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The Corner Shop: ABA-PGT Inc.

## Manchester Company Makes Gears For Variety Of Mechanisms

By JANICE PODSADA

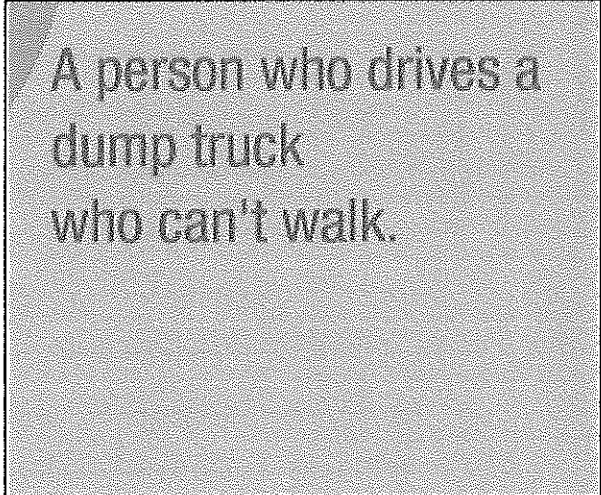
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Ever wonder how a vending machine reels in your hard-earned dollar bills? Typically, it depends on 20 plastic gears, each smaller than a shirt button, to pull in your money.

It's the same story with your car's gas gauge or speedometer. The little red pointer rises or falls by means of a tiny plastic gear mounted on a steel pin. Ditto for an ATM, which uses 12 plastic gears to send the greenbacks through the slot.

Since the 1960s, plastic gears have been replacing metal gears in certain applications, said Richard Wheeler, president of ABA-PGT Inc. of Manchester. The company, whose 100 employees own a stake in the business through an employee stock ownership plan, had revenue of \$18 million last year.



Although 90 percent of the world's gears are made of metal, about 10 percent are made of plastic. In the old days, plastic gears couldn't take the heat. Today they're showing up in some hot places — like under the hood of your car — replacing heavier, costlier steel components, Wheeler said.

But not all plastic gears are created equally.

While lots of companies manufacture plastic gears, many of which are used in toys, only a small number, such as ABA-PGT, create precision plastic gears.

"We make the Mercedes of plastic gears," said Wheeler, who said the company churns out billions of plastic gears and related components every year.

ABA-PGT, which stands for Anderson, Bertsche, and Anderson-Plastics Gearing Technology, was originally founded in 1944 as a machine shop devoted to Pratt & Whitney, Wheeler said.

In the early 1960s, ABA-PGT began crafting steel injection molds used to manufacture plastic gears. By 1969, the company decided to try its hand at producing a few "little plastic gears for water meters."

Today, its plastic gears, the largest of which are only 2 inches in diameter, keep the wheels turning inside ATMs, coin machines — anything that drives money — as well as printers and the electric windows and adjustable seats on cars and trucks.

PGT, which occupies a 68,000-square-foot facility, makes plastic gears from start to finish. The plastic that ends up in finished gears arrives as 25-pound bags of rice-size pellets.

Engineer trainees like William Ivey design gears with such precision that only one in a billion gears will be defective. The steel molds will be crafted on site by skilled machinists. And when the final product tumbles out of the mold, samples will be examined by quality control inspectors like Carol Labanouski.

"If anything is bad, I'll halt production and pull all of the affected boxes," Labanouski said.

Plastic gears aren't as strong as steel, but they weigh "a quarter as much and are priced at about half the cost," Wheeler said.

Because of the advantages, the auto industry could prove to be an even bigger customer in the future, Wheeler said.

By 2020, car makers will be required to boost fuel mileage by as much as 40 percent under the latest federal fuel standards. One way to achieve that is to reduce vehicle weight. Often the solution is to use lighter materials. The new generation of plastics can replace steel gears in assemblies that are subject to low torque and low speed, and in environments where temperatures don't exceed 500 degrees, such as the transmission or alternator. An added boon is that plastic gears are quieter; While the wheels may be spinning, you can't hear them.

Like other industries, ABA-PGT is feeling the effects of the sub-prime mortgage crisis. While it might not seem obvious, the company depends heavily on the sale of new cars and homes. Millions of its plastic gears are used in automobile production and the manufacture of residential irrigation systems, and both industries are foundering.

"If you can't afford a house," Wheeler said. "Chances are you can't afford to buy a new car."

As a result, the company has stepped up production of plastic components for surgical instrument and drug delivery systems, including insulin pumps that use tiny plastic gears.

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