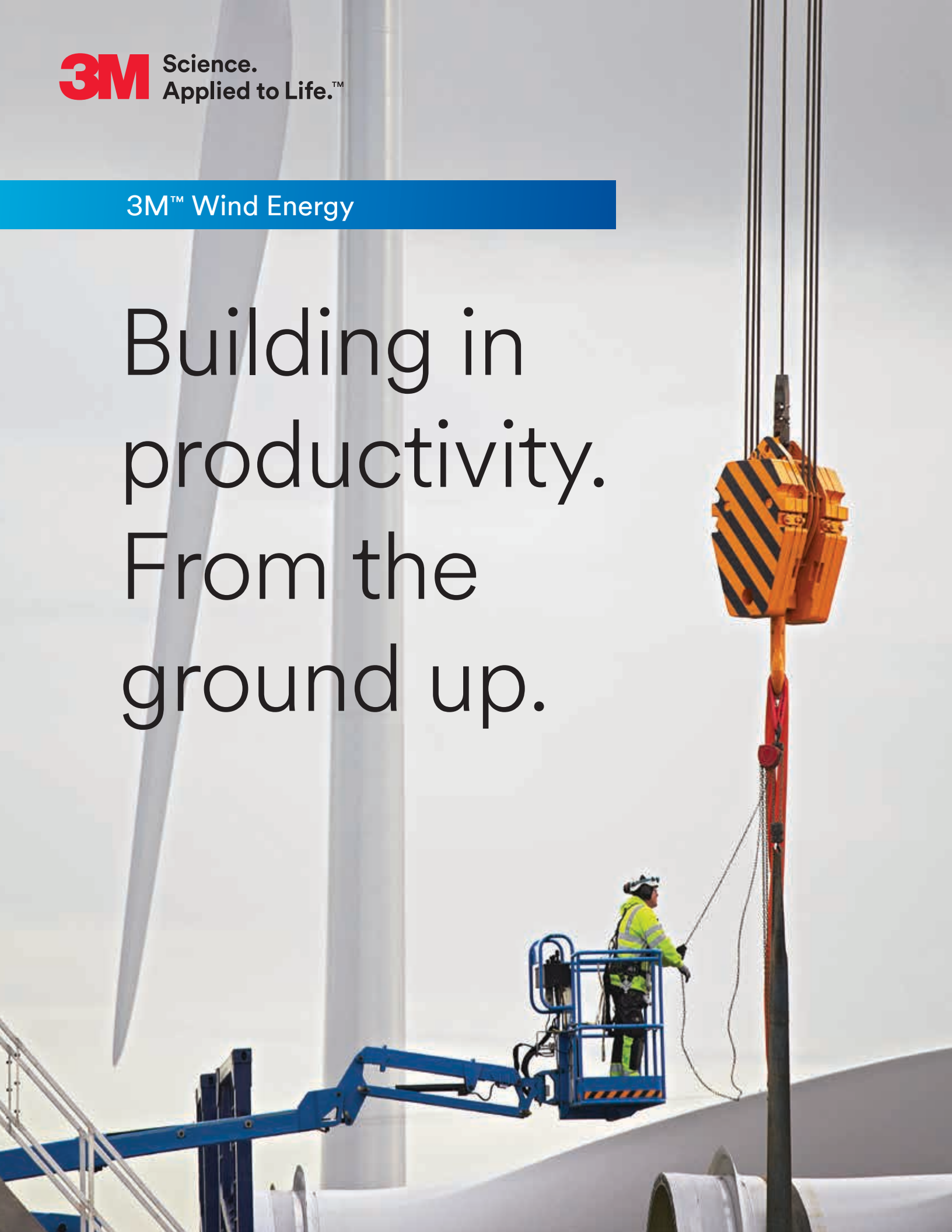


3M™ Wind Energy

Building in  
productivity.  
From the  
ground up.





