

Success Story

Industry: Quarrying, Mining and Construction

Application: Concrete Drilling Bolter Machine

Cost Savings: € 12 660

Introduction

A mining and metal company was experiencing repeated failures on their fully mechanised bolting jumbo for rock reinforcement in their underground mines and tunnels. Due to a very harsh environment, exposed to water and abrasive particles, they were having short life of only two months from Deep Groove Ball Bearings used in the gear mechanism of bolter. NSK assessed the situation and found hard contaminants were entering the bearing causing failure. They proposed a trial with NSK Molded-Oil bearings which resulted in immediate improvement and 3 times longer lifetime for both the bearings and gears of the machine.

Key Facts

- Special bolter machine working underground
- Harsh environment, exposed to water and abrasive particles
- Frequent bearing failure occurring every 2 months across 3 machines
- Premature wear in gears due to bearing failures
- High cost due to changing of gears
- NSK solution: Molded-Oil bearings increasing bearing life from 2 to 6 months
- Cost saving due to increase in gear changing period



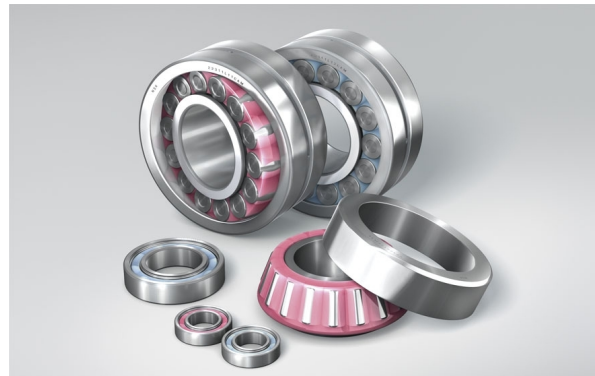
↑ Fully mechanised bolting jumbo machine

Value Proposals

- After a couple of site visits, customer requested a solution in order to increase the life time of their bearing
- Application assessment and Failure Analysis showed highly abrasive conditions like water and hard particle Ingress negatively impacting the lubrication
- A trial was proposed using NSK Molded-Oil Deep Groove Ball Bearings which proved to be successful with a longer lifetime up to 3 times
- Molded-Oil bearings were fitted to all 3 machines resulting in a reduction in machine down time and extension in gear changing period leading to a considerable annual cost saving




Product Features

- Stainless steel for corrosive environments
- Molded-Oil provides continuous supply of lubrication oil
- Grease-free property with no oil refilling keeps operating environments clean
- Operating life more than twice as long as grease lubrication, in water or dust contaminated environments
- Contact-seal type available in standard inventory for ball bearings
- Achieves extended maintenance-free performance as Molded-Oil provides a continuous supply of lubricant
- Available for high speed applications
- Available in ball bearing, spherical roller bearing and tapered roller bearing types



↑ Deep Groove Ball Bearings with Molded-Oil

Cost Saving Breakdown

Before	Cost p.a.	NSK Solution	Cost p.a.
 Bearing costs:- Deep Groove Ball Bearings- Bearings replaced 6 times per year	€ 120	Molded-Oil Deep Groove Ball Bearings, replaced twice a year	€ 360
 6 replacements/year x 3 machines x Manpower x €25/h	€ 1.350	2 replacements/year x 3 machines x Manpower x €25/h	€ 450
 Gear failure costs:- Gear cost x 3 machines x 6 times/year	€ 18.000	Gear failure costs:- Gear cost x 3 machines x 2 times/year	€ 6.000
Total Costs	€ 19 470		€ 6 810