

SAE AS22759/16 AND /18 EXTRUDED ETFE WIRES

600 VOLT MIL SPEC APPROVED CONSTRUCTIONS DESIGNED FOR
USE ON LEGACY PLATFORMS



600 volt Mil Spec approved constructions designed for use on legacy platforms



Description

TE Connectivity's (TE) single wall MIL-DTL-22759/16 and /18 ETFE (ethylene tetrafluoroethylene) wire is a 600 volt hook-up wire designed for legacy platforms for aerospace, defense and industrial markets, providing our customers with a wide range of TE mil spec product.

The single wall offers a lightweight design for space and weight savings. Our material science know-how and expertise with ETFE insulations ensures that we have engineered our solutions to satisfy industry needs.

LIGHTWEIGHT

- Single wall construction offers space and weight savings

INDUSTRY APPROVED

- Mil spec qualified SAE-AS22759/16 and /18

RELIABLE

- -65°C to +150°C temperature range
- 600 volt rating

TARGET MARKETS

- Personal/Private Aircraft
- Legacy Mil Aerospace
- Ground Defense
- Industrial
- Commercial

ELECTRICAL

- **Temperature Rating:** +150°C, maximum continuous conductor temperature
- **Voltage Rating:** 600 volts (rms) at sea level
- **Blocking:** 200 ± 2°C for 24 hours
- **Concentricity:** 70% (minimum)
- **Voltage Withstand (Post Environmental):** 2000 volts (rms), 60 Hz
- **Surface Resistance (AWG 26-12 only):** 500 megohms-in. (minimum), both readings
- **Thermal Shock Resistance: (22759/18):** 150 ± 2°C: 0.060 in. (max), AWG 26-12 / 0.100 in. (max), AWG 10
- **Thermal Shock Resistance: (22759/16):** 150 ± 2°C 0.060 in. (max), AWG 24-12 / 0.100 in. (max), AWG 10-8 / 0.125 in. (max), AWG 6-00

ENVIRONMENTAL

- **Flammability:** Procedure 1, 3 seconds (maximum), 3 inches (maximum); facial tissue not required
- **Conductor Elongation:** Per AS22759
- **Humidity Resistance: (22759/18):** Insulation Resistance 5000 megohms for 1000 ft. (min), AWG 26-20 3000 megohms for 1000 ft (min), AWG 18-14 2000 megohms for 1000 ft (min), AWG 12-10
- **Humidity Resistance: (22759/16):** Insulation Resistance: 5000 megohms for 1000 ft. (min), AWG 24-12 3000 megohms for 1000 ft (min), AWG 12-6 2000 megohms for 1000 ft (min), AWG 4-00
- **Immersion:** (per AS22759): Diameter increase 5% (maximum); no cracking, no dielectric breakdown
- **Insulation Elongation and Tensile Strength:** Elongation, 150% (minimum) Tensile strength, 5000 lbf/in² (minimum)
- **Insulation Flaws:** Spark Test, 5.7 kV (rms) at 3 kHz Impulse Dielectric Test, 8.0 kV (peak)
- **Life Cycle:** 200 ± 2°C for 500 hours
- **Low Temperature Cold Bend:** -65 ± 2°C for 4 hours
- **Removability of Insulation (Stripping):** Per AS22759
- **Short-Term Thermal Stability:** 230 ± 2°C for 7 hours
- **Shrinkage:** 200 ± 2°C for 6 hours, 0.125 in. (maximum) in 12 inches
- **Smoke Test:** 200 ± 2°C, no visible smoke
- **Solderability:** Per MIL-STD-202, Method 208, except without steam aging
- **Wrap Test:** 200 ± 2°C for 2 hours

MATERIALS

- **Color:** White preferred
- **Identification, Color Striping, and Band Durability:** 125 cycles (250 strokes) (minimum), 500 g weight

1/ PART NUMBER: The "*" in the part numbers in Table 1 shall be replaced by a color code designator.
Example: AWG 22, white: 22A0111-22-9
AWG 22, white with a black stripe: 22A0111-22-90

