Heat Shrink Comparison Brochure

High-performance heat shrink options extruded for protection and customized to overcome complex design challenges.
Limit costly insulation failures.

Heat Shrink Products

FluoroPEELZ® Peelable Heat Shrink: This optically clear, peelable heat shrink is designed to improve the reflow of the catheter jacket - the final step in the construction process. FluoroPEELZ® reduces downstream processing, increases yields, and produces minimal scrap for cost savings. FluoroPEELZ® is available in sizes from neurological builds to AAA profiles.

Dual-Shrink™: Can be used to splice wiring exposed to the most extreme environments. Constructed with an exterior of PTFE heat shrink and an inner layer of FEP, our Dual-Shrink™ provides a tight moisture-proof bond over wires, cables, connectors, splices, terminals and others.

PTFE Sub-Lite-Wall®: 4:1 & 2:1 Heat Shrink: We make the smallest heat shrink in the world – as thin as a human hair - with our PTFE-Sub-Lite-Wall® products. These products have wall thicknesses down to .0015” and tolerances of +/- .0005”. Zeus also has PTFE Heat Shrink catalog sizes ranging to 4.00” expanded ID’s with a maximum shrink ratio of 4:1 and meets the AS23053/12. These excellent insulators withstand high temperatures up to (500 °F / 260 °C).

PEEKshrink™: This product is ideal for difficult environments where abrasion, chemicals, or dielectric interference pose a threat to wires and electrical components.

Heat Shrink Portfolio

Heat Shrink Property Comparison Chart

<table>
<thead>
<tr>
<th>RESIN/PRODUCT</th>
<th>OPERATING TEMP</th>
<th>SHRINK RATIOS</th>
<th>RECOVERY TEMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>FluoroPEELZ®</td>
<td>200 °C / 400 °F</td>
<td>Up to 2:1</td>
<td>215 °C / 420 °F +/- 10 °C / 50 °F</td>
</tr>
<tr>
<td>PEEKshrink™</td>
<td>260 °C / 500 °F</td>
<td>Up to 1.4:1</td>
<td>343 °C - 385 °C (650 °F - 725 °F)</td>
</tr>
<tr>
<td>Dual-Shrink™</td>
<td>232 °C / 450 °F</td>
<td>Varies by diameter</td>
<td>343 °C / 650 °F +/- 10 °C / 50 °F</td>
</tr>
<tr>
<td>Low-Temp Dual-Shrink™</td>
<td>302 °F / 150 °C</td>
<td></td>
<td>215 °C / 419 °F +/- 10 °C / 50 °F</td>
</tr>
<tr>
<td>PTFE Sub-Lite-Wall®</td>
<td>260 °C / 500 °F</td>
<td>Up to 4:1</td>
<td>343 °C / 650 °F +/- 10 °C / 50 °F</td>
</tr>
<tr>
<td>PTFE</td>
<td>260 °C / 500 °F</td>
<td>Up to 4:1</td>
<td>343 °C / 650 °F +/- 10 °C / 50 °F</td>
</tr>
<tr>
<td>FEP</td>
<td>205 °C / 400 °F</td>
<td>Up to 2:1</td>
<td>215 °C / 420 °F +/- 10 °C / 50 °F</td>
</tr>
<tr>
<td>FEP Roll Cover</td>
<td>205 °C / 400 °F</td>
<td>Up to 1.6:1</td>
<td>215 °C / 420 °F +/- 10 °C / 50 °F</td>
</tr>
<tr>
<td>FEP Lay-Flat™</td>
<td>205 °C / 400 °F</td>
<td>Up to 1.6:1</td>
<td>215 °C / 420 °F +/- 10 °C / 50 °F</td>
</tr>
<tr>
<td>ETFE</td>
<td>150 °C / 302 °F</td>
<td>Up to 1.6:1</td>
<td>174 °C / 345 °F +/- 10 °C / 50 °F</td>
</tr>
<tr>
<td>PFA</td>
<td>260 °C / 500 °F</td>
<td>Up to 1.6:1</td>
<td>210 °C / 410 °F +/- 10 °C / 50 °F</td>
</tr>
</tbody>
</table>

*Always assure good ventilation in the immediate work area prior to beginning the heat shrink process. Caution: Fumes may cause nausea and dizziness. Heat guns can also be used to recover heat shrink material.*
## Heat Shrink Property Comparison Chart

