

LOCTITE®



Henkel Certified Applicator Center



Improve Your Asset Integrity

LOCTITE Composite Pipe Repair and Flange Sealing System



Excellence is our Passion



Our Innovation for Your Value

A Partner Who Offers More than Products

Qualified maintenance, and quick, safe and sustainable repairs are crucial to run any kind of industrial plant worldwide efficiently.

Henkel helps you to meet the steadily rising needs for maximised production, less unplanned downtime and reducing costs.

Increase the reliability and improve the efficiency of your plant with our unique package:

- Technology solutions across the entire process
- Intense on-site consulting
- In-depth industry expertise
- Customised trainings for your maintenance team

As the leading solution provider for adhesives, sealants, and functional coatings Henkel is prepared to take any challenge in your facility – from reducing wear and corrosion to sealing leaks.

Our innovative solutions are tested and approved by demanding customers and most sophisticated inspection authorities. Partners can access this offer through the Henkel Certified Applicator network.

Rely in a partner that sets the highest standards for more than 50 years.



One Success Story Out of Hundreds!

Case Study: A Chlorine Gas – A Repair – 300 mm Chlorine Pack Vent Main

Project:



THE DEVICE

- Pack Chlorine Vent Main Pipework
- Material: Carbon steel
- Diameter: 325 mm



THE CHALLENGE

- Internal corrosion of pipe T
- Nominal wall thickness: 8 mm
- Remaining wall thickness: 5 mm



THE SOLUTION

- On-site analysis & consulting
- LOCTITE Composite Pipe Repair System
- Providing application support
- Execution of repair
- Training of internal staff



THE ADDED VALUE

- Cost savings
- Lifetime expansion of 2 years
- Repair according to ISO 24817

Workflow:



Surface Preparation:

- Using brushing tools
- Approved for Ex Zone 1 (according ExII 2G c IIA T4 X)



Application of LOCTITE SF 7515 Corrosion Inhibitor:

- Application immediately after surface preparation



- Filling up any pitting holes and voids, Impregnation of LOCTITE 5085 Glass & Carbon Fibre Tape with LOCTITE PC 7210 Hand Lay up Resin



- Completed wrapping and curing process



Hardness measuring:

- Is providing information on handling strength for next work step



- Top coat applied with LOCTITE PC 7255 Sprayable Ceramic

Extend Pipe Lifetime

LOCTITE Composite Pipe Repair System

LOCTITE Composite Pipe Repair System is a fast and economical alternative to pipe replacement. The innovative repair system reinforces and seals pipes designed for high pressure, standard and high temperature, plus chemical resistance. The all in one standard and high temperature solutions with materials for surface preparation, reinforcement and topcoat consists of:

Example: Type A None Through Wall Defects

SOLUTION 1: STANDARD TEMPERATURE UP TO 80 °C

LOCTITE EA 3478

Superior Metal

- Rebuild surface

LOCTITE SF 7515

Corrosion Inhibitor

- Avoid flash rust after surface preparation

LOCTITE PC 7210

Hand Lay Up Resin

- High adhesion on steel
- Specific viscosity (non run)

LOCTITE PC 5085

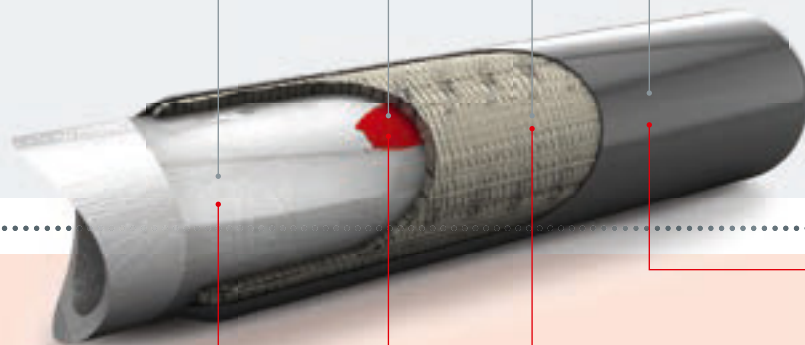
Glass-Carbon Fibre Tape

- High strength
- Two directions
- Insulating glass layer

LOCTITE PC 7255

Sprayable Ceramic

- Protective topcoat
- Abrasion resistant



LOCTITE SF 7515

Corrosion Inhibitor

- Avoid flash rust after surface preparation

LOCTITE EA 3488 HT

Superior Metal

- Rebuild surface
- High temperature resistant

LOCTITE PC 7211 HT

Hand Lay Up Resin

- High adhesion on steel
- Specific viscosity (non run)
- High temperature resistance

LOCTITE PC 5085

Glass-Carbon Fibre Tape

- High strength
- Two directions
- Insulating glass layer

LOCTITE PC 7234 HT

Brushable Ceramic

- Protective topcoat
- Abrasion resistant
- High temperature resistant

SOLUTION 2: HIGH TEMPERATURE UP TO 130 °C (POST CURING 3 HOURS AT 90 °C)

