



Sika Wind Turbine Technologies

Imagine New Solutions



Innovation & Consistency | since 1910

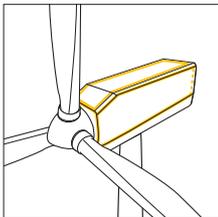
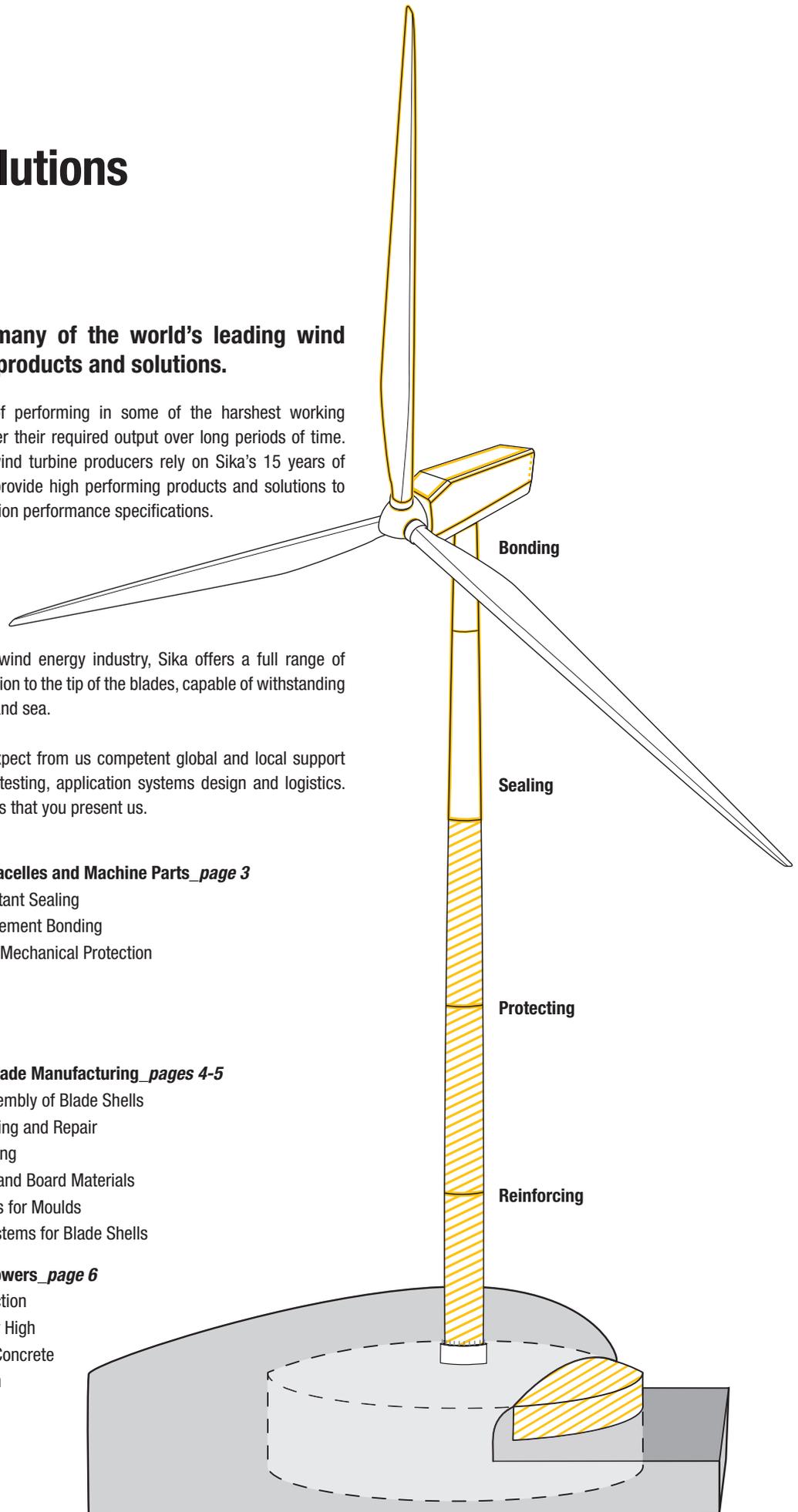
Sika Product Solutions

It is no coincidence that so many of the world's leading wind turbine producers rely on Sika products and solutions.

