

Success Story

Industry: Food and Beverage

Application: Dough Prove

Cost Savings: € 54 665

Introduction

A Tortilla Wrap manufacturer was experiencing short service life on its pillow block bearing units mounted in the multiple belt dough prove section of the process line. Two bearing units were replaced every 6 weeks with resultant shaft damage, leading to high production downtime, maintenance and part replacement costs. Investigations by NSK engineering attributed the failures to ingress of particulates and set screw loosening due to vibration. NSK recommended replacing the standard pillow block units with Self-Lube Bearing Units with Triple Lip Seals and eccentric locking collars. A trial was implemented and the recommended bearings have successfully extended life from 6 weeks to over 1 year resulting in significant cost savings.

Key Facts

- Multiple belt Dough Prove conveyor
- Harsh environment, exposed to flour particulates and dough
- Frequent bearing failure resulting in two bearings and one shaft being replaced approximately every 6 weeks
- Significant number of man hours needed to replace failed bearings and shaft
- Substantial machine downtime leading to costly loss of production
- NSK Solution: Self-Lube Bearing Unit with Triple-Lip Seal and eccentric locking collar
- Increased bearing life resulting in significant downtime reduction, with improved efficiency and equipment reliability
- Cost saving realised



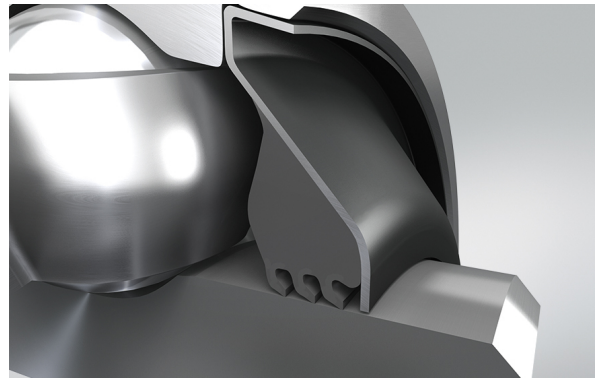
↑ Dough Prove

Value Proposals

- NSK Application Review determined the bearings had failed due to ingress of contamination, combined with shaft creep
- NSK recommended replacing the standard Pillow Block mounted bearing units with Self-Lube Bearing Units with Triple Lip Seals and eccentric locking collars
- A trial was conducted using the NSK recommendations with zero failures in a 12 month period
- This resulted in a substantial increase in bearing and shaft life, with a significant reduction in downtime, improved efficiency and improved equipment reliability
- Zero loss of production increased profitability and realised a significant cost saving.





Product Features

- Nitrile rubber triple lip, bonded to protective pressed steel shield
- Available for both setscrew and eccentric locking collar insert options
- Large size range offered, including imperial options inserts interchangeable with standard items
- Longer bearing life through superior seal performance
- Extended relubrication intervals, greatly reducing maintenance costs and increased productivity of machinery
- Simple implementation; ready replacement for existing bearing units
- Mounting on the shaft with balled setscrew, providing much greater resistance to loosening
- Eccentric collar reduces insert loosening in service without damaging shaft



↑ Self-Lube Bearing Units with Triple Lip Seals

Cost Saving Breakdown

Before	Cost p.a.	NSK Solution	Cost p.a.
 Bearing Costs: 2 bearings replaced 9 times per year	€ 660	Bearing costs: replacement of all prove bearings	€ 3.295
 Downtime Costs: €2950/hr x 2hr replacement time x 9 times per year	€ 53.100	Downtime costs	€ 0
 Replacement shaft costs	€ 3.180	Replacement shaft costs	€ 0
 Fitting costs: €170/hr x 2 hrs per replacement x 9 times per year	€ 3.060	Initial Fitting Costs: €170/hr x 12 hrs	€ 2.040
Total Costs	€ 60 000		€ 5 335