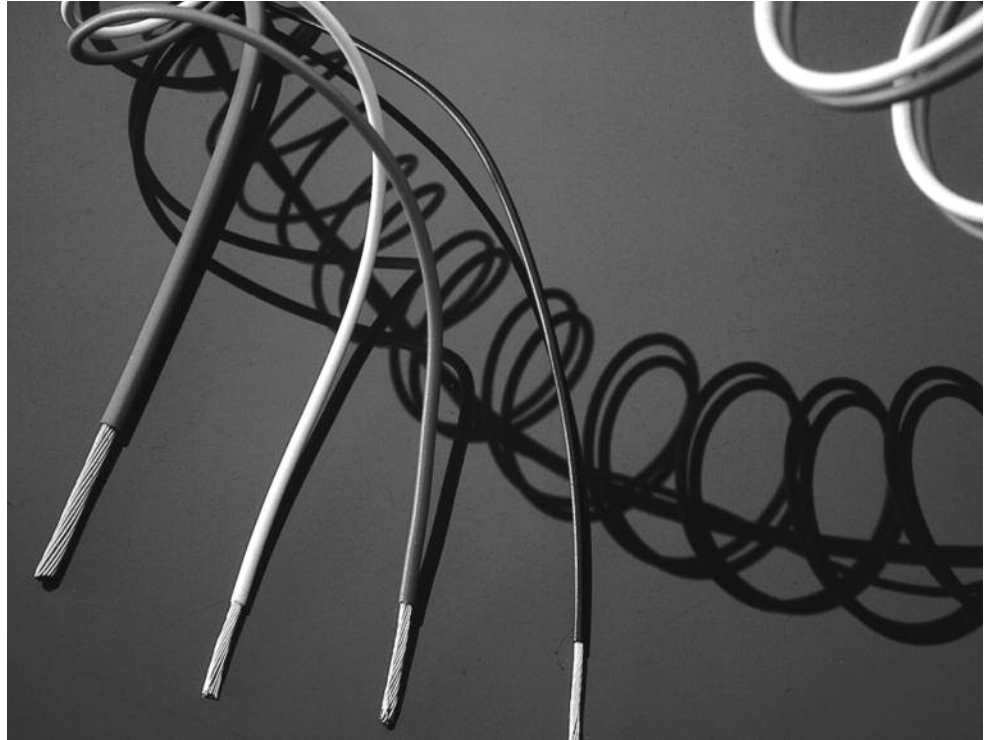


**Type 99M**

**Product Facts**

- Low flammability
- Low smoke generation
- Low toxicity index
- Low generation of corrosive gases
- Small size, lightweight



**Applications**

Type 99M wire has a dual wall construction of radiation cross-linked modified polyester. This combines excellent mechanical performance and chemical resistance with a range of enhanced fire hazard properties. Type 99M wire is designed to meet the stringent low fire hazard performance now being specified by the UK Naval Defense Standard Authority for ship wiring and cabling.

During the 1980's there were major changes in the demands of many wire and cable specifications to reduce the risks associated with all aspects of fire hazards. Specifications

such as Def Stan 61-12 Part 18, have been developed over the last decade demanding improved performance of wires and cables under fire conditions.

This has led to a tightening of the requirements for flammability, smoke generation, corrosive gas generation and hazardous fume emission. Type 99M wire achieves these improvements in performance whilst retaining small size, light weight, flexibility, handleability, resistance to carbon arc tracking and resistance to chemicals and fluids.

**Physical Characteristics**

**Handleability**

Type 99M wire has been designed to be compatible with modern wiring and harnessing techniques. It is a flexible wire with virtually no springback once set. It is easily stripped with tools such as conventional die-blade strippers.

**Small Size**

Type 99M equipment wire has a nominal 0.2 mm insulation wall thickness which is comparable to other established thin wall wires such as SPEC 44 wire.

