



Grove Gear Can Develop Any Geared Product, from Mild to Wild

Most industrial equipment users think of Grove Gear as a supplier of worm gear reducers. However, over many decades, Grove Gear has done much more than dedicating itself to perfecting the design and manufacture of the industry's leading worm reducer lines. From the newest all-inclusive standard product catalog, it's evident that Grove Gear is also a designer and supplier of quality helical-inline, helical-worm and helical-bevel gear reducers. To top that, Grove Gear offers many of its standard products in cast iron, aluminum and stainless steel.

With well over 100 years of application, market and engineering experience at Grove Gear, partnered with shared resources from many other divisions of Regal Beloit, Grove Gear is ready to design nearly any specialty gear reducer, integral gearmotor or c-faced Gear+Motor™ to meet the critical needs of any application.

Grove Gear engineers understand that design characteristics of every application are different. If your current gear products were installed many decades ago and are no longer available from the original supplier, Grove Gear can work with you to develop a top quality replacement regardless of the original manufacturer. If you are working on a new project to outpace your competition and you can't find a solution in a catalog, Grove Gear can work with you to develop any "mild to wild" geared product. If you are working on a project outside of the typical industrial markets, the Grove Gear team can work with you to design equipment for any application from insulation blowers and motorized hose reels to parking gate operators and high speed geared pumps.

Quantity is no problem. Grove Gear understands that some projects require one piece, while others will require rigorous inventory management to accommodate quantities up to 10,000 pieces a year. The Grove Gear team will work with you to understand the most cost-effective product solution to provide the highest value to your business.

Contact Grove Gear to begin a dedicated partnership and add value to your projects now.

Thank You Gift

Thank you for taking the time to read The Gear Gazette. We'd like to give you a free gift for reading this new publication. Visit our website, www.grovetgear.com by March 12, 2010, and enter the promotional code THANKS to receive a free gift. Feel free to leave your comments and feedback while you are there.

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In This Issue

E Series Gear Reducer at Work P.1

Product Redesign & Unification Benefits P.2

New Tools Available on grovetgear.com P.3

New QA Manager at Grove Gear

Tom Gehrand recently assumed the role of Quality Manager. Gehrand's solid manufacturing background will help Grove Gear achieve its vision of operational excellence with exceptional customer service.

Gehrand has been a member of the Grove Gear team since 2005 and previously held the human resource manager, lean facilitator and plant manager positions. In his new role as quality manager, he will be responsible for the overall quality system at Grove Gear, both internal and external. Gehrand is Six Sigma Green Belt certified and is well versed in lean and manufacturing concepts.

"I look forward to using my lean manufacturing and plant manager experience to improve our quality system," said Gehrand. "We will use a root cause and problem solving based focus to drive improvement in both internal and external quality."



Tom Gehrand

E Series High Efficiency Reducer at Work at Grove Gear

At Grove Gear, the wash and deburr machine "Big Blue" is known to all employees. Sitting in an enclosed room between the cast iron machining area and the assembly area, it runs 16 hours per day washing and deburring cast iron parts prior to assembly. Big Blue has two inclined conveyors, both driven by traditional, 3" center distance worm gear reducers with 40:1 gear ratios and standard 3-phase induction motors.

The gear reducer and motor driving the deburring media conveyor needed repair so the Grove Gear maintenance team, under the guidance of Larry Minnich, director of manufacturing, replaced the products with a new Grove Gear IronMan E Series gear reducer and LEESON premium efficiency motor.

An analysis of the system loads performed by Gary Kozlowski, maintenance technician, showed the current gearbox to be operating at less than 70% efficiency, requiring an oversized 3HP motor to make up for the energy losses. Research determined that the E Series, with its 90% operating efficiency, would permit the use of a 2HP motor, downsizing from a 180 to a 140 frame. The E Series HE45 gear reducer is built on a 2.38" worm gear center distance platform, two sizes smaller and over 20% lighter than the old worm gearbox. Analysis of the system estimates an annual energy savings of 2209 kW-hr and \$243 per installation, nearly \$500 savings per year to run Big Blue.

