

## RayBraid Tubular Braiding

### Tubular Braiding for the Electrical Screening of Wire Bundles

#### Product Facts

- Screening for military harnesses
- Easy removal from former
- Minimum 90% optical coverage
- Ray 101 and Ray 103 super flexible with high expansion ratios

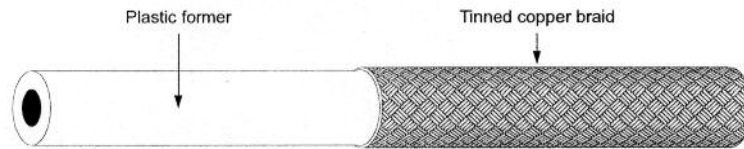
To ease the assembly of hand built harnesses, TE manufactures a range of braids for the electrical screening of wire bundles. RayBraid is supplied on a tube former which facilitates assembly and is more robust than braid supplied in flattened form.

TE also supplies connectors suitable for braid terminations.

#### Applications

When stored under typical conditions of less than 30°C and less than 70% relative humidity, the shelf life of the wire is effectively unlimited. Where the product contains a standard tin plated or bare copper conductor or braid there will be a progressive reduction in the solderability with increasing storage time. Under the conditions mentioned above, excellent solderability should be retained for about one year from manufacturing date, but if this is an important property, it should be checked before use. The suitability of the tin plated or bare copper conductor for use with crimped or welded termination techniques will not be affected by storage time.

Silver and nickel plated conductors are essentially unaltered by normal storage.



#### Types

Ray 90 (Tinned Copper Braid):

- Minimum 90% optical coverage available in 10 different sizes from 3.0 to 30.0 mm supplied diameter.

Ray 101 (Tinned Copper Braid):

- Minimum 93% maximum 100% optical coverage possess high usable expansion ratio (minimum 2:1).
- Available in a wide range of sizes to cover 2.5 to 38.0 mm diameters.
- Fully compatible with Tinel-Lock adapters for termination of the braid to associated connectors.

Ray 103 (Nickel Copper Braid):

- Minimum 93% maximum 100% optical coverage possess high usable expansion ratio (minimum 2:1).
- Available in a wide range of sizes to cover 2.5 to 38.0 mm diameters.
- Fully compatible with Tinel-Lock adapters for termination of the braid to associated connectors.

#### Operating Temperature Range

Ray 90:  
up to 150°C [302°F]  
Ray 101:  
up to 150°C [302°F]  
Ray 103:  
above 150°C [302°F]

## RayBraid Tubular Braiding (Continued)

### Characteristics

| Part Number | Diameter of former (mm) | Tinned Copper Wire |                         |                                 |                      | Cable Bundle Tolerance |              |
|-------------|-------------------------|--------------------|-------------------------|---------------------------------|----------------------|------------------------|--------------|
|             |                         | No. of Carriers    | No. of Ends per Carrier | Individual Strand Size (AWG/mm) | Minimum Coverage (%) | Maximum (mm)           | Minimum (mm) |
| Ray 90      | -3.0                    | 16                 | 5                       | 36/0.13                         | 90                   | 3.5                    | 2.0          |
|             | -4.0                    | 16                 | 7                       | 36/0.13                         | 90                   | 5.0                    | 3.0          |
|             | -5.0                    | 24                 | 6                       | 36/0.13                         | 90                   | 6.0                    | 4.0          |
|             | -6.0                    | 24                 | 7                       | 36/0.13                         | 90                   | 7.0                    | 5.0          |
|             | -10.0                   | 24                 | 9                       | 34/0.16                         | 90                   | 12.0                   | 7.0          |
|             | -12.5                   | 24                 | 10                      | 34/0.16                         | 90                   | 13.0                   | 11.0         |
|             | -15.0                   | 24                 | 11                      | 32/0.20                         | 90                   | 18.0                   | 13.0         |
|             | -20.0                   | 36                 | 7                       | 32/0.20                         | 90                   | 23.0                   | 17.0         |
|             | -25.0                   | 36                 | 9                       | 30/0.25                         | 90                   | 28.0                   | 22.0         |
|             | -30.0                   | 36                 | 9                       | 28/0.32                         | 90                   | 36.0                   | 27.0         |
| Ray 10X     | -3.0                    | 16                 | 10                      | 38/0.10                         | 93                   | 5.0                    | 2.5          |
|             | -4.0                    | 24                 | 7                       | 36/0.13                         | 93                   | 7.5                    | 3.5          |
|             | -6.0                    | 24                 | 9                       | 36/0.13                         | 93                   | 9.5                    | 4.5          |
|             | -7.5                    | 24                 | 14                      | 36/0.13                         | 93                   | 14.0                   | 7.0          |
|             | -10.0                   | 36                 | 12                      | 36/0.13                         | 93                   | 22.0                   | 8.0          |
|             | -12.5                   | 36                 | 15                      | 36/0.13                         | 93                   | 24.0                   | 11.0         |
|             | -20.0                   | 48                 | 16                      | 36/0.13                         | 93                   | 38.0                   | 16.0         |