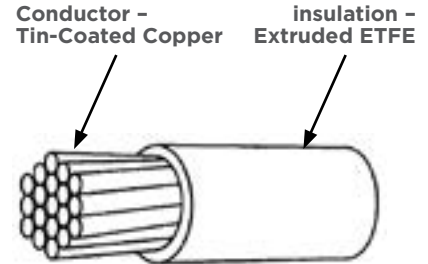
SAE AS22759/16 Extruded ETFE Wires

TABLE 1 - CONSTRUCTION DETAILS

Part Number	Wire Size (AWG)	Conductor Stranding (Number x AWG)	Diameter of Stranded Conductor (inch)		Finished Wire		
			Min.	Max.	Maximum Resistance at 20°C (ohms/1000 ft.)	Diameter (inch)	Maximum Weight (lbs/1000 ft.)
22759/16-24-*	24	19 x 36	.0225	.0244	26.2	.045 ± .002	2.57
22759/16-22-*	22	19 x 34	.0285	.0314	16.2	.052 ± .002	3.68
22759/16-20-*	20	19 x 32	.0365	.0394	9.88	.060 ± .002	5.36
22759/16-18-*	18	19 x 30	.0455	.0494	6.23	.071 ± .002	7.89
22759/16-16-*	16	19 x 29	.0515	.0554	4.81	.079 ± .002	9.95
22759/16-14-*	14	19 x 27	.0645	.0694	3.06	.093 ± .002	14.9
22759/16-12-*	12	37 x 28	.0835	.0894	2.02	.114 ± .003	22.6
22759/16-10-*	10	37 x 26	.106	.112	1.26	.139 ± .003	35.1

TABLE 2 - PERFORMANCE DETAILS

Wire Size (AWG)	Bend Testing				
	Mandrel Diameter (inch) (± 3%)			Weight (lb) (± 3%)	
	Immersion, Life Cycle, and Short-Term Thermal Stability	Cold Bend	Wrap Test	Immersion, Life Cycle, and Short-Term Thermal Stability	Cold Bend
24	.50	1.00	—	.5	3.0
22	.75	1.00	—	1.5	3.0
20	.75	1.00	—	2.0	4.0
18	1.00	1.25	—	2.0	4.0
16	1.00	1.25	—	2.0	5.0
14	1.25	2.00	—	2.0	5.0
12	2.00	2.00	—	2.0	5.0
10	3.00	3.00	—	2.0	5.0



Part Number Selection

Replace * in part description with color code as per MIL-STD-681 (see below) for primary wire insulation

- 0 - Black
- 1 - Brown
- 2 - Red
- 3 - Orange
- 4 - Yellow
- 5 - Green
- 6 - Blue
- 7 - Violet
- 8 - Gray
- 9 - White

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Part Number	Wire Size (AWG)	Conductor Stranding (Number x AWG)	Diameter of Stranded Conductor (inch)		Finished Wire		
			Min.	Max.	Maximum Resistance at 20°C (ohms/1000 ft.)	Diameter (inch)	Maximum Weight (lbs/1000 ft.)
22759/18-26-*	26	19 x 38	.0175	.0204	41.3	.032 ± .002	1.52
22759/18-24-*	24	19 x 36	.0225	.0244	26.2	.036 ± .002	2.12
22759/18-22-*	22	19 x 34	.0285	.0314	16.2	.043 ± .002	3.16
22759/18-20-*	20	19 x 32	.0365	.0394	9.88	.051 ± .002	4.76
22759/18-18-*	18	19 x 30	.0455	.0494	6.23	.061 ± .002	7.10
22759/18-16-*	16	19 x 29	.0515	.0554	4.81	.070 ± .002	9.14
22759/18-14-*	14	19 x 27	.0645	.0694	3.06	.085 ± .002	14.1
22759/18-12-*	12	37 x 28	.0835	.0894	2.02	.107 ± .003	21.6
22759/18-10-*	10	37 x 26	.106	.112	1.26	.134 ± .003	34.1

TABLE 2 - PERFORMANCE DETAILS

Wire Size (AWG)	Bend Testing			
	Mandrel Diameter (inch) (± 3%)		Weight (lb) (± 3%)	
	Immersion, Life Cycle, and Short-Term Thermal Stability	Cold Bend	Immersion, Life Cycle, and Short-Term Thermal Stability	Cold Bend
26	.50	.50	.25	.50
24	.50	.50	.38	.50
22	.75	.75	.38	1.0
20	.75	.75	.38	1.0
18	1.00	1.00	.50	1.0
16	1.00	1.00	.50	1.0
14	1.25	1.25	1.0	3.0
12	2.00	2.00	1.0	3.0
10	2.00	2.00	1.0	3.0