# Energizing a more sustainable future.

**Build. Protect. Enhance.**  
**It all starts here.**

Securing the place of wind as a viable energy source means making continual technological improvements to ensure more uptime. Improve reliability. Reduce costs. 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 build more performance and profit into your system.

# Collaborating for success.



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. And more.

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.

## ▶ Operations & maintenance

- 3M™ Wind Protection Tapes
- 3M™ Wind Fillers
- 3M™ Acrylic Foam Tape
- 3M™ Clean Sanding System
- 3M™ Wind Blade Protection Coatings
- 3M™ Wind Vortex Generators

## ▶ Manufacturing & design

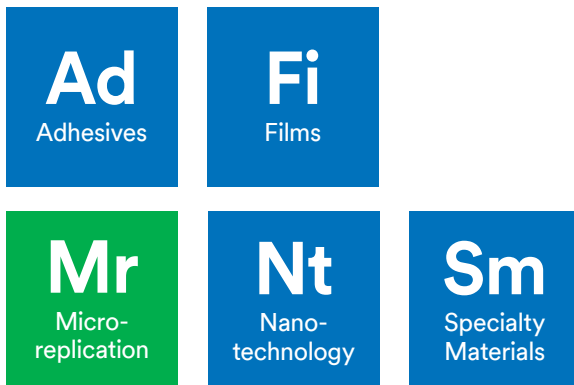
- 3M™ Wind Blade Protection Coatings
- 3M™ Wind Protection Tapes
- 3M™ Wind Blade Bonding Adhesive W1101
- 3M™ Wind Structural Adhesives
- 3M™ Wind Threadlockers
- 3M™ Dry Layup Adhesives
- 3M™ Wind Sealants
- 3M™ Acrylic Foam Tape
- 3M™ Diamond Cutoff Wheels
- 3M™ Wind Vortex Generators

## ▶ Installation

- 3M™ Cold Shrink Splices
- 3M™ Cold Shrink Terminations
- 3M™ and Scotch® Premium Electrical Tapes
- 3M™ Cable Grounding Kits
- 3M™ Wire Management and Marking Supplies
- Scotch® Detectable Buried Barricade Tapes
- 3M™ Locators and Markers

## ▶ Safety

- 3M™ Safety-Walk™ Materials
- 3M™ Filtering Facepiece Respirators
- 3M™ Half and Full Facepiece Respirators
- 3M™ Powered and Supplied Air Respirators
- 3M™ Hearing Protection
- 3M™ Eye Protection
- 3M™ Head and Face Protection
- 3M™ Peltor™ Communications
- 3M™ Fall Protection
- 3M™ Speedglas™ Auto-Darkening Filters and Helmets
- 3M™ Sorbents

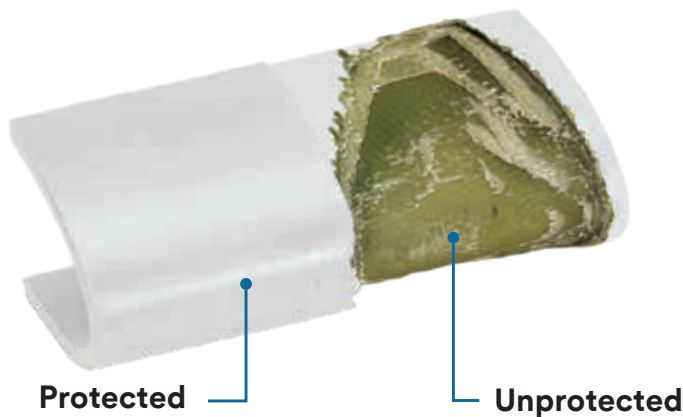


3M's technology portfolio is the foundation for thousands of unique and innovative products used in virtually every industry. In particular, 3M's expertise in adhesives, films, microreplication, nanotechnology and specialty materials is ideally suited to help you design and build the next generation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

# Extending equipment life.

Rotating up to 250 mph, 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 one inch per hour at 500 mph at the University of Dayton Research Institute Rain Erosion Test Facility.



