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AS22759™/44

FEDERAL SUPPLY CLASS
6145

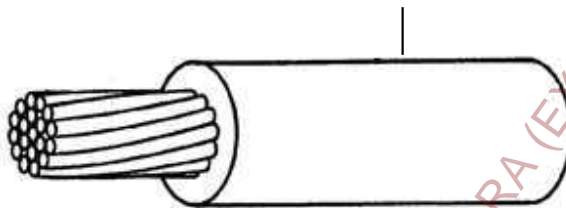
RATIONALE

SPECIFICATION UPDATED TO INCLUDE AS29606 CONDUCTOR REQUIREMENTS, ROHS RESTRICTIONS, AND AS22759 MODIFICATIONS. REMOVED PROPELLANT RESISTANCE REQUIREMENT.

NOTICE

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

CROSSLINKED, EXTRUDED, MODIFIED ETFE



ETFE – ETHYLENE TETRAFLUOROETHYLENE
CONDUCTOR – STRANDED SILVER COATED COPPER

FIGURE 1 - AS22759/44 CONFIGURATION

TABLE 1 - CONSTRUCTION DETAILS FOR FINISHED WIRE

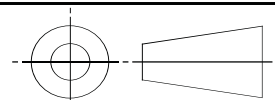
PART NO. 1/	WIRE SIZE	STRANDING (NUMBER OF STRANDS X SIZE GAUGE OF STRANDS) 2/	DIAMETER OF STRANDED CONDUCTOR (INCHES) 2/		FINISHED WIRE		
			(MIN)	(MAX)	RESISTANCE AT 20 °C (68 °F) (OHMS/1,000 FEET) MAX	DIAMETER (INCHES)	WEIGHT (LB/1,000 FEET) (MAX)
M22759/44-28-*	28	7 X 36	.0135	.0154	63.8	.027 ± .002	.91
M22759/44-26-*	26	19 X 38	.0175	.0194	38.4	.032 ± .002	1.4
M22759/44-24-*	24	19 X 36	.0225	.0254	24.3	.037 ± .002	2.0
M22759/44-22-*	22	19 X 34	.0285	.0304	15.1	.043 ± .002	2.8
M22759/44-20-*	20	19 X 32	.0365	.0394	9.19	.050 ± .002	4.3
M22759/44-18-*	18	19 X 30	.0455	.0484	5.79	.060 ± .002	6.5
M22759/44-16-*	16	19 X 29	.0515	.0544	4.52	.068 ± .002	8.3
M22759/44-14-*	14	19 X 27	.0645	.0684	2.88	.085 ± .003	13.0
M22759/44-12-*	12	37 X 28	.0835	.0874	1.90	.103 ± .003	19.7

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 – M22759/44-20-9; WHITE WITH ORANGE STRIPE – M22759/44-20-93. 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.

SAE values your input. To provide feedback on this Technical Report, please visit <http://www.sae.org/technical/standards/AS22759/44A>

THIRD ANGLE PROJECTION



CUSTODIAN: AE-8/AE-8D

PROCUREMENT SPECIFICATION: AS22759



AEROSPACE STANDARD

(R) WIRE, ELECTRICAL, FLUOROPOLYMER-INSULATED, CROSS-LINKED MODIFIED ETFE, LIGHTWEIGHT, SILVER-COATED, COPPER, 200 °C, 600 VOLT, ROHS

AS22759™/44
SHEET 1 OF 3

REV.
A

REQUIREMENT: 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 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:

SEE 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. FINISHED WIRE INSULATION PROPERTIES:

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

TABLE 2 - FINISHED WIRE INSULATION PROPERTIES REQUIREMENTS

INSULATION PROPERTIES	
IMPULSE TEST VOLTAGE	8.0 KILOVOLTS (PEAK)
HIGH FREQUENCY TEST VOLTAGE	5.7 KILOVOLTS (RMS)
CROSSLINK PROOF	300 °C ± 3 °C (572 °F ± 5.4 °F), 7 HOURS
INSULATION BLOCKING	230 °C ± 3 °C (446 °F ± 5.4 °F)
SHRINKAGE	230 °C ± 3 °C (446 °F ± 5.4 °F)
	MAXIMUM CHANGE .125 INCHES
ELECTRICAL RESISTANCE (IR)	5,000 MEGOHMS (MIN) - 1,000 FEET
ELECTRICAL SURFACE RESISTANCE	500 MEGOHMS - INCHES (MIN)
WET DIELECTRIC VOLTAGE	2,500 VOLTS (RMS), 60 HERTZ
WALL THICKNESS	.005 INCH (MIN)
INSULATION TENSILE STRENGTH	5,000 LBF/IN ² (MIN)
INSULATION ELONGATION	75% (MIN)
CONTINUOUS LENGTH SCHEDULE	B

