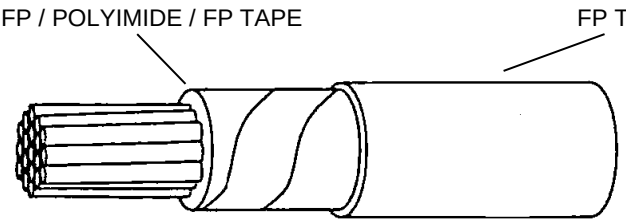
FEDERAL SUPPLY CLASS
6145

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 26 THROUGH 10

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

FIGURE 1 - AS22759/180 CONFIGURATION

TABLE 1 - CONSTRUCTION DETAILS

PART NO. 1/	WIRE SIZE	CONDUCTOR 4/				FINISHED WIRE 3/				
		STRANDING (NUMBER OF STRANDS X SIZE GAUGE OF STRANDS)	DIAMETER (IN)		RESISTANCE AT 20 °C (68 °F) (OHMS/1000 FT MAX)	DIAMETER (IN)		WEIGHT (LB/1000 FT) 2/		
			MIN	MAX		MIN	MAX	MIN	TARGET	MAX
M22759/180-26-*	26	19 X 38	.0175	.0204	41.3	.030	.034	1.16	1.31	1.45
M22759/180-24-*	24	19 X 36	.0225	.0244	26.2	.034	.038	1.70	1.85	2.00
M22759/180-22-*	22	19 X 34	.0285	.0314	16.2	.040	.043	2.55	2.75	2.95
M22759/180-20-*	20	19 X 32	.0365	.0394	9.88	.048	.051	4.05	4.25	4.45
M22759/180-18-*	18	19 X 30	.0455	.0494	6.23	.056	.060	6.15	6.40	6.65
M22759/180-16-*	16	19 X 29	.0515	.0554	4.81	.063	.067	7.75	8.05	8.35
M22759/180-14-*	14	19 X 27	.0645	.0694	3.06	.076	.080	12.0	12.4	12.8
M22759/180-12-*	12	37 X 28	.0835	.0894	2.02	.096	.100	18.3	19.3	20.3
M22759/180-10-*	10	37 X 26	.106	.112	1.26	.119	.123	28.8	30.1	31.4

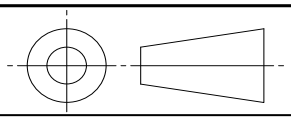
1/ PART NUMBER: THE ASTERISKS IN THE PART NUMBER COLUMN OF TABLE 1 SHALL BE REPLACED BY THE COLOR CODE DESIGNATORS IN ACCORDANCE WITH MIL-STD-681. M22759/180-20-93 IS A 20 AWG WHITE WITH ORANGE STRIPE.

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 TCC SMALL DIAMETER TIN COATED COPPER CONDUCTOR

THIRD ANGLE PROJECTION



ISSUED 2010-02 REVISED 2014-12

CUSTODIAN: AE-8/AE-8D

PROCUREMENT SPECIFICATION: NONE

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, TABLE 1, 2, 3, AND 4.

TABLE 2 - WIRE INSULATION MATERIAL

TAPE CODE	THICKNESS (NOM)	MATERIAL
1	.0012	.00045 (FP)/.00065 (POLYIMIDE)/.0001 (FP)
2	.0020	FP (UNSINTERED)
3	.0025	FP (UNSINTERED)

TABLE 3 - TAPE OVERLAP REQUIREMENTS 1/

WIRE SIZE	WRAP 1			WRAP 2			NOMINAL WALL THICKNESS (MILS)
	TAPE CODE	PERCENT OVERLAP		TAPE CODE	PERCENT OVERLAP		
		MIN	MAX		MIN	MAX	
26	1	50.5	54.0	2	50.5	54.0	5.8
24	1	50.5	54.0	2	50.5	54.0	5.8
22	1	50.5	54.0	2	50.5	54.0	5.8
20	1	50.5	54.0	2	50.5	54.0	5.8
18	1	50.5	54.0	2	50.5	54.0	5.8
16	1	50.5	54.0	2	50.5	54.0	5.8
14	1	50.5	54.0	2	50.5	54.0	5.8
12	1	50.5	54.0	3	50.5	54.0	6.7
10	1	50.5	54.0	3	50.5	54.0	6.7

1/ WRAP 1 IS THE INNERMOST TAPE WHICH IS IN CONTACT WITH THE CONDUCTOR WITH THE 0.00045 INCH FP SIDE OF THE TAPE AGAINST THE CONDUCTOR.

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

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)
INSULATION STATE OF SINTER	3.0 JOULES PER GRAM MAXIMUM
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 .091 INCHES
ELECTRICAL RESISTANCE (IR)	5000 MEGOHMS (MIN)-1000 FEET
WET DIELECTRIC VOLTAGE	2500 VOLTS (RMS), 60 HERTZ
INSULATION STRIP FORCE	.25 - 6.0 POUNDS: WIRE SIZES 26 - 20
	.50 - 7.0 POUNDS: WIRE SIZES 18 - 14
UV LASER MARKING	62% MINIMUM AVERAGE
CONTINUOUS LENGTH SCHEDULE	B

5. FINISH WIRE IDENTIFICATION

   WIRE IDENTIFICATION EXCEPTIONS: NONE

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

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

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
26	1.00	.375	.125	3.00	.50
24	1.00	.500	.125	3.00	.75
22	1.00	.500	.125	4.00	1.00
20	1.00	.500	.125	4.00	1.50
18	1.50	.750	.250	5.00	2.00
16	1.50	1.00	.250	5.00	2.00
14	2.00	1.00	.375	5.00	3.00
12	2.00	1.50	.375	5.00	3.00
10	3.00	2.00	.375	6.00	3.00

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