



## Applications

FEP twisted overall shielded thermocouple cables are ideal for applications where the environment ambient temperatures can spike over the limit of conventional PVC cables. The twisting of the conductor and the aluminum/polyester taper shield provides protection against cross talk, static and magnetic noise in instrumentation circuits. Conductors are insulated with color-coded FEP, then twisted and shielded with tin/copper drain wire. Final layer of overall FEP jacket is applied with a nylon ripcord. The cable can be supplied in a UL listed design CL2, CL3, PLTC or ITC. New Plant Constructions. Utilities and Industrial Plants. Petrochemical Plants. Testing Rig set up. Thermocouple Circuits. Agricultural Industry. FDA Approved Applications. Suitable for 300 Volt Applications.

## Available Options

- Metal Overbraid
- Sunlight Resistant
- Passes IEEE 383 Flame Test
- Passes VW-1 Flame Test
- Special Color Codes
- UL Listed CL2, CL3, PLTC or ITC constructions are also Available
- Available in thermocouple and special limits extension grade
- PFA +500F (+260C) is also available

## Features

- Continuous use -328F (200C) to +400F (+200C)
- Flame Retardant
- Excellent Dielectric Strength
- Good Moisture, Chemical and Solvent Resistance
- 100% Continuous Drain/Shield Contact

## Specifications

- Conductors: Solid or stranded thermocouple extension wire per ASTM E230 & ANSI MC96.1 10 to 30 AWG (2.6 to .25MM)
- Insulation: Nominal .010" (.25MM) flame retardant extruded fluoropolymer FEP
- Color Code: Per ASTM E230 & ANSI MC96.1
- Construction: Twisted pairs
- Pair Identification: Numbered polyester tapes
- Communication Wire: 22 AWG (.61MM) 7-strand copper insulated with nominal .010" (.25MM) orange FEP (4 pair and larger)
- Cable Shield: .002" (.05MM) aluminum/polyester tape, 25% overlap
- Cable Drain Wire: 20 AWG (.91MM) 7-strand tinned copper
- Outer Jacket: Flame retardant extruded fluoropolymer FEP (ETFE +300F (+150C) and PFA +500F (+260C) are also available)

## DIMENSIONS

| Wire Size          | Numbers of Pairs | Outer Jacket Thickness |        | Outer Diameter |        | Bend Radius |      | Pull Tension |      | Net Weight |       |
|--------------------|------------------|------------------------|--------|----------------|--------|-------------|------|--------------|------|------------|-------|
|                    |                  | inches                 | (MM)   | inches         | (MM)   | inches      | (MM) | LB           | KG   | LB/MF      | KG/KM |
| 16 AWG<br>(1.29MM) | 1                | .015                   | (0.38) | .188           | (4.8)  | 1.1         | (29) | 54           | (25) | 34         | (51)  |
|                    | 2                | .020                   | (0.51) | .337           | (8.6)  | 2.0         | (51) | 90           | (41) | 68         | (101) |
| Solid              | 4                | .020                   | (0.51) | .396           | (10.1) | 2.4         | (60) | 172          | (78) | 118        | (176) |

|                             |    |      |        |      |        |     |       |      |       |     |        |
|-----------------------------|----|------|--------|------|--------|-----|-------|------|-------|-----|--------|
|                             | 8  | .025 | (0.64) | .531 | (13.5) | 3.2 | (81)  | 336  | (153) | 218 | (324)  |
|                             | 12 | .025 | (0.64) | .634 | (16.1) | 3.8 | (97)  | 500  | (227) | 315 | (469)  |
|                             | 16 | .030 | (0.76) | .719 | (18.3) | 4.3 | (110) | 664  | (302) | 485 | (722)  |
|                             | 24 | .030 | (0.76) | .875 | (22.2) | 5.3 | (133) | 992  | (451) | 595 | (885)  |
|                             | 36 | .030 | (0.76) | .983 | (25.0) | 5.9 | (150) | 1484 | (675) | 860 | (1280) |
| 18 AWG<br>(1.02MM)<br>Solid | 1  | .015 | (0.38) | .166 | (4.2)  | 1.0 | (25)  | 34   | (15)  | 25  | (37)   |
|                             | 2  | .020 | (0.51) | .295 | (7.5)  | 1.8 | (45)  | 60   | (28)  | 50  | (74)   |
|                             | 4  | .020 | (0.51) | .346 | (8.8)  | 2.1 | (53)  | 112  | (51)  | 83  | (124)  |
|                             | 8  | .020 | (0.51) | .452 | (11.5) | 2.7 | (69)  | 216  | (98)  | 143 | (213)  |
|                             | 12 | .025 | (0.64) | .550 | (14.0) | 3.3 | (84)  | 424  | (193) | 211 | (314)  |
|                             | 16 | .025 | (0.64) | .614 | (15.6) | 3.7 | (94)  | 528  | (240) | 272 | (405)  |
|                             | 24 | .030 | (0.76) | .756 | (19.2) | 4.5 | (115) | 632  | (287) | 400 | (595)  |
|                             | 36 | .030 | (0.76) | .848 | (21.5) | 5.1 | (129) | 944  | (429) | 572 | (851)  |
| 20 AWG<br>(0.81MM)<br>Solid | 1  | .015 | (0.38) | .150 | (3.8)  | 0.9 | (23)  | 21   | (10)  | 17  | (25)   |
|                             | 2  | .020 | (0.51) | .265 | (6.7)  | 1.7 | (40)  | 40   | (18)  | 35  | (52)   |
|                             | 4  | .020 | (0.51) | .319 | (8.1)  | 1.9 | (49)  | 72   | (33)  | 63  | (94)   |
|                             | 8  | .020 | (0.51) | .412 | (10.5) | 2.5 | (63)  | 136  | (62)  | 102 | (152)  |
|                             | 12 | .020 | (0.51) | .488 | (12.4) | 2.9 | (74)  | 200  | (91)  | 155 | (231)  |
|                             | 16 | .025 | (0.64) | .544 | (13.8) | 3.3 | (83)  | 264  | (120) | 195 | (290)  |
|                             | 24 | .030 | (0.76) | .670 | (17.0) | 4.0 | (102) | 392  | (178) | 275 | (409)  |
|                             | 36 | .030 | (0.76) | .750 | (19.1) | 4.5 | (114) | 584  | (265) | 405 | (603)  |

The products referenced above represent the most popular constructions. Other constructions can be manufactured to meet individual specification and application requirements. Contact factory for additional information.

**Table 1 Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1**

Tolerance-Reference Junction 32F (0C)

| Thermocouple<br>Extension Wire | Type     | Temperature         | Grade       | Standard Grade | Grade       | Special Grade |
|--------------------------------|----------|---------------------|-------------|----------------|-------------|---------------|
|                                |          | Range F(C)          | Designation | Limits F(C)    | Designation | Limits F(C)   |
|                                | TX       | 32 (0) to 212 (100) | TX          | ±1.8 (1)       | TTX         | ±0.9 (0.5)    |
|                                | JX       | 32 (0) to 400 (200) | JX          | ±4 (2.2)       | JJX         | ±2 (1.1)      |
|                                | EX       | 32 (0) to 400 (200) | EX          | ±3.1 (1.7)     | EEX         | ±1.8 (1)      |
|                                | KX or NX | 32 (0) to 400 (200) | KX or NX    | ±4 (2.2)       | KKX or NNX  | ±2 (1.1)      |
| Compensating Extension Wire    |          |                     |             |                |             |               |
|                                | RX or SX | 32 (0) to 400 (200) | RX or SX    | ±9 (5)         |             |               |