



SIKA WIND ENERGY
REPAIR SOLUTIONS
UNMATCHED TECHNOLOGIES
AND EXPERIENCE

BUILDING TRUST



ENHANCE YOUR TURBINE MAINTENANCE WITH SIKA



 Wind turbines are exposed to some of the harshest environmental conditions seen. Rain, dust, hail stones, salt water and even sandstorms can cause major damage to wind blades.

Therefore, wind turbines need to be regularly inspected and maintenance should be done, as needed. However, repairing structures onsite can be extremely demanding. Using products designed for field repair allows technicians to get the job done quickly and efficiently enabling the turbine to get back online in the shortest possible time.

CHALLENGING CONDITIONS



SIKA UPGRADE WEATHERING

- Wider application window for product use
- Proven long term durability for all repair products
- Additional guidelines for correct use of products

CHALLENGES

- Harsh weather conditions
- Environmental-dependent product properties
- Longevity of products

EASE OF USE



SIKA UPGRADE SIMPLICITY

- Global availability of repair products
- One caulking gun approach
- Enabling robotic applications

CHALLENGES

- Limited space when hanging from ropes
- Only few tools available
- Increasing robotic applications

PROCESS EFFICIENCY



SIKA UPGRADE SPEED

- Fast curing systems for each application of the repair job
- Ready-Mix packaging for fillers, resins and adhesives
- Reliable systems for longer service-life

CHALLENGES

- Reducing turbine down time
- Higher customer satisfaction
- Lowering maintenance costs

HEALTH, SAFETY AND ENVIRONMENT



SIKA UPGRADE SAFETY

- Low waste packaging solutions
- Elastic sealing and bonding with Sikaflex® -500 and -900 series without hazard labeling
- Hand lamination resin SikaBiresin® CR910 optimized for curing at moderate temperatures

CHALLENGES

- Reducing wasted material
- Improving occupational safety
- Lowering energy consumption

ENHANCE YOUR TURBINE MAINTENANCE WITH SIKA

| STP | | | | SILICONES | | | POLYURETHANES | | | ACRYLATES | EPOXY | | | |
|---|---------------|---|---|---|--------------------------|-----------------|-----------------|---|---|---|---|---|---|----------------|
|  | |  |  |  | | | |  |  |  |  |  |  | |
| Sikaflex®-521 UV | Sikaflex®-522 | Sikaflex®-554 | Sikaflex®-953 Series | Sikasil® WS-605 S | Sikasil® WT-66 PowerCure | Sikasil® AS-785 | Sikasil® AS-786 | SikaForce®-710 L30 | SikaForce®-800 Series | SikaForce®-818 L07 | SikaFast®-555 | SikaBiresin® CR910 | SikaPower®-1200 | SikaPower®-800 |

FEATURES

| Color | White, grey, black | White, light grey | White, black | White | White, grey, black | Grey, black |
|-------------|--------------------|-------------------|--------------|-------|--------------------|-------------|
| 1-component | • | • | • | | • | |
| PowerCure | | | • | | | • |
| 2-component | | | | • | | |

APPLICATION

| | | | | | | |
|--------------------------|---|---|---|---|---|---|
| Sealing | • | • | • | • | • | • |
| Elastic bonding | | | • | • | | • |
| Balancing | | | | | | |
| Surface filler | | | | | | |
| Semi-structural assembly | | | | | | |
| Hand lamination | | | | | | |
| Structural bonding | | | | | | |

PERFORMANCE

| | | | | | | |
|---------------------------------|---|---|-----|----|---|----|
| Non-sagging | • | • | •• | •• | • | • |
| Hydraulic oil resistance | • | • | •• | • | - | - |
| Fast curing at RT | - | - | ••* | •• | - | •• |
| High final Tg (after heat cure) | - | - | - | - | - | - |
| Weathering resistant | • | • | • | • | • | • |
| UV stable | - | - | - | - | • | • |
| Fast fixation / handling | - | - | •* | •• | - | - |
| Large gap filling | - | - | ••* | •• | - | • |
| Sandable | - | - | - | - | - | - |
| Toughend | - | - | - | - | - | - |

- not suited / not applicable
- suited / applicable
- most applicable
- * = PowerCure

| | | | | | | | | |
|-------|-------|-------|-----------|-------|------|-------------|-------|-------|
| Black | Black | Beige | Blue, red | Beige | Grey | Transparent | Green | Green |
| • | • | • | • | • | • | • | • | • |

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Always consult the most recent local Product Datasheet or your local Sika contact prior to any use.