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>RESIN/OPERATING TEMP</th>
<th>RATIOS</th>
<th>APPLICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Varies by diameter</td>
<td>+/- 10 °C / 50 °F</td>
<td>Catheter manufacturing aid, Packaging</td>
</tr>
<tr>
<td></td>
<td>650 °F - 725 °F</td>
<td>+/- 10 °C / 50 °F</td>
<td>Wire splicing, Lead wire insulation, Replacement for Kapton® tape</td>
</tr>
<tr>
<td></td>
<td>343 °C / 650 °F</td>
<td>+/- 10 °C / 50 °F</td>
<td>2000 V/Mil, Sensor encapsulation, Fiber Optic splice encapsulation and boot strain relief, Wire splicing/termination</td>
</tr>
</tbody>
</table>

### SPECIAL FEATURES:

- **FEP**
  - Peelable
  - Clear
  - USP Class VI
  - High temperature resistance
  - Abrasion resistant
  - Lightweight
  - Non-flammable
  - Combines the best properties of PTFE & FEP for a dual-layer heat shrink
  - Keeps out moisture
  - Non-flammable
  - Environmental seal over wires, cables, connectors, splices, terminals and other components

- **PTFE**
  - Thinnest recovered wall, globally
  - Smallest PTFE diameters
  - High temp resistance
  - Chemically resistant
  - Lubricious
  - UV resistant
  - AS23053/11
  - Sensor encapsulation, Fiber Optic splice encapsulation and boot strain relief, Wire splicing/termination

- **Shrink™**
  - High temperature resistance
  - Chemically resistant
  - Lubricious
  - UV resistant
  - AS23053/12
  - Insulation, Protective Cover, High temperature shrink

- **Low-Temp Dual-FluoroPEELZ®**
  - High temperature resistance
  - Chemically resistant
  - Lubricious
  - UV resistant
  - Long lengths
  - Larger diameters
  - AMS 23053/11 (Excluding 2:1)
  - Insulation, Low temp shrink, Bulb encapsulation, Catheter construction, Catheter manufacturing aids, Thicker wall for durable covering of rollers

- **FEP Lay-Flat™**
  - High temperature resistance
  - Thin walls combined with large diameters
  - Long lengths
  - Larger diameters
  - AS23053/11
  - Seamless composite release aid

- **FluoroPEELZ®**
  - Abrasion resistant wire insulation
  - Abrasion resistant wire insulation
  - Abrasion resistant wire insulation

- **Heat Shrink Applications**

  **Guide Wire Coatings:** PTFE Sub-Lite-Wall® spiral stripe heat shrink is used to provide a lubricious jacket and indicate movement of guide wires.

  **Laparoscopic Insulation:** FEP and PTFE heat shrinks provide insulation to protect the physician and patient during energy based procedures.

  **Battery Pack Encapsulation:** Heat shrinks help protect battery packs from moisture and chemicals and offer an additional thermal barrier.

  **Wire Splicing:** Use PEEKshrink™ to replace films and tape, turning the weakest point in coil windings into the strongest and most reliable. Dual-Shrink™ is commonly used for wire splicing and provides moisture proof encapsulation.

  **Core Sampling Encapsulation:** Protect core samples and apply a durable skin that is a chemically inert, high-temperature, and transparent jacket.

  **Kapton® Replacement:** Applications such as Electrical subsurfaceable pumps (ESP) replace Kapton® tape for PEEKshrink™ to splice wire.

  **Light Bulb Encapsulation:** Make light bulbs safe by providing a shatterproof encapsulation with FEP Lay-Flat™ heat shrink for germicidal light bulb encapsulation as it withstands ultra-violet (UV) light.

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*Ovens are the most reliable way to recover heat shrink products due to their ability to ensure even heating and reduce the risk of overheating the material (which can lead to brittleness and cracking).*
For over 50 years, Zeus has been working to achieve excellence as a global supplier of quality extrusions by: putting customers at the heart of everything we do, inspiring compassion toward one another, and relentlessly pursuing perfection. We’ve dedicated ourselves to building partnerships, products, and services for the benefit of our customers.

Headquartered in Orangeburg, South Carolina, Zeus employs 1,700+ team members and operates 11 facilities around the world.