HEAT AND COLD SHRINK PRODUCTS
For more than 45 years, DSG-Canusa is known for developing and producing high-quality heat shrink tubing and cold-applied accessories. Our growing portfolio of heat shrink products includes thin-, medium- and heavy wall products made of polyolefin, fluoropolymer and elastomer with or without adhesive. Our mission is to lead the industry in manufacturing superior heat and cold shrink products.

In addition to the heat and cold shrink tubing product lines, we provide a full range of technically advanced shrink appliances. Years of experience in processing heat shrink materials have resulted in the creation of a variety of processing devices, from a simple heat gun to customer specific, process integrated high-performance shrink equipment.

Being part of the energy services provider Shawcor with over 6,000 employees in over 20 countries, we combine the resources, expertise and technologies to maintain a reputation for excellence that stems from our unparalleled customer service and catalogue of top quality products.

SPECIALIST FOR HEAT SHRINK AND COLD-APPLIED TECHNOLOGY
Shawcor’s vision is an Incident and Injury-Free (IIF) workplace, with no harm to people and no damage to the environment. We view Health, Safety and Environment (HSE) as a core value and an integral part of all business activities, and are committed to achieving HSE excellence at all of our locations around the world.

As a member of Shawcor, we share these values and promote safety awareness with a number of features and programs. Some of these activities are a monthly focus on a high-risk activity to contribute to an incident and injury-free workplace, Advanced Safety Audits (ASA) to enhance the ability of managers and supervisors to engage in positive interactions with workers regarding safety and the Take 5 for Safety initiative to improve safety performance and to reduce incidents when performing non-routine tasks.
We are more than just a supplier of standard heat and cold shrink products, as we also supply the tools and application equipment to reliably apply our products in your factory or at your work site.

Our focused teams on machine development, applications engineering, product engineering and research and development are dedicated professionals from electrical engineering to materials science. They have the skills and experience to design and execute technology and customer-specific solutions from concept to commercial reality.

When these teams work side by side with you, they can provide advanced integrated solutions using our superior heat shrink tubing and our high-performance application equipment.

Working with our teams provides you with access to custom products, new materials, and application-specific shrink devices for integrated systems that address your needs for efficiency, safety, quality, and performance.
LOCAL PRODUCTION FOR LOCAL DEMAND.

To deliver the best performing products to all our customers on-time and to meeting their expectation, we are organized globally and have chosen our sites strategically. We produce locally to serve the local demand while optimizing lead times, transport time and costs.

Our global team utilizes resources from our different locations to support every customer’s need. We welcome customer driven supply chain development and consider their increasing expectations as our opportunity to rise above.

SERVING GLOBALLY

R&D, Application Engineering, Marketing  Production  Warehouse and Dispatch
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SINGLE WALL TUBING

SERVING A VARIETY OF APPLICATIONS IN THE AUTOMOTIVE, ELECTRONICS, MILITARY AND AEROSPACE MARKETS

Our single wall heat shrink tubing portfolio offers insulation of electrical components, protects against mechanical damage and abrasion, provides strain relief and is available in a wide range of colours and sizes.

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Thin wall crosslinked polyolefin

FEATURES AND BENEFITS
- Highly flame retardant
- Low shrink temperature reduces risk of damage to electronic components
- Flexible
- Resistant to common fluids and solvents
- Shrink ratio: 2:1
- Continuous operating temperature: -55°C to 135°C
- Shrink temperature: 85°C min.

STANDARDS
- UL file # E107857
- CSA file # 265111
- SAE AMS-DTL-29053/5, Class 3

TYPICAL APPLICATIONS
- Strain relief of wire connections
- Insulation of in-line splices
- Protection and bundling of small harnesses

2:1 SHRINK RATIO
-55°C to 135°C
(-67°F to 275°F)

CONTINUOUS OPERATING TEMPERATURE

MARKETS:
Aerospace, Defense, Industrial, Consumer electronics

STANDARDS:
RoHS
UL
MIL

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Black (BK), red (RD), white (WT), blue (BL), yellow (YL), green (GR) - all (except black) with MOQ
  - Printing: Printed or unprinted
  - Please specify the product name, order number and options you require
  - Example: CPX 876, 0125, black, unprinted, 300 m spool

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
DERAY®-H - THIN WALL CROSSLINKED POLYOLEFIN

MARKETS:
Automotive, Industrial

STANDARDS:
RoHS, UL, CSA

FEATURES AND BENEFITS
• Self-extinguishing (colors only)
• Flexible
• Suitable for various applications
• Good resistance to common fluids and solvents
• High dielectric strength
• Shrink ratio: 2:1
• Continuous operating temperature: -55°C to 135°C
• Shrink temperature: 110°C min.

STANDARDS
• UL file # E107857 (colors only)
• CSA file # 066150_0_000 (colors only)
• Approved to major automotive OEM specifications

TYPICAL APPLICATIONS
• Abrasion and mechanical protection
• Cable insulation, marking and bundling of electrical or mechanical components
• Strain relief
• Corrosion protection

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
• Select options:
  • Color: Black (BK), red (RD), white (WT), clear (CL), blue (BL), yellow (YL), green (GR), brown (BN), grey (GY)
  • Please specify the product name, order number and options you require
  • Example: DERAY®-H, 0250 or 1/4 in, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

### Thin wall crosslinked polyolefin

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Clear items not UL or CSA listed.
* Black items only available on spools

2:1 SHRINK RATIO

-55°C to 135°C
(-67°F to 275°F)

CONTINUOUS OPERATING TEMPERATURE

 roller supplied

Fully recovered after heating

Not to scale
Halogen free, economical, heat shrink tubing

**FEATURES AND BENEFITS**
- Flexible
- Economical
- General Purpose
- Halogen free alternative to PVC
- Shrink ratio: 2:1
- Continuous operating temperature: -55°C to 125°C
- Shrink temperature: 110°C min.

**TYPICAL APPLICATIONS**
- Abrasion protection
- Insulation of electrical or mechanical components
- Protection against mechanical damage and corrosion

**2:1 SHRINK RATIO**

-55°C to 125°C

(-67°F to 257°F)

**CONTINUOUS OPERATING TEMPERATURE**

**MARKETS:**
Automotive, Industrial

**STANDARDS:**

**DIMENSIONS**

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*Items only available in black

**ORDERING**
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- Select options:
  - Color: Black (BK), clear (CL)
- Please specify the product name, order number and options you require
- Example: DERAY®-HB, 0500 or 1/2 in, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Universal heat shrink tubing with excellent physical and mechanical properties

**FEATURES AND BENEFITS**
- Self-extinguishing (colors only)
- Flexible
- Very good resistant to common fluids and solvents
- Excellent physical and electrical performance
- Shrink ratio: 2:1
- Continuous operating temperature: -55°C to 135°C
- Shrink temperature: 90°C min.

**STANDARDS**
- UL file # E107857 (colors only)
- CSA file # 066150_0_000 (colors only)
- SAE-AMS-DTL-23053/5, Class 1 + 2
- DEF STAN 59-97 Type 2b, BS G198 Part 3 Type 11B
- VG95343 Part 5 Type A/B
- Approved to major automotive OEM specifications

**TYPICAL APPLICATIONS**
- Electrical insulation of wire splices and terminals
- Strain relief of wire terminations
- Cable marking and bundling of electrical or mechanical components
- Secures components from abrasion and fluids

**DIMENSIONS**

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Clear items not UL or CSA listed.

*Black items only available on spools

**ORDERING**
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Black (BK), red (RD), white (WT), clear (CL), blue (BL), yellow (YL), green (GR), brown (BN), grey (GY)
  - Please specify the product name, order number and options you require
  - Example: DERAY®-I, 0.375 or 3/8 in, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet
High shrink ratio, multiple specifications flexible heat shrink tubing with excellent physical and mechanical properties

**FEATURES AND BENEFITS**

• Self-extinguishing (colors only)
• Flexible
• High shrink ratio
• Resistant to common fluids and solvents
• Additionally available in RAL2003 orange color
• Shrink ratio: 3:1
• Continuous operating temperature: -55°C to 135°C
• Shrink temperature: 90°C min.

**STANDARDS**

• UL file # E107857 (colors only)
• SAE-AMS-DTL-23053/5, Class 1 + 2
• DEF STAN 59-97 Type 2b, BS G198 Part 3 Type 11B
• VG95343 Part 5 Type A/B
• Approved to major Automotive OEM specifications

**TYPICAL APPLICATIONS**

• Electrical insulation of in-line splices
• Strain relief of terminals
• Color coding of electronic components
• Insulation and protection of objects with large diameter variations

**3:1 SHRINK RATIO**

**-55°C to 135°C**

(-67°F to 275°F)

**CONTINUOUS OPERATING TEMPERATURE**

**MARKETS:**

Automotive, Aerospace, Defense, Industrial OEM

**STANDARDS:**

RoHS, UL, DEF STAN 59/97, VG, MIL

---

**ORDERING**

Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- **Select options:**
  - Color: Black (BK), red (RD), white (WT), clear (CL), blue (BL), yellow (YL), orange (OE)
  - Please specify the product name, order number and options you require
  - Example: DERAY®-I 3000, 0375 or 9/3 in, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

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Clear items not UL listed.

*Black items only available on spools
Yellow-green striped, quick shrinking heat shrink tubing with a high shrink ratio

FEATURES AND BENEFITS
- Flame retardant
- Flexible
- Striped color combination designates international electrical grounding
- Resistant to common fluids and solvents
- Shrink ratio: 3:1
- Continuous operating temperature: -55°C to 135°C
- Shrink temperature: 90°C min.

STANDARDS
- DEF STAN 59-97 Type 2b, BS G198 Part 3 Type 11B

TYPICAL APPLICATIONS
- Insulating and marking of earthing conductors

3:1 SHRINK RATIO
-55°C to 135°C (-67°F to 275°F)

MARKETS:
Construction Projects, Industrial, Marine, Shipboard, Transit

STANDARDS:
- DEF STAN 59-67

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Green-yellow (GY)
- Please specify the product name, order number and options you require
- Example: DERAY®-IGY 0750, green-yellow

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

Thin wall crosslinked polyolefin

DIMENSIONS

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
<th>DELIVERY UNITS</th>
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<tbody>
<tr>
<td></td>
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<td>Internal Diameter (min) d</td>
<td>Total Wall Thickness [mm] W</td>
</tr>
<tr>
<td>0125</td>
<td>3.20</td>
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<td>1/4</td>
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<td>0375</td>
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<td>4.00</td>
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</tr>
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<td>1535</td>
<td>39.00</td>
<td>1 1/2</td>
<td>13.00</td>
</tr>
</tbody>
</table>

ORDERED as supplied

Not to scale
Halogen free, low shrink temperature heat shrink tubing; ideal for covering sensitive electronic components

FEATURES AND BENEFITS
- Halogen free
- Highly flexible
- Ideal for high volume production lines
- Low shrink temperature allows for physical and electrical protection of heat sensitive components
- Shrink ratio: 2:1
- Continuous operating temperature: -45°C to 125°C
- Shrink temperature: 70°C min.

TYPICAL APPLICATIONS
- Protection of heat sensitive devices
- Insulation of electrical terminations
- Offers exceptionally fast recovery for maximum efficiency in high volume commercial and automotive applications
- Mechanical protection

2:1 SHRINK RATIO

-45°C to 125°C
(-49°F to 257°F)

CONTINUOUS OPERATING TEMPERATURE

MARKETS:
Automotive, Industrial, Commercial

STANDARDS:

RMS

Thin wall crosslinked polyolefin

DIMENSIONS

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
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<td>Internal Diameter (max. d)</td>
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</tr>
<tr>
<td></td>
<td>mm</td>
<td>in</td>
<td>mm</td>
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<tr>
<td>0125</td>
<td>3.2</td>
<td>1/8</td>
<td>1.6</td>
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<td>0187</td>
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<td>3/16</td>
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<td>0250</td>
<td>6.4</td>
<td>1/4</td>
<td>3.2</td>
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<tr>
<td>0375</td>
<td>9.5</td>
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<td>4.6</td>
</tr>
<tr>
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<td>1/2</td>
<td>6.4</td>
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<tr>
<td>1000</td>
<td>25.4</td>
<td>1</td>
<td>12.7</td>
</tr>
</tbody>
</table>

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Black (BK)
- Please specify the product name, order number and options you require
  - Example: DERAY®-LSB, 0375 or 3/8 in, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Black (BK)
- Please specify the product name, order number and options you require
  - Example: DERAY®-LSB, 0375 or 3/8 in, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Halogen free flame retardant heat shrink tubing

Zero halogen & low smoke heat shrink tubing. The product complies with the stringent requirements of the European rail norm EN45545-2 and the HL3 R22/R23 classification and even exceeds those. The material is suitable for use in all classes required for the construction of locomotives and rolling stock. It is also suitable for use in underground environments as well as marine, military and aerospace applications.

FEATURES AND BENEFITS
- 2:1 shrink ratio
- Low smoke generation - excellent fire safety characteristics
- Emissions of toxic fumes are well below the levels required to meet the relevant standards
- Flexible
- Flame retardant
- Good fluid resistance
- Continuous operating temperature: -40°C to 125°C
- Shrink temperature: 120°C min.

STANDARDS
- EN45545-2 HL3 R22 & R23
- Meets LUL E 1042 A6, BS 6853 vehicle category 1a
- DIN 5510

TYPICAL APPLICATIONS
- Insulation of electrical components in mass transit applications
- Mechanical and environmental protection in the marine, military, aerospace and heavy industry
- General fire safety applications where there is a risk to people or equipment

2:1 SHRINK RATIO

-40°C to 125°C
(-40°F to 257°F)

CONTINUOUS OPERATING TEMPERATURE

MARKETS:
Rail, Military, Aerospace, Offshore, Marine, Industrial, Commercial

STANDARDS:

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- Select options:
  - Color: Black (BK), yellow (YL), white (WT)
  - Printing: Printed or unprinted
  - Length: Continuous reels

- Please specify the product name, order number and options you require
  - Example: DERAY®-ZoH125, 0125, BK, unprinted, 100 m reel

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

DIMENSIONS

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td></td>
<td>MM</td>
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<td>MM</td>
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<tr>
<td>0094</td>
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<td>3/16</td>
<td>2.4</td>
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<td>0250</td>
<td>6.4</td>
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<tr>
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<td>12.7</td>
<td>1/2</td>
<td>6.4</td>
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<td>Spool</td>
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EXPLAINED AS SUPPLIED
FULLY RECOVERED AFTER HEATING

EN 50364-2
ROHS

DSG-CANUSA PRODUCTS
DUAL WALL TUBING

SEALING AND PROTECTING AGAINST MOISTURE AND CORROSION WITH HIGH-PERFORMANCE ADHESIVE LINED HEAT SHRINK TUBING

Adhesive lined heat shrink tubing is most frequently applied on terminals, connectors and splices to provide an environmental seal to prevent moisture ingress which can affect electrical performance and initiate corrosion.

Dual wall tubing is extruded with an inner layer of adhesive. Upon recovery, the inner layer of adhesive will melt and flow, encapsulating and bonding to the substrate, providing an environmental seal against moisture.

DUAL WALL TUBING .......................................................................................... 30-43
CHPA – Adhesive lined crosslinked polyolefin ..................................................... 32
CPA 300 – Thin wall adhesive lined crosslinked polyolefin ................................... 34
DERAY®-IAKT – Thin wall adhesive lined polyolefin ............................................. 36
DERAY®-IHKT – Thin wall adhesive lined polyolefin ............................................. 38
DERAY®-SpliceMelt – Adhesive lined crosslinked polyolefin .................................. 40
DERAY®-SpliceMelt Cap – Adhesive lined insulating caps ..................................... 42
Adhesive lined heat shrink specifically designed to insulate, seal and protect wire splices in under hood automotive wire harnesses and electronic assemblies with broad temperature range

FEATURES AND BENEFITS
- High shrink ratio to fit varying splice configurations and substrate profiles
- Seals and protects against water, moisture and chemicals
- Adhesive bonds readily to PVC, XLPE and PP-EPDM cable jackets
- Shrinks rapidly for quick installation
- Jacket and adhesive are flame retardant
- Shrink ratio: 4:1
- Continuous operating temperature: -40°C to 150°C
- Shrink temperature: 140°C min.

STANDARDS
- FDA: MS-08-56 /MS-50107, CPN #5229
- GMW17136

TYPICAL APPLICATIONS
- Environmental sealing of wire splices
- Sealing and strain relief of connectors and terminals
- Abrasion protection and electrical insulation of automotive wiring harness splices

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Black (BK)
- Please specify the product name, order number and options you require
- Example: CHPA 3, 12.0 mm, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

DIMENSIONS

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
<th>DELIVERY UNITS</th>
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</tbody>
</table>

Adhesive lined crosslinked polyolefin
Adhesive lined heat shrink tubing ideal for applications where both exceptional flame retardancy and environmental sealing capabilities are required.

** FEATURES AND BENEFITS **
- Highly flame retardant
- High shrink ratio allows for coverage of irregularly shaped connectors and components
- Adhesive liner bonds to plastics, rubber, steel and polyethylene
- Superior sealing against water, moisture and other contaminants
- Superior protection for ring terminals without excessive adhesive flow
- Shrink ratio: 3:1
- Continuous operating temperature: -55°C to 125°C
- Shrink temperature: 120°C min.

** STANDARDS **
- UL file # E63390
- CSA C22.2 No.198.1 125°C
- AMS-DTL-23053/4, Class 3
- Approved to major automotive OEM specifications

** TYPICAL APPLICATIONS **
- Environmental sealing of simple in-line splices
- Strain relief and sealing of connectors and terminals
- Mechanical protection of components

** 3:1 SHRINK RATIO **
-55°C to 125°C
(-67°F to 257°F)

** CONTINUOUS OPERATING TEMPERATURE **

** MARKETS: **
- Aerospace, Defense, Industrial, Automotive

** STANDARDS: **
- RoHS
- UL
- SP
- VG

---

** DIMENSIONS **

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
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<td>1.5</td>
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<td>6.4</td>
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<td>4.7</td>
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<td>1500</td>
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</table>

** ORDERING **
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Black (BK), white (WT), red (RD)
  - Please specify the product name, order number and options you require
  - Example: CPA 300, 0125, black, 48 in lengths

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Adhesive lined heat shrink tubing ideal for effective moisture-resistant insulation

FEATURES AND BENEFITS
- Flexible
- Adhesive bonds to plastics, rubber, steel polyethylene and other materials
- Shrink ratio: 3:1 & 4:1
- Continuous operating temperature of outer jacket: -55°C to 110°C
- Shrink temperature: 95°C min.

STANDARDS
- Industrial, electronic and automotive OEM specifications

TYPICAL APPLICATIONS
- Environmental sealing and strain relief of connectors and terminals
- Moisture sealing and electrical insulation of simple in-line splices
- Abrasion resistance for tubes and pipes
- Repair of damaged wire harnesses

MARKETS:
Automotive, Industrial

STANDARDS:
RoHS

Thin wall adhesive lined crosslinked polyolefin

DIMENSIONS: SHRINK RATIO 3:1

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<thead>
<tr>
<th>ORDER NUMBER</th>
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<th>RECOVERED</th>
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<tbody>
<tr>
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<td>Internal Diameter (max) d</td>
<td>Total Wall Thickness (nom) W</td>
</tr>
<tr>
<td></td>
<td>MM</td>
<td>IN</td>
<td>MM</td>
</tr>
<tr>
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DIMENSIONS: SHRINK RATIO 4:1

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<td>Internal Diameter (min) D</td>
<td>Internal Diameter (max) d</td>
<td>Total Wall Thickness (nom) W</td>
</tr>
<tr>
<td></td>
<td>MM</td>
<td>IN</td>
<td>MM</td>
</tr>
<tr>
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<td>2.0</td>
</tr>
<tr>
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<td>0.472</td>
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<td>52.0/13.0*</td>
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<td>2.047</td>
<td>13.0</td>
</tr>
</tbody>
</table>

*IAKT 4:1 sizes 16.0/4.0 & 52.0/13.0 clear have different delivery units

ORDERING
- Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified
- Select options:
  - Color: Black (BK), clear (CL)
- Please specify the product name, order number and options you require
- Example: DERAY®-IAKT 3.1, 40.0/13.0, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Flexible heat shrink tubing with a temperature resistant polyamide adhesive inner lining; ideal for protecting components in a wide range of electrical and mechanical applications where adhesion to connector and metal substrates is critical

FEATURES AND BENEFITS
- High shrink ratio allows for coverage of irregularly shaped connectors and components
- Flame retardant
- Specially designed polyamide adhesive protects components at elevated temperatures
- Superior sealing against water and other contaminants
- Inner adhesive bonds to plastics, rubbers and metals
- Shrink ratio: 4:1
- Continuous operating temperature: -55°C to 125°C
- Shrink temperature: 100°C min.

