

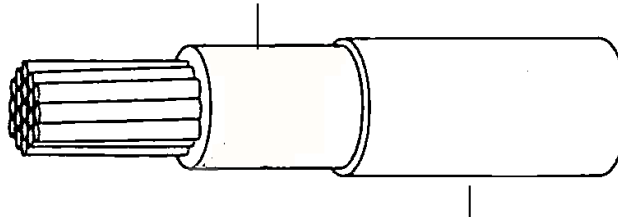
RATIONALE

SPECIFICATION IS NEEDED TO PROVIDE FOR 8-MIL XL-ETFE SOFT COPPER WIRE CONSTRUCTION FOR AIRCRAFT APPLICATIONS.

NOTICE

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

PRIMARY INSULATION - CROSSLINKED, EXTRUDED, MODIFIED ETFE



JACKET - CROSSLINKED, EXTRUDED, MODIFIED ETFE

ETFE – ETHYLENE TETRAFLUOROETHYLENE
CONDUCTOR – STRANDED SILVER COATED COPPER

FIGURE 1 - AS22759/59 CONFIGURATION

TABLE 1 - CONSTRUCTION DETAILS FOR FINISHED WIRE

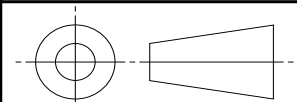
PART NO. ^{1/}	WIRE SIZE	STRANDING (NUMBER OF STRANDS X SIZE GAUGE OF STRANDS)	DIAMETER OF STRANDED CONDUCTOR (INCH) ^{2/}		FINISHED WIRE		
			(MIN)	(MAX)	RESISTANCE AT 20 °C (68 °F) (OHMS/1000 FEET) MAX	DIAMETER (INCH)	WEIGHT (LB/1000 FEET) (MAX)
M22759/59-22-*	22	19 X 34	.0285	.0304	15.1	.0455 ± .0017	3.06
M22759/59-20-*	20	19 X 32	.0365	.0384	9.19	.0540 ± .0017	4.65
M22759/59-18-*	18	19 X 30	.0455	.0484	5.79	.0635 ± .0019	6.97
M22759/59-16-*	16	19 X 29	.0515	.0544	4.52	.0710 ± .0020	8.84
M22759/59-14-*	14	19 X 27	.0645	.0684	2.88	.0860 ± .0022	13.41
M22759/59-12-*	12	37 X 28	.0835	.0874	1.90	.1047 ± .0027	20.30
M22759/59-10-*	10	37 X 26	.106	.110	1.19	.1290 ± .0038	32.13

^{1/} PART NUMBER: THE ASTERISKS IN THE PART NUMBER COLUMN, TABLES 1 AND 3, SHALL BE REPLACED BY COLOR CODE DESIGNATORS IN ACCORDANCE WITH MIL-STD-681. EXAMPLES: SIZE 20, WHITE-M22759/59-20-9; WHITE WITH ORANGE STRIPE – M22759/59-20-93. PRINTING OF COLOR CODE DESIGNATOR ON SURFACE OF WIRE INSULATION IS NOT REQUIRED.

^{2/} CONDUCTOR SHALL CONFORM TO AS29606 TYPE SCC SMALL DIAMETER SILVER PLATED COPPER CONDUCTOR FOR SIZES 22 THROUGH 12. SIZE 10 SHALL CONFORM TO GENERAL PURPOSE SILVER PLATED COPPER CONDUCTOR.

For more information on this standard, visit
<https://www.sae.org/standards/content/AS22759/59/>

THIRD ANGLE PROJECTION



CUSTODIAN: AE-8D

PROCUREMENT SPECIFICATION: AS22759



AEROSPACE STANDARD

WIRE, ELECTRICAL, FLUOROPOLYMER-INSULATED, CROSSLINKED MODIFIED ETFE, FLUORIDE CONTROLLED, MEDIUM WEIGHT, SILVER-COATED COPPER, 200 °C, 600 VOLT, ROHS

AS22759™/59
SHEET 1 OF 4

Documents

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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.

2. WIRE PERFORMANCE RATING:

TEMPERATURE RATING: 200 °C (392 °F) MAXIMUM CONTINUOUS CONDUCTOR 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 2011/65/EU.

4. FINISHED WIRE INSULATION PROPERTIES:

PRIMARY INSULATION SHALL HAVE A CONTRASTING PIGMENTATION TO THAT OF THE JACKET.

FINISHED WIRE INSULATION PROPERTIES SHALL BE IN ACCORDANCE WITH TABLE 2.

TABLE 2 - FINISHED WIRE INSULATION PROPERTIES REQUIREMENTS

INSULATION PROPERTIES	
SPARK TEST VOLTAGE	1500 VOLT (RMS) AT 60 HERTZ OR 3000 HERTZ ON PRIMARY INSULATION
IMPULSE TEST VOLTAGE	8.0 KILOVOLTS (PEAK) ON FINISHED WIRE
SPARK TEST VOLTAGE	3000 VOLT (RMS) AT 60 HERTZ OR 3000 HERTZ ON FINISHED WIRE
FLUORIDE OFF-GASSING	MAXIMUM 150 PPM
CROSSLINK PROOF	300 °C ± 3 °C (572 °F ± 5.4 °F), 7 HOURS (QUALIFICATION) 1 HOUR (QUALITY CONFORMANCE)
INSULATION BLOCKING	230 °C ± 3 °C (446 °F ± 5.4 °F), 4 HOURS
SHRINKAGE	230 °C ± 3 °C (446 °F ± 5.4 °F), 1 HOUR MAXIMUM CHANGE .125 INCH
LAYER WICKING	2.25 INCHES (MAX) PROCEDURE: MULTI-LAYER WIRE
ELECTRICAL RESISTANCE (IR)	5000 MEGOHMS (MIN) - 1000 FEET
ELECTRICAL SURFACE RESISTANCE	500 MEGOHMS - INCHES (MIN)
WET DIELECTRIC VOLTAGE	2500 VOLTS (RMS), 60 HERTZ
WALL THICKNESS	.003 INCH (MIN) FOR PRIMARY INSULATION .003 INCH (MIN) FOR OUTER JACKET .0067 INCH (MIN) FOR TOTAL INSULATION
INSULATION TENSILE STRENGTH	5000 LBF/IN ² (MIN) FOR TOTAL INSULATION
INSULATION ELONGATION	50% (MIN) FOR TOTAL INSULATION
CONTINUOUS LENGTH SCHEDULE	B
UV LASER MARKING	70% MINIMUM AVERAGE

5. FINISHED WIRE IDENTIFICATION:

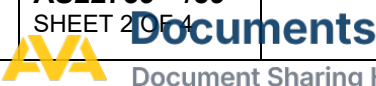
WIRE IDENTIFICATION EXCEPTIONS: NONE

WIRE IDENTIFICATION DURABILITY: 125 CYCLES (250 STROKES) WITH 500 GRAMS WEIGHT

STRIPE AND BAND DURABILITY: 125 CYCLES (250 STROKES) WITH 500 GRAMS WEIGHT

6. FINISHED WIRE PERFORMANCE:

FINISHED WIRE FIXTURES APPLICABLE TO EACH WIRE SIZE SHALL BE IN ACCORDANCE WITH TABLE 3.

	AEROSPACE STANDARD	AS22759™/59 SHEET 2 OF 4	
	WIRE, ELECTRICAL, FLUOROPOLYMER-INSULATED, CROSSLINKED MODIFIED ETFE, FLUORIDE CONTROLLED, MEDIUM WEIGHT, SILVER-COATED COPPER, 200 °C, 600 VOLT, ROHS		