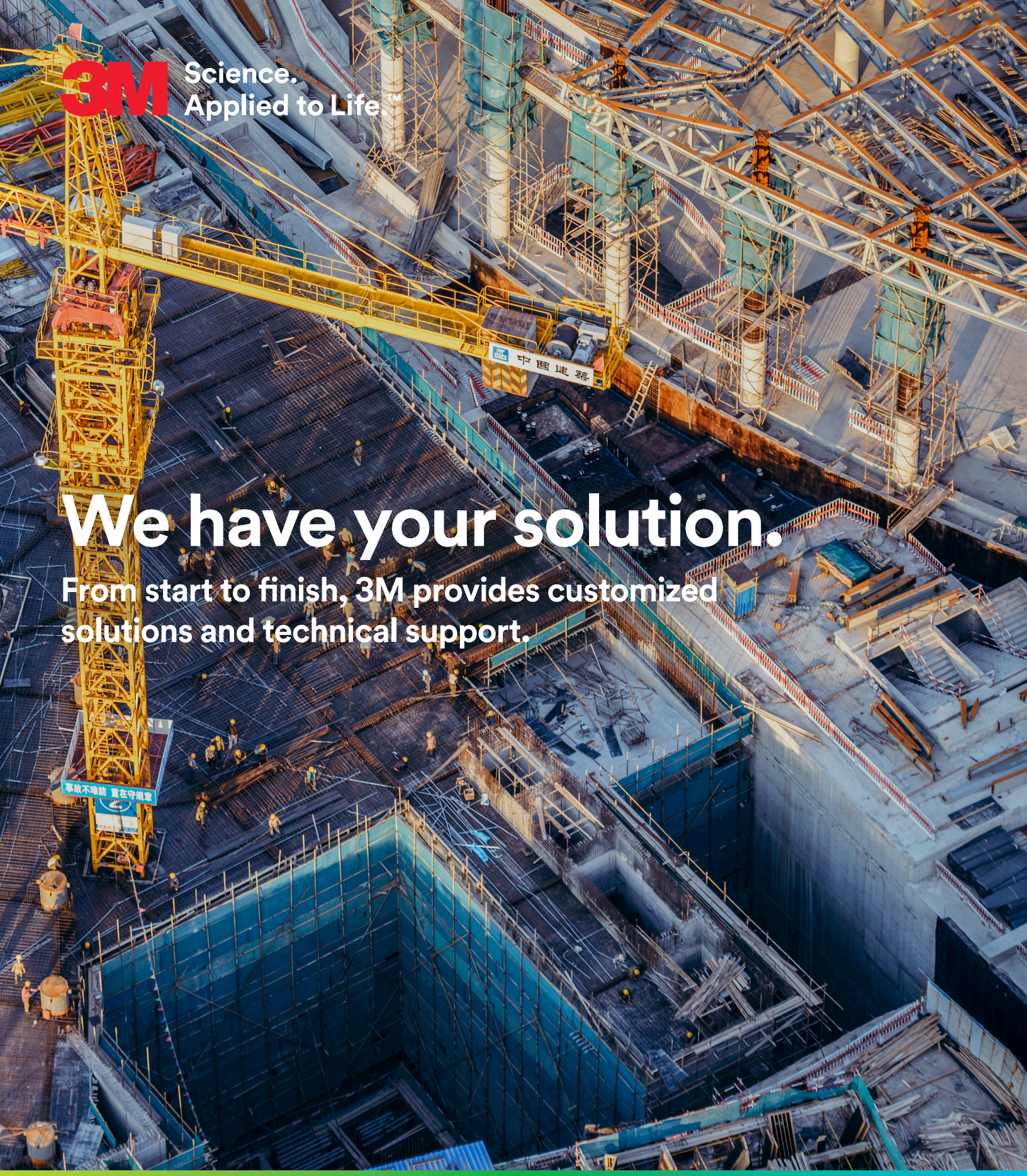


We have your solution.

From start to finish, 3M provides customized solutions and technical support.

Distributor Sales Guide
Electrical Markets Division

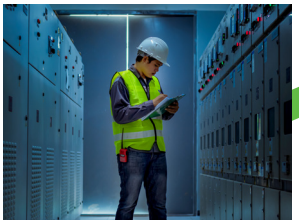
Table of Contents

Wherever the job takes you, we have your solution.

Making and maintaining industrial electrical systems is a critical portion of our customers' job. 3M's goal is to offer high-quality, reliable, easy to install products for connecting, terminating, insulating and sealing electrical connections.

From start to finish, 3M and our partners provide the solutions needed to simplify electrical installation while maintaining reliability. With our technical support, custom kits, and various training options, we help our customers save money, keep their projects on schedule, and get the job done.

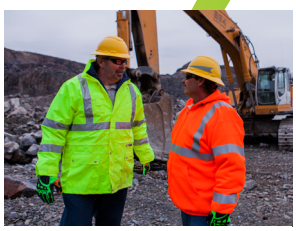
We have the expertise to support electrical solutions in key market segments such as:



Data centers

Industrial manufacturing – construction

Industrial manufacturing – maintenance, repair and operations (MRO)



Mining

Wind

Petrochemical

Solar

Battery energy storage systems

Transportation

Electrical Tape – Premium Vinyl

Applications

- Critical application where you need the tape to be dependable
- Harsh indoor, extreme and outdoor uses
- Primary electrical insulation for all wire and cable splices up to 600 V and 105°C (221°F)
- Primary electrical insulation for 600 V bus applications
- Protective jacketing for high voltage and low voltage cable splices and repairs
- Long-lasting harnessing of wires and cables

Questions to ask

- What are the conditions of your vinyl electrical tape that is insulating connections after it has been in-service for a while?
- In your experience what are some of the challenges of working with vinyl tape?

Potential objections

- **Objection:** Vinyl tape becomes hard, brittle or cracked due to heat.
  Response: 3M provides premium vinyl tapes that will combat these challenges with its wide temperature range.
- **Objection:** Electrical tape flags and unwinds from connections due to adhesion issues or improper application
  Response: 3M provides premium vinyl tape that help minimize these effects.

What are the key segments where our solutions could be applied?

- Heavy industrial, petrochemical, rail, metro, mining
- Maintenance & repair operations (Maintenance, repair and operations (MRO)

Who are the right contacts?

- Electrical contractor
- Engineering manager
- Purchasing manager

Why recommend premium vinyl tape over general use?

- Extreme temperatures
- Long term durability
- Elongation and adhesive
- Thickness; stronger protection – quicker install

Why does 3M win?

- 3M is the inventor of vinyl electrical tape
- Technical support and training

Potential 3M Solutions

Scotch® Super 33+™ Vinyl Electrical Tape

Highly conformable, super stretchy tape that is suitable in all weather applications. It also resists UV rays, abrasion, corrosion, alkalies and acids. Primary insulation for splices up to 600V and protective jacketing.

Scotch® Heavy Duty Grade Vinyl Electrical Tape Super 88

All weather; heavy duty, professional use, abrasion resistant, fast build up. Primary insulation for splices up to 600V and protective jacketing.

