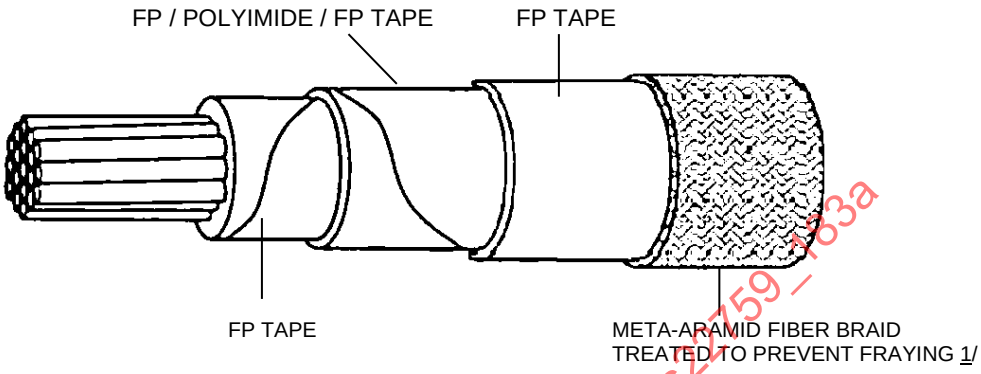
FEDERAL SUPPLY CLASS
6145

RATIONALE

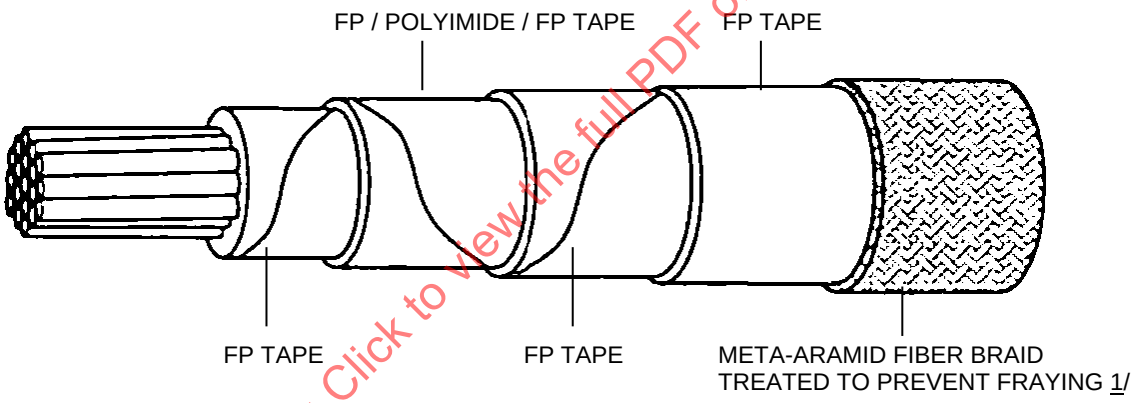
SPECIFICATION UPDATED TO INCLUDE AS29606 CONDUCTOR REQUIREMENTS, ROHS RESTRICTIONS AND AS22759 MODIFICATIONS.

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



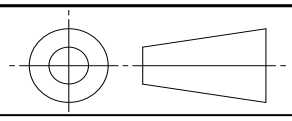
SIZE 4 THROUGH 04

FP – FLUOROCARBON POLYMER MODIFIED POLYTETRAFLUOROETHYLENE (PTFE)
CONDUCTOR – STRANDED SILVER 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 - AS22759/183 CONFIGURATION

THIRD ANGLE PROJECTION



ISSUED 2010-02 REVISED 2015-01

CUSTODIAN: AE-8/AE-8D

PROCUREMENT SPECIFICATION: NONE

SAE INTERNATIONAL

AEROSPACE STANDARD

(R) WIRE, ELECTRICAL, POLYTETRAFLUOROETHYLENE/POLYMIDE INSULATED, SMOOTH SURFACE, NORMAL WEIGHT, SILVER-COATED COPPER CONDUCTOR, 200 °C, 600 VOLTS ROHS

AS22759/183
SHEET 1 OF 4

REV. A

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)** **Tel: +1 724-776-4970 (outside USA)**
Fax: 724-776-0790 **Email: CustomerService@sae.org** **SAE WEB ADDRESS: http://www.sae.org**

TABLE 1 - CONSTRUCTION DETAILS FOR FINISHED WIRE

PART NO. 1/	WIRE SIZE	CONDUCTOR 4/ STRANDING (NUMBER OF STRANDS X SIZE GAUGE OF STRANDS)	CONDUCTOR 4/ DIAMETER (IN) MIN	CONDUCTOR 4/ DIAMETER (IN) MAX	CONDUCTOR 4/ RESISTANCE AT 20 °C (68 °F) (OHMS/1000 FT MAX)	FINISHED WIRE 3/ DIAMETER (IN) MIN	FINISHED WIRE 3/ DIAMETER (IN) MAX	FINISHED WIRE 3/ WEIGHT (LB/1000 FT) 2/ MIN	FINISHED WIRE 3/ WEIGHT (LB/1000 FT) 2/ TARGET	FINISHED WIRE 3/ WEIGHT (LB/1000 FT) 2/ MAX
M22759/183-8-*	8	133 X 29	.158	.166	.658	.192	.213	58.4	60.5	62.6
M22759/183-6-*	6	133 X 27	.198	.208	.418	.231	.254	88.2	90.6	93.0
M22759/183-4-*	4	133 X 25	.250	.263	.264	.288	.313	142	146	150
M22759/183-2-*	2	665 X 30	.320	.340	.170	.356	.389	213	222	231
M22759/183-1-*	1	817 X 30	.366	.380	.139	.400	.433	280	289	298
M22759/183-01-*	0	1045 X 30	.395	.425	.108	.432	.475	331	344	357
M22759/183-02-*	00	1330 X 30	.440	.475	.085	.487	.530	414	434	454
M22759/183-03-*	000	1665 X 30	.500	.540	.068	.542	.585	524	537	550
M22759/183-04-*	0000	2109 X 30	.565	.605	.054	.602	.655	654	675	696

1/ PART NUMBER: THE PREFERRED COLOR IS DARK GREEN WITH A COLOR DESIGNATOR OF 5D. EXAMPLE: SIZE 2 DARK GREEN – AS22759/183-2-5D. WHITE IS AN ACCEPTABLE ALTERNATIVE WITH A COLOR DESIGNATOR OF 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/ THE WIRE CONSTRUCTION SHALL HAVE A SMOOTH POLYTETRAFLUOROETHYLENE (PTFE) OUTER LAYER WITH COMPLETE BONDING BETWEEN THE HOMOGENEOUS LAYERS.

4/ CONDUCTOR SHALL CONFORM TO AS29606 TYPE SCC SMALL DIAMETER SILVER 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 MATERIAL

TAPE CODE	THICKNESS (NOM)	MATERIAL
1	.0020	.0005 (FP)/.0010 (POLYIMIDE)/.0005 (FP)
2	.0020	FP (SKIVED)
3	.0030	FP (UNSINTERED)
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	55.9	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 THE 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: 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. 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 (LB)	
	COLD BEND	LIFE CYCLE/ BEND TEST	WRAP	COLD BEND	LIFE CYCLE/ BEND TEST
8	4.00	3.00	0.750	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.