

3M Science.
Applied to Life.™

Building in productivity. From the ground up.

3M Wind Energy





Energizing a more sustainable future.

Build. Protect. Enhance.
It all starts here.

Securing wind as a viable energy source means making continual technological improvements to ensure more uptime.

How can you improve reliability, reduce costs, and increase efficiency?
That's where 3M can help.

From design and manufacturing through day-to-day operations, 3M offers you a wide array of innovative technology solutions—all engineered to help build more performance and profit into your system.

Collaborating for success. Building for safety and reliability.

At 3M, you'll find a team of experienced experts who are eager to help you develop new ways to take wind energy to the next level. Let our 100 years of technology, marketing, and manufacturing experience help propel you into a sustainable and more profitable future.

Imagine if you could share knowledge and ideas with the top scientists and engineers in your industry. Then think how much easier it would be to:

- overcome design problems
- find more efficient ways to boost performance
- enhance reliability
- provide protection against weathering and harsh environments

3M's technology portfolio is the foundation for thousands of unique and innovative products used in virtually every industry. In particular, 3M's expertise in adhesives, films, microreplication, nanotechnology, and specialty materials is ideally suited to help you design and build the next generation of wind energy systems.

Here's where 3M™ Wind Energy Products can help you:

Maintenance, manufacturing, and design

3M™ Wind Protection Tapes

3M™ Wind Epoxy

3M™ Clean Sanding System

3M™ Wind Blade Protection Coatings and Accessories

3M™ Wind Vortex Generator

3M™ Wind Protection Tape Accessories

Installation

3M™ Cold Shrink Splices and Terminations

3M™ Electrical Tapes

3M™ Cable Grounding Kits

3M™ Locators and Markers

Safety

3M™ Personal Protection Equipment

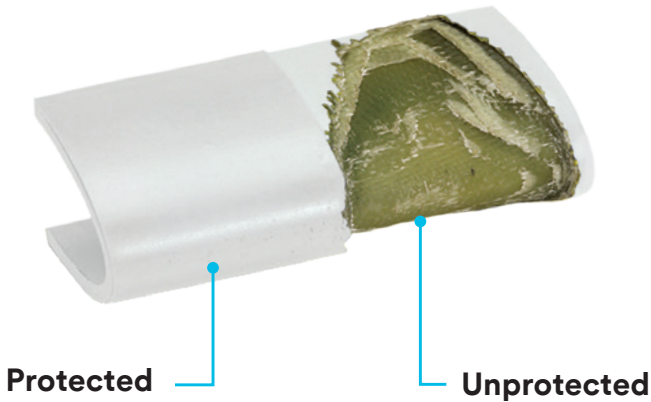


Extending equipment life.



Rotating up to 400 km/h, wind blades are faced with erosion caused by rain, hail, salt spray, and other debris. As a result, many blades can suffer pitting, gouging, and delamination that can affect aerodynamic efficiency and even impact the integrity of the entire blade. Poor blade performance can also reduce annual energy production, and repair downtime is costly.

3M™ Wind Erosion Solutions offer an array of products to both repair and help prevent damage caused by minor impacts and erosion. These advanced 3M materials are designed to enhance reliability, improve performance, and extend the life of your valuable equipment.



Sample tested in rainfall of 25 mm per hour at 800 km/h at the University of Dayton Research Institute Rain Erosion Test Facility.


Maintenance, manufacturing, and design

3M™ Wind Protection Tapes

3M™ Wind Protection Tapes help shield leading edges and surfaces from pitting, wear, and water ingress. Constructed from tough, abrasion-resistant polyurethane elastomers, 3M™ Wind Protection Tapes resist puncture, tearing, erosion, and weathering. They are UV stable, solvent-free, and conform to complex shapes to best protect your valuable equipment. They require no special application tools and are easily applied either in the factory or in the field via rope or platform access.

3M™ Wind Protection Tapes are based on the same dependable technology designed to protect helicopter blades and aircraft radomes for over 40 years. Applied to the leading edge of wind turbine blades, these high-performance polyurethane tapes help maintain turbine efficiency, reduce downtime and maintenance, and extend the useful life of blades—even in the harshest environments.

3M™ Wind Protection Tapes are constructed from an exceptionally tough, abrasion and puncture-resistant polyurethane elastomer that stands up to sand, rain, hail, and wind-borne debris.



Product Number	Colour	Opacity	Thickness mils (mm)
W8751	Colourless	Translucent	14 (0.36)
W8781	Grey	Opaque	14 (0.36)



3M™ Wind Epoxy

3M™ Wind Epoxy helps repair minor damage on wind blade surfaces.

3M™ Wind Epoxy is a flexible, tough, two-part epoxy used to finish and smooth wind blade surfaces and leading edges during manufacture, and repair damage on the wind blade surface quickly and reliably during maintenance operations.

