



SIKA WIND ENERGY
REPAIR SOLUTIONS
AS GOOD AS NEW FROM
BLADE TO BASE

BUILDING TRUST





FROM BLADE TO BASE

SIKA REPAIR SOLUTIONS ON LAND OR AT SEA

Wind turbines have emerged as a leading source of renewable energy. Sika specifically developed repair products ensure that turbines can be brought back to operation fast and reliably.

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BLADES



MOULDS



TOWERS



NACELLE



BASE



REPAIR RESINS FOR COMPOSITE STRUCTURES



SIKA'S FAST LAMINATING RESINS allow for repairs even at low temperatures.

Sikadur® Blade Repair Kit

Sikadur® Blade Repair Kits are high performance, 2-component epoxy, hand laminating, resin systems used for structural laminate repairs of wind turbine blades. The rheology is designed to ensure excellent fibre wetting, while also exhibiting good non-draining properties for vertical applications.

ADVANTAGES

- Good fibre impregnation and non-draining properties
- Fast strength build up during cure
- Application temperature from 5°C
- High glass transition temperature
- Crystallisation resistant for use at low temperatures
- Lightweight, low waste Mixpack packaging
- Pre-measured quantities (no weighing of components)
- Approved by DNV GL

RECOMMENDED SIKA PRODUCTS

Sikadur® Blade Repair-30

2-component epoxy, hand laminating resin system with 30 minute pot life.

Sikadur® Blade Repair-90

2-component epoxy, hand laminating resin system with 90 minute pot life.



Structural composite damage.



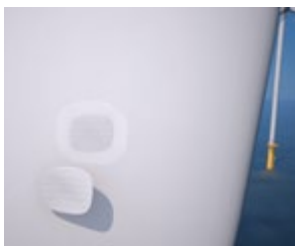
Chamfering of damaged area.



Application of fibre patch and adding Sikadur® Blade Repair Resin.



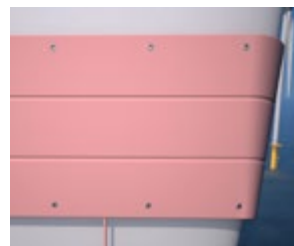
Application movie >
[wind.sika.com/
Sikadur® Blade
Repair Kit](http://wind.sika.com/Sikadur® Blade Repair Kit)



Add fibre patch to build up laminate.



Spreading of resin.



Curing by heater blanket for at least one hour at 80°C.



FILLERS FOR PROFILING AND SURFACE FINISHING



SIKA'S FAST SURFACE FILLERS are approved by leading OEM's and significantly reduce repair downtime.

SikaForce®-7800

SikaForce®-7800 is a fast curing polyurethane surface filler, specifically developed for re-profiling damaged rotor blade components prior to the application of a top coat.

ADVANTAGES

- Excellent mixing, application, tooling and sanding properties
- Very good adhesion to fibreglass surfaces
- Non-sag up to 20 mm layer thickness
- Two colour coded speed versions available
- Application window from 5°C – 30°C
- Fast sanding time
- Offered in convenient co-axial cartridges for use in a standard caulking gun
- Compatible with all leading top coats

RECOMMENDED SIKA PRODUCTS

SikaForce®-7800 Red

2-component, polyurethane surface filler for use in warmer, ambient conditions up to 30°C.

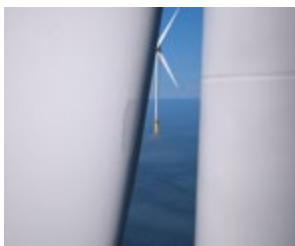
SikaForce®-7800 Blue

2-component, polyurethane surface filler for use in cooler conditions down to 5°C.



Application movie >

[wind.sika.com/
SikaForce®-7800
Blue](http://wind.sika.com/SikaForce-7800Blue)



Damaged coating.



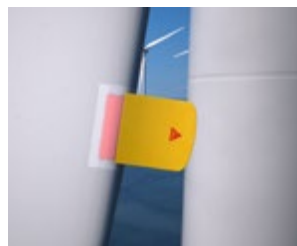
Sanding of surface.



Flushing of SikaForce®-7800 to ensure homogeneous mixing.



Application of SikaForce®-7800 on prepared surface.



Spreading of product.



Sanding of repaired area.





REPAIR COATING FOR STEEL TOWERS



THE EASIEST AND FASTEST WAY to restore “damaged” corrosion protection of off- and onshore structures back to OEM conditions.

SikaCor® SW-1000 RepaCor

Onshore and, particularly, offshore protective coating systems for steel structures must meet demanding performance requirements in regard to corrosion protection. In addition, they must also exhibit ease of application in a range of difficult conditions, including climate and accessibility.

