NTI

3M™ Electrical Markets Division

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Today 3M is:
The adhesive holding your plane together ... 
The respirator helping you breathe easier ... 
The sterile bandage used by your surgeon ...  
The reflective traffic sign guiding you home at night ... 
And yes, the Post-it® Note keeping you organized.
How can 3M™ support my training efforts?

Available Training

Product & Application Training

Learn about what new and proven products 3M™ has to offer.

With 50 sales representatives covering the US, 3M™ can meet your in-person training needs. Please contact us for training support.

Product Training

- Material Science
- Installation Techniques
- Cable Theory
- Splice Theory
- Termination Theory
- Product Selection
- Applications + Industries
- Features & Benefits
- Samples
- Industry Trends
- Standards & Regulatory
- BIM Objects

Product Categories

- Premium & GU Vinyl, Rubber Mastic & Other Tapes
- LV Resins, Cold-Shrink and Heat-Shrink
- MV & HV Cable Accessories
- Locating and Marking
- Electrical Supplies
- Fire Protection
- Hearing Protection
- Head & Face Protection
- Respiratory Protection
- Fall Protection
How can I find my rep and contact them?

Step 1: www.3m.com/electrical

Email mjmurphy2@mmm.com (Mark Murphy).

Find a 3M sales representative in your area that can assist you.

Step 3: Enter your Zip Code

<table>
<thead>
<tr>
<th>Market Segment</th>
<th>Contact Name</th>
<th>Cell Phone</th>
<th>Email Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial &amp; Industrial</td>
<td>Phil Dimuzio</td>
<td>919-414-6992</td>
<td><a href="mailto:pddimuzio@mmm.com">pddimuzio@mmm.com</a></td>
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<td>Mark Simms</td>
<td>214-207-9277</td>
<td><a href="mailto:mssimms@mmm.com">mssimms@mmm.com</a></td>
</tr>
<tr>
<td>Commercial &amp; Industrial</td>
<td>Dawn Heagren</td>
<td>972-520-2282</td>
<td><a href="mailto:dheagren@mmm.com">dheagren@mmm.com</a></td>
</tr>
<tr>
<td>Commercial &amp; Industrial</td>
<td>John Schilling</td>
<td>713-252-4419</td>
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</tr>
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</table>
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Available Training

Product Training

Learn about what new and proven products 3M™ has to offer.

Tools

Learn what tools 3M™ has to offer for training support.

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3M™ has developed a number of tools to help train installers on products and applications. These products have been developed to help ease product selection & installation.

Available Tools

Commercial & Industrial Applications Guide:

Energy Academy:

Product Selectors:

Product App:

MV-Terminations
## Target Applications for 3M™ EMRO Products

Keep your Facility Running and Reduce Downtime with 3M Professional Grade Solutions

<table>
<thead>
<tr>
<th></th>
<th>Application</th>
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<tbody>
<tr>
<td>1</td>
<td>Insulate &amp; repair low voltage (≤ 1 kV) wires and cables (1)</td>
</tr>
<tr>
<td>2</td>
<td>Insulate low voltage (≤ 1 kV) wires and cables (2)</td>
</tr>
<tr>
<td>3</td>
<td>Splice low voltage (≤ 1 kV) cables</td>
</tr>
<tr>
<td>4</td>
<td>Connect low voltage (≤ 1 kV) wires and cables</td>
</tr>
<tr>
<td>5</td>
<td>Rejacket and protect medium voltage (5 kV – 35 kV) cables</td>
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<tr>
<td>6</td>
<td>Terminate medium voltage (5 kV – 35 kV) cables</td>
</tr>
<tr>
<td>7</td>
<td>Splice medium voltage (5 kV – 35 kV) cables</td>
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<tr>
<td>8</td>
<td>Motors and electrical equipment splice connections</td>
</tr>
<tr>
<td>9</td>
<td>Repair bus bar insulation</td>
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<tr>
<td>10</td>
<td>Help protect cables from water and corrosion</td>
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<tr>
<td>11</td>
<td>Help protect cables from abrasion and metals from corrosion</td>
</tr>
<tr>
<td>12</td>
<td>Help protect cables from fire and arcing</td>
</tr>
<tr>
<td>13</td>
<td>General maintenance</td>
</tr>
<tr>
<td>14</td>
<td>Be safe on the job (1)</td>
</tr>
<tr>
<td>15</td>
<td>Be safe on the job (2)</td>
</tr>
<tr>
<td>16</td>
<td>Help protect your facility from fire, smoke and toxic gases</td>
</tr>
</tbody>
</table>
Splice Low Voltage (≤ 1 kV) Cables

Failures from damaged insulation risk plant downtime. These solutions can help restore insulation for long-term reliability.