STANDARDS
- SAE-AMS-DTL-23053/4 Class 3
- Approved to major Automotive OEM specifications

TYPICAL APPLICATIONS
- Retrofit protection of connectors
- Repair of damaged wire harnesses
- Moisture sealing and strain relief at connectors and terminals

4:1 SHRINK RATIO
-55°C to 125°C
(-67°F to 257°F)
CONTINUOUS OPERATING TEMPERATURE

MARKETS:
Automotive, Industrial

STANDARDS:
RoHS
VG

Thick wall adhesive lined crosslinked polyolefin

DIMENSIONS

<table>
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<tr>
<th>ORDER NUMBER</th>
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<td>MM IN</td>
<td>M FT 122cm / 48in</td>
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<td>0.512 3.50 0.194 30 98 10</td>
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ORDERING
- Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Black (BK)
- Please specify the product name, order number and options you require
  - Example: DERAY®-IHKT, 0630 or 16.0/4.0, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Adhesive lined heat shrink specifically designed to insulate, seal and protect in-line splices in automotive wire harnesses and electronic assemblies.

**FEATURES AND BENEFITS**
- High shrink ratio to fit varying splice configurations
- Seals and protects against water, moisture and chemicals
- Adhesive bonds readily to PVC, XLPE and PP-EPDM cable jackets
- Quick installation due to rapid shrinkage
- Shrink ratio: 4:1
- Continuous operating temperature: -40°C to 125°C
- Shrink temperature: 120°C min.

**STANDARDS**
- Approved to major automotive OEM splice sealing specifications

**TYPICAL APPLICATIONS**
- Environmental sealing of in-line splices
- Sealing and strain relief of connectors and terminals
- Abrasion protection and electrical insulation of automotive wiring harness splices

**MARKETS:**
Automotive, Industrial

**STANDARDS:**
RoHS

### 4:1 SHRINK RATIO

-40°C to 125°C
(-40°F to 257°F)

**CONTINUOUS OPERATING TEMPERATURE**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
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<th>RECOVERED</th>
<th>DELIVERY UNITS</th>
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<td>4</td>
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</table>

**ORDERING**
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Black (BK), clear (CL)
  - Please specify the product name, order number and options you require
  - Example: DERAY®-SpliceMelt, size 3.65 mm, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Adhesive lined, heat shrink insulating caps specifically designed to insulate, seal and protect end or stub splices in wiring harnesses and electronic assemblies.

**FEATURES AND BENEFITS**
- High shrink ratio allows fewer sizes to cover a wide range of profiles
- Seals and protects against water, moisture and chemicals
- Adhesive bonds readily to PVC, XLPE and PP-EPDM cable jackets
- Quick installation due to rapid shrinkage
- Shrink ratio: 4:1
- Continuous operating temperature: -40°C to 125°C
- Shrink temperature: 125°C min.

**STANDARDS**
- Approved to major automotive OEM splice sealing specifications

**TYPICAL APPLICATIONS**
- Sealing & protection of end and stub splices

### Adhesive lined insulating caps

#### DIMENSIONS

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<tr>
<td>4*</td>
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<td>0.709</td>
<td>4.5</td>
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</table>

*Cap tip open

### ORDERING

Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- Select options:
  - Color: Black (BK), clear (CL)
  - Please specify the product name, order number and options you require
  - Example: DERAY®-SpliceMelt Cap, size 3, 65mm, clear

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

---

**MARKETS:**
- Automotive, Industrial

**STANDARDS:**

![RoHS](logo.png)
MEDIUM AND HEAVY WALL TUBING

SEALING AND PROTECTING ELECTRICAL CONNECTIONS AND TERMINATIONS

Our specially designed medium and heavy wall heat shrink tubing provides excellent insulation, environmental sealing and impact & abrasion resistance. It is used in a variety of general purpose applications to seal electrical connections and terminations or provide mechanical protection.

DSG-Canusa medium and heavy wall heat shrink tubes set the industry standard in several markets including electrical utility and mass transport.

MEDIUM AND HEAVY WALL TUBING ................................ 44-63
CCH – Heavy wall crosslinked polyolefin ................................ 46
CCM – Medium wall crosslinked polyolefin .............................. 48
CFHR – High shrink ratio crosslinked polyolefin ......................... 50
CFM – Medium wall crosslinked polyolefin .............................. 52
CFTV - Heat shrink cable sleeve ............................................ 54
CFW – Heavy wall crosslinked polyolefin ................................. 56
DERAY®-MC 225 – Medium wall crosslinked polyethylene ........ 58
FCFW – Heavy wall crosslinked polyolefin .............................. 60
FCFW-N – Heavy wall flame retardant heat shrink tube .............. 62
Heavy wall heat shrinkable tubing provides maximum reliability for insulating and protecting cable joints and terminations.

FEATURES AND BENEFITS
- Withstands severe mechanical requirements of U.R.D., submersible and direct burial installations
- Rated for 1000V, 90°C continuous use
- Optional thermoplastic adhesive liner for complete environmental protection and insulation
- Shrink ratio: 3:1
- Continuous operating temperature: -55°C to 110°C
- Shrink temperature: 120°C min.

STANDARDS
- DIN EN 60684-3-247
- DIN V 47640

TYPICAL APPLICATIONS
- Cable jacket repair
- Retrofit protection of connectors
- Low voltage cable splicing
- Conduit repair

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Black (BK)
  - Printing: Printed or Unprinted
  - Adhesive Lining: Lined (A) or Unlined (U)
- Please specify the product name, order number and options you require
- Example: CCH 65/19, A, black, unprinted, lined, 1.22m in length

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

DIMENSIONS

<table>
<thead>
<tr>
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<td>MM IN</td>
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<tr>
<td>CCH 95/29</td>
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<td>CCH 115/34</td>
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<tr>
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<td>55.0 2.165</td>
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<tr>
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<td>200.0 7.874</td>
<td>65.0 2.559</td>
<td>4.30 0.169</td>
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</tbody>
</table>

*Spools on request (unlined only)

Order on request.

Not to scale.
Medium wall heat shrinkable tubing suitable for a variety of low voltage electrical and mechanical applications, where lighter weight and greater flexibility are important.

**FEATURES AND BENEFITS**
- Seals and protect cable splices and terminations
- High resistance to impact and abrasion
- Optional thermoplastic adhesive liner for complete environmental protection and insulation
- Shrink ratio: 3:1
- Continuous operating temperature: -55°C to 110°C
- Shrink temperature: 120°C min.

**STANDARDS**
- DIN EN 60684-3-247

**TYPICAL APPLICATIONS**
- Cable jacket repair
- Retrofit protection of connectors
- Low voltage cable splicing
- Conduit repair

**3:1 SHRINK RATIO**

-55°C to 110°C

(-67°F to 230°F)

**CONTINUOUS OPERATING TEMPERATURE**

**MARKETS:**
- Electrical Utility
- Industrial
- Commercial

**STANDARDS:**
- RH5

---

Medium wall crosslinked polyolefin

**DIMENSIONS**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
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<th>RECOVERED</th>
<th>DELIVERY UNITS</th>
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<td>CCM 200/65</td>
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<td>7.874</td>
<td>65.0</td>
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*Spools on request (unlined only)*

**ORDERING**

Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- **Select options:**
  - Color: Black (BK)
  - Printing: Printed or unprinted
  - Adhesive lining: Lined (A) or unlined (U)

- **Please specify the product name, order number and options you require**
- **Example:** CCM 65/19, A, black, unprinted, lined, 1.22m length

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
High shrink ratio heat shrink tubing accommodates extreme differences between cables, connectors and backshells.

**FEATURES AND BENEFITS**
- Flame retardant
- Accommodates a wide variety of connector shapes and configurations
- Optional thermoplastic adhesive liner for complete environmental protection and insulation
- Shrink ratio: 6:1
- Continuous operating temperature: -55°C to 110°C
- Shrink temperature: 120°C min.

**STANDARDS**
- Meets material properties of SAE-AMS-DTL 23053/15
- UL file # E132914
- IEC 60684-3-247

**TYPICAL APPLICATIONS**
- Wire harnesses
- Abrasion and impact resistance
- Strain relief and protection of cables and connectors

### 6:1 SHRINK RATIO

-55°C to 110°C
(-67°F to 230°F)

**CONTINUOUS OPERATING TEMPERATURE**

**MARKETS:**
- Electrical Utility
- Industrial
- Commercial

**STANDARDS:**
- SAE-AMS-DTL 23053/15
- UL file # E132914
- IEC 60684-3-247

### ORDERING

Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- Select options:
  - Printing: Printed or Unprinted
  - Adhesive Lining: Lined (D) or unlined (U)
  - Lengths: 1.22 m or 7.62 m spool (unlined only)

Please specify the product name, order number and options you require.

**Example:** CFHR, 0750, U, black, unprinted, 1.22 m length

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

### DIMENSIONS

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
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</tbody>
</table>

- Expanded as supplied
- Fully recovered after heating

- Not to scale
Medium wall heat shrink tubing suitable for a variety of low voltage electrical and mechanical applications where lighter weight and greater flexibility are important.

**FEATURES AND BENEFITS**
- Seals and protects cable splices and terminations
- Rugged mechanical protection
- Complete moisture sealing
- Strain relief for delicate wire connections
- High resistance to impact and abrasion
- Rated for 1000 V, 90°C continuous use
- Optional thermoplastic adhesive liner for complete environmental protection and insulation
- Shrink ratio: 3:1
- Continuous operating temperature: -55°C to 110°C
- Shrink temperature: 120°C min.

**TYPICAL APPLICATIONS**
- Strain relief and environmental protection
- Splice covers for electrical cables
- HVAC systems for pipes and ducts
- Insulation cover or jacket repair on low voltage cables

**3:1 SHRINK RATIO**

-55°C to 110°C
(-67°F to 230°F)

**CONTINUOUS OPERATING TEMPERATURE**

**STANDARDS:**
- Melting point 214°C (417°F)
- Continuous operating temperature: -55°C to 110°C
- Shrink temperature: 120°C min.

**MARKETS:**
- Industrial
- Commercial
- Utility

**DIMENSIONS**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
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**ORDERING**
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- Select options:
  - Color: Black (BK)
  - Printing: Printed or unprinted
  - Adhesive lining: Lined (L) or unlined (U)
  - Lengths: 1 m or 1.22 m, or 7.62 m spool on request (only unlined)
- Please specify the product name, order number and options you require

Example: CFM, 1100, U, black, unprinted, 1.22 m length

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Heat shrink tubing and adhesive liner combination that established the CATV industry standard for splice and connector protection

**FEATURES AND BENEFITS**
- Craft friendly installation
- Exceptional split resistance
- CFTV adhesive retains bond providing long term protection
- Selective strippability to meet CATV industry specifications
- Minimal heat required to produce error free installation without splitting
- Thermochromatic lines change color to signal waterproof seal
- Shrinks and seals in half the time of alternative products
- Shrink ratio: 3:1
- Continuous operating temperature: -55°C to 110°C
- Shrink temperature: 120°C min.

**TYPICAL APPLICATIONS**
- Strain relief of coaxial connections
- Waterproof protection of CATV connectors

**3:1 SHRINK RATIO**

**-55°C to 110°C**

**(-67°F to 230°F)**

**CONTINUOUS OPERATING TEMPERATURE**

**MARKETS:**
Industrial

**STANDARDS:**

RoHS

---

**Heat shrink cable sleeve**

**DIMENSIONS**

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<th>ORDER NUMBER</th>
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</table>

**ORDERING**

Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- Please specify the product name, order number and options you require
- Example: CFTV, 1700, lined

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Heavy wall heat shrinkable tubing provides maximum reliability for insulating and protecting cable joints and terminations.

FEATURES AND BENEFITS
- Withstands severe mechanical requirements of U.R.D., submersible and direct burial installations
- High impact, abrasion, corrosion and chemical resistance
- Rated for 1000 V, 90°C continuous use
- Optional thermoplastic adhesive liner for complete environmental protection and insulation
- Shrink ratio: 3:1
- Continuous operating temperature: -55°C to 110°C
- Shrink temperature: 120°C min.

STANDARDS
- UL 486D - UL file # E132914
- CSA C22.2 No. 198.2
- ANSI C119.1
- Western Underground Guide Numbers 2.4 and 2.5
- ICEA and NEMA insulation thickness requirements
- DNV Type approval
- DIN EN 60684-3-247

TYPICAL APPLICATIONS
- Strain relief and mechanical protection
- Insulation of primary low voltage cables

3:1 SHRINK RATIO
- -55°C to 110°C
- (-67°F to 230°F)

CONTINUOUS OPERATING TEMPERATURE

MARKETS:
- Industrial Construction
- Automation, Mining, Transit, Utility
- Power Distribution

STANDARDS:
- UL
- CSA
- NFPA
- DNV
- DIN EN 60684-3-247

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- Select options:
  - Color: Black (BK) or red (RD)
  - Printing: Printed or unprinted
  - Adhesive lining: Lined (D) or unlined (U)
  - Lengths: 1 m or 1.22 m or 7.62 m spool on request (unlined only)
- Please specify the product name, order number and options you require
- Example: CFW, 1500, U, black, unprinted, 1.22 m length

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

Heavy wall crosslinked polyolefin

DIMENSIONS

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
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<td>Total Wall Thickness (min) [mm]</td>
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</table>
| 3500 to 6700 are not UL or CSA listed

Not to scale
Medium wall heat shrinkable tubing suitable for a variety of mechanical, electrical and thermal applications

FEATURES AND BENEFITS
- High resistance to impact and abrasion
- Shrink ratio: 3:1
- Continuous operating temperature: -40°C to 135°C
- Shrink temperature: 120°C min.

STANDARDS
- VG 95343 Part 5 Type G
- GMW 17136
- GS 95008-3-3

TYPICAL APPLICATIONS
- Shaping on battery cables
- Bundling

3:1

SHRINK RATIO

-40°C to 135°C

(-40°F to 275°F)

CONTINUOUS OPERATING TEMPERATURE

DIMENSIONS

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ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Black (BK)
- Please specify the product name, order number and options you require
- Example: DERAY®-MC 225, 50/16, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Heavy wall heat shrink tubing insulates and protects electrical splices and terminations where maximum flame retardancy and exceptional insulating and sealing characteristics are required.

**FEATURES AND BENEFITS**
- Flame retardant
- High impact and abrasion resistance - capable of withstanding severe mechanical abuse of U.R.D., submersible and direct burial installations
- FCFW tubing will not split or rupture during installation, even when overheated
- Optional thermoplastic adhesive liner provides complete environmental protection and insulation
- Rated for 2 kV, 90°C continuous use
- Shrink ratio: 3:1
- Continuous operating temperature: -55°C to 110°C
- Shrink temperature: 120°C min.

**STANDARDS**
- UL 486D - UL file # E132914
- UL34 V-0 - UL file # E67396
- CSA C22.2 No. 198.2
- ANSI C119-1
- Western Underground Guides No. 2.4 and 2.5
- IEEE 383 Vertical Flame Test
- ANSI C37.20.2
- ICEA S-19-B and NEMA insulation thickness requirements
- SAE-AMS-DTL-23053/15 Class 1
- DNV Type approval

**TYPICAL APPLICATIONS**
- Insulation of low voltage cables
- Battery cable protection
- Flame retardant system

---

**3:1 SHRINK RATIO**

-55°C to 110°C
(-67°F to 230°F)

**CONTINUOUS OPERATING TEMPERATURE**

**MARKETS:**
Railway, Electrical, Industrial

**STANDARDS:**
Heavy wall flame retardant heat shrinkable tubing suitable for use in a nuclear environment, insulates and protects electrical splices and terminations

FEATURES AND BENEFITS
- Functional after 850 kGy cumulative dose
- High resistance to impact and abrasion, lined with thermoplastic adhesive
- Rated for 600/1000V
- Shrink ratio: 3:1
- Continuous operating temperature: -55°C to 110°C
- Shrink temperature: 120°C min.

STANDARDS
- UL 94 V-0 - UL file # E167396
- IEEE 383
- IEC 60684-3-247
- NF M 64-001
- IEC 60068
- LOCA/POSTLOCA in accordance with RCC-E 2007 NF M64-001

TYPICAL APPLICATIONS
- Continuous use in a nuclear environment, strain relief, sealing, insulative protection on LV cable
- The sleeves according NF-M 64-001, are qualified for use in zones K1, K2 and K3

3:1 SHRINK RATIO

-55°C to 110°C
(-67°F to 230°F)
CONTINUOUS OPERATING TEMPERATURE

MARKETS:
Electrical, Nuclear Power Generation

STANDARDS:

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Colors: Black (BK), red (RD)
  - Adhesive Lining: Lined (L) or unlined (U)
- Please specify the product name, order number and options you require
- Example: FCFW-N 0350, D, black, 200 pieces, 1.22 m lengths

STANDARDS:
- UL 94 V-0 - UL file # E167396
- IEEE 383
- IEC 60684-3-247
- NF M 64-001
- IEC 60068
- LOCA/POSTLOCA in accordance with RCC-E 2007 NF M64-001

*FCFW-N 3500 and FCFW-N 4700 are not UL or CSA listed
**Meets the material performance of MIL spec only

DIMENSIONS

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<thead>
<tr>
<th>ORDER NUMBER</th>
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<td>1.57</td>
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</tbody>
</table>

*FCFW-N 3500 and FCFW-N 4700 are not UL or CSA listed
**Meets the material performance of MIL spec only
With the increasing electric content in vehicles, wire and cable sensors are being exposed to higher temperatures in the engine department, emissions systems, commercial vehicle applications and electric vehicles.

Traditionally temperatures in the engine department have been less than 135°C, but now industrial applications are more frequently requiring temperatures above 150°C. Also areas of application such as renewable energies require products that can be exposed to higher temperature ranges.

Our products provide special materials for these demanding applications. These products, made of materials ranging from elastomers to fluoropolymers, offer increased protection against extreme temperatures and harsh operating environments. The temperature range includes 175°C and 190°C-rated PVDF materials and goes up to 220°C and even 260°C.

**HIGH TEMPERATURE PRODUCTS**

SEALING AND PROTECTING CABLE CONNECTIONS, WIRE HARNESS, ELECTRONIC SYSTEMS AND BUS BARS WITH HEAT SHRINK TUBING

DERAY®-KY 175 – Semi-rigid thin wall Kynar® ................................ 66
DERAY®-KYF 190 – Flexible thin wall Kynar® .............................. 68
DERAY®-PTFE – Modified crosslinked Fluoropolymer .................... 70
DERAY®-PTFE AWG – Modified crosslinked Fluoropolymer .......... 72
DERAY®-V25 / V25 TW – Crosslinked Elastomer ......................... 74
DERAY®-VT 220 – Crosslinked Viton® ...................................... 76
DERAY®-VT 220 TW – Thin wall crosslinked Viton® .................... 78
Clear, thin wall Kynar® heat shrink tubing ideal for electronic, automotive and military applications requiring protection and see through inspection in aggressive environments

FEATURES AND BENEFITS
• Highly flame retardant
• Semi-rigid
• High withstand to abrasion and cut-through
• Excellent chemical and solvent resistance
• Shrink ratio: 2:1
• Continuous operating temperature: -55°C to 175°C
• Shrink temperature: 175°C min.

STANDARDS
• UL file # E107857
• CSA file # 668150_0_000
• SAE-AMS-DTL 20053/8
• DEF STAN 59-97 Type 3, BS G198 Part 4 Type 20
• VG 95543 Part 5 Type F
• PAN 6491
• Vw 60360-3

TYPICAL APPLICATIONS
• Strain relief and insulation of high temperature wires
• Excellently suitable for applications where high chemical and abrasion resistance is required
• All areas where outstanding electrical insulation is required

SHRINK RATIO
2:1

-55°C to 175°C
(-67°F to 347°F)

CONTINUOUS OPERATING TEMPERATURE

MARKETS:
Automotive, Industrial, Aerospace, Defense

STANDARDS:

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
• Select options:
  • Color: Clear (CL)
  • Please specify the product name, order number and options you require
  • Example: DERAY®-KY 175, 0125 or 1/8 in, clear
Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

Kynar® is a registered trademark of ATOFINA
High temperature Kynar® thin wall heat shrink tubing, with extreme chemical resistance ideal for protection of components in a wide range of severe temperature and harsh environments.

**FEATURES AND BENEFITS**
- Highly flame retardant
- Flexible
- High temperature resistance
- Excellent chemical and solvent resistance
- Additionally available in RAL2003 orange color
- Shrink ratio: 2:1
- Continuous operating temperature: -55°C to 190°C
- Shrink temperature: 175°C min.

**STANDARDS**
- SAE-AMS-DTL-23053/18 Class 2
- VW 60360-3

**TYPICAL APPLICATIONS**
- High temperature performance that meets or exceeds military, industrial and automotive standards
- Provides excellent electrical insulation
- High flexible and abrasion resistance requiring applications
- Protective see through covering for high temperature and aggressive chemical applications
- Protecting component for connectors and HV cable-lugs in electric vehicles

**DIMENSIONS**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
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*Size 0591 in black and clear against MoQ

**SHRINK RATIO**
- 2:1
- -55°C to 190°C
- (-67°F to 374°F)

**CONTINUOUS OPERATING TEMPERATURE**
- -55°C to 190°C
- (-67°F to 374°F)

**MARKETS:**
Automotive, Industrial, Defense

**STANDARDS:**
- SAE-AMS-DTL-23053/18 Class 2
- VW 60360-3

**ORDERING**
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- **Select options:**
  - Color: Clear (CL), black (BK) & orange (OE)
  - Please specify the product name, order number and options you require
  - Example: DERAY®-KYF 190, 0125 or 1/8 in, clear

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
DERAY®-PTFE – MODIFIED CROSSLINKED FLUOROPOLYMER

High shrink ratio Teflon® heat shrink tubing specially designed for protecting applications in extreme electrical, chemical and thermal environments

FEATURES AND BENEFITS
- Highly flame retardant
- Semi-rigid
- High shrink ratio
- Chemically inert
- Shrink ratio: 4:1
- Continuous operating temperature: -65°C to 260°C
- Shrink temperature: 340°C min.