Innovative 3M™ Duo-Pak Cartridges and Applicators help ensure accurate mixing, reduce waste, and virtually eliminate messy and time-consuming hand mix operations. This allows for the flexibility to finish and repair blades at the manufacturing facility or during operations and maintenance repairs, either on the ground or up tower.

Product number	Chemistry	Work time	Sand time	Colour
W3120	Epoxy	10 min.	30 min.	Blue

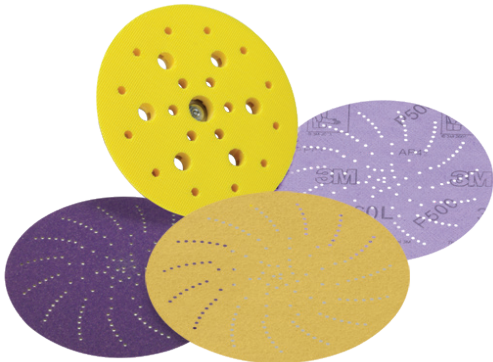


3M™ Clean Sanding System

3M™ Clean Sanding technology helps reduce dust in the air for a cleaner workspace when dry-sanding composites, metal, coatings, or almost any other substrate. Featuring a carefully matched system of abrasives, random orbital tools, and accessories, these easy-to-use products work together to help improve productivity—while delivering faster, more consistent finishing results.

The patented multi-hole design of the 3M™ Clean Sanding Disc captures and removes more dust, compared to five or six-hole products.

Recommended use 320 grit.



3M™ Wind Blade Protection Coatings and Accessories

3M™ Wind Blade Protection Coating W4602 is a two component polyurethane coating. It forms a single durable layer designed to help protect the leading edges of wind blades from damage caused by sand and rain erosion, and minor impacts. Designed for easy brush, spreader or casting application.


Supplies
3M™ Wind Blade Protection Coating W460 2 Part A and B 400 mL Duo Pack Cartridge, Part A 18 L Drum, Part B 18 L Drum
3M™ Wind Blade Protection Coating Brush
3M™ Wind Blade Protection Coating Mixing Nozzles
3M Accessories: 3M Abrasives, 3M Random Orbital Sander, 3M Masking Tape
Other Supplies: Thickness gauge, dropcloth for floor, gloves, knife



3M™ Wind Vortex Generator

3M™ Wind Vortex Generator is made of a highly durable thermoplastic with dimensional stability and strength, which has a proven track record of superb weathering resistance. The 3M™ Wind Vortex Generator is equipped with 3M™ Wind Acrylic Foam Tape die-cuts that provide excellent long-term durability and holding power while treating the blade surface with care.

Colour	Plastic type
Grey	ABS-like Thermoplastic (Acrylester-Styrol-Acrylnitril)



3M™ Wind Protection Tape Accessories

3M™ Wind Protection Tape Accessories are backed by technologies designed to help ensure optimal results and improve production – while simplifying and speeding up installation and repair operations.

Product Number	Name	Size	Qty/ Case	Additional Information
W2600	3M™ Wind Protection Tape Edge Sealer W2600	1.7 oz (50 mL)	12	A clear, non-yellowing, durable two-part urethane sealer system used to help smooth and protect the edges of 3M™ Wind Protection Tape. Provides excellent resistance to environmental exposure.
W9910/ W9910-1	3M™ Wind Tape Adhesion Promoter W9910/W9910-1	7 in × 7 in (17.8 cm x 17.8 cm)	5	Designed to enhance initial adhesion of 3M™ Wind Protection Tapes in demanding situations.
		16 oz (473 mL)	12	
50004	3M™ Scotch-Weld™ EPX Plus II Applicator 50004	-	10	Handheld 50 mL applicator used to apply 3M™ Wind Protection Tape Edge Sealer W2600. Provides fast and easy manual dispensing.
9176	3M™ Scotch-Weld™ EPX Square Gold Mixing Nozzle	-	72	Mixing nozzle used with 50 mL 3M™ Scotch-Weld™ EPX Plus II Applicator 50004.
23651	Scotch-Brite™ High Performance Cleaning Cloth 23651, Yellow	12.6 in x 14.2 in (32 cm x 36 cm)	50	Provides ultra cleaning power because of its knitted, interwoven design of water- and oil-absorbing microfibers that lift and trap liquids, grease, dust and dirt particles.
471	3M™ Vinyl Tape 471, Red	1 in x 36 yd (2.54 cm x 32.9 m)	36	Used for marking and guiding when applying 3M™ Wind Protection Tapes. Vinyl backing with rubber adhesive. Ideal for masking curved or irregular surfaces.
06856	3M™ Wetordry™ Rubber Squeegee PN05517 W/D	107 mm x 70 mm	50	Smaller size available but not recommended. Stiffer wipers may cause wrinkles.

