



# Grip Tight Done Right

## BALDOR'S BEARINGS MAKE THE GRADE WITH SAPPHIRE AND TWIN CITY

**Matthew Jaster, Associate Editor**

Since its inception in 2001, Sapphire Energy Recovery has provided solutions for end-of-life car and van tires using high-throughput shredding machines. These machines process tires into chips that can be used as an alternative to coal in the cement manufacturing industry. The system provides an effective means to fully consume the tires.

Sapphire Energy Recovery was originally formed as a joint venture between the LaFarge Group and Michelin Tire. LaFarge was looking for a way to secure its tire supply while Michelin needed to meet its obligations as a tire producer.

Now the company collects end-of-life tires from sources such as wholesalers, vehicle dismantlers and local authority schemes. These tires are brought to a Sapphire processing center via a collector network and then used to produce a specific grade of chipped tire for the cement industry.

Problems occurred, however, when the chips were graded for size by a classifier with 36 bearings. Whether it was the water used for cooling or the fine metal wires in the tires, the bearings were being damaged at an excessive rate.

"The aggressive nature of tire shredding meant that repairing these machines was taking up far too much of our time, and reducing our productivity," says Andy Booth, reliability manager at Sapphire.

Replacing the bearings could take up to two hours per piece. In some cases, corrosion meant the bearings needed to be loosened by heat. In other circumstances, the entire shaft had to be replaced. The end result was an expensive repair problem. Booth called Bearing Transmission & Pneumatics for help.

Bearing Transmission & Pneumatics suggested a specific type of ball bearing from Baldor called the Dodge Grip Tight. "Our work means that we tend to see a lot of bearing failures, and we've come to regard the Dodge Grip Tight as a genuine problem solver," says Edward Fielding of Bearing Transmis-

sion & Pneumatics. "Although the major requirement was to simplify changeover, this bearing also manages to survive much longer in hostile operating conditions."

The Dodge Grip Tight is an adapter-style bearing with a mechanical feature that loosens it by simply turning a nut. This automatically pulls the bearing off, avoiding forcible removal or expansion heating. The Grip Tight includes a built-in flinger seal for protection in hostile environments.

According to the company's press release, the Grip Tight bearings were more expensive than the sets-crew type Sapphire had been using. Demonstrations and testing convinced Booth and his team that the easy-off mechanism would make changeovers a predictable operation.

Booth purchased the Grip Tight bearings and began installing them at Sapphire. Following a 24-month period, operators can now replace the bearings start to finish in 15 minutes. Booth reports no shaft damage to date, and the bearings have lasted twice as long as previous models.

"Grip Tight bearings have given us back predictability of maintenance, with the welcome bonus of much longer life, protecting some of our company's most crucial assets," says Booth. "Our operational team now has the time to be more proactive, focusing its major efforts on preventive maintenance rather than breakdown maintenance."

### Twin City Challenge

When Twin City Fan & Blower needed to compete for the business of three automotive plants, they had to face the challenges of improving fan designs, tightening up shafting tolerances and lowering vibration to get the contracts. The fans would have to meet an automotive specification in which the allowed maximum vibration amplitudes were far below industry standards.

"We could either sit on the sidelines, or we could be ag-

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gressive and say 'Yes we can meet these specs,'" says Dick Williamson, engineering vice president for Twin City Fan. "We made the commitment to make it happen, and we got to work."

Vibration analysis began at the company's South Dakota facility, testing a variety of bearings from manufacturers. The Grip Tight and Imperial bearings from Baldor came out on top.

"We save a lot of time in our manufacturing process; plus, because of the quality of the product and the tighter toler-

ances that have been engineered into the bearings, we also save time in our acceptance testing," says Matt Benson, plant manager at Twin City Fan.

The effort of Twin City Fan paid off when they received their largest automotive order for fans to date. Williamson believes the company will continue to work with Dodge bearings in the future. "The engineers who design Dodge bearings have already helped us meet the expanding needs of our customers, and we'll continue to ask for their advice."

### **The Anatomy of a Bearing**

So what exactly appeals to manufacturers using the Dodge Grip Tight line? For Darin Davenport, product manager at Dodge Roller Bearings, it begins and ends with accessibility.

"The installation and removal saves time, minimizes wear and tear, and can accommodate commercial and undersized shafts."

Davenport also points out the patented "push/pull" thin-wall adapter system that allows damage-free shafting and reduced vibration. According to the company's press release, the bearings can operate at higher speeds and run cooler than competitive products, allowing for increased bearing life.

Grip Tight bearings are off-the-shelf and shaft-ready and are available in a variety of styles including pillow block, tapped base, two-, three-, four-bolt flange, piloted flange, take-up and E-Z Kleen design. 

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