

# Belzona Solutions for Heat Exchangers

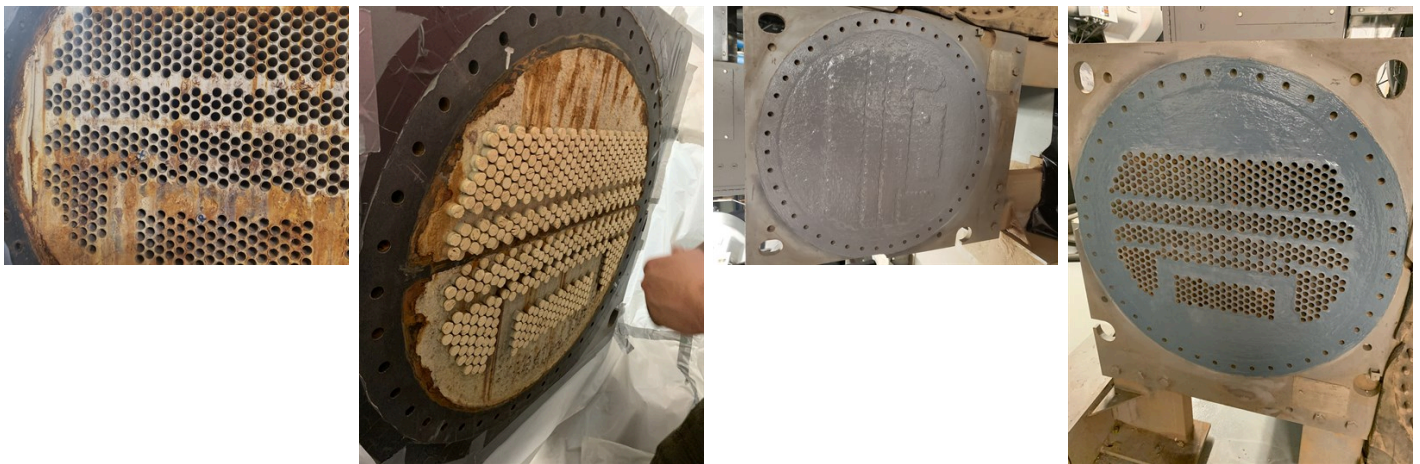
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**Industry:** Heating, Ventilation & Air Conditioning  
**Application:** HEX-Heat Exchangers  
**Substrate:** Carbon steel  
**Products:** Belzona 1311 (Ceramic R-Metal),  
Belzona 1321 (Ceramic S-Metal),

**Customer Location:** Burbank, CA  
**Application Date:** December 2020

## Problem

*if the corrosion allowance is exceeded and gaps appear, recirculation can occur, leading to efficiency loss. In addition, the processed fluid can erode the metal further, accelerating degradation if corrosion is already present.*



## Application Situation

Shell and tube heat exchangers, also referred to as chillers, are a vital part of any heating or air conditioning system. Failure to quickly protect these units allows galvanic corrosion to take place, resulting in wastage and metal loss on the tube sheet around the coolant tubes. Left untreated, the loss of metal can cause leakage of the coolant and contamination of the chilled water. Corrosion is not restricted to the tube sheet, the water box and end covers can also be affected. In particular, corrosion in division bars and seal faces can lead to leakage and loss of efficiency, as well as the inability to maintain the desired working environment in buildings.

## Application Method

The affected section is rebuilt using Belzona's two-component repair composites. The paste grade material Belzona 1311 (Ceramic R-Metal) rebuilds the substrate to its original tolerances, while the fluid grade system Belzona 1321 (Ceramic S-Metal) provides a layer of durable protection. This cold-applied repair process bypasses the need of hot work that would leave the substrate susceptible to further damage. Belzona polymeric technology isolates the dissimilar metals, preventing further galvanic corrosion. The tough repair and coating system also protects the chiller against the effects of erosion and, as a result, increases asset life and efficiency while avoiding replacement. Belzona materials are easy and quick to apply by hand, reducing downtime and hazards during application.

## Belzona Facts

The Belzona solution not only restores the original tube sheet profile, but also creates a smooth tube sheet face flush with the tube

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

Belzona products are  
manufactured under an ISO  
9000 Registered Quality  
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ends, leading to reduced turbulence and greater efficiency. Water boxes and end covers can also be repaired and protected.

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