



AR®1 BEARINGS ENHANCE RELIABILITY IN SEAWATER PUMP

Abrasion-resistant Composite Increases MTBF by 30%



Termomeccanica Pompe is an international leader in the pump market and has extensive knowledge of operations in extreme water conditions. With over 100 years of industry experience, they also have deep familiarity with the use and maintenance of in-line shaft bearings installed on pumps. Combining their technical direction with Greene, Tweed's expertise in thermoplastic composites, they aimed to extend MTBF (mean time between failure) by 15% at a power plant in the Hub River, Pakistan.

CUSTOMER

- A power plant in the Hub River, Pakistan

CHALLENGE

- Sought a 15% increase in MTBF (mean time between failure) and increased pump reliability

SOLUTION

- AR®1

RESULTS

- Extended service period from 15,000 hours to 22,000 hours
- Improved MTBF by over 30%
- Enhanced overall efficiency and significantly reduced maintenance costs

APPLICATION

A seawater pump operating at a power plant in the Hub River, Pakistan.

CHALLENGE

Sand and other abrasives in the seawater caused premature wear on pump bearings. As shaft clearances opened up due to this wear, pump vibration increased, reducing efficiency and reliability and necessitating frequent replacement of parts. Pump shaft guide bearings also suffered during transient periods of low lubrication, further wearing down materials and inhibiting performance.

SOLUTION

Greene, Tweed recommended new bearing materials which could withstand transient, low-lubrication conditions as well as provide exceptional abrasion resistance. AR®1 allowed for tighter clearances and dramatically improved performance in abrasive media.

BENEFITS

- Improved reliability over traditional bearing materials due to lower wear in abrasive media
- Enhanced performance during intermittent dry-run versus traditional materials due to lower coefficient of friction
- Non-galling and non-seizing properties reduced pump failure caused by excessive vibration or dry-run startup
- Reduced breakage or cracking during operation due to superior resistance to impact from the shaft or shaft sleeve



RESULTS

Utilization of AR®1 has increased MTBF by over 30% since 2009, and performance has dramatically improved due to much smoother pump operation. Normally, bearings required maintenance after 15,000 hours of use as they became out of tolerance. But after the first overhaul of the seawater pump and installation of AR1 bearings, the service period was extended to 22,000 hours. The cumulative result has been enhanced efficiency for the power plant overall and significant savings on maintenance costs.

Technical Data

Former Product: ANSI 316/rubber

Pump Type: 110CPP95

Media: Seawater

Flow: 19.200 m³/hour

Pump Service: Circulating cooling water

Temperature: 85°F (30°C)



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Greene, Tweed & Co., Inc., and T.M.P. S.p.A. Termomeccanica Pompe,
bringing you the latest in abrasive-resistant thermoplastic technology.

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