Wind turbines must meet the demands of performing in some of the harshest working environments throughout the world to deliver their required output over long periods of time. That is why many of the world's leading wind turbine producers rely on Sika's 15 years of experience in the wind energy industry to provide high performing products and solutions to meet their tough manufacturing and installation performance specifications.

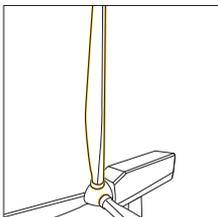
Based on our extensive knowledge of the wind energy industry, Sika offers a full range of products and solutions from the base foundation to the tip of the blades, capable of withstanding the tough climatic conditions found on land and sea.

As a Sika partner and customer, you can expect from us competent global and local support for product specification, development and testing, application systems design and logistics. We are looking forward to the new challenges that you present us.



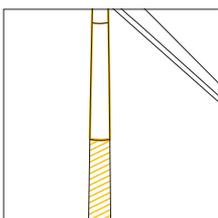
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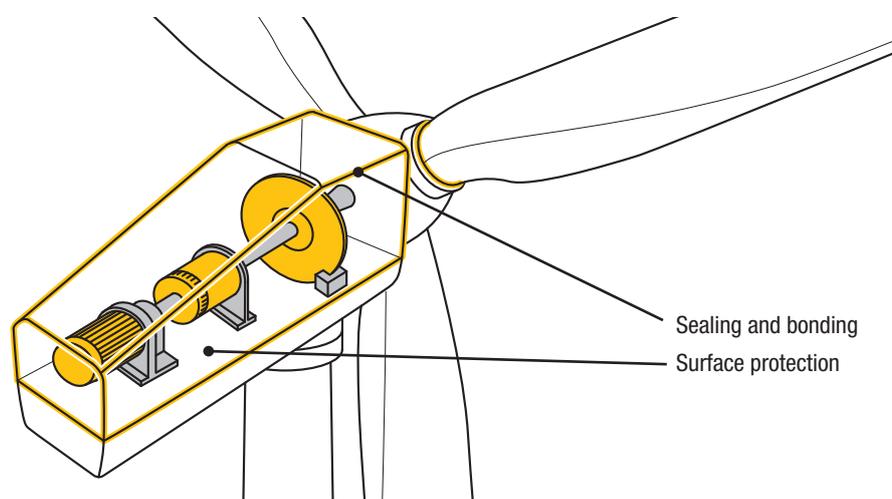
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Solutions for Nacelles and Machine Parts

Protecting the turbine's heart from extreme climatic conditions is key to ensure turbine longevity.

Sika offers solutions to seal and bond nacelle covers and elements, as well as a range of smart coatings to protect generator parts from corrosion and mechanical damage.



Weather Resistant Sealing

Thanks to their proven and durable adhesion and elasticity, Sikaflex® and Sikasil® sealants provide weathering stability and long lasting protection against damages caused by water leakage.

Fast Setting Element Bonding

Elements like noise insulation and anti-vibration material can be durably and rapidly bonded with different adhesive technology based on your requirement.

Corrosion and Mechanical Protection

Cast iron and steel parts of the hub, the generator, the gear and gear box will be protected against mechanical damage during transport and erection by SikaCor® products.

In use, Sika coatings will prevent corrosion by protecting the parts against humidity and condensation.