## 3M™ Wind Blade Protection Coatings and Accessories

3M™ Wind Blade Protection Coating W4600 and W4601 are two-component polyurethane coatings. They each form 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 or casting application.



## Supplies

3M™ Wind Blade Protection Coating W4600  
Part A & B, 250 mL Duo-Pack Cartridge, Part A, 18L Drum, Part B, 18L Drum

3M™ Wind Blade Protection Coating Brush

3M™ Wind Blade Protection Coating W4601  
Part A & B, 385 mL Duo-Pack Cartridge, Part A, 18L Drum, Part B, 18L Drum

3M™ Wind Blade Protection Coating Manual Applicators – 250 mL – 1.5:1

3M™ Wind Blade Protection Coating Pneumatic Applicators – 250 mL – 1.5:1

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 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 have a proven ability to maintain turbine efficiency, reduce downtime and maintenance, and extend the useful life of blades – even in the harshest environments.


### 3M™ Wind Protection Tape Accessories

Technologies designed to ensure optimal results and improve production – while simplifying and speeding up installation and repair operations.



Product Number	Color	Opacity	Thickness mils (mm)	Liner	Tensile Strength @ Break psi (MPa)	Elongation @ Break (%)
W8607	Colorless	Transparent	14 (0.36)	Poly	5000 (35)	500
W8620	White	Opaque	14 (0.36)	Paper	5000 (35)	500
W8640	Gray	Opaque	14 (0.36)	Poly	5000 (35)	500
W8750	Colorless	Translucent	14 (0.36)	Poly	3336 (23)	600
W8780	Light Grey	Opaque	14 (0.36)	Poly	3336 (23)	600

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	Name	Size	Qty/Case	Additional Information
W2600	3M™ Wind Protection Tape Edge Sealer W2600	1.7 oz. (50 mL)	1	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.
W9900	3M™ Wind Tape and Residue Remover (TARR) W9900	16 oz. (473 mL)	6	Removes 3M™ Wind Protection Tapes, tape residue and neoprene without damaging composite or metal surfaces.
		1 gal (3.785 L)	4	
W9910	3M™ Wind Tape Adhesion Promoter W9910	7 × 7 in. (17.8 × 17.8 cm) wipe	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	1.7 oz. (50 mL)	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	1.7 oz. (50 mL)	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. × 14.2 in. (32 cm × 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. × 36 yd. (2.54 cm × 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.
-	3M™ Protective Tape Application Solution	1 qt. (946 mL)	1	Pre-mixed, water-based application solution to accurately combine the materials in the preferred ratios for the desired cleaning, ease of application and performance of 3M™ Wind Protection Tape.
PA1	3M™ Hand Applicator PA1-B Blue	N/A	25	Reusable squeegee-type applicator – flexible and durable.



### 3M™ Wind Epoxy and Polyurethane Fillers

3M offers a complete line of fillers, abrasives and accessories to repair minor damage on wind blade surfaces. 3M™ Wind Fillers are flexible, tough two-part epoxy or polyurethane fillers used to finish and smooth wind blade surfaces and leading edges during manufacture, and to repair minor damage on the wind blade surface quickly and reliably during maintenance operations. Multiple chemistries and performance times meet a variety of application needs, while innovative 3M™ Duo-Pak Cartridges and Applicators 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	Color
W3120	Epoxy	10 min.	30 min.	Blue
W3610	Polyurethane	8-10 min.	30 min.	Dark Gray

### 3M™ Wind Filler Accessories

Product Number	Product Name	Size	Quantity/Case
08117	MixPac® Manual Applicator Guns	6.8 oz. (200 mL)	1
–	3M™ Scotch-Weld™ EPX™ Pneumatic Applicator Guns	6.8 oz. (200 mL)	1
–	3M™ Scotch-Weld™ Square Gold Mixing Nozzles	7 in. (177 mm)	36
344	Dynatron® Yellow Spreader	3 in. × 4 in. (7.6 cm × 10.1 cm)	144
354	Dynatron® Yellow Spreader	3 in. × 5 in. (7.6 cm × 12.7 cm)	144
363	Dynatron® Yellow Spreader	3 in. × 6 in. (7.6 cm × 15.2 cm)	36

### 3M™ Clean Sanding System

For dry-sanding composites, metal, coatings or almost any other substrate, almost nothing reduces dust more completely and efficiently than 3M™ Clean Sanding technology. Featuring a carefully-matched system of abrasives, random orbital tools, and accessories, these easy-to-use products work together to improve productivity – while delivering faster, more consistent finishing results.

