

Success Story

Industry: Automotive Production

Application: Carbon Fibre Manufacturing

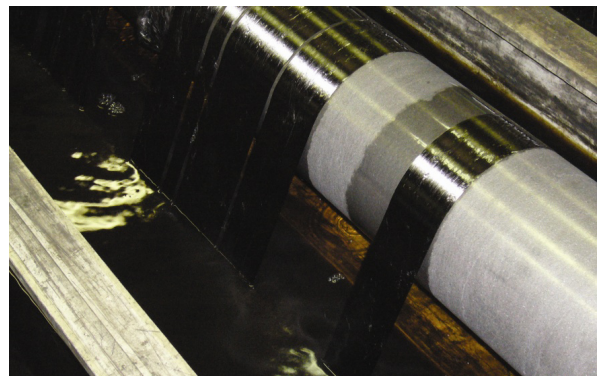
Cost Savings: € 11 775

Introduction

A leading manufacturer of products made of carbon, graphite and composite materials for industrial and aerospace applications, was experiencing a short service life from Stainless Steel bearings situated at either end of rollers, used in the 'Surface Treatment' process. On average the bearings failed every 6 weeks, taking two engineers 1 hour each time to replace and incurring a loss of production amounting to €1230 each time. NSK Engineers examined the application and determined that the caustic solution used in the Surface Treatment process was the cause of premature bearing failure. NSK recommended replacing the Stainless Steel bearings with NSK AQUA bearings. After an initial trial period of 3 months with bearings on 1 roller, the customer was confident to replace all bearings. The bearings are still operating successfully after 8 months and subsequent orders have been placed for an alternative machine.

Key Facts

- Roller application in a Surface Treatment Process
- Bearing service life only 6 weeks
- Caustic solution of Ammonium bicarbonate
- Maintenance and downtime 1 hour per failure; 8 times per year
- NSK AQUA bearings trialed
- Resultant performance increased to greater than 8 months



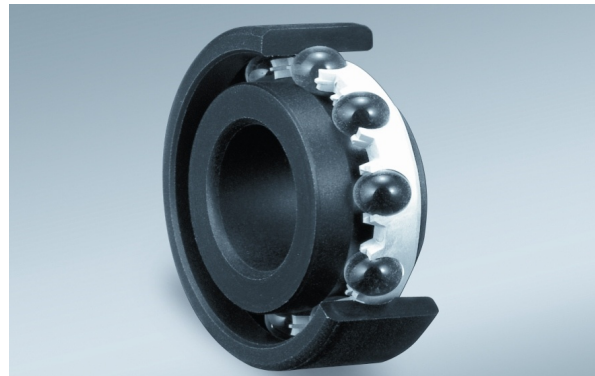
↑ Carbon Fibre Manufacturing

Value Proposals

- The customer was experiencing poor performance of bearings within a roller application. A Failed Bearing Analysis performed by NSK Engineers showed that the cause was ingress of a caustic solution
- An Application Review showed that the existing stainless steel bearings were inadequate. NSK recommended bearings from SPACEA range, which are designed to operate in environments that are too severe for standard bearings
- A trial using NSK AQUA bearings was implemented and the results showed zero failures in an 8 month period
- This resulted in improved productivity, zero lost production and reduced maintenance time

Product Features

- Special material for outer/inner rings, balls and cages
- Special self-lubricating fluororesin makes greases and oil unnecessary
- Handle applications in strong acids or alkalis, ozonized water, various kinds of vapour and halogen gases
- Highly corrosion resistant; equivalent to that of ceramic bearings
- The fibre reinforced fluorine material gives the inner and outer bearing rings increased strength and rigidity
- Long life; excellent durability in acid solvents
- Offers more than 1000x resistance than that of stainless steel SUS440C
- More than 5 times resistance than that of conventional polyethylene (PE) bearings
- Available with our deep groove ball bearings



↑ NSK AQUA Bearings

Cost Saving Breakdown

Before	Cost p.a.	NSK Solution	Cost p.a.
 Bearing costs: Replacement every 6 weeks	€ 2.188	Bearing Costs: Replaced once	€ 547
 Labour costs: 2 x operators x 1 hour x 8 times/year @ €21/hour	€ 336	Labour Costs: 2 x operators x 1 hour x once/year @ €21/hour	€ 42
 Loss of production cost:	€ 9.840	Loss of production cost:	€ 0
Total Costs	€ 12 364		€ 589