Electrical Tape – General Use Vinyl

Applications

- Moderate indoor and weather protected outdoor uses
- Color-coding for phase identification, wire marking and safety
- Electrical insulation for wire and cable splices rated up to 600 V
- Harnessing and bundling of wires and cables
- Wire pulling and wire fishing

Questions to ask

- Tell me about the common electrical failures you experience in your operations. What are the causes?
- Where do you use electrical tape to provide electrical insulation and/or do wire harnessing?

Potential objections

- **Objection:** Color coding tapes fade when installed outdoors.
  Response: If this is a concern you need to consider a premium tape. Scotch® Multi-Colored Vinyl Electrical Tape 35 resists fading when installed outdoors.
- **Objection:** It's difficult to handle color coding tapes in extreme applications because the texture of the tape is rough.
  Response: If this is a concern you need to consider a premium tape. Scotch® Multi-Colored Vinyl Electrical Tape 35 is smooth.

What are the key segments where our solutions could be applied?

- Light industrial, commercial, maintenance, repair and operations (MRO)

Who are the right contacts?

- Electrical contractor
- Engineering manager
- Purchasing manager

Why recommend general use over premium vinyl tape?

- Temporary bundling
- Basic holding and harnessing
- Temperature limited applications

Why does 3M win?

- 3M is the inventor of vinyl electrical tape
- Our 3M™ Temflex™ Vinyl Electrical Tapes includes standards approvals that meet mechanical and electrical requirements in their class (UL/CSA)
- Our 3M™ Temflex™ Vinyl Electrical Tapes 165 and 175 provide flame retardancy

Potential 3M Solutions

3M™ Temflex™ Vinyl Electrical Tape 165

Good quality, multi-purpose vinyl insulating tape. It has great resistance to moisture and varying weather conditions. It is a polyvinyl chloride (PVC) tape that is flame-retardant and conformable.

3M™ Temflex™ Vinyl Electrical Tape 175

High-performance general-purpose flame-retardant vinyl insulating tape. It is designed to perform in applications with temperatures up to 194°F (90°C). The tape is conformable for cold weather application down to 19°F (-7°C).

Electrical Tape – Rubber

Applications

- Primary insulation for splicing solid dielectric insulated cables through 69kV
- Primary insulation for building stress cones on solid dielectric insulated cables up to 35kV
- Jacketing (secondary insulation) on high voltage splices and terminations
- Padding, insulating, moisture-sealing electrical connections, bus bar and motor leads
- End-sealing high voltage cables
- Bus bar insulation up to 35kV

Questions to ask

- Tell me about how water effects or comes into contact with your electrical system.
- Describe for me situations or environments in which you find vinyl electrical tape (or insulation in general) gets damaged.
- Is your connection exposed to moisture or water?

Potential objections

- **Objection:** Abrasions cause physical/mechanical damage to tape.
  Response: Rubber tapes are not meant to have high abrasion resistance. Cover with either of our 3M™ Premium Vinyl Tapes for a stronger splice.
- **Objection:** Rubber tapes are not good for medium voltage electrical insulation.
  Response: While not all rubber tapes are suitable for medium voltage primary insulation, Scotch® Linerless Rubber Splicing Tape 130C and Scotch® Rubber Splicing Tape 23 can be used for up to 69kV.

What are the key segments where our solutions could be applied?

- Heavy industrial, petrochemical, rail, metro, mining, maintenance, repair and operations (MRO)

Who are the right contacts?

- Electrical contractor
- Engineering manager
- Purchasing manager

Why recommend rubber tape?

- Seal out moisture from connections
- Provides primary insulation for voltages up to 69kV
- Highly conformable for irregularly shaped objects

Why does 3M win?

- Linerless rubber tapes are simpler to install
- Our linerless rubber tapes are offered in different sizes to help meet customer needs
- High thermal conductivity for a more thermally stable and reliable connection

Potential 3M Solutions

Scotch® Linerless Rubber Splicing Tape 130C

A highly conformable, linerless, ethylene rubber (EPR), high voltage insulating tape, formulated to provide excellent thermal dissipation of splice heat. The tape is designed for use in splicing and terminating wires and cables.

Scotch® Rubber Splicing Tape 23

A premium grade, highly conformable, rubber splicing tape. The self fusing tape has a special polyester liner, which will not stick to the tape upon unwind.

Electrical Tape – Mastic

Applications

- Provides moisture seal for any cable needs
- Repairs jacket damage on cables
- Provides primary insulation for low voltage (LV) connections
- Pads sharp edges of a LV connection to prevent cut-through of vinyl tape overwrap
- Smooth transitions of irregular shapes
- Provides corrosion protection

Questions to ask

- How does water affect or come into contact with your electrical system?
- What are your most common electrical failures and their causes when using vinyl tape alone to insulate LV connections?

Potential objections

- **Objection:** Physical/mechanical damage to tape
  Response: Choose a mastic like Scotch® Vinyl Mastic Pad 2200 or Scotch® Cable Jacket Repair Tape 2234 if abrasion resistance is important to you.
- **Objection:** Mastics are not good at keeping water/moisture out
  Response: Our 3M mastic technology fuses to itself and adheres well to cable jackets to provide a reliable water seal. When combined with cold shrink, mastics can improve sealing for submersible applications.

What are the key segments where our solutions could be applied?

- Heavy industrial, petrochemical, rail, metro, mining, maintenance, repair and operations (MRO)

Who are the right contacts?

- Electrical contractor
- Engineering manager
- Purchasing manager

Why recommend mastic tapes?

- Mastics can insulate, protect and seal

Why does 3M win?

- Offers a thick mastic layer for complex shapes and robust applications requiring more padding
- Quick, reliable and easy to install

Potential 3M Solutions

Scotch® Vinyl Mastic Pad 2200

Premium grade self fusing mastic pad used to offer moisture sealing and pad connections up to 600V. It is laminated to a flexible, all weather, UV resistant vinyl backing for added mechanical protection and withstands a wide temperature range.

Scotch® Rubber Mastic Tape 2228

Highly conformable self-fusing rubber electrical insulating and sealing tape consisting of an ethylene propylene rubber (EPR) backing coated with an aggressive, temperature-stable mastic adhesive on a liner. Used for electrical insulating and moisture sealing.

Supplies – Wire Connectors

Applications

- Connect and insulate copper wires in a variety of industry applications
- Use with electrical components, fixtures and switches

Questions to ask

- What are you using now to connect wires?
- Are there difficulties that you have with those solutions?
- What benefit is most important to you for solutions to connect wires?
- If you could improve something on the current product you are using, what would that be?

Potential objections

- **Objection:** I need to twist or strip the wires I am working with.
  Response: Our 3M™ Insulation Displacement Connectors (IDCs) do not require stripping or twisting; you need only a simple crimp.
- **Objection:** Wire connectors do not work with high temperatures
  Response: 3M™ Performance Plus™ Wire Connectors work well for applications up to 105°C. Anything beyond that, requires a solution that 3M does not currently offer.
- **Objection:** Wire connectors do not work with aluminum wiring
  Response: This legacy application, while not common, is sometimes needed but 3M currently does not offer a solution for it.
- **Objection:** Wire connectors are not a waterproof connection.
  Response: Use our 3M™ Direct Bury Splice Kits DBR/Y-6 or 3M™ Moisture Resistant Insulation Displacement Connectors for a water resistant connection.

