

Press release

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DNV GL certified Loctite Composite Repair System for steel pipes and pipelines

Henkel increases pipe lifetime by up to 20 years

Henkel is taking a new approach to repairing steel pipes and pipelines and is focusing on certified safety. DNV GL, one of the leading certification bodies, recently completed a thorough testing program to confirm that Henkel's repair system is meeting all requirements of the global quality standard ISO/TS 24817. It defines the design, installation, test and inspection criteria for the use of composite repair systems for oil and gas pipelines and pipework carrying petrochemical media.

Steel pipelines are extremely capital intensive – no matter whether they are used to transport gas, water, crude oil, wastewater or any other medium. It therefore pays to continue to operate them as long as possible after the planned amortization and depreciation period. The lifetime of such transport systems thus becomes a critical issue.

Because the steel shell is constantly exposed, externally or internally, to the combined corrosive effects of climate factors, mechanical stress and chemical attack, pipeline operators habitually have to deal with cracks, holes, fractures and leaks. In the past, it was common practice to completely replace the affected sections of pipework. However, as this always involves a transport stoppage, maintenance and repair organizations are increasingly switching to repair systems as fast and economical alternatives that do not interrupt operations.

Quality and above all safety are absolute priorities for all those concerned, particularly in this highly sensitive repair business.



Mature technology combined with certified safety

The repair system recently certified by DNV GL is an all-in-one package providing a mature technology with the added assurance of certified safety. In complex test procedures, including a number of long-term tests, the innovative products were rigorously examined by the internationally operating classification society over a period of almost two years.

The heart of the new repair system is a composite material made of resin reinforced with fibers, similar to the materials with which Henkel is already successfully serving manufacturers of rotor blades for wind power plants or lightweight components for the automotive industry. In steel pipelines the composite repair system reinforces damaged pipe sections while also protecting them against renewed corrosion.

Certified repair system

The Loctite Composite Repair System certified according to ISO/TS 24817 is suitable to repair both Type A (non-through wall) as well as Type B (through wall) defects, covering all repair classes 1-3. In addition to straight pipes also other components like bends, tees, reducers or flanges can be repaired.

The first step in the repair procedure is to clean and sandblast the surface in the repair area. Since blasted metal surfaces are extremely susceptible to flash rust, Henkel recommends applying the corrosion inhibitor Loctite SF 7515 as a surface treatment providing temporary protection. In case of Type A defects the original outer pipe diameter needs to be restored by filling the cavities with Loctite EA 3478. The pipe is then wrapped with high-strength glass-carbon fiber tape Loctite 5085 that has been impregnated with the temperature-resistant, two-part epoxy resin Loctite PC 7210. This adhesive has been specifically engineered for bonding to steel substrates and exhibits exceptionally high adhesion. The repaired section is then sealed with the sprayable ceramic topcoat Loctite PC 7255. The composite repair system thus reinforces steel pipes for continued duty under high pressure and thermal cycling while increasing their chemical resistance.

Real economic benefits

In addition to certified safety, the system offers real economic benefits, since it eliminates the need to replace piping components. Corroded pipes can be repaired in situ, without any interruption in operations and even with high internal pressure, thus avoiding stoppages and commercial losses. Moreover, the quality achieved by the repair can increase the lifetime of steel pipelines by up to 20 years.

Strong interest

“Our technology and expertise is already attracting very strong interest,” says Bernd Hammer, Global Market Development Manager Industrial Maintenance at Henkel. This statement applies just as much to end customers such as oil and gas companies, refineries, industrial parks and power plants as it does to large industrial service providers working for industry. Furthermore, applicators who have specialized in metal protection and repair solutions are also voicing great interest.

Certified calculations

As part of the solution package Henkel is also offering calculations of the project-specific repair designs. They differ from project to project depending on a range of parameters such as the forces acting on the pipeline, temperature, pressure, and the extent of damage. To maximize safety and efficiency, Henkel has developed a software tool to calculate exactly how the repair should be executed. Henkel has also had this calculation tool certified by DNV GL.

Certified training program

To ensure that the repair system will be properly applied at all times in practice, companies and technicians who are to perform such work must undergo training by the provider of the system. This is specified in the ISO certification and required by DNV GL. Henkel has therefore developed a tailor-made training program to meet these requirements.

The program consists of two successive training blocks. The fundamentals of applying wear-resistant coatings are covered in a two-day basic training course (Surface Engineering Solutions). Well over 100 users have already taken advantage of this workshop. How specifically conduct pipe repair work according to ISO/TS 24817 is being trained in the two-day advanced training course (Loctite Composite Repair System – Pipe Repair). Henkel offers both trainings in a purpose-built Competence Center for Coatings at its Garching facility, but other locations could be possible as well.

In addition to providing their staff with a certified training, applicators can also have their full operations validated by Henkel. Certification is based on passing an audit that Henkel conducts at the respective firm's premises. The audit focuses not only on the workshop and equipment, but also on health and safety in the workplace, waste management levels, and the knowledge and skills of the employees.

“Henkel Certified Applicator Center” network

Successful auditees are then offered the opportunity to join the competence network of “Henkel-Certified Applicator Centers”. For the applicators, this is both proof of their expertise and a reference they can cite. “Our network members set very high standards regarding their own technical skills and the quality of their work,” explains Sebastian Horstmann, Application Engineer Technical Customer Service Europe. “Only high standards like these can assure the full functionality of our engineering coatings. The people in the Henkel-Certified Applicator Centers Network wish to clearly distinguish themselves from firms that do not share such values.”

For more information, please visit www.loctite.co.uk/pipe-repair

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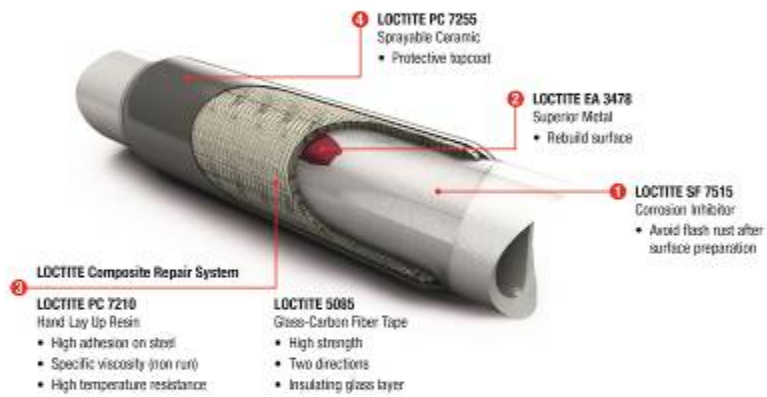
Henkel operates worldwide with leading brands and technologies in three business areas: Laundry & Home Care, Beauty Care and Adhesive Technologies. Founded in 1876, Henkel holds globally leading market positions both in the consumer and industrial businesses with well-known brands such as Persil, Schwarzkopf and Loctite. Henkel employs about 47,000 people and reported sales of 16.4 billion euros and adjusted operating profit of 2.5 billion euros in fiscal 2013. Henkel's preferred shares are listed in the German stock index DAX.

Photo material is available at <http://www.henkel.com/pres s>

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The following material is available:



Henkel products used for pipe repair.



A Henkel product being applied



Products from Henkel can increase pipe-lifetime by up to 20 years.



The Loctite product family for pipe repairs.