

Metal-to-Plastic Conversion

REDUCES COST, NOISE
IN PACKAGING EQUIPMENT



Seeking a lower-cost alternative to anodized, machined aluminum pulleys for its high speed PouchPlus® Inserter, Unique Solutions Inc. sought design and manufacturing assistance in converting all pulleys in its Model US622 inserter to FDA-approved N6650 nylon.

The inserter has a drive mechanism, which requires several precision timing pulleys. The original design used pulleys machined from aluminum bar stock and hard-coat anodized. However, this approach had significant drawbacks.

The pulleys were costly to manufacture, and the inconsistent thickness of the hard-coat anodized finish created a host of fit and tolerance problems.

Unique Solutions turned to Torque Transmission for help. Torque Transmission adapted Unique Solutions' design so the pulleys were economically manufactured using plastic injection molding.

The nylon pulleys are easier to assemble during production, they reduced the inserter's weight, and the finished product operates more quietly, says Norm Hendle, manufacturing manager for Unique Solutions.

Initially, the company had some concern about the moisture absorption of the nylon pulleys. In one case—a high humidity environment—the company experienced some problems with the new design. However, Torque Transmission continues to work closely with Unique Solutions to determine if this was an isolated incident or if material modifications are needed.

“Replacing our aluminum internal pulleys with molded nylon proved to be a smart move,” Hendle says. “We saved significant money. In fact, all the tooling and engineering was paid back in just the first production run—that’s a

huge ROI.”

The original production run was for 3,000 pulleys, manufactured in batches of between 200 and 800 pieces.

In addition to the cost savings, the molded nylon pulleys run quieter than aluminum. And, the injected molded plastic offers consistency from batch to batch and pulley to pulley, eliminating the frustrating and time-intensive fitting issues inherent with the anodized aluminum pulley.

Unique Designs has not performed a quantitative analysis of the tolerance differences between aluminum and plastic. As far as strength is concerned, Hendle says they were happy with the end result.

“Obviously, the plastic pulleys are not as strong as the aluminum pulleys were. However, because our inserter is a belt-driven system, not a direct drive system, this sacrifice in strength is not a factor at all,” he says.

John Rampe, president of Torque Transmission, says Hendle's thoughts have been echoed by many of Torque Transmission's clients.

“More and more, we're helping customers reduce costs and improve perfor-





mance through innovative design and precision manufacturing. Our highly skilled engineers combine their application-specific expertise with finding the right combination of high-strength, low-cost materials to meet or exceed the customer's requirements." ■

For more information:

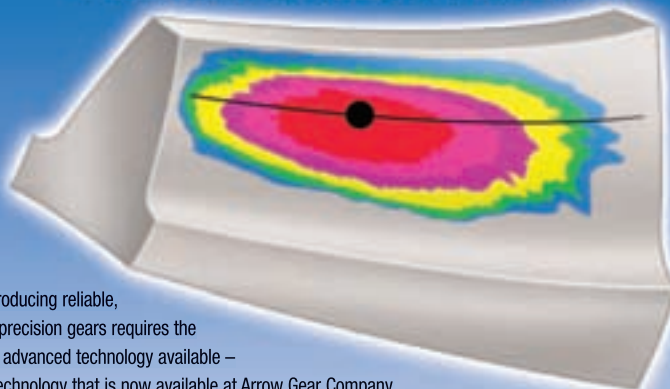
Torque Transmission
 1246 High St.
 Fairmont Harbor, OH 44077
 Phone: (800) 544-6642
 E-Mail: sales@torquetrans.com
 Internet: www.torquetrans.com

Unique Solutions
 550 E. Main St.
 Lake Zurich, IL 60047
 Phone: (847) 540-1200
 E-Mail: info@unique-solutions.com
 Internet: www.unique-solutions.com



The Future of Gearing Technology

Now Available at Arrow Gear!



Producing reliable, high precision gears requires the most advanced technology available – the technology that is now available at Arrow Gear Company.

Our in-house, state-of-the-art, computerized system is the most advanced in the industry. Utilizing Finite Element and other leading edge software, we offer our customers numerous benefits, including a significant increase of load capacity.

To learn more about this technology, and why we are the "Go To Guys" for spiral bevel gear design, please visit our Website or contact our design engineering department.



2301 Curtiss Street
 Downers Grove, IL 60515
 Tel: (630) 969-7640
www.arrowgear.com

Committed to Being the Best



HEAT TREAT
 MAGNETIC PARTICLE INSPECTION
 NITAL ETCH

NEW! Straight & Spiral Bevel Cutters



Custom Tools

- Hobs, 8-50 DP
- Shaper Cutters
- Milling Cutters
- Shaving Cutters
- Broaches

Stock Items

- DP and MOD*
- Hobs, 10P and finer
 - Shaper Cutters



BARIT INTERNATIONAL CORPORATION

Prompt, Personalized Service!

3384 COMMERCIAL AVE. • NORTHBROOK, IL 60062 USA
 TEL: 847-272-8128 • FAX: 847-272-8210
 Website: www.barit.com • E-mail: people@barit.com