

**Industry:** Power Generation  
**Application:** Concrete Volute Pumps  
**End User:** Essar Power Gujarat Limited  
**Thordon Grade:** GM2401  
**Date of Original Installation:** 2018

### About:

Essar Power is one of India's largest private sector power generation companies and has a capacity of 3,940 MW. The company's power business currently consists of eight operational power plants in India, and one operational power plant in Algoma, Canada. The Essar Salaya Power Plant is a coal-based thermal power plant located near Essar Refinery at Vadinar in Jamnagar district in the Indian state of Gujarat.

### Challenge:

Circulating Water is one of the most important systems that affects the availability and operational efficiency of a thermal power plant. The purpose of the circulating water system is to provide cooling water for the main condenser. Circulating water systems have two central functions: Filtering the water supply that will be pumped to and through the condenser, and keeping the condenser cool.

In vertical wet-pit turbine pumps most of the mechanical parts including bearings are operating in water. When this water is seawater the shaft needs to be manufactured in duplex stainless steel to avoid corrosion. Column pipes are required for vertical turbine pumps which can lead to high material cost. With a concrete volute pump, only the impeller section is in contact with the water and therefore only those parts need to be corrosion resistant. As a result, these pumps are less expensive and more reliable than vertical turbine pumps.

The rubber bearings that were originally installed in these pumps had to be replaced approximately every four years because the rubber was experiencing excessive wear and embrittlement. The end user wanted a more robust bearing material to replace the rubber bearings that could be replaced less often.



### Solution:

When the end user approached Thordon's authorized distributor in India, Soneji Engineering, they were eager to learn more about how Thordon's materials could help them in their concrete volute pumps. Ultimately, Soneji proposed Thordon's GM2401 material for this application because the concrete volute pump OEM, Kirloskar Brothers Limited (KBL), had positive experiences with this material in the past.

### Result:

In 2018, GM2401 bearing material was used to re-line the customer supplied metallic shell (split type) and was installed in one of the four concrete volute pumps at this power station. After evaluating the positive performance of the Thordon material in this application, the end user is expected to replace the rubber bearings on the remaining three pumps with GM2401, which is expected to last over ten years. The long wear life of Thordon GM2401 should save the end user at least one or two overhauls over the next 10 to 15 years, increasing uptime for this power station, while reducing maintenance costs.