FEDERAL SUPPLY CLASS
6145

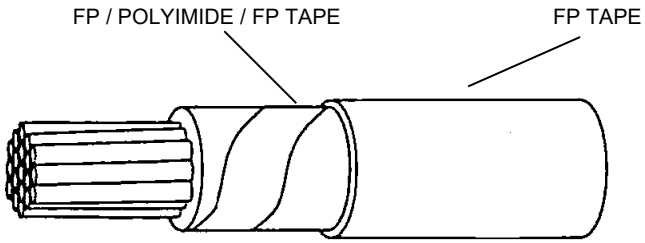
RATIONALE

LIMITED SCOPE REVISION REQUIRED TO ADDRESS A DYNAMIC CUT-THROUGH TEST ERROR IN TABLE 6, COLOR CODE CHANGES TO TABLE 2, REFERENCES, AND EDITORIAL CHANGES.

NOTICE

THE COMPLETE REQUIREMENTS FOR PROCURING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS DOCUMENT AND THE LATEST ISSUE OF AS5419.

TYPE “K” THERMOCOUPLE CONDUCTORS ARE TYPICALLY USED AS EXTENSION LEADS FOR AEROSPACE APPLICATION. THESE WIRES ARE ONLY TO BE USED IN A MATCHED PAIR AND PROCURED UNDER AS5419. THERMOCOUPLE EXTENSION WIRES ARE CALIBRATED FOR USE TOGETHER IN FABRICATING THERMOCOUPLES. IF EACH LEG OF THE THERMOCOUPLE EXTENSION WIRE IS FROM A DIFFERENT LOT, RECALIBRATION OF THE THERMOCOUPLE PAIR WILL BE REQUIRED.



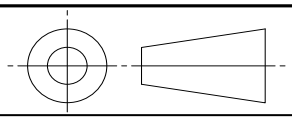
SIZE 22 THOUGH 14

FP – FLUOROCARBON POLYMER MODIFIED POLYTETRAFLUOROETHYLENE (PTFE)
CONDUCTOR – STRANDED TYPE “K” THERMOCOUPLE

FIGURE 1 - WIRE, THERMOCOUPLE, SMOOTH SURFACE, FP/POLYIMIDE/FP, COMPONENT WIRE INSULATION SYSTEM MUST CONFORM TO THE SIMILAR WIRE TYPE DESIGNATED IN TABLE 1 OF AS5419. MANUFACTURERS MUST BE QUALIFIED TO AS22759/186 TO PRODUCE THIS PRODUCT.

For more information on this standard, visit
https://www.sae.org/standards/content/AS5419/9A/

THIRD ANGLE PROJECTION



ISSUED 2020-02 REVISED 2020-10

CUSTODIAN: AE-8D

PROCUREMENT SPECIFICATION: AS5419

AEROSPACE STANDARD

WIRE, THERMOCOUPLE, SMOOTH SURFACE
FP/POLYIMIDE/FP INSULATED, NICKEL/CHROMIUM (KP);
NICKEL/ALUMINUM/MANGANESE (KN) THERMOCOUPLE
EXTENSION, NORMAL WEIGHT, 260 °C

AS5419™/9
SHEET 1 OF 7

REV. A

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Documents
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Full document details: SAE AS5419_9A

TABLE 1 - KP CONSTRUCTION DETAILS

TABLE 1A - KP CONSTRUCTION DETAILS, INCH-POUND UNITS

PART NUMBER 1/	WIRE SIZE	STRANDING (NUMBER OF STRANDS X AWG OF STRANDS)	DIAMETER OF STRANDED CONDUCTOR (IN)		RESISTANCE (OHMS/1000 FT) AT 20 °C		FINISHED WIRE DIAMETER (IN)		WEIGHT (LB/1000 FT) (MAX)
			(MIN)	(MAX)	(MIN)	(MAX)	(MIN)	(MAX)	
DJ-22KPS-9 DJ-22KPH-9	22	19X34	.029	.033	546.7	604.3	.043	.049	3.4
DJ-20KPS-9 DJ-20KPH-9	20	19X32	.037	.041	339.2	375.0	.052	.058	5.0
DJ-18KPS-9 DJ-18KPH-9	18	19X30	.046	.051	217.0	240.0	.063	.069	7.3
DJ-16KPS-9 DJ-16KPH-9	16	19X29	.052	.058	169.7	187.7	.071	.077	9.4
DJ-14KPS-9 DJ-14KPH-9	14	19X27	.065	.073	107.6	119.0	.084	.091	14.3

TABLE 1B - KP CONSTRUCTION DETAILS, SI UNITS

PART NUMBER 1/	WIRE SIZE	STRANDING (NUMBER OF STRANDS X AWG OF STRANDS)	DIAMETER OF STRANDED CONDUCTOR (MM)		RESISTANCE (OHMS/KM) AT 20 °C		FINISHED WIRE DIAMETER (MM)		WEIGHT (KG/KM) (MAX)
			(MIN)	(MAX)	(MIN)	(MAX)	(MIN)	(MAX)	
DJ-22KPS-9 DJ-22KPH-9	22	19X34	0.737	0.838	1793.6	1982.6	1.09	1.25	5.07
DJ-20KPS-9 DJ-20KPH-9	20	19X32	0.940	1.04	1112.9	1230.3	1.32	1.47	7.45
DJ-18KPS-9 DJ-18KPH-9	18	19X30	1.17	1.30	711.9	787.4	1.60	1.75	10.89
DJ-16KPS-9 DJ-16KPH-9	16	19X29	1.32	1.47	556.8	615.8	1.80	1.96	14.04
DJ-14KPS-9 DJ-14KPH-9	14	19X27	1.65	1.85	353.0	390.4	2.13	2.31	21.31

1/ THE COLOR (-9) SHALL BE WHITE ONLY.