According to Maintenance Manager Ady Sanders, the retrofit was a snap. "We simply added a spacer base made in our

tool room to convert the mounting height of the E Series unit to the larger worm unit and slipped it into place," said Sanders. "The entire unit was lighter and easier to work with, as the installation is 10' high." The first E Series gear reducer went to work on December 21, 2009.

The Grove Gear E Series High Efficiency gear reducer is available in four models with ratios from 60:1 to 450:1. The units are packed with premium features, including synthetic lubricant and Viton® double-lip seals. The E Series has the torque density of a 3.25" center distance worm gear drive in the design envelope of a 2.38" center distance worm gear reducer. With mounting base kits, the E Series can drop-in and replace up to four sizes of most popular brands of worm speed reducers.



Grove Gear IronMan E Series High Efficiency Reducer

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New 8050 Catalog Now Available

Grove Gear recently published its new 8050 catalog, which combines the broadest line of enclosed geared products into one catalog. This geared solutions catalog provides an overview of our range of products, from single reduction worm gear reducers to quintuple reduction helical-bevel.

The catalog introduces the premium Grove Gear IRONMAN and redesigned Electra-Gear worm gear reducers. The Grove Gear IRONMAN combines the broad product offering of the Grove Gear Flexaline with the superior features of the LEESON IRONMAN to create the industry's most comprehensive line of gear reducers. Electra-Gear aluminum products are built with premium features from the IRONMAN line and boast a clean, paint-free finish.

The 8050 also features Grove Gear IRONMAN high efficiency products, including helical-inline, helical-bevel, helical-worm and parallel shaft reducers. These tough, long lasting gear reducers use less energy to generate immediate savings and are direct replacements to many popular brands.

The catalog features many new products, including Electra-Gear size 824, F Series parallel shaft gear reducers, aluminum ratio multipliers, expanded hollow output bore offerings, WASHGUARD features on high efficiency products, BF output flange for GR Series, hollow output shaft protective covers and many others.

Visit the literature page on www.grovegear.com to download or request a catalog.



Product Redesign and Unification Offer a Host of New Benefits

From improved leadtimes to increased ratings, many benefits were realized due to major cast iron and aluminum product improvements in 2009.

The long awaited Electra-Gear redesign and cast iron product unification took place last year and culminated with the release of the new Grove Gear 8050 catalog. By all accounts, both projects were great successes. They created a unified product offering unmatched in the industry in scope and quality, and strengthened our position as the leader in the North American worm gear market. Both the cast iron and aluminum products have many new benefits as a result of the project.

Benefits of Cast Iron Unification:

Standardized Leadtimes - The original Grove Gear catalog products had typical leadtimes of 5-7 days, while LEESON IRONMAN products had leadtimes of 1-3 days. Most Grove Gear IRONMAN standard catalog products are now available to ship within 3-5 days, with "quick ship" options available.

Increased Ratings - By utilizing new gear materials, manufacturing technologies and adding polyglycol synthetic lube, the Grove Gear IRONMAN product has up to 25-30% more torque capacity than the original design to allow for the selection of smaller case sizes given the same motor size as before.

Interchangability - The Grove Gear IRONMAN GR Series is fully interchangeable to

both original LEESON and Grove Gear Flexaline designs, as well as many other popular brands. The NH Series is interchangeable to the original OE Series and Alling Lander worm products.

Improved Marketability - The new design is packed with premium features as standard, including viton seals, polyglycol synthetic lube, industry leading ratings, single output cover design and input quill guard. Premium Washguard options are available.

Standard Paint Color - The new Grove Gear IRONMAN is painted blue to match standard LEESON motors. Other colors are available upon request.

Benefits of Electra-Gear Redesign:

Improved & Standardized Leadtimes - The original Electra-Gear products had inconsistent leadtimes from 5 days to 6 weeks. By standardizing internal components and assembly processes, the standard catalog products are now available to ship within 3-5 days, with "quick ship" options available.

Single Piece Housing - The original design had a two-part housing with areas of potential particle entrapment and leak paths. The new design has a single-piece housing with rounded corners and smooth exterior surfaces with a uniform finish and minimized

potential for leakage.

Eliminate Gaskets and Sealants - The new design uses no gaskets or sealants. All covers are now sealed with o-rings.

