3-STEP BELZONA CAVITATION SOLUTION FOR KAPLAN TURBINE BLADES

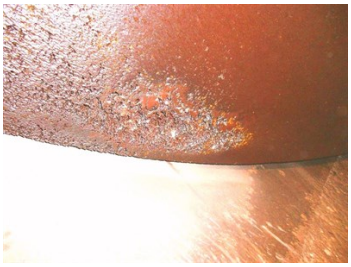
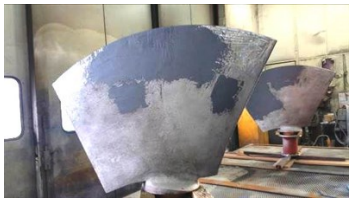
ID: 6087

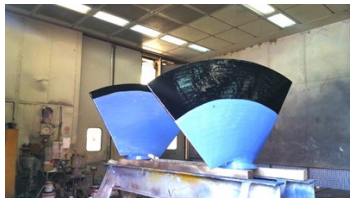
Industry: *Power*
Application: *CEP-Centrifugal Pumps*
Substrate: *Stainless Steel*
Products: ** Belzona 1311 (Ceramic R-Metal) ,*
** Belzona 1341 (Supermetalglide) ,*
** Belzona 2141 (ACR-Fluid Elastomer) ,*

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

alternative to the Belzona solution was replacement, which would have involved substantial costs and would significantly have increased the downtime.