



Customer
Success
Story

We pioneer motion

Overhaul of raw material mill gearbox saves more than 300,000 euros

Every year, Asia Cement Public Company Limited produces several million tons of different types of cement in Thailand. For the planned overhaul of the 82-ton raw material mill gearbox, the company was looking for a cost- and time-efficient solution for mounting and dismounting. The cement manufacturer decided to go with the induction system with Medium-Frequency-Technology (MFT).

Customer benefits

- Quick and easy installation of the large components
- Significantly reduced downtime and production loss
- Reduced labor cost for fitters and gearbox specialist
- Increased occupational safety – no work with open flame or heated oil bath



บริษัท ปูนซีเมนต์เอเชีย จำกัด (มหาชน)
Asia Cement
Public Company Limited

Customer

Asia Cement Public
Company Limited

Sector

Cement

Application

Raw material mill gearbox

Solution

Mounting and Dismounting

What drives our customer ...



Rough environmental conditions

Challenge

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 cause 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.

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



Technical information - Raw mill gearbox

Power	4200 kW
Weight	82 tons
Gearbox reduction ration	66.62

What Schaeffler has to offer ...



Solution

The Schaeffler mounting experts analyzed the challenges of the overhaul process especially considering the mounting and dismantling of the large size components which need to be heated during the mounting and dismantling 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 dismantled and mounted accurately, rapidly and safely ready to be inspected by a gearbox specialist.

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.

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 goal for Schaeffler to improve the efficiency of the overhaul was achieved by reducing the time

The customer expressed his satisfaction and will also make use of the mounting service and the Schaeffler MFT tool rental for his next overhaul. This service solution can be used across all fields of sectors with similarly large bearings.

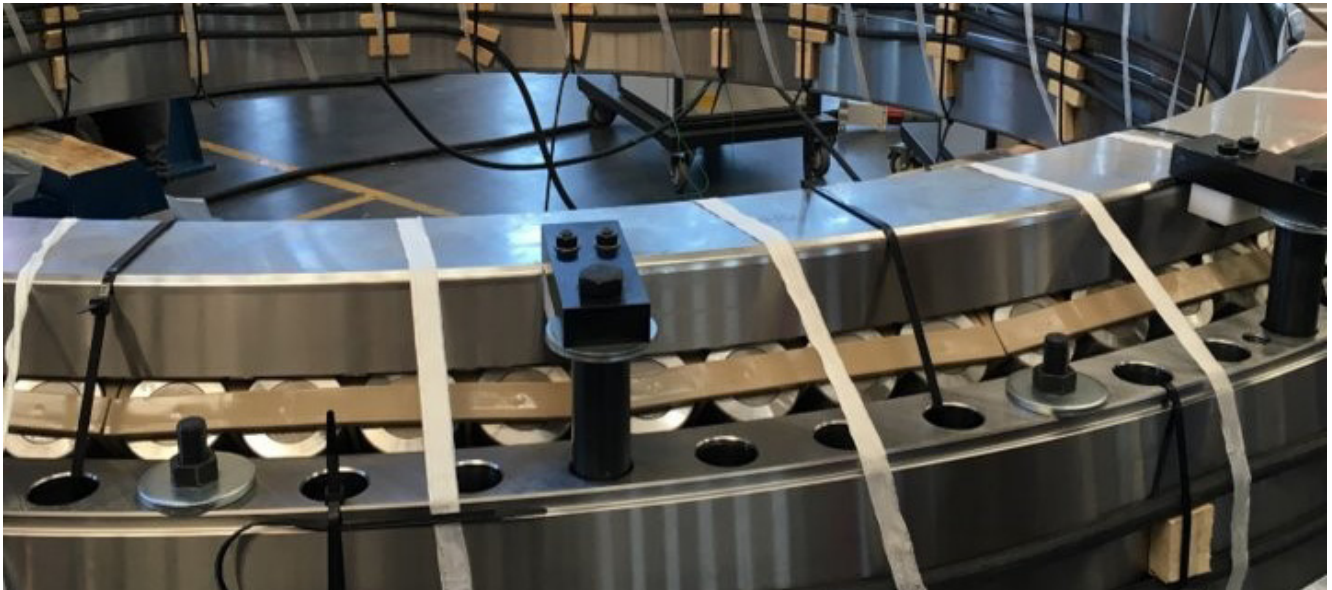


Bearing dismantling by heating leftover bearing inner ring on the shaft



Gearbox assembly

What Schaeffler has to offer ...



Induction units with medium frequency technology

Unlike induction heating devices, induction units with medium-frequency technology are not only suitable for thermal mounting but also for removal. They can also be used to heat up very large and heavy components.

Each unit comprises a generator and inductor that is positioned on the workpiece. A rigid or flexible inductor is used, depending on requirements.

Depending on the application, flexible inductors can be fitted in the bore or on the outside diameter of the workpiece. They are suitable for heating of bearing inner rings or for large components.

Rigid inductors are particularly well suited to volume production. Flexibility is less of a priority here than short setup times and a high level of process reliability.

Technical information

MFT	MF-GENERATOR3.0-44KW
Power	44 kW
Outlet frequency	10 to 25 kHz
Frequency	50 to 60 Hz
Dimensions (LxWxH)	600 x 650 x 580 mm
Weight	78 kg

New orientation

At the time, the solution was realized with the HEAT-GENERATOR40-2 medium-frequency heating device. Today, Schaeffler would use the environmentally friendly and reliable induction unit with medium-frequency heating device MF-GENERATOR3.0-44KW of the new generation. It also comes with 10 % more power.



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

What our customer saves...

Gearbox overhaul – costs and time

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
Savings		€ 315.190

50 %

less working time

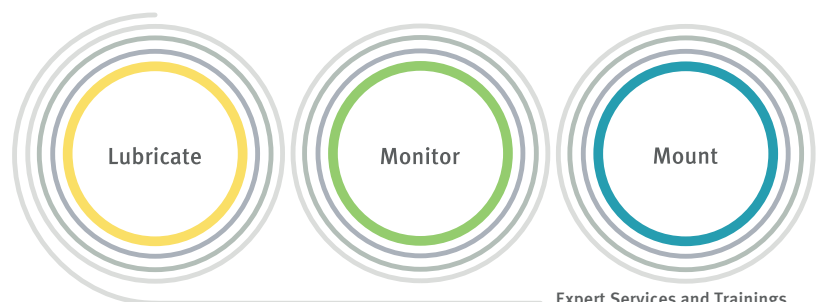
LESS ENERGY

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.

The Induction units with medium-frequency technology (MFT) is part of the Schaeffler Lifetime Solutions portfolio, which offers a comprehensive range of products, services and solutions for industrial maintenance. It is designed to support maintenance engineers over the entire lifetime of a machine.

www.schaeffler.de/lifetime-solutions



Expert Services and Trainings