



ARROW ***offers a Stock*** ***SOLUTION***

By Joseph L. Arvin

A sagging economy and the fierce demands of global competition are unfortunate realities that all manufacturers have been faced with in recent years. The fallout has come in the form of lost revenue and the elimination of millions of jobs.

In Downers Grove, Illinois, however, one company is taking steps that will help manufacturers in their efforts to gain a competitive edge. That company is Arrow Gear, which is widely known as a top producer of high-precision gears that are supplied to a variety of industries, including aerospace. Arrow produces more loose gearing for jet-engine applications than any other gear company in the world, in fact.

With more than 50 years of experience in custom gearing under its belt, Arrow is now bolstering its offering of stock gears, which promises to provide numerous benefits to manufacturers of power transmission systems. Specifically, the product line will include a full range of ground tooth spiral bevel gears. This will position Arrow Gear as the only gear producer in the world to provide such a diverse selection.

At first glance, the benefits of offering stock ground tooth spiral bevel gears may not seem apparent, but utilizing these products in prototype development and low-volume production runs can save a manufacturer tens of thousands of dollars.

According to James J. Cervinka—Arrow's founder, CEO,

But Arrow's capabilities for modification run deep. Often, a specific contact pattern is required to account for gearbox deflections. Working with technical data provided by the customer, Arrow engineers have the capability of performing contact pattern development utilizing specialized software for fully loaded tooth contact analysis and finite element analysis. While this process will obviously take more time than modifications to the blank, the customer will still realize significant savings from both a time and cost perspective.

"Developing a new spiral bevel gear design from scratch is very costly, and the process can take months. Using our stock products, the customer can take delivery in a matter of days," according to Bob Wasilewsky, chief design engineer. "And even when the gears are modified, the customer can save up to 50 percent in comparison to other costly alternatives for prototype or low-volume production runs. In today's market, the ability to get your product to market faster than the other guy is a strong component for edging out the competition.

"With the flexibility of our stock gear products, engineers now have the choice of using high-quality precision gearing in their prototype phase," Wasilewsky says. "Even in aerospace applications, our products can be used for the initial

WHEN IT COMES TO PROTOTYPING AND SHORT RUNS, USING STOCK GROUND TOOTH SPIRAL BEVEL GEARS CAN SAVE MANUFACTURERS A LOT OF MONEY. BY OFFERING A VAST SELECTION, ARROW GEAR IS HELPING ITS CUSTOMERS TO COMPETE.

and chairman of the board—the ground tooth product line is expected to have a significant impact on the industry. "Our stock gear product line is unique for several reasons," he says. "First, no one else in the world offers stock ground tooth spiral bevel gears in the variety that we do. Secondly, our engineers are available to assist with modifications to the contact pattern and other physical attributes to meet the customer's specific requirements. And by using our stock gears, customers can save a great deal of expense."

Arrow's product line is vastly different from those offered by other stock gear suppliers. One difference is the fact that Arrow's line consists of 53 different combinations of ground tooth spiral bevels, reaching up to 16 inches in diameter and quality levels up to Q13. The parts are also carburized and hardened, as opposed to through hardening, which is common for most stock gears. To further enhance the value to engineers of power transmission systems, these stock gears can be modified extensively by Arrow's engineers, while still serving as a dramatic cost-saving alternative to custom gearing.

The ability to modify Arrow's stock gears is a significant benefit to the customer. Modifications to the blank, in order to meet the customer's gearbox envelope requirements, can often be completed in just two weeks. In addition, only the teeth are carburized and hardened, which simplifies the modification process.

testing of their application without the months of waiting for a completely new design."

Arrow has offered stock gears for many years. Although a few ground tooth sets were available in the past, the line consisted mainly of lapped gears for less-critical applications. There are new challenges facing manufacturers, however, including the need for lower costs, shorter lead times, and quality improvements that provide increased life, quiet operation, and smooth-running systems for registry or positioning. Arrow's decision to expand its line of precision stock gears is in direct response to this need.

With such a wide range of ground tooth spiral bevel gears, Arrow anticipates a great deal of demand. "With a product line such as this, with its inherent benefits for prototype and low-volume production, we feel that our customers will find it to be a valuable solution, and one that will fill a rather substantial void," says Wasilewsky.

Cervinka agrees, adding that "In view of the brutal competition that many companies are now facing, we feel that our product line of stock gears can serve as a powerful resource for a manufacturer's competitive posture."

For more information on the Arrow Gear Company, contact Wasilewsky at (630) 969-7640, or via e-mail at rfwasilewsky@arrowgear.com. The company's Web site is [www.arrowgear.com].