



# How to Prevent Unnecessary Costs, Avoid Production Issues and Improve Product Quality with a Custom Bearing

## Are you using a standard bearing in your product?

**Before you proceed with design or production, think again about the bearing specification.**

**It's likely that your standard bearing is:**

- ⊗ Surprisingly too expensive
- ⊗ Unnecessarily complex
- ⊗ Inefficient
- ⊗ Oversized

Just because it's standard doesn't mean it's the right fit, or as cheap as you thought.

At National Bearings Company, we help manufacturers reduce total product costs, speed time to market and improve product performance. Ninety percent of the time we do this by helping manufacturers realize the benefits of replacing a so-called cheaper standard bearing with a right-sized custom bearing.

If you have an existing product in production, we can help there too. Ask about our product design analysis to see how we can help you drive down cost or boost product quality.

**Before you take another step in your product design process, consider these critical issues.**

## Over-specification

*Is your current standard bearing over-specified for your total application needs?*

Standard parts are designed to accommodate a wide range of applications. By definition, that means they must be designed to:

- ⊗ Carry loads much heavier than most applications require;
- ⊗ Be capable of speeds far in excess of typical applications;
- ⊗ Be manufactured to tolerances that are unnecessary for most applications.

The result is a standard bearing that does not fit your unique application as well as it should. Bearings that are over-specified significantly drive up total product cost and unnecessarily slow the production process. With a custom bearing, you save money with a bearing 100% matched to your needs.

## Over-complexity

*Standard bearings are produced in configurations that make assemblies more complex than necessary. Complexity increases cost and lengthens production times.*

- 1 Some applications only require some components of a bearing such as one race and one retainer. A standard bearing includes a full complement of components, thus creating space needs that could otherwise be eliminated.

Do you know how to analyze the actual need? If not, seek the assistance of an experienced, custom-bearing designer such as the engineering team at National Bearings Company.

### Over-complexity continued

- 2 Custom bearings can integrate other components of an assembly to simplify the overall design. A standard bearing is not designed to integrate efficiently and effectively with your overall product design, thus compromising product efficiency and operation.

### Oversized

*Standard bearings are made to standard sizes and require you to fit your design to those sizes.*

A bearing that requires you to design the product around the bearing size, or increase overall product size, increases cost unnecessarily.

- 1 Stamped thrust washers can replace standard thrust races. Using a thrust washer instead can create a much smaller stack height.
- 2 Applications often require a radial bearing that falls between two standard sizes. Custom bearings can adjust ID, OD or width to find the best size and performance.

### Potential for Bearing Failure due to Wrong Material Selection

*Under what conditions does your product need to function? To what environment, materials, substances will it be exposed?*

Standard bearings are commonly manufactured from chrome steels and deteriorate quickly in many environments. They must be protected from damage which can dramatically complicate an assembly design.

- 1 Custom bearings can be made from corrosion-resistant materials such as stainless steel, engineered plastics and ceramics.
- 2 Custom bearings can be designed to work without lubricants or with lubricants designed specifically for an application.
- 3 Custom bearings can be made from materials that can function in extreme temperatures and meet special requirements, such as biocompatibility, high-abrasion, vacuum and magnetic environments.

Using a standard bearing that is not designed specifically for your operating environment seriously compromises the product's efficiency, operability and even warranty.

### Unnecessarily Expensive Manufacturing Method

*Standard bearings are typically machined, heat treated and ground. Many times, other manufacturing methods can be used to produce a custom bearing more economically.*

- 1 Stamped thrust washers cost a fraction of machined and ground races.
- 2 Injection molded components can offer unique performance and cost savings.
- 3 Unground components can be a cost-effective alternative in low-load or slow-speed applications.

Don't drive up cost unnecessarily. Ask a custom bearing manufacturer to provide potential cost savings simply by selecting the appropriate manufacturing process.

### Right Design

*Are you designing your product around the size, form or function of the bearing? Is your product design vision compromised by the standard bearing's limitations? Are you incurring unnecessary assembly and stocking costs?*

Custom bearings can:

- 1 Simplify your assembly process, thus reducing time and cost associated with multi-step product assembly.
- 2 Reduce the number of product components, thus reducing the number of components that must be stocked.
- 3 Improve product quality and functionality, allowing you to design the product as envisioned, thus making the product – and your company – more competitive.

It may seem easy to design a product around a standard bearing, but the truth is, costs are often higher and the product advantages that can be achieved with a custom bearing are sacrificed.

### Is it time for a custom bearing?

*If cost containment, time to market and product quality are key issues for your company, consider a custom bearing.*

Call National Bearings Company for a free bearing design analysis. Our experienced engineers will review your application to ensure maximum design for manufacturability.

Let us help you reduce complexity, drive down total product cost, boost productivity and improve product performance.

Call a Sales Engineer at 717.850.3270 to start the design analysis process or visit [www.nationalbearings.com/RFQ](http://www.nationalbearings.com/RFQ) to submit your design for review.