STANDARDS
- SAE-AMS-DTL-23053/12 Class 5

TYPICAL APPLICATIONS
- Extremely suitable for insulating and protecting objects from thermal load and chemical influence
- PTFE’s excellent dielectric properties make this an ideal material for covering, protecting, and insulating wire harnesses and other bundled electrical cables
- Areas where an extreme low coefficient of friction is required
- Used to cover hydraulic hose and couplings to prevent contamination and corrosion

4:1 SHRINK RATIO

-65°C to 260°C
(-85°F to 500°F)

CONTINUOUS OPERATING TEMPERATURE

MARKETS:
Automotive, Industrial, Aerospace, Defense

STANDARDS:

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Color: Clear (CL), black (BK) against MOQ
- Please specify the product name, order number and options you require
  - Example: DERAY®-PTFE 4:1, 0250 or 6.35/1.6, clear

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

Teflon® is a registered trademark of du Pont de Nemours and Co. Inc.
**DERAY®-PTFE AWG – MODIFIED CROSSLINKED FLUOROPOLYMER**

**High shrink ratio Teflon® heat shrink tubing** specially designed for protecting applications in extreme electrical, chemical and thermal environments

**FEATURES AND BENEFITS**
- Highly flame retardant
- Semi-rigid
- High shrink ratio
- Chemically inert
- Shrink ratio: 2:1 (AWG sizes)
- Continuous operating temperature: -65°C to 260°C
- Shrink temperature: 340°C min.

**TYPICAL APPLICATIONS**
- Extremely suitable for insulating and protecting objects from thermal load and chemical influence
- PTFE’s excellent dielectric properties make this an ideal material for covering, protecting, and insulating wire harnesses and other bundled electrical cables
- Areas where an extreme low coefficient of friction is required
- Used to cover hydraulic hose and couplings to prevent contamination and corrosion

**DIMENSIONS**

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<thead>
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<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
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**ORDERING**
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Clear [CL] black [BK] against MOQ
  - Please specify the product name, order number and options you require
  - Example DERAY®-PTFE AWG 2:1, AWG 30, clear

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

---

[Teflon®](https://www.dupont.com/) is a registered trademark of [DuPont de Nemours and Co.](https://www.dupont.com/).
Flexible, thin wall, diesel resistant, elastomeric heat shrink tubing, especially suited for mechanical, thermal and chemical protection of sensitive components

FEATURES AND BENEFITS
- Shrink ratio: 2:1
- Flame retardant
- Flexible
- High abrasion and cut resistance
- Resistant to diesel, hydraulic fluids and chemicals
- Continuous operating temperature: -75°C to 150°C
- Shrink temperature: 150°C min.

STANDARDS
- DEF STAN 59-97 Type 6b, BS G198 Part 3 Type 10A
- SAE-AMS-DTL-23053/16
- VG 92343 Part 5 Type D
- PAN 6480K

TYPICAL APPLICATIONS
- Developed for rugged demands with view to high fuel, chemical and insulation requirements
- Suitable to use in rough environments where an optimum high-temperature fluid resistance, and long term heat resistance is required
- Military, aerospace and automotive cables and harnessing
- Insulation of windmill generator bus bars

2:1
SHRINK RATIO
-75°C to 150°C
(-103°F to 302°F)

CONTINUOUS OPERATING TEMPERATURE

MARKETS:
Automotive, Industrial, Aerospace
Defense, Transit, Utility
Renewables/Wind

STANDARDS:
- AMS
- MIL
- DAE STAN 59/97
- VG
- PAN

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Black (BK)
  - Please specify the product name, order number and options you require
  - Example: DERAY®-V 25, 0750 or 3/4 in, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Fluoroelastomer heat shrink tubing suitable for use in electronic systems and components in military, aerospace, automotive, and industrial applications requiring outstanding heat and fluid resistance.

FEATURES AND BENEFITS
- Flame retardant
- Flexible
- Highly abrasion resistant
- High withstand to corrosive fluids in extreme temperatures up to 220°C
- Shrink ratio: 2:1
- Continuous operating temperature: -55°C to 220°C
- Shrink temperature: 160°C min.

STANDARDS
- DEF STAN 59-97 Type 4a, BS G198 Part 3 Type 12A
- VG95343 Typ E
- PAN6480L
- GS 95008-3-3

TYPICAL APPLICATIONS
- Bundling and strain relief of wire harnesses in high temperature applications and environments
- Excellently suitable for applications where severe chemical and thermal requirements are crucial
- Highly cut through resistant
- Commonly used for protection of cables against contamination by nearly all commercial hydraulic fluids, minerals and synthetic oils
- Widely used in hydraulic equipment, aerospace and ship building applications

DERAY®-VT 220 – CROSSLINKED VITON®

Crosslinked Viton®

MARKETS:
Defense, Aerospace, Automotive, Industrial, Shipboard, Utility, Renewables / Wind

STANDARDS:
- DEF STAN 59-97
- PAN6480L
- GS 95008-3-3

2:1 SHRINK RATIO
-55°C to 220°C
(-67°F to 428°F)

CONTINUOUS OPERATING TEMPERATURE

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Black (BK)
- Please specify the product name, order number and options you require
  - Example: DERAY®-VT 220, 0375 or 3/8 in, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Thin wall very flexible fluoroelastomer heat shrink tubing suitable for use in electronic systems and components in military, aerospace, automotive and industrial applications requiring outstanding heat and fluid resistance.

**FEATURES AND BENEFITS**
- Flame retardant
- Very flexible
- Highly abrasion resistant
- High withstand to corrosive fluids in extreme temperatures up to 220°C
- Shrink ratio: 2:1
- Continuous operating temperature: -55°C to 220°C
- Shrink temperature: 160°C min.

**STANDARDS**
- AMS-DTL 23053/13

**TYPICAL APPLICATIONS**
- Bundling and strain relief of wire harnesses in high temperature applications and environments
- Excellently suitable for applications where severe chemical and thermal requirements are crucial
- Highly cut through resistant
- Commonly used for protection of cables against contamination by nearly all commercial hydraulic fluids, minerals and synthetic oils
- Widely used in hydraulic equipment, aerospace and ship building applications

**DIMENSIONS**

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<thead>
<tr>
<th>ORDER NUMBER</th>
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<th>RECOVERED</th>
<th>DELIVERY UNITS</th>
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<td>Internal Diameter (max) d</td>
<td>Total Wall Thickness (nom) W</td>
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<td>MM</td>
<td>IN</td>
<td>MM</td>
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<tr>
<td>0125</td>
<td>3.2</td>
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<td>1.6</td>
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<td>0187</td>
<td>4.7</td>
<td>3/16</td>
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<tr>
<td>0250</td>
<td>6.4</td>
<td>1/4</td>
<td>3.2</td>
</tr>
<tr>
<td>0375</td>
<td>9.5</td>
<td>3/8</td>
<td>4.7</td>
</tr>
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<td>0500</td>
<td>12.7</td>
<td>1/2</td>
<td>6.4</td>
</tr>
<tr>
<td>0825*</td>
<td>15.9</td>
<td>5/8</td>
<td>7.9</td>
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<tr>
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<td>3/4</td>
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<td>0875*</td>
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<tr>
<td>1500</td>
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<td>19.1</td>
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</tbody>
</table>

*Sizes 5/8 in, 7/8 in, 1 1/4 in are MOQ items

**SHRINK RATIO**
2:1

**-55°C to 220°C**
(-67°F to 392°F)

**CONTINUOUS OPERATING TEMPERATURE**

**MARKETS:**
- Defense
- Aerospace
- Automotive
- Hose & Pipe Protection
- Industrial
- Shipboard
- Utility
- Renewables

**STANDARDS:**
- AMS-DTL 23053/13

**TYPICAL APPLICATIONS**
- Bundling and strain relief of wire harnesses in high temperature applications and environments
- Excellently suitable for applications where severe chemical and thermal requirements are crucial
- Highly cut through resistant
- Commonly used for protection of cables against contamination by nearly all commercial hydraulic fluids, minerals and synthetic oils
- Widely used in hydraulic equipment, aerospace and ship building applications

**ORDERING**
Select a dimension which will shrink snugly over the component to be covered. If recovery is restricted, the resultant wall thickness will be less than specified.
- Select options:
  - Color: Black (BK)
- Please specify the product name, order number and options you require
- Example: DERAY®-VT 220 TW, 0375 or 3/8 in, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

**STANDARDS**
- AMS-DTL 23053/13
IDENTIFICATION SLEEVES

RELIABLE AND PERSISTENT PRODUCTS THAT ENSURE PERMANENT CABLE MARKING

Our identification sleeve portfolio helps to keep track of both new installations and maintenance, thus reducing errors and effort.

In many industries, such as mass transit, aerospace, military or the electronics industry, the clear identification of every single wire is an essential task during installation. Even after years of use, cable and wire identification must remain legible to avoid potentially costly errors during maintenance or repair.

IDENTIFICATION SLEEVES .................................................................. 80-85

DERAY®-ZHF125 – Heat shrink identification sleeve ................................................... 82
DMS NH – Halogen free heat shrink identification sleeve .............................................. 84
Halogen free heat shrink identification sleeve

Zero halogen & low smoke heat shrink identification sleeve. The product complies with the stringent requirements of the European rail norm EN45545-2 and the HL3 R22/R23 classification and even exceeds those. The material is suitable for use in all classes required for the construction of locomotives and rolling stock. It is also suitable for use in underground environments as well as marine, military and aerospace applications.

FEATURES AND BENEFITS
- Low smoke generation - excellent fire safety characteristics
- Emissions of toxic fumes are well below the levels required to meet the relevant standards
- Flexible
- Flame retardant
- Good fluid resistance
- Soft surface finish supports good printability
- Shrink ratio: 2:1
- Continuous operating temperature: -40°C to 125°C
- Shrink temperature: 120°C min.

STANDARDS
- EN45545-2 HL3 R22/R23
- Meets LUL E 1042 A6 & BS 6853 vehicle category 1a
- DIN 5510
- EN 50345
- SAE AS9131 4.6.2
- MIL-STD-202G Method 215

TYPICAL APPLICATIONS
- Cable identification
- Hardware used “XD4” printer from CAB and “RBZ11DR” ribbon from DSG-Canusa

2:1 SHRINK RATIO
-40°C to 125°C
(-40°F to 257°F)

CONTINUOUS OPERATING TEMPERATURE

MARKETS:
Rail, Military, Aerospace, Offshore, Marine, Industrial

STANDARDS:
- EN 50345-2
- Meets UL 1042 A6 & BS 6853 vehicle category 1a
- DIN 5510
- EN 50345
- SAE AS9131 4.6.2
- MIL-STD-202G Method 215

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Yellow (YL), white (WT)
  - Printing: Printed or unprinted
  - Length: Continuous reels
- Please specify the product name, order number and options you require
- Example: DERAY®-ZHF125, 2.4, WT, printed, 100 m spool

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

DIMENSIONS

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
<th>DELIVERY UNITS</th>
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<td>3.2</td>
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<td>6.4</td>
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<td>12.7</td>
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<tr>
<td>38.1</td>
<td>38.1</td>
<td>1 1/2</td>
<td>19.0</td>
</tr>
</tbody>
</table>

*hardware used “XD4” printer from CAB and “RBZ11DR” ribbon from DSG-Canusa
Halogen free flame retardant heat shrink identification sleeve

Zero halogen & low smoke heat shrink identification sleeve. The product complies with the stringent requirements of the European rail norm EN45545-2 and the HL3 R22/R23 classification and even exceeds those. The material is suitable for use in all classes required for the construction of locomotives and rolling stock. It is also suitable for use in underground environments as well as marine, military and aerospace applications.

FEATURES AND BENEFITS

- Low smoke generation - excellent fire safety characteristics
- Emissions of toxic fumes are well below the levels required to meet the relevant standards
- Special packing enables immediate installation on the application
- Flexible
- Flame retardant
- Good fluid resistance
- Soft surface finish supports good printability
- Shrink ratio: 2:1
- Continuous operating temperature: -40°C to 125°C
- Shrink temperature: 120°C min.

STANDARDS

- EN45545-2 HL3 R22/R23
- Meets LUL E 1042 A6 & BS 6853 vehicle category 1a
- DIN 5010
- EN 50343*
- SAE AS81531 4.6.2*
- MIL-STD-202G Method 215*
- EN 50345-2
- ROHS

TYPICAL APPLICATIONS

- Cable identification

“Hardware used “XD4” printer from CAB and “RBZ110R” ribbon from DSG-Canusa”

Halogen free heat shrink identification sleeve

2:1

SHRINK RATIO

-40°C to 125°C

(-40°F to 257°F)

CONTINUOUS OPERATING TEMPERATURE

MARKETS:

- Rail, Military, Aerospace, Offshore,
- Marine, Industrial

STANDARDS:

- EN 45545-2
- HL3 R22/R23
- Meets LUL E 1042 A6 & BS 6853 vehicle category 1a
- DIN 5010
- EN 50343*
- SAE AS81531 4.6.2*
- MIL-STD-202G Method 215*
- EN 50345-2
- ROHS

TYPICAL APPLICATIONS

- Cable identification

ORDERING

Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

Select options:

- Color: Yellow (YL), white (WT)
- Perforation: no perforation (P0), 1 perforation (P1), 2 perforations (P2), 3 perforations (P3)

Please specify the product name, order number and options you require

Example: DMS NH, P1, 4.8, yellow, 1,000 pieces

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
WILDLIFE MITIGATION

PROTECTING SUBSTATIONS AND OVERHEAD LINES FROM UNEXPECTED INTERACTION WITH WILDLIFE

DSG-Canusa brand wildlife mitigation products help to prevent electrical outages by protecting against flash-over or direct contact with bare-metal components.

The wildlife mitigation product range comprises preformed covers, line covers, heat shrinkable tubing and sheets which ensure durable protection of customer assets. The products are easy-to-install solutions for conductors, bushings and insulators, switches and cut-outs, arresters and bus bars and help to prevent wildlife electrocutions and mortality.

WILDLIFE MITIGATION ................................................................. 86-95
Wildlife mitigation covers for substations ........................................... 88
Wildlife mitigation covers for overhead lines .................................... 92
WILDLIFE MITIGATION COVERS FOR SUBSTATIONS

Medium voltage protective covers for insulators, bushings, surge arresters, cut-outs and clamps

The protective covers CCAPU, CFIN, CCONEC, CCOF, CCDE and CMVBP are available in different designs and sizes. They offer an effective encapsulation against accidental phase-to-phase or phase-to-ground fault caused by fauna and flora.

FEATURES AND BENEFITS

- Excellent anti-tracking material characteristic
- Voltage rating up to 36kV
- UV resistant
- Suitable for polymeric / ceramic / hybrid insulators and suspension clamps
- Designed to protect problem span areas
- Cost-effective and variable design on particular application situations
- Easy to install
- Plastic rivets included
- Additional rivets available on request
- Continuous operating Temperature: -40 to 105°C

STANDARDS

- DIN VDE V 0212-490:2014
- VDE-AR-N 4210-11:2011-08
- IEC 60060-1:2010
- EN 60243-1

TYPICAL APPLICATIONS

- Protection of pole mounted substations
- Protection of air insulated substations

≤36 kV

VOLTAGE RATING

UV RESISTANT

EXCELLENT ANTI-TRACKING MATERIAL CHARACTERISTIC

MARKETS:

Electrical Utility, Industrial

STANDARDS:

Covers: CCAPU / CFIN / CCONEC / CCOF / CCDE / CMVBP

ELECTRICAL PROPERTIES

<table>
<thead>
<tr>
<th>TECHNICAL DATA</th>
<th>CURRENT VALUES</th>
<th>TEST METHODS</th>
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<tbody>
<tr>
<td>Dielectric strength</td>
<td>≤36 kV</td>
<td>EN 60243-1</td>
</tr>
<tr>
<td>AC withstand (dry) 1 minute</td>
<td>15 kV / 25 kV, no breakdown or flashover</td>
<td>DIN VDE V 0212-490</td>
</tr>
<tr>
<td>AC withstand (wet) 1 minute</td>
<td>15 kV / 25 kV, no breakdown or flashover</td>
<td>DIN VDE V 0212-490</td>
</tr>
<tr>
<td>AC long term withstand (dry) 4 hours</td>
<td>8.6 kV / 15 kV, no breakdown or flashover</td>
<td>DIN VDE V 0212-490</td>
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CCAPU

DIMENSIONS OF BUSHING COVER

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<th>COVERAGE AREA</th>
<th>DELIVERY UNITS</th>
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<td>Maximum</td>
<td>Set of 3</td>
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<tr>
<td></td>
<td>MM</td>
<td>IN</td>
<td>MM</td>
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<tr>
<td>CCAPU 10</td>
<td>105</td>
<td>4.134</td>
<td>180</td>
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<tr>
<td>CCAPU 12</td>
<td>120</td>
<td>4.724</td>
<td>150</td>
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<tr>
<td>CCAPU 15</td>
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<td>5.566</td>
<td>225</td>
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<tr>
<td>CCAPU GR</td>
<td>140</td>
<td>5.512</td>
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CFIN

DIMENSIONS OF STANDOFF INSULATOR COVER

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<th>SHED DIAMETER</th>
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<td>CFIN 10</td>
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CCONEC

DIMENSIONS OF CONDUCTOR COVER

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<td>CCONEC 9</td>
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<td>CCONEC 14</td>
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<td>CCONEC 17</td>
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WILDLIFE MITIGATION COVERS FOR SUBSTATIONS

**CCOF**

**DIMENSIONS OF CUT-OUT FUSE COVER**

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<td>320 x 150</td>
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<td>CCOF-C</td>
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**CCDE**

**DIMENSIONS OF CONDUCTOR TO DEAD END COVER**

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<th>HEIGHT</th>
<th>DELIVERY UNITS</th>
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</thead>
<tbody>
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<td></td>
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<td>IN</td>
<td>Set of 3</td>
</tr>
<tr>
<td></td>
<td>IN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCDE-1 ex</td>
<td>53 / 61</td>
<td>2.09 / 2.40</td>
<td>135 x 95</td>
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<tr>
<td>CCDE-2 ex</td>
<td>53 / 61</td>
<td>2.09 / 2.40</td>
<td>135 x 95</td>
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**CMVBP**

**DIMENSIONS OF BARE CONDUCTOR COVER**

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<tr>
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<th>CONDUCTOR SIZE</th>
<th>VOLTAGE RATING</th>
<th>DELIVERY UNITS</th>
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<td>IN</td>
<td>KV</td>
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<tr>
<td>CMVBP 18</td>
<td>18</td>
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<tr>
<td>CMVBP 18 M</td>
<td>18</td>
<td>0.709</td>
<td>25 (mastic lined closure)</td>
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<tr>
<td>CMVBP 38</td>
<td>38</td>
<td>0.150</td>
<td>15</td>
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</table>

**ORDERING**

Select options:
- Color: Red-brown (RD-BN)
- Dimensions: Customization to different accessories on request
- Please specify the product name, order number and options you require
- Example: CCONC 14, red-brown, 4 sets of 3 [12 pieces]

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

**Additional Products: CMVBT, CMVIS, CBTM / CBTH**

**CMVBT: ANTITRACKING TAPE**

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<th>WALL THICKNESS</th>
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<tbody>
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<td>CMVBT-2</td>
<td>50.8</td>
<td>2</td>
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<td>CMVBT-4</td>
<td>1016</td>
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**CMVIS: SHRINKABLE INSULATION SHEET**

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<td>CMVIS-660-10</td>
<td>without hotmelt</td>
<td>2</td>
<td>0.079</td>
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<tr>
<td>CMVIS-660-10-D</td>
<td>lined with hotmelt</td>
<td>2</td>
<td>0.079</td>
</tr>
</tbody>
</table>

**CBTM / CBTH: ANTITRACKING HEATSHRINKABLE SLEEVE**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>DIAMETER</th>
<th>WALL THICKNESS</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Expanded</td>
<td>MM</td>
<td>IN</td>
</tr>
<tr>
<td>CBTM</td>
<td>180 - 2286</td>
<td>0.75 - 9</td>
<td>27 - 33</td>
</tr>
<tr>
<td>CBTH</td>
<td>279 - 1676</td>
<td>11 - 65.9</td>
<td>3.9 - 4.2</td>
</tr>
</tbody>
</table>

**ORDERING**

Select options:
- Color: Red-brown (RD-BN)
- Please specify the product name, order number and options you require
- Example: CMVIS-660-10, without hotmelt, 10m

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
WILDLIFE MITIGATION COVERS FOR OVERHEAD LINES

Medium voltage protection covers for insulators, suspension clamps and conductors

The protective covers CTSC, CCTI, CASC and CMVBP are available in different designs and sizes. They offer an effective encapsulation against accidental phase-to-phase or phase-to-ground contact caused by fauna and flora.