**Light Weight**

Type 99M wire is designed to have the same weights as SPEC 44 wire.

| Available in: | Americas | Europe | Asia Pacific |
|---------------|----------|--------|--------------|
|               | ■        | ■      | ■            |

**Type 99M** (Continued)

**Approvals**

TE WCD 281  
 Defense Standard 61-12 Part 18 Issue 5 Type 1  
 Italian Navy STN-SR-01

**Type 99M Wire and Cable -  
 Nominal Sizes, Strandings  
 and Weights**



**99M011X (600 V)  
 Primary Wire**



**99M1111  
 Shielded & Jacketed**



**99M1121  
 Shielded & Jacketed**

**Primary Wires/Shielded and  
 Jacketed Cables - 99M**

| Size | Stranding<br>(mm) | 99M011X (600 V) |                 | 99M1111     |                 | 99M1121     |                 |
|------|-------------------|-----------------|-----------------|-------------|-----------------|-------------|-----------------|
|      |                   | OD              | Weight<br>(g/m) | OD          | Weight<br>(g/m) | OD          | Weight<br>(g/m) |
| 26   | 19x0.10           | 0.88 [.035]     | 2.00            | 1.80 [.071] | 7.5             | 2.91 [.115] | 13.3            |
| 24   | 19x0.12           | 0.98 [.039]     | 3.00            | 1.90 [.075] | 9.2             | 3.20 [.126] | 16.6            |
| 22   | 19x0.15           | 1.13 [.044]     | 4.40            | 2.05 [.081] | 11.1            | 3.52 [.139] | 20.5            |
| 20   | 19x0.20           | 1.40 [.055]     | 6.50            | 2.30 [.091] | 14.6            | 4.02 [.158] | 27.7            |
| 18   | 19x0.25           | 1.65 [.065]     | 9.90            | 2.55 [.100] | 19.3            | 4.57 [.180] | 37.1            |
| 16   | 19x0.30           | 1.90 [.075]     | 14.15           | 2.95 [.116] | 24.9            | 5.13 [.202] | 48.5            |
| 14   | 37x0.25           | 2.25 [.089]     | 18.62           | 3.13 [.123] | 30.9            | 5.72 [.225] | 60.5            |
| 12   | 37x0.32           | 2.60 [.102]     | 25.70           | 3.48 [.137] | 43.1            | 6.42 [.253] | 81.3            |

**Typical Properties (wire only)**

| Test                                      | Method              | Typical value        |
|---|---------------------|----------------------|
| Temperature rating                        | BS 3G230            | 120°C [248°F]        |
| Voltage rating                            | TE                  | 600 V thin wall      |
| Tensile strength/elongation of insulation | —                   | 30 MPa/250%          |
| Notch propagation (0.05 mm notch)         | BS 3G230            | Pass                 |
| Shrinkage 200°C [392°F]                   | BS 3G230            | <1%                  |
| Low temperature bend                      | BS 3G230            | -55°C [-67°F]        |
| Voltage withstand                         | BS 3G230            | 2.5 kV               |
| Insulation resistance (20°C [68°F])       | BS 3G230            | 1000 M ohms km (min) |
| Pliability rating                         | Def Stan 61-12 (18) | 82 - Pliable         |
| Fluid resistance                          | Def Stan 61-12 (18) |                      |
| Fuels - aircraft                          |                     | Pass                 |
| Oils - (IRM 903)                          |                     | Pass                 |
| Solvents                                  |                     | Pass                 |

**Type 99M** (Continued)

**Environmental Properties**

**Mechanical Performance**

Type 99M wire has good scrape abrasion and cut through performance complying with the requirements of Def. Standard 61-12 Part 18.

**Fluid Resistance**

Type 99M wire demonstrates outstanding resistance to most acids, alkalis, hydrocarbon solvents, fuels, lubricants and water.

**Electrical Arc Tracking**

Type 99M wire is resistant to electrical arc tracking.

**Voltage Ratings**

Standard available voltage ratings for Type 99M wire is 600 V (0.2 mm wall thickness).

**Fire Hazard Characteristics**

**Low Toxicity Index**

Type 99M wire is designed to meet the low hazardous fume emission levels required in modern specifications. For example, the change in the Toxicity Index requirement from 1.5 to 0.2 between Issue 2 and Issue 5 of Def Stan 61-12 (Part 18), is met by Type 99M wire.

**Flammability**

Type 99M wire has passed the stringent flammability test requirements of Def. Standard 61-12 (Part 18).

**Smoke Generation**

Type 99M wire has been designed to meet stringent smoke tests such as those specified in Def Stan 61-12 (Part 18).