What are the key segments where our solutions could be applied?

- Residential, commercial and industrial construction, Industrial maintenance, repair and operations (MRO), transportation

Who are the right contacts?

- Maintenance manager
- Electrical contractor
- Job site manager
- Installer

Why recommend wire connectors?

- Faster and more cost effective
- More flexible combinations of wires

Why does 3M win?

- Robust spring with generous room for expansion and a strong bite for a secure connection creates a more reliable connection
- Flexible skirt for enhanced safety will help to counteract over stripping of wires
- Reduced inventory with increased wire ranges
- Resealable pouch packaging for small quantity (vs. box)
- 3M offers a drill attachment or hand crank that helps twist wire connectors

Potential 3M Solutions

3M™ Performance Plus™ Wire Connectors

Wire connectors that are designed with a uniquely flexible spring that has generous room for expansion and a strong bite for a secure connection. Because of their increased wire range, just three 3M™ Performance Plus™ Wire Connectors handle the work of eight standard connectors. There's less inventory to manage with a better chance you'll have the connectors you need to do every job. And the flexible skirt helps prevent copper exposure for enhanced safety.

Supplies – Gloves

Applications

- Helps protect hands during assembly and install while maintaining dexterity
- 3M™ Comfort Grip General Use Gloves: General material handling, handling small parts, electrical component assembly, carpentry, plumbing, roofing and handling abrasive or sharp materials
- 3M™ Comfort Grip Cut Resistant Gloves: Handling abrasive or sharp materials, forming, bending sharp parts, cable pulling, wire handling and cable preparation

Questions to ask

- What are you using now to protect your hands?
- What are the difficulties that you have with using gloves?
- What is most important and relevant to you in choosing hand protection?
- If you could improve something on the current product you are using, what would that be?

Potential objections

- **Objection:** Gloves do not provide electrical insulation.
  Response: Our 3M™ Comfort Grip Gloves are not designed to be used by linemen as electrical insulation. Our gloves are meant for light duty such as de-energized applications.

What are the key segments where our solutions could be applied?

- Residential, commercial and industrial construction, industrial maintenance, repair and operations (MRO), plumbing, manufacturing, warehouses, machine shops, automotive repair shops

Who are the right contacts?

- Maintenance manager
- Electrical contractor
- Job site manager
- Installer
- Safety manager/officer

Why recommend using gloves?

- Most end-users require personal protection in order to do the job safely

Why does 3M win?

- Palm coating provides excellent gripping power, even in wet or oil, conditions
- Nylon stretch liner allows gloves to be lightweight and flexible for breathable “second skin” fit

Potential 3M Solutions

3M™ Comfort Grip General Use Gloves

With a nitrile palm coating over a breathable nylon stretch liner, 3M™ Comfort Grip General Use Gloves are light, flexible and abrasion-resistant. Count on them for light to medium-duty jobs that require precision handing, even in hot and sweaty conditions.

3M™ Comfort Grip Cut Resistant Gloves

3M™ Comfort Grip Cut Resistant Gloves have the same features and comfort as the 3M™ General Use Gloves with even greater cut, puncture and tear resistance. These gloves are excellent for jobs requiring dexterity when handling sharp parts.

Supplies – Aerosols

Applications

- Insulating spray: Use for touch-up insulating jobs on winding wire for motor wiring, small magnetic coils and frames
- Zinc spray: Add protective layer to generation, transmission and distribution equipment, outdoor boxes, towers, and other metal and galvanized surfaces

Questions to ask

- What are you using now to touch up wire?
- What are you using now for corrosion protection on galvanized surfaces?
- Are there difficulties that you have with your current aerosol solutions?
- How much product do you use? How often do you have to apply a protective layer to galvanized surfaces or wires?
- If you could improve something on the current product you are using, what would that be?

Potential objections

- **Objection:** Aerosol solutions are more suitable for smaller surface areas. **Response:** Other solutions outside of aerosols may be preferable for larger surface areas.

What are the key segments where our solutions could be applied?

- Commercial and industrial construction, industrial maintenance, repair and operations (MRO), motor winding repair shops

Who are the right contacts?

- Maintenance manager
- Electrical contractor (zinc spray)
- Repair shop manager/owner (insulating spray)

Why recommend aerosols?

- For electrical coating and maintenance needs

Why does 3M win?

- Insulating spray is available in clear and red (highly visible)
- Zinc spray is quick-drying; 97% pure zinc formula
- We have a complete aerosol line to choose from

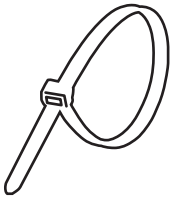
Potential 3M Solutions

3M™ Electrical Insulation Sealer

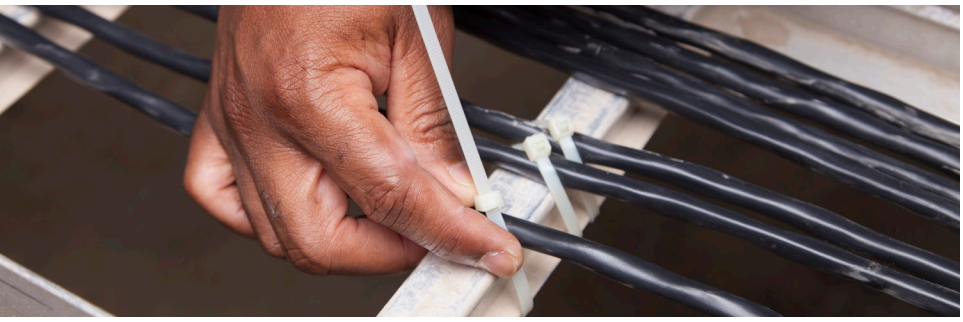
Insulating sealer aerosol that helps protect surfaces against weather, moisture, corrosion, oil, alkalies and acids. Available in clear and red (highly visible) sprays (1601 and 1602-R).

3M™ Zinc Spray 16-501

Zinc aerosol that galvanizes metal surfaces to aid in corrosion protection. It is quick-drying with a 97% pure zinc formula.



Supplies – Cable Ties



Applications

- Manage, bundle or secure wire bundles and harness components in a variety of applications and sizes
- Flexible design allows the user to slip ties easily under and around cables and harnesses
- Ties can be used with most standard tensioning/cutoff tools for fast production line fastening

Questions to ask

- What are you currently using to hold wires and components?
- What are the difficulties that you have in managing wires?
- What do you look for in a wire management solution?
- If you could improve something on the current product you are using, what would that be?

Potential objections

- **Objection:** I need colors and other alternate types of cable ties.
  Response: 3M offers cable ties in a variety of colors, sizes and tensile ratings.

What are the key segments where our solutions could be applied?

- Residential, commercial and industrial construction, industrial Maintenance, repair and operations (MRO), data centers, solar, communications, automotive, transportation

Who are the right contacts?

- Maintenance manager
- Electrical contractor
- Job site manager
- Installer
- Purchasing manager

Why recommend cable ties?