FEATURES AND BENEFITS

- Excellent anti-tracking material characteristic
- Voltage rating up to 36kV
- UV resistant
- Suitable for polymeric / ceramic / hybrid insulators and suspension clamps
- Designed to protect problem span areas
- Cost-effective and variable design on particular application situations
- Easy to install
- Plastic rivets included
- Additional rivets available on request
- Continuous operating Temperature: -40°C to 105°C

STANDARDS

- DIN VDE V 0212-490:2014
- VDE-AR-N 4210-11:2011-08
- IEC 60060-1:2010
- EN 60243-1

TYPICAL APPLICATIONS

- Protection of overhead lines
- Protection of pole-down installations

≤36 kV

VOLTAGE RATING

UV RESISTANT

EXEMPLARY ANTI-TRACKING MATERIAL CHARACTERISTIC

MARKETS:

Electrical Utility, Industrial

STANDARDS:

CTSC / CCTI / CASC / CMVBP

ELECTRICAL PROPERTIES

<table>
<thead>
<tr>
<th>TECHNICAL DATA</th>
<th>CURRENT VALUES</th>
<th>TEST METHODS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dielectric strength</td>
<td>≤36 kV</td>
<td>EN 60243-1</td>
</tr>
<tr>
<td>AC withstand (dry) 1 minute</td>
<td>15 kV / 25 kV, no breakdown or flashover</td>
<td>DIN VDE V 0212-490</td>
</tr>
<tr>
<td>AC withstand (wet) 1 minute</td>
<td>15 kV / 25 kV, no breakdown or flashover</td>
<td>DIN VDE V 0212-490</td>
</tr>
<tr>
<td>AC long term withstand (dry) 4 hours</td>
<td>8.8 kV / 15 kV, no breakdown or flashover</td>
<td>DIN VDE V 0212-490</td>
</tr>
</tbody>
</table>

CTSC

DIMENSIONS OF T-SHAPED SUSPENSION CLAMP

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>WIDTH</th>
<th>HEIGHT</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MM</td>
<td>IN</td>
<td>Set of 3</td>
</tr>
<tr>
<td>CTSC 31/116</td>
<td>130</td>
<td>5.118</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3.047</td>
</tr>
<tr>
<td>CTSC 116/180</td>
<td>130</td>
<td>7.480</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5.906</td>
</tr>
</tbody>
</table>

CCTI

DIMENSIONS OF CONDUCTOR TO TENSION INSULATOR

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>WIDTH</th>
<th>HEIGHT</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MM</td>
<td>IN</td>
<td>Set of 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCCI 31/116</td>
<td>240</td>
<td>9.646</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9.843</td>
</tr>
<tr>
<td>CCCI 116/180</td>
<td>280</td>
<td>11.024</td>
<td>330</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12.992</td>
</tr>
</tbody>
</table>

CASC

DIMENSIONS OF ANGLED SUSPENSION CLAMP

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>WIDTH</th>
<th>HEIGHT</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MM</td>
<td>IN</td>
<td>Set of 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CASC 1</td>
<td>350</td>
<td>13.780</td>
<td>160</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6.299</td>
</tr>
<tr>
<td>CASC 2</td>
<td>330</td>
<td>12.992</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3.150</td>
</tr>
</tbody>
</table>
WILDLIFE MITIGATION COVERS FOR OVERHEAD LINES

DSG-CANUSA PRODUCTS

WILDLIFE MITIGATION COVERS FOR OVERHEAD LINES

ORDERING
Select options:
- Color: Red-brown (RD-BN)
- Dimensions: Customization to different accessories on request
- Please specify the product name, order number and options you require
- Example: CTSC 31/116, red-brown, 30 m, 4 sets of 3 (12 pieces)

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

---

CMVB

DIMENSIONS OF BARE CONDUCTOR COVER

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>CONDUCTOR SIZE</th>
<th>VOLTAGE RATING</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mm</td>
<td>M</td>
<td>Ft</td>
</tr>
<tr>
<td>CMVB 18</td>
<td>18</td>
<td>0.709</td>
<td>15</td>
</tr>
<tr>
<td>CMVB 18 M</td>
<td>18</td>
<td>0.709</td>
<td>25 (mastic lined closure)</td>
</tr>
<tr>
<td>CMVB 38</td>
<td>38</td>
<td>0.150</td>
<td>15</td>
</tr>
</tbody>
</table>

---

DIMENSIONS OF BARE CONDUCTOR COVER

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>CONDUCTOR SIZE</th>
<th>VOLTAGE RATING</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mm</td>
<td>M</td>
<td>Ft</td>
</tr>
<tr>
<td>CMVB 18</td>
<td>18</td>
<td>0.709</td>
<td>15</td>
</tr>
<tr>
<td>CMVB 18 M</td>
<td>18</td>
<td>0.709</td>
<td>25 (mastic lined closure)</td>
</tr>
<tr>
<td>CMVB 38</td>
<td>38</td>
<td>0.150</td>
<td>15</td>
</tr>
</tbody>
</table>
ELECTRICAL PRODUCTS

UNIQUE SOLUTIONS FOR LOW AND MEDIUM VOLTAGE APPLICATIONS

Electrical utilities and power distribution systems are critically dependent on reliable equipment to deliver uninterrupted electricity used by industry. Our products are therefore engineered with well-proven polyolefin materials that include a comprehensive line of high-performance cable accessories designed for insulation and connection of low and medium voltage cables, electrical equipment and retrofit applications.

We provide solutions that offer superior performance, reliability, lower installation costs and ease of installation.

ENGINEERED PRODUCTS ......................................... 96-147
CANC – Heatshrinkable anode cap ...................................... 98
CBTH – Heavy wall crosslinked polyolefin bus bar tubing ....... 100
CBTM – Medium wall crosslinked polyolefin bus bar tubing .... 104
CCB – Crosslinked polyolefin cable breakout boots .............. 108
CCBA – Anti-track cable breakout boots ................................ 112
CCB-Con – Conductive cable breakout boots ....................... 114
CCB-N – Heat shrinkable boots for nuclear environment ....... 116
CCROW – Heat shrinkable cable repair sleeve .......... 118
CEC – Crosslinked polyolefin end cap ......................... 120
CNTT – Medium voltage crosslinked polyolefin ................ 122
CRLS – Heat shrinkable cable repair sleeve .................... 124
CRSA – Non-tracking rain sheds ..................................... 126
CSEC – Cold shrink end caps ........................................ 128
CSS-EP – EPDM Cold shrink splice kits ......................... 130
DERAY®-KSF – Medium & heavy wall bus bar tubing ........ 132
Low Voltage Kits – Heat shrinkable cable joints .............. 134
MV Joints – Heat shrinkable power cable joints ............. 138
MV Terminations – Heat shrinkable power cable terminations 140
Signal Kits – Signal cable joints .................................... 142
Titan Z – Indoor cold shrink terminations ................. 144
Titan Z – Outdoor cold shrink terminations ................. 146
The tight fitting, heat-shrinkable anode caps provide stress relief, moisture proofing and electrical insulation at the lead wire point. It is the ideal solution to premature system failure.

FEATURES AND BENEFITS
- Specially designed adhesive to adhere to anode materials and wire installations
- Highly stabilized polyolefin material
- Water tight encapsulation
- Flexible
- Continuous operating temperature: -55°C to 100°C
- Shrink temperature: 120°C min.

TYPICAL APPLICATIONS
- Impressed Current Cathodic Protection (ICCP) for pipeline corrosion protection
- Cathodic protection on ships and boats
- Corrosion protection on all metal works used in water pipes, water storage tanks and water heating systems
- Corrosion protection on large structures like motorway, bridges and dock yards

-55°C to 100°C
(-67°F to 212°F)
CONTINUOUS OPERATING TEMPERATURE

MARKETS:
Industrial, Electrical, Marine

STANDARDS:
-55°C to 100°C
(-67°F to 212°F)
CONTINUOUS OPERATING TEMPERATURE

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Black (BK)
  - Please specify the product name, order number and options you require
  - Example: CANC 82/15, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Heavy wall anti-track heat shrinkable tubing specifically designed for insulating medium voltage bus bars

**FEATURES AND BENEFITS**
- Halogen free and flame retardant
- Reduces bus bar clearance requirements
- Protects against accidental flashover
- Anti-track
- Rated to 96 kV
- Shrink ratio: 3:1
- Continuous operating temperature: -40°C to 125°C
- Shrink temperature: 120°C min.

**STANDARDS**
- ANSI C37.20.2
- ANSI C37.20.3
- UL file # E205844

**TYPICAL APPLICATIONS**
- Insulation of medium voltage bus bars in switchgear equipment, transformers and generators

**MARKETS:**
Industrial OEM, Utility, Power Distribution

**STANDARDS:**

---

**Heavy wall crosslinked polyolefin bus bar tubing**

**DIMENSIONS**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internal Diameter (min) D</td>
<td>Internal Diameter (max) d</td>
<td>Total Wall Thickness (nom) W</td>
</tr>
<tr>
<td></td>
<td>MM</td>
<td>IN</td>
<td>MM</td>
</tr>
<tr>
<td>1100</td>
<td>279</td>
<td>10.9</td>
<td>8.9</td>
</tr>
<tr>
<td>2000</td>
<td>50.8</td>
<td>2.000</td>
<td>14.0</td>
</tr>
<tr>
<td>2700</td>
<td>68.0</td>
<td>2.677</td>
<td>22.1</td>
</tr>
<tr>
<td>3500</td>
<td>89.9</td>
<td>3.539</td>
<td>29.9</td>
</tr>
<tr>
<td>4700</td>
<td>119.9</td>
<td>4.720</td>
<td>39.9</td>
</tr>
<tr>
<td>6600</td>
<td>187.6</td>
<td>6.598</td>
<td>65.0</td>
</tr>
</tbody>
</table>

**APPLICATION RANGES**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>RECTANGULAR BUS BARS</th>
<th>ROUND BUS BARS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum D x Maximum d</td>
<td>Minimum D x Maximum d</td>
</tr>
<tr>
<td></td>
<td>MM</td>
<td>IN</td>
</tr>
<tr>
<td>1100</td>
<td>9.5 x 6.4</td>
<td>0.374 x 0.252</td>
</tr>
<tr>
<td>2000</td>
<td>25.4 x 6.4</td>
<td>1.000 x 0.252</td>
</tr>
<tr>
<td>2700</td>
<td>34.9 x 6.4</td>
<td>1.374 x 0.252</td>
</tr>
<tr>
<td>3500</td>
<td>50.8 x 6.4</td>
<td>2.000 x 0.252</td>
</tr>
<tr>
<td>4700</td>
<td>69.8 x 6.4</td>
<td>2.748 x 0.252</td>
</tr>
<tr>
<td>6600</td>
<td>107.9 x 6.4</td>
<td>4.248 x 0.252</td>
</tr>
</tbody>
</table>

Application ranges noted above selected to obtain minimum insulation thickness required to meet ANSI C37.20.2 withstands requirements at bus bar spacing noted below. These spacings were determined from a limited number of test configurations.

Due to the wide variety of bus bar configurations, these spacings should not be employed without actual testing by the user.
ORDERING

Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- Select options:
  - Color: Red-brown (RD-BN)
  - Please specify the product name, order number and options you require
  - Example: CBTH, 2700, 68.0/22.1, red-brown

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

CLEARANCES WITH INSULATION

<table>
<thead>
<tr>
<th>SYSTEM VOLTAGE</th>
<th>5 kV</th>
<th>25 kV</th>
<th>36 kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIL KV</td>
<td>95.0</td>
<td>125.0</td>
<td>150.0</td>
</tr>
<tr>
<td>P to P (MM)</td>
<td>55.0</td>
<td>71.0</td>
<td>142.0</td>
</tr>
<tr>
<td>P to G (IN)</td>
<td>2.165</td>
<td>2.795</td>
<td>5.591</td>
</tr>
<tr>
<td>P to P (IN)</td>
<td>66.0</td>
<td>101.0</td>
<td>190.0</td>
</tr>
<tr>
<td>P to G (IN)</td>
<td>2.598</td>
<td>3.976</td>
<td>7.480</td>
</tr>
</tbody>
</table>

P to P: Phase to Phase orientation
P to G: Phase to Ground orientation
Spacing based on metal to metal dimension prior to insulation. Spacing based on insulation wall thickness per application range of above table.

CBTH – HEAVY WALL CROSSLINKED POLYOLEFIN BUS BAR TUBING

Expanded as supplied

Fully recovered after heating

NOT TO SCALE

CBTH products are available in custom lengths and colors. Please contact your Customer Service Representative for more information.
Medium wall anti-track heat shrinkable tubing specially designed for insulating medium voltage bus bars

FEATURES AND BENEFITS
- Halogen free
- Reduces bus bar clearance requirements
- Protects against accidental flashover
- Anti-track
- CBTM medium wall tubing rated to 25 kV
- Shrink ratio: 3:1
- Continuous operating temperature: -40°C to 125°C
- Shrink temperature: 120°C min.

STANDARDS
- ANSI C37.20.2
- ANSI C37.20.3
- UL file # E205844

TYPICAL APPLICATIONS
- Insulation of medium voltage bus bars in switchgear equipment, transformers and generators

STANDARDS:

Medium wall crosslinked polyolefin bus bar tubing

3:1 SHRINK RATIO

-40°C to 125°C (-40°F to 257°F)

CONTINUOUS OPERATING TEMPERATURE

MARKETS:
- Industrial, Industrial OEM, Utility, Power Distribution

STANDARDS:

DIMENSIONS

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internal Diameter (min) D</td>
<td>Internal Diameter (max) d</td>
<td>Total Wall Thickness (nom) W</td>
</tr>
<tr>
<td></td>
<td>MM</td>
<td>IN</td>
<td>MM</td>
</tr>
<tr>
<td>0750</td>
<td>150</td>
<td>0.748</td>
<td>5.5</td>
</tr>
<tr>
<td>1300</td>
<td>330</td>
<td>1.299</td>
<td>10.1</td>
</tr>
<tr>
<td>2050</td>
<td>520</td>
<td>2.047</td>
<td>19.0</td>
</tr>
<tr>
<td>2750</td>
<td>69.8</td>
<td>2.748</td>
<td>25.4</td>
</tr>
<tr>
<td>3500</td>
<td>88.9</td>
<td>3.500</td>
<td>29.9</td>
</tr>
<tr>
<td>4700</td>
<td>115.3</td>
<td>4.697</td>
<td>43.9</td>
</tr>
<tr>
<td>6700</td>
<td>100.1</td>
<td>4.697</td>
<td>58.4</td>
</tr>
</tbody>
</table>

APPLICATION RANGES

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>RECTANGULAR BUS BARS</th>
<th>ROUND BUS BARS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
<td>Maximum</td>
</tr>
<tr>
<td></td>
<td>MM</td>
<td>IN</td>
</tr>
<tr>
<td>0750 and 19/16</td>
<td>6.4 x 6.4</td>
<td>0.252 x 0.252</td>
</tr>
<tr>
<td>1300 and 33/10</td>
<td>12.7 x 6.4</td>
<td>0.500 x 0.252</td>
</tr>
<tr>
<td>2050 and 52/19</td>
<td>31.5 x 6.4</td>
<td>1.240 x 0.252</td>
</tr>
<tr>
<td>2750</td>
<td>44.4 x 6.4</td>
<td>1.748 x 0.252</td>
</tr>
<tr>
<td>3500</td>
<td>63.9 x 6.4</td>
<td>2.520 x 0.252</td>
</tr>
<tr>
<td>100/40</td>
<td>103.6 x 6.4</td>
<td>4.079 x 0.252</td>
</tr>
<tr>
<td>4700</td>
<td>73.0 x 6.4</td>
<td>2.874 x 0.252</td>
</tr>
<tr>
<td>6700</td>
<td>114.3 x 6.4</td>
<td>4.500 x 0.252</td>
</tr>
</tbody>
</table>

Application ranges noted above selected to obtain minimum insulation thickness required to meet ANSI C37.20.2 withstands requirements at bus bar spacing noted below. These spacings were determined from a limited number of test configurations. Due to the wide variety of bus bar configurations, these spacings should not be employed without actual testing by the user.
CBTM – MEDIUM WALL CROSSLINKED POLYOLEFIN BUS BAR TUBING

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- Select options:
  - Color: Red-brown (RD-BN)
  - Please specify the product name, order number and options you require
  - Example: CBTM, 2050, red-brown, or CBTM, 76/30, red-brown

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

CLEARANCES WITH INSULATION

<table>
<thead>
<tr>
<th>SYSTEM VOLTAGE</th>
<th>BVL KV</th>
<th>CBTM MEDIUM WALL TUBING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>P to P</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MM</td>
</tr>
<tr>
<td>5 kV</td>
<td>95.0</td>
<td>86.0</td>
</tr>
<tr>
<td>25 kV</td>
<td>125.0</td>
<td>114.0</td>
</tr>
<tr>
<td>36 kV</td>
<td>150.0</td>
<td>165.0</td>
</tr>
</tbody>
</table>

P to P: Phase to Phase orientation
P to G: Phase to Ground orientation
Spacing based on metal to metal dimension prior to insulation. Spacing based on insulation wall thickness per application range of above table.

P to P: Phase to Phase orientation
P to G: Phase to Ground orientation
Spacing based on metal to metal dimension prior to insulation. Spacing based on insulation wall thickness per application range of above table.

Expanded as supplied

Fully recovered after heating

Not to scale
Heat shrink boots seal and protect multi-conductor cable and conduit breakouts.

**FEATURES AND BENEFITS**
- Boots for 2, 3, 4, 5 and 6 way cable breakouts
- Strain relief and mechanical protection
- Resistant to fluids and solvents
- Thermoplastic adhesive liner provides complete environmental protection and insulation
- Anti-track medium voltage breakouts and semi-conductive breakouts available on request
- Shrink ratio: 3:1
- Continuous operating temperature: -40°C to 100°C
- Shrink temperature: 125°C min.

**STANDARDS**
- IEC 62677
- ESI 09-11

**TYPICAL APPLICATIONS**
- Strain relief for multi-core cables
- Moisture sealing and environmental protection
- Sealing and protecting wire connections in electrical vehicles

**MARKETS:**
Renewables, Industrial, Power Distribution, Utility

**STANDARDS:**
- DSG-CANUSA PRODUCTS

### Crosslinked polyolefin cable breakout boots

**CCB2 - TWO CORE BREAKOUTS**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>BREAKOUT MAIN DIAMETER</th>
<th>FINGER DIAMETER</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
<td>Maximum</td>
<td>Minimum</td>
</tr>
<tr>
<td></td>
<td>MM</td>
<td>IN</td>
<td>MM</td>
</tr>
<tr>
<td>CCB2 33/14</td>
<td>33.0</td>
<td>1.299</td>
<td>10.0</td>
</tr>
<tr>
<td>CCB2 50/21</td>
<td>50.0</td>
<td>1.969</td>
<td>22.0</td>
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<tr>
<td>CCB2 70/31</td>
<td>70.0</td>
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<td>35.0</td>
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</tbody>
</table>

**CCB3 - THREE CORE BREAKOUTS**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>BREAKOUT MAIN DIAMETER</th>
<th>FINGER DIAMETER</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
<td>Maximum</td>
<td>Minimum</td>
</tr>
<tr>
<td></td>
<td>MM</td>
<td>IN</td>
<td>MM</td>
</tr>
<tr>
<td>CCB3 38/11</td>
<td>38.0</td>
<td>1.496</td>
<td>14.0</td>
</tr>
<tr>
<td>CCB3 60/24</td>
<td>60.0</td>
<td>2.362</td>
<td>22.0</td>
</tr>
<tr>
<td>CCB3 80/36</td>
<td>80.0</td>
<td>3.150</td>
<td>33.0</td>
</tr>
<tr>
<td>CCB3 110/48</td>
<td>110.0</td>
<td>4.331</td>
<td>47.0</td>
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<tr>
<td>CCB3 125/55</td>
<td>125.0</td>
<td>5.101</td>
<td>57.0</td>
</tr>
</tbody>
</table>

**CCB4 - FOUR CORE BREAKOUTS**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>BREAKOUT MAIN DIAMETER</th>
<th>FINGER DIAMETER</th>
<th>DELIVERY UNITS</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
<td>Maximum</td>
<td>Minimum</td>
</tr>
<tr>
<td></td>
<td>MM</td>
<td>IN</td>
<td>MM</td>
</tr>
<tr>
<td>CCB4 38/15</td>
<td>38.0</td>
<td>1.496</td>
<td>14.0</td>
</tr>
<tr>
<td>CCB4 55/20</td>
<td>55.0</td>
<td>2.165</td>
<td>25.0</td>
</tr>
<tr>
<td>CCB4 72/25</td>
<td>72.0</td>
<td>2.835</td>
<td>22.0</td>
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<tr>
<td>CCB4 100/35</td>
<td>100.0</td>
<td>3.537</td>
<td>33.0</td>
</tr>
<tr>
<td>CCB4 125/45</td>
<td>125.0</td>
<td>4.201</td>
<td>47.0</td>
</tr>
</tbody>
</table>
CCB – CROSSLINKED POLYOLEFIN CABLE BREAKOUT BOOTS

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

• Select options:
  • Finger: 2, 3, 4, 5 or 6
  • Printing: Printed or unprinted
  • Color: Black (BK)
• Please specify the product name, order number and options you require
• Example: CCB3 38/11, black, unprinted, 350 pcs

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

### CCB5 - FIVE CORE BREAKOUTS

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>BREAKOUT MAIN DIAMETER</th>
<th>FINGER DIAMETER</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
<td>Maximum</td>
<td>Minimum</td>
</tr>
<tr>
<td>CCB5 80/26</td>
<td>80.0</td>
<td>3.150</td>
<td>30.0</td>
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<tr>
<td>CCB5 100/34</td>
<td>100.0</td>
<td>3.937</td>
<td>33.0</td>
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</tbody>
</table>

### CCB6 - SIX CORE BREAKOUTS

<table>
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<tr>
<th>ORDER NUMBER</th>
<th>BREAKOUT MAIN DIAMETER</th>
<th>FINGER DIAMETER</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
<td>Maximum</td>
<td>Minimum</td>
</tr>
<tr>
<td>CCB6 85/25</td>
<td>85.0</td>
<td>3.346</td>
<td>35.0</td>
</tr>
</tbody>
</table>

Expanded as supplied

Fully recover after heating

Not to scale
CCBA, anti-track medium voltage breakout boots, seal and protect multi-conductor cable and conduit breakouts.