**Corrosivity**

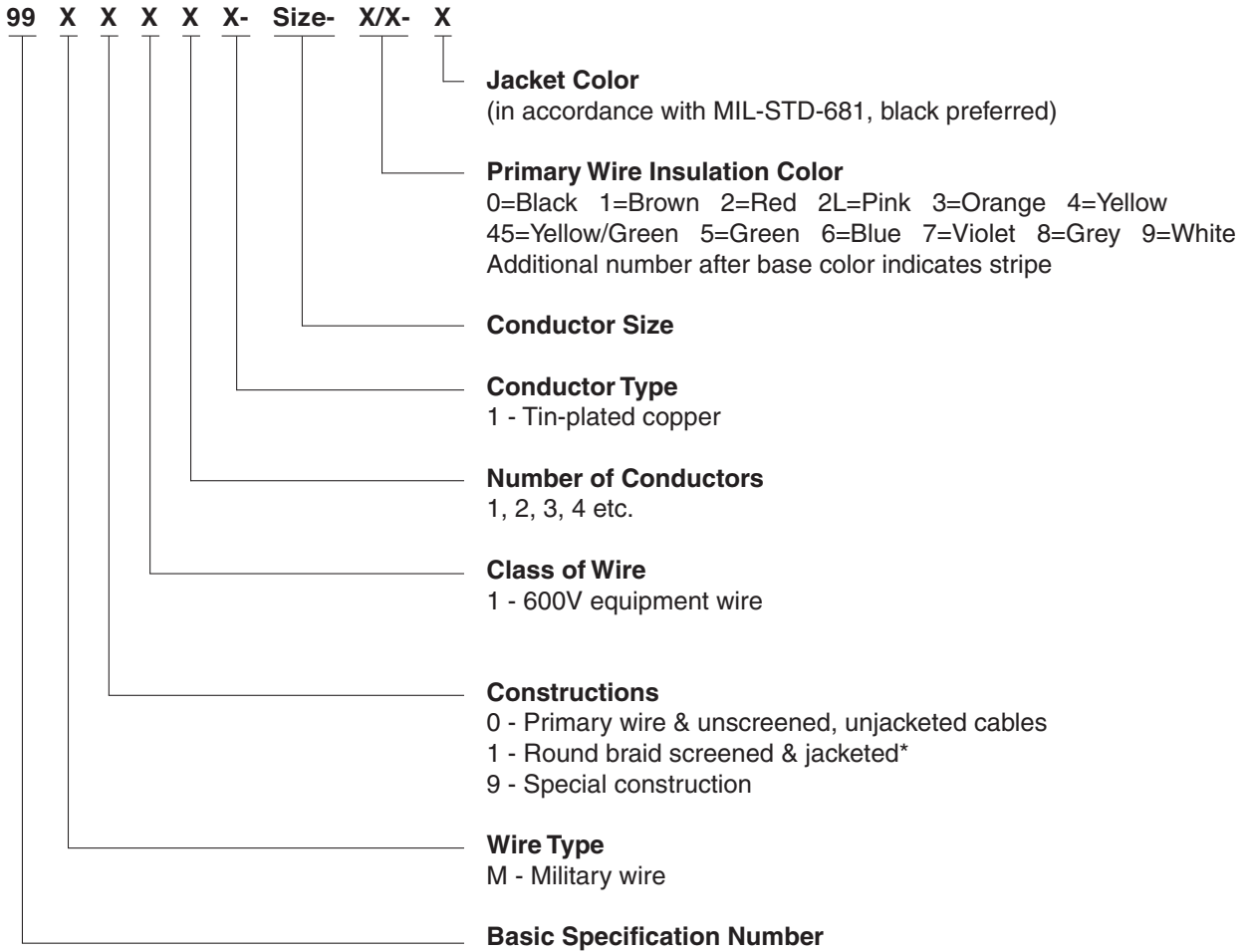
Type 99M wire has a low corrosive gas emission, demonstrated by its low acid gas value, sufficient to pass the requirements of Def. Standard 61-12 Part 18.

**Fire Hazard Properties**

| Test                | Method              | Typical value         |
|---------------------|---------------------|-----------------------|
| Flammability        | BS 3G230            | Pass                  |
| Toxicity index      | Def Stan 61-12 (18) | 0.1 per meter of wire |
| Smoke index         | Def Stan 61-12 (18) | 8 per meter of wire   |
| Acid gas equivalent | TDE 76/P/76         | <1.5%                 |

**Type 99M** (Continued)

**Part Numbering System**



\* The cable jackets are TE Zerohal and the preferred color is black.

**Part Numbering System is a cross reference only and not meant for part creation.**