- Easy and quick to use for bundling or holding applications

Why does 3M win?

- Offerings include different types (standard nylon, steel barb, screw mount), lengths, tensile strengths and colors (natural, UV resistant, black, red)
- Both adhesive and screw mount cable tie bases are available
- Curved tip allows for faster threading and installation
- Plenum rated AH-2 for use in air handling spaces
- Nylon 6/6 construction

Potential 3M Solutions

3M™ Standard Nylon Cable Ties

Cable ties made of high-quality nylon 6/6 and designed to secure wire bundles quickly, without slipping.

3M™ Steel Barb Cable Ties

Cable ties made of high-quality nylon 6/6 and designed with a stainless-steel barb that, when engaged, presses into the strap and grips tight.

Supplies – Insulation Displacement Connectors (IDCs)

Applications

- Connect and insulate copper wires in a variety of industry applications, including manufacturing and industrial applications, fluorescent ballast installation and replacement, fixture and appliance wiring, automotive and marine wiring and control circuit wiring
- Applications that entail repetitive connections

Questions to ask

- What do you currently use to connect wires?
- What do you dislike most about your current wire connector solution?
- What are the types of connections that you need to make?
- If you could change one thing about how you connect low voltage wires, what would it be?

Potential objections

- **Objection:** I do not like having to crimp the connector.
  Response: While our connector design does require a crimping step, it will save time by avoiding the need for repetitive twisting and stripping of wires.
- **Objection:** There is a limited number of wires that can be connected depending on the specific insulation displacement connector
  Response: If you need more flexibility consider our 3M™ Performance Plus™ Wire Connectors.

What are the key segments where our solutions could be applied?

- Industrial maintenance, repair and operations (MRO), industrial manufacturing, light transportation, automotive aftermarket, marine, lighting and fixture industry, signage, electromechanics

Who are the right contacts?

- Maintenance manager
- Electrical contractor
- Job site manager
- Installer
- Purchasing manager

Why recommend IDC's?

- Make tap connections without cutting the main run to save time
- Some types of IDC's are moisture resistant
- Save time with quick and easy installation i.e. no stripping or twisting of wire needed
- Experience of installer is not as critical

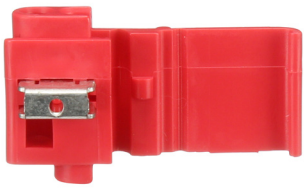
Why does 3M win?

- Wide range of IDCs with multiple connection types across a range of wire sizes
- Save space through run and tap connections
- Some of our IDC's have regulatory approvals. Contact your 3M sales representative to determine which.

Potential 3M Solutions

3M™ Scotchlok™ IDC Connector 314

IDC that provides a dual element pigtail connection and moisture resistant seal with a mineral oil based grease.



3M™ Scotchlok™ IDC Connector 558

IDC that connects a tap wire to a run (through) wire while insulating the connection.

Supplies – Heat Shrink Tubing

Applications

- Insulate and help protect wire, cable, connections and components
- Provides insulation, mechanical protection, wire marking, harnessing, strain relief, corrosion and chemical resistance
- Re-jacketing for 3 conductor medium voltage cables

Questions to ask

- What are you using now to insulate and help protect connections?
- What are the difficulties that you have with your current solution?
- What is the most important benefit to you when insulating and protecting connections?
- If you could change one thing about insulating and protecting your connections, what would that be?

Potential objections

- **Objection:** I need to use a heat gun to install.
  Response: While this is true, we offer cold shrink tubing and insulating tape that can avoid the need for heat.
- **Objection:** Heat shrink water seal can be less reliable during thermal cycling of cable.
  Response: 3M™ Cold Shrink Tubing maintains a living-seal on cables that reliably provides water resistance.
- **Objection:** Heat shrink takes too long to install.
  Response: While this is true we offer cold shrink tubing that is quicker to install.

What are the key segments where our solutions could be applied?

- Industrial construction, commercial construction, industrial maintenance, repair and operations (MRO)

Who are the right contacts?

- Maintenance manager
- Electrical contractor
- Job site manager
- Installer
- Engineer

Why recommend heat shrink?

- Heat shrink provides mechanical protection
- Final heat shrink install appears cleaner than a final tape install
- For color coding
- You can customize the insulation length by cutting it
- Few SKUs cover a broad range of installations

Why does 3M win?

- Broad product offering (types, colors, sizes and packaging)
- Easy handling and installation
- Excellent dielectric properties
- Abrasion and cut resistance

Potential 3M Solutions

3M™ Heat Shrink Thin-Wall Flexible Polyolefin Tubing FP-301

Lightweight, tough and flexible single-wall polyolefin heat shrink.

3M™ Heat Shrink Heavy-Wall Cable Sleeves ITCSN/ 3M™ Heat Shrink Tubing IMCSN

Heavy-duty cross-linked polyolefin heat shrink with adhesive for demanding conditions.

Medium Voltage (MV) Cable Accessories – Terminations

Applications

- Transformers, switchgears, junction boxes, pole-tops, equipment connections, motors

Questions to ask

- How much do you value the reliability of your electrical network? And how would an electrical shut down impact your activity?
- How important is easiness of installation for your job?

You will need to gather the following details before you can select the correct product:

- Is this going to be outdoor or indoor?
- What is the voltage rating of the cable?
- What is the size of the cable?
- Is it 1or 3 Conductor?

Potential Objections

- **Objection:** Cold shrink terminations are not resistant to cuts or mechanical damage.
  Response: While this is somewhat true, MV terminations are bolted to bushings and should not move nor impact anything during normal operation when installed correctly.

What are the key segments where our solutions could be applied?

- Construction, petrochemical, mining, industrial, renewable, transportation

Who are the right contacts?

- Project engineer
- Lead contractor
- Foreman/lineman
- Project owner

Why recommend MV terminations?

- Need terminations to connect MV cable to equipment or MV source

Why does 3M win?

- Reliable thanks to integrated Hi-K stress control which does not need to be installed as a separate manual step, therefore rendering the installation simpler
- Easy and fast to install
- Uses high-performance silicon material
- Compact design and short termination
- Great tracking resistance
- UV stable
- No tools required
- IEEE Class 1 termination
- Unlike heat shrink, 3M™ Cold Shrink Terminations are very flexible, can be installed without tools and provide a living-seal on the cable to provide moisture protection
- Provides generous space for an easier installation that is less dependent on the skill of the installer unlike other technologies
- Requires no hot work permits nor fire watch

Potential 3M Solutions

3M™ Cold Shrink QT-III Termination

3M™ Cold Shrink QT-III Terminations integrate high dielectric constant (High-K) stress control mastic. The UV-stable, track-resistant, silicone rubber insulation of the termination has a hydrophobic property and offers a long-lasting service life while minimizing leakage currents in wet conditions and makes the termination suitable for both indoor and outdoor applications. The termination offers an optimized BIL performance while providing a leak-proof and compact fit.

3M™ Cold Shrink QT-II Termination

3M™ Cold Shrink QT II Termination Kits are for terminating medium voltage cables in both indoor and weather exposed outdoor applications. The track resistant, silicone rubber insulation of the termination has a hydrophobic property and offers a long lasting service life while minimizing leakage currents in wet conditions. The lower surface stress, high dielectric constant material offers an optimized BIL performance while providing a leak proof, compact fit.

