

Schaeffler Global Technology Solutions

Steel and
non-ferrous metals

Tata Steel, India

Saving Time and Costs by having a Bearing replaced by an Expert

Established in 1907, Tata Steel is the world's fifth largest steel company with an annual crude steel capacity of 32 million tons. India's largest integrated private sector steel company is now one of the world's most diversified steel producers. The company has operations in 24 countries and a commercial presence in over 50 countries. Tata Steel's plant at Jamshedpur has a present capacity of five million tons of crude steel per annum. It was scheduled to grow to ten million tons by 2010.

Challenge for Schaeffler

At the Jamshedpur plant, the company has three converters. All of them had to be modernised. During the overhauling of converter 2 also its volume inside its brick lining should be increased to 153 m³, increasing its output from 140 to 170 tons of liquid crude steel. To ensure a quick and professional mounting of the bearings and housings for converter 2, Tata Steel awarded the contract to Schaeffler.

Schaeffler Solution

In order to allow efficient mounting on site, intensive and optimum preparation was required. The assistance of experienced application engineers working in the sector management steel of Schaeffler was also called upon. For the mounting of the large size bearings and housings, the customer requested an experienced Schaeffler mounting expert. To make the mounting process easier and more secure, the bearings were heated by using an induction heating device. In relation to the mounting of converter bearings, this operation was new to the customer, since these bearings had in the past always been heated by using an oil bath. After the rolling bearing was moved into place, it was fixed and finally inspected.



TATA

Technical Information about the Plant

Technical Information about Converter 2

Lining:	153 m ³
Volume:	170 tons

Large bearing installed:

Type:	FAG spherical roller bearing
Bore diameter:	850 mm
Outside diameter:	1120 mm
Width:	272 mm
Weight:	720 kg

Additional features:

- Four pinion slip-on gear with frequencycontrolled threephase motors
- Pneumatic emergency drive





Mounting work at bearing housing



Inductive heating device FAG HEATER



Surface treatment at trunion

Customer Benefit

Thanks to the competent support provided by the Schaeffler mounting expert, the bearings and housings were mounted within seven days. In comparison: The same replacement on converter 1, which had been done by the customer's own personnel, had lasted ten days. Simply by the induction heating method, the bearings were heated three times faster than with the conventional oil bath heating method. Moreover this procedure is more eco-friendly as no oil and less energy are required. The bearing housings were also mounted directly afterwards without much extra effort.

Mounting of the bearings/housings		Failure cost
Converter 1	10 days	€ 7,7 M.
Converter 2	7 days	€ 5,5 M.
Savings	3 days	€ 2,2 M.

Technical Information about the Solution

Inductive heating device:

FAG HEATER 1200

Weight:	850 kg
Length:	1500 mm
Width:	1100 mm
Height:	1400 mm

Mounted FAG bearings/housings

- FAG Spherical roller bearing Z-528750.PRL (2 pcs.)
- Drive end housing: F-559046.SGC-SL850-Z-BF
- Non drive end housing: F-559046.SGC-SL850-Z-BL

What's special

This was the first time a bearing was mounted at Tata Steel with the help of an induction heating device. Schaeffler offers a wide range of FAG heating devices for bearings with a weight up to 3 000 kg. The method is suitable for all large radial bearings.