

Belzona Flange Repair on Circulating Discharge Water Pipe

ID: 10281

Industry: Power
Application: VPF-Valves, Pipes and Fittings
Substrate: Carbon steel
Products: Belzona 1311 (Ceramic R-Metal), Belzona 5831 (ST-Barrier)

Customer Location: Chung Nam, South Korea
Application Date: January 2026

Problem

The internal flange coating of the circulating water pipe discharge circulation pipe was found to be damaged and delaminated, leading to the development of water channels beneath the coating layer. This deterioration compromised the integrity and protective performance of the coating system, exposing the substrate to potential corrosion and further degradation.



Damage on the flange of circulating water pipe discharge circulation pipe



Surface preparation by a power



Belzona 1311 (Ceramic R-Metal) filled the flange



Belzona 5831 (ST-Barrier) coated flange surface subject to wet conditions

Application Situation

The repair and coating restoration works were carried out in situ inside the circulating water pipe discharge. Due to restricted access and confined working conditions within the pipe system, all surface preparation activities were performed on site using portable power tools. This enabled effective removal of loose, damaged, and delaminated coating materials.

Following surface preparation, the deteriorated and uneven areas were rebuilt directly on site using Belzona 1311 (Ceramic R-Metal) to restore the original surface profile and integrity of the affected sections. After the rebuilding material had fully cured, two coats of Belzona 5831 (ST-Barrier) were applied. The completed coating system provided protection against water ingress, erosion, and corrosion while extending the service life of the circulation pipe without requiring component replacement.

Application Method

1. Power tools were used to carry out mechanical surface preparation on the affected areas inside the CWP discharge circulation pipe.
2. All loose, damaged, and delaminated coating materials, along with corrosion products and surface contaminants, were removed to achieve a clean and sound substrate suitable for repair and coating application.
3. The deteriorated and uneven areas were then rebuilt and reprofiled using Belzona 1311 (Ceramic R-Metal) to restore the original surface.
4. After the rebuilding material cured, two coats of Belzona 5831 (ST-Barrier) were applied.

Belzona Facts

Given the limited access to the damaged area inside the circulating water discharge pipe, the selected in-situ repair method was

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FS 695214
ISO 14001:2015
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appropriate as it enabled effective restoration without the need for flange dismantling or replacement. The use of power tools and cold-applied repair materials allowed the work to be carried out efficiently within confined spaces.

The application of Belzona 1311 (Ceramic R-Metal) provided a practical solution for rebuilding damaged and uneven surfaces directly on site. Belzona 5831 (ST-Barrier), a surface-tolerant coating, delivers long-term protection against erosion, corrosion, and water ingress.

This repair approach minimized downtime, reduced maintenance costs, and eliminated the risks associated with hot work or major pipe removal activities. In addition, the in-situ application ensured that the repair could be completed safely and efficiently under restricted-access conditions, making it a reliable and cost-effective maintenance solution for the circulation pipe systems.

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