The X in the part number shall be replaced with the plating type.

### Weight

| Part Number | Ray -90                                  | Ray -101                                 |
|-------------|------------------------------------------|------------------------------------------|
|             | Weight (excluding former)<br>kg/km (nom) | Weight (excluding former)<br>kg/km (nom) |
| -3.0        | 13                                       | 10.3                                     |
| -4.0        | 17                                       | 17.0                                     |
| -5.0        | 21                                       | —                                        |
| -6.0        | 25                                       | 25.0                                     |
| -7.5        | 52                                       | 31.0                                     |
| -10.0       | 52                                       | 41.0                                     |
| -12.5       | 65                                       | 51.0                                     |
| -15.0       | 100                                      | —                                        |
| -20.0       | 165                                      | 81.0                                     |
| -25.0       | 207                                      | —                                        |
| -30.0       | 310                                      | —                                        |

### Resistance

The following current ratings are to be used as general guidelines. Ratings based on an ambient temperature of 20°C and a temperature rise above ambient of 40°C.

| Part Number | Ray -90 |                              |                | Ray 101 |                              |                | Ray 103                      |
|-------------|---------|------------------------------|----------------|---------|------------------------------|----------------|------------------------------|
|             | CSA mm2 | Resistance @ 20°C in ohms/km | Current (amps) | CSA mm2 | Resistance @ 20°C in ohms/km | Current (amps) | Resistance @ 20°C in ohms/km |
| -3.0        | 1.0     | 28.0                         | 17             | 1.3     | 17.0                         | 18             | 17.3                         |
| -4.0        | 1.4     | 18.3                         | 21             | 2.1     | 10.3                         | 28             | 10.5                         |
| -5.0        | 1.8     | 13.8                         | 25             | —       | —                            | —              | —                            |
| -6.0        | 2.1     | 12.2                         | 28             | 2.7     | 8.0                          | 34             | 8.1                          |
| -7.5        | —       | —                            | —              | 4.3     | 5.2                          | 42             | 5.23                         |
| -10.0       | 4.3     | 6.0                          | 42             | 5.5     | 3.96                         | 52             | 4.02                         |
| -12.5       | 4.8     | 6.1                          | 48             | 6.8     | 3.23                         | 57             | 3.28                         |
| -15.0       | 8.3     | 3.0                          | 67             | —       | —                            | —              | —                            |
| -20.0       | 12.8    | 2.2                          | 81             | 9.7     | 2.32                         | 69             | 2.35                         |
| -25.0       | 16.4    | 1.6                          | 98             | —       | —                            | —              | —                            |
| -30.0       | 26.0    | 1.0                          | 125            | —       | —                            | —              | —                            |