

- 5.6:1 shrink ratio
- Available in semi-rigid or flexible flame retarded material
- Available with or without sealant/adhesive coating

HRSR/HRNF/HRHF

High ratio heat-shrinkable tubing

Raychem

High Shrink Ratio heat-shrinkable tubing (HR), with expansion ratios as high as 5.6:1, is designed to accommodate large size differences between cables and cable

connectors and adaptors, thus simplifying repair of damaged cable.

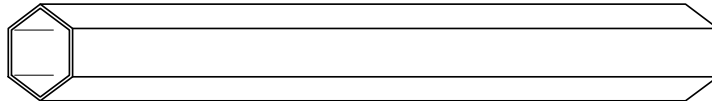
HRSR tubing is available in semi-rigid (FR) or flexible (HF) flame retarded material, with or without factory applied sealants

and adhesives. The water-proofing sealant provides environmental sealing and is watertight in wet and corrosive locations. The thermoplastic adhesive coating provides excellent strain relief as well as environmental sealing.

Temperature rating

| | |
|-------------------------------|----------------|
| Operating temperature range: | -55°C to +90°C |
| Minimum recovery temperature: | +120°C |

Ordering information

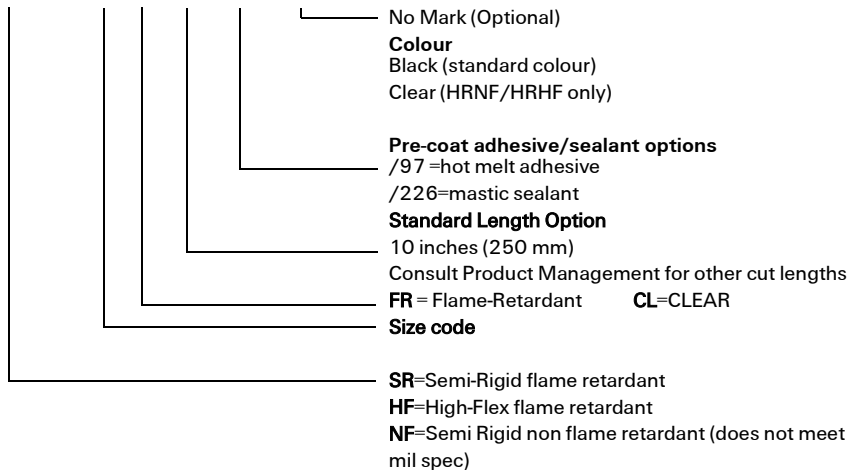


| Inside diameter | | (Max) Recovered after heating | | Wall thickness | | Size description |
|----------------------------|--------|-------------------------------|--------|-------------------------------|--------|------------------|
| (Min) Expanded as supplied | | | | (Nom) Recovered after heating | | |
| mm | Inches | mm | Inches | mm | Inches | |
| 15.3 | (0.6) | 3.9 | (0.15) | 1.5 | (0.06) | HR**-060 |
| 31.8 | (1.25) | 6.1 | (0.24) | 1.5 | (0.06) | HR**-125 |
| 44.5 | (1.75) | 8.0 | (0.32) | 2.4 | (0.10) | HR**-175 |
| 50.8 | (2.0) | 9.6 | (0.38) | 2.7 | (0.11) | HR**-200 |
| 63.5 | (2.5) | 12.7 | (0.5) | 3.0 | (0.12) | HR**-250 |
| 76.2 | (3.0) | 19.0 | (0.75) | 3.0 | (0.12) | HR**-300 |
| 101.6 | (4.0) | 22.9 | (0.9) | 3.5 | (0.14) | HR**-400 |

Dimensions apply to uncoated tubing. Allow approximately 1.3 mm for coating.

Ordering example:

HRSR- 060 FR - 10 /97 /NM



HRSR/HRNF/HRHF

Performance

HRHF is a black, highly flexible, crosslinked polyolefin-based material. It is flame retarded and heat resistant.

HRSR is a black, semi-rigid crosslinked polyolefin-based material. It is flame retarded and heat resistant.

| | Test method | HRHF | HRSR |
|--------------------------------------|-----------------|-------------------------|-------------------------|
| Mechanical | | | |
| Tensile strength (min) | ASTM D638 | 8.4 MPa | 8.4 MPa |
| Ultimate elongation (min) | ASTM D638 | 200% | 200% |
| 2% secant modulus (max) | ASTM D882 | 105 MPa | 175 MPa |
| Heat ageing (168 h at 175°C) | | | |
| Tensile strength (min) | ASTM D638 | 7 MPa | 7 MPa |
| Ultimate elongation (min) | ASTM D638 | 100% | 100% |
| Heat shock | | | |
| 4 h at 225°C | MIL-I-23053/15A | Pass | Pass |
| Electrical | | | |
| Dielectric strength | ASTM D2671 | 7.9 MV/m | 7.9 MV/m |
| Volume resistivity (min) | ASTM D876 | 10 ¹³ ohm.cm | 10 ¹³ ohm.cm |
| Flammability | | | |
| Flammability (method B) | MIL-I-23053/15A | 15 secs (max) | 15 secs (max) |
| Chemical | | | |
| Corrosion | MIL-I-23053/15A | Pass | Pass |
| Water absorption (max) | ASTM D570 | 0.5% | 0.5% |
| Specific gravity (max) | ASTM D1505 | 1.4 | 1.5 |
| Fungus resistance | ASTM G21 | 1 or less | 1 or less |
| Fluid resistance | | | |
| (24 h at room temperature) | MIL-I-81765/1A | | |
| De-icing fluid (MIL-A-8243) | | | |
| Hydraulic fluid (MIL-H-5606) | | | |
| JP-8 fuel (MIL-T-83133) | | | |
| Lubricating oil (MIL-L-7808) | | | |
| Lubricating oil (MIL-L-23699) | | | |
| 5% NaCl (O-S-1926) | | | |
| After immersion in the above fluids: | | | |
| Tensile strength (min) | ASTM D638 | 5.3 MPa | 5.3 MPa |
| Ultimate elongation (min) | ASTM D638 | 100% | 100% |

Specifications

| Type | Raychem |
|---------------|---------|
| HRSR | RW 2013 |
| HRHF | RW 2013 |
| /226 (S-1278) | RW 2020 |
| /97 (S-1297) | RW 2019 |

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