Best Recommended Sika Products

- **SikaForce® -7500 and -7800 Series** – 2-component, high strength polyurethane assembly adhesives. Also available in cartridges for a variety of applications.
- **Sikaflex®** – 1- and 2-component elastic sealing and bonding polyurethane systems for a variety of applications.
- **Sikasil®** – High performance silicone adhesives and sealants for highly exposed assemblies.
- **SikaFast®** – Fast curing acrylate adhesives with high tensile strength. Excellent adhesion on a wide variety of substrates and low odour emission.
- **SikaCor® and Sika® Permacor** – Protective coating system for machine parts.

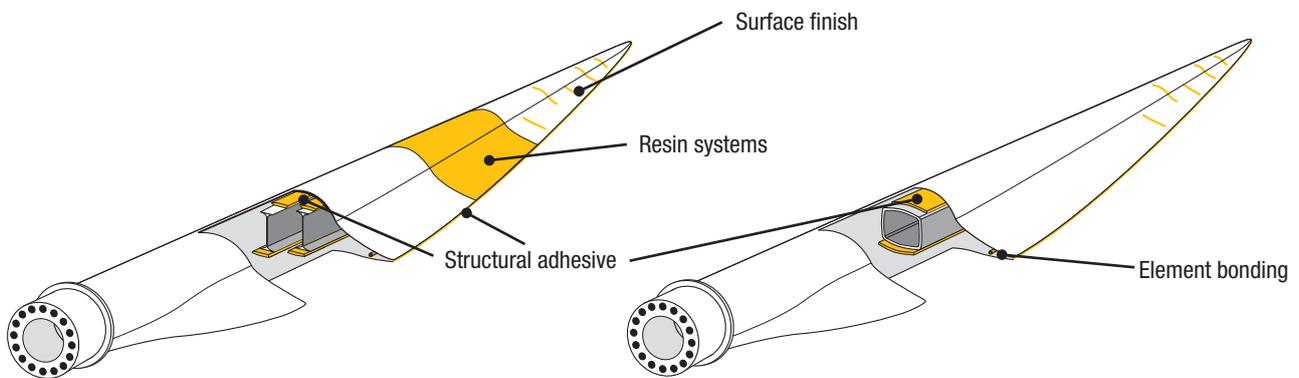
Solutions for Blade Manufacturing

Blade manufacturers rely on Sika to deliver products and solutions critical to the design, manufacturing and assembly of wind turbines. For many years, our solutions help to ensure that each blade maintains its service reliability, even when installed in some of the harshest environments.

Structural Assembly of Blade Shells

SikaForce® structural 2-component polyurethane adhesives have been used to successfully bond thousands of wind turbine blades. Some benefits of SikaForce® are its high strength and crack resistance, ideal rheology, fast curing yet long open time.

Sika can also offer tailored products to meet specific requirements in terms of glass transition temperature, open time or resistance to moisture.



Surface Finishing and Repair

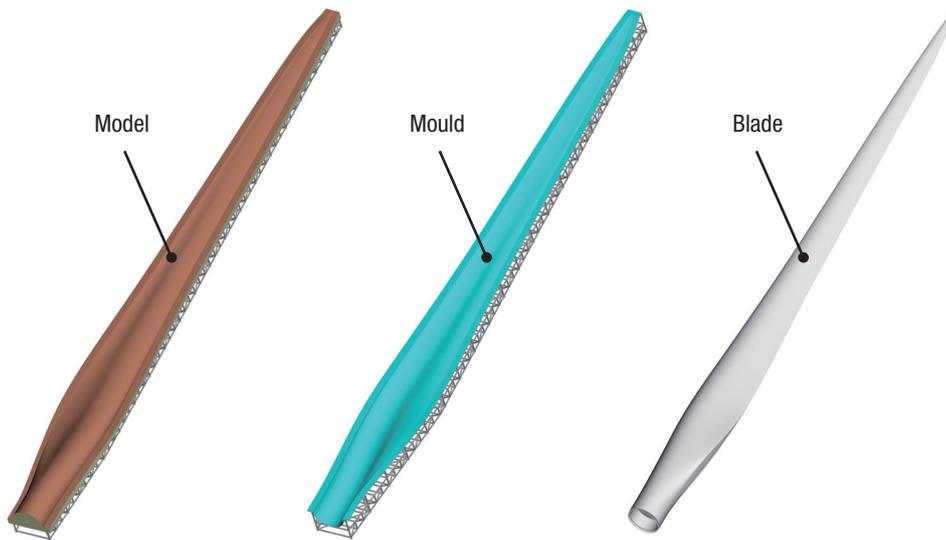
SikaForce® products provide a range of solutions for finishing and repairing blades that have the unique ability to flow and fill gaps without leaving air bubbles in the repaired area. Smart packaging solutions allow easy in-factory as well as on-site repairs to damaged areas on the blade surface.

