

Belzona helps give a ship caisson a makeover

ID: 8416

Industry: Marine
Application: SOS-Ships and Offshore Structures

Customer Location: Brest, France
Application Date: 2020

Substrate: Steel
Products: * Belzona 1111 (Super-metal) ,
* Belzona 1331 ,
* Belzona 5811 (Immersion Grade) ,

Problem

The ship caisson was experiencing severe corrosion which deteriorated the surfaces in contact with the mobile gates. This deterioration led to the material loss of the lateral plates substrate to which the gates press against and form the seal. This meant that the creation of a watertight seal by the caisson and the gates could not be ensured, and therefore making the caisson not fit for its operational purpose. The main issues that the ship caisson was experiencing were:

Several losses of thickness all over the surface with some more specifically deteriorated areas.

Severe wear on the central part which adheres to the gates on a surface of 45 cm (caused by a combination of marine corrosion and joint friction) which led to 20 mm of lost thickness.



Photograph Descriptions

- * 1. Severe deterioration of substrate ,
- * 2. Ready for Surface Preparation ,
- * 3. Resurfaced and protected substrate ,
- * 4. Ship caisson repaired and ready to operate again ,

Application Situation

Belzona's Distributor for the West region of France, completed a large project at the port of Brest, which was to repair two bearing

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

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surfaces on a ship caisson. This particular application required highly skilled technical knowledge and was a very profitable opportunity due to the significant quantity of products involved. The Client required an effective and timely solution as these repairs were hindering the activity of the shipyard.

Application Method

The application was carried out in accordance with Belzona System Leaflet SOS-01 and SOS-02.

The dimensions of the bearing facades of the caisson ship which needed to be resurfaced and protected were 18 metres x 1.1 metres. After cleaning and preparing the surface through grit blasting, a protective coat of Belzona 1331 was applied to due to its outstanding erosion and corrosion resistance under immersion.

Belzona 5811 which protects equipment operating under immersion from corrosion, was first applied on the prepared surface to protect it from oxidation prior to being reprofiled. Belzona 1111, an epoxy-based composite was then applied to rebuild the corroded surfaces of the plates. In order to achieve a tolerance of $1 < \text{mm/m}$, An industrial plumb line and a bolt welded on the substrate was used to achieve the ideal thickness.

Belzona Facts

The Distributor was able to meet all of the Client's demands and showcased their expertise in this application by precisely assuring the tolerance of $<1\text{mm/m}$ between the seals and the supporting plates of the caisson to ensure a watertight seal.

The project took less than three weeks (472 hours), and the distributor was able to offer a competitively priced and long-term solution that no other competitors could offer.

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