



APPLICATION CASE HISTORY NO. 269



Loctite® Nordbak® Brushable Ceramic Repairs Pump Casing In Just Five Hours

Plant Saves Over \$10,000 & Five Weeks Downtime



SITUATION

One of the world's premier producers of custom steel line pipe to the energy industry, as well as pipe for structural applications, oil country casing, and water conveyance, recently saved over \$10,000 using Loctite® products. This plant, which sits on 20 acres of property, is cooled with two separate cooling towers. During a scheduled pump teardown and inspection, maintenance personnel noticed severe wear to the casing of one of the pumps. The voids worn in the casing averaged in size from 1/8" pits to 1/2" x 3" gouges.

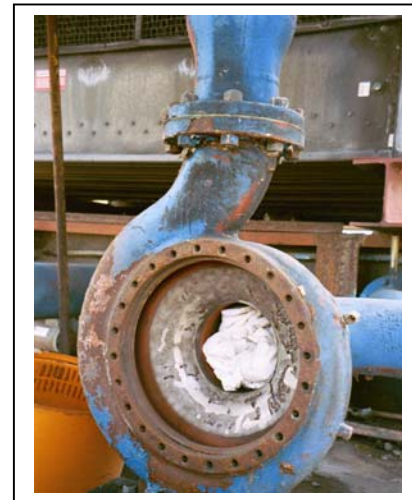
Repairing and reconditioning the pump would take five weeks and cost \$10,850. A new casing was estimated at \$11,000. That's when they called in Henkel to help.

SOLUTION

With help from a Loctite® products representative, rebuilding the pump onsite using Loctite® Fixmaster® Superior Metal and Loctite® Nordbak® Brushable Ceramic would save their plant time and money.

To gain access to the damaged casing, workers removed the power end of the pump, leaving the electric motor and pump casing untouched and attached to the grout base. This eliminated any changes to the piping system, and allowed for easier alignment of the motor and pump shafts.

To prepare the damaged interior surface of the casing, fine grade black blasting media and an inexpensive hopper-style sand blasting rig was used to achieve a Near White Metal Finish. All remaining blasting media was removed using compressed air. Loctite® ODC-Free Cleaner & Degreaser was then liberally sprayed as a final cleaning step.



The casing of the pump (top) is severely pitted and gouged from wear and friction. After blasting the interior to a Near White Metal Finish, Loctite® Fixmaster® Superior Metal is used to fill the voids (bottom).

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Loctite® Nordbak® Brushable Ceramic Repairs Pump Casing... *Continued*

SOLUTION *(continued)*

Next, Loctite® Fixmaster® Superior Metal was used to fill all the casing pock marks and then evenly troweled over the damaged inside casing. Loctite® Fixmaster® Superior Metal is formulated with high compressive strength and chemical resistance. It has a fast curing time of 20 minutes and is non-rusting. Once this was done, isopropyl alcohol was misted onto the surface to provide lubricity, and trowel marks left in the Loctite® Fixmaster® Superior Metal were smoothed with a nitrile-gloved hand.

The final step was to apply two coats of white Loctite® Nordbak® Brushable Ceramic to the inside of the pump casing. This product provides a smooth, low friction coating to combat wear on components such as pump casings and impellers. Once the white ceramic had cured to a slightly tacky finish, two coats of grey Loctite® Nordbak® Brushable Ceramic were applied. This was done as a visual wear-indicator for maintenance personnel. During the next scheduled maintenance on the cooling tower pump, if white shows through the grey, maintenance personnel will know to apply a re-coat.

RESULTS

“Repairing the pump with Henkel technology saved us five weeks downtime and over \$10,000 in repair costs,” said the Maintenance Manager. “The Loctite® brand products representative also trained our own maintenance personnel on this time and money-saving procedure.” The entire repair cost just \$500 and took only five hours.

Additionally, lowering internal casing friction with a glass-smooth, low-friction ceramic coating enables a pump to operate at its best efficiency point (BEP), while consuming less energy, thus lowering associated costs.



After troweling and smoothing the Loctite® Fixmaster® Superior Metal evenly to the inside casing (top), Loctite® Nordbak® Brushable Ceramic is applied to create a smooth, low-friction coating (bottom).