SCHAEFFLER

Schaeffler Global Technology Solutions

Cement

Asia Cement Public Company Limited, Saraburi, Thailand

Cost and time efficient gearbox overhaul by use of the Schaeffler Medium-Frequency Technology heating device

Customer

Asia Cement Public Company Limited was established on August 23, 1989. With a current installed production capacity of 5 million tons of cement per year, Asia Cement Public Company Limited is now one of the major cement producers in Thailand. The company produces various types of cement.

Challenge for Schaeffler

Traditionally the customer spends approximately 30 days to overhaul their gearbox. This large raw mill gearbox contains 6 shafts with 5 gear sets of various sizes. Each shaft comprises 2-3 large size bearings. Moreover, a large coupling is part of the mounting/dismounting process. The complexity and size causes difficulties in the overhauling process that consume a significant amount of time. The Schaeffler mounting experts had the challenge to reduce the time of the overhauling process and improve the efficiency of the maintenance team.

Schaeffler Solution

The Schaeffler mounting experts considered the challenges of the overhaul process especially considering the mounting and dismounting of the large size components which need to be heated during the mounting and dismounting process. For highest efficiency the Schaeffler Medium-Frequency-Technology heating device with the flexible inductors was chosen to reduce the costs of the overhaul process to a minimum. All bearings and other gearbox components were dismounted and mounted accurately, rapidly and safely ready to be inspected by a gearbox specialist.

บริษัท ปูนซีเมนต์เอเซีย จำกัด (มหาชน)
Asia Cement
Public Company Limited

Technical information about the aggregate

Gearbox

Power (Drive motor)

4200 kW

Weight

82 tons

Gearbox reduction ration

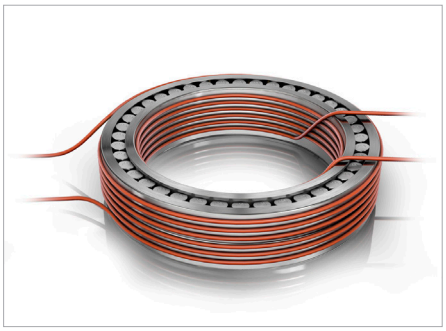
66.62

Mounted FAG Bearings

- 22348-BEA-XL-MB1
- 22352-BEA-XL-MB1
- 24152-BE-XL
- 23264-BEA-XL-MB1
- 23064-BEA-XL-MB1-C3
- 24180-BE-XL
- 24092-BEA-XL-MB1
- 230/710-B-MB

Bearing dismounting by heating leftover bearing inner ring on the shaft

Gearbox assembly



First heating outer ring by fixing inductor at the outer ring. Then heating inner ring by fixing inductor at the inner ring.

Customer benefit

– Significantly reduced downtime and production loss
– Reduced labor cost for fitters and gearbox specialist
– Increased occupational safety

The Schaeffler mounting experts chose the appropriate mounting tools to provide a solution of highest excellence. Doing so the overhaul time and therefore the machine downtime could be significantly reduced to 50% of the time consumption using traditional heating methods. An additional benefit is the higher occupational safety as there is no open flame or heated oil bath used. The method displayed itself to be highly economical as well as ecologically friendly.

Method	Gas flame heating	Medium frequency heating
Working time	30 days	15 days
Manpower (Including gearbox's specialist)	30 days x € 1,500 € 45,000	15 days x € 1,500 € 22,500
Resource cost / MFT rent cost	€ 190	6 days x € 1,250 € 7,500
Downtime cost	30 days x € 20,000 € 600,000	15 days x € 20,000 € 300,000
Total cost	€ 645,190	€ 330,000
Saving cost		**€ 315,190**

What's special

This was the first time at Asia Cement Public Company Ltd. to mount and dismount gearbox components including the large sized bearings using the Medium-Frequency-Technology heating device. The flexible inductors could be used for several sizes of bearings and other gearbox components.
The goal for Schaeffler to improve the efficiency of the overhaul was achieved by reducing the time consumption by 50%. Consequently the downtime of the equipment could be reduced significantly and work safety could be increased as no open flames or oil baths were used. The customer expressed his satisfaction and will also make use of the Mountingservice and the Schaeffler MFT tool rental for his next overhaul. This service solution can be used across all fields of sectors with similiar large bearings.

Contact

industrial-services@schaeffler.com, Phone +49 2407914966

www.schaeffler.de/en/gts

Technical Information about the Solution
Medium frequency device:
Medium Frequency Heater HEAT-GENERATOR40-2
Effective power
40 kW
Output frequency
10–25kHz
Mains frequency
50–60Hz
Dimensions (W x D x H)
365 mm x 610 mm x 695 mm
Mass
55 kg

More Information
– Website
– Technical product information
– Flyer

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