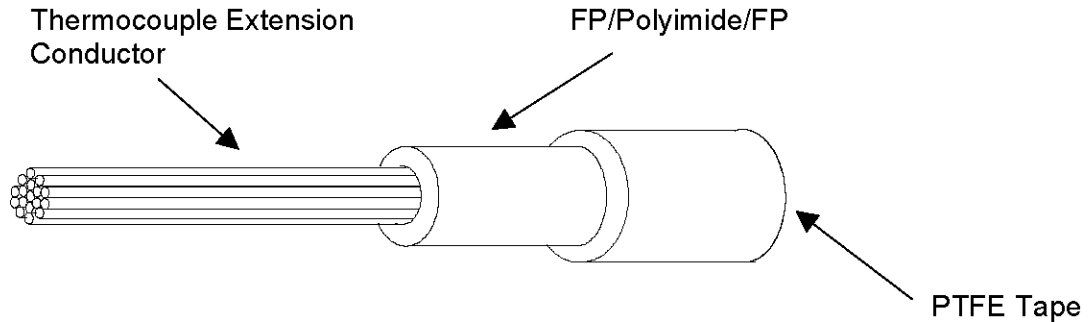


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Type "K" thermocouple conductors are typically used as extension leads for aerospace application. These wires are only to be used in a matched pair and procured under AS5419. Thermocouple extension wires are calibrated for use together in fabricating thermocouples. If each leg of the thermocouple extension wire is from a different lot, recalibration of the thermocouple pair will be required.



**NOTE**  
**FP – Fluorocarbon Polymer**

FIGURE 1 - Wire, Thermocouple, 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 AS22759/86 to produce this product.

TABLE 1 - KP Construction Details

TABLE 1A - KP Construction Details, inch-pound Units

Part number <sup>1</sup>	Wire size	Stranding (Number of strands x AWG of strands)	Diameter of stranded conductor (in)		Resistance (ohms/1,000 ft) at 20 °C		Finished Wire		
			(min)	(max)	(min)	(max)	Diameter (in) (min) (max)	Weight (lb/1,000 ft) (max)	
WJ-22KPS-9	22	19 X 34	0.029	0.033	546.7	604.3	0.043	0.049	3.4
WJ-22KPH-9	"	"	"	"	"	"	"	"	"
WJ-20KPS-9	20	19 X 32	0.037	0.041	339.2	375.0	0.052	0.058	5.0
WJ-20KPH-9	"	"	"	"	"	"	"	"	"
WJ-18KPS-9	18	19 X 30	0.046	0.051	217.0	240.0	0.063	0.069	7.3
WJ-18KPH-9	"	"	"	"	"	"	"	"	"
WJ-16KPS-9	16	19 X 29	0.052	0.058	169.7	187.7	0.071	0.077	9.4
WJ-16KPH-9	"	"	"	"	"	"	"	"	"
WJ-14KPS-9	14	19 X 27	0.065	0.073	107.6	119.0	0.084	0.091	14.3
WJ-14KPH-9	"	"	"	"	"	"	"	"	"

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**AEROSPACE STANDARD**

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

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TABLE 1B - KP Construction Details, SI Units

Part number <sup>1</sup>	Wire size	Stranding (Number of strands x AWG of strands)	Diameter of stranded conductor (mm)		Resistance (ohms/km) at 20 °C		Finished Wire		
			(min)	(max)	(min)	(max)	Diameter (mm)	Weight (kg/km)	(max)
WJ-22KPS-9 WJ-22KPH-9	22	19 X 34	0.737	0.838	1793.6	1982.6	1.09	1.25	5.07
WJ-20KPS-9 WJ-20KPH-9	20	19 X 32	0.940	1.04	1112.9	1230.3	1.32	1.47	7.45
WJ-18KPS-9 WJ-18KPH-9	18	19 X 30	1.17	1.30	711.9	787.4	1.60	1.75	10.89
WJ-16KPS-9 WJ-16KPH-9	16	19 X 29	1.32	1.47	556.8	615.8	1.80	1.96	14.04
WJ-14KPS-9 WJ-14KPH-9	14	19 X 27	1.65	1.85	353.0	390.4	2.13	2.31	21.31

<sup>1</sup>The color shall be white only.