**Applicable Products:**
- 3M™ Scotchcast™ Resin power cable inline splice kits 82-AN, 72-N, & 82-F
- 3M™ Scotchcast™ Wye Resin Splice kits 82-BN, 90-B1 (Split Bolt or Parallel)
- 3M™ Scotchcast™ Multi-Mold Splice kits 85 Series for irregular shapes

**Good when:**
- No access to end of cable
- Permanent Solution needed

**Rapid Connection and Insulation**

**Applicable Products:**
- 3M™ 8420 Cold Shrink Insulators – Torch Not Required
- 3M™ QI Cold Shrink Insulators & QSLV-M Cold Shrink Splices
- 3M™ 5730 Cold Shrink Splice Kits – 3C
- 3M™ Heat Shrink ITCN Heavy-Wall Cable Sleeves – Torch required

**Good when:**
- Access to end of cable, Rapid Installation and long term reliability

**HD Mechanical Protection and waterproof**

**Applicable Products:**
- 3M™ Scotchcast™ Resin power cable inline splice kits 82-AN, 72-N, & 82-F
- 3M™ Scotchcast™ Wye Resin Splice kits 82-BN, 90-B1 (Split Bolt or Parallel)
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**Good when:**
- No access to end of cable
- Permanent Solution needed

**Most Common Plant Locations:**

**Application:**
- Outdoor direct bury splice, low voltage splice in junction boxes, control panels, cable bridges, service drops, non-abrasion resistant

**Plant Locations:**
- Outdoor bury
- Substation Room
- Control and Electrical Equipment Rooms
- Production Area
- Cable Bridges
- Overhead pole drops

**Application:**
- Permanent outdoor direct bury splice. Drag Resistant, split bolt and tap splice, irregular shapes. Water proof and fully submersible.

**Plant Locations:**
- Outdoor direct bury
- Man-Holes and Subsurface
- Pipes and under water Pumps
- Electric Powered Mobile Equipment

*Unless otherwise stated all products are rated to ≤1000V*

3M Wind Energy Solutions

Electrical Markets Division
Primary EMD Applications and Solutions

1. **Terminate & Splice Cables**
2. **Cable End Seal & Jacket Repair**
3. **Splicing & Insulating of Low Voltage Cables**
4. **Gap & Cabinet Sealing**
5. **Tower & Nacelle Cable Abrasion Resistance**
6. **Cable Identification, Management & Protection**
7. **Worker Safety**
8. **Locating Underground Assets**
9. **Leading Edge Protection**

**Terminate and Splice Medium Voltage Cables**

Use 3M Cold Shrink Technology and Separables for your installation and maintenance needs

**Application For MV Cable Termination & Splicing:**
- 3M™ Cable Accessories are used in a variety of locations on a wind farm for safely terminating and splicing cables. These include:
  - Terminations at main and sub collection grids
  - Splices on cable string from collection grid to wind tower.
  - Terminations at each internal or external transformer cabinet located at an individual power generation tower.

**3M™ Termination & Splice Kits:**
- Please consult your 3M Sales Specialist for proper kitting recommendations
  - 3M™ QTIII / QTII Termination Kits (≤ 45kV)
  - 3M™ MV Separable 600 AMP 35kV T-Bodies
  - 3M™ QS4 / QS3 Splicing Kits (≤ 35kV)
  - 3M™ Cable Grounding Kits

Note: 3M offers both crimp and shearbolt lugs and connector options.
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- **Product Training**
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- **Tools**
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- **New Technology**
  - Learn what 3M™ is developing in digital space.
  - With the global push for digital, 3M™ has developed some unique App to help installers reduce installation time and assist with improving install quality.

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3M™ Asset Tracking Application

*Helps electrical contractors install products faster and asset owners keep track of and locate assets*

**Benefits include:**

- Helps reduce risk of failure - availability of digital data sheets & installation collateral
- Assists with reducing labor costs - consolidates installation hand-off data
- Aids with reducing downtime costs - helps find assets quickly during an outage
- Free to use - available in iTunes and Google Play

- **Cloud Storage**
  - Cable Accessories
  - Product Web Site
  - Spec Sheet
  - Instruction Sheet
  - Installation Videos

- **Scan Products to Access Digital Tools**

- **GPS Mapping**
3M™ Asset Tracking Application

Additional key features include:

- Offline data logging capabilities
- Ability to record data to your own Microsoft Azure cloud account
- Enables data storage in cloud and non-cloud storage environments
- Customizable data collection templates
- Down to one meter accuracy for GPS marking
- Ability to integrate with some handheld GPS units
- Capture photos and scan product barcodes
- Asset owner determines who can view the asset details, locations
- Ability to export data in .kmz file format
- Integration with Google Earth to view asset locations

Thank you!

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