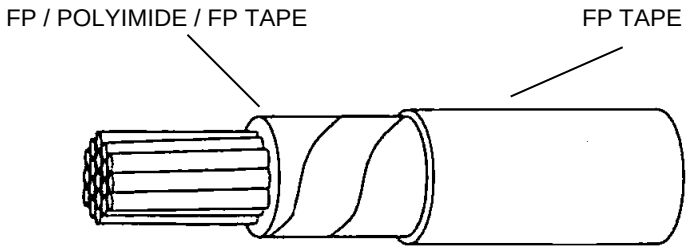
FEDERAL SUPPLY CLASS
6145

RATIONALE

SPECIFICATION UPDATED TO INCLUDE AS29606 CONDUCTOR REQUIREMENTS, ROHS RESTRICTIONS, HARMONIZATION WITH AS22759/187 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 20

FP - FLUOROCARBON POLYMER MODIFIED POLYTETRAFLUOROETHYLENE (PTFE)
CONDUCTOR - STRANDED NICKEL COATED HIGH STRENGTH OR ULTRA HIGH STRENGTH COPPER ALLOY

FIGURE 1 - AS22759/190 CONFIGURATION

TABLE 1 - CONSTRUCTION DETAILS FOR FINISHED WIRE

		CONDUCTOR 4/				FINISHED WIRE 3/				
		STRANDING (NUMBER OF STRANDS X SIZE GAUGE OF STRANDS)	DIAMETER (IN)		RESISTANCE AT 20 °C (68 °F) (OHMS/1000 FEET MAX)	DIAMETER (IN)		WEIGHT (LB/1000 FEET) 2/		
PART NO. 1/	WIRE SIZE		MIN	MAX		MIN	MAX	MIN	TARGET	MAX
M22759/190-26-*	26	19 X 38	.0175	.0204	58.4	.033	.037	1.34	1.47	1.60
M22759/190-24-*	24	19 X 36	.0225	.0254	30.1	.038	.042	1.87	2.04	2.20
M22759/190-22-*	22	19 X 34	.0285	.0314	18.6	.043	.047	2.70	2.90	3.10
M22759/190-20-*	20	19 X 32	.0365	.0404	11.4	.051	.055	4.25	4.48	4.70

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. M22759/190-20-93 IS A 20 AWG WHITE WITH ORANGE STRIPE.

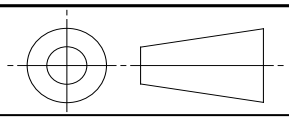
2/ THE ACCEPTABLE VALUE FOR THE CPK FOR THE FINISHED WIRE WEIGHT LISTED SHALL BE 1.3, USING A NORMAL (GAUSSIAN) DISTRIBUTION TO OBTAIN THOSE CPK VALUES.

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 NCA SMALL DIAMETER NICKEL COATED HIGH STRENGTH COPPER ALLOY CONDUCTOR FOR WIRE SIZES 24 THROUGH 20 AND TYPE NCU SMALL DIAMETER NICKEL COATED ULTRA HIGH STRENGTH COPPER ALLOY CONDUCTOR FOR WIRE SIZE 26.

SAE values your input. To provide feedback on this Technical Report, please visit http://standards.sae.org/AS22759/190A

THIRD ANGLE PROJECTION



ISSUED 2010-02 REVISED 2015-02 REAFFIRMED 2019-10

CUSTODIAN: AE-8D

PROCUREMENT SPECIFICATION: NONE

AEROSPACE STANDARD

(R) WIRE, ELECTRICAL, POLYTETRAFLUOROETHYLENE/POLYIMIDE INSULATED, SMOOTH SURFACE, NORMAL WEIGHT, NICKEL-COATED HIGH STRNGTH OR ULTRA HIGH STRENGTH COPPER ALLOY, 260 ºC, 600 VOLTS ROHS

AS22759™/190
SHEET 1 OF 4

REV. A

SAE Technical Standards Board Rules provide that: " This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2019 SAE International
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.
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

Documents Document Sharing Hub

Full document details: SAE AS22759_190A

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 (UNSINTERED)

TABLE 4 - 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	7.4
24	1	50.5	54.0	2	50.5	54.0	7.4
22	1	50.5	54.0	2	50.5	54.0	7.4
20	1	50.5	54.0	2	50.5	54.0	7.4

1/ WRAP 1 IS THE INNERMOST TAPE WHICH IS IN CONTACT WITH THE CONDUCTOR.

2. WIRE PERFORMANCE RATING:

TEMPERATURE RATING: 260 °C (500 °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	260 °C ± 2 °C (500 °F ± 3.6 °F)
SHRINKAGE	290 °C ± 2 °C (554 °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
UV LASER MARKING	62% MINIMUM AVERAGE
CONTINUOUS LENGTH SCHEDULE	B

AVA Documents
Document Sharing Hub
Full document details: SAE AS22759_190A