



KLINGER Composite Repair Solutions



Composite Solutions for Corrosion, Erosion, and Structural Degradation in Your Process Plant?



Composite repair is a permanent solution for damaged or corroded plant. It is tested and audited in accordance with ASME PCC2 and designed for up to 50 years service life. Composites have more than five times the tensile strength of carbon steel and are installed by trained technicians.

Manufactured by Advanced FRP Systems



ADVANTAGES OF KLINGER COMPOSITE REPAIR SOLUTIONS:

- » **Reduced Maintenance Costs:** Carbon-wrapped pipes require less maintenance over time, as they are less prone to damage and degradation.
- » **Improved Strength and Durability:** Carbon wrapping can significantly improve the strength and durability of pipes, making them more resistant to cracking, corrosion, and other forms of damage.
- » **Faster Installation:** Carbon wrapping is a relatively quick and easy process, compared to replacement or other pipe strengthening methods.
- » **Compatibility with Existing Pipes:** Carbon wrapping is a non-intrusive method of pipe strengthening.
- » **Carbon wrapping can provide a cost-effective, efficient, and highly effective solution for strengthening and protecting equipment and pipes in a wide range of industrial applications.**

WHAT DO WE BRING THAT IS DIFFERENT?

ASME PCC2 is a standard developed by the American Society of Mechanical Engineers (ASME) that provides guidelines for the repair of pressure equipment and piping. The standard covers a wide range of repair methods, including composite repair.

The ASME PCC2 standard is a recognized and is generally accepted best practice in industry. Being audited, approved and certified to ASME PCC2, is what sets us apart from other composite repair companies and demonstrates our commitment to quality and safety. The audited stress values are used in the design of the repair system.



ASME PCC-2 Test Report for the Advanced FRP Carbon System

Final Report

Prepared for
Advanced FRP Systems, Inc.

100458-RP01-Rev2-010423



GLOBAL LEADER

LOCAL PARTNER



KLINGER Composite Repair Solutions

Rehabilitation of piping, tanks and structures.

Carbon Fibre Pipe Repair Kits

Our versatile Carbon Fibre Integrity Repair Kits for corroded pipes are ideal for external pipe reinforcement and repairs ranging from 1 inch up to 60 inches in diameter. Trained KLINGER technicians can perform a permanent pipe repair with a corrosion-resistant composite reinforcement system on most pipe materials and types. Our corroded pipe integrity repair kits are specifically designed to limit wastage on small pipe diameter. After proper surface preparation, these kits contain everything you need for a permanent full composite repair.



Carbon Fibre Pipe Rebuild - a fast, cost-effective alternative for pipe replacement, restoring full functionality

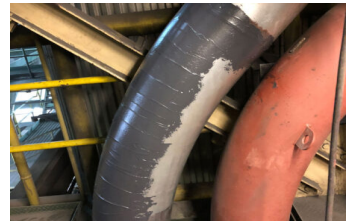
External Wraps

For water pipes, internal corrosion is the most common reason for pipe failure, especially if the internal coating has begun to fail. Our external wraps are compatible with through-wall failures up to 70 Bar, even when caused by internal corrosion. Solutions are available to help ensure your pipe will not leak even if the internal coating completely fails.



Solutions for high wear areas

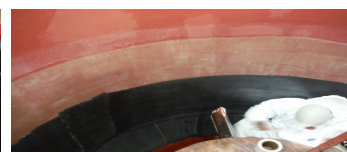
High abrasion resistant systems are also available for high wear areas of your piping, like elbows, restrictions, or T's. These systems are compatible with solids, like coal dust or ash, as well as abrasive slurry exposure. Advanced FRP Systems combines the abrasion resistance of ceramic with the strength of composite carbon fibre to provide the best, long term solutions for wear and abrasion.



Carbon Fibre Tank Repair- High-Strength, Corrosion-Resistant Composite Tank Repair and Reinforcement.

State-of-the-art storage tank repair and reinforcement service

Corrosion damage can be most extreme in areas under insulation with limited accessibility or hidden away from daily view. Corrosion under insulation can quickly cause through-wall failures. We have tank repair solutions for insulated tanks e.g water tanks, crude oil tanks, and many more. Our highly chemically resistant composites can withstand microbially influenced corrosion, acid attack, black and white/green liquor, bleach, caustics, and many more aggressive chemicals. For the most severely corroded, eroded, or damaged tanks we offer a full structural composite system featuring high-strength, aerospace-grade, USA-made carbon fibre composites. A structurally independent tank can be built inside the footprint of the existing tank. For tanks that have isolated corrosion, even through-wall failures, a composite repair solution is engineered to enhance the strength of the existing tank wall and seal off any leaks while preventing further corrosion from occurring.



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