

BEARINGS FOR THE FOOD
AND BEVERAGE INDUSTRIES



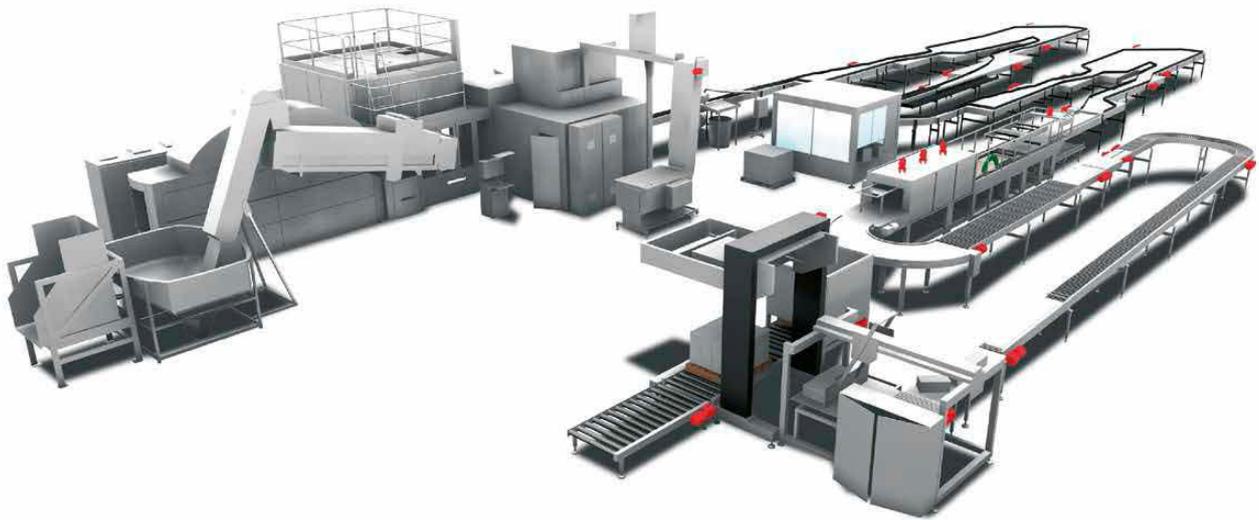
Keeping it running keeps running costs down

Continuous high speed operation, the most stringent of hygiene standards and operating conditions where heat, cold and damp are the norm; this calls for bearings that you can rely on to take extreme conditions in their stride, as well as making cost-effective production possible. NSK bearings for the food and beverage industries are robust, made of corrosion resistant stainless steel and lubricated for life.



For trouble-free operation, bearings should be perfectly adapted to the relevant machines and production processes. Apart from the extensive product range specially developed for the food and beverage industries, engineering also plays an outstanding role. This way, we can work together with you to analyze possible weak points in the production process, measure and monitor efficiency and, where necessary, propose alternative products. Experts work ceaselessly in the NSK research laboratories to improve products and lubricants.

How can rolling bearings guarantee outstanding performance despite having to put up with high temperatures, water and chemicals? How is foodstuffs contamination prevented safely and reliably? Through which measures can maintenance-free operation be achieved? We will be pleased to give you the correct answers to all these questions. Because, in everything we do, every single day, we strive for Total Quality.