**FEATURES AND BENEFITS**
- Boots for 3 way cable breakouts
- Strain relief and mechanical protection
- Resistant to common fluids and solvents
- Thermoplastic adhesive liner provides complete environmental protection and insulation
- Shrink ratio: >2:1
- Continuous operating temperature: -40°C to 100°C
- Shrink temperature: 125°C min.

**STANDARDS**
- IEC 62677
- ESI 09-13

**TYPICAL APPLICATIONS**
- Strain relief for multi-core cables
- Moisture sealing and environmental protection

**DIMENSIONS**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
<th>DELIVERY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Breakout Main Diameter [mm]</td>
<td>Finger Diameter [mm]</td>
<td>Breakout Main Diameter [mm]</td>
</tr>
<tr>
<td></td>
<td>MIN.</td>
<td>IN</td>
<td>MIN.</td>
</tr>
<tr>
<td>CCBA 60/24</td>
<td>60.0</td>
<td>2.36</td>
<td>24.0</td>
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<tr>
<td>CCBA 80/36</td>
<td>80.0</td>
<td>3.15</td>
<td>36.0</td>
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<tr>
<td>CCBA 110/48</td>
<td>110.0</td>
<td>4.33</td>
<td>48.0</td>
</tr>
<tr>
<td>CCBA 125/55</td>
<td>125.0</td>
<td>4.92</td>
<td>55.0</td>
</tr>
</tbody>
</table>

**ORDERING**
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Printing: Printed or unprinted
  - Please specify the product name, order number and options you require
- Example: CCBA 60/24, red-brown, unprinted, 2,000 pcs

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

**STANDARDS:**

Rohs
CCB-CON, conductive breakout boots, seal and protect multi-conductor cable and conduit breakouts.

FEATURES AND BENEFITS
- Boots for 3 way cable breakouts
- Strain relief and mechanical protection
- Resistant to common fluids and solvents
- Thermoplastic adhesive liner provides complete environmental protection and insulation
- Shrink ratio: >2:1
- Continuous operating temperature: -40°C to 100°C
- Shrink temperature: 125°C min.

STANDARDS
- IEC 62677
- ESI 09-13

TYPICAL APPLICATIONS
- Strain relief for multi-core cables
- Moisture sealing and environmental protection

>2:1 SHRINK RATIO

-40°C to 100°C
(-40°F to 212°F) CONTINUOUS OPERATING TEMPERATURE

MARKETS:
Industrial, Power Distribution, Utility

STANDARDS:

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Printing: Printed or unprinted
  - Please specify the product name, order number and options you require
- Example: CCB-CON 60/24, black, unprinted, 2,000 pcs

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Heat shrinkable boots, suitable for use in a nuclear environment, insulate and protect electrical splices and termination on multi core cables.

FEATURES AND BENEFITS

- Functional after 850 kGy cumulative dose
- Rated for 600/1000V
- High resistance to impact and abrasion, lined with thermoplastic adhesive
- Boots for 2, 3, 4 and 5 way breakouts
- Shrink ratio: 3:1
- Continuous operating temperature: -40°C to 100°C
- Shrink Temperature: 125°C min.

STANDARDS

- IEEE 383
- IEC 62677-3-101
- NF M 64-001
- IEC 60068
- LOCA/POST LOCA in accordance with RCC-E 2007 NF M64-001

TYPICAL APPLICATIONS

- Continuous use in a nuclear environment for strain relief, sealing, insulable protection on LV cable
- Boots are qualified for use in zones K1, K2 and K3 according to NF M 64-001

STANDARDS:

- IEEE 383
- IEC 62677-3-101
- NF M 64-001
- IEC 60068
- LOCA/POST LOCA in accordance with RCC-E 2007 NF M64-001

3:1 SHRINK RATIO

-40°C to 100°C (-40°F to 212°F) CONTINUOUS OPERATING TEMPERATURE

MARKETS:

Electrical, Nuclear Power Generation

ORDERING

Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- Please specify the product name, order number and options you require
- Example: CCB-N4 55/20, 100 pieces, lined

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Adhesive-lined, heat shrinkable wraparound sleeve with a flexible stainless steel locking channel; used for general re-jacketing and sealing applications, protection of damaged cable or as outer jacket on XLPE copper telecom cable joints from 10 pair to 2000 pair cable

**FEATURES AND BENEFITS**
- Provides water tight seal upon recovery
- Excellent mechanical strength
- Application procedure is quick, simple and clean
- Thermochromatic paint that changes color upon correct shrink temperature available on request
- Sleeve can be cut to suit shorter application requirements
- Stainless steel channel provides permanent closure system
- Reinforced version available for high impact requirements or special direct burial installations
- Easy to install in situ over live cable without cutting the cable or shutting down power
- Shrink ratio: 5:1
- Continuous operating temperature: -35°C to 100°C
- Shrink temperature: 120°C min.

**TYPICAL APPLICATIONS**
- Electrical insulation of in-line splices
- Cable jacket repair
- Re-jacketing cover for power cables

**5:1 SHRINK RATIO**

-35°C to 100°C
(-31°F to 212°F)

**CONTINUOUS OPERATING TEMPERATURE**

**MARKETS:**
Civil Construction Projects, Industrial, Power Distribution, Utility

**STANDARDS:**
- UL

**DIMENSIONS**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internal Diameter (min) D</td>
<td>Internal Diameter (max) d</td>
<td>Total Wall Thickness (nom) W</td>
</tr>
<tr>
<td></td>
<td>MM</td>
<td>IN</td>
<td>MM</td>
</tr>
<tr>
<td>50/10</td>
<td>50.0</td>
<td>1.969</td>
<td>10.0</td>
</tr>
<tr>
<td>75/15</td>
<td>75.0</td>
<td>2.953</td>
<td>15.0</td>
</tr>
<tr>
<td>105/30</td>
<td>105.0</td>
<td>4.134</td>
<td>30.0</td>
</tr>
<tr>
<td>137/34</td>
<td>137.0</td>
<td>5.394</td>
<td>34.0</td>
</tr>
<tr>
<td>162/42</td>
<td>162.0</td>
<td>6.299</td>
<td>42.0</td>
</tr>
<tr>
<td>200/48</td>
<td>200.0</td>
<td>7.874</td>
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</tr>
<tr>
<td>240/65</td>
<td>240.0</td>
<td>9.449</td>
<td>65.0</td>
</tr>
</tbody>
</table>

**ORDERING**
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- Select options:
  - Color: Black (BK)
- Please specify the product name, order number and options you require
- Example: CCRDW, 105/30, black, 1.000 pcs

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Adhesive-lined heat shrinkable end cap which enables easy protection and sealing of cables terminations from environmental effects.

**FEATURES AND BENEFITS**
- UV stabilized
- Good chemical and solvent resistance
- Thermoplastic liner provides complete environmental seal
- Shrink ratio >2:1
- Continuous operating temperature: -40°C to 100°C
- Shrink temperature: 125°C min.

**STANDARDS**
- IEC 62677
- ESI 09-11

**TYPICAL APPLICATIONS**
- Sealing of cables against moisture
- Rated to 1000V for stop ends under load

**DIMENSIONS**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internal Diameter (mm) D</td>
<td>Internal Diameter (max) d</td>
<td>Total Wall Thickness (mm) W</td>
</tr>
<tr>
<td>CEC 10/4</td>
<td>10.0</td>
<td>0.394</td>
<td>4.0</td>
</tr>
<tr>
<td>CEC 15/4.5</td>
<td>15.0</td>
<td>0.591</td>
<td>4.5</td>
</tr>
<tr>
<td>CEC 20/6</td>
<td>20.0</td>
<td>0.787</td>
<td>6.0</td>
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<tr>
<td>CEC 25/9</td>
<td>25.0</td>
<td>0.984</td>
<td>9.0</td>
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<tr>
<td>CEC 36/15</td>
<td>36.0</td>
<td>1.417</td>
<td>15.0</td>
</tr>
<tr>
<td>CEC 63/24</td>
<td>63.0</td>
<td>2.480</td>
<td>24.0</td>
</tr>
<tr>
<td>CEC 80/40</td>
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<td>40.0</td>
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<tr>
<td>CEC 102/60</td>
<td>102.0</td>
<td>4.016</td>
<td>60.0</td>
</tr>
<tr>
<td>CEC 124/60</td>
<td>124.0</td>
<td>4.882</td>
<td>60.0</td>
</tr>
<tr>
<td>CEC 148/57</td>
<td>148.0</td>
<td>5.627</td>
<td>70.0</td>
</tr>
</tbody>
</table>

**SHRINK RATIO**

>2:1

**-40°C to 100°C**

(-40°F to 212°F)

**CONTINUOUS OPERATING TEMPERATURE**

**MARKETS:**
Renewables, Industrial, Power Distribution, Utility

**STANDARDS:**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internal Diameter (mm) D</td>
<td>Internal Diameter (max) d</td>
<td>Total Wall Thickness (mm) W</td>
</tr>
<tr>
<td>CEC 10/4</td>
<td>10.0</td>
<td>0.394</td>
<td>4.0</td>
</tr>
<tr>
<td>CEC 15/4.5</td>
<td>15.0</td>
<td>0.591</td>
<td>4.5</td>
</tr>
<tr>
<td>CEC 20/6</td>
<td>20.0</td>
<td>0.787</td>
<td>6.0</td>
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<tr>
<td>CEC 25/9</td>
<td>25.0</td>
<td>0.984</td>
<td>9.0</td>
</tr>
<tr>
<td>CEC 36/15</td>
<td>36.0</td>
<td>1.417</td>
<td>15.0</td>
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<tr>
<td>CEC 63/24</td>
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<td>CEC 80/40</td>
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<td>CEC 102/60</td>
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<tr>
<td>CEC 124/60</td>
<td>124.0</td>
<td>4.882</td>
<td>60.0</td>
</tr>
<tr>
<td>CEC 148/57</td>
<td>148.0</td>
<td>5.627</td>
<td>70.0</td>
</tr>
</tbody>
</table>

**ORDERING**

Select a dimension which will shrink snuggly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- Select options:
  - Color: Black (BK)
- Please specify the product name, order number and options you require
- Example: CEC 36/15, black, 1,000 pcs

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Medium wall heat shrinkable non-tracking tubing for use in MV joints & terminations up to 36kV

**FEATURES AND BENEFITS**
- Non-tracking
- UV stabilised
- Flame retardant
- Exceptional electrical and weathering properties
- Suitable for outdoor & indoor terminations
- Shrink ratio: 3:1
- Continuous operating temperature: -55°C to 125°C
- Shrink temperature: 120°C min.

**STANDARDS**
- HD 6291 S2
- IEC 60502-4
- IEC 60055-1
- IEEE 48-1996
- Salt fog test IEC 1109

**TYPICAL APPLICATIONS**
- Medium voltage joints and terminations up to 36kV
- Bus bar outdoor application
- Bus bars in harsh environments, e.g. nuclear application

**DIMENSIONS**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internal Diameter (min) D</td>
<td>Internal Diameter (max) d</td>
<td>Total Wall Thickness (nom) W</td>
</tr>
<tr>
<td></td>
<td>MM</td>
<td>IN</td>
<td>MM</td>
</tr>
<tr>
<td>CNTT 33/10</td>
<td>33.0</td>
<td>1.299</td>
<td>10.0</td>
</tr>
<tr>
<td>CNTT 45/15</td>
<td>45.0</td>
<td>1.772</td>
<td>15.0</td>
</tr>
<tr>
<td>CNTT 60/19</td>
<td>60.0</td>
<td>2.362</td>
<td>19.0</td>
</tr>
<tr>
<td>CNTT 80/25</td>
<td>80.0</td>
<td>3.150</td>
<td>25.0</td>
</tr>
</tbody>
</table>

**3:1 SHRINK RATIO**

-55°C to 125°C
(-67°F to 257°F)

**CONTINUOUS OPERATING TEMPERATURE**

**STANDARDS:**
- HD 6291 S2
- IEC 60502-4
- IEC 60055-1
- IEEE 48-1996
- Salt fog test IEC 1109

**ORDERING**
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Red-brown (RD-BN)
- Please specify the product name, order number and options you require
- Example: CNTT 45/15, red-brown, 150m

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

Medium Voltage Crosslinked Polyolefin

**MARKETS:**
Industrial Construction, Automation, Mining, Transit, Utility, Power Distribution
CRLS – HEAT SHRINK CABLE REPAIR SLEEVE

MARKETS:
Construction Projects, Industrial, Power Distribution, Transit, Marine, Utility, Oil & Gas

STANDARDS:

FEATURES AND BENEFITS
• Shut down of system not required for repair
• High shrink ratio covers even irregular shapes
• Better split resistance than competitive products
• Simple RAIL-LESS® installation with clamshell design
• Thermoplastic adhesive liner provides complete environmental protection and insulation
• For insulation or rejacketing purposes rated for 1kV
• Shrink ratio: 3:1
• Continuous operating temperature: -55°C to 110°C
• Shrink temperature: 120°C min.

STANDARDS
• Meets ICEA and NEMA insulation thickness specifications

TYPICAL APPLICATIONS
• Cable jacket repair
• Retrofit protection of connectors
• Low voltage cable splicing
• Conduit repair

3:1 SHRINK RATIO
-55°C to 110°C
(-67°F to 230°F)
CONTINUOUS OPERATING TEMPERATURE

ORDERING
Select a dimension which will shrink snugly over the application to be covered. Allow for minimum of 76 mm (3 in) length overlap beyond each end of the area to be covered.
• Please specify the product name, order number and options you require
• Example: CRLS, 3, 68/24, 203 mm, black, 100 pieces

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

ORDERING
Select a dimension which will shrink snugly over the application to be covered. Allow for minimum of 76 mm (3 in) length overlap beyond each end of the area to be covered.
• Please specify the product name, order number and options you require
• Example: CRLS, 3, 68/24, 203 mm, black, 100 pieces

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

A superior wraparound insulation product that easily installs in repair and splice applications providing excellent insulation and protection for cable jackets.

A superior wraparound insulation product that easily installs in repair and splice applications providing excellent insulation and protection for cable jackets.

Heat shrink cable repair sleeve

DIMENSIONS

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
<th>SINGLE CONDUCTOR SIZE</th>
<th>DELIVERY UNITS</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>Total Wall Thickness [mm]</td>
<td>600/1000V</td>
</tr>
<tr>
<td></td>
<td>EXP</td>
<td>REC</td>
<td>W</td>
<td>AWG/MCM</td>
</tr>
<tr>
<td>1</td>
<td>30</td>
<td>120</td>
<td>0.47</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>46</td>
<td>180</td>
<td>0.65</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>68</td>
<td>270</td>
<td>0.95</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>91</td>
<td>360</td>
<td>1.30</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>126</td>
<td>495</td>
<td>1.65</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>171</td>
<td>675</td>
<td>2.50</td>
<td>2</td>
</tr>
</tbody>
</table>

Not to scale
Rain sheds are used as creepage extenders on medium voltage cable termination and insulators in outdoor applications. The recommended number of sheds to be used varies according to the voltage rating of the cable.

FEATURES AND BENEFITS
- Non-tracking
- UV stabilised
- Flame retardant
- Rubber based red sealant seals the shed to the cable
- Exceptional electrical and weathering properties
- Suitable for outdoor & indoor terminations
- Shrink ratio: 3:1
- Continuous operating temperature: -40°C to 100°C
- Shrink temperature: 125°C min.

STANDARDS
- HD 6291 S2
- IEC 60502-4
- IEC 60055-1

TYPICAL APPLICATIONS
- Creepage extension on medium voltage terminations up to 36kV
- Improved tracking resistance in harsh environments
- Suitable for the complete range of electrical cables with XPLE or PILC insulation

STANDARDS
- Renewables/Wind, Industrial,
  Power Distribution, Utility

SHRINK RATIO
3:1

-40°C to 100°C
(-40°F to 212°F)
CONTINUOUS OPERATING TEMPERATURE

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Red-brown (RD-BN)
- Please specify the product name, order number and options you require
- Example: CRSA 37/16, red-brown

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
CSEC Series cold shrink end caps are designed to provide a reliable, moisture proof method of sealing exposed cable ends without the use of additional tools, tapes or mastics. Made of EPDM rubber, the end caps are pre-expanded over a rip core that are simple and easy to install.

FEATURES AND BENEFITS
- Quick and easy installation
- Accommodates a wide range of electrical cables, pipes and conduits in four different sizes
- Excellent insulation, sealing and abrasion resistance
- No tapes, mastics or heat source required
- Protects cables and pipes from exposure to moisture, contamination and corrosion
- UV, ozone and water resistant
- Easily removable
- Continuous operating temperature: -20°C to 105°C

2:1 SHRINK RATIO

-20°C to 105°C
(-4°F to 221°F)

CONTINUOUS OPERATING TEMPERATURE

MARKETS:
- Industrial, Utility

STANDARDS:

ORDERING
Select a dimension which will shrink snugly over the application to be covered.
- Please specify the product name, order number and options you require
- Example: CSEC-1, black, 20 Stück
Please contact your Customer Service Representative for information on custom sizes, lengths and material data sheet.

Cold shrink end caps

DIMENSIONS

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
<th>DELIVERY</th>
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<tr>
<td></td>
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<td>Application Range Use</td>
<td>Lengths</td>
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<tr>
<td></td>
<td>MM</td>
<td>IN</td>
<td>MM</td>
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<tr>
<td>CSEC-1</td>
<td>20.9</td>
<td>0.82</td>
<td>11.6</td>
</tr>
<tr>
<td>CSEC-2</td>
<td>30.1</td>
<td>1.18</td>
<td>15.9</td>
</tr>
<tr>
<td>CSEC-3</td>
<td>49.2</td>
<td>1.94</td>
<td>26.0</td>
</tr>
<tr>
<td>CSEC-4</td>
<td>84.3</td>
<td>3.32</td>
<td>45.5</td>
</tr>
</tbody>
</table>
CSS-EP Series cold shrink splice kits are designed to provide a reliable, moisture proof method of sealing and protecting in-line cable connections without the use of additional tools, tapes or mastics. Made of EPDM rubber, the cold shrink tubes are pre-expanded over a rip core that are simple and easy to install.

FEATURES AND BENEFITS
- Quick and easy installation
- Accommodates a wide range of electrical cable sizes
- Excellent insulation, sealing and abrasion resistance
- No tapes, mastics or heat source required
- Protects cables and pipes from exposure to moisture, contamination and corrosion
- UV, Ozone and water resistant
- 1000V rating as a primary insulation cover
- Removed easily
- Continuous operating temperature: -20°C to 105°C

STANDARDS
- ANSI C119.1-2011

TYPICAL APPLICATIONS
- Submersible or direct buried cable connections
- In-line connector covers
- Suitable for indoor and outdoor application
- Cable jacket repairs

EPDM Cold shrink splice kits

DIMENSIONS

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>APPLICATION USE RANGE</th>
<th>CONDUCTOR SIZE RANGE</th>
<th>RECOVERED TUBE LENGTH</th>
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<tr>
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<td>(AWG-KCMIL)</td>
<td>Minimum - Maximum</td>
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<tr>
<td>CSS-EP 0750-6</td>
<td>7.8-14.3</td>
<td>#6</td>
<td>152</td>
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<td>CSS-EP 1000-8</td>
<td>9.9-20.9</td>
<td>#2</td>
<td>203</td>
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<tr>
<td>CSS-EP 1300-9</td>
<td>13.9-30.1</td>
<td>2/0</td>
<td>329</td>
</tr>
<tr>
<td>CSS-EP 1300-11</td>
<td>13.9-30.1</td>
<td>2/0</td>
<td>329</td>
</tr>
<tr>
<td>CSS-EP 1500-4’</td>
<td>17.5-35.1</td>
<td>0.69-1.38</td>
<td>152</td>
</tr>
<tr>
<td>CSS-EP 1500-12</td>
<td>17.5-35.1</td>
<td>0.69-1.38</td>
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<tr>
<td>CSS-EP 1500-16</td>
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<td>0.95-1.94</td>
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<tr>
<td>CSS-EP 2000-6’</td>
<td>240-493</td>
<td>0.95-1.94</td>
<td>436</td>
</tr>
<tr>
<td>CSS-EP 2000-12</td>
<td>322-660</td>
<td>1250</td>
<td>229</td>
</tr>
<tr>
<td>CSS-EP 2750-9</td>
<td>322-660</td>
<td>1.27-2.60</td>
<td>381</td>
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<tr>
<td>CSS-EP 2750-12</td>
<td>322-660</td>
<td>1.27-2.60</td>
<td>381</td>
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<td>CSS-EP 2750-15</td>
<td>322-660</td>
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<td>381</td>
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<td>CSS-EP 2750-18</td>
<td>322-660</td>
<td>1.27-2.60</td>
<td>457</td>
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<tr>
<td>CSS-EP 4000-9’</td>
<td>426-937</td>
<td>426-937</td>
<td>457</td>
</tr>
<tr>
<td>CSS-EP 4000-18</td>
<td>426-937</td>
<td>1250</td>
<td>457</td>
</tr>
</tbody>
</table>

Note: Recommended for use in terminal lug sealing
Confirm minimum and maximum cable insulation/jacket and connector dimension are within range.