Medium Voltage (MV) Cable Accessories – Splices

Applications

- MV cable splice joints from 6kV to 36kV (IEEE from 5kV to 35kV)
- Underground electrical network, trenches, conduits, vaults, cable tray, emergency connections, cross-bonding, branches
- Not suitable for splicing overhead conductors

Questions to ask

- How much do you value the reliability of your electrical network? And how would an electrical shut down impact your activity?
- How important is easiness of installation for your job?

You will need to gather the following details before you can select the correct product:

- What is the voltage rating of the cable?
- What is the size of the cable?
- Which type of cables do you need to connect?

Potential Objections

- **Objection:** Cold shrink splices are not resistant to cuts or mechanical damage **Response:** The outer layer of our 3M splices is EPDM rubber which is a mechanically resistant rubber that is resilient and we also have splices with a sheath wrap option to provide even stronger mechanical resistance.

What are the key segments where our solutions could be applied?

- Construction, industrial, petrochemical, renewable, infrastructure and transportation

Who are the right contacts?

- Project engineer
- Lead contractor
- Foreman/lineman
- Project owner

Why recommend a splice?

- There is an emergency where a cable has been cut and you have to repair it
- You need a cable that is longer than what fits on a reel and need to combine multiple reels (i.e. wind farms)

Why does 3M win?

- Reliable thanks to integrated electrode and stress control
- Easy installation thanks to the cold shrink release technology
- Uses high-performance materials
- Customized kits for the application
- Broad cable cross section coverage
- No tools required for splice installation
- Shearbolt connectors require no special tools
- 100% factory tested (QS-III and QS4)
- Unlike heat shrink, 3M™ Cold Shrink Splices are very flexible, can be installed without tools and provide a living-seal on the cable to provide moisture protection
- Provides generous space for an easier installation that is less dependent on the skill of the installer unlike other technologies.
- Requires no hot work permits nor fire watch.

Potential 3M Solutions

3M™ Cold Shrink QS-III Splice Kits

The 3M Cold Shrink QS-III splice body is a one-piece design made of specially formulated silicone rubbers. The cold shrink design provides quick installation and excellent cable size transitions. The special electrode design of the kit reduces electrical stress at a critical cable/splice interface.

3M™ Cold Shrink QS4 Integrated Splice Kits

The 3M Cold Shrink QS4 Integrated Splice Kit is a premium offering that utilizes our field-proven 3M™ Cold Shrink QS-III Splice Body with additional features that make installation quick and easy. This exciting product integrates all of the layers of a shielded power cable splice into one compact joint.

Medium Voltage (MV) Cable Accessories – Separables

Applications

- Transformers, switchgears, junction boxes, equipment connections, 3-way splices, large cable transitions.

Questions to ask

- How important is reliability in your grid?
- How important is easiness of installation for your job?
- Do you need a product that can withstand higher electrical impulses?

You will need to gather the following details before you can select the correct product:

- What is the voltage rating of the cable?
- What is the size of the cable?
- What is your insulation rating?

Potential Objections

- **Objection:** More difficult to install separable connectors
  Response: 3M provides free training and field support to help installation go as smoothly as possible.
- **Objection:** Limited current carrying capabilities
  Response: 3M can help you design your connections with these limitations in mind.

What are the key segments where our solutions could be applied?

- Renewable, construction, industrial, petrochemical

Who are the right contacts?

- Project engineer
- Lead contractor
- Foreman/lineman
- Project owner

Why recommend separables?

- To connect to equipment that has IEC or IEEE type bushings
- To make 3-way or 4-way splices or to create splices that have large size transitions

Why does 3M win?

- Modular Installation
- Broad portfolio
- 100% production testing
- Flexibility in making equipment connections that require stacking
- Easily makes cable gauge transitions
- No tools required
- Used in direct bury or submersible applications
- Technical support/consulting
- Customized applications

Potential 3M Solutions

3M™ Deadbreak Equipment Connection Kits

A fully shielded and insulated connector that features a bolted connection which provides an easy way to terminate cables, equipment and splices. Available in 15/25/28 kV and 35 kV.

Meets all relevant requirements of IEEE Std. 386.

3M™ T-plug, Deadbreak, Surge Arresters

A fully shielded and insulated connector for terminating underground cable at transformers, switchgears and other apparatus equipped with deadbreak bushings, junctions or other deadbreak connectors. Available in 24, 36 and 42kV voltage classes.

Meets all relevant requirements of HD629-1 and IEC 60502-4.

Low Voltage (LV) Cable Accessories – Resin Splices

Applications

- Low voltage splice for single and multi-polar/multi-conductor cable up to 1kV (5 kV and 8 kV with some models)
- Underground electrical network, open trenches, conduit, submersible, residential box, branches, re-entrable connections
- Fire and explosion options for classified areas (EMEA specific models)

Questions to ask

- How important is mechanical protection for you?
- Is humidity and water protection relevant to you?
- How important is the easiness of installation for your job?
- Is health and safety in your job an important factor?
- Do you need a flexible joint?
- Do you need a flame-resistant joint?

You will need to gather the following details before you can select the correct product:

- What is the voltage rating of the cable?
- What is the size of the cable?
- Do you use single-phase or multiple-phase cables?

Potential Objections

- **Objection:** Resin splices take too long to apply and cure.
  Response: Some of our splices can be put in service before full cure is reached thereby reducing the amount of time for the insulation. We also have a complete portfolio offering of 3M™ Cold Shrink Splices that can be used in most of the same applications that are faster to install.
- **Objection:** I am concerned about the safety of the resin.
  Response: Wear the appropriate protective equipment or use our 3M™ Scotchcast™ Resin 4 GS and 92-NBA GS series that is CMR, isocyanate, halogen and SvHC free.

What are the key segments where our solutions could be applied?

- Residential, construction, industrial, petrochemical, mining, lighting

Who are the right contacts?

- Project engineer
- Lead contractor
- Foreman/lineman
- Project owner

Why recommend resin splices?

- Submersible applications
- Applications with mechanical resistance and flexibility requirements
- Conforms to the cable therefore creating low profile splices

Why does 3M win?

- Highest grade of electrical insulation for professional application
- High performance epoxy based electrical resin
- Certain models are free from CMR, isocyanate, halogen, SvHC content
- Strong mechanical protection
- Enhanced water and humidity performance during curing
- Unique color change indicator for the correct resin mixings
- Based on bio-renewable raw materials
- Fast and clean installation thanks to 3M proprietary closed mix-pouring system
- Flexible joints and flame-resistant models
- Salt resistance (specific models)
- Cover a range of cable sizes with one kit

Potential 3M Solutions

3M™ Scotchcast™ Resin 4 GS and 92 NBA GS Resin Kits

A premium electrical inline resin joint series designed for professional application and suitable for low voltage cable connection insulation and mechanical protection up to 1 kV. The kit contains the unique high-performance epoxy based CMR free 3M™ Scotchcast™ Resin 4 GS that changes color as it is correctly mixed in a one-piece body, assists with fast and clean installation.

