

# BELZONA PROVEN CAVITATION PROTECTION TO FRANCIS TURBINE

ID: 1441

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

Customer Location: Hydroelectric plant, Slovakia  
 Application Date: 2004 and 2007

## Problem

Cavitation had caused erosion of the metal and loss of turbine performance. Belzona® 1311 and Belzona® 1341 had been applied in 2004, but had suffered further cavitation, so system upgraded by applying more cavitation resistant Belzona® 2141.



## Photograph Descriptions

- \* Cavitation damage to turbine runner ,
- \* Belzona® 1341 showing some cavitation damage ,
- \* Belzona® 2141 being applied to the runner ,
- \* After 24 months service Belzona® 2141, inspection shows no further cavitation damage ,

## Application Situation

Francis turbine runner, 800mm diameter, 40-50m head and optimum 600rpm. Power output 2.1MW with 4m<sup>3</sup>/s flow rate.

## Application Method

Application was carried out in accordance with Belzona Know-How System Leaflets CEP-3 and CEP-10

For more examples of Belzona Know - How In Action, please visit <https://khia.belzona.com>

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

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

[www.belzona.com](http://www.belzona.com)

## Belzona Facts

Inspection of the Belzona Ceramic coating in 2006 showed damage from cavitation, so specification was changed to Belzona® 2141. Further inspection after 2 years showed no damage on the turbine runner.

In 2013 small areas of coating damage were repaired with further Belzona 2141.

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