

# KLÜBERSYNTH UH1 6-460 Increases Boston Gear's Productivity

SPECIALTY LUBRICANT PROVIDES PAG TECHNOLOGY, PERFORMANCE AND H1 FOOD GRADE CERTIFICATION



Boston Gear 700 Series Worm Gear Speed Reducer. Robust high-performance industrial grade gear box, designed to meet today's demands in material handling and packaging requirements. Boston Gear uses Klübersynth UH1-6-460 oil to operate efficiently in the most demanding applications.

**B**oston Gear, a global supplier of power transmission products located in Quincy, MA, needed a new lubricant that was more energy efficient, that could be used in multiple applications and that would meet food industry requirements.

Klüber satisfied all of these needs with the introduction of Klübersynth UH1 6-460 to provide polyalkalineglycol (PAG)—also known as polyglycol—technology, high performance and H1 food grade certification in a single product.

There are many considerations for a company trying to penetrate the food packaging industry. Industrial and commercial standards need to be satisfied. These include sanitation, safety and meeting H1 food grade certification. To meet H1 certification, lubricants must be suitable for incidental, technically unavoidable contact with food products. For Boston Gear, these factors were critical to achieving success in the overall food industry.

Boston Gear serves many industrial markets, including food processing, packaging, machinery and material handling. The company provides products ranging from worm gears and variable speed drives to clutches, bearings, shaft accessories and fluid power solutions. Since Boston Gear components are used in a wide range of original equipment and machinery, it is critical for end-use industry standards to be met.

In addition to these standards, equipment needs to be reliable and efficient, with significant uptime and little downtime between services. “As plant operating costs continue to spiral upward, a natural tendency is to cut back on maintenance staff and operating costs,” says Ralph Whitley, director of engineering for Boston Gear. “The less maintenance staff a plant has, the less likely equipment will be properly serviced at the specified intervals. The equipment design hurdle is to ‘design out’ frequent maintenance and obtain maximum operating hours between service intervals.”

A major factor in achieving maximum operating hours lies in using the right lubricant. With the oil Boston Gear was using, its gearboxes were operating at elevated temperatures and lower efficiencies when the application was at Service Factor 1. In pursuit of better efficiency, Boston Gear determined that Klübersynth UH1 6-460 could meet its needs. However, to ensure it was the best lubricant for its particular applications, Boston Gear decided to test it against other oils.

“Our job was to evaluate various lubrication performances,” says Whitley. “H1 was just one piece of the puzzle. We also needed to assess the side effects through extensive lab testing.”

The end result demonstrated that Klübersynth UH1 6-460 outperformed its competitors. “I was just looking to see that the lubricant did not hurt the product and instead we found improvement in our operating temperatures and efficiency,” says Whitley.

Regardless of the gearbox manufacturer, all gearbox suppliers face the possibility of the “end users” pushing the product past the design

continued



Klübersynth UH1-6-460 works well for all of Boston Gear’s applications that require H1 food grade certification (lubricants that are suitable for incidental, technically unavoidable contact with food products).

intent limits. Boston Gear had experienced borderline application problems with gearboxes running inefficiently and hotter than normal. Although Boston Gear didn't think it could resolve the "misapplication" issue, Whitley says, "Klüber helped us regain some of the otherwise borderline type applications." Whitley continues, "Our same gearboxes that were operating at elevated temperatures and lower efficiencies are now significantly improved. We also saw five to six percentage point efficiency gains. When compared to polyalphaolefin (PAO), this polyglycol oil really shined. The gearboxes are running cooler, and there is less power required to operate the system to obtain the same amount of work."

The PAG chemistry in Klübersynth UH1 6-460 is specially formulated to perform under high temperatures typically associated with the sliding action of worm gearing. With machines operating at lower temperatures, it translates into a safer work environment with a much lower risk of employees being lightly burned by touching the external surfaces of speed reducers. Additionally, there is also less power consumption and lower operating costs when units operate more efficiently.

"Some of the biggest benefits of this product are that it's thermally stable, it meets H1 certification and has a low coefficient of friction," says Mark Crombie, Klüber manager of application engineering. "Now, OEMs only have to use one product, rather than inventorying more than one lubricant. It covers many applications."

Klübersynth UH1 6-460 was developed especially for the lubrication of worm gears with steel/bronze pairings and can be used in gearboxes in every industry arena. This lubricant also has a much longer service life than standard lubricants, due to the oil's excellent aging and oxidation resistance and good viscosity temperature behavior.

"It's important to use high-quality lubricants, because they translate into better operating efficiencies of various pieces of equipment," says Whitley. "In the case of worm gear speed reducers, where sliding friction is high, the PAG lubricants minimize the sliding friction to a manageable level, allowing efficient use of power and lower operating temperatures. There are also fewer oil changes, which mean lower operating costs."

Since Boston Gear's test results were all positive, it also decided to share the benefits of Klübersynth UH1 6-460 with its customers.

"Klüber provided a lot of technical data and support to us during the change," says Whitley. "They did a good job train-

ing us up front, and our transition within our factory was very smooth. Since we standardized [and now only specify one lubricant], our customers are very happy. They are telling us it's great to have a product with so many benefits in one package. It reaffirms Boston Gear's position in the marketplace. We are innovative and willing to take advantage of new technology."

Two to three months prior to changing over to the product themselves, Boston Gear educated its customers by providing them with information sheets, highlighting the features and benefits of the UH1 6-460. Boston Gear began using the new lubricant in March 2006, and, since then, approximately 85 percent of its customers have made the switch.

Boston Gear's gearboxes feature a label noting the machines should be refilled with the same product. As an additional service to its customers, Boston Gear will sell Klübersynth UH1 6-460 in one-quart containers.

"Our sales are beginning to penetrate the food market with success," says Whitley. "We plan on staying very close to Klüber. We want to stay as innovative as Klüber and be part of what's next." ■

**For more information:**

Klüber Lubrication North America L.P.  
32 Industrial Dr.  
Londonderry, NH 03053  
Phone: (800) 447-2238  
Fax: (603) 647-4105  
Internet: [www.klueber.com](http://www.klueber.com)



The Boston Gear 700 Series "all stainless steel" worm gear speed reducer is specifically designed to operate in the food industry. Boston Gear uses Klübersynth UH1-6-460 oil to comply with sanitation and health guidelines when operating within the food zone.