INSTALLATION NOTE
- Allow a minimum of 50 mm coverage on either side of connector during installation of sleeve
- Tube length dimensions are nominal

ORDERING
Select a dimension which will shrink snugly over the application to be covered
- Please specify the product name, order number and options you require
- Example: CSS-EP 0750-6”

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Medium and heavy wall anti-track heat shrinkable tubing specifically designed for insulating medium voltage bus bars in switchgear equipment rated to 36kV

**FEATURES AND BENEFITS**
- Halogen free
- Reduces bus bar clearance requirements
- Protects against accidental flash-over
- Anti-track
- Shrink ratio: 3:1
- Continuous operating temperature: -40°C to 135°C
- Shrink temperature: 125°C min.

**STANDARDS**
- IEC 60684

**TYPICAL APPLICATIONS**
- Insulation of medium voltage bus bars in switchgear equipment, transformers and generators

**DIMENSIONS**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internal Diameter (min) D</td>
<td>Internal Diameter (max) d</td>
<td>Total Wall Thickness (nom) W</td>
</tr>
<tr>
<td></td>
<td>MM</td>
<td>IN</td>
<td>MM</td>
</tr>
<tr>
<td>19/6</td>
<td>19.0</td>
<td>0.748</td>
<td>6.0</td>
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<tr>
<td>25/10</td>
<td>25.0</td>
<td>0.984</td>
<td>10.0</td>
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<tr>
<td>32/12</td>
<td>32.0</td>
<td>1.260</td>
<td>12.0</td>
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<tr>
<td>38/12</td>
<td>38.0</td>
<td>1.496</td>
<td>12.0</td>
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<tr>
<td>43/19</td>
<td>43.0</td>
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<td>19.0</td>
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<tr>
<td>45/16</td>
<td>45.0</td>
<td>1.772</td>
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<td>52/19</td>
<td>52.0</td>
<td>2.047</td>
<td>19.0</td>
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<td>58/19</td>
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<td>19.0</td>
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<td>68/25</td>
<td>68.0</td>
<td>2.677</td>
<td>25.0</td>
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<tr>
<td>76/32</td>
<td>76.0</td>
<td>2.992</td>
<td>32.0</td>
</tr>
<tr>
<td>100/40</td>
<td>100.0</td>
<td>3.937</td>
<td>40.0</td>
</tr>
</tbody>
</table>

**ORDERING**
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- Select options:
  - Color: Red-brown (RD-BN)
- Please specify the product name, order number and options you require
- Example: DERAY®-KSF, 19/6, red-brown

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
LVJUAC, LVJUAM and LVJUAS are perfectly suitable for joining multi-core, polymeric insulated energy cables in the low voltage range.

- LVJUAM: Range-taking joint sleeve for screw connectors
- LVJUAC: Range-taking joint sleeve for crimp connectors
- LVJUAS: Joint kits for screened polymeric cable
- CJK/CTK: Joint and termination kits for armoured cables

**FEATURES AND BENEFITS**
- Quick, simple installation
- Exceptionally good electrical insulation
- Good mechanical load-bearing ability
- No maintenance time necessary
- Usable immediately

**STANDARDS**
- DIN EN 50393 (VDE 0278-393):2006-11
- DIN V 47640:2008-10
- HD 623

**TYPICAL APPLICATIONS**
- Low voltage joints, transition joints and terminations

**STANDARD CONTENT**
- 1 outer sleeve
- 3, 4 or 5 inner sleeves
- Cleaning cloth
- Abrasive strip
- Installation instructions
- Screen continuity where applicable

On request the sleeves can also be supplied in different lengths and/or diameters.

---

**MARKETS:**
- Industrial Construction/
- Automation, Power Distribution,
- Utility

**1 kV VOLTAGE RATING**

**Heat shrinkable cable joints**

**JOINT KITS FOR PLASTIC-INSULATED 0.6/1KV CABLES**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>CROSS SECTION RANGE</th>
<th>CABLE TYPE E.G.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LVJUAM 4 x 16 - 4 x 16</td>
<td>4 x 16 - 4 x 16</td>
<td>NY, NYX, NXY with round (r) or sectorial (s), solid (s) or stranded (m), aluminum (al) or copper (cu) conductors</td>
</tr>
<tr>
<td>LVJUAM 5 x 16 - 5 x 16</td>
<td>5 x 16 - 5 x 16</td>
<td></td>
</tr>
<tr>
<td>LVJUAM 4 x 6 - 4 x 25</td>
<td>4 x 6 - 4 x 25</td>
<td></td>
</tr>
<tr>
<td>LVJUAM 4 x 25 - 4 x 50</td>
<td>4 x 25 - 4 x 50</td>
<td></td>
</tr>
<tr>
<td>LVJUAM 5 x 25 - 5 x 50</td>
<td>5 x 25 - 5 x 50</td>
<td></td>
</tr>
<tr>
<td>LVJUAM 4 x 35 - 4 x 75</td>
<td>4 x 35 - 4 x 75</td>
<td></td>
</tr>
<tr>
<td>LVJUAM 4 x 75 - 4 x 150</td>
<td>4 x 75 - 4 x 150</td>
<td></td>
</tr>
<tr>
<td>LVJUAM 4 x 85 - 4 x 300</td>
<td>4 x 85 - 4 x 300</td>
<td></td>
</tr>
</tbody>
</table>

**JOINT KITS FOR SCREENED-INSULATED 0.6/1KV CABLES**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>CROSS SECTION RANGE</th>
<th>CABLE TYPE E.G.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LVJUAS 4 x 16 - 4 x 16</td>
<td>4 x 16 - 4 x 16</td>
<td></td>
</tr>
<tr>
<td>LVJUAS 5 x 16 - 5 x 16</td>
<td>5 x 16 - 5 x 16</td>
<td></td>
</tr>
<tr>
<td>LVJUAS 4 x 6 - 4 x 25</td>
<td>4 x 6 - 4 x 25</td>
<td></td>
</tr>
<tr>
<td>LVJUAS 4 x 25 - 4 x 50</td>
<td>4 x 25 - 4 x 50</td>
<td></td>
</tr>
<tr>
<td>LVJUAS 4 x 35 - 4 x 75</td>
<td>4 x 35 - 4 x 75</td>
<td></td>
</tr>
<tr>
<td>LVJUAS 5 x 75 - 4 x 150</td>
<td>4 x 75 - 4 x 150</td>
<td></td>
</tr>
<tr>
<td>LVJUAS 4 x 85 - 4 x 240</td>
<td>4 x 85 - 4 x 240</td>
<td></td>
</tr>
<tr>
<td>LVJUAS 4 x 150 - 4 x 300</td>
<td>4 x 150 - 4 x 300</td>
<td></td>
</tr>
</tbody>
</table>

**HD 623**
Heat shrinkable cable joints

**JOINT KIT FOR ARMoured CABLES**

<table>
<thead>
<tr>
<th>CODE</th>
<th>CROSS SECTION RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJK 4</td>
<td>4 x 15 - 4 mm²</td>
</tr>
<tr>
<td>CJK 16</td>
<td>4 x 6 - 16 mm²</td>
</tr>
<tr>
<td>CJK 50</td>
<td>4 x 25 - 50 mm²</td>
</tr>
<tr>
<td>CJK 95</td>
<td>4 x 70 - 120 mm²</td>
</tr>
<tr>
<td>CJK 240</td>
<td>4 x 150 - 240 mm²</td>
</tr>
</tbody>
</table>

**TERMINATION KIT FOR ARMoured CABLES**

<table>
<thead>
<tr>
<th>CODE</th>
<th>CROSS SECTION RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTK 16</td>
<td>4 x 6 - 16 mm²</td>
</tr>
<tr>
<td>CTK 50</td>
<td>4 x 25 - 50 mm²</td>
</tr>
<tr>
<td>CTK 95</td>
<td>4 x 70 - 120 mm²</td>
</tr>
<tr>
<td>CTK 240</td>
<td>4 x 150 - 240 mm²</td>
</tr>
</tbody>
</table>

**ORDERING**

Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- Select options:
  - Color: Black (BK)
  - Please specify the product name, order number and options you require
  - Example: LVJAM 4 x 6 - 4 x 25

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Heat shrinkable power cable joints kits consist of selected quality products to ensure the best possible protection.

The medium voltage joints consist of high voltage insulation tubing, stress control to smooth on the electrical field over the connector and screen cuts, a conductive heat shrink sleeve to ensure a flawless bond between insulation and screen, copper mesh to ensure continuity of the shield, and an outer sealing jacket consisting of a heavy wall heat shrinkable sleeve, internally coated with adhesive resulting in a moisture and corrosion proof barrier on the cable oversheath.

FEATURES AND BENEFITS
- Rebuild each layer of the cable at the connector and screen cutback
- Electrical stress control
- Insulation layer
- Semi-conductive layer
- Shielding and grounding
- Environmental sealing
- Mechanical protection

STANDARDS
- HD 62915-2
- IEC 60502-4
- IEC 60055-1

TYPICAL APPLICATIONS
- Single core or three-core medium voltage heat shrinkable joints for XLPE, PE, PVC, PILC power cable rated up to 24kV

≤24 kV

VOLTAGE RATING

UNSURPASSED RELIABILITY AND PERFORMANCE IN POLLUTED ENVIRONMENTS

MARKETS:
Industrial Construction/Automation, Power Distribution

STANDARDS:

ORDERING

Please contact your Customer Service Representative for information on available solutions selected by voltage class, crosssection, application, cable type and required hardware.
Medium voltage terminations make use of heat shrink technology to provide a solution for both indoor and outdoor applications. Suitable for both single and three core cable they combine different grades of heat shrink tubing and mastics to completely restore the integrity of the cable after the cable has been terminated. The control of the electrical field being essential for the safe operation of medium voltage devices.

FEATURES & BENEFITS
- Suitable for 1 and 3 core cable
- Range includes kits for XLPE, PE, PVC and PILC cables for a wide range of conductor cross sections
- Kits are available for both armoured and unarmoured cable
- Indoor & outdoor applications
- Excellent stress control properties
- Excellent moisture sealing
- Exceptional insulation characteristics
- Very high tracking resistance; good long term weather performance
- Easy to install, even at low temperatures
- Simple cable preparation - no sanding, no grease

STANDARDS
- HD 6291 S2
- IEC 60502-4
- IEC 60055-1

TYPICAL APPLICATION
- Single core and three-core medium voltage heat shrinkable terminations for XLPE, PE, PVC, PILC power cable rated up to 24kV
CSK-B signal kits are particularly suitable for connecting screened signal cables in industry, rail, and mass transit.

Three kits cover the complete size range thus reducing inventory but is customizable for specific projects.

**FEATURES AND BENEFITS**
- Quick and easy installation
- Exceptionally good electrical insulation
- Good mechanical load-bearing ability
- No maintenance time necessary
- Usable immediately
- Include components for continuing electrical earth and shield
- Various connection options
  - Crimpseal II - crimp connector
  - Dual wall heat shrink tubing with crimp connector

**STANDARDS**
- SNCF Standard

**STANDARD CONTENT**
- CFW - high shrink ratio tubing with high performance adhesive provides excellent mechanical and environmental protection
- Brads - tinned copper non-corroding for continuation of screen
- Roll spring - gives good mechanical and electrical contact with no insulation damage
- CSAT - mastic tape designed to perform even during flexing and vibration
- DERAY®-I 3000 - heat shrink tubing to replace inner insulation layer
- DERAY®-IAKT - to continue waterproof seal

**1 kV VOLTAGE RATING**

**MARKETS:**
Industrial, Mass transit, Rail

**STANDARDS:**

**ORDERING**
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Black (BK)
- Please specify the product name, order number and options you require
- Example: CSKB-2

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Cold shrink indoor cable terminations for single or three core, 11kV, 24kV and 35kV XLPE and EPR copper wire screened power cables

FEATURES AND BENEFITS
- All-in-one integrated body incorporating stress control and sealant mastics
- Cold shrink boot to seal crutch for three core cables
- Cold shrink tubes to seal and protect cores – can be cut to suit cable box
- Patent pending stress control system based on microvaristor (ZnO) technology that delivers exceptional discharge and impulse performance
- Quick and easy installation. Offering fewest number of steps to install
- Improved spiral rip core assembly uses smooth edges for simpler installation with less effort. Heat tacked spiral core prevents unravelling during shipping and handling
- Excellent UV Resistance and hydrophobic characteristics
- Silicone rubber provides excellent track and erosion resistance

STANDARDS
- Tested to latest requirements of IEEE-48-2009, Class 1 standards
- Tested at an independent accredited laboratory to ISO/IEC 17025 standards

TYPICAL APPLICATIONS
- Suitable for indoor use
- Suitable for mechanical or compression lugs

≤105°C CONTINUOUS OPERATING TEMPERATURE
EXCELLENT TRACK AND EROSION RESISTANCE
QUICK AND EASY INSTALLATION

MARKETS:
Power Supply, Industrial, Rail

STANDARDS:

ORDERING
Check kit selection to ensure that you are installing the proper kit on the cable(s) to be terminated. If using the termination on the smallest or largest conductor size compare the cable dimensions to those of the kit. For three core cables add the appropriate MOD kit in the table above.

Standard single core indoor kit contains 3 cold shrink bodies and mastic seals. MOD kit for 3 core cables contains cold shrink boot and phase tube and mastic seals. Earthing kits for other cable types and lugs available on request, please enquire if required.

- Select options:
  - Voltage rating: 11kV, 24kV, 35kV
  - Please specify the product name, order number and options you require
  - Example: Titan Z 151 CWSI + MODB1, 11kV

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Cold shrink outdoor cable terminations for single or three core, 11kV, 24kV and 35kV XLPE and EPR copper wire screened power cables

**FEATURES AND BENEFITS**
- All-in-one integrated body incorporating stress control and sealant mastics
- Coldshrink boot to seal crutch for three core cables
- Coldshrink tubes to seal and protect cores – can be cut to suit cable box or pole top bracket
- Patent pending stress control system based on microvaristor (ZnO) technology that delivers exceptional discharge and impulse performance
- Quick and easy installation. Offering fewest number of steps to install
- Improved spiral rip core assembly uses smooth edges for simpler installation with less effort. Heat tacked spiral core prevents unravelling during shipping and handling
- Silicone rubber provides excellent track and erosion resistance
- Excellent UV Resistance and hydrophobic characteristics

**STANDARDS**
- Tested to latest requirements of IEEE-48-2009, Class 1 standards
- Tested at an independent accredited laboratory to ISO/IEC 17025 standards

**TYPICAL APPLICATIONS**
- Suitable for outdoor use
- Suitable for mechanical or compression lugs

**MARKETS:**
- Power Supply, Industrial, Rail

**STANDARDS:**
- ≤105°C CONTINUOUS OPERATING TEMPERATURE
- EXCELLENT TRACK AND EROSION RESISTANCE
- QUICK AND EASY INSTALLATION

**ORDERING**
Check kit selection to ensure that you are installing the proper kit on the cable(s) to be terminated. If using the termination on the smallest or largest conductor size compare the cable dimensions to those of the kit. For three core cables add the appropriate MOD kit in the table above.

Standard single core outdoor kit contains 3 coldshrink bodies and mastic seals. MOD kit for 3 core cables contains coldshrink boot and phase tube and mastic seals. Earthing kits for other cable types and lugs available on request, please enquire if required.

- **Select options:**
  - Voltage rating: 11 kV, 24 kV, 35 kV
  - Please specify the product name, order number and options you require
  - Example: Titan Z 151 CW50 + MODB1, 11 kV

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

---

**DIMENSIONS**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>CONDUCTOR SIZE RANGE</th>
<th>INSULATION</th>
<th>JACKET AND LUG BARREL</th>
<th>DELIVERY UNITS</th>
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<tbody>
<tr>
<td></td>
<td>Minimum</td>
<td>Maximum</td>
<td>Diameter</td>
<td>Diameter (max)</td>
</tr>
<tr>
<td>OUTDOOR + 3C MOD KIT</td>
<td>MPH</td>
<td>MPH</td>
<td>MPH</td>
<td>MPH</td>
</tr>
<tr>
<td>Titan Z 151 CW50 + MODB1</td>
<td>35</td>
<td>95</td>
<td>14.5-23</td>
<td>28</td>
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<tr>
<td>Titan Z 152 CW50 + MODB2</td>
<td>70</td>
<td>240</td>
<td>18.32</td>
<td>38</td>
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<tr>
<td>Titan Z 153 CW50 + MODB3</td>
<td>120</td>
<td>400</td>
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<tr>
<td>Titan Z 154 CW50 + MODB3</td>
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<td>500</td>
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<td>50</td>
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<tr>
<td>Titan Z 155 CW50 + MODB4</td>
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<td>1000</td>
<td>34-55.5</td>
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</tr>
<tr>
<td>24 kV</td>
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<tr>
<td>Titan Z 252 CW50 + MODB1</td>
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<tr>
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</table>
MARKET SPECIFIC PRODUCTS

PROVIDING SPECIALTY PRODUCT SOLUTIONS TO OUR KEY MARKETS.

We commit to being a full service and product supplier with our market specific product portfolio.

Among others, our market specific products include braided sleeves for hose & pipe protection in the automotive market, a halogen free heat shrink tubing with outstanding low smoke features for rolling stock, a semi-conductive tube for the electrostatic discharge of fuel lines and non-shrinkable caps for electrical insulation of end splices.

MARKET SPECIFIC PRODUCTS ................................... 148-169

CanuFlex PBT VO – Flame retardant braided sleeve ..................... 150
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DERAY®-Crimpseal II – Heat shrink insulated connectors ............. 156
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DERAY®-IB CON – Semiconducting adhesive lined shrink tube .......... 162
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Flame retardant polyester PBT braided sleeve for protecting, strengthening or bundling of cables, wires, pipes and hoses such as electrical harnesses, fluid pipes, air conditioning pipes, flexible technical hoses

FEATURES AND BENEFITS
- Flame retardant PBT monofilaments
- Particularly chemical and abrasion resistant
- Easy installation due to push-back effect and high flexibility
- Fits well to the application shape
- No emergence of condensation water
- Continuous operating temperature: -50°C to 150°C

TYPICAL APPLICATIONS
- Cable bundling and protection
- Noise reduction
- Protection against abrasion

-50°C to 150°C
(-58°F to 302°F)
CONTINUOUS OPERATING TEMPERATURE

FLAME RETARDANT
PARTICULARLY CHEMICAL AND ABRASION RESISTANT

MARKETS:
Automotive, Industrial

STANDARDS:

DIMENSIONS

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>NOMINAL INTERNAL DIAMETER</th>
<th>EXPANDED INTERNAL DIAMETER</th>
<th>DELIVERY UNITS</th>
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<td></td>
<td>MM</td>
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<tr>
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<td>9.2</td>
<td>0.362</td>
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<td>12.5</td>
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<td>29.0</td>
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<td>25</td>
<td>13.3</td>
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<td>64.0</td>
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<tr>
<td>50</td>
<td>32.0</td>
<td>1.260</td>
<td>75.0</td>
</tr>
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</table>

ORDERING
- Select options:
  - Color: Black (BK) with grey tracer yarn
- Please specify the product name, order number and options you require
- Example: Canuflex PBT V0, 08, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Multipurpose economic braided sleeve from polyester monofilaments for protection or bundling of cable, wires, pipes and hoses such as electrical harnesses, fluid pipes, air conditioning pipes

FEATURES AND BENEFITS
- Very flexible
- Highly expandable
- Lightweight but tough polyester monofilaments
- Push-back effect enables an easy application
- Resistant against chemicals and abrasion
- Self-extinguishing due to braided construction
- Continuous operating temperature: -40°C to 150°C

STANDARDS
- Automotive OEM specifications

TYPICAL APPLICATIONS
- Cable bundling and protection
- Noise reduction
- Protection against abrasion

-40°C to 150°C
(-40°F to 302°F)

CONTINUOUS OPERATING TEMPERATURE

HIGHLY EXPANDABLE

SELF-EXTINGUISHING DUE TO BRAIDED CONSTRUCTION

MARKETS:
Automotive, Industrial

STANDARDS:

DIMENSIONS

<table>
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<tr>
<th>ORDER NUMBER</th>
<th>NOMINAL INTERNAL DIAMETER</th>
<th>NOMINAL EXPANDED INTERNAL DIAMETER</th>
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<tr>
<td>50</td>
<td>32.0</td>
<td>1.260</td>
<td>75.0</td>
</tr>
</tbody>
</table>

ORDERING
- Select options:
  - Color: Black (BK), orange (OE), grey (GY)
  - Please specify the product name, order number and options you require
  - Example: Canuflex PE-HB, 08, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Self-closing wraparound protective sleeve for wires, cables, pipes, hoses and foam insulation to avoid mechanical degradation arising from exposure to tough conditions.