ISO 24817 certified by DNV GL



Technical Table	Standard Temperature	High Temperature
Repair classes	• 1, 2 and 3	• 1, 2 and 3
Defect types	• Type A (none through wall defects) • Type B (through wall defects)	• Type A (none through wall defects) • Type B (through wall defects)
Pipe substrates	• Carbon steel, stainless steel, duplex, super duplex	• Carbon steel
Piping components	• Straight, bend, reducer, T-piece, flange	• Straight, bend, reducer, T-piece, flange
Maximum pressure	• According to specific repair design	• According to specific repair design
Temperature range type A Temperature range type B	• -50 °C to 80 °C • -50 °C to 70 °C	• -50 °C to 130 °C • -50 °C to 120 °C
Repair method	• Grit blasting / wire brushing • Full wrap / patch lay-up • No peel-ply / with peel-ply	• Grit blasting / wire brushing • Full wrap / patch lay-up • With peel-ply LOCTITE PC 5090 • Post cure 3 hours at 90 °C
Chemicals (type B defect)*	• Water • Acids • Alkaline • Hydrocarbons (liquids & gases)	• Water • Acids • Alkaline • Hydrocarbons (liquids & gases)
Approvals	• DNVGL • Lloyds • TÜV Rheinland • Certified according to ISO 24817 and ASME PCC-2	• DNVGL • Certified according to ISO 24817 • Ongoing certification process

* Compatibility for each repair needs to be assessed. Please contact Henkel Customer Service.

Mitigate Risk of Flange Failure

LOCTITE Flange Sealing System

Preventative sealing of flanges with LOCTITE Flange Sealing System increases your asset integrity by solving the root causes of flange failures, e.g. crevice and bi-metallic corrosion and corrosive necking of bolts.

Application areas

- Repair system for new and damaged flanges
- Inside corrosion
- Oil & Gas industry, oil rigs, refineries and petrochemical plants, power plants, water utilities, etc.

Benefits

- Increases pipeline system integrity
- Stops degenerating of flanges
- No need to replace flanges
- Seals flanges
- In situ, in operations, cold work repair solution
- Economical, simplistic and workable minutes repair

The preventative flange sealing solution with materials for O-ring bonding and flange sealing consists of:

Stainless Steel Banding

- Securely attaches parts

Gasket

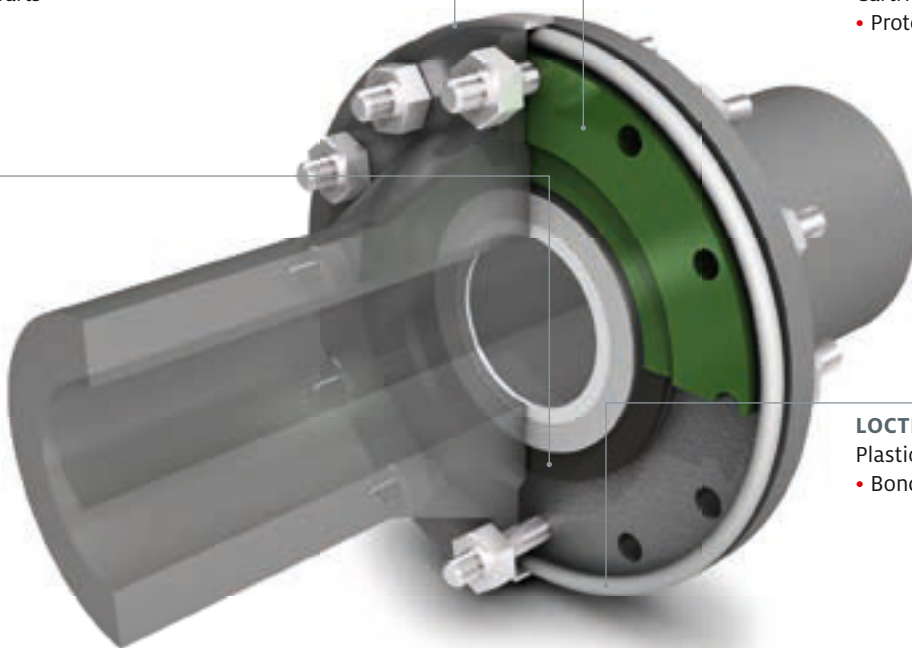
- Mechanical seal

LOCTITE PC 7255

- Cartridge injected
- Protective Sealant

LOCTITE 406

- Plastic Bonding
- Bonds O-ring



700 Flanges Sealed in 6 Weeks!

Case Study: Refrigerated Liquid Petroleum Gas Plant

Project:



THE DEVICE

- Carbon steel flanges



THE CHALLENGE

- Potential leakage of R22 cooling liquid in 700 carbon steel flanges (2" up to 24", 10 bar max, -56 °C)
- R22 is no longer available for recharge



THE SOLUTION

- Leakage stopped and operations of plant ensured until the end of asset life in next 3 years
- Hydrogen leak test showed zero leakage (leak rate < 1 scf / year, test at 30 bar with helium)



THE ADDED VALUE

- Cost savings compared to engineered sealing or wrapping solutions
- Increases pipeline system integrity by creating perfectly sound system (no leakage, complete sealing)
- Stop degenerating of flanges by solving corrosion induced flange failures

Workflow:



- Remove all old insulated foam and clean flange
- Measure flange and create nitrile O-ring around spool using LOCTITE 406 and roll into position



- Pull O-ring into gap of bolted flange then inject LOCTITE PC 7255 (epoxy system) into gap using mastic gun



- Once filled roll O-ring completely back into position



- Install stainless steel band strapping around flange and hydraulically compress LOCTITE PC 7255 O-ring into flange void



- Allow LOCTITE PC 7255 to cure

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TECHNOMELT®
TEROSON®
AQUENCE®

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