FAST AND EASY COMPOSITE REPAIR AND PROFILING

Sika's structural composite resins allow you to repair major defects and bring back surfaces to their original quality. In combination with the SikaForce® surface fillers, repairs can be finalized quickly and thus minimize downtime significantly.



EASY TO USE

Easy to use 2-in-1 coaxial cartridges which can be used using a standard 1 component caulking dispenser.



READY FASTER

Thanks to the fast-curing properties of the surface fillers, the waiting time before sanding is minimized.



PERFORMANCE

After application, Sika's hand lamination resin can be cured within 30 min to the required glass transition temperature level.



LESS WASTE

Lightweight, low waste Mixpax packaging with pre-measured quantities completely eliminates potential mix ratio errors.

FAST SANDING FILLER

SikaForce®-800 Series

are fast curing polyurethane surface fillers, specifically developed for re-profiling damaged rotor blade components prior to the application of a topcoat or leading-edge protection.

- Excellent mixing, application & tooling properties
- Very good adhesion to composite surfaces
- Non-sag up to 20 mm layer thickness
- Two color coded speed versions available
- Application window from 5 - 40 °C
- Compatible with leading topcoats and leading edge protection systems
- Fast sanding time



Application video >
[SikaForce®-800 RED](#)



Application video >
[SikaForce®-800 BLUE](#)



BACK TO ORIGINAL

SikaBiresin® CR910 BLADE REPAIR

is a hand-laminating resin system with two hardener speeds for fast, reliable composite repairs.

- Excellent fiber wetting down to 5°C for easier application in demanding environments
- Vacuum-infusible
- Direct curing without waiting gel-time
- Curing within 30min to required Tg levels
- Lightweight, low waste Mixpax packaging with pre-measured quantities



Application video >
[SikaBiresin® CR910 Blade Repair Kit](#)

DURABLE AND ROBUST STRUCTURAL ADHESIVES

Sika's highly toughened structural adhesives increase safety and prolong service life. Thanks to their fast-curing properties they can lower downtime significantly and therefore reduce levelized costs of energy.



PERFORMANCE

The unique Sika SmartCore® toughening technology makes the SikaPower® adhesives extremely durable and thus enables longer service-life.



EASY TO USE

Low viscous repair materials allow for faster and complete injection into undesired cavities along the blade.



READY FASTER

Fast curing adhesives with long working time allow faster part loading after installation.



MINIMAL EXPOSURE

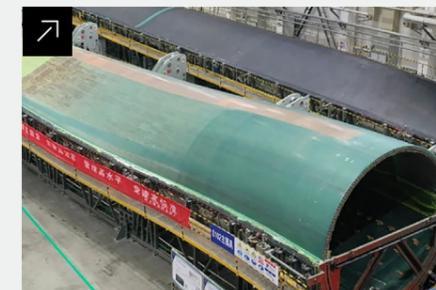
Adhesive solutions that bond permanently with minimal surface preparation.

LONG LASTING BONDS

SikaPower®-1200

is Sika's proven solution for structural composite bonding in open and closed joints such as root insert bonding and composite repairs.

- Excellent adhesion to composite materials as well as to cured epoxy bonding paste
- Cured properties equivalent to original blade bonding pastes
- Long track record in the market for factory and onsite repair



QUICKLY ATTACHED

SikaFast®-555 Series

helps to fix small components such as dino tails or vortex generators but also sensors for monitoring within the shortest time.

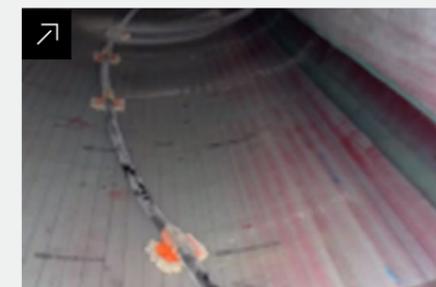
- Easy handling with minimal surface pretreatment
- Bonds to a wide variety of materials
- Very fast strength development for faster handling
- A fixing time between 9 - 25 min can be achieved

IMMEDIATE FIXATION

SikaForce®-818 L07

for fixing of lightning protection systems or attachment of mounting parts such as web positioners, cable clips or glue catchers.

