

# BELZONA REPAIR TO FRANCIS TURBINE END COVER

ID: 3427

**Industry:** Power  
**Application:** CEP-Centrifugal Pumps  
**Substrate:** Cast iron  
**Products:** \* Belzona® 1291 (ES Metal) ,  
\* Belzona® 1311 (R-Metal) ,  
\* Belzona® 1341 (Supermetalglide) ,

**Customer Location:** Hydro power plant, Sweden  
**Application Date:** April 2011

## Problem

The velocity of the water had led to erosion damage on the end cover of the turbine casing. Several through wall defects were reducing the efficiency of the unit. The end cover was 2.6m wide, 0.2m deep and 1.4 m long



## Photograph Descriptions

- \* One of the end cover halves (there are 4 in total) ,
- \* View of the end cover after surface preparation. Through wall defects clearly visible ,
- \* A former was used to create the original profiles ,
- \* The application of Belzona® 1341 to complete the repair ,

## Application Situation

End cover of Francis turbine manufactured by KMW in 1939. This hydro plant is one of the main electric utilities in the country.

## Application Method

Application was carried out in accordance with Belzona Know-How System Leaflets CEP-3 & 5. The work was done in the contractor's workshop. After preparing the substrate by grit blasting and sealing holes with Belzona® 1291, Belzona® 1311 was applied up to a total thickness of 5-6 cm to restore original profile (100 kg of Belzona® 1311 was used for the repair on the two turbine ends). Finally two coats of Belzona® 1341 were applied to offer erosion protection and to create a smooth finish.

## Belzona Facts

Thanks to the previous experience and successful jobs done by the contractor in the hydro industry, and also previous successful

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

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

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inspections, the Belzona solution was the chosen option for this application. Given the fast curing properties of the Belzona solution versus conventional solutions, the end cover was back on-site within a few days.

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