

LOCTITE®



STRUCTURAL STRENGTHENING SOLUTIONS FROM LOCTITE RENEWWRAP



Henkel Adhesive Technologies



LOCTITE RENEWWRAP STRUCTURAL STRENGTHENING SOLUTIONS

At Henkel, we solve infrastructure challenges differently. More than just a materials provider, we partner with the industry to deliver smart, practical, innovative solutions. Our solutions rehabilitate, strengthen, and protect infrastructure components. Backed by our engineering expertise and support, these systems install easier and faster than functional equivalents. Whether you are building new or repairing existing infrastructure, we can help you reinforce your structures to deliver the performance you need.

DELIVERING VALUE

Engineering Expertise

- Assess challenges and recommend customized solutions
- Leverage multiple technology platforms
- Provide in-depth documentation, system characterization, and third-party validation

Technical Support

- Cater to virtual and on-site needs
- Deliver in-field training and support
- Provide responsive and on-demand service

Project Optimization

- Lower total project cost
- Improve contractor productivity
- Reduce user impact
- Extend asset life cycle

LOCTITE RenewWrap Provides

- Flexural strength
- Shear strength
- Compression strength
- Improved ductility
- Tensile strength
- Protection



APPLICATIONS AND STRUCTURES

BUILDINGS | BRIDGES MARINE STRUCTURES PARKING STRUCTURES PIPES AND TUNNELS TANKS | SILOS

We address

- Seismic-related deficiencies
- Code changes
- Deterioration/degradation/corrosion
- Changes in the use of the structure
- Design or construction errors
- Openings cut into existing structures
- Differential settlement

We strengthen

- Columns
- Slabs (RC and PT)
- Beams and joists
- Walls
- Piles and pier caps
- Connections
- Concrete and Timber Piles
- Internal & External Pipe Repair



SOLUTIONS

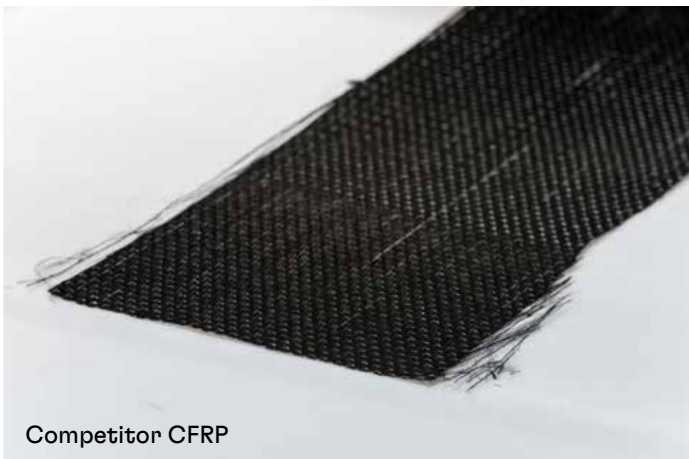
LOCTITE RenewWrap FRP

The LOCTITE RenewWrap FRP strengthening system comprises a wide range of carbon and glass FRP reinforcements and compatible saturating resins, including the extensive third-party verification of our FRP strengthening system.

With hundreds of projects completed, LOCTITE RenewWrap FRP is a proven system in multiple applications including strengthening and seismic upgrade of buildings and structures, bridges, columns, caps, piers, and many other areas of need.

EZ-SLIT

With a focus on installation efficiency LOCTITE RenewWrap reinforcing fabrics can be supplied with the patented EZ-Slit system to simplify the handling and manipulation of the fabrics in the field. EZ-Slit slitting zones eliminate loose fibers, fraying and waste when field cutting to narrower widths.



Competitor CFRP



LOCTITE RenewWrap with EZ-Slit

LOCTITE RenewWrap NSM CFRP BARS

Near Surface Mount (NSM) bars are used for strengthening existing structural members in flexure and shear. Structures that are deficient due to either a structural flaw, deterioration, or because of a change in use, can often be brought to useful capacity using NSM bars. Typical uses are in bridges (parapets), decks, and parking structures.



Near-Surface Mount
(NSM) Bars



Near-Surface Mount NSM Bar
Parapet Strengthening



NSM Bar Bridge
Strengthening

The LOCTITE Ti NSM bars

The LOCTITE Ti NSM bars are an aerospace grade alloy consisting of Titanium, 6% Aluminum and 4% Vanadium (commonly referred to as Ti-6Al-4V) used to strengthen reinforced concrete structures (e.g. slabs, beams, walls, columns and diaphragms). These bars are high strength, light-weight tension members that do not corrode and do not fatigue. They provide solutions where linear-elastic FRP systems may not be appropriate as they provide ductility due to their 10% ultimate elongation.



LOCTITE RenewWrap ANCHORS

The LOCTITE RenewWrap Anchors are used to anchor LOCTITE RenewWrap fabrics to increase the development and bond of the fabric to substrate. The LOCTITE RenewWrap Anchors are also used to provide continuity of the strengthening fabrics across structural elements such as beams, walls and slabs.



