



Combating contamination

Bearings are subject to attack by many destructive agents, and one of the most difficult to defend against is water – the cause of corrosion and oil leakage. A product that's designed to combat the effects of water, and other contaminants such as dust, will therefore be welcome news to many.

NSK's Molded-Oil™ Bearings are precisely that: a bearing which is designed not only to provide superior resistance to corrosion, compared to standard cast iron units, but to minimise oil leakage and eliminate refilling, too. With applications in industries ranging from agriculture to food processing, they're products which will reduce total cost of ownership by removing the downtime associated with relubrication intervals, and save money through a reduced requirement for replacement bearings and bearing lubricants.

How do they work?

Molded-Oil Bearings are lubricated with NSK's own oil-impregnated material, which consists of lubricating oil and a polyolefin resin that has an affinity for oil. In contrast to other oil-impregnated plastics, where the oil content is a mere few percent by weight, Molded Oil permits a lubricating oil content of more than 50% by volume. Within the bearing, oil is released on demand from this material, providing ample lubrication over extended periods.

In contrast to other oil-impregnated plastics, where the oil content is only a few percent by weight, Molded-Oil permits an oil content of more than 50% by volume.

The result is a bearing which offers a number of significant benefits.

- Performance in water- and dust-contaminated environments
- Environmentally friendly
- Oil lubrication quantity is controlled, minimising oil leakage

In fact, tests show that these NSK bearings perform extremely well when exposed to water vapour – or even when submerged in liquid. Compared with grease-lubricated bearings, which could be operated for twenty days, those with Molded-Oil Bearings could be operated for 50 days or more! And that's not all. With specially treated surfaces, and packed with Molded-Oil, the bearings allow very smooth rotation of rolling elements, while the optimisation of composition and molding method of the resin improves strength. Designed as 'fit and forget' to enhance the performance of machinery and equipment in all types of environments, they're the ideal solution for applications where the ingress of water, or other contaminants, are a major concern.

THE CASE STUDY



Supplier: NSK
Product: Molded-Oil™ Bearings

History

6205ZZ type bearings were being used in the rollers of a potato peeling machine. These bearings were failing consistently every six to eight weeks due to the ingress of water and dirt.

Corrective measures

NSK recommended stainless steel Molded-Oil bearings to the end-user as the solution. These were fitted and operated successfully for over 10 months before NSK and the end-user agreed to remove them for inspection.

Cost saving breakdown

OLD DESIGN	Cost p.a.
6 x bearings/machine – 40 used p.a. @ £18.50 each	= £740.00
Bearing life approx 6-8 weeks	
Maintenance 32 hrs p.a. @ £220/hr £7,040 x 2 lines	= £14,080
Lost production @ £5,000/hr x 24 hrs	= £120,000
Lubrication – cost p.a.	= £2,500
Other – (Inventory Holding & Technical Support)	= £923.29
Total Cost Per Year	= £138,243.29

NEW DESIGN	Cost p.a.
6 x Stainless Steel Molded Oil bearings/ machine – 6 used p.a. @ £28.70 each	= £172.20
Sample life achieved 10 months+	
None – bearings continue to run	
None	
Eradicated – Molded Oil – self-lubricating	
Total Cost Per Year	= £172.00

Total cost saving per annum

£138,071

NSK

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