

Success Story

Industry: Wind Energy

Application: Gearbox for Wind Turbine

Cost Savings: 19,224 euros

Introduction

An important workshop for wind gear units had five shafts out of specification. The bearings were rotating on the shaft causing damage to the surface. The rectification of the shafts to their initial diameter was not a viable option. Finally, the customer requested NSK to check the possibility of providing a bearing with special undersized bore diameter. NSK engineers investigated and developed a solution with a bearing design specific to the application. With this solution, it was not necessary to scrap the shafts which saved replacement costs. The special bearing were assembled following grinding of the shafts.

Key Facts

- Repairing of the wind turbine gearbox
- Deep Groove Ball Bearing originally specified was not suitable for the application
- Large shafts on the wind turbines were damaged
- With no possibility to recover the material, the shafts were due to be scrapped
- NSK Solution: Deep Groove Ball Bearings with customised design and special bore diameter
- Cost savings achieved as the original shafts could be re-used with the new bearings instead of being scrapped



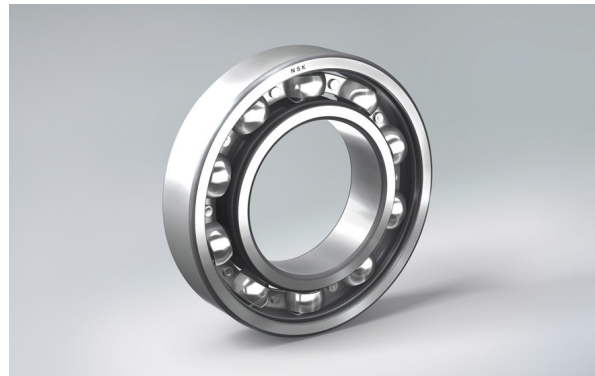
↑ Wind Turbine

Value Proposals

- Analysis of the customer's request after visual inspection of disassembled shaft
- NSK Engineers proposed a new technical design for special bearings with smaller bore diameter
- Development and production of a specific reference for small quantity
- Significant cost savings instead of scrapping and producing new shafts as the cost of the replacement shaft is much higher than the corresponding bearing costs

Product Features

- Cages - Offering a number of different cage types to suit your application needs: steel, machined brass or polymer
- High Quality Steel - Ultra clean steel to extend bearing operating life by up to 80%
- Advanced Grease Technology - NSK lubricants that can extend grease life and performance
- Super Finished Raceways - Specially honed finish to minimise noise and improve lubricant distribution and life
- Patented Seals - Provide resistance to contamination in the toughest environments
- Electrically insulated ball bearings available
- Outer diameters up to 2500 mm
- High Grade Balls - Quiet and smooth operation even at high speed
- Quality Assured - 100% testing ensures total product quality
- Low to medium radial loads



↑ NSK Deep Groove Ball Bearings

Cost Saving Breakdown

Before	Cost p.a.	NSK Solution	Cost p.a.
 Original bearing costs	€ 3.672	Costs for bearing with modified bore diameter	€ 3.948
 Scrap and production of new shafts	€ 21.500	Regrinding of shafts	€ 2.000
Total Costs	€ 25.172		€ 5.948