FEDERAL SUPPLY CLASS
6145

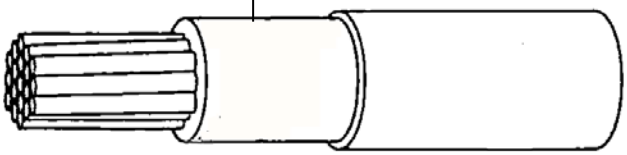
RATIONALE

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

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 HIGH STRENGTH COPPER ALLOY

FIGURE 1 –AS22759/35 CONFIGURATION

TABLE 1 – CONSTRUCTION DETAILS FOR FINISHED WIRE

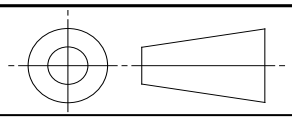
PART NO. 1/	WIRE SIZE	STRANDING (NUMBER OF STRANDS X SIZE GAUGE OF STRANDS) 2/	DIAMETER OF STRANDED CONDUCTOR (INCHES) 2/		FINISHED WIRE		
			(MIN)	(MAX)	RESISTANCE AT 20 °C (68 °F) (OHMS/1000 FT) MAX	DIAMETER (INCHES)	WEIGHT (LB/1000 FT) (MAX)
M22759/35-26-*	26	19 X 38	.0175	.0204	44.8	.040 ± .002	1.70
M22759/35-24-*	24	19 X 36	.0225	.0244	28.4	.045 ± .002	2.30
M22759/35-22-*	22	19 X 34	.0285	.0314	17.5	.050 ± .002	3.30
M22759/35-20-*	20	19 X 32	.0365	.0394	10.7	.058 ± .002	4.80

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 – M22759/35-20-9; WHITE WITH ORANGE STRIPE – M22759/35-20-93. PRINTING OF COLOR CODE DESIGNATOR ON SURFACE OF WIRE INSULATION IS NOT REQUIRED.

2/ CONDUCTOR SHALL CONFORM TO AS29606 TYPE SCA SMALL DIAMETER SILVER PLATED HIGH STRENGTH COPPER ALLOY CONDUCTOR.

For more information on this standard, visit
https://www.sae.org/standards/content/AS22759/35A/

THIRD ANGLE PROJECTION



ISSUED 2000-04 REVISED 2016-06 REAFFIRMED 2021-06

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, 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

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

   PHYSICAL PROPERTIES OF INSULATION: PRIMARY INSULATION SHALL BE SEPARATED FROM THE OUTER JACKET FOR DETERMINATION OF PRIMARY INSULATION TENSILE STRENGTH AND ELONGATION.

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

TABLE 2 – FINISHED WIRE INSULATION PROPERTIES REQUIREMENTS

INSULATION PROPERTIES	
SPARK TEST VOLTAGE (PRIMARY INSULATION)	1500 VOLT (RMS) AT 60 Hz
IMPULSE TEST VOLTAGE (PRIMARY INSULATION)	6.0 KILOVOLTS (PEAK)
HIGH FREQUENCY TEST VOLTAGE (PRIMARY INSULATION)	4.2 KILOVOLTS (RMS)
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
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 Hz
WALL THICKNESS	.003 INCH (MIN) FOR PRIMARY INSULATION .004 INCH (MIN) FOR OUTER JACKET .008 INCH (MIN) FOR TOTAL INSULATION
INSULATION TENSILE STRENGTH	5000 LBF/IN^2 (MIN) FOR PRIMARY INSULATION 5000 LBF/IN^2 (MIN) FOR TOTAL INSULATION
INSULATION ELONGATION	125% (MIN) FOR PRIMARY INSULATION 75% (MIN) FOR TOTAL INSULATION
CONTINUOUS LENGTH SCHEDULE	B