

PROTECTING PAPERMILL VOLUTE PUMP CASINGS FROM SEVERE ABRASION WITH BELZONA

ID: 10283



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PROBLEM

The volute pump casing used in the papermill operation suffered severe abrasive wear and leakage due to continuous exposure to abrasive slurry during operation. Progressive erosion of the internal surfaces resulted in material loss, reduced pump efficiency, and increased risk of equipment failure. The worsening condition eventually required shutdown of operations for immediate repair and restoration to prevent further operational losses and unplanned downtime.

APPLICATION SITUATION

The papermill operation experienced an unplanned shutdown due to severe abrasive wear and leakage of the volute pump casing caused by continuous exposure to abrasive media. Replacing the damaged casing would have required extended downtime and significantly higher replacement costs, making the Belzona solution a faster and more economical alternative.

Belzona 1161 (Super UW-Metal) was used to rebuild the damaged metal areas, while Belzona 1812 (Ceramic Carbide FP) was used as the adhesive and grout for the installation of Belzona 9811 Alumina Tiles to provide long-term protection against severe abrasion.

The cold-applied repair system eliminated the need for hot work and enabled the customer to complete the repair within the planned shutdown schedule, minimizing production losses while extending the operational life of the equipment.

APPLICATION METHOD

The damaged volute pump casing was initially cleaned and mechanically prepared to remove contaminants, corrosion products, and deteriorated material. Surface preparation was carried out using grinding and abrasive blasting to achieve a clean and roughened profile suitable for bonding. Belzona 1161 (Super UW-Metal) was then applied to rebuild and restore the worn metal surfaces. After rebuilding, Belzona 1812 (Ceramic Carbide FP) was used as the adhesive and grout material for the installation of Belzona 9811 Alumina Tiles. The alumina tiles were carefully installed with no gaps to ensure maximum abrasion resistance and proper alignment along the internal contours of the volute pump casing. Final inspection was conducted to verify complete coverage and proper tile bonding prior to returning the equipment to service.

BELZONA FACTS

Belzona was selected as the preferred repair solution due to its ability to provide a fast, cold-applied, and cost-effective alternative to equipment replacement and conventional welding repairs. Replacing the volute pump casing would have resulted in significantly higher material and labor costs, as well as extended production downtime during the shutdown period.

Belzona 1161 (Super UW-Metal) enabled the rebuilding of the damaged metal surfaces without the need for hot work, while Belzona 1812 (Ceramic Carbide FP) provided a durable adhesive and grout system for the installation of Belzona 9811 Alumina Tiles.

The alumina tile lining system provided superior long-term protection against severe abrasion, helping to extend the service life of the pump casing, minimize future maintenance requirements, and reduce operational losses caused by unplanned shutdowns.

INDUSTRY

Pulp & Paper

LOCATION

Bulacan, Philippines

APPLICATION DATE

January 2026

PRODUCTS

Belzona 1161 (Super UW-Metal)

Belzona 1812 (Ceramic Carbide FP)

Belzona 9811

SUBSTRATE

Stainless-steel

PHOTOS

1. Severe abrasive wear and leakage
2. Belzona 1161 (Super UW-Metal) rebuild completed prior to installation of Belzona 9811 Alumina Tiles
3. Installation of Belzona 9811 Alumina Tiles completed
4. Completed installation and grouting of Belzona 9811 Alumina Tiles

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