

Success Story

Industry: Steel and Metals

Application: Dust Extraction Fan

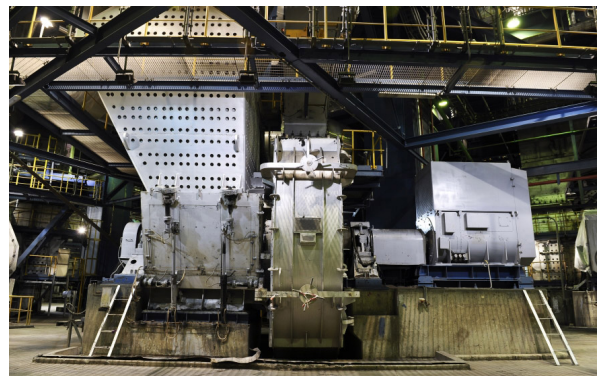
Cost Savings: € 36 000

Introduction

A steel manufacturer was experiencing regular failures within its Ore Preparation Plant (OPP). The plant was fitted with housed bearing units installed on a 60mm shaft and running at approximately 1485 rpm. NSK experts were informed that the bearing used was failing and asked to perform a vibration analysis on the current condition within the application. An ISO14836-2 qualified condition monitoring engineer visited the site to make an assessment. On replacement of the bearings, initial readings were taken by NSK and subsequent, readings were then taken within the following weeks to trend the condition and predict failure.

Key Facts

- Dust Extraction Fan
- Electric motor coupled to a belt drive delivering typical output speed of 1485 rpm
- Housed bearing failures, spherical roller bearings within a housed unit
- NSK Solutions: Condition Monitoring Service (CMS) with vibration analysis at three separate occasions: with the initial bearings, after the bearings were replaced, then again one month later
- After the bearing replacement, the vibration analysis detected an unbalance due to the addition of a metal arm used to detect rotation added to the end of the shaft. The unbalance would have added loads to the system and reduced the bearing and component lifetime. It was to be corrected by the customer and checked by NSK again at a third visit



↑ Ore Preparation Plant

Value Proposals

- NSK Condition Monitoring Service analysed the current condition to assist and reduce the number of unplanned failures. A bearing problem was detected and this bearing replaced.
- After one month, a second visit revealed the bearing condition was acceptable, but some unbalance was present within the application. This was to be corrected by the customer and checked at a third visit a month later.
- At the third visit, NSK Condition Monitoring Service detected the unbalance was greatly reduced, but still present. The analysis detected some structural resonance from the base.
- This was due to the belt tension acting upon the structure revealing a loose bolt on the motor base. The customer adjusted the motor, but did not secure all four bolts correctly.
- The customer corrected the loose bolts and the application ran without any further problems.

Product Features

- Live assessment of a machines condition and health while machine is still in operation
- Predicted life of the critical components inside a machine allowing the customer to plan maintenance more accurately
- Early warning of problems occurring in machinery. Condition Monitoring is the most sensitive and long reaching method of detecting the signs of machine wear
- On-site support from NSK Engineers
- Assurance that NSK as a full range supplier can help with the provision of critical bearing and linear motion spares
- Performance improvements and operational cost savings



↑ Condition Monitoring Service (CMS)

Cost Saving Breakdown

Before	Cost p.a.	NSK Solution	Cost p.a.
 Cost of lost productivity from the blast furnaces	€ 36.000	No lost productivity	€ 0
Total Costs	€ 36 000		€ 0