3M™ Scotchcast™ Inline Resin Power Cable Splice Kit 82-AN

Resin power cable splice kit that is designed to insulate and seal up to 5 kV rated unshielded, single conductor cables and 1 kV rated multiple conductor cables. It is for use in weather exposed or direct burial locations.

Low Voltage (LV) Cable Accessories – Cold Shrink Splices and Accessories

Applications

- LV cable splice up to 1 kV (5 kV and 8 kV with some models)
- Underground electrical network, open trenches and conduits
- Breakout boots, 3/C to 1/C transition kits, end caps, connector insulators, sealing kits and corrosion protection kits
- Motor leads

Questions to ask

- How much do you value the reliability of your electrical network? And how would an electrical shut down impact your activity?
- How important is easiness of installation for your job?

You will need to gather the following details before you can select the correct product:

- What is the voltage rating of the cable?
- What is the size of the cable?
- Do you use single-phase or multiple-phase cables?
- Is your connection in-line or pigtail?

Potential Objections

- **Objection:** Cold shrink splices are not resistant to cuts or mechanical damage. **Response:** Our 3M™ Splices are made of EPDM rubber which is a mechanically resistant rubber that is resilient. We also have splices with a sheathwrap option to provide better mechanical resistance or alternatively you can use a resin splice.

What are the key segments where our solutions could be applied?

- Construction, industrial, telecommunications, petrochemical, renewable, infrastructure and transportation

Who are the right contacts?

- Project engineer
- Lead contractor
- Foreman/lineman
- Project owner

Why recommend low voltage cold shrink splices?

- Fast to install
- No tools required
- Requires no hot work permits nor fire watch.

Why does 3M win?

- Uses high-performance materials both EPDM and silicon
- Easy and fast installation thanks to the cold shrink release technology
- Live seal, resilient rubber holds uniform radial pressure through operation
- Water resistance thanks to integrated mastic
- Easy re-entry for repairs
- Covers broad cable cross section range with one size
- No tools required for splice installation

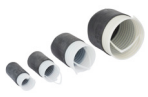
Potential 3M Solutions

3M™ Cold Shrink Connector Insulators 8420 and 8430 Series

Connector Insulators are supplied pre-stretched on a removable core for efficiency and ease of installation. The live memory action of the specially formulated EPDM material promotes a permanent, durable environmental seal and insulation. It is good for repairs and environmental sealing for communication and other non-electrical applications.

3M™ Cold Shrink Cable Breakout Boots 8560 Series

A 3-way cold shrink cable breakout boot that is made of silicone rubber and protects the phase leg breakout of 3 way power cables. It shields power cable sheaths from moisture, contamination, corrosion, ozone, UV radiation, physical contact and other hazards in associated environments. It allows quick installation while accommodating a wide range of cables.



3M™ Cold Shrink End Caps EC Series

Close-ended, tubular rubber sleeves that are factory expanded and loaded onto a removable core. When positioned over the end of a cable or other cylindrical object, the core is removed to provide a reliable environmental seal. It offers good resistance to abrasion, water, fungus, acids, alkalies and ozone to ensure long lasting usage.

3M™ Motor Lead Splice Kits 5300 Series

Motor lead kits that are designed for splicing motor lead cables to incoming feeder cables, including the accommodation of pigtail (stub) connections up to 5/8 kV. The slip-on lug cover, is made of durable EPDM rubber and mastic strips are used for the moisture seal.

High Voltage (HV) Cold Shrink Cable Accessories – Terminations and Splices

Applications

- Terminations (3M™ QT-III Silicone Rubber Skirted Termination Kit 7673-S-8 & 7673-S-10 Series):
  - Terminate shielded power cable rated for 69 kV, 350 kV BIL per IEEE 48 - Class 1 for outdoor non self-supporting terminations and 72.5 kV, 325 kV BIL per IEC 60840 for outdoor terminations
- Splices (3M™ Cold Shrink QS-III Splice Kit 5488A and 3M™ QS3000 Cold-Shrink Inline Splice):
  - 69 kV–class splice for joining jacketed concentric neutral (JCN), tape-shield, longitudinally-corrugated (LC) shielded, tape-over-wire (TOW) or wire-over-tape (WOT) shielded power cables
  - For inline and crossbond/shield break splicing, transmission circuits, copper or aluminum conductors, burial installations and submerged locations

Questions to ask

- How much do you value the reliability of your electrical network?
- How would an electrical shut down impact your activity?
- How important is ease of installation for your job?

You will need to gather the following details before you can select the correct product:

- What is the size of the cable?

Potential Objections

- **Objection:** Cold shrink terminations are not resistant to cuts or mechanical damage
  Response: While this is somewhat true, our 3M™ HV Terminations are bolted to bushings and should not move nor impact anything during normal operation.

What are the key segments where our solutions could be applied?

- Industrial construction, petrochemical, mining

Who are the right contacts?

- Maintenance manager
- Electrical contractor
- Job site manager
- Installer

Why recommend HV cold shrink cable accessories?

- Installs quickly and easily
- Helps to reduce potential craft errors
- Requires no specialized tools or flame
- Lightweight for safer and easier installation
- Safer to use with no flame or torch needed

Why does 3M win?

- For over 40 years, electrical installers from around the world have depended on 3M™ Cold Shrink technology for their fast, easy and reliable connections
- Global presence
- Customized solutions
- On-site technical, classroom, field installation and customer support
- Online back-up support documentation and installation videos at www.3M.com/highvoltage

Potential 3M Solutions

3M™ Cold Shrink QT-III Termination 7673-S-8/10 for 69 kV / 72.5 kV

Meets or exceeds requirements of IEEE 48, Class 1 and IEC 60840. The semi-con/high-k adaptor provides reduced surface stress, which allows for a more compact termination, with large cross-sectional coverage. (1/0awg/50 mm2 - 3000 kcmil/1500 mm2, insulation O.D. 2.01”/51, 1 mm - 3.45”/87, 6 mm).

3M™ Cold Shrink QS-III Splice Kits 5488A, 5488A-JCN-XB, and 5488A-Shielded-XB for 69 kV / 72.5 kV

Meets or exceeds the 69kV voltage class rating requirements of IEEE std. 404 and IEC 60840 for 72.5kV. Made of durable silicone rubber to provide reliable and long-lasting installations. Covers a wide range of cable sizes for in-line, transition and cross-bond applications. Shearbolt connector included in kit.

3M™ QS3000 Cold-Shrink Inline Joint with Cold Shrink Re-Jacketing

Meets or exceed the requirements of IEC standard 60840. It includes the Cold Shrink QS3000 Silicone splice body with integrated stress control devices and used for inline splicing up to 72.5 kV Umax voltge class.

Locating and Marking – Locators

Applications

- Locating underground utilities (gas, telecommunications, power, water)
- Locating RF/electronic marking system (EMS) markers
- Underground network mapping
- Fault locating (power and telecommunications)

Questions to ask

- Do you have problems with signal congestion?
- Do you have trouble locating tracer wires?
- Have you experienced damaged facilities? Or do you need to locate damaged facilities? Or have you experienced any failure or disruption during excavation?
- Do you have issues with the use of the cable/pipe maps?
- Do you have markers in your network?
- How do locate your underground assets?
- What is your method for fault locating?
- Do you have any geographic information system (GIS) or digital mapping systems?

