RESTRICTION OF HAZARDOUS SUBSTANCES DIRECTIVE 2002/95/EC.

4. FINISH WIRE INSULATION PROPERTIES:

FINISH WIRE INSULATION PROPERTIES SHALL BE IN ACCORDANCE WITH TABLE 4.

	AEROSPACE STANDARD	AS22759™/80 SHEET 2 OF 4	REV. D
	WIRE, ELECTRICAL, POLYTETRAFLUOROETHYLENE/ POLYIMIDE INSULATED, LIGHT WEIGHT, TIN COATED, COPPER CONDUCTOR, 150 °C, 600 VOLT, ROHS		

TABLE 4 - FINISHED WIRE INSULATION PROPERTIES REQUIREMENTS

INSULATION PROPERTIES	
IMPULSE TEST VOLTAGE	8.0 KILOVOLTS (PEAK)
HIGH FREQUENCY TEST VOLTAGE	5.7 KILOVOLTS (RMS)
INSULATION STATE OF SINTER	3.0 JOULES PER GRAM MAXIMUM
TAPE OVERLAP	TABLE 3
LAMINATION SEALING	260 °C ± 2 °C (500 °F ± 3.6 °F), 6 HOURS
INSULATION BLOCKING	200 °C ± 2 °C (392 °F ± 3.6 °F)
SHRINKAGE	230 °C ± 2 °C (446 °F ± 3.6 °F)
	MAXIMUM CHANGE .091 INCHES
ELECTRICAL RESISTANCE (IR)	5000 MEGOHMS (MIN)-1000 FEET
WET DIELECTRIC VOLTAGE	2500 VOLTS (RMS), 60 HERTZ
INSULATION STRIP FORCE	.25 - 6.0 POUNDS: WIRE SIZES 26 - 20
	.50 - 7.0 POUNDS: WIRE SIZES 18 - 14
UV LASER MARKING	55% MINIMUM AVERAGE
CONTINUOUS LENGTH SCHEDULE	B

5. FINISH WIRE IDENTIFICATION:

WIRE IDENTIFICATION EXCEPTIONS: NONE

WIRE IDENTIFICATION DURABILITY: 125 CYCLES (250 STROKES) WITH 250 GRAMS WEIGHT

STRIPE AND BAND DURABILITY: 125 CYCLES (250 STROKES) WITH 250 GRAMS WEIGHT

6. FINISH WIRE PERFORMANCE:

FINISH WIRE FIXTURES APPLICABLE TO EACH WIRE SIZE SHALL BE IN ACCORDANCE WITH TABLE 5.

TABLE 5 - TEST MANDREL AND TEST LOAD REQUIREMENTS

WIRE SIZE (AWG)	TEST MANDREL DIAMETER ^{1/} (INCHES)			TEST LOAD ^{1/} (LB)	
	COLD BEND	LIFE CYCLE/ BEND TEST	WRAP	COLD BEND	LIFE CYCLE/ BEND TEST
26	1.00	.375	.125	3.00	.50
24	1.00	.500	.125	3.00	.75
22	1.00	.500	.125	4.00	1.00
20	1.00	.500	.125	4.00	1.50
18	1.50	.750	.250	5.00	2.00
16	1.50	1.00	.250	5.00	2.00
14	2.00	1.00	.375	5.00	3.00
12	2.00	1.50	.375	5.00	3.00
10	3.00	2.00	.375	6.00	3.00

^{1/}TOLERANCE SHALL BE ±3% OF THE GIVEN VALUES.