Know-How*in Action*

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3-STEP BELZONA CAVITATION SOLUTION FOR KAPLAN TURBINE BLADES

CUSTOMER
Hydroelectric Plant, Northern Italy

APPLICATION DATE
March 2016

APPLICATION SITUATION
Kaplan turbine was suffering from the destructive effects of cavitation.

PROBLEM
Four blades of the Kaplan turbine were experiencing metal loss as a result of cavitation. In some areas, through-wall defects started to appear. The customer previously attempted to repair the damage by welding without success.

PRODUCTS
Belzona 1311 (Ceramic R-Metal)
Belzona 1341 (Supermetalglide)
Belzona 2141 (ACR-Fluid Elastomer)

SUBSTRATE
Stainless Steel

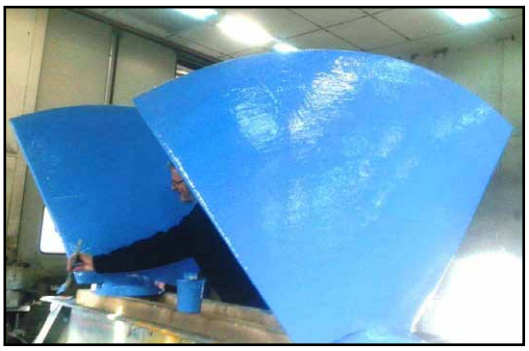
APPLICATION METHOD
The application was carried out in accordance with Belzona Know-How System Leaflets CEP-1 and CEP-3. After surface preparation was carried out, a 3-step repair and protection system against cavitation was applied. STEP 1: Belzona 1311 was used to rebuild and restore profile of the damaged surfaces. STEP 2: Entire surface area of the blades was then coated with Belzona 1341 to protect them from erosion-corrosion. STEP 3: Finally, areas subjected to cavitation were protected with cavitation resistant Belzona 2141.

BELZONA FACTS
After the turbine was returned to service, its efficiency was found to have improved due to Belzona's coating system. The only alternative to the Belzona solution was replacement, which would have involved substantial costs and would significantly have increased the downtime.

PICTURES
1. Cavitated turbine blades
2. Rebuilding with Belzona 1311
3. Belzona 1341 applied
4. Belzona 2141 applied onto the edges

1.


2.


3.


4.