Explicit requests demand precise solutions

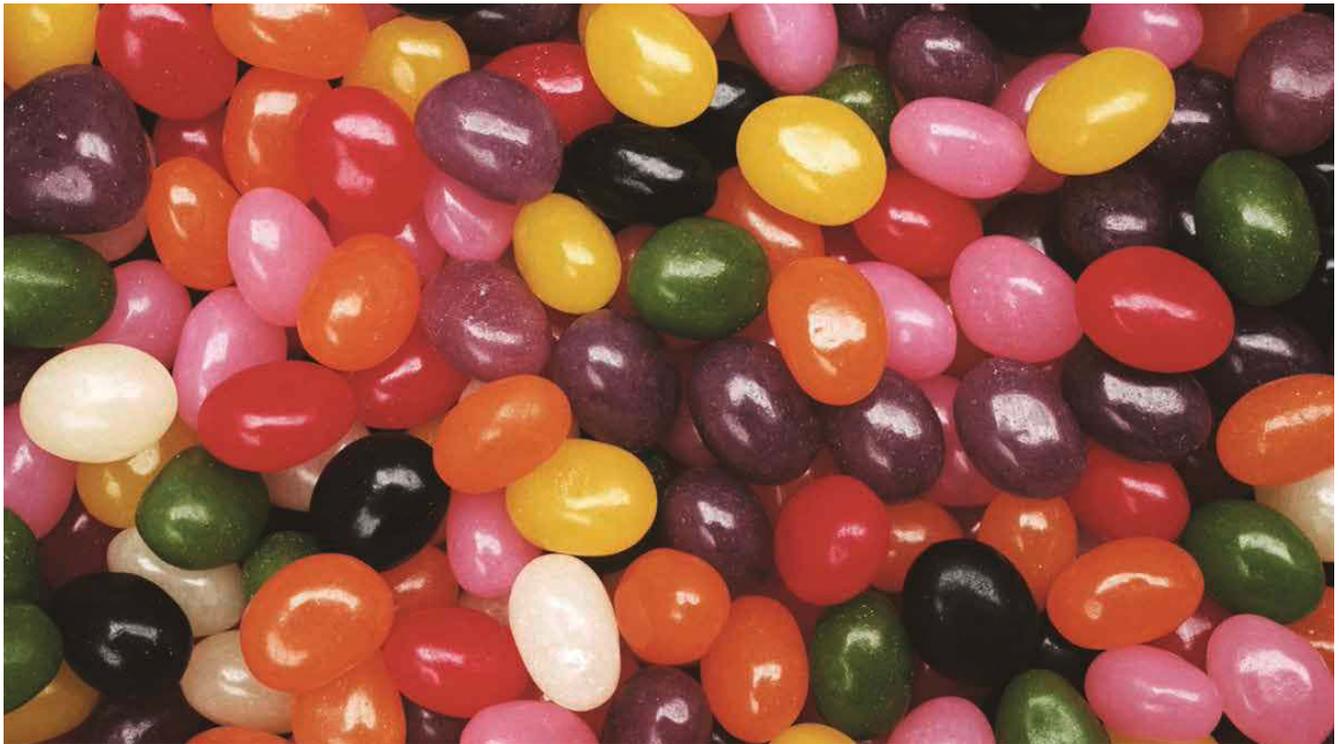
Apart from long operating runs, hygiene, health and safety are the key factors in the food and beverage industries. This means that sealing discs on the belt drive bearings and sheaves must not distort during high pressure cleaning. Bearings and their cages must be corrosion-resistant and lubricants should not leak.

As one of the biggest rolling bearing manufacturers worldwide, NSK has a wide range of rolling bearings specifically for the food and beverage industry, whose construction features include, among others, rust-proof materials, sealed construction with lifelong lubrication, and foodstuffs-compatible lubricants.

The difference is in the lubrication

NSK's patented Molded-Oil grease is specifically developed for situations requiring high levels of hygiene, such as in the food and beverage industries. As such, the Molded-Oil lubricant is transported by a substance that releases the lubricant gradually. This way, the required amount of lubrication is provided to the bearing over a long period of time. At the same time, the risk of oil leakages is minimized making the bearings outstandingly smooth running. Optionally, lubricants with USDA H1 certification can be used.





Thanks to Molded-Oil technology, a confectionery manufacturer saves more than \$168,000 a year.

A confectionery manufacturer was struggling with equipment breakdowns and production losses in the region of \$328,000 a year. The reason for the failures lay with water making its way into the rolling bearings of one of the pumping systems, leading to a buildup of sugar crystals in the plant. Thanks to the implementation of our profitability program AIP (Asset Improvement Program) the problem was analyzed and quickly established.

Reasons for the success of our AIP program are an on-site situational analysis, the establishment of problem-solving measures, project planning, an effectiveness check, conclusion analysis, and after-sales services.

Our engineers recommended the use of NSK Molded-Oil

bearings for the pumping system. These were trialed over an 18 month period and, due to their success, all the plant's other original bearings were replaced with NSK Molded-Oil units.

Not only that, but the client undertook an AIP training program with regard to care maintenance.

The results are indeed impressive: thanks to the NSK profitability program, the confectionery manufacturer not only saves \$168,000 a year where rolling bearing costs and maintenance are concerned, but also enjoys increased production capacity thanks to the reliability of the NSK Molded-Oil bearings.

