

Product Focus:

GEARS AND GEAR DRIVES

In this special news section, the editors of *Power Transmission Engineering* have gathered the latest product news and information from the gears and gear drives sector. Submit your news to publisher@powertransmission.com.

Stöber Helical Gearing

IMPROVES
FACTORY
EFFICIENCY



The PHQ gear drive from Stöber Drives, Inc. of Maysville, Kentucky, is designed to help improve factory efficiency by meeting the need for higher accelerating torque, torsional rigidity and tilting stiffness.

The PHQ is part of Stöber's ServoFit line. Its design is based on a helical cut, four-planet system.

"This design enables extreme requirements to be met efficiently and effectively," says Adam Mellenkamp, ServoFit product manager at Stöber Drives, adding that the PHQ is well suited to applications in robotics, general automation, food packaging, injection molding, tube bending industries, machine tool manufacturing, material handling and many other areas.

Sacrificing torque in order to save on the size of a gear head is a major problem for some factories, but the PHQ is designed to maximize torque in the space allowed. It allows for torque increases of up to 35 percent compared with comparably sized units, Mellenkamp says.

"The PHQ is also reliable due to its life-long lubrication," says Mellenkamp. "Up to an 80 percent increase in torsional rigidity means fewer positioning errors under load and better vibration behavior."

Some factories need the option of customizing gearing units to meet their specific needs. In addition to the PHQ, Stöber offers the PHQA, which possesses the same capabilities of the PHQ in terms of being more compact and increasing torque and torsional rigidity. "The PHQA is a further advanced unit," Mellenkamp says. "It has a tighter tolerance so you can achieve lower backlash."

For more information

Stöber Drives, Inc.
1781 Downing Drive
Maysville, KY 41056
Phone: (606) 759-3615
www.stober.com

Bodine

LAUNCHES WX GEARMOTORS

The new WX gearhead is now available with two 33A permanent magnet DC (PMDC) motors. The WX is a high-torque gearhead built to provide longer life and higher performance than similar gearmotors in the same size range. These gearmotors are designed to drive applications such as conveyor systems, packaging equipment, metering pumps, medical devices, commercial appliances and solar powered outdoor equipment.

The WX gearmotors feature new all-steel gear trains and synthetic lubricants, allowing the WX to produce up to 65 percent more torque than previous models. The steel gearing is designed to meet or exceed AGMA 9 standards to assure quiet operation. The synthetic lubricant improves efficiency and allows these gearmotors to operate in a wide temperature range.

Accessories include a bolt-on adaptor to convert the gearhead to a three-point mounting pattern, as well as an

continued



“L”-bracket for flexible mounting and an IP-44 protection kit. Forty-eight new stock models feature 12 available gear ratios, ranging from 4:1 to 312:1, and rated output speeds from 658 to 2.9 RPM.

A new low-voltage type 33A PMDC motor with a winding rated 12/24 VDC and a standard 90/130 VDC motor are available to power the WX gearhead. Both motors provide high starting torque and linear speed torque characteristics. They feature permanently lubricated ball bearing construction for maintenance-

free operation, as well heavy gauge steel housing and copper graphite brushes. The motors are totally enclosed, non-ventilated (TENV) and contain a Class F rated insulation system. Their windings are resin-impregnated to provide reliable performance in the most demanding applications. The motor armatures are designed to minimize cogging and to operate quietly. “Accessory ready” models allow for easy external mounting of encoders or brakes.

“With ‘green’ applications becoming more and more common, we’re particu-

larly proud that this new line of gear-motors includes so many low-voltage stock models with either PMDC or BLDC winding options,” says Michael Gschwind, vice president of sales and marketing.

