3M Cold Shrink Technology Is 40 Years Old And Still Protecting, Insulating, Splicing & Terminating

3M is celebrating the 40th anniversary of its development of cold shrink technology. Specially formulated rubber tubes, stretched on a removable core, are used for electrical insulation, splicing and terminating. No source of heat or extra tools are needed to install a cold shrink accessory. One alternate method of applying accessories uses heat shrink technology, which requires a torch. To distinguish it from other methods, 3M gave the name “cold shrink” to the new technology.

“We were looking for a simpler, better way to insulate in-line splices for electrical power cables,” recalls Jim Sievert, the 3M engineer who first conceived the cold shrink idea. He and a team of associates at the company’s St. Paul, Minn., laboratories spent many months in material and process development, overcoming a number of technical challenges to eventually bring the idea to the market in the first of an ongoing series of products.

EPDM (ethylene propylene diene monomer) rubber, a relatively new material in 1968, offered promise for the cold shrink idea. An EPDM rubber formulation was needed that would easily stretch onto a core and when installed, would provide continuous radial pressure to maintain an environmental seal. 3M engineers developed a new formulation of EPDM rubber that would provide this “living seal.”

The first application for the cold shrink insulation product (initially known as the Pre-Stretched Tube or PST) was for buried low-voltage secondary splices. Over the 40 years since 1968, 3M has used this technology as the basis for continued innovation:

The first step in the evolution of 3M cold shrink technology was the 3M termination QTM for medium-voltage applications.
The 3M Cold Shrink Termination QT-II for medium-voltage terminations, consisting of a silicone insulator with integrated Hi-K stress relief, was introduced in the late 1970s.
In 1993, the 3M Cold Shrink QS2000 was the first cold shrink medium-voltage splice introduced in Europe.
A further development in 1996, the 3M Cold Shrink Termination QT-III, eliminated the need for grease, reduced the effective length of the termination and increased arc and track resistance. The QT-III insulator ended the need for sealing the top of the termination with tape, and provided improved hydrophobic recovery.
In 1997, Cold Shrink Splices QS-III for medium-voltage cable were added to the line. This one-piece design incorporates an under-cut electrode to control electrical stress within the splice.
Cold shrink branch splices for medium-voltage cables were added in 2001.
3M introduced cold shrink terminations for aerial and pad-mounted 69kV applications in 2005. The 3M Cold Shrink Termination Kit QT-III for 69/72,5kV replaces heavy porcelain products and heat shrink terminations. Users report that cold shrink terminations for high-voltage applications are compact and easier to handle than traditional systems and are installed in substantially less time and with greater safety.
Additional cold shrink products for low-, med- and high-voltage applications will be introduced in 2008.

For more information on 3M cold shrink products, contact the 3M Electrical Markets Division, A130-4N-40, 6801 River Place Blvd., Austin, Texas 78726-9000, USA, or call (800) 245-3573. For more information about 3M electrical products, go to www.3M.com/electrical.

The 3M Electrical Markets Division, based in Austin, Texas, designs, manufactures and markets products for electrical construction, industrial maintenance, utility and industrial power, and electrical and electronic components. EMD has more than 60 years of experience serving customers with highly reliable products, including power cable splices and terminations; high-temperature, low-sag transmission conductors; heat shrinkable tubing and molded shapes; electrical wire connectors, terminals, tools and lugs; wire marking products; cable ties; electrical diagnostic and detection products; and electrical and electronic insulating tapes and papers; electromagnetic compatible products.

About 3M

A recognized leader in research and development, 3M produces thousands of innovative products for dozens of diverse markets. 3M’s core strength is applying its more than 40 distinct technology platforms – often in combination – to a wide array of customer needs. With $24 billion in sales, 3M employs 75,000 people worldwide and has operations in more than 60 countries. For more information, visit www.3M.com.

3M Electrical Markets DivisionMary Kay KniefMkknief at 3M dot comPhotos Available

---

https://news.3m.com/2008-04-18-3M-Cold-Shrink-Technology-Is-40-Years-Old-And-Still-Protecting,-Insulating,-Splicing-Terminating