

# Wind Turbine Structural Adhesives Selector Guide

ITW Plexus offers specialized adhesives for the design and manufacture of wind blades, turbine housing assemblies, lightning suppression systems and other industry related applications.

**PLEXUS**<sup>®</sup>  
*Structural Adhesives*

# Bond With PLEXUS®

## Revolutionizing Wind Turbine Construction

With the ability to produce durable, high-strength bonds to virtually all polyester resins and gelcoats, as well as most engineered thermoplastics and metals, Plexus adhesives are dramatically changing the way the wind turbine industry designs and builds wind blades, turbine housing assemblies, lightning suppression systems and other industry related applications. Joints that used to be built up through hours of tedious labor are now made quickly and easily with Plexus Adhesives.

## Chemically Fuse Composites

Unlike epoxies and urethanes, Plexus Adhesives chemically fuse FRP and composites. They produce bonds so strong that the substrates will delaminate before the bond fails.

## Superior Bond Strength and Resistance

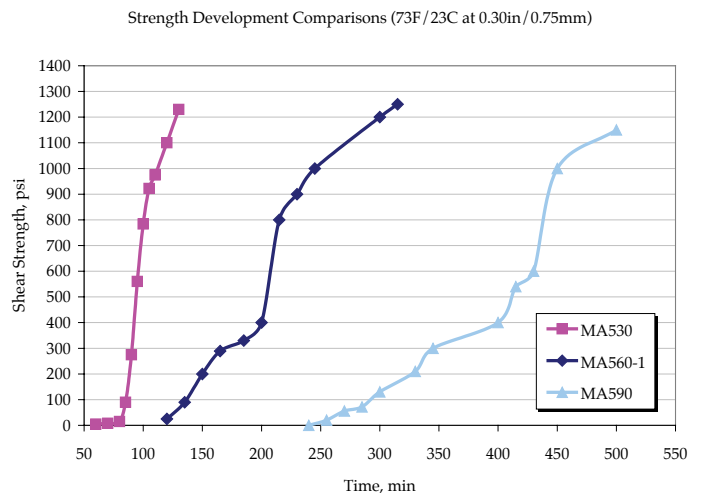
Wind Blades bonded with Plexus Adhesives offer superior strength, durability, flexibility, and impact resistance. Made with a patented technology, all Plexus systems provide cycle fatigue resistance under high stress loads, resulting in years of durability. They also have excellent resistance to chemicals, fuels, moisture, water, and UV.

## Little or No Surface Preparation

Plexus Adhesives are primerless and typically require no sanding or grinding. Virtually no surface preparation needed.

## Dramatically Reduce Assembly Costs

Because they minimize or eliminate surface preparation and snap cure at room temperature (see Chart below), Plexus Adhesives dramatically simplify and shorten assembly times, and reduce production costs. As a result, blade/rotor manufacturers see increased throughput and higher end product quality.



ITW Plexus is part of ITW Performance Polymers, an international business unit of Illinois Tool Works and a worldwide giant in fastening, joining, sealing, and coating technologies. The Plexus business unit makes and sells the patented Plexus methacrylate adhesives for structural bonding of nearly all thermoplastics, metals, and composite materials. Plexus adhesives have a proven record of outstanding performance in the most demanding applications in the wind energy, transportation, marine, and engineering construction industries.

Plexus has worldwide locations in the United States, Mexico, Europe, Asia, and Japan. Further, Plexus is represented by a worldwide distribution network in North America, South America, Europe, Australia, Asia, Japan, and the Far East.

## Blade Assembly Adhesives

### MA530

Plexus® MA530 is a two-part methacrylate adhesive. Combined at a 1:1 ratio, MA530 has a working time of 30 to 40 minutes and achieves approximately 75% of ultimate strength in 90 to 160 minutes at 74°F (23°C). Plexus MA530 is available in 400 ml cartridges, 5 gallon pails (20 liter) and 50 gallon (200 liter) drums to be dispensed as a non-sagging gel using standard meter-mix equipment.

Color	Mix Ratio by Volume	Viscosity (cP)	Working Time (min)	Fixture Time (min)	Tensile Strength (psi/Mpa)	Tensile Elongation (%)	Shear Strength (psi/Mpa)
Gray	1:1	A: 160,000-180,000 B: 160,000-180,000	30-35	90-160	3000-3500/ 20.7-24.1	130-170	1900-2200/ 13.1-15.2

### MA560-1

Plexus® MA560-1 is a two-part methacrylate adhesive. Combined at a 1:1 ratio, MA560-1 has a working time of 55 to 70 minutes and achieves approximately 75% of ultimate strength in 3 and 4 hours at 74°F (23°C). Plexus MA560-1 is available in 400 ml cartridges, 5 gallon pails (20 liter) and 50 gallon (200 liter) drums to be dispensed as a non-sagging gel using standard meter-mix equipment.

Color	Mix Ratio by Volume	Viscosity (cP)	Working Time (min)	Fixture Time (min)	Tensile Strength (psi/Mpa)	Tensile Elongation (%)	Shear Strength (psi/Mpa)
Gray	1:1	A: 145,000-185,000 B: 170,000-205,000	55-70	220-240	2500-3000/ 17.2-20.7	130-170	1700-2200/ 11.7-15.2

### MA590

Plexus® MA590 is a two-part methacrylate adhesive. Combined at a 1:1 ratio, MA590 has a working time of 90 to 105 minutes and achieves approximately 75% of ultimate strength in 180 to 240 minutes at 74°F (23°C). Plexus MA590 is available in 400 ml cartridges, 5 gallon pails (20 liter) and 50 gallon (200 liter) drums to be dispensed as a non-sagging gel using standard meter-mix equipment.

Color	Mix Ratio by Volume	Viscosity (cP)	Working Time (min)	Fixture Time (min)	Tensile Strength (psi/Mpa)	Tensile Elongation (%)	Shear Strength (psi/Mpa)
Gray	1:1	A: 175,000-220,000 B: 175,000-220,000	90-105	210-270	2000-2500/ 13.8-17.2	130-160	1400-1800/ 9.7-12.4

## Secondary Bonding Adhesives

Product	Color	Mix Ratio by Volume	Viscosity (cP)	Working Time (min)	Fixture Time (min)	Tensile Strength (psi/Mpa)	Tensile Elongation (%)	Shear Strength (psi/Mpa)
MA310	Cream	1:1	A: 40,000-60,000 B: 40,000-60,000	15-18	30-35	4000-4500/ 27.6-31.1	5-15	3000-3500/ 20.7-24.1
AO420	Blue Black Cream	10:1	A: 100,000-125,000 B: 50,000-70,000	4-6	15-18	2700-3000/ 18.6-20.7	100-125	1750-2250/ 12.1-15.5
MA422	Blue	10:1	A: 100,000-125,000 B: 40,000-60,000	17-24	35-40	2000-2500/ 13.8-17.2	75-100	1500-1800/ 10.3-12.4
MA830	Gray	10:1	A: 90,000-120,000 B: 50,000-70,000	4-6	20-25	3200-3800/ 22.1-26.2	30-60	2300-2800/ 15.9-19.3



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For a list of worldwide distribution locations visit:

[www.itwplexus.com](http://www.itwplexus.com)