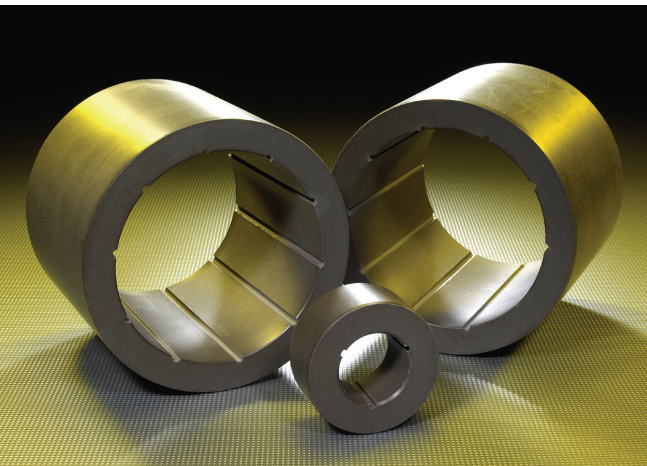




## AR<sup>®</sup>1 Bearings Enhance Reliability in Seawater Pump

### 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.

#### Application

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

#### Challenge

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

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

##### AR<sup>®</sup>1

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



## 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

Utilization of AR<sup>®</sup> 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 AR<sup>®</sup> 1 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.

## 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

Technical Data	
Former Product	ANSI 316/rubber
Pump Type	110CPP95
Media	Seawater
Flow	19.200 m <sup>3</sup> /hour
Pump Service	Circulating cooling water
Temperature	85°F (30°C)

Use of AR<sup>®</sup> 1 has increased MTBF by over 30% since 2009, and performance has dramatically improved due to much smoother pump operation.

## Greene Tweed

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