DEMIN WATER TANK THROUGH-WALL REPAIR WITHOUT WELDING

ID: 10340

Industry:	*Chemical & Petrochemical*	Customer Location:	*St James*
Application:	*TCC-Tanks and Chemical Containment Areas*	Application Date:	*August 2026*
Substrate:	*Carbon steel*		
Products:	*Belzona 1212,Belzona 1221 (Super E-Metal),Belzona 1984,Belzona 5721,Accessories*		

Problem

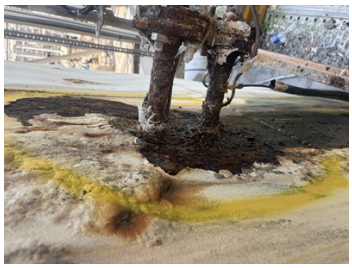
A carbon steel demineralized water tank had developed extensive external corrosion, including several active through-wall leaks in the tank shell and severe deterioration surrounding two adjacent nozzles.
Corrosion around the nozzle penetrations had progressed to the point that significant areas of the original steel substrate had been lost. Conventional repair would have required welding and potentially more extensive steel replacement.

The vessel also carried restrictions regarding welding due to the specialized internal coating, making a cold-applied repair solution highly desirable.

The customer required a repair that could seal the active leaks, rebuild the deteriorated areas and reinforce the affected shell and nozzle penetrations without introducing hot work.



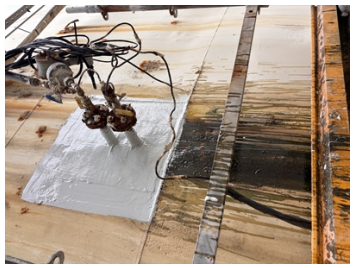
Pre-Job Walkdown Photo Showing Two Adjacent Tank Nozzles with Severe External Corrosion, Significant Wall Loss, and Active Through-Wall Leaks Prior to Belzona Repair Application.



Pre-Job Walkdown Photo Showing Two Adjacent Tank Nozzles with Severe External Corrosion, Significant Wall Loss, and Active Through-Wall Leaks Prior to Belzona Repair Application.



Pre-Job Walkdown Photos Documenting External Corrosion and Through-Wall Pinhole Leaks in the Tank Walls



Completed Tank Wall Repairs Using Belzona 1212 and 1221 (Super E-Metal) to Seal Through-Wall Pinholes, Belzona 1984 for Composite Reinforcement, and Belzona 5721 as the Final Protective Topcoat.

Application Situation

The carbon steel demineralized water storage tank operates at pressures up to 18 psi and temperatures up to 100°F. Multiple areas of severe corrosion had resulted in active through-wall leaks, including significant deterioration around two nozzle penetrations. Conventional steel replacement would have required welding; however, the vessel has a specialized internal coating and was designated as a no-welding application. The Belzona cold-applied composite repair provided an alternative to hot work and extensive steel replacement, reducing the repair scope, potential downtime, and associated costs while allowing the existing tank to be returned to service.

ISO 9001:2015
FS 695214
ISO 14001:2015
EMS 695213

Belzona products are manufactured under an ISO 9000 Registered Quality Management System.

www.belzona.com

BELZONA® Repair • Protect • Improve

Copyright © Belzona International Limited 2026

Application Method

The affected areas were identified and the repair boundaries were extended beyond the visibly corroded substrate to encompass adjacent areas of concern.

The steel was mechanically prepared to an SSPC-SP 11 Power Tool Cleaning to Bare Metal standard with a minimum 1 mil surface profile.

Through-wall defects, pitting and irregular areas were filled and rebuilt using Belzona rebuilding material to restore the required surface profile.

Belzona 1984 resin was then used in combination with Belzona 9381 reinforcement to create a four-layer composite repair across the deteriorated tank shell.

The two nozzle penetrations were incorporated into the composite repair using specially cut skirt, flare and circumferential reinforcement sections. This configuration provided continuity between the tank shell and nozzle geometry while reinforcing the surrounding damaged substrate.

Following curing and inspection, the completed composite repair was protected with Belzona 5721 to provide additional UV and weathering resistance.

Belzona Facts

By utilizing a cold-applied Belzona composite repair, the customer avoided the significantly higher costs associated with cutting out and replacing the deteriorated tank shell and nozzle areas. The Belzona solution eliminated the need for welding and associated hot-work requirements while preserving the vessel's specialized internal coating. This reduced labor, equipment, downtime, and potential recoating costs while allowing the existing tank to be repaired rather than replaced. The solution also extended the service life of the asset and allowed the customer to defer a much larger capital repair or tank replacement.

ISO 9001:2015
FS 695214
ISO 14001:2015
EMS 695213

Belzona products are manufactured under an ISO 9000 Registered Quality Management System.

www.belzona.com

BELZONA®
Repair • Protect • Improve

Copyright © Belzona International Limited 2026