Increased Ratings - By utilizing new gear materials, manufacturing technologies and adding polyglycol synthetic lube, the product has up to 25-30% more torque capacity than the original design to allow for the selection of smaller case sizes given the same motor size as before.

Interchangability to "Industry" Footprint - The original Electra-Gear design has a unique footprint, limiting its interchangability. The new housing is machinable to match bolt pattern and shaft height of common cast iron worm reducer brands like Boston Gear, Browning, Morse, Dodge and even Grove Gear.

Improved Marketability - The new design is packed with premium features as standard, including viton rubber cased seals, synthetic lube, higher ratings, single output cover design and input quill guard. Add this to the good looks of a paint-free, uniform external finish, it lends itself well to replace traditional painted reducers in washdown applications.

For more information, contact Grove Gear or visit www.grovegear.com.



Helpful New Tools Available at www.grovegear.com

In an effort to improve the ease of doing business with Grove Gear, several new tools have been added to the website www.grovegear.com. From CAD drawings to technical documents, a host of features are available at the click of a mouse.

The eCatalog is a searchable catalog and product configurator. Visitors to the site can search by old part number, new part number or description to view data on a specific product. Or, with basic information, they can build a product to the exact specifications needed for an application. While in the eCatalog websurfers can view product specs, download CAD drawings and request quotes.

A full array of 2D and 3D CAD drawings is available on the website by selecting Products > Products > Gear Reducer CAD Drawings. The drawings are conveniently organized by series, style and type. Thousands of offerings are available for download into CAD software.

A library of literature can be found by selecting Literature > Brochures & Catalogs. The full Grove Gear 8050 catalog is available for download in a section-by-section format. Visitors can make an online request to receive hard copies of any of the literature available.

Technical documents are also

just a click away by visiting the Technical Information link. This link allows access to downloads of both current and archived Installation, Lubrication and Maintenance Instructions. A selection of Frequently Asked Questions can also be found there.

The product pages provide a full overview of all of the Grove Gear and Electra-Gear products, including features and benefits, photos, and quick links to the eCatalog and 8050 catalog.

After locating the right product, finding a local sales outlet is trouble-free when using the Sales Location search tool located under the Where to Buy link.

Frequently Asked Questions

Q: When do you use an inline gear reducer versus a worm gear reducer?

A: Worm gear reducers offer the highest torque-to-dollar value with high ratios in the smallest package. Worm reducers are right angle reducers, where the input/output shafts of an inline reducer are parallel to each other. Inline reducers are used in higher horsepower applications where long-term operational efficiency is more important than initial cost. Inline reducers maintain direction of motion, reduce shaft speed and have higher efficiencies than worms.



Q: What is "Service Factor" for gearing?

A: A multiplier used to adjust a reducer's published mechanical rating to reflect the application load characteristics. AGMA (American Gear Manufacturer's Association) has established standardized service factors by application as shown in the Engineering section of the Grove Gear 8050 catalog. AGMA sets the standard based upon application, duty cycle, prime mover and the number of starts per hour. Service factors are usually between 1.0 and 3.0, with a 1.0 SF equaling a uniform, continuous load up to 10 hours per day.

Quality Corner

Tom Gehrand, Quality Manager

To provide the highest quality products, Grove Gear continues to identify improvement activities.

In January Grove Gear conducted a Standardized Work Kaizen event on an assembly line. The purpose was to create a standard method of assembling to further improve quality and increase productivity. Led by Six Sigma Blackbelts, this two-day Kaizen involved builders, quality and management. As a result, we now have a documented standard work process for the line that we can use as a baseline to continue to improve the assembly process. Over the next two months a number of similar events will take place in assembly until all lines are completed.

Engineering Update

Hani Al'Moghri, Engineering Manager

In 2009 several major projects were completed to gear up for a highly successful 2010. In addition to the finalization of the cast iron unification and aluminum product redesign, several customer service enhancements were made.

An additional person was added to the engineering team, and two new team members will be added in 2010 allowing the department to focus on new business opportunities and projects.

Grove Gear separated the engineering and quality departments to allow a renewed focus on product design and improved product quality.

Solid Works was added as the choice 3D package improving response to drawing requests. Additional drawings will also be created, with the full scope of cast iron products available by the end Q2.