- Faster processing thanks to high acceleration
- Wide adhesion range
- High mechanical properties for load carrying parts



FAST INJECTIONS

SikaPower®-800

is Sika's most recent innovation, specifically designed for structural composite bonding closed joints such as drill and fill repairs.

- Low viscosity to ensure fast and easy injection
- Accelerated curing that enabled shorter downtimes during in-mold repairs
- Excellent adhesion to composite materials in addition to cured epoxy bonding paste

SAFER AND MORE RESISTANT ELASTIC SEALING AND BONDING WITH Sikaflex®

Sikaflex®-500 and Sikaflex®-900 series products have a proven track record in all kinds of adhesive bonding and sealing applications in multiple industries. They are based on Sika's own Silane Terminated Polymer (STP) Technology, which combines the high flexibility and durability of polyurethanes with sustainability and easy processing.



WORKER SAFETY

Free of isocyanates and other hazardous substances and therefore no additional REACH training required before use.



EASY TO USE

Simple to use and bond to a large variety of materials.



PERFORMANCE

The unique Sika PowerCure technology lets the Sikaflex® adhesives cure independently without being affected by the humidity.



LESS WASTE

PowerCure produces up to 60% less packaging waste compared to regular 2-component adhesives.



THE ALL-ROUNDERS

Sikaflex®-521 UV & Sikaflex®-522

These multipurpose sealants are suitable for internal and external sealing applications on blades, nacelles and towers.

- Ageing and weathering-resistant
- Bonds well to a wide variety of substrates without the need for special pre-treatment
- For indoor and outdoor use



FAST CURING ASSEMBLY ADHESIVE

Sikaflex®-953 L15 & L30

This solution is available in 2 versions with different open time: L15 & L30. Sikaflex®-953 is suitable for bonding components exposed to dynamic stress such as bulk heads.

- Generally long working time combined with fast curing
- Good gap filling capabilities



THE RESISTANCE EXPERT

Sikaflex®-554

Withstanding harshest environments without deterioration, this adhesive is used for structural indoor and outdoor assembly.

- High strength for load bearing applications
- Ideal for applications exposed to dynamic stresses
- Very good weathering and hydraulic oil resistance
- Available in small pack size for hand and drums for automated application
- Curing can be accelerated with Sika Booster®



THE NEXT SPEED LEVEL

Sikaflex®-554 PowerCure

Reliable curing even in deep, wide joints makes this adhesive ideal to be used for large load bearing applications.

- Reliable curing, even at low ambient temperature thanks to Sika Booster® technology
- Faster strength development due to accelerated curing
- Provides all the benefits of its 1-component solution (see left)
- Significantly reduces waste compared to standard 2-component adhesives.

LONG-TERM UV STABILITY ELASTIC SEALING AND BONDING WITH Sikasil®

Whether the requirement is for a load-carrying bond, or generic sealing, Sika offers a wide range of silicone solutions catering to demanding market requirements. As a leading supplier for the façades and window industry, Sika offers proven silicone solutions for highly demanding applications. Repair companies that service wind turbines blades and nacelles trust Sika's technologies for bonding and sealing damaged structures, thereby achieving highly durable joints, and in turn, maximizing turbine lifetime.



PERFORMANCE

Silicone products exhibit outstanding UV and weathering resistance making them an ideal choice for demanding outdoor applications.



READY FASTER

The unique Sika PowerCure technology lets 1-component Sikasil® adhesives cure largely independently from humidity.



EASY TO USE

Sika silicone sealants and adhesives bond well to a wide variety of substrates.



THE VERSATILITY SPECIALIST

Sikasil® WS-605 S

This multipurpose sealant is suitable for internal and external sealing applications on blades, nacelles and towers.

- UV and weathering-resistant
- Non-streaking on non-porous substrates
- Bonds well to a wide variety of substrates
- High movement capability



ACCELERATED SPEED

Sikasil® WT-66 PowerCure

This accelerated 1-component silicone adhesive has the ability to cure largely independent from atmospheric conditions.

- Excellent UV and weathering resistance
- Accelerated curing thanks to Sika Booster® technology
- Remains flexible over a wide temperature range



RAPID ASSEMBLY

Sikasil® AS-785

This fast curing 2-component assembly silicone adhesive can withstand harsh environments without deterioration.

