HEATSHRINK TUBING

Overview

Heatshrink, also referred to as heatshrink sleeving, is a polymeric (plastic) tubing which has been modified chemically (or by electron beam or gamma) and then expanded to 2, 3 or 4 times its original extruded diameter. When heated air, at a certain temperature, is applied to the tubing it "shrinks" to its original diameter. Heatshrink was initially designed as an alternative to insulation tape for the purpose of insulating exposed electrical wire and cable joints in electrical/electronic installations, equipment and appliances. It is now used in many applications requiring an insulating or mechanical protective medium that can be shrunk onto irregular shaped surfaces.

The tubing is available in a range of compounds, wall thicknesses and colours to suit a wide range of applications. Products are also available with a mastic (adhesive) lining for applications where the ingress of moisture or dust must be prevented.

Options

Type	Shrink Ratio	Size Range ID in mm	Colours	Applications
Thin wall	2:1	1.2 to 100	*	Insulation and identification of busbars, cable cores, joints & terminations
Dual wall	3:1	1.2 to 25	Black	Wiring/cable joints which need to be water and dust tight
Automotive dual wall	4:1	0.8 to 25	Black	Splicing sleeves for automotive harnesses
Medium wall	3:1	3 to 160	Black	Electrical jointing kits & terminations. Cable strain relief
Wrap around sleeve	3:1	12 to 160	Black	Repair of damaged cables and low pressure pipes where access to ends is not possible
HSC sleeving	2:1	1.2 to 76	Clear	Protection over cable/wire identification labels or sensitive connections
HSCA sleeving	2:1	2.4 to 50	Clear	Clear sleeving with adhesive lining
H sleeving	1.5:1	4.5 to 15	Black	Abrasion/impact protection for hydraulic pipes in automotive applications

* Standard colours are red, white, blue, black, yellow and green/yellow stripe. Other colours are available on special request.

Heatshrink is available in continuous lengths or in specific cut lengths to suit the application requirements.

Selection Criteria

The following criteria must be considered prior to specifying a heatshrink product for an application:-

- Diameter and length of the item to be insulated or protected.
- Does the application require electrical or mechanical protection.
- Environmental conditions such as UV, moisture, solvents, dust, etc.

Features

- Heatshrink can be formulated to be flame retardant.
- Black heatshrink is inherently UV resistant but use in direct sunlight must be considered when specifying product type.
- Mastic (Adhesive) lining is available where protection from the environment is required.
- High shrink ratios provide flexibility for retrofit applications and reduce the need to carry a range of sizes.
- Heatshrink can be formulated to be SOC (substances of concern) free. This is a requirement of the automotive industry where Mercury, Lead, Chromium IV and Cadmium are not accepted due to environmental restrictions.
- Medium wall products can be used to provide mechanical stress relief between connectors and cables or hoses.
- Heatshrink can be supplied for different operating temperature ranges. Typically this is -30 to 135 degrees C, with specialised products that can operate continuously in temperatures of up to 180 degrees C.

Do's and Don'ts

- Ensure that the item to be protected is free of burrs and sharp edges. These can score/cut the inside of the tubing resulting in splitting when shrinking.
- Item to be protected must be free of oil and grease.
- When ordering a product select a diameter that will allow the tubing to shrink by at least 30%. This will ensure good mechanical and electrical performance.
- Select tubing that is UV stable for applications where the tubing will be exposed to direct sunlight.
- Check the ambient operating temperature where the tubing will be installed and select a product that is temperature rated accordingly.
- Select a product that will shrink at a temperature that will not damage the item to be protected.
- Always use a purpose designed heatshrink gun for optimal shrinking of the tubing. Do not use an open flame e.g. blow torch, as this will invariably damage the tubing surface which in turn will adversely affect its mechanical and electrical protection characteristics.

Options not covered in this write-up

- Heat shrinkable moulded shapes.
- End caps & breakout boots for power cables.
- Specialised military heatshrink.