NOTES:

ELECTROMOTIVE FORCE (EMF) DESIGNATOR = FOR TYPE KPS CONDUCTOR USE STANDARD LIMITS IN ASTM E230
= FOR TYPE KPH CONDUCTOR USE SPECIAL LIMITS IN ASTM E230

EXAMPLE: SIZE 20 STANDARD EMF LIMITS - DJ-20KPS-9; SIZE 20 SPECIAL EMF LIMITS - DJ- 20KPH-9
THESE WIRES COMPLY WITH THE SEALING RANGE REQUIREMENT FOR FIREWALL CONNECTORS AS SPECIFIED IN AS50151, MIL-DTL-83723 (REFER TO MIL-DTL-83723 SUPERSESSION DATA) EXCEPT THAT 20 AWG WIRE IS NOT COMPATIBLE WITH MINIMUM SEALING RANGE OF MIL-DTL-38999 16 AWG CONTACTS AND 14 AWG WIRE IS NOT COMPATIBLE WITH MINIMUM SEALING RANGE OF MIL-DTL-83723 (REFER TO MIL-DTL-83723 SUPERSESSION DATA) AND MIL-DTL-38999 12 AWG CONTACTS.

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Full document details: SAE AS5419_9A

TABLE 2 - KN CONSTRUCTION DETAILS

TABLE 2A - KN CONSTRUCTION DETAILS, INCH-POUND UNITS

PART NUMBER 1/	WIRE SIZE	STRANDING (NUMBER OF STRANDS X AWG OF STRANDS)	DIAMETER OF STRANDED CONDUCTOR (IN)		RESISTANCE (OHMS/1000 FT) AT 20 °C		FINISHED WIRE DIAMETER (IN)		WEIGHT (LB/1000 FT) (MAX)
			(MIN)	(MAX)	(MIN)	(MAX)	(MIN)	MAX)	
DJ-22KNS-5 DJ-22KNH-5	22	19X34	.029	.033	228.2	252.3	.043	.049	3.4
DJ-20KNS-5 DJ-20KNH-5	20	19X32	.037	.041	141.5	156.5	.052	.058	5.0
DJ-18KNS-5 DJ-18KNH-5	18	19X30	.046	.051	90.5	100.2	.063	.069	7.3
DJ-16KNS-5 DJ-16KNH-5	16	19X29	.052	.058	70.6	78.2	.071	.077	9.4
DJ-14KNS-5 DJ-14KNH-5	14	19X27	.065	.073	44.9	49.7	.084	.091	14.3

TABLE 2B - KN CONSTRUCTION DETAILS, SI UNITS

PART NUMBER 1/	WIRE SIZE	STRANDING (NUMBER OF STRANDS X AWG OF STRANDS)	DIAMETER OF STRANDED CONDUCTOR (MM)		RESISTANCE (OHMS/KM) AT 20 °C		FINISHED WIRE DIAMETER (MM)		WEIGHT (KG/KM) (MAX)
			(MIN)	MAX)	(MIN)	(MAX)	(MIN)	(MAX)	
DJ-22KNS-5 DJ-22KNH-5	22	19X34	0.737	0.838	748.7	827.8	1.09	1.25	5.07
DJ-20KNS-5 DJ-20KNH-5	20	19X32	0.940	1.04	464.2	513.5	1.32	1.47	7.45
DJ-18KNS-5 DJ-18KNH-5	18	19X30	1.17	1.30	296.9	328.7	1.60	1.75	10.89
DJ-16KNS-5 DJ-16KNH-5	16	19X29	1.32	1.47	231.6	256.6	1.80	1.96	14.01
DJ-14KNS-5 DJ-14KNH-5	14	19X27	1.65	1.85	147.6	163.1	2.13	2.31	21.31

1/ THE COLOR (-5) SHALL BE GREEN ONLY.

NOTES:

ELECTROMOTIVE FORCE (EMF) DESIGNATOR = FOR TYPE KNS CONDUCTOR USE STANDARD LIMITS IN ASTM E230
= FOR TYPE KNH CONDUCTOR USE SPECIAL LIMITS IN ASTM E230

EXAMPLE: SIZE 20 STANDARD EMF LIMITS - DJ-20KNS-5; SIZE 20 SPECIAL EMF LIMITS - DJ-20KNH-5
THESE WIRES COMPLY WITH THE SEALING RANGE REQUIREMENT FOR FIREWALL CONNECTORS AS SPECIFIED IN AS50151, MIL-DTL-83723 (REFER TO MIL-DTL-83723 SUPERSESSION DATA) EXCEPT THAT 20 AWG WIRE IS NOT COMPATIBLE WITH MINIMUM SEALING RANGE OF MIL-DTL-38999 16 AWG CONTACTS AND 14 AWG WIRE IS NOT COMPATIBLE WITH MINIMUM SEALING RANGE OF MIL-DTL-83723 (REFER TO MIL-DTL-83723 SUPERSESSION DATA) AND MIL-DTL-38999 12 AWG CONTACTS.

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