Element Bonding

In blade manufacturing many internal and external elements require a wide range of different bonding properties such as open time, cure speed and other relevant mechanical properties. Our standard adhesive range includes products for bonding lightning protection, balancing blocks or vortex generators and many more.

Best Recommended Sika Products

- **SikaForce®-7810 + SikaForce®-7050** hardener – High performance, non-sagging, long open time and fast curing structural polyurethane adhesive for wind turbine blade bonding.
- **SikaForce®-7812 + SikaForce®-7010** hardener – 2-component polyurethane filler for repair of small areas. Also available in small easy to use packaging for on-site repairs.
- **SikaForce®-7311 + SikaForce®-7010** hardener – 2-component polyurethane potting system specifically suited for counter balance blocks.
- **SikaForce®-7818 + SikaForce®-7050** hardener – 2-component polyurethane adhesive for lightning cable bonding.
- **SikaFast®** – Fast 2-component curing acrylate adhesives with high tensile strength. Excellent adhesion on a wide variety of substrates, low odour emission and a range of available open times.



Model Paste and Board Materials for Fabrication of Models

Biresin® model pastes based on epoxy or polyurethane resins, and SikaBlock® model and tooling boards, offer a wide range of solutions for the cost effective fabrication of perfect quality models and plugs. Sika products provide a number of benefits including fast production and simple alterations.

Biresin® Epoxy Systems for Production of Moulds

Sika has a wide range of epoxy resins and gelcoats suitable for the production of composite moulds. Resins and gelcoats are available with a large span of thermal performance to suit customers production processes.

Composite Systems for Blade Shells

Biresin® composite resins provide an extensive range of epoxy based systems for use in fibre reinforced composite applications. Our standard product range covers almost all aspects and processes for parts manufacturing. Sika also develops customised systems for specialised applications.

Best Recommended Sika Products

- **Biresin®** composite systems – High performance, two component epoxy resin systems for infusion and hand lay-up processing, many with GL approvals. For the production of high performance composite moulds and parts.
- **SikaBlock®** board materials – Complete range of boards with density from 0.08 to 1.35 g/cm³ for an easy fabrication of models, moulds and tools.
- **Biresin®** model pastes – A range of polyurethane and epoxy pastes for the efficient production of large models and plugs.



Solutions for Towers

Around the world, off shore and on shore, Sika reliably strengthens and protects wind turbines from the foundation to the top.

Surface Protection

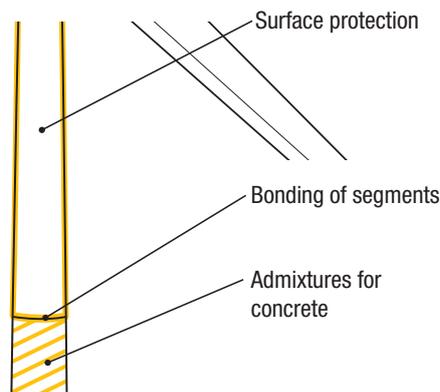
By combining high performance primer and intermediate coatings with weather and UV resistant top coats, both long term corrosion protection and aesthetically pleasing surface finishes can be achieved on steel towers. Sika systems are designed with a minimum number of coat layers; they achieve the highest ratings in ISO 12944 and have low solvent emissions.

