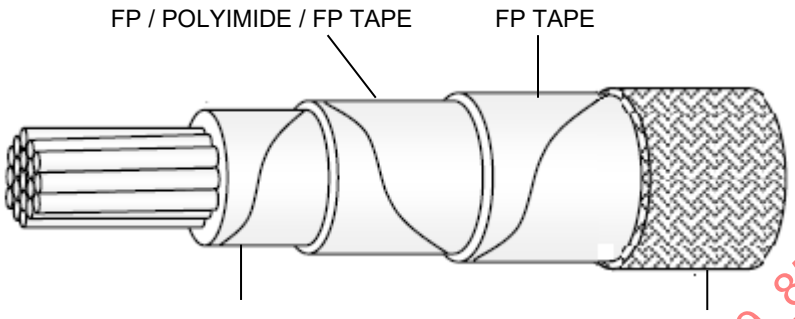
FEDERAL SUPPLY CLASS
6145

RATIONALE

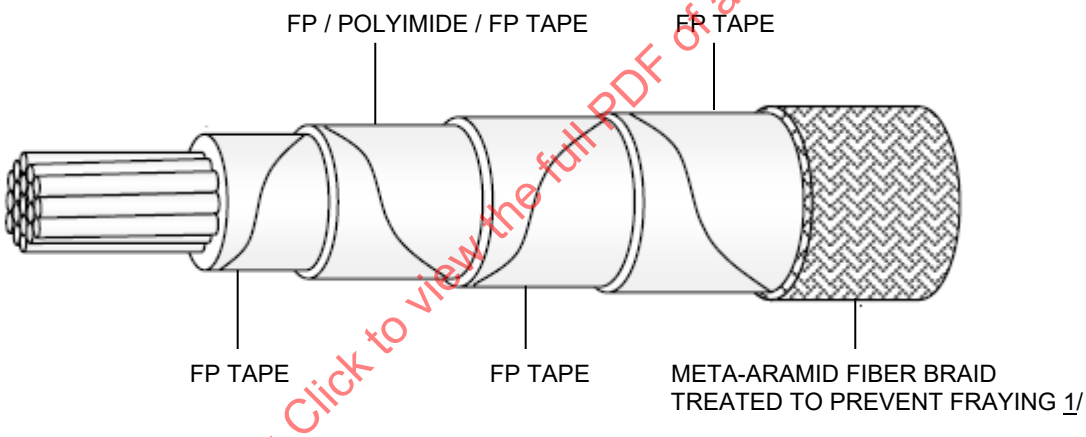
REMOVAL OF THE INTENDED USE LIMITATION FOR NAVAL AIRCRAFT AND NAVAL AIR SYSTEMS APPLICATION IS REQUIRED TO SYNCHRONIZE THIS DOCUMENT WITH THE REQUIREMENT OF AS50881.

NOTICE

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



SIZE 8 THROUGH 6



SIZE 4 THROUGH 04

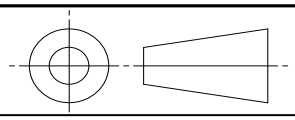
FP – FLUOROCARBON POLYMER MODIFIED POLYTETRAFLUOROETHYLENE (PTFE)
CONDUCTOR – STRANDED TIN COATED COPPER

1/ BRAID: BRIGHT AROMATIC POLYAMIDE YARN, 200 DENIER, 100 FILAMENTS, TIGHTLY FORMED, UNIFORM IN APPEARANCE, TREATED WITH A CLEAR FINISHER COATING. THE FINISHER COATING SHALL BE COMPATIBLE WITH THE TEMPERATURE RATING AND PERFORMANCE REQUIREMENTS OF THE INSULATED WIRE. BRAID SHALL GRIP THE UNDERLYING INSULATION SUFFICIENTLY AS TO NOT SLIDE ALONG THE TAPE SURFACE DURING NORMAL HANDLING.

FIGURE 1 - AS22759/85 CONFIGURATION

For more information on this standard, visit
https://www.sae.org/standards/content/AS22759/85E/

THIRD ANGLE PROJECTION



ISSUED 2000-06 REVISED 2022-03

CUSTODIAN: AE-8/AE-8D

PROCUREMENT SPECIFICATION: NONE

SAE INTERNATIONAL

AEROSPACE STANDARD

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

TABLE 1 - CONSTRUCTION DETAILS FOR FINISHED WIRE

PART NO. 1/	WIRE SIZE	CONDUCTOR 3/ STRANDING (NUMBER OF STRANDS X SIZE GAUGE OF STRANDS)	CONDUCTOR 3/ DIAMETER (INCH) MIN	CONDUCTOR 3/ DIAMETER (INCH) MAX	FINISHED WIRE RESISTANCE AT 20 °C (68 °F) (OHMS/1000 FEET MAX)	FINISHED WIRE DIAMETER (INCH) MIN	FINISHED WIRE DIAMETER (INCH) MAX	FINISHED WIRE WEIGHT (LB/1000 FEET) 2/ MIN	FINISHED WIRE WEIGHT (LB/1000 FEET) 2/ TARGET	FINISHED WIRE WEIGHT (LB/1000 FEET) 2/ MAX
M22759/85-8	8	133 X 29	.158	.169	.701	.192	.213	59.0	61.1	63.2
M22759/85-6	6	133 X 27	.198	.212	.445	.231	.254	91.8	94.3	96.8
M22759/85-4	4	133 X 25	.250	.268	.280	.288	.313	144	148	152
M22759/85-2-*	2	665 X 30	.320	.340	.183	.356	.389	220	229	238
M22759/85-1-*	1	817 X 30	.360	.380	.149	.400	.433	268	277	286
M22759/85-01-*	0	1045 X 30	.395	.425	.116	.432	.475	339	352	365
M22759/85-02-*	00	1330 X 30	.440	.475	.091	.487	.530	422	442	462
M22759/85-03-*	000	1665 X 30	.500	.540	.071	.542	.585	539	554	569
M22759/85-04-*	0000	2109 X 30	.565	.605	.056	.602	.655	654	675	696