SikaCor® SW-1000 RepaCor is the perfect product for simple, high performance and durable corrosion protection repair jobs. It is an innovative 2-pack coating / putty for maintenance or repair of (mechanically) damaged coated areas.

The product is ideally suited for corrosion protection for on and offshore wind turbines or for hydraulic engineering (sluice gates, steel sheet piles etc.).

ADVANTAGES

- Easy-to-use packaging in a coaxial cartridge for difficult repair jobs



Application movie >
[wind.sika.com/
 SikaCor® SW-1000
 RepaCor](http://wind.sika.com/SikaCor® SW-1000 RepaCor)

- Early water resistance and under water cure
- Surface tolerant – can be used on many substrates as manual derusting, stainless steel, galvanisation or aluminium, even on foreign coatings (except siloxane based coatings)
- Corrosion protection at 500 µm, similar to original shop coating
- Single layer coating
- Diffusion resistant
- Increased coating strength attributed to plate like glass flakes

RECOMMENDED SIKA PRODUCTS

Topcoat

SikaCor® SW-1000 RepaCor can be overcoated with common 2-pack PUR topcoats to match particular colour shades.

SikaCor® EG-5

2-pack, acrylic polyurethane top coat.

Sika Permacor®-2230 VHS

2-pack, very high solid, acrylic polyurethane top coat.

Sika Permacor®-2330

2-pack, high colour retention, acrylic polyurethane top coat.



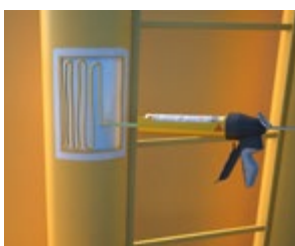
Cleaning of damaged surface.



Surface preparation.



Preparation of cartridge.



Product application.



Application by putty.



Application by brush.





CONCRETE REPAIR FOR TOWER FOUNDATIONS



FOR THE REPAIR OF ONSHORE CONCRETE FOUNDATIONS Sika has developed a fully comprehensive solution to restore and rehabilitate damaged and deteriorated concrete structures.

Sika MonoTop®-723 N

Sika MonoTop®-723 N is a ready to mix, polymer modified surface/finishing mortar, meeting the requirement of class R3 of EN-1504-3.

ADVANTAGES

- Easy to apply and excellent finishing
- Suitable for hand or wet spray application
- Can be applied up to 5 mm thick per application layer
- Class R3 of EN 1504-3
- Restoration work
- Sulphate resistant
- Low cracking sensitivity
- Very good resistance to water and chloride penetration
- Compatible with Sikagard® overcoat systems

RECOMMENDED SIKA PRODUCTS

Sika MonoTop®-412 N

1-component, fibre reinforced and low shrinkage repair mortar meeting the requirements of class-R4 of EN 1504-3.

Sika MonoTop®-910 N

Polymer modified, 1-component cementitious bonding primer and reinforcement corrosion protection coating.

Sikadur®-31 CF Rapid

Moisture tolerant, thixotropic, structural 2-component adhesive and repair mortar, based on a combination of epoxy resins and special fillers. Designed for use at temperatures between +5°C and +20°C.



Identify and assess damage.



Remove defective concrete and clean the substrate.



Application of Sika MonoTop®-910 N bonding primer and corrosion protection.



Mix the ready to use Sika MonoTop®-412 N with water using an electrical stirrer.



Press Sika MonoTop®-412 N into the repair area using a suitable hand tool.



Apply finishing mortar Sika MonoTop®-723 N and smooth the surface using a wooden trowel.





WATERPROOFING FOR TOWER FOUNDATIONS



A DURABLE PROTECTION OF THE TOWER/FOUNDATION interface is a vital part of trouble free longevity of the tower/foundation interface.

Sikalastic® MTC Protection System is a UV stable, waterproofed and crack bridging coating system for extending life expectancy on existing- and newly built tower/foundation interfaces for onshore wind towers. The System provides excellent adhesion on concrete, steel and coated steel structures using specialised primers.

ADVANTAGES

- 1-component – ready to use
- Reduced weather sensibility during application thanks to MTC technology
- Easy and quick application with Sikalastic® Reemat Premium
- Highly elastic and crack bridging
- UV-Resistance, non-yellowing
- Slip resistant
- Fast cure
- Excellent adhesion

RECOMMENDED SIKA PRODUCTS

Sikalastic®-601 BC

Highly elastic, 1-component moisture-triggered polyurethane Base Coat (BC).

Sikalastic®-621 TC

1-component, highly elastic, UV-stable moisture-triggered polyurethane Top Coat (TC) designed for easy application.

Sika® Reemat Premium

Glass fibre mat used as a reinforcement with the Sikalastic® waterproofing membrane.

Sika® Bonding Primer

Specific types of 1-component special primers for excellent adhesion to concrete, steel and coated steel surfaces.

