

Success Story

Industry: Steel and Metals

Application: Cold Form Saw for Steel Tube

Cost Savings: € 72 000

Introduction

A Global Steel Company was having problems with a cold form saw used in the steel industry to cut steel tube to length. The saw is moved axially using a ball screw shaft and was being supported by a simple thrust ball bearing. This bearing was failing every 6 weeks, causing unplanned maintenance and downtime. Analysis of the saw design showed that the ball screw arrangement was subjected to high axial impact loads and that the original design was not robust enough to withstand these. An on-site bearing investigation was undertaken and key dimensions measured. This allowed NSK to propose the WBK Ball Screw support unit which has a much higher thrust load capacity.

Key Facts

- Bearing arrangement supports thrust loads as the cutting saw is applied to the steel tube
- High impact thrust loads were causing early failure of the original bearing arrangements
- Failure was catastrophic resulting in bearing collapse and seizure
- NSK solution used a purpose designed ball screw support unit
- NSK engineers provided a full machine design upgrade including CAD drawings of the required housings
- Resultant bearing arrangement supported significantly higher thrust loads
- Bearing life was extended from just over 1 month to beyond 12 months



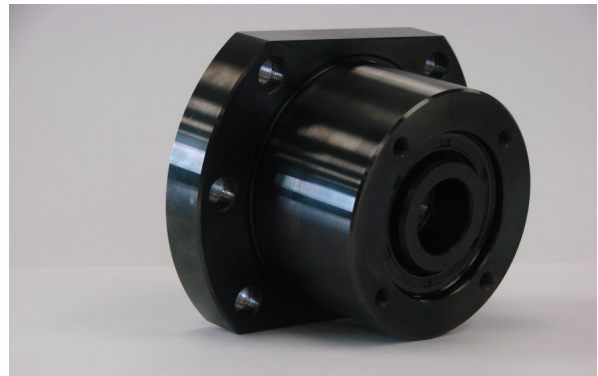
↑ Steel tubes

Value Proposals

- NSK engineers inspected the application and studied the operation conditions
- On site failure analysis showed that the existing bearing arrangement was not robust enough for the application
- NSK proposed changing to a ball screw support unit, which consists of NSK super precision ball screw support bearings, contained in a housing complete with heavy duty lip seals
- NSK also provided a full machine design consultancy with CAD drawings showing the new bearing housing
- This combination of very high load capacity, ease of assembly and robust sealing resulted in no failures after 12 months of operation

Product Features

- High Axial Rigidity and Load Capacity
- Low Friction Torque
- Axial Play is Adjustable
- Simple Mounting Arrangement
- Easy to Handle Bearing Unit
- Several Housing Options
- Alternative Bearing Combinations



↑ WBK Ball Screw Support Bearing

Cost Saving Breakdown

Before	Cost p.a.	NSK Solution	Cost p.a.
 4 hours downtime @ €2.000/h x 9 unexpected breakdowns per year	€72.000	No downtime over 12 months	€0
Total Costs	€ 72 000		€ 0