

Cracked Cast Iron Bearing Housings

During a freeze event in Texas, a major refinery experienced failures of several bearing housings. The bearings were water cooled and when the plant lost power they also lost cooling water flow. The cast iron bearing housings cracked from water freezing in the housing. The entire refinery was shutdown due to the freeze event and several of the pumps with cracked bearing housings were required to restart the plant. The refinery required new or repaired bearing housings ASAP.



Objective

Provide same-day temporary repair service while engineering long-term repair and preventative solutions.

Solution

- Conhagen engineering was able to scan the existing bearing housings in 3-4 hours without delaying the pump overhaul.
- The pump bearing housings were repaired by brazing the cast iron as a temporary repair.

Results

New Bearing Housing Style #1

Fabricated Water - Cooled Housing

The bearing housing was scanned prior to the temporary repair. Conhagen then fabricated a new carbon steel bearing housing. The new carbon steel construction is now weld repairable.

New Bearing Housing Style #2

Air - Cooled Housing

Conhagen engineering identified several of the frozen bearing housings could be re-designed to eliminate the cooling water entirely. The new housings are machined 410 steel and eliminate the failure mechanism entirely and still provide sufficient cooling to the bearing for reliable operation.