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

(R) WIRE, ELECTRICAL, FLUOROPOLYMER-INSULATED,
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SILVER-COATED, COPPER, 200 °C, 600 VOLT, ROHS

AS22759™/44
SHEET 2 OF 3

REV.
A

TABLE 3 - PERFORMANCE DETAILS

PART NO.	BEND TESTING			
	MANDREL DIAMETER ^{1/} (INCHES)		TEST LOAD ^{1/} (LB)	
	CROSSLINKING PROOF, IMMERSION AND LIFE CYCLE TESTS	COLD BEND TEST	CROSSLINKING PROOF, IMMERSION AND LIFE CYCLE TESTS	COLD BEND TEST
M22759/44-28-*	.250	.375	.125	.500
M22759/44-26-*	.375	.500	.125	.500
M22759/44-24-*	.375	.500	.250	1.00
M22759/44-22-*	.500	.750	.375	1.00
M22759/44-20-*	.500	.750	.500	1.00
M22759/44-18-*	.500	1.00	.500	1.00
M22759/44-16-*	.750	1.00	.750	1.00
M22759/44-14-*	1.00	1.50	1.00	3.00
M22759/44-12-*	1.50	2.00	1.50	3.00

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

FINISHED WIRE PERFORMANCE CHARACTERISTICS SHALL BE IN ACCORDANCE WITH TABLE 4.

TABLE 4 - FINISHED WIRE PERFORMANCE CHARACTERISTICS

PERFORMANCE CHARACTERISTIC	REQUIREMENT
WRAP BACK BEND RESISTANCE	TEMPERATURE EXPOSURE 313 °C ± 3 °C (595 °F ± 5.4 °F)
THERMAL SHOCK MECHANICAL RESISTANCE	TEMPERATURE EXPOSURE 200 °C ± 3 °C (392 °F ± 5.4 °F)
	MAXIMUM CHANGE .060 INCHES
THERMAL MECHANICAL RESISTANCE (LIFE CYCLE)	EXPOSURE 500 HOURS, 230 °C ± 3 °C (446 °F ± 5.4 °F) COLOR RETENTION NOT REQUIRED
HUMIDITY RESISTANCE (IR)	5,000 MEGOHMS (MIN) - 1,000 FEET
FLUID RESISTANCE	DIAMETER INCREASE 5% (MAX)
SMOKE RESISTANCE	250 °C ± 5 °C (482 °F ± 9 °F)
FLAME RESISTANCE	SELF-EXTINGUISH TIME: 3 SECONDS
	BURN LENGTH 3 INCHES
	FACIAL TISSUE: NO INCENDIARY DRIPS ALLOWED

7. REQUIREMENT EXCEPTION TO THE AS22759:

NONE

APPLICATION NOTES:

1. PRODUCTS MANUFACTURED TO THIS SPECIFICATION ARE ROHS COMPLIANT.

SPECIFICATION NOTES:

1. REVISION INDICATOR:

A CHANGE BAR (I) LOCATED IN THE LEFT MARGIN IS FOR THE CONVENIENCE OF THE USER IN LOCATING AREAS WHERE TECHNICAL REVISIONS, NOT EDITORIAL CHANGES HAVE BEEN MADE TO THE PREVIOUS ISSUE OF THIS DOCUMENT. AN (R) SYMBOL TO THE LEFT OF THE DOCUMENT TITLE INDICATES A COMPLETE REVISION OF THE DOCUMENT, INCLUDING TECHNICAL REVISIONS. CHANGE BARS AND (R) ARE NOT USED IN ORIGINAL PUBLICATIONS NOR IN DOCUMENTS THAT CONTAIN EDITORIAL CHANGES ONLY.

	AEROSPACE STANDARD	AS22759™/44 SHEET 3 OF 3	REV. A
	(R) WIRE, ELECTRICAL, FLUOROPOLYMER-INSULATED, CROSS-LINKED MODIFIED ETFE, LIGHTWEIGHT, SILVER-COATED, COPPER, 200 °C, 600 VOLT, ROHS		