The patented, precise multi-hole patterns of 3M Clean Sanding Discs and Sheets can evacuate dust better than 5 or 6-hole products – for improved faceside performance and dramatically longer disc life.



### 3M™ Wind Sealants and Accessories

3M offers a complete line of polyurethane and hybrid sealants. These products are ideal for sealing, component attachment, and an unlimited variety of fabrication and repair applications, including blades and nacelle covers. Engineered to provide outstanding sealing and bonding performance, their unique one-part polyurethane formulations are also easy to use.



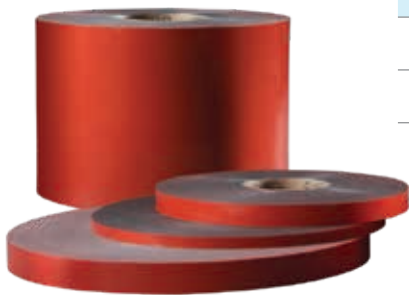
Product Number	Product Name	Skin Time	Rate of Cure per 24 hours	Shore A Hardness	Elongation @ Break (%)
W2640	3M™ Polyurethane Sealant W2640	60 min.	0.12 in. (3 mm)	40	>600%
W2660	3M™ Polyurethane Sealant W2660	50 min.	0.16 in. (4 mm)	55	>600%
W2340	3M™ Hybrid Sealant W2340	40-60 min.	>0.12 in. (3 mm)	30	>300%

Product Number	Power Source	10.5 oz. (310 mL) Cartridges	20.3 oz. (600 mL) Sausage Packs
310M	Manual	●	
400M	Manual	●	
600M	Manual	●	●
600A	Pneumatic		●
34A	Pneumatic	●	
643B	Battery-Operated	●	●

### 3M™ Wind Acrylic Foam Tapes

3M™ Wind Acrylic Foam Tapes can be used for a variety of surface bonding applications. The technology behind 3M Acrylic Foam Tapes has been used around the world since 1980 to replace liquid adhesives and mechanical fasteners in permanent bonding and sealing applications.



Product Number	Thickness		Density lb/ft³ (kg/m³)	Color
	mil	mm		
W4155	62	1.55	37 (592.7)	Black
W4110	45	1.10	37 (592.7)	
W4080	32	0.80	37 (592.7)	
W4063	25	0.63	37 (592.7)	
W2304	120	3.00	45 (720.8)	White
W2204	79	2.00	45 (720.8)	
W2155	62	1.55	52 (833)	Dark Gray
W2110	45	1.10	52 (833)	
W2063	25	0.63	52 (833)	



### 3M™ Wind Vortex Generators

3M™ Wind Vortex Generators (VGs) are made of a highly durable thermoplastic with dimensional stability and strength which has a proven track record of superb weathering resistance. Our Vortex Generators are 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.

Color	Plastic Type
Gray	ABS-like Thermoplastic (Acrylester-Styrol-Acrylnitril)

# Enhancing productivity at every turn.

3M is a world leader in advanced adhesives, used by industries ranging from electronics and aerospace to woodworking and composites manufacturing. We offer thousands of structural and non-structural strength products in a wide range of formulations, cure times and dispensing systems.

For wind components manufacturing, 3M offers a line of innovative adhesive solutions – optimized to meet the unique needs of this dynamic industry for strength, durability, environmental resistance and efficiency.