Potential objections

- **Objection:** The 3M locating system is complex.
  Response: 3M™ X- series Locators offer a larger interface and fewer keys on the keypad to simplify the locating process. We also offer various training options for our 3M locating system.
- **Objection:** Interfaces of our system can be challenging when reporting information.
  Response: 3M™ Dynatel™ 7500X/7573X Locators and 3M™ Dynatel™ 2500X/2573X Locators offer USB connectivity for thumb drives, simplifying data access.
- **Objection:** I am concerned with the precision of your locators.
  Response: Our cable and pipe locators offer multiple peak antennas that help aid accurate locating. We also offer a trace-view function that helps identify congestion. Lastly, our transmitters have a circuit test to verify continuity.

What are the key segments where our solutions could be applied?

- Construction, industrial manufacturing, renewable, mining, data centers, petrochemical, infrastructure and transportation, power/gas/tel/water utilities

Who are the right contacts?

- Damage prevention managers/ environmental health and safety (EHS)
- Project directors
- General contractors
- Outside plant managers
- Design engineers

Why recommend locators?

- To provide location of underground cables and pipes

Why does 3M win?

- High locating accuracy thanks to the multiple peak antennas
- Multiple functions in one unit including cable, path, markers, fault locating
- Low, medium and high frequencies for all locate needs
- GPS integrated for accurate asset mapping
- Simple user-friendly interface
- Multiple connection thanks to integrated Bluetooth and USB
- Rechargeable batteries through USB type C

Potential 3M Solutions

3M™ Dynatel™ Locators 7500X/7573X Series

This locator series is integrated to include locating cables/pipes, fault finding, locate EMS markers, read/ write to 3M™ iD Markers for the field professional. It features a lightweight design for excellent balance and ergonomics, large display with easy-to use interface, enhanced connectivity. Li-Ion battery with built-in charger and Internal GPS module.

3M™ Dynatel™ Locators 2500X/2573X Series

This locator series is integrated to include locating and fault finding technology for the field professional. It features a lightweight design for excellent balance and ergonomics, large display with easy-to use interface, enhanced connectivity. Li-Ion battery with built-in charger and Internal GPS module.

Locating and Marking – Point Markers

Applications

- Cable/pipe identification
- Gas/water valves identification
- Splice identification
- Squeeze joints identification
- Duct identification
- Pull boxes and handholes identification
- Repairs utilities or/and abandoned utilities
- Foreign line crossing
- User addresses association with gas/water valves
- Meet regulatory requirements with radio frequency identification (RFID)
- Enhance mapping with real-time data in the field
- Installation and/or network data recording

Questions to ask

- How important is protecting your underground assets?
- Do you know the exact position of the utilities? Or can you distinguish among them?
- Do you have need for identification of your underground assets?
- Do you want to have the information that you need about your underground/buried asset without need of excavation?
- Do you need to locate older repairs?
- Do you need to locate underground valves?
- How do you find splices, valves or other underground/buried parts?

Potential Objections

- **Objection:** GPS data can replace the need for a marker.
  Response: GPS systems that allow centimeter grade accuracy are quite expensive and a standard GPS system does not give accurate readings like markers can. Our 3M™ Electronic Marker System Extended Range Ball Markers and 3M™ Electronic Marker System Extended Range Near-Surface Markers have a signal strength that is strong over the center of the marker and allow for precise location.

What are the key segments where our solutions could be applied?

- Construction, industrial manufacturing, renewable, mining, data centers, petrochemical, infrastructure and transportation, power/gas/tel/water utilities

Who are the right contacts?

- Damage prevention managers/ environmental health and safety (EHS)
- Project directors
- General contractors
- Outside plant managers
- Design engineers

Why recommend point markers?

- Identify specific points along the utility like a splice, valve or handhole.

Why does 3M win?

- Precise identification of the underground assets
- RFID technology to store relevant information and identify cable and pipes
- Radio frequency (RF)/EMS passive technology does not require the need for charges or batteries
- Multiple frequencies differentiating among the utilities
- Use of low RF frequencies to achieve depth of 8 to 9 feet below grade
- Sizes and depth adapted to most of the different network requirements
- Self leveling technology to simplify the use and follow ground movements
- Proven reliable solution with more than 50 million markers installed

Potential 3M Solutions

3M™ Electronic Marker System Extended Range Ball Markers

These markers provides an effective way of accurately marking underground facility lines such as flush mounted facilities that are covered by backfill. It features a self-leveling design for precise and horizontal positioning. This passive underground marker with a water-resistant polyethylene shell does not react with chemicals or minerals. This ball marker effectively operates without the need for any external power source.

3M™ Electronic Marker System Near-Surface Markers

These markers are specially designed for marking underground facility lines accurately during construction or maintenance applications. This waterproof near surface marker has a long lasting passive antenna, encased in a waterproof shell to identify underground facilities with their exact location, even in congested areas. It comes in a cylindrical shape, allowing for easy installation in asphalt or concrete, without extensive digging.

Locating and Marking – Path Markers

Applications

- Cable and/or pipe path identification
- Early warning during excavation
- Wireless locate solution for telecom and gas industries
- Use in open trench applications

Questions to ask

- How important is protecting your underground assets?
- How important is safety for your job? Have you ever experienced an unexpected situation during excavation?
- Do you know the exact position of buried utilities before you excavate? How can you distinguish among them?
- Do you need to identify your underground assets?
- Do you have problems of congestion among the different utilities underground?
- Do you use tracer wires? And have you experienced issues with tracer wires such as installation issues, breaking, difficulties to locate or find the end point or lightning?

Potential Objections

- **Objection:** Tracer wires are a commonly used technology for many years that I am comfortable with.
  Response: Tracer wires do not allow the possibility to identify the type of utilities that are underground in a congested area like our 3M™ Electronic Marking System (EMS) Warning Tape 7900-XT Series.

What are the key segments where our solutions could be applied?

- Construction, industrial manufacturing, renewable, mining, data centers, petrochemical, infrastructure and transportation, power/gas/tel/water utilities

Who are the right contacts?

- Damage prevention managers/ environmental health and safety (EHS)
- Project directors
- General contractors
- Outside plant managers
- Design engineers

Why recommend path markers?

- To protect and identify the underground network and avoid disruption during excavation that can generate serious safety issues

Why does 3M win?

- 3M™ Electronic Marking Systems (EMS) technology embedded for precise identification of the utilities buried underground without the need of excavation
- Reduces the risk of digging near underground utility lines providing visual verification
- Allows for following the utility path
- RF/EMS passive technology requires no need for charges or batteries
- Don't need continuity so tape can be located even if it breaks
- Provides early warning thanks the extreme tensile tape featuring 3000 lb, strength material in premium 3M™ Electronic Marking System (EMS) Warning Tape 7900-XT Series model

Potential 3M Solutions

3M™ Electronic Marking System (EMS) Warning Tape 7900-XT Series

This warning tape series uses a high strength core material for an early warning during the excavation period. It's virtually a maintenance free solution for marking and locating the path of underground utilities and to help eliminate the problems and costs associated with the tracer wire and test stations. The embedded markers are compatible with 3M™ Dynatel™ Locators 7000 series.