1/ PART NUMBER: THE PREFERRED COLOR IS DARK GREEN WITH THE COLOR DESIGNATOR 5D. EXAMPLE: SIZE 2 DARK GREEN - AS22759/85-2-5D. WHITE IS AN ACCEPTABLE ALTERNATE WITH A COLOR DESIGNATOR 9.
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 WIRE SIZES 8 THROUGH 4 AND GENERAL PURPOSE FOR WIRE SIZES 2 THROUGH 0000.

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.

TABLE 2 - WIRE INSULATION MATERIALS

TAPE CODE	THICKNESS NOMINAL	MATERIAL
1	.0020	.0005 (FP)/.0010 (POLYIMIDE)/.0005 (FP)
2	.0020	FP (SKIVED)
3	.0030	FP (UNSINTERED OR PRESINTERED BONDABLE)
4	.0010	FP (SKIVED)

TABLE 3 - TAPE OVERLAP REQUIREMENTS 1/

WIRE SIZE	WRAP 1 TAPE CODE	WRAP 1 PERCENT OVERLAP MIN	WRAP 1 PERCENT OVERLAP MAX	WRAP 2 TAPE CODE	WRAP 2 PERCENT OVERLAP MIN	WRAP 2 PERCENT OVERLAP MAX	WRAP 3 TAPE CODE	WRAP 3 PERCENT OVERLAP MIN	WRAP 3 PERCENT OVERLAP MAX	WRAP 4 TAPE CODE	WRAP 4 PERCENT OVERLAP MIN	WRAP 4 PERCENT OVERLAP MAX	NOMINAL WALL THICKNESS (MILS) 2/
8	4	20.5	35.0	1	50.5	55.0	3	67.0	71.0				13.2
6	4	20.5	35.0	1	50.5	55.0	3	67.0	71.0				13.2
4	2	20.5	35.0	1	50.5	55.0	3	50.5	54.0	3	50.5	54.0	16.2
2	2	20.5	35.0	1	50.5	55.0	3	50.5	54.0	3	50.5	54.0	16.2
1	2	20.5	35.0	1	50.5	55.0	3	50.5	54.0	3	50.5	54.0	16.2
1/0	2	20.5	35.0	1	50.5	55.0	3	50.5	54.0	3	50.5	54.0	16.2
2/0	2	20.5	35.0	1	50.5	55.0	3	50.5	54.0	3	50.5	54.0	16.2
3/0	2	20.5	35.0	1	50.5	55.0	3	50.5	54.0	3	50.5	54.0	16.2
4/0	2	20.5	35.0	1	50.5	55.0	3	50.5	54.0	3	50.5	54.0	16.2

1/ WRAP 1 IS INNERMOST TAPE WHICH IS IN CONTACT WITH THE CONDUCTOR. WRAPS 2, 3, AND 4 ARE PROGRESSIVELY FURTHER AWAY FROM THE CONDUCTOR CORE.
2/ NOMINAL WALL THICKNESS DOES NOT INCLUDE THE POLYAMIDE BRAID THICKNESS.

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.

TABLE 4 - FINISHED WIRE INSULATION PROPERTIES REQUIREMENTS

INSULATION PROPERTIES	
IMPULSE TEST VOLTAGE	8.0 KILOVOLTS (PEAK)
HIGH FREQUENCY TEST VOLTAGE	5.7 KILOVOLTS (RMS)
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 .125 INCHES
ELECTRICAL RESISTANCE (IR)	3000 MEGOHMS (MIN)-1000 FEET
WET DIELECTRIC VOLTAGE	2500 VOLTS (RMS), 60 HERTZ
CONTINUOUS LENGTH SCHEDULE	B

5. FINISH WIRE IDENTIFICATION:

WIRE IDENTIFICATION EXCEPTIONS: NONE

WIRE IDENTIFICATION DURABILITY: NOT REQUIRED

STRIPE AND BAND DURABILITY: NOT REQUIRED

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
8	4.00	3.00	.750	10.00	4.00
6	5.00	4.00	1.00	10.00	4.00
4	6.00	5.00	1.25	15.00	4.50
2	8.00	6.00	2.00	15.00	6.00
1	10.00	8.00	2.50	15.00	6.00
0	10.00	8.00	3.00	15.00	6.00
00	12.00	10.00	4.00	20.00	8.00
000	18.00	10.00	5.00	30.00	10.00
0000	18.00	10.00	6.00	30.00	10.00

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