## 3M™ Wind Structural Adhesives

A family of load-bearing, two-part epoxy or acrylic adhesives used for bonding composite wind blades, and for other general purpose applications. Adhesives cure at room temperature and are available in various formulations to provide the combination of bond strength, flexibility and other properties that meet your application needs.



## 3M™ Wind Blade Bonding Adhesive W1101

A tough, crack-resistant structural epoxy used for bonding composite wind blades. Enables faster throughput, resulting in more blades per mold.

W1101 is a two-part paste adhesive that combines outstanding shear and peel strength with excellent impact resistance and durability. It also provides faster cure speed, reduced exotherm and longer pot life than conventional epoxy wind blade adhesives, saving up to 6 hours in mold time per blade.

Product Number	Color	Chemistry	Elasticity	Shear Strength psi (MPa)	Viscosity (cP)	Work Life	Set Time	Size* oz. (mL)	Quantity/Case
W1115	Off-White	Epoxy	Rigid	3600-4000 (25-28)	30,000	20 min.	2.5 hr.	1.7 (50)	12
								13.5 (400)	6
W1120	Black	Epoxy	Rigid	2200-3200 (15-22)	Non-Sag	45 min.	4 hr.	1.7 (50)	12
								13.5 (400)	6
W1125	Black	Epoxy	Rigid	2500-3600 (17-25)	600,000	1.5 hr.	8 hr.	1.7 (50)	12
								13.5 (400)	6
W1210	Off-White	Acrylic	Rigid	2600-3000 (18-21)	Non-Sag	10 min.	20 min.	1.7 (50)	12
								13.5 (400)	6

\* Also available in bulk packaging.

## 3M™ Wind Structural Adhesives Accessories

Product	Quantity/Case
3M™ Scotch-Weld™ EPX™ Plus II Manual Applicator (small cartridges)	10
3M™ Scotch-Weld™ EPX™ Pneumatic Applicator (large cartridges)	1
3M™ Scotch-Weld™ EPX™ Square Gold Mixing Nozzle (small cartridges)	72
3M™ Scotch-Weld™ EPX™ Square Gold Mixing Nozzle (large cartridges)	36



3M™ Wind Structural Adhesives offer solutions for a wide range of applications. The Duo-Pak cartridge provides a controlled flow and is easy to use.

Product Number	W1101
Color	Gray
Chemistry	Epoxy
Elasticity	Rigid
Shear Strength psi (MPa)	3800-5600 (26-39)
Viscosity	Non-Sag
Pot Life (hr)	2
Size gal. (L)	53 (200)

Because of its high strength and durability, 3M™ Wind Blade Bonding Adhesive W1101 helps reduce labor costs for in-factory repairs. It also helps reduce turbine downtime by requiring fewer repairs on-site.

## 3M™ Wind Threadlockers

One-component anaerobic adhesives that cure and seal threaded assemblies in a wide range of applications to prevent loosening and leakage.



3M™ Wind Threadlockers provide excellent vibration, corrosion, and shock resistance. Threadlocker W1235 produces a bond that can be removed with hand tool.

Product Number	Color	Strength	Viscosity (cP)	Set Time (min)	Size oz. (mL)	Property
W1235	Blue	Medium	3,000	<20	8.5 (250)	Oil tolerant

## 3M™ Dry Layup Adhesive

This sprayable, high tack and fast-drying adhesive is a synthetic elastomer-based formulation for bonding/holding glass fabrics and roving, other reinforcements and other materials (i.e. flow media) in place during the infusion process. Its particle spray pattern and color provide a visual check of spray level for more consistent application.

Product Number	Color	Size	Application Method
09091	Red	16 oz. (473 mL) Aerosol	Aerosol Can
09092	Red	5 Gallon (18.9 L)	3M™ PPS™ Paint Preparation System with 3M Spray Gun
09093	Red	55 Gallon (208 L)	3M™ PPS™ Paint Preparation System with 3M Spray Gun
09094	Red	30 lbs. (13.6 kg) Cylinder	3M™ Scotch-Weld™ Cylinder Adhesive Applicator
W7900	Green	14.7 oz. (435 mL) Aerosol	Aerosol Can
		5 Gallon (18.9 L)	3M™ PPS™ Paint Preparation System with 3M Spray Gun



3M™ Dry Layup Adhesive is designed to reduce the amount of time required for dry layup of fiberglass. Ideal for robotic application. It also helps reduce wrinkles, which can be a major source of failures.