For more information:

Bodine Electric Company
2500 W. Bradley Place
Chicago, IL 60618-4798
Phone: (773) 478-3515
info@bodine-electric.com
www.bodine-electric.com

RTX Planetary Gearheads from Sterling Instrument

FEATURE
HIGH TORQUE DESIGN



A new series of RTX precision planetary gearheads from Sterling Instrument feature a high-torque design, and are offered in standard NEMA sizes 60 and 90. These 36 gearheads, identified as the S9160AMRTX and the S9190AMRTX series feature single, double, and triple gear stage configurations, optimized gear geometry, high torsional stiffness and captive bearing-supported input pinion. Plus, they are sealed to extend service life.

Each of the two NEMA sizes is

offered in gear ratios ranging from 4:1 to 700:1. Their maximum input speed is 6,500 rpm. Their single-stage, double-stage and triple-stage minimum efficiencies are 95-, 90- and 85 percent, respectively. Operating temperatures range from -40 degrees C to +121 degrees C. The housings are made of stainless steel, with anodized aluminum mounting flanges. The output shafts are made of stainless steel, and the gears are made of alloy and stainless steel.

Detailed specifications are contained in Catalog D805, available free upon request from Sterling Instrument.

For more information:

Sterling Instrument
2101 Jericho Turnpike
P.O. Box 5416
New Hyde Park, NY 11042-5416
Phone: (516) 328-3300
Fax: (516) 326-8827
www.sdp-si.com/eStore

McGill Lunar Excavator Team

USING ALPHA GEARBOX IN ROBOT

The McGill Lunar Excavator Team at McGill University in Montreal, Quebec hopes to score big at NASA's upcoming 2011 Lunabotics Mining Competition. Wittenstein is pulling for them, as well, with the support of the alpha LP+ which is integrated into their robot design.

This is the second year for NASA's annual competition and the first for McGill's participation. Team members of McGill include Peter Radziszewski (advisor), Mircea-Vlad Rădulescu (project leader), Salman Hafeez (project treasurer) and engineers Benjamin Landon, Kyriakos Moditis, Thomas Friedlaender, Andrew Tawil, Philip Smith, Jad Hachem, Joseph Fruciano, Jerina Harizaj, Annie Wen and Saif Banimalhem.

"We continue to participate in this event because it deals with new unexplored problems encouraging innovative thinking," says Rădulescu.



The challenge McGill and the other teams face is harvesting simulated moon rock, or lunar regolith. The excavation robot must withstand a multitude of real-life expectations in the lunar environment. It must weigh 80 kg or less and collect moon rock in a 15-minute time frame and release it in a specified area. The overall design is crucial and involves much detail and coordination.

The McGill team has designed in an alpha LP+ as part of the drivetrain for their robot. Wittenstein was eager to

hear of this application, which follows the company's philosophy of developing the engineers of the future through interactive education. The team chose the alpha LP+ because of its lightweight and compact design to assist in the operation of their lunar robotic mining vehicle.

Learn more about NASA's Lunabotics Mining Competition (May 23–28, 2011 at Kennedy Space Station) at www.nasa.gov/lunabotics/.

Rexnord

OPENS GEARBOX REPAIR FACILITY IN SALT LAKE CITY

Rexnord Industries opened a fully renovated, 29,000 sq. ft. gearbox repair and remanufacturing facility in Salt Lake City in January. The facility is part of Rexnord's Falk Renew Prager product services, which repairs or rebuilds gearboxes of all makes, brands and sizes.

"Rexnord's gearbox repair services offer our customers cost-effective solutions when downtime is critical and long-term reliability and peace of mind are a must," says Mike Stofferahn, vice president, Rexnord product services—sales and

marketing. "Our services not only extend drive life, but also enhance operating performance and lower the total cost of ownership for our customers."

The new facility will operate with fully authorized and trained Rexnord technicians and field support personnel who have a combined experience of more than 75 years.

"Our customers expect Rexnord to deliver top-of-the-line performance, day after day. With over 100 years of gearbox manufacturing, repair and service experience, we deliver," Stofferahn says. "As an OEM, Rexnord utilizes OEM-quality components and the same testing methods for repaired or rebuilt gearboxes as we do for newly manufactured drives. Our expansion to Salt