LOCTITE RenewWrap FRP, LOCTITE RenewWrap Anchors, and LOCTITE GeoStrong Repair Mortar

Duktil™ FRP Anchor Plates

Duktil™ FRP Anchor Plates are hybrid steel/FRP plate systems engineered to provide an alternate load delivery from externally bonded FRP into concrete. The system bonds directly to the LOCTITE Composite systems using LOCTITE epoxy. It is then anchored into the concrete substrate using conventional wedge anchors and concrete screw anchors. The system was developed to improve the overall performance of FRP Systems when used in retrofitting structures. Unlike FRP anchors, these details have been shown to increase the peak strength and allow higher operating strains of the bonded FRP laminates.



LOCTITE RenewWrap MCU

The LOCTITE RenewWrap MCU FRP strengthening system comprises a carbon fiber fabric that is impregnated with a water-activated polymer. Eliminating the need for field saturation, the system is delivered in sealed bags, applied to the structure, and then sprayed with water to initiate cure of the resin.

LOCTITE RenewWrap MCU FRP can be used in a broad range of environments, possess excellent chemical resistance, and is ideal for use in exposed structures, columns, and areas where wet/dry layout is difficult.



LOCTITE GEOSTRONG REPAIR MORTAR

LOCTITE GeoStrong Repair Mortar is a high-performance, one-component, non-shrink, fast-setting geopolymer mortar designed for durable concrete and masonry repairs, delivering high early strength, corrosion resistance, and superior chemical durability. Engineered for rapid application on horizontal, vertical, and overhead surfaces, it enables faster finishing, shorter time between lifts, and most critically the ability to apply fiber reinforced polymers (FRPs) within hours rather than the seven to 28-day waiting period required for Portland-cement-based repair mortars, making it an ideal solution for civil infrastructure and Industrial projects such as bridges, buildings, parking structures, and chemical plants.



ENGINEERING AND CONSTRUCTION SUPPORT

ENGINEERING SUPPORT

Henkel offers complimentary technical services to help you at all stages of your project:

- **Engineering project documents** Assist with the development of your FRP design, FRP details, and specifications.
- **Feasibility studies** Our team has a combined 50+ years of experience evaluating thousands of FRP projects around the world.
- **Fire performance requirements** Does your application require FRP to function during a fire or additional protection to achieve a fire rating? We will help you navigate code requirements and suggest the best solution.

CONTRACTOR SUPPORT

- **Interpretation of project documents** Assist with the interpretation of project documents prior to bidding.
- **Bidding support** Guidance on selecting the most appropriate solution to make your proposal a winning one.
- **Project support** Compile the necessary submittals and work with the Engineer-of-Record to help facilitate approval of the FRP portion of the project.
- **Design-build** We will help you successfully develop and execute your design-build projects by aiding in the selection of the most cost-effective and engineering-tested solutions.
- **Training** We train our network of contractors to install our products and to perform QC inspections of completed work.



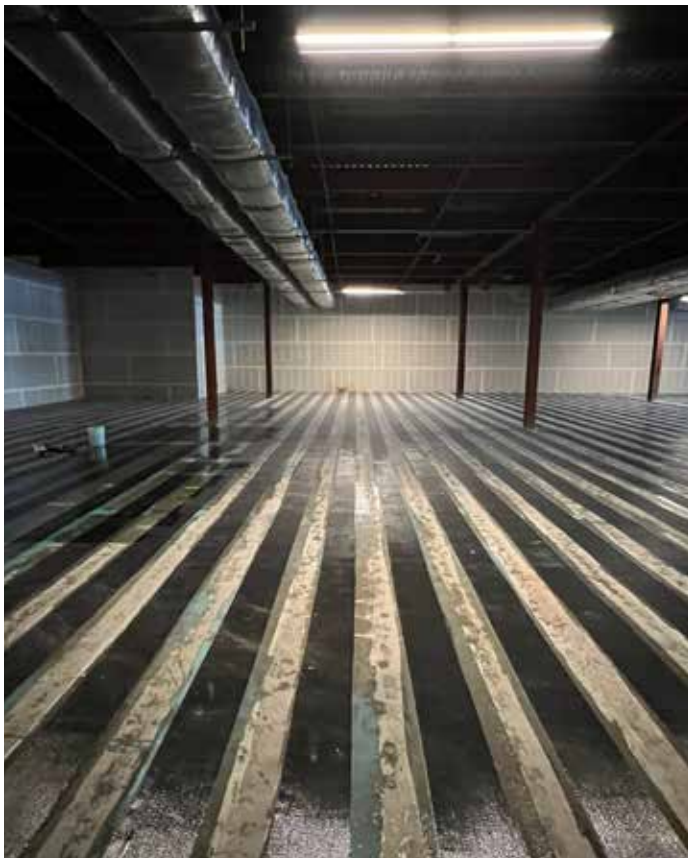
TESTING & QUALITY ASSURANCE

With access to multiple in-house testing facilities, Henkel has the ability to do small and large-scale structural evaluations. To fully characterize our FRP strengthening systems, we have extensive experience & know-how to perform a wide range of industry approved testing criteria.

A 125-ton load frame with state-of-art electronic instrumentation is used to support the development of new products and applications. We can help you validate design details unique to your project.

Our QC lab ensures that every product meets the parameters and values that our customer rely upon.





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Before using any Henkel product, the user must review the most recent version of the product's technical data sheet, safety data sheet and other applicable documents, available at by calling **+1.855.655.6750**

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