**FEATURES AND BENEFITS**
- Easy and quick installation
- Retrofit
- Self-closing due to spring-back effect
- Excellent abrasion resistance
- Noise absorbing
- Continuous operating temperature: -50°C to 150°C

**STANDARDS**
- Automotive OEM specifications

**TYPICAL APPLICATIONS**
- Cable bundling and protection
- Noise reduction
- Protection against abrasion

**MARKETS:**
Automotive, Industrial

**STANDARDS:**

---

**CONTINUOUS OPERATING TEMPERATURE**
-50°C to 150°C
(-58°F to 302°F)

**EASY AND QUICK INSTALLATION**
Self-closing due to spring-back effect

**DIMENSIONS**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>NOMINAL INTERNAL DIAMETER</th>
<th>DELIVERY UNITS</th>
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<tr>
<td></td>
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<td>IN</td>
</tr>
<tr>
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</tbody>
</table>

* against MOQ

**ORDERING**
- Select options:
  - Color: Black (BK)
  - Non-standard color: Orange (OR)
- Please specify the product name, order number and options you require
- Example: CanuRound PET, 09, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
CRYSTAL CLEAR, SEMI-RIGID, ADHESIVE LINED TUBING WITH INTEGRAL SOLDERLESS SPLICE CONNECTOR

FEATURES AND BENEFITS
- Halogen-free
- Exceptional clarity for visual confirmation of seal
- Seals & protects against water, corrosive compounds, moisture & contaminants
- Tough, durable heat shrink tubing resists abrasion, crimp tool damage & splitting
- Shrinks 40% faster than nylon, preventing wire damage
- Inner adhesive bonds to plastics, rubbers & metals
- Voltage max. 600V
- Continuous operating temperature: -55°C to 125°C
- Shrink temperature: 100°C min.

STANDARDS
- UL file # E470828
- Meets & conforms to OEM wiring specifications for installation & repairs

TYPICAL APPLICATIONS
- Wire to wire splicing
- Environmental protection for crimp-connections & terminals
- Automotive / trucking repair and maintenance
- Commercial, electronics & appliance wiring
- Marine electronics & fleet maintenance

MARKETS:
- Automotive Aftermarket, Military, Aerospace, Industrial, Commercial, Automatic Feed Equipment

STANDARDS:

**3:1 SHRINK RATIO**

-55°C to 125°C (-67°F to 257°F)

**CONTINUOUS OPERATING TEMPERATURE**

<table>
<thead>
<tr>
<th>COLOUR</th>
<th>WIRE RANGE</th>
<th>STUD SIZE</th>
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<td>MM²</td>
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<td>1.5-2.5</td>
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**RING CONNECTOR DIMENSIONS**

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<td>MM²</td>
<td>IN</td>
</tr>
<tr>
<td>Red</td>
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<td>0.5-1.5</td>
<td>#8</td>
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<tr>
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<td>Red</td>
<td>22-18</td>
<td>0.5-1.5</td>
<td>3/16</td>
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<td>16-14</td>
<td>1.5-2.5</td>
<td>#8</td>
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<td>1.5-2.5</td>
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<td>3/16</td>
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<td>Yellow</td>
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<tr>
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<td>4-6</td>
<td>3/16</td>
</tr>
</tbody>
</table>
DERAY®-CRIMPSEAL II – HEAT SHRINK INSULATED CONNECTORS

**Fork connector**

### DIMENSIONS

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<td>AWG</td>
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**Push connector**

### DIMENSIONS

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<td>22-18</td>
<td>0.5-15</td>
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**Tab connector**

### DIMENSIONS

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<td>16-14</td>
<td>15-25</td>
<td>n/a</td>
</tr>
<tr>
<td>Yellow</td>
<td>12-10</td>
<td>4-6</td>
<td>n/a</td>
</tr>
</tbody>
</table>

**ORDERING**
- Determine the wire gauge size that you require
- Select the most appropriate connector for your application
- Please specify the product by: name, insulation color & code Order
- Order example: DERAY®-CrimpSeal II, butt connector, 22-18 AWG, red

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.

**APPLICATION NOTES**
- Strip wires min 7.5 mm & insert into the crimp barrel. Crimp with a DSG-Canusa (or equivalent) hand tool.
- Heat the shrink tube along the entire length, working from the centre out to the edges until a water tight seal is formed.
- Allow to cool before inspection for splice integrity.
- All splice assemblies will conform to most OEM & repair requirements and specifications.

Please also refer to working instructions VSPZ 056.
Halogen free, high density heat shrink tubing specially designed to meet the form stable demands in automotive battery cable and ground strap areas

**FEATURES AND BENEFITS**
- Rigid
- Halogen free
- Form stable
- Highly abrasion resistant
- Shrink ratio: >2:1
- Continuous operating temperature: -40°C to 135°C
- Shrink temperature: 120°C min.

**STANDARDS**
- VW 60360-3
- GS 95008-3-3

**TYPICAL APPLICATIONS**
- Insulation of battery cables and ground straps
- Protection against mechanical damage and corrosion in industrial applications, e.g. tools
- Strain relief and abrasion protection

**DIMENSIONS**

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>EXPANDED</th>
<th>RECOVERED</th>
<th>DELIVERY UNITS</th>
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<tbody>
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<td>Internal Diameter (min)</td>
<td>Internal Diameter (max)</td>
<td>Total Wall Thickness (nom)</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>in</td>
<td>mm</td>
</tr>
<tr>
<td>15/0.65</td>
<td>15.0</td>
<td>0.591</td>
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<td>20/0.65</td>
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<td>0.787</td>
<td>6.5</td>
</tr>
</tbody>
</table>

**SHRINK RATIO**

>2:1

-40°C to 135°C

(-40°F to 275°F)

**CONTINUOUS OPERATING TEMPERATURE**

**MARKETS:**
Automotive, Industrial

**STANDARDS:**
RoHS

**ORDERING**
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

- **Select options:**
  - Color: Black (BK)
- **Please specify the product name, order number and options you require**
- **Example:** DERAY®-HDP, 15.0/0.65, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Adhesive lined semi-conductive heat shrinkable tube; ideal for the electrostatic discharge of fuel lines

FEATURES AND BENEFITS
- Specially designed for electrostatic discharge of fuel lines
- Continuously printed with “Ω”
- Semi-conductive
- Specific surface resistivity < 1000 k-ohm at 125 V
- Inner adhesive bounds to metal
- Shrink ratio: >3:1
- Continuous operating temperature: -30°C to 105°C
- Shrink temperature: 110°C min.

STANDARDS
- Fulfils automotive fuel line specifications

TYPICAL APPLICATIONS
- Electrostatic discharge of fuel lines

>3:1 SHRINK RATIO

-30°C to 105°C
(-22°F to 221°F)
CONTINUOUS OPERATING TEMPERATURE

MARKETS:
Automotive, Safety Systems, Industrial

STANDARDS:

Semiconducting adhesive lined shrink tube

DIMENSIONS

<table>
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<th>ORDER NUMBER</th>
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<th>RECOVERED</th>
<th>DELIVERY UNITS</th>
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<td>Internal Diameter (max) d</td>
<td>Total Wall Thickness [mm] W</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
</tr>
<tr>
<td>135/4.0</td>
<td>13.5</td>
<td>0.531</td>
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<td>175/4.0</td>
<td>17.5</td>
<td>0.689</td>
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</table>

ORDERING
Select a dimension which will shrink snugly over the application to be covered. If recovery is restricted the resultant wall thickness will be less than specified.
- Select options:
  - Color: Black (BK)
- Please specify the product name, order number and options you require
  - Example: DERAY®-IB CON, 13.5/4.0, black

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
DERAY®-IOK – SOFT PVC INSULATION CAP

Non-shrinkable insulation cap made of soft PVC for reliable electrical protection

FEATURES AND BENEFITS
- Ensures 100 % electrical insulation
- Easy and low-cost installation without processing appliances
- Various colors available on request
- Continuous operating temperature: -35°C to 85°C

STANDARDS
- Approved to major automotive OEM specifications

TYPICAL APPLICATIONS
- Insulation of ultrasonically welded end splices
- Mechanical protection

-35°C to 85°C
(-31°F to 185°F)
CONTINUOUS OPERATING TEMPERATURE

EASY AND LOW-COST INSTALLATION

MARKETS:
Automotive, Industrial

STANDARDS:

SOFT PVC insulation cap

DIMENSIONS

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>DIMENSION</th>
<th>DELIVERY UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internal Diameter (mm)</td>
<td>Total Wall Thickness (mm)</td>
</tr>
<tr>
<td></td>
<td>MM</td>
<td>IN</td>
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<tr>
<td>9915300700</td>
<td>3.0</td>
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<tr>
<td>9915400100</td>
<td>4.0</td>
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<td>9915500500</td>
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<tr>
<td>9915600900</td>
<td>6.0</td>
<td>0.236</td>
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<tr>
<td>9915750100</td>
<td>7.5</td>
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<tr>
<td>9915950100</td>
<td>9.5</td>
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<td>9916200300</td>
<td>12.0</td>
<td>0.472</td>
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<tr>
<td>9916500700</td>
<td>14.0</td>
<td>0.551</td>
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<tr>
<td>9916101000</td>
<td>16.0</td>
<td>0.630</td>
</tr>
</tbody>
</table>

ORDERING
- Select options:
  - Color: Black (BK), red (RD), white (WT), clear (CL), blue (BL), yellow (YL), green (GR), grey (GY)
- Please specify the product name, order number and options you require
- Example: DERAY®-IOK, 9915500500 or 5.0x20 mm, blue

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet.
Reducing field installation time and improving effectiveness

DSG-Canusa brand kits combine a variety of different sizes, diameters and colours of our specially designed heat shrink tubing. Our sets are a convenient solution for distributors and craftsmen.

FEATURES AND BENEFITS
- Great selection of different diameters and colors suitable for various applications
- Refillable compartments
- Universal flame retardant flexible thin wall heat shrink
- Ready-to-use sections
- Customized sets available on request
- Shrink ratio: 2:1
- Continuous operating temperature: -55°C to 135°C
- Shrink temperature: 110°C min.

STANDARDS
- UL224

TYPICAL APPLICATIONS
- Electrical repair and maintenance
- Strain relief
- Insulation

DERAY®-SETS

DERAY®-SET SIX
DESCRIPTION
Small assortment box with flame retardant thin wall heat shrinkable tubing in different diameter and colors which allows use for various application.

STANDARD CONTENT

| Ø 1.2-0.6 | L: 70 mm | 50 pcs | blue, grey, black, brown |
| Ø 1.6-0.8 | L: 70 mm | 50 pcs | blue, grey, black, brown |
| Ø 2.4-1.2 | L: 70 mm | 50 pcs | blue, grey, black, brown |
| Ø 3.2-1.6 | L: 70 mm | 50 pcs | blue, grey, black, brown |
| Ø 4.8-2.4 | L: 70 mm | 10 pcs | blue, grey, black, brown |
| Ø 6.4-3.2 | L: 70 mm | 5 pcs | blue, grey, black, brown |

DERAY®-SET 2000
DESCRIPTION
Big assortment box with flame retardant thin wall heat shrinkable tubing in different diameter and colors which allows use for various application.

STANDARD CONTENT

| Ø 1.2-0.6 | L: 40 mm | 125 pcs | black, yellow, white, red, blue |
| Ø 1.6-0.8 | L: 40 mm | 125 pcs | black, yellow, white, red, blue |
| Ø 2.4-1.2 | L: 40 mm | 80 pcs | black, yellow, white, red, blue |
| Ø 3.2-1.6 | L: 40 mm | 40 pcs | black, yellow, white, red, blue |
| Ø 4.8-2.4 | L: 40 mm | 40 pcs | black, yellow, white, red, blue |
| Ø 6.4-3.2 | L: 40 mm | 20 pcs | black, yellow, white, red, blue |

DERAY®-SET 5000
DESCRIPTION
Assortment box with crimp connectors and flame retardant thin wall heat shrink tubing with shrink ratios 2:1 and 3:1.

STANDARD CONTENT

| Ø 1.2-0.6 | L: 50 mm | 60 pcs | blue, grey, black, brown |
| Ø 2.4-1.2 | L: 50 mm | 30 pcs | blue, grey, black, brown |
| Ø 3.2-1.6 | L: 50 mm | 16 pcs | blue, grey, black, brown |
| Ø 4.8-2.4 | L: 50 mm | 16 pcs | blue, grey, black, brown |
| Ø 6.4-3.2 | L: 50 mm | 5 pcs | blue, grey, black, brown |

DERAY®-SET 10000
DESCRIPTION
Assortment box with crimp connectors and flame retardant thin wall heat shrink tubing with shrink ratios 2:1 and 3:1.

STANDARD CONTENT

| Ø 1.2-0.6 | L: 250 mm | 5 pcs | blue, grey, black, brown |
| Ø 1.6-0.8 | L: 250 mm | 5 pcs | red, blue, grey, black, brown |
| Ø 2.4-1.2 | L: 250 mm | 5 pcs | red, blue, grey, black, brown |
| Ø 3.2-1.6 | L: 250 mm | 4 pcs | red, blue, grey, black, brown |
| Ø 4.8-2.4 | L: 250 mm | 4 pcs | red, blue, grey, black, brown |
| Ø 6.4-3.2 | L: 250 mm | 2 pcs | red, blue, grey, black, brown |

MARKETS:
Industrial, Commercial

STANDARDS:
UL94
TAPES

DSG-CANUSA PRODUCTS

Tapes made of vinyl or elastomer for easy application in the field that provide insulation, protection and identification for various applications

FEATURES AND BENEFITS
- Highly elastic
- Cold and weather resistant
- High dielectric strength
- Highly resistant to sun, water, oil, acids, alkalies, corrosive chemicals
- Flame retardant
- Abrasion resistant

STANDARDS
- ASTM D 3005, Type I
- ASTM D 1000
- HH-I-595C/A-A-55809A
- EN 60454-3-1, Type 11
- UL 510
- CSA C22.2 no.197
- Federal Specification L-T-1512A

TYPICAL APPLICATIONS
- Insulation and jacketing of splices
- Wrapping of wire harnesses
- Insulation of degaussing coils
- Quick identification of e.g. electrical phases, circuits, feeders and branches
- Corrosion protection
- Fire protection of cable conduits

≤30 mm

THICKNESS

EASY TO APPLY

MARKETS:
- Industrial
- Utility
- Power Distribution
- Automotive

STANDARDS:

CET33
PROFESSIONAL GRADE VINYL ELECTRICAL TAPE
All-weather, professional grade, pressure sensitive vinyl tape which applies easily and gives excellent performance over a wide range of temperatures. Cold resistant and weatherproof. Flame retardant. CET33 can be used as primary insulation for splices up to 600 volts. Used as protective outer jacket over splices and for all low temperature applications.

CET35
PROFESSIONAL GRADE COLOR CODING VINYL ELECTRICAL TAPE
All-weather, professional grade, pressure sensitive vinyl tape that is available in nine colors for color coding and insulating. Cold resistant and weatherproof. Flame retardant. Used for quick identification of electrical circuits, containers, and conduit systems, as well as primary insulation for splices at not more than 600 volts.

CET50
PIPE WRAP TAPE
A corrosion protection, pressure sensitive vinyl tape giving complete environmental, mechanical and electrical protection for all types of pipes wrapping applications. UV, bacteria and fungus resistant. CET50 tape can be used for both overhead and direct burial applications.

CET77
ARC & FIRE PROOFING TAPE
An unsupported, linerless elastomeric tape for arc and fire proofing high voltage & communication cables and splices. The unsupported construction offers excellent flexibility and conformability for easy application. When subjected to severe flame conditions, CET77 will generate a thermally insulating residue for cable protection.

CET88
HEAVY DUTY VINYL ELECTRICAL TAPE
All-weather, heavy duty grade, pressure sensitive vinyl tape that provides heavier thickness for added mechanical and electrical protection. Cold resistant and weatherproof. Flame retardant. CET88 can be used as primary insulation for splices up to 600 volts. Excellent protective jacket over all types of splices. Excellent cold weather performance.

CET130C
LINERLESS EPR HIGH VOLTAGE INSULATING AND JACKETING TAPE
EPR, self bonding, high voltage tape for insulating and jacketing splices through 69kV. The linerless feature permits much quicker taping speeds than tape with a liner and yield a uniform, void-free build-up. CET130C is compatible with all extruded cable insulations and the excellent stretch allows conformance to the most complex shapes and contours.

The information given is not generally valid for all DSG-Canusa brand tapes, but reflects a selection of characteristics of the product range.
APPLICATION EQUIPMENT PRODUCTS

ENGINEERING AND BUILDING HIGH-PERFORMANCE HEAT SHRINK APPLIANCES IN-HOUSE FOR STANDARD MACHINES AS WELL AS UNIQUE APPLICATIONS

In addition to the standard heat shrink tubing product line, we provide a full range of technically advanced shrink appliances. Years of experience in processing heat shrink materials have resulted in the creation of a variety of processing devices, from a simple heat gun to high-performance shrink equipment. Beyond the numerous standard machines, our Machine Technology Center (MTC) designs and constructs custom machines for unique applications.
**DERAY®-SPIECEMAN IR**

**DESCRIPTION**
DERAY®-SpliceMan IR is a semiautomatic unit with infrared heating elements designed to seal and insulate ultrasonically welded- and crimped splice joints.

**FEATURES AND BENEFITS**
- Up to 125 data sets storable
- Adjustable process time
- Data connection with ultrasonic welding machine

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**DERAY®-BOARD-WORKMAN TP ADE**

**DESCRIPTION**
DERAY®-Board-Workman TP ADE is a mobile shrink machine which is used on the cable board with a balancer. It has been designed to seal and insulate ultrasonically welded and crimped end splices on stationary and mobile cable boards in transfer lines.

**FEATURES AND BENEFITS**
- Automatic outer diameter detection system and assignment of shrinkage parameters

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**DERAY®-LEAKAGE TESTER**

**DESCRIPTION**
The DERAY®-Leakage testing device is built in a desktop version and is especially designed for the leaking test of crimped and welded wire applications assembled with heat shrink tubes.

**FEATURES AND BENEFITS**
- The testable wire cross sections are 0.13 mm² - 10 mm²
- Testing of up to 20 lines for leaks
- Pressure monitoring in each test chamber

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**DERAY®-DOCKMAN JUNIOR ENDSPLICE**

**DESCRIPTION**
The DERAY®-DockMan Junior Endsplice is a semi-automatic hot air shrink appliance for processing heat shrinking tubing in wiring systems. It is primarily used for mobile, manual use on the cable board with a balancer.

**FEATURES AND BENEFITS**
- High flexibility as the appliance can be docked to any position on the forming board

---

**DERAY®-FST 750-S**

**DESCRIPTION**
The DERAY®-FST 750-S is a semi-automatic shrink tunnel with infrared heating elements. The shrink device is designed to process heat shrinking products to seal and insulate ultrasonically welded- and crimped splice joints.

**FEATURES AND BENEFITS**
- Up to 10 mm² cable cross section
- 150 mm integrated cooling zone

---

**DERAY®-PSP 240-S**

**DESCRIPTION**
The DERAY®-PSP 240-S shrinking machine is a semiautomatic unit designed to install and shrink splice sealing products with a maximum of 5 splices in one work operation onto ultrasonically welded or crimped splice joints.

**FEATURES AND BENEFITS**
- Adjustable process time
- 10 k hrs long life heating elements

---

**DERAY®-SHUTTLE 240 / 60**

**DESCRIPTION**
The DERAY®-Shuttle 240 / 60 is a single table-top workstation and a semiautomatic shrinking device for sealing and insulating ultrasonically welded- and crimped ring cable lugs, tubular cable lugs and end splices.

