WIND TURBINE TECHNOLOGY
IMAGINE NEW 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 20 years of experience in the wind energy industry to provide high performance products and solutions to meet their rigorous manufacturing and installation 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 with.

SOLUTIONS FOR NACELLES AND MACHINE PARTS
■ Weather Resistant Sealing
■ Fast Setting Element Bonding
■ Corrosion and Mechanical Protection

SOLUTIONS FOR BLADE MANUFACTURING
■ Structural Assembly of Blade Shells
■ Surface Finishing and Repair
■ Element Bonding
■ Model Pastes and Board Materials
■ Epoxy Systems for Moulds
■ Composite Systems for Blade Shells

SOLUTIONS FOR TOWERS
■ Surface Protection
■ Admixtures for High Performance Concrete
■ Tower Erection
SOLUTIONS FOR NACELLES AND MACHINE PARTS

PROTECTING THE TURBINE’S HEART FROM EXTREME CLIMATIC CONDITIONS IS KEY TO ENSURING 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 damage caused by water leakage.

FAST SETTING ELEMENT BONDING
Elements such as cable fixings and noise insulation material can be durably and rapidly bonded within the nacelle.

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

Best Recommended Sika Products
- **SikaForce** – 2-component, high strength polyurethane assembly adhesives. Available in cartridges for a variety of applications.
- **Sikaflex** – 1- and 2-component elastic sealing and bonding polyurethane hybrid 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** – Protective coating systems 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 HAVE HELPED TO ENSURE THAT EACH BLADE MAINTAINS ITS SERVICE RELIABILITY, EVEN WHEN INSTALLED IN SOME OF THE HARSHEST ENVIRONMENTS.

STRUCTURAL ASSEMBLY OF BLADE SHELLS
SikaForce and Sikadur structural 2-component adhesives have been used to successfully bond thousands of wind turbine blades. SikaForce 2-component polyurethane offers high strength and crack resistance, ideal rheology, fast curing yet long open time. Sikadur 2-component epoxy adhesive has exceptionally high strength and fatigue resistance with long open time and fast curing. Sika can also offer tailored products to meet specific adhesive requirements in terms of glass transition temperature, open time or resistance to moisture.

SURFACE FINISHING AND REPAIR
SikaForce and Sikadur products provide a range of solutions for finishing and repairing structural and cosmetic blade damage. Smart packaging solutions allow reliable 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 adhesive range includes products for bonding lightning protection, balancing blocks, vortex generators, winglets and much more.

Best Recommended Sika Products
- **Sikadur WTG-1280** super toughened 2-component, GL* approved structural epoxy adhesive for wind turbine blade bonding.
- **SikaForce-7816 MR** – High performance, non-sagging, long open time, fast curing structural polyurethane adhesive for wind turbine blade bonding.
- **SikaForce-7812 MR** – 2-component moisture resistant polyurethane surface repair filler. Also available in easy to use MixPax packaging for on-site repairs.
- **SikaForce-7311** – 2-component polyurethane potting system specifically suited for counter balance blocks casting.
- **SikaForce-7813** – 2-component polyurethane adhesive for lightning cable bonding and receptor potting.
- **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.

*DNGVL is one of the top three certification bodies in the world, and a leading expert for the energy value chain including renewables and energy efficiency.
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 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

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
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<tbody>
<tr>
<td>Ska Permacor</td>
<td>2-component primer, intermediate and bpcot protecting steel towers system for C5-M and C5-I long/high ratings in ISO 12944.</td>
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<tr>
<td>Sika ViscoCrete</td>
<td>Super plasticizer for high performance concrete with greatly increased workability and increased strength.</td>
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<tr>
<td>Sikadur SBA</td>
<td>2-component epoxy adhesive system specifically designed for bonding prefabricated concrete elements, available in two speed versions for normal and high application temperatures.</td>
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<tr>
<td>Sikadur Grout-Pak</td>
<td>High precision epoxy grout providing fast strength-gain for base plate grouting which allows for rapid erection of the towers.</td>
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<tr>
<td>SikaGrout</td>
<td>Factory blended, easy to push cementitious line of grouting products suitable for a wide range of construction needs.</td>
</tr>
<tr>
<td>Sikadur Anchorfix</td>
<td>2-component high strength acrylic adhesive for anchoring bolts and special fastening systems in concrete.</td>
</tr>
<tr>
<td>SikaForce</td>
<td>2-component, high strength assembly adhesives. Available in cartridge system for a variety of applications.</td>
</tr>
<tr>
<td>Sikaflex</td>
<td>1- and 2-component elastic sealing and bonding polyurethane systems for a variety of applications.</td>
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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

18 Technology Centres in 12 countries 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 providing 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.
WHO WE ARE
Sika AG, Switzerland, is a globally active speciality chemicals company. Sika supplies the building and construction industry as well as manufacturing industries (automotive, bus, truck, rail, solar and wind power plants, façades). Sika is a leader in processing materials used in sealing, bonding, damping, reinforcing and protecting loadbearing structures. Sika’s product lines feature high quality concrete admixtures, specialty mortars, sealants and adhesives, damping and reinforcing materials, structural strengthening systems, industrial flooring as well as roofing and waterproofing systems.