

Structural Adhesive Solutions for Wind Turbine Construction & Repair



Optimizing Wind Turbine Construction and Repair

Introduction

Plexus methacrylate adhesives are designed to produce durable, high-strength bonds to thermoset resin systems and gelcoats, as well as engineered thermoplastics and metals. They are enhancing the way wind turbine blades, nacelle assemblies, lightening suppression systems, and other wind power generation equipment are designed, built and repaired.

Plexus adhesives help simplify assembly processes and reduce production time, resulting in lower costs and higher throughput in the plant or on the field.

Simplifying and Speeding Wind Blade and Nacelle Repairs

Little or no surface preparation, lightweight manual and battery-powered dispensers, single-step mixing/dispensing, easy cleanup, rapid curing over a wide temperature range, superior cure strength and resistance...

All these benefits make Plexus two-part adhesives the ideal method for repairing and retrofitting wind blades, either in manufacturing or up-tower.

Little or No Surface Preparation

Plexus Adhesives typically require little or no sanding, grinding, or other surface preparation. Depending on Plexus Adhesive used, metals may require priming.

Mixed as Dispensed

Plexus Adhesives are mixed using manual, pneumatic, or battery-powered dispensers for up-tower, field, or production repair/assembly. Plexus Adhesives can also be applied from bulk containers using larger pneumatic dispensers.

Rapid Curing Over a Broad Temperature Range

Plexus Adhesives can be applied and cure quickly over a wide range of temperatures. Fixture time can also be reduced through the application of gentle heat. Cure is unaffected by humidity.

Chemically Fuse Composites

Plexus Adhesives chemically fuse FRP and composites, forming high-strength bonds. Unlike epoxies and urethanes, they are very forgiving to off-ratio mixing.

Superior Bond Strength and Resistance

Plexus Adhesives offer superior strength, durability, flexibility, and impact resistance.

Based on ITW-patented technology, they cure to a tough polymer system with excellent cycle fatigue resistance under high stress loads. They also offer excellent long-term environmental resistance (moisture and UV) as well as excellent resistance to chemicals.

Reduce Assembly Costs and Downtime

Plexus Adhesives simplify and shorten assembly and reduce production costs. They minimize or eliminate surface and preparation and snap cure at room temperature, allowing blade/rotor manufacturers to increase throughput. They also allow faster repairs and reduce downtime.



Applications:

- **Rotor Blade Bonding**
blade edges, shear web, root, vortex generator and secondary components
- **Nacelle Bonding**
screens, gear boxes, vents, roof clips
- **Drill-and-Fill Repairs**
of internal debonding, delamination, or adhesive voids
- **Field Repairs**
of trailing edge splits, lightning strike damage or shipping damage
- **Vortex Generator Retrofits**
during manufacturing or in the field

Adhesive	Description	Color	Mix ratio (by volume)	Working time (min)	Fixture time (min)	Shear Strength (psi/MPa)
MA560-1	For large repair applications requiring long open/working times	Gray, White	1:1	55 - 70	220 - 240	1,700 - 2,500 / 11.7 - 17.2
MA560 LV	Low-viscosity version of MA560-1 for use when adhesive injection repair is preferred	Gray	1:1	55 - 70	180 - 240	1,700 - 2,200 / 11.7 - 15.2
MA530	For medium-sized repairs, allows faster return to service	Gray, White	1:1	30 - 40	90 -160	1,700 - 2,500 / 11.7 - 17.2
MA530 LV	Low-viscosity version of MA530 for use when adhesive injection repair is preferred	Gray	1:1	30 - 35	90 -160	1,400 - 1,800 / 9.7 - 12.4
MA310	Low-viscosity, injectable adhesive for small repairs and retrofits	Cream	1:1	15 -18	45 - 55	3,000 - 3,500 / 20.7 - 24.1
MA300	Low-viscosity, fast-curing injectable adhesive for small repairs and retrofits	Cream, Black	1:1	3 - 6	12 - 15	3,000 - 3,800 / 20.7 - 26.2

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