**FEATURES AND BENEFITS**
- Up to 20 applications per cycle
- Up to 85 mm² cable cross sections processable
- Two independent frames

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For more information on our DSG-Canusa Shrink Appliances, please ask your Sales Representative for a copy of our Application Equipment Catalog.
### Single Wall Tubing

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Shrink Ratio</th>
<th>Description</th>
<th>Operating Temperature</th>
<th>Flame Rating</th>
<th>Standards</th>
<th>Sizes</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPA 876</td>
<td>2:1</td>
<td>High performance, flexible polyolefin</td>
<td>-55 °C to 135 °C</td>
<td>UL 224 VW-1, CSA OFT</td>
<td>SAE-AMS-DTL-23053/5, Class 3, UL file # E107857, CSA file # 265111</td>
<td>12 - 1016</td>
<td>14-15</td>
</tr>
<tr>
<td>DERA®-I</td>
<td>2:1</td>
<td>Multipurpose tubing, flexible polyolefin</td>
<td>-55 °C to 135 °C</td>
<td>Colors: UL 224 OFT, CSA OFT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DERA®-LB</td>
<td>2:1</td>
<td>Economical, general purpose, halogen free, flexible polyolefin</td>
<td>-55 °C to 125 °C</td>
<td>FM/SS 302</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DERA®-L0000</td>
<td>3:1</td>
<td>Multipurpose tubing, flexible polyolefin</td>
<td>-55 °C to 135 °C</td>
<td>Colors: UL 224 OFT, CSA OFT</td>
<td></td>
<td></td>
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<tr>
<td>DERA®-KYO</td>
<td>3:1</td>
<td>Striped green &amp; yellow, high shrink ratio, flexible polyolefin</td>
<td>-55 °C to 135 °C</td>
<td>UL 224 AFT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DERA®-LSB</td>
<td>2:1</td>
<td>Very low shrink temperature, flexible polyolefin</td>
<td>-40 °C to 125 °C</td>
<td>FM/SS 302</td>
<td></td>
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<tr>
<td>DERA®-Zor®D5</td>
<td>2:1</td>
<td>Halogen free, flame retardant, low smoke generation polyolefin</td>
<td>-40 °C to 125 °C</td>
<td>EN45545-2 H3 R22/R23</td>
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### Dual Wall Tubing

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Shrink Ratio</th>
<th>Description</th>
<th>Operating Temperature</th>
<th>Flame Rating</th>
<th>Standards</th>
<th>Sizes</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHP</td>
<td>4:1</td>
<td>Adhesive lined, elevated temperature Polyolefin</td>
<td>-40 °C to 150 °C</td>
<td>ASTM-D876</td>
<td>FCA, MS-DB-56 / MS:50107, CPN #5229; GMW17136</td>
<td>4.0 - 180</td>
<td>32-33</td>
</tr>
<tr>
<td>CPA 300</td>
<td>3:1</td>
<td>High spec. flexible polyolefin, adhesive-lined</td>
<td>-55 °C to 125 °C</td>
<td>Colors: UL 224 AFT, CSA OFT</td>
<td>SAE-AMS-DTL-23053/4, Class 3, UL file # E63390</td>
<td>3.2 - 59.9</td>
<td>34-35</td>
</tr>
<tr>
<td>DERA®-IAKT</td>
<td>3:1 / 4:1</td>
<td>Adhesive lined, moisture-resistant</td>
<td>-55 °C to 110 °C</td>
<td>Colors: ASTM-D876, clear: FM/SS 302</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DERA®-IHKT</td>
<td>4:1</td>
<td>Adhesive lined, superior sealing against water and moisture, high shrink ratio</td>
<td>-55 °C to 125 °C</td>
<td>Colors: ASTM-D876, clear: FM/SS 302</td>
<td>SAE-AMS-DTL-23053/4 Class 3</td>
<td>4.0 - 52.0</td>
<td>38-39</td>
</tr>
<tr>
<td>DERA®-SpliceMelt</td>
<td>4:1</td>
<td>Adhesive lined, moisture-resistant, splice sealing</td>
<td>-40 °C to 125 °C</td>
<td>Colors: ASTM-D876, clear: FM/SS 302</td>
<td>Automotive OEM specifications</td>
<td>6.0 - 6.0</td>
<td>40-41</td>
</tr>
<tr>
<td>DERA®-SpliceMelt Cap</td>
<td>4:1</td>
<td>Adhesive lined, moisture-resistant end cap, stub splice sealing</td>
<td>-40 °C to 125 °C</td>
<td>Colors: ASTM-D876, clear: FM/SS 302</td>
<td>Automotive OEM specifications</td>
<td>4.5 - 18.0</td>
<td>42-43</td>
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### Medium/Heavy Wall Tubing

<table>
<thead>
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<th>Product Name</th>
<th>Shrink Ratio</th>
<th>Description</th>
<th>Operating Temperature</th>
<th>Flame Rating</th>
<th>Standards</th>
<th>Sizes</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHI</td>
<td>3:1</td>
<td>Heavy wall polyolefin, optionally adhesive-lined</td>
<td>-55 °C to 110 °C</td>
<td>FM/SS 302</td>
<td>DIN EN 60684-3-247, DIN V 47840</td>
<td>9.0 - 200.0</td>
<td>46-47</td>
</tr>
<tr>
<td>CCM</td>
<td>3:1</td>
<td>Medium wall polyolefin, flexible, optionally adhesive-lined</td>
<td>-55 °C to 110 °C</td>
<td>FM/SS 302</td>
<td>DIN EN 60684-3-247</td>
<td>12.0 - 200.0</td>
<td>48-49</td>
</tr>
<tr>
<td>CFHR</td>
<td>6:1</td>
<td>Very high shrink ratio, flexible polyolefin</td>
<td>-55 °C to 110 °C</td>
<td>ASTM-D2671</td>
<td></td>
<td></td>
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<tr>
<td>CFM</td>
<td>3:1</td>
<td>Medium wall polyolefin, optionally adhesive-lined</td>
<td>-55 °C to 110 °C</td>
<td>FM/SS 302</td>
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<tr>
<td>CFTV</td>
<td>3:1</td>
<td>Flexible polyolefin, adhesive-lined, with heat indicating lines</td>
<td>-55 °C to 110 °C</td>
<td>FM/SS 302</td>
<td>ANSI C119-1, Western Underground Guide Numbers 2.4 and 2.5, IEEE 383, IEC 60684-3-247, Ul file # E132914, UL file # E132914, CSA C 22.2 No. 198.2</td>
<td>8.9 - 102.0</td>
<td>56-57</td>
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<tr>
<td>CFW</td>
<td>3:1</td>
<td>Heavy wall polyolefin, optionally adhesive-lined</td>
<td>-55 °C to 110 °C</td>
<td>FM/SS 302</td>
<td>VG 59343 Part 5 Type G, GMW 1768, SAE-AMS-DTL-23053/5, Class 3, UL file # E132914, UL file # E132914</td>
<td>8.9 - 95.0</td>
<td>58-59</td>
</tr>
<tr>
<td>DERA®-MC 22S</td>
<td>3:1</td>
<td>High resistance to impact and abrasion</td>
<td>-40 °C to 110 °C</td>
<td>FM/SS 302</td>
<td>IEEE 383, ANSI C119-1, Western Underground Guide Numbers 2.4 and 2.5, IEEE 383, IEC 60684-3-247, Ul file # E132914, UL file # E132914</td>
<td>8.9 - 19.5</td>
<td>60-61</td>
</tr>
<tr>
<td>FCFW</td>
<td>3:1</td>
<td>Heavy wall polyolefin, flame retardant, optionally adhesive-lined</td>
<td>-55 °C to 110 °C</td>
<td>UL34 V-0</td>
<td>IEEE 383, EC 60684-3-247, NF M 64-001, EC 60684, UL file # E132914</td>
<td>8.9 - 19.5</td>
<td>62-64</td>
</tr>
<tr>
<td>FCFW-N</td>
<td>3:1</td>
<td>Heavy wall polyolefin, flame retardant, optionally adhesive-lined</td>
<td>-55 °C to 110 °C</td>
<td>ASTM-D2671</td>
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## HIGH TEMPERATURE PRODUCTS

<table>
<thead>
<tr>
<th>PRODUCT NAME</th>
<th>SHRINK RATIO</th>
<th>DESCRIPTION</th>
<th>OPERATING TEMPERATURE</th>
<th>FLAME RATING</th>
<th>STANDARDS</th>
<th>SIZES</th>
<th>PAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>DERAY®-KY 175</td>
<td>2:1</td>
<td>Semi-rigid thin wall Kynar® heat shrink tubing, excellent chemical/solvent resistance</td>
<td>-55 °C – 175 °C</td>
<td>UL 224 VW-1, CSA OFT</td>
<td>SAE-AMS-DTL-23053/18, DEF STAN 59-87 Type 3, BS 0198 Part 4 Type 20, VG 05343 Part 4</td>
<td>12 - 25.4</td>
<td>66-67</td>
</tr>
<tr>
<td>DERAY®-KYF 190</td>
<td>2:1</td>
<td>High temp, flexible thin wall Kynar® heat shrink tubing, extreme chemical/solvent resistance</td>
<td>-55 °C – 190 °C</td>
<td>UL 224 VW-1</td>
<td>SAE-AMS-DTL-23053/18 Class 2, VG 05343-3</td>
<td>12 - 15.0</td>
<td>68-69</td>
</tr>
<tr>
<td>DERAY®-PTE 4:1</td>
<td>4:1</td>
<td>Teflon® based heat shrink tubing, chemically inert, high shrink ratio</td>
<td>-65 °C – 260 °C</td>
<td>UL 224 VW-1</td>
<td>SAE-AMS-DTL-23053/12 Class 5</td>
<td>1.98 - 3175</td>
<td>70-71</td>
</tr>
<tr>
<td>DERAY®-PTFE AWG</td>
<td>2:1</td>
<td>Teflon® based heat shrink tubing, chemically inert, AWG sizes</td>
<td>-65 °C – 260 °C</td>
<td>UL 224 VW-1</td>
<td>-</td>
<td>0.86 - 1194</td>
<td>72-73</td>
</tr>
<tr>
<td>DERAY®-V25 / V25 TW</td>
<td>2:1</td>
<td>Resistant to diesel, oil, hydraulic fluids and other chemicals</td>
<td>-75 °C – 150 °C</td>
<td>UL 224 AF</td>
<td>DEF STAN 59-97 Type 4b, BS 0198 Part 3 Type 10A, SAE-AMS-DTL-23053/16, VG 05343 Part 5, PAN 6480K, GS 95008-3-3</td>
<td>2.4 - 76.0</td>
<td>74-75</td>
</tr>
<tr>
<td>DERAY®-VT 220</td>
<td>2:1</td>
<td>High temp. fluoroelastomer, abrasion resistant, withstand to corrosive fluids in extreme temp.</td>
<td>-55 °C – 220 °C</td>
<td>UL 224 VW-1</td>
<td>DEF STAN 59-97 Type 4a, BS 0198 Part 3 Type 12A, VG05343 Type E, PAN6480L, GS 95008-5-3</td>
<td>3.2 - 76.0</td>
<td>76-77</td>
</tr>
<tr>
<td>DERAY®-VT 220 TW</td>
<td>2:1</td>
<td>Highly abrasion resistant, very flexible</td>
<td>-55 °C – 220 °C</td>
<td>UL 224 VW-1</td>
<td>AMS-DTL-23053/13</td>
<td>3.2 - 38.1</td>
<td>76-79</td>
</tr>
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</table>

## IDENTIFICATION SLEEVES

<table>
<thead>
<tr>
<th>PRODUCT NAME</th>
<th>SHRINK RATIO</th>
<th>DESCRIPTION</th>
<th>OPERATING TEMPERATURE</th>
<th>FLAME RATING</th>
<th>STANDARDS</th>
<th>SIZES</th>
</tr>
</thead>
<tbody>
<tr>
<td>DERAY®-ZHF125</td>
<td>2:1</td>
<td>Flattened, halogen free, flame retardant, low smoke generation polyolefin</td>
<td>-40°C – 125°C</td>
<td>EN45545-2 HL3 R22/R23</td>
<td>UL E 1042 A6, BS 6853 vehicle category 4a, DIN5510, EN 50343, SAE AS81531 4.5.2, MIL-STD-2020 Method 210*</td>
<td>2.4 - 38.1</td>
</tr>
<tr>
<td>DNS NH</td>
<td>2:1</td>
<td>Ladder style, flattened, halogen free, flame retardant, low smoke generation polyolefin</td>
<td>-40°C – 125°C</td>
<td>EN45545-2 HL3 R22/R23</td>
<td>UL E 1042 A6, BS 6853 vehicle category 4a, DIN5510, EN 50343, SAE AS81531 4.5.2, MIL-STD-2020 Method 210*</td>
<td>2.4 - 38.1</td>
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* Hardware used "XDI" printer from CAB and "RBZ11DR" ribbon from DSG-Canada

## WILDLIFE MITIGATION

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### ELECTRICAL PRODUCTS

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<td>CANC</td>
<td>&gt;2:1</td>
<td>Tight fitting, flexible, heat shrinkable anode cap</td>
<td>-55°C - 100°C</td>
<td>-</td>
<td>ANSI C 37.20.2, ANSI C37.20.3, UL file E205844</td>
<td>40.0 - 108.0</td>
<td>98-99</td>
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<td>CBTH</td>
<td>3:1</td>
<td>Heavy wall, anti-tracking, halogen free</td>
<td>-40°C - 125°C</td>
<td>ASTM-D2671</td>
<td>-</td>
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<td>100-103</td>
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<td>CBTH</td>
<td>3:1</td>
<td>Medium wall, anti-tracking, halogen free</td>
<td>-40°C - 125°C</td>
<td>ASTM-D2671</td>
<td>-</td>
<td>150 - 170</td>
<td>104-107</td>
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<tr>
<td>CCB</td>
<td>&gt;2.5:1</td>
<td>Heat shrinkable boot for 2, 3, 4, 5, 6-way cable breakouts</td>
<td>-55°C - 100°C</td>
<td>FM/SS 302</td>
<td>IEC 62677, ES 09-11</td>
<td>33.3 - 115</td>
<td>109-111</td>
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<tr>
<td>CCB-CON</td>
<td>&gt;2:1</td>
<td>Medium voltage heat shrinkable break-out 3, 4-core, anti-tracking</td>
<td>-50°C - 100°C</td>
<td>FM/SS 302</td>
<td>IEC 62677, ES 09-13</td>
<td>60.0 - 125.0</td>
<td>112-113</td>
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<tr>
<td>CCB-N</td>
<td>&gt;2.5:1</td>
<td>Medium voltage heat shrinkable break-out 3-core, semiconductive</td>
<td>-55°C - 100°C</td>
<td>FM/SS 302</td>
<td>IEC 62677, ES 09-13</td>
<td>60.0 - 125.0</td>
<td>114-115</td>
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<tr>
<td>CCRDW</td>
<td>&gt;3:1</td>
<td>Water tight, heat shrinkable sleeve with flexible stainless steel locking channel</td>
<td>-35°C - 100°C</td>
<td>FM/SS 302</td>
<td>-</td>
<td>50.0 - 240.0</td>
<td>118-119</td>
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<td>CEC</td>
<td>&gt;2:1</td>
<td>Adhesive lined, heat shrinkable end cap</td>
<td>-55°C - 100°C</td>
<td>FM/SS 302</td>
<td>IEC 62677, ES 09-11</td>
<td>15.0 - 140</td>
<td>121-122</td>
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<tr>
<td>CNTT</td>
<td>3:1</td>
<td>Medium wall, non-tracking, halogen free, for outdoor use</td>
<td>-55°C - 125°C</td>
<td>ASTM-D2671</td>
<td>-</td>
<td>33.0 - 120</td>
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<tr>
<td>CRLS</td>
<td>3:1</td>
<td>Adhesive lined, wraparound repair sleeve</td>
<td>-55°C - 110°C</td>
<td>FM/SS 302</td>
<td>IEC 62677, ES 09-11</td>
<td>30.0 - 1710</td>
<td>132-133</td>
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<tr>
<td>CSRSA</td>
<td>&gt;2:1</td>
<td>Non-tracking heat shrinkable rain shed</td>
<td>-55°C - 100°C</td>
<td>FM/SS 302</td>
<td>-</td>
<td>370 - 75.0</td>
<td>134-135</td>
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<tr>
<td>CSEC</td>
<td>2:1</td>
<td>Cold shrink end cap, UV, ozone and water resistant</td>
<td>-20°C - 105°C</td>
<td>FM/SS 302</td>
<td>ANSI CT191-1988</td>
<td>9.4 - 93.2</td>
<td>131-131</td>
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<td>CSS-EP</td>
<td>&gt;2:1</td>
<td>UV-resistant, 1000V rating, cold applied splice sealing products</td>
<td>-20°C - 105°C</td>
<td>FM/SS 302</td>
<td>IEC 60564</td>
<td>19.0 - 100.0</td>
<td>132-133</td>
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<tr>
<td>DERAY®-KSF</td>
<td>&gt;3:1</td>
<td>Medium or heavy wall, halogen free, anti-track, protects against accidental flash-over</td>
<td>-40°C - 115°C</td>
<td>FM/SS 302</td>
<td>-</td>
<td>DIN EN 50393 (VDE 0278-393):2006-11, DIN V 47640:2008-10, HD 623</td>
<td>134-137</td>
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<tr>
<td>LV Kits</td>
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<td>Low voltage, LUXAC, LUXAUX and LUX/UXAS connecting (cable-jointing) sleeves</td>
<td>-40°C - 100°C</td>
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<td>HD 629152-4, IEC 60502-4, IEC 60055-1</td>
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<td>Medium voltage, heat shrinkable power cable joints</td>
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<td>IEC 62677, ES 09-11</td>
<td>140-141</td>
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<tr>
<td>MV Terminations</td>
<td>-</td>
<td>Medium voltage, heat shrinkable power cable joints, indoor and outdoor</td>
<td>-40°C - 100°C</td>
<td>FM/SS 302</td>
<td>-</td>
<td>NMCF Standard</td>
<td>142-143</td>
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<tr>
<td>Signal Kits</td>
<td>-</td>
<td>Low voltage signal cable parts up to 32 pairs</td>
<td>-40°C - 100°C</td>
<td>FM/SS 302</td>
<td>-</td>
<td>IEEE-48-2009, Class 1, ISO/IEC 17025</td>
<td>144-145</td>
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<tr>
<td>Titan Z Indoor</td>
<td>-</td>
<td>Medium voltage cold-shrink silicone indoor termination, ZnO stress-control system, single or three-core</td>
<td>-40°C - 105°C</td>
<td>FM/SS 302</td>
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<tr>
<td>Titan Z Outdoor</td>
<td>-</td>
<td>Medium voltage cold-shrink silicone outdoor termination, ZnO stress-control system, single or three-core</td>
<td>-40°C - 105°C</td>
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<td>IEEE-48-2009, Class 1, ISO/IEC 17025</td>
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### MARKET SPECIFIC PRODUCTS

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<td>Canuflex PBT V0</td>
<td>-</td>
<td>Chemical and abrasion resistant braided sleeve</td>
<td>-50°C - 150°C</td>
<td>UL 94 V0</td>
<td>-</td>
<td>2.0 - 32.0</td>
<td>150-151</td>
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<tr>
<td>Canuflex PE-HB</td>
<td>-</td>
<td>Highly expandable, multipurpose economic braided sleeve</td>
<td>-40°C - 150°C</td>
<td>FM/SS 302</td>
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<td>2.0 - 32.0</td>
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<td>Canurbond</td>
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<td>Retroreflect and noise absorbing, abrasion resistant wrap around sleeve</td>
<td>-50°C - 150°C</td>
<td>FM/SS 302</td>
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<td>5.0 - 50.0</td>
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<tr>
<td>DERAY®-Compass II</td>
<td>3:1</td>
<td>Halogen free, crystal clear and adhesive lined tubing with integral solderless splice connector</td>
<td>-55°C - 125°C</td>
<td>FM/SS 302</td>
<td>UL 94 E470828</td>
<td>3.7 - 6.5</td>
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<tr>
<td>DERAY®-HDP</td>
<td>&gt;2:1</td>
<td>Halogen free, high density heat shrink tubing</td>
<td>-40°C - 135°C</td>
<td>FM/SS 302</td>
<td>VW 60363-03, US 55003-3-3</td>
<td>15.0 - 20.0</td>
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<td>DERAY®-ICON</td>
<td>3:1</td>
<td>Semiconducting, adhesive lined shrink tube</td>
<td>-30°C - 105°C</td>
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<td>13.5 - 17.5</td>
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<td>DERAY®-KX</td>
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<td>Semi-conductive 100% electrical insulation, mechanical protection</td>
<td>-35°C - 85°C</td>
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<td>DERAY®-Sets</td>
<td>2:1 &amp; 3:1</td>
<td>Assortment boxes with heat shrink tubing and crimp connectors</td>
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<td>Tapes</td>
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<td>Tapes made of vinyl or elastomer</td>
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<td>ASTM D 3005, Type I, ASTM D 1000, HH-I-595/C/A-595809A, EN 60454-3-1, Type 11, UL 510</td>
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Visit our Website for more information about Shawcor’s Connections Systems Group including DSG-Canusa and Shawflex:  
[www.shawcor.com/connections-systems](http://www.shawcor.com/connections-systems)
PROCESSING INFORMATION

TUBING SELECTION AND PROCESSING INFORMATION

Easy processing makes heat shrink tubing an economical and functional solution. Please keep the following processing notes in mind:

• The inner diameter of the heat shrink tubing should be selected so that after free shrinkage it is approx. 20% smaller than the object to be covered.
• If necessary, cut the shrink tubing to the desired length. Please make sure to have a smooth cut edge.
• Slide the tubing over the object to be sealed.
• Shrink the tubing onto the object, starting at one end. Use a heating appliance for this process, e.g., a heat gun or a shrink device.
• The optimal shrink temperature of the selected material is vital to assure a short shrink period. Please make sure to use the appointed shrink temperature for each product.
• Ensure even heat distribution to prevent overheating. Overheating the material may cause bubbles, discoloration or damage to the tube.
• During shrinking of adhesive lined heat shrink tubing the adhesive may slightly flow out the end.

If you have any further questions, our application engineers will be happy to assist you.

ORDERING INFORMATION

When ordering, please specify for each item the following information:

• Name and/or Order number
• Dimension
• Options, if available: e.g., Colour
• Quantity: Length, Cut-Length or Pieces

Example: DERAY®-H, 0250 or 1/4", black, 300 m

Please contact your Customer Service Representative for information on custom colors, sizes, lengths and material data sheet via phone or e-mail you’ll find at the back of this catalog.
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