

# 3-STEP BELZONA CAVITATION SOLUTION FOR KAPLAN TURBINE BLADES

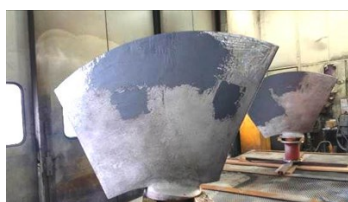
ID: 6087

**Industry:** Power  
**Application:** CEP-Centrifugal Pumps  
**Substrate:** Stainless Steel  
**Products:** \* Belzona 1311 (Ceramic R-Metal) ,  
\* Belzona 1341 (Supermetalgilde) ,  
\* Belzona 2141 (ACR-Fluid Elastomer) ,

**Customer Location:** Hydroelectric Plant, Northern Italy  
**Application Date:** March 2016

## 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.



## Photograph Descriptions

- \* Cavitated turbine blades ,
- \* Rebuilding with Belzona 1311 ,
- \* Belzona 1341 applied ,
- \* Belzona 2141 applied onto the edges ,

## Application Situation

Kaplan turbine was suffering from the destructive effects of cavitation.

## 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

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FS 695214  
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manufactured under an ISO  
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alternative to the Belzona solution was replacement, which would have involved substantial costs and would significantly have increased the downtime.

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