Innovative products for increased productivity



Aqua-Bearings **SPACEA**

NSK Aqua-Bearings use a special fluororesin for the inner and outer rings, as well as for the cages. These bearings are perfect for a whole string of applications with water, alkali and acid environments. They manage without the usual grease or oil lubrication.



Chrome-plated corrosion-resistant bearings **SPACEA**

Thanks to nickel-plating, these bearings display an extremely high resistance to corrosion. Even constant underwater operation cannot adversely affect their performance.



Life-Lube® bearings

The Life-Lube® series from NSK combines the corrosion resistance of our Silver-Lube® housings with the outstanding sealing and lubrication attributes of the Molded-Oil units. They can hold water as well as process fluids and chemicals at bay.



Molded-Oil bearings **SPACEA**

NSK Molded-Oil bearings are maintenance-free and thrive in wet and dusty environments without needing regular lubrication.



Corrosion-resistance through nickel-plating

SPACEA

These bearings can withstand chemical washing processes and represent a cost-effective alternative to totally ceramic bearings. They are suitable for alkaline and mildly acidic environments as well as for applications with water rinsing.



Stainless steel bearings

SPACEA

Stainless steel bearings are more corrosion-resistant than bearings made of ordinary steel, thus offering a longer operational life. They are, therefore, perfect for use in wet and damp environments.



Stainless steel bearing units

These stainless steel ball bearing units are housed in stainless steel cases and lubricated with Molded-Oil. They are perfectly suited to applications requiring cleanliness and corrosion resistance, such as in fryers and conveyor belts for the meat and fish processing industries.



Triple-lip sealed inserts

Triple-lip sealed inserts can replace ordinary ball bearing inserts in applications where bearings are subjected to strong dust or water pollution, such as in vegetable washing plants or in fish processing plants.

Innovative products for increased productivity



Single row angular contact ball bearings

NSK angular contact ball bearings were developed to satisfy the ever-increasing demands of pump manufacturers. With angular contact ball bearings in polyamide, steel or brass cages, NSK offers one of the most extensive ranges in this sector.



Mounted units

The cast iron or pressed steel housings are available as pillow block, 2-bolt flange, 4-bolt flange or take-up units that are suited to either metric or imperial shafts. Both the standard and special seals are suited to rough environments and applications.



Single row deep groove ball bearings

NSK is the worldwide leader in deep groove ball bearing production. Primarily for use under radial loads, they can, however, also withstand moderate axial loads in either direction. Due to their low torque, they are suitable for applications where high speed and low power loss is required.



Silver-Lube® mounted units

NSK's Silver-Lube® series is a range of corrosion resistant bearing units specifically for use in industries where frequent thorough washdowns are necessary, optimum hygiene standards are required and good chemical resistance is important over a wide temperature range. The units are available in pillow block or 2-bolt flange, 4-bolt flange or take-up unit configurations.

Increasing efficiency – with AIP, the value-added program from NSK

Incorrectly applied or selected bearings can lead to anything from a reduction in machine performance to failure of an entire system. We support you in solving these technical problems. The value-added program AIP incorporates a comprehensive service package which enables you to design both productive operation and maintenance processes with increased efficiency and consequently better profitability. With AIP, you reduce your costs at every value-added stage.

Concentrated knowledge, many years of experience

Thanks to their in-depth technical knowledge and industry know-how, the experienced NSK application engineers are able to identify profitability potential and recommend appropriate measures. Our experts work according to a procedure which has been tested in practice and standardized – the value cycle. The ideally coordinated solution for your application is developed in close cooperation with them.

AIP services made to measure

The comprehensive range of AIP services is purposely designed to enhance efficiency and competitiveness. Your NSK expert will advise you about which measures can be derived from the examination results and will support you in implementing them.



AIP NSK Solutions

Example success stories show how profitability and reliability can be increased using tried and tested practices.



- › Stores Survey
- › Workshop Survey
- › Process Map
- › Bearing Cross Referencing



- › Application Reviews
- › Machine Design Support
- › OEM Part Conversion
- › Diagnostics



- › Product Training
- › Application of NSK Bearings
- › AIP Training
- › Industry Specific Training



- › Bearing Condition Analysis
- › Failed Bearing Analysis
- › Lubrication Analysis
- › Material & Dimensional Analysis

Discover how you can increase your profitability with the help of our value-added AIP program and our high-quality products.



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