

Chiller Tubesheet Repair

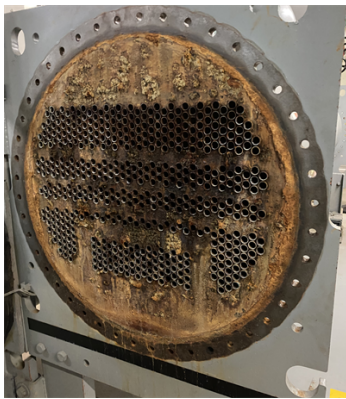
ID: 10229

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

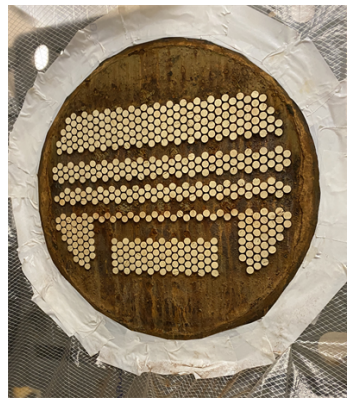
Customer Location: Seattle
Application Date:

Problem

The carbon steel tubesheet of a chiller unit serving a commercial HVAC system had suffered significant deterioration due to a combination of erosion, general corrosion, and pitting. The constant flow of water across the tubesheet face had accelerated material loss, while galvanic interaction between the carbon steel tubesheet and copper alloy tubes further compounded the corrosion. Pitting had developed across the tubesheet surface, undermining the integrity of the tube-to-tubesheet joints and raising concerns about potential leaks and reduced heat transfer efficiency. Left unaddressed, continued degradation would have led to costly unplanned downtime and the risk of chiller failure during peak cooling demand. The customer required a reliable, in-situ repair solution that could restore the tubesheet surface, arrest further corrosion, and return the unit to service quickly without the need for hot work or tube bundle removal.



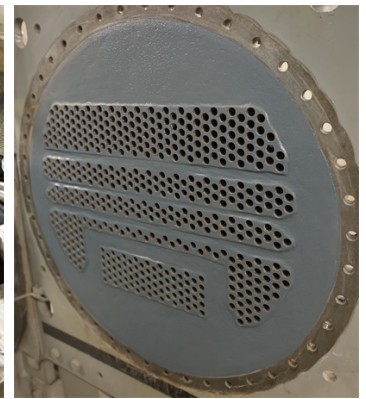
Heat exchanger experiencing erosion, general corrosion, and pitting.



Installation of corks in preparation for Belzona coating applications.



Application of Belzona 1311 and Belzona 1321.



Finished application.

Application Situation

The chiller tubesheet had deteriorated to the point where intervention was required to protect the asset and extend its operational service life. The customer evaluated repair options and selected Belzona 1311 (Ceramic R-Metal) and Belzona 1321 (Ceramic S-Metal) based on their proven track record in tubesheet protection and their reputation as industry-leading erosion-corrosion resistant composites.

A key advantage of the Belzona solution was the ability to complete the repair in-situ with no hot work, eliminating the need for tube bundle extraction, welding, or equipment replacement. The full repair was completed in just 2 days, significantly reducing both project cost and downtime compared to traditional mechanical repair methods. This fast return to service was a critical consideration for the facility's ongoing cooling requirements.

Application Method

Belzona 1311 was used to rebuild metal loss followed by two coats of Belzona 1321

For more examples of Belzona Know - How In Action, please visit <https://khia.belzona.com>

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 Facts

Belzona was selected based on proven performance and ease of application

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