## Notes

Electromotive Force (EMF) designator = Type KPS conductor from ANSI/MC96.1 with standard limits

= Type KPH conductor from ANSI/MC96.1 with special limits

Example: Size 20 standard EMF limits - WJ-20KPS-9; Size 20 special EMF limits - WJ-20KPH-9

These wires comply with the sealing range requirement for firewall connectors as specified in MIL-DTL-5015, MIL-DTL-38999, and MIL-C-83723 (superseded by MIL-C-26482 and MS3470 which are inactive for new design) 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-C-83723 (superseded by MIL-C-26482 and MS3470 which are inactive for new design) and MIL-DTL-38999 12 awg contacts.

TABLE 2 - KN CONSTRUCTION DETAILS

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

Part number <sup>1</sup>	Wire size	Stranding (Number of strands x AWG of strands)	Diameter of stranded conductor (in)		Resistance (ohms/1,000 ft) at 20 °C		Finished Wire		
			(min)	(max)	(min)	(max)	Diameter (in)	Weight (lb/1,000 ft)	(max)
WJ-22KNS-5 WJ-22KNH-5	22	19 X 34	0.029	0.033	228.2	252.3	0.043	0.049	3.4
WJ-20KNS-5 WJ-20KNH-5	20	19 X 32	0.037	0.041	141.5	156.5	0.052	0.058	5.0
WJ-18KNS-5 WJ-18KNH-5	18	19 X 30	0.046	0.051	90.5	100.2	0.063	0.069	7.3
WJ-16KNS-5 WJ-16KNH-5	16	19 X 29	0.052	0.058	70.6	78.2	0.071	0.077	9.4
WJ-14KNS-5 WJ-14KNH-5	14	19 X 27	0.065	0.073	44.9	49.7	0.084	0.091	14.3

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THERMOCOUPLE EXTENSION, NORMAL WEIGHT, 260 °C

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TABLE 2B - KN Construction Details, SI Units

Part number <sup>1</sup>	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)	
WJ-22KNS-5	22	19 X 34	0.737	0.838	748.7	827.8	1.09	1.25	5.07
WJ-22KNH-5	"	"	"	"	"	"	"	"	"
WJ-20KNS-5	20	19 X 32	0.940	1.04	464.2	513.5	1.32	1.47	7.45
WJ-20KNH-5	"	"	"	"	"	"	"	"	"
WJ-18KNS-5	18	19 X 30	1.17	1.30	296.9	328.7	1.60	1.75	10.89
WJ-18KNH-5	"	"	"	"	"	"	"	"	"
WJ-16KNS-5	16	19 X 29	1.32	1.47	231.6	256.6	1.80	1.96	14.01
WJ-16KNH-5	"	"	"	"	"	"	"	"	"
WJ-14KNS-5	14	19 X 27	1.65	1.85	147.6	163.1	2.13	2.31	21.31
WJ-14KNH-5	"	"	"	"	"	"	"	"	"

<sup>1</sup>The color shall be green only.

Notes

Electromotive Force (EMF) designator = Type KNS conductor from ANSI/MC96.1 with standard limits  
 = Type KNH conductor from ANSI/MC96.1 with special limits

Example: Size 20 standard EMF limits - WJ-20KNS-5; Size 20 special EMF limits - WJ-20KNH-5

These wires comply with the sealing range requirement for firewall connectors as specified in MIL-DTL-5015, MIL-DTL-38999, and MIL-C-83723 (superseded by MIL-C-26482 and MS3470 which are inactive for new design) 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-C-83723 (superseded by MIL-C-26482 and MS3470 which are inactive for new design) and MIL-DTL-38999 12 awg contacts.

TABLE 3 - WIRE INSULATION MATERIALS<sup>1</sup>

Tape Code	Thickness (in) (nom)	Material
1	0.002	0.0005 (FP)/0.001 (Polyimide)/0.0005 (FP)
2	0.002	PTFE (Unsintered or presintered bondable)
3	0.0025	PTFE (Unsintered or presintered bondable)

<sup>1</sup>Physical properties of PTFE tapes (skived and unsintered) shall be in accordance with MIL-W-22759 requirements

TABLE 4 - Physical Properties of FP/Polyimide/FP Tape

Tensile Strength (avg) (min)	Elongation (avg) (min)	Dielectric Strength (avg) (min)
12,000 lb/in <sup>2</sup>	40%	3,000 volts/mil



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