Admixtures for High Performance Concrete

For 100 years, Sika has been supplying and developing solutions to improve concrete longevity and performance in tunnels, bridges and building construction. Our admixtures are designed to optimize cost, workability and durability throughout the production and application processes. From project inception to concrete placement in the field, Sika provides the required support during the construction process.

Tower Erection

Sika has a diverse range of products to enable fast, efficient and durable erection of both steel and concrete towers. Fast strength-gain grouts require minimal time to allow for final torquing of anchor bolts. Grouts for post-tensioned concrete provide protection to the highly tensioned steel tendons. Epoxy adhesives are used to initially set precast, concrete elements and provide a waterproof seal between segments.



Best Recommended Sika Products

- **SikaCor® and Sika® Permacor** – For protecting steel towers and machine parts. C5-M and C5-I long/high ratings in ISO 12944.
- **Sika® ViscoCrete®** – Super plasticizer for high performance concrete with greatly increased workability and increased strength.
- **Sikadur® WEA** – 2-component epoxy adhesive system specifically designed for segment bonding, with three temperature versions.
- **Sikadur® Grout-Pak** – High precision, epoxy grout providing fast strength-gain for base plate grouting which allows for rapid erection of the towers.
- **SikaGrout®** – Factory blended easy to pump cementitious line of grouting products suitable for a wide range of construction needs.
- **Sikadur® Anchorfix®** – 2-component high strength acrylic adhesive for anchoring bolts and special fastening systems in concrete.
- **SikaForce®-7500 and -7800 Series** – 2-component, high strength elastic assembly adhesives. Available in cartridge system for a variety of applications.
- **Sikaflex®** – 1- and 2-component elastic sealing and bonding polyurethane system for a variety of applications.



Trust in Sika



Sika Committed to the Growth of Renewable Energy

Renewable energy is expanding globally, driven by the increasing demand for alternative, green energy to reduce the usage of fossil fuels and global warming. Sika is committed globally to supporting the growth in renewable energy with solutions that allow rapid, reliable and more cost efficient manufacturing processes to be developed. We are proud of our long experience in supplying the renewable energy industries with high performing reliable products and solutions. We know what it means to deliver products and solutions that perform for decades under harsh conditions.

In the wind energy sector, we develop bonding, sealing, damping and reinforcing solutions in close co-operation with our customers. To Sika, this means not only developing best-in-class technology solutions to match our customer's technical and commercial requirements, but also ensuring appropriate performance throughout the design, prototyping, validation and full production phases. Specialists in Sika's Research & Development, Technical Service, Systems Engineering and Application Technology teams concentrate on devising appropriate client-oriented solutions.

Technology Centres

Sika employs about 1'200 people in its 11 Technology Centres around the world to focus on the research and development of new materials. This allows Sika to actively promote innovative technology developments within the wind energy market, adding value to the activities of our customers.

Technical Service

Sika Technical Service teams are located around the world, and are dedicated to provide top quality support in the selection, validation and application of Sika products. By being located close to our customers, Sika Technical Service teams provide optimum local language communication and assistance throughout the development process to ensure best possible results.



Sika

Worldwide



Sika is a globally active company supplying the specialty chemicals markets. It is a leader in processing materials used in sealing, bonding, damping, reinforcing and protecting load-bearing structures in construction (buildings and infrastructure construction) and in industry (vehicle, building component and equipment production).

Sika's product lines feature high-quality concrete admixtures, specialty mortars, sealants and adhesives, damping and reinforcing materials, structural strengthening systems, industrial flooring and membranes. Subsidiaries in more than 70 countries worldwide and approximately 12,900 employees link customers directly to Sika.



Our most current General Sales Conditions shall apply. Please consult the most current local Product Data Sheet prior to any use.

www.sika.com



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