3M™ Electronic Marking System (EMS) Warning Tape 7900 Series

Warning tape that is a maintenance free solution for marking and locating the path of underground utilities to help eliminate the problems and costs associated with the tracer wire and test stations.

Contact Cleaners – Aerosol Cleaners

Applications

- Critical cleaning including electronics and electro-mechanical devices, instrumentation, electrical contacts, connectors and other equipment in a variety of industries in different segments.
- Convenient aerosol form which combines effective cleaning with a wide margin of workplace safety when used as directed.
- Low global warming potential, non-ozone depleting and low toxicity

Questions to ask

- What are your current cleaning processes on energized equipment and devices and the challenges you're facing with that current solution?
- What cleaning agent properties are most important to your business? and what would you like to improve on the current product you use if you could?

Potential objections

- **Objection:** Contact cleaners do not clean well enough
  Response: 3M™ Novec™ Contact Cleaner Plus offers a premium cleaning solution for your tough jobs.

What are the key segments where our solutions could be applied?

- Manufacturing, industrial maintenance, repair and operations (MRO), aviation, transport, mining, factory equipment, electronics

Who are the right contacts?

- Maintenance manager
- Electrical contractor
- Job site manager
- Installer

Why recommend contact cleaners?

- Fast drying cleaners leave no residue penetrate into tight clearances, making them particularly suited for many critical cleaning applications.

Why does 3M win?

- Novec aerosol products are simultaneously non-flammable, non-corrosive and non-conductive.
- Fast drying cleaners leave no residue
- Low toxicity
- Favorable environmental profile
- No HCFCs, HFCs, nPB or HAPs
- Over 95% active solvent, for more cleans per can

Potential 3M Solutions

3M™ Novec™ Contact Cleaner

3M™ Novec™ Contact Cleaner effectively removes light oils, greases, silicones, dust and particulates from sensitive electrical and electronic equipment. It is compatible with plastics, is nonflammable, and is ideal for use on energized components. Compliant with OTC VOC regulations.

3M™ Novec™ Contact Cleaner Plus

3M™ Novec™ Contact Cleaner Plus is formulated with extra cleaning power to remove stubborn oils, greases and silicones, as well as fluorinated oils and greases, dust and particulates, from sensitive electrical and electronic equipment. Compliant with California and OTC VOC regulations.

3M™ Novec™ Electronic Degreaser

3M™ Novec™ Electronic Degreaser is a strong non-flammable cleaner ideal for removal of heavy oils, greases and handling soils from internal components of electronic equipment, precision devices and other electromechanical or sensitive devices.

Firestop – Foam and Sealant

Applications

- 3M™ Fire Barrier Rated Foam FIP 1-Step: Firestop foam installed into annular spaces created by pipes and cables penetrating through fire-rated construction
- 3M™ Fire Barrier Sealant CP 25WB+ Caulk: Firestop by caulking into annular spaces created by pipes and cables penetrating through fire-rated construction

Questions to ask

- Are you performing firestop today?
- Whose firestop are you installing?
- Did you know 3M does firestop?
- Did you know that 3M is the most tested product and UL listed in the world?
- If you want to improve something on the product what would that be?

Potential objections

- **Objection:** This product is not on the spec.
  Response: Does the specification state that an alternative is allowed? If so, you can use 3M.
- **Objection:** I do not have your designs.
  Response: 3M can assist you with firestop designs.
- **Objection:** These products are not water resistant.
  Response: If water resistance is of importance, we do have other products with water(W) rating such as our 3M™ Fire Barrier Water Tight Sealant 3000WT, 1000NS and 1003SL.

What are the key segments where our solutions could be applied?

- Commercial, industrial construction, residential industrial maintenance, repair and operations (MRO) plumbing

Who are the right contacts?

- Electrician
- Firestop contractor
- Maintenance manager
- Job site manager
- Installer

Why recommend firestop?

- Prevent the spread of fire, smoke and toxic gases

Why does 3M win?

- 3M's technical expertise
- 48-hour turnaround in engineering support
- 3M can assist with firestop designs
- 3M has one of the most highly specified products in the world
- 3m developed the first firestop products based on 3M intumescent technology
- 3M firestop products are available at many electrical distributors

Potential 3M Solutions

3M™ Fire Barrier Rated Foam FIP 1-Step

A two-part urethane, smoke, sound and firestopping foam. This intumescent foam can be used to fill the annular space created by pipes and cables penetrating through fire-rated construction. Firestop tested and rated up to 2 hours in accordance with ASTM E 814 (UL 1479) and CAN/ULC S115. Finish your firestop installations more than 3X faster.

3M™ Fire Barrier Sealant CP 25WB+ Caulk

A high-performance, intumescent latex-based sealant offering outstanding fire performance. Firestop tested for through penetration applications up to 4 hours in accordance with ASTM E814 (UL 1479) and CAN/ULC-S115.

Fire Barrier – Moldable Putty Pads

Applications

- Intumescent putty that can be easily formed to firestop wall-openings and through penetrations in fire-rated assemblies.

Questions to ask

- Are you performing firestop today?
- Whose firestop are you installing?
- Did you know 3M does firestop?
- Did you know that 3M is the most tested product and UL listed in the world?
- If you want to improve something on the product what would that be?

Potential objections

- **Objection:** This product is not on the spec.
  Response: Does the specification state that an alternative is allowed? If so, you can use 3M.
- **Objection:** I do not have your designs.
  Response: 3M can assist you with firestop designs.
- **Objection:** I prefer internal putty pads (from inside the box).
  Response: We are working on new technology to enable protection of boxes from the inside.

What are the key segments where our solutions could be applied?

- Residential, commercial, industrial construction, industrial maintenance, repair and operations (MRO), plumbing, warehouses, manufacturing

Who are the right contacts?

- Firestop contractor
- Maintenance manager
- Job site manager
- Installer

Why recommend firestop?

- Prevent the spread of fire, smoke and toxic gases

Why does 3M win?

- 3M's technical expertise
- 48-hour turnaround in engineering support
- 3M can assist with firestop designs
- 3M has one of the most highly specified products in the world
- 3M developed the first firestop products based on 3M intumescent technology

Potential 3M Solutions

3M™ Fire Barrier Moldable Putty Pads

A one-part firestop material used in various fire-rated assemblies, such as electrical box protection and wall openings. Ready to use in convenient pads or sticks. Provides up to 4-hour fire ratings per ASTM E814 (UL 1479) and CAN/ULC S115

Product name 1234 series

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Take expert-led, online electrical training anytime, anywhere 24/7.
3m.com/energy-academy

View our full product portfolio, create sharable project lists, and more with our 3M Electrical App, available on Google Play and the App Store®.

Contact us at 1-800-245-3573
or 3m.com/electricalconstruction

Product Selection and Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product in accordance with all applicable instructions and with appropriate safety equipment, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

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