

Structural Carbon/Epoxy Rehab System for the Prevention and Repair of Corroded Piping Systems

DESCRIPTION

Black Diamond® is a carbon-fiber wrap system used to rehabilitate and restore original operational strength to corroded and eroded pipelines and piping systems. Black Diamond Wrap® is engineered to provide strength that enables a pipeline to be restored to maximum allowable operating pressure (MAOP) without shutting down. The system is comprised of three components, each thoroughly and independently tested at both the university and national laboratory level. The first component is a solid epoxy primer, which ensures complete bonding and load transfer between the repair and the substrate. The second component and most unique feature of the Black Diamond® system, is its bi-directionally woven carbon-fiber material, which provides reinforcement in the hoop and axial directions and is the strongest available non-metallic repair on the market. The third part of the binding force in the system is the polymeric epoxy resin, which allows for uniform loading throughout the entire wrap. For repairs that require surfaces to be modified (for example; heavy pitting), the high modulus filler putty can be applied.

Black Diamond® application uses an engineering assessment to compile information such as substrate material and wall thickness, wall loss and operating temperature and pressure ranges. Citadel's Black Diamond® Wizard® software analyzes this information to determine the number of wraps required for each pipeline repair. Complex geometries such as branches, tees, elbows, valve boxes and reducers can all be repaired with the Black Diamond® system.

FEATURES

Black Diamond® was designed by Citadel Technologies to provide pipeline owners and operators with a cost effective solution and alternative to repair clamps, welded sleeves and pipeline replacement. Unlike fiberglass repair systems, Black Diamond® offers reduced thickness solutions. Black Diamond® exhibits minimal creep and its stiffness approaches that of the steel.

Due to the flexibility of the design of the system and various kit options, Black Diamond® can accommodate nearly any installation environment. Limited excavation space and clearance only highlights the use of Black Diamond®, due to the simplistic installation procedure of the product. Black Diamond® can be installed on horizontal and vertical pipe with ease. Damp conditions do not affect the product. Pipe temperatures can range from -20F to 180F for application of Black Diamond®. For instances of severe pitting, Citadel has a proprietary epoxy based filler that can be pre applied so that loads are evenly transferred to the wrap system.

All materials specified in an engineering assessment come to the job site pre-cut to length and packaged in pre-measured containers. Citadel's QC program ensures that kits arrive with all the materials necessary to complete the job. No additional tools are required.

Black Diamond® is compliant to DOT regulation, ASME B31, .8, .4, .G and PCC-2 Art 4.1, 4.2 and API 570. Please refer to API 570, Section 8.1.4 – Non-welding Repairs (On-Stream)

NOTE: BLACK DIAMOND® SYSTEM IS DESIGNED FOR INSTALLATION ON TRANSMISSION PIPELINES. BLACK DIAMOND® SYSTEM IS NOT INTENDED FOR USE ON A PIPELINE LEAK REPAIR. LEAK REPAIR SHOULD BE CONDUCTED USING THE DIAMOND WRAP® LINE OF PRODUCTS.