## 3M™ Dry Layup Adhesive Accessories

Product	Qty/Case
3M™ PPS™ Paint Preparation System with 3M Spray Gun*	1
Pressure Pot System with 3M Spray Gun*	1
Bulk Pumping System with 3M Spray Gun*	1
3M™ Scotch-Weld™ Cylinder Adhesive Applicator	1
3M™ Scotch-Weld™ Cylinder Adhesive 6 Foot Hose (1.8 m)	1
3M™ Scotch-Weld™ Cylinder Adhesive 12 Foot Hose (3.6 m)	1
3M™ Scotch-Weld™ Cylinder Adhesive 25 Foot Hose (7.6 m)	1
3M™ Scotch-Weld™ Cylinder Adhesive 50 Foot Hose (15.2 m)	1
3M™ Scotch-Weld™ Cylinder Adhesive 250050 Spray Tip	1
3M™ Scotch-Weld™ Cylinder Adhesive 4001 Spray Tip	1
3M™ Scotch-Weld™ Cylinder Adhesive 650050 Spray Tip	1
3M™ Scotch-Weld™ Cylinder Adhesive 6501 Spray Tip	1
3M™ Scotch-Weld™ Cylinder Adhesive 9501 Spray Tip	1

## 3M™ Spray Gun Options

Spray Gun	Air Cap	Fluid Nozzle in. (mm)	Inlet Air psi (kPa)
Series 12S	7 or 9	0.05 or 0.06 (1.3 or 1.5)	25 (172)
Series 19C	805 or 807	0.04 or 0.05 (1.1 or 1.5)	25 (172)

# Building for safety and reliability.



## Installation

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.



## 3M™ Cold Shrink Splices and Terminations

Ensure easy installation, effective insulation and outstanding peace of mind. Dynamic, compressive seals have proven reliable for over 40 years of field use. Meets IEEE standards. Available for applications up to 69kW.



## Safety

### 3M™ Personal Protection Equipment

Designed to improve worker safety and reduce lost time injuries, with a broad range of personal protection equipment engineered for comfort, convenience and functionality.

- ▶ 3M™ Filtering Facepiece Respirators
- ▶ 3M™ Half and Full Facepiece Respirators
- ▶ 3M™ Powered and Supplied Air Respirators
- ▶ 3M™ Hearing Protection
- ▶ 3M™ Eye Protection
- ▶ 3M™ Head and Face Protection
- ▶ 3M™ Peltor™ Communications
- ▶ 3M™ Fall Protection
- ▶ 3M™ Speedglas™ Auto-Darkening Filters and Helmets
- ▶ 3M™ Sorbents



### 3M™ Safety-Walk™ Slip-Resistant Materials

Protect against costly slips and falls while reducing worker fatigue. Treads, tapes, matting and a variety of pre-cut, easy-to-apply shapes also prevent ice, snow and mud buildup. Available in sizes, colors and grades for virtually any surface.