- Very good weathering, UV and hydraulic oil resistance
- Ideal for applications exposed to dynamic stresses
- Performance retention over a wide temperature range allowing for fast handling of bonded parts

KEEP EVERYTHING IN BALANCE

IN-FIELD BALANCING

After major blade repairs or blade replacement due to extreme damage it is necessary to re-balance the rotor onsite. Sika has a proven track record in balancing material for factory use. SikaForce®-710 L30 was suitably adapted to facilitate easier in-field application.



LESS WASTE

Thanks to the simple cartridge concept, the complete material can precisely be injected into the balancing chamber without wasting material due to overspill.



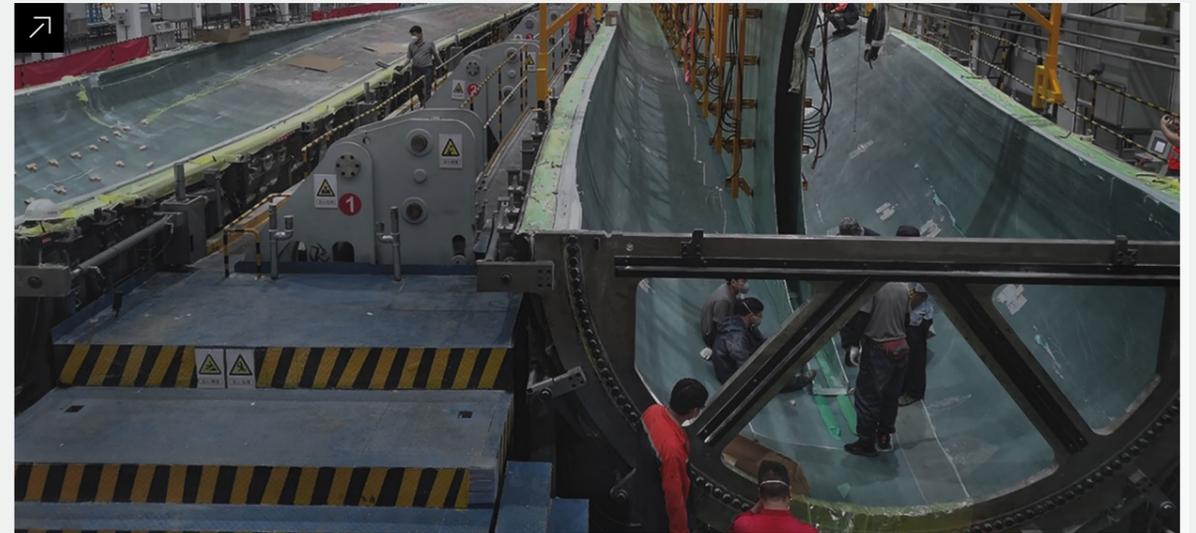
READY FASTER

No time-consuming weighing and mixing are required. Immediate application from the ready to use cartridge.



PERFORMANCE

The product is free from any conductive fillers to avoid affecting the lightning protection system.



MORE THAN JUST WEIGHT

SikaForce®-710 L30

This 2-component polyurethane has been designed for precise in-situ re-balancing of wind blades after major repairs.

- Optimized viscosity for good flowability and necessary thixotropy
- Fast curing to restart turbine
- Wide application window from 5 - 35 °C
- Free of any conductive fillers



WORKING TOWARDS YOUR SUSTAINABILITY GOALS

Sika's Research and Development teams are continuously working on improving our products for repair and maintenance based on customer feedback and requirements. In addition, Sika endeavors to be a valuable contributor towards the ambitious sustainability goals of all our customers.

Towards this endeavor, Sika has been supporting the Science-Based Target initiative (SBTi) and joined the growing group of leading corporations that are setting emissions reduction targets in line with the objective of the Paris Agreement. In doing so, Sika recognizes the crucial role companies can play in minimizing the risk that climate change poses to the future of our planet.

Thus, Sika is continuously investigating and developing new technologies that enable you to achieve your sustainability goals as well as our own emission reduction targets. Sika is striving towards new innovative products with increased durability, ease of application, and curing speed with a low carbon footprint. Therefore, enabling long lasting repair solutions for affordable renewable energy of the future.

GLOBAL BUT LOCAL PARTNERSHIP



CONTACT US FOR MORE INFORMATION



www.sika.com/wind

Sika AG, Switzerland, is a globally active specialty chemicals company. Sika supplies the building and construction industry as well as manufacturing industries (automotive, bus, truck, rail, solar and wind power plants, facades). 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.

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



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