Know-How *in Action*

Vol.XXVI No.85

# BELZONA REPAIR TO FRANCIS TURBINE END COVER

## CUSTOMER
Hydro power plant, Sweden

## APPLICATION DATE
April 2011

## 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.

## 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

## PRODUCTS
Belzona® 1291 (ES Metal)
Belzona® 1311 (R-Metal)
Belzona® 1341 (Supermetalglide)

## SUBSTRATE
Cast iron

## 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 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.

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

1.


2.


3.


4.




ISO 9001:2008
Q 09335
ISO 14001:2004
EMS 509612

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