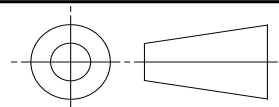
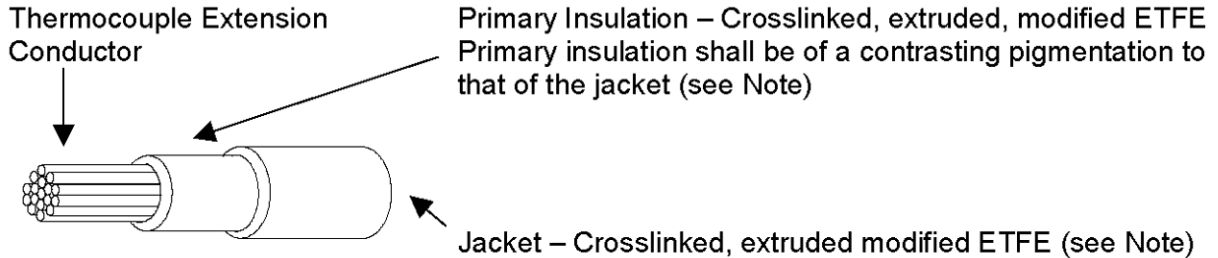


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|                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| REV.<br>A                                                                                                                                                                    | <p>FEDERAL SUPPLY CLASS</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                     |
|                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                     |
| AS5419™/5                                                                                                                                                                    | <p>RATIONALE</p> <p>THIS DOCUMENT HAS BEEN DECLARED "STABILIZED" BY THE SAE AE-8D WIRE AND CABLE COMMITTEE AND WILL NO LONGER BE SUBJECTED TO PERIODIC REVIEWS FOR CURRENCY. THE COMPONENTS ARE WELL ESTABLISHED, BUT USERS ARE RESPONSIBLE FOR VERIFYING REFERENCES AND CONTINUED SUITABILITY OF TECHNICAL REQUIREMENTS.</p> <p>STABILIZED NOTICE</p> <p>THIS DOCUMENT HAS BEEN DECLARED "STABILIZED" BY THE SAE AE-8D WIRE AND CABLE COMMITTEE AND WILL NO LONGER BE SUBJECTED TO PERIODIC REVIEWS FOR CURRENCY. USERS ARE RESPONSIBLE FOR VERIFYING REFERENCES AND CONTINUED SUITABILITY OF TECHNICAL REQUIREMENTS. NEWER TECHNOLOGY MAY EXIST.</p> |                                                                                                                     |
| <p>SAE values your input. To provide feedback on this Technical Report, please visit <a href="http://standards.sae.org/AS5419/5A">http://standards.sae.org/AS5419/5A</a></p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>THIRD ANGLE PROJECTION</p>  |
| CUSTODIAN: AE-8/AE-8D                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | PROCUREMENT SPECIFICATION: NONE                                                                                     |
|                                                                                           | <p><b>AEROSPACE STANDARD</b></p> <p>WIRE, THERMOCOUPLE, FLUOROPOLYMER INSULATED, EXTRUDED TFE NICKEL/CHROMIUM (KP); NICKEL/ALUMINUM/MANGANESE (KN) THERMOCOUPLE EXTENSION. 260 °C</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>AS5419™/5</p> <p>REV.<br/>A</p>                                                                                  |

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**  
ETFE – Ethylene Tetrafluoroethylene Copolymer

FIGURE 1 - Wire, Thermocouple, Crosslinked Modified ETFE  
Component wire insulation system must conform to the similar wire type designated in Table 1 of AS5419. Manufacturers must be qualified to AS22759/43 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<br>(Number of strands x<br>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) |
| SW-22KPS-9<br>SW-22KPH-9 | 22        | 19 X 34                                              | 0.029                               | 0.033 | 546.7                               | 604.3 | 0.050 ± 0.002 | 3.21                       |
|                          | "         | "                                                    | "                                   | "     | "                                   | "     | "             | "                          |
| SW-20KPS-9<br>SW-20KPH-9 | 20        | 19 X 32                                              | 0.037                               | 0.041 | 339.2                               | 375.0 | 0.058 ± 0.002 | 4.7                        |
|                          | "         | "                                                    | "                                   | "     | "                                   | "     | "             | "                          |
| SW-18KPS-9<br>SW-18KPH-9 | 18        | 19 X 30                                              | 0.046                               | 0.051 | 217.0                               | 240.0 | 0.070 ± 0.003 | 7.2                        |
|                          | "         | "                                                    | "                                   | "     | "                                   | "     | "             | "                          |
| SW-16KPS-9<br>SW-16KPH-9 | 16        | 19 X 29                                              | 0.052                               | 0.058 | 169.7                               | 187.7 | 0.077 ± 0.003 | 9.0                        |
|                          | "         | "                                                    | "                                   | "     | "                                   | "     | "             | "                          |
| SW-14KPS-9<br>SW-14KPH-9 | 14        | 19 X 27                                              | 0.065                               | 0.073 | 107.6                               | 119.0 | 0.094 ± 0.003 | 13.8                       |
|                          | "         | "                                                    | "                                   | "     | "                                   | "     | "             | "                          |