Sikaflex® PRO-3

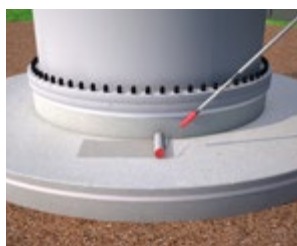
Elastic joint sealant with high mechanical bonding properties.



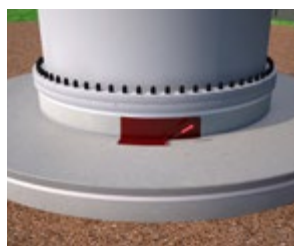
Application movie >
[wind.sika.com/
 Sikalastic® MTC
 Protection System](http://wind.sika.com/Sikalastic-MTC-Protection-System)



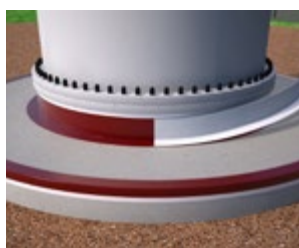
Surface preparation.



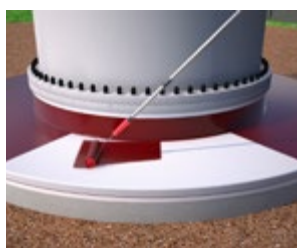
First coat Sikalastic®-601 BC.



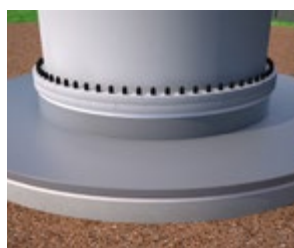
Apply Sika® Reemat Premium for a seamless waterproofing layer.



Apply Sika® Reemat Premium.



Second coat Sikalastic®-601 BC.



Apply top coat Sikalastic®-621 TC.





STRUCTURAL CRACK REPAIR OF FOUNDATIONS



STRESS TO THE FOUNDATION often leads to cracks. Proper structural repair is critical to secure the structural strength and to stop further deterioration of the foundation.

Sika® Injection-458

Epoxy injection resins offer good adhesion to concrete, mortar and steel. The epoxy based Sika® Injection-458 is used to fill and seal voids and cracks in structures, such as bridges, and other civil engineering buildings and foundations. It not only forms an effective barrier against water infiltration and corrosion promoting media, but it also structurally bonds the concrete sections together.

ADVANTAGES

- Solvent-free
- Suitable for both, dry and damp conditions
- Usable at low temperatures
- High mechanical and adhesive strengths
- Hard but not brittle
- Low viscosity
- Injectable with single component pumps

RECOMMENDED SIKA PRODUCTS

Sika® Injection-458

Sikadur®-52 Injection Type N

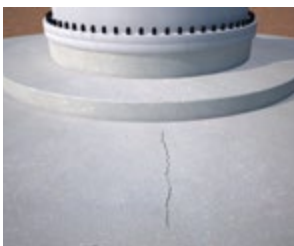
2-component, solvent-free, low viscosity injection liquid, based on high strength epoxy resin.

Sika® InjectoCem-190

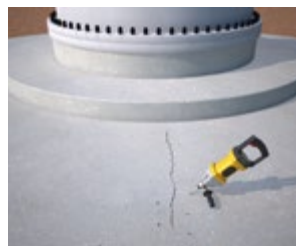
2-component injection grout based on micro cement ($d_{95} < 9.5 \mu\text{m}$) with added corrosion inhibitors.

Sika MonoTop®-112 MultiUse Repair

1-component, ready to use, thixotropic mortar containing synthetic microfibres, for concrete repair.



Assess and clean the crack.



Drill holes for the injection packers.



Insert the injection packers.



Mix the Sika® Injection-458 pre-batched A+B containers.



Mixing components A+B using a low speed stirrer.



Apply the epoxy resin using a 1-component injection pump.



SIKA WITH YOU



The total product range from **BLADE TO BASE** allows Sika to keep pace with the ever-increasing demands of the wind turbine industry.



Sika's global **TECHNICAL SERVICES** teams are focused on validating Sika materials to the processes, substrates and specification requirements.



Over 25 years of successful **EXPERIENCE** in supplying the renewable energy industries with high performing reliable products and solutions makes Sika one of the leading supply companies in this market sector.



Close **CO-OPERATION** with our customers ensures adequate performance throughout the design, prototyping, validation and application phases.