# Connecting you to a world of 3M resources.

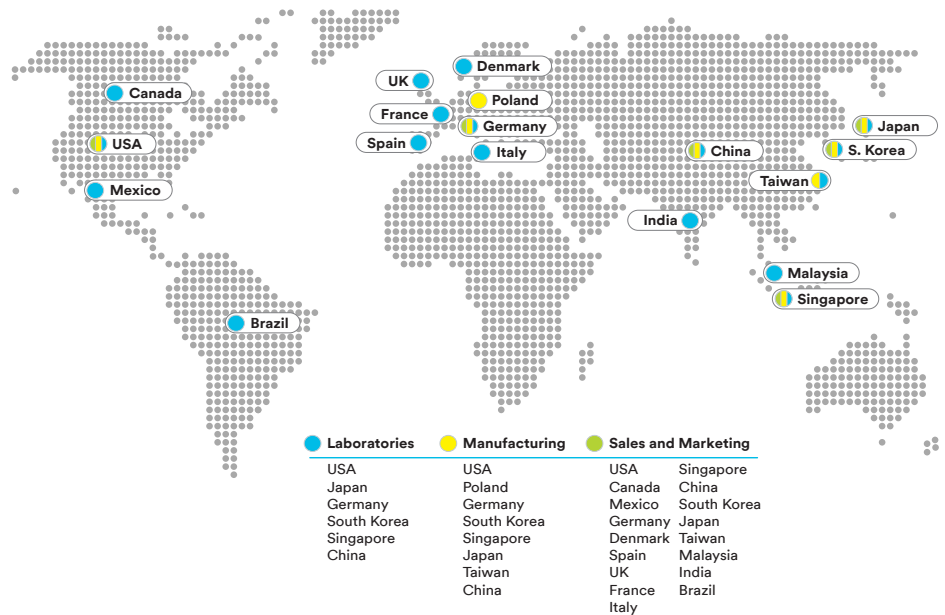
## Your reliable supplier of technologies for wind energy

When you're being challenged to find new ways to make wind and other forms of sustainable energy more reliable and cost efficient, you need people on your side who have the industry experience and technical know-how to make that happen. With 3M, you have the advantage of an experienced, reliable partner, with the resources and expertise to help you develop applications, provide technical support and supply products almost anywhere in the world.

From tapes and adhesives used in blade manufacturing to electrical splices and terminations for connecting to the grid, 3M is ready to help you build the next generation of wind energy systems – with products designed to enhance reliability, improve performance and provide protection against weathering and harsh environments.

Working with a single, dedicated supplier like 3M gives you one contact for many solutions. And as a global company with operations in 70 countries, and laboratories in 36 countries, we have the ability to connect you with local 3M personnel to provide expert technical and business support almost anywhere in the world. Contact us today to see how 3M's renewable energy expertise can help you meet the challenges of today's marketplace.

### 3M Global Footprint



<b>United States</b> 800 676 8281	<b>Spain</b> 34 91 3216000	<b>Italy</b> 39 02 70351	<b>South Korea</b> 82 2 3771 4043	<b>Brazil</b> 0800 13 23 33	<b>Japan</b> 81 3 3709 8283
<b>Germany</b> 49 2131 144450	<b>France</b> 33 1 30316161	<b>Singapore</b> 65 6450 8888	<b>India</b> 91 80 22231414	<b>Mexico</b> 52 55 52702250	<b>Malaysia</b> 603 78062888
<b>Denmark</b> 45 43 480100	<b>United Kingdom</b> 44 1344 858000	<b>China</b> 86 21 62753535	<b>Canada</b> 800 364 3577	<b>Taiwan</b> 886 933 896752	<b>Other Areas</b> 800 755 2654

For more information on our wind energy product line, contact 3M at 800 676 8381 or visit us at [3M.com/Wind](http://3M.com/Wind)

**Technical Information:** The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

**Product 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. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

**Warranty, Limited Remedy, and Disclaimer:** Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

**Limitation of Liability:** Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.



#### Renewable Energy Solutions

8601 River Place Blvd.  
Austin, MN 78726  
800 755 2654  
[3M.com/wind](http://3M.com/wind)

Please recycle. Printed in USA.  
© 2018 3M. All rights reserved.  
98-0150-1007-1 B

3M, Dynatel, Dynatron, EPX, PPS, Peltor, Safety-Walk, Scotch, Scotch-Brite, Scotch-Weld and Speedglas are trademarks of 3M Company. Used under license by 3M subsidiaries and affiliates. MixPac is a registered trademark of Sulzer MixPac AG, Switzerland.