Installation



3M™ Cold Shrink Splices and Terminations

3M™ Cold Shrink Splices and Terminations help ensure easy installation, effective insulation, and outstanding peace of mind. Their dynamic, compressive seals have proven reliable for over 40 years of field use. 3M™ Cold Shrink Splices and Terminations meet IEEE standards and are available for applications up to 69 kV.



3M™ Electrical Tapes

Seal, insulate, and help protect with confidence with high-quality 3M™ Professional Grade Electrical Tapes.

- Designed for extreme conditions, indoors, and outdoors
- Excellent conformability, even in cold weather
- Excellent resistance to moisture, corrosion, oils, and solvents
- Excellent resistance to UV light and abrasion (vinyl/specialty tapes)



3M™ Cable Grounding Kits

3M™ Cable Grounding Kits provide a simple, reliable, and secure method for grounding and resealing the jacket of direct buried cables. These kits are available for a range of cable types and sizes, including the commonly used JCN cables 1/0 AWG to 1250 kcmil, rated through 35 kV.



3M™ Locators and Markers

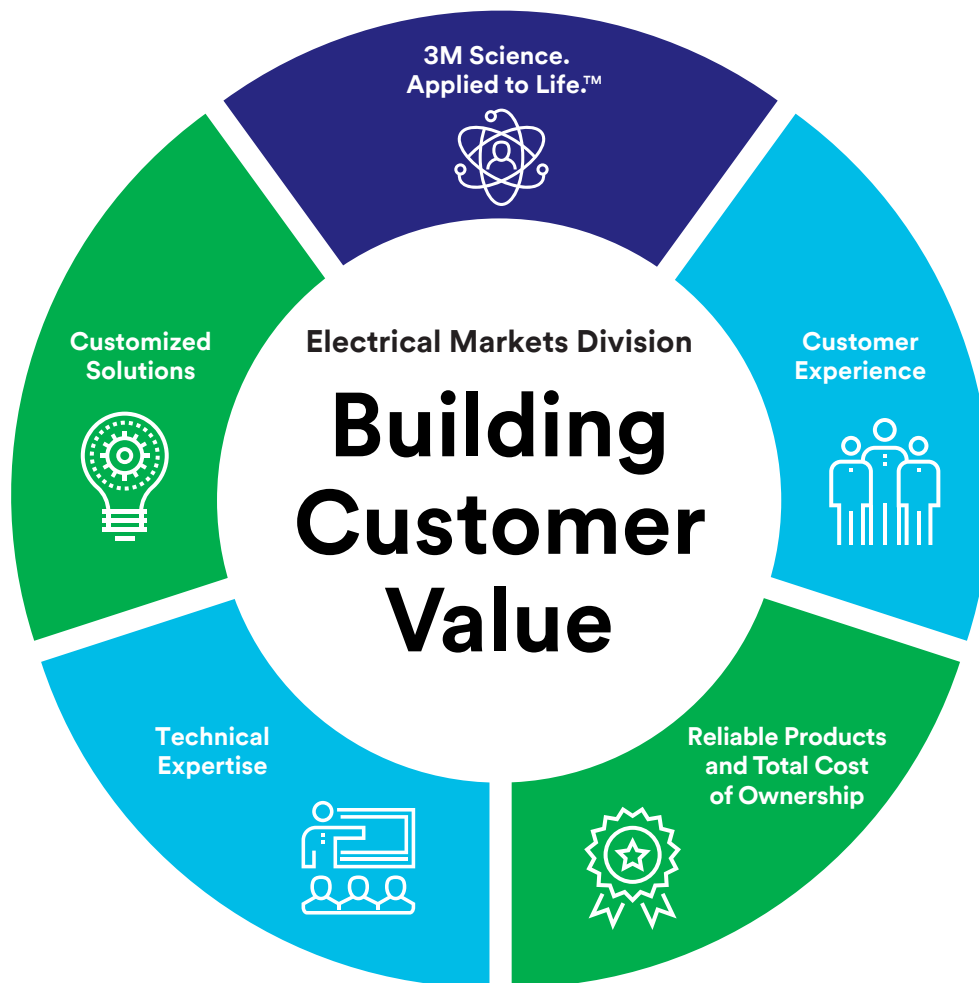
The full line of 3M™ Locators and Markers helps you quickly and accurately identify underground assets. From finding the exact path and estimated depth of underground utilities, to locating buried passive markers, to reading and writing information directly to the new RFID markers, 3M offers the precision tools needed to manage your assets. And now, certain 3M™ Dynatel™ Locators interface with select GPS/GIS field mapping instruments.

Safety

3M™ Personal Protection Equipment

3M™ Personal Protection Equipment is designed to help improve worker safety and reduce lost time injuries, with a broad range of personal protection equipment engineered for comfort, convenience, and functionality.





For more information about 3M electrical products and solutions contact us at: 3Menergysolutions@mmm.com.

Important Notice

Before using these products, you must evaluate them and determine if they are suitable for your intended application. You assume all risks and liability associated with such use.

Warranty, Limited Remedy, and Disclaimer

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