SIKA AT A GLANCE

**MORE THAN
10,000**

BLADES REPAIRED USING
SIKA REPAIR PRODUCTS

**80% TIME
SAVINGS**

BY USING SikaForce®-7800 SURFACE FILLERS

MORE THAN A HALF

OF THE GLOBALLY INSTALLED WIND TURBINES
USE A SIKA PRODUCT

1 HOUR

REPAIR SYSTEMS FOR
WIND TURBINE BLADES

**OVER 10,000 STEEL
TOWERS**

ARE PROTECTED WITH SIKA ANTI-CORROSION COATINGS

25%

OF ALL WIND TURBINE
BLADES INSTALLED
WORLDWIDE ARE BONDED
WITH SIKA ADHESIVES

IN THE LAST 10 YEARS SIKA SOLD
ENOUGH GROUTS TO FILL

**2,000 OLYMPIC
SIZE SWIMMING
POOLS**

THANKS TO SIKA'S RANGE OF
WATER REDUCERS OVER

**25,000 MILLION
LITRES OF WATER**

ARE SAVED ANNUALLY IN CONCRETE
PRODUCTION

SUBSIDIARIES

SIKA IS IN MORE THAN 100 COUNTRIES AROUND THE WORLD WITH MANUFACTURING
IN OVER 160 FACTORIES, EMPLOYING >17,000 EMPLOYEES.

CONCRETE

Concrete admixtures can improve the sustainability of concrete in many different ways. The addition of special admixtures, such as stabilising or water reducing admixtures enables the use of alternative and recycled materials, such as recycled aggregates, for the production of good quality concrete. In many cases the energy required to produce certain cement or concrete mixes will be positively impacted with the use of admixtures.



WATERPROOFING

Sika provides solutions for even the most challenging requirements with its unique waterproofing product portfolio, contributing to efficient, long-lasting infrastructure, be it for drinking water facilities (fulfilling the most stringent drinking water approvals), tunnels, bridges, basements and balconies.



ROOFING

With over 50 years of history, our roofing solutions are renowned for their durability and premium qualifications. We began providing waterproofing solutions for construction in 1910 and we now supply each year enough roofing membranes to cover the whole area of Manhattan.



FLOORING & COATING

Resilient systems for industrial and commercial buildings from pharmaceutical, food, public, educational, sport, health care, parking and residential based on synthetic resin and cementitious technologies as well as corrosion and fire protective coatings.



SEALING & BONDING

Construction is all about bringing building blocks together in a uniform building. Sealing and Bonding focuses on where these building blocks meet. Sika provides durable sealants for waterproofing between building elements for building envelopes, civil engineering and infrastructure applications. Sika's range of products include major technologies ranging from water-based to reactive systems and multi-purpose to highly specialised solutions.



REFURBISHMENT

In the 21st Century, reinforced concrete structures are built to serve the next generations. Most bridges are now designed to last more than 100 – 150 years. Years of research plus decades of practical experience have enabled us to develop fully comprehensive systems and solutions to restore, rehabilitate and protect concrete structures.



INDUSTRY

Sika Industry is a leading innovator and supplier of bonding, sealing, damping and reinforcing solutions for industrial markets like automotive, marine, transportation, building components and renewable energy. Our full range of technologies provides increased structural performance while improving production processes.



GLOBAL BUT LOCAL PARTNERSHIP



With 20 **TECHNOLOGY CENTRES** and a skilled staff of engineers and scientists, we are able to deliver a stream of new materials for different specifications to our customers in the wind energy market.

With over 90 local subsidiaries with the aim to make global technology meet **LOCAL EXPERTISE**, Sika transfers know-how locally on a global basis to guarantee local support in selection, validation and application of our products on job sites around the world.

SIKA FULL RANGE SOLUTIONS FOR CONSTRUCTION:



LIQUID APPLIED



SINGLE PLY ROOFING



BITUMINOUS ROOFING



CONCRETE



CONCRETE REPAIR



STRUCTURAL



BUILDING FINISHING



WATERPROOFING



JOINT SEALING



FAÇADES



FLOORING



INDUSTRY



DISTRIBUTION



BUILDING TRUST

FOR MORE INFORMATION:



WHO WE ARE

Sika Limited and Sika Ireland Limited are part of the global Sika Group, specialising in the manufacture and supply of chemical based products. Sika has a leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing, and protecting in the building sector and the motor vehicle industry. Sika has subsidiaries in 100 countries around the world and manufactures in over 300 factories. With more than 25,000 employees Sika generates annual sales of CHF 7.9 billion (£6.14 bn). We are also committed to providing quality, service, safety and environmental care.

In the UK and Ireland, we provide market-leading solutions for concrete, waterproofing, roofing, flooring, refurbishment, sealing & bonding, and industry, and have manufacturing sites in Welwyn Garden City, Preston, Leeds, Wishaw and Dublin with more than 920 employees and a turnover of more than £290 million.

The information, and, in particular, the recommendations relating to the application and end use of Sika® products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The proprietary rights of third parties must be observed. Please refer to our homepage www.sika.co.uk for our current standard terms & conditions applicable to all orders. Users should always refer to the most recent issue of the Product Data Sheet for the product concerned, copies of which will be supplied on request.



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