TABLE 1B - KP Construction Details, SI Units

| Part number <sup>1</sup> | Wire size | Stranding<br>(Number of strands x<br>AWG of strands) | Diameter<br>of stranded conductor<br>(mm) |            | Resistance<br>(ohms/km)<br>at 20 °C |             | Finished Wire      |                            |
|--------------------------|-----------|------------------------------------------------------|-------------------------------------------|------------|-------------------------------------|-------------|--------------------|----------------------------|
|                          |           |                                                      | (min)                                     | (max)      | (min)                               | (max)       | Diameter<br>(mm)   | Weight<br>(kg/km)<br>(max) |
| SP-22KPS-9<br>SP-22KPH-9 | 22<br>"   | 19 X 34<br>"                                         | 0.737<br>"                                | 0.838<br>" | 1793.6<br>"                         | 1982.6<br>" | 1.270 ± 0.051<br>" | 4.8<br>"                   |
| SP-20KPS-9<br>SP-20KPH-9 | 20<br>"   | 19 X 32<br>"                                         | 0.940<br>"                                | 1.04<br>"  | 1112.9<br>"                         | 1230.3<br>" | 1.473 ± 0.051<br>" | 7.0<br>"                   |
| SP-18KPS-9<br>SP-18KPH-9 | 18<br>"   | 19 X 30<br>"                                         | 1.17<br>"                                 | 1.30<br>"  | 711.9<br>"                          | 787.4<br>"  | 1.778 ± 0.076<br>" | 10.7<br>"                  |
| SP-16KPS-9<br>SP-16KPH-9 | 16<br>"   | 19 X 29<br>"                                         | 1.32<br>"                                 | 1.47<br>"  | 556.8<br>"                          | 615.8<br>"  | 1.956 ± 0.076<br>" | 13.4<br>"                  |
| SP-14KPS-9<br>SP-14KPH-9 | 14<br>"   | 19 X 27<br>"                                         | 1.65<br>"                                 | 1.85<br>"  | 353.0<br>"                          | 390.4<br>"  | 2.388 ± 0.076<br>" | 20.5<br>"                  |

<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 - SW-20KPS-9; Size 20 special EMF limits - SW-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<br>(Number of strands x<br>AWG of strands) | Diameter<br>of stranded conductor<br>(in) |            | Resistance<br>(ohms/1,000 ft)<br>at 20 °C |            | Finished Wire      |                                  |
|--------------------------|-----------|------------------------------------------------------|-------------------------------------------|------------|-------------------------------------------|------------|--------------------|----------------------------------|
|                          |           |                                                      | (min)                                     | (max)      | (min)                                     | (max)      | Diameter<br>(in)   | Weight<br>(lb/1,000 ft)<br>(max) |
| SP-22KNS-5<br>SP-22KNH-5 | 22<br>"   | 19 X 34<br>"                                         | 0.029<br>"                                | 0.033<br>" | 228.2<br>"                                | 252.3<br>" | 0.050 ± 0.002<br>" | 3.21<br>"                        |
| SP-20KNS-5<br>SP-20KNH-5 | 20<br>"   | 19 X 32<br>"                                         | 0.037<br>"                                | 0.041<br>" | 141.5<br>"                                | 156.5<br>" | 0.058 ± 0.002<br>" | 4.7<br>"                         |
| SP-18KNS-5<br>SP-18KNH-5 | 18<br>"   | 19 X 30<br>"                                         | 0.046<br>"                                | 0.051<br>" | 90.5<br>"                                 | 100.2<br>" | 0.070 ± 0.003<br>" | 7.2<br>"                         |
| SP-16KNS-5<br>SP-16KNH-5 | 16<br>"   | 19 X 29<br>"                                         | 0.052<br>"                                | 0.058<br>" | 70.6<br>"                                 | 78.2<br>"  | 0.077 ± 0.003<br>" | 9.0<br>"                         |
| SP-14KNS-5<br>SP-14KNH-5 | 14<br>"   | 19 X 27<br>"                                         | 0.065<br>"                                | 0.073<br>" | 44.9<br>"                                 | 49.7<br>"  | 0.094 ± 0.003<br>" | 13.8<br>"                        |



#### AEROSPACE STANDARD

WIRE, THERMOCOUPLE, FLUOROPOLYMER INSULATED,  
EXTRUDED TFE NICKEL/CHROMIUM (KP);  
NICKEL/ALUMINUM/MANGANESE (KN) THERMOCOUPLE  
EXTENSION, 260 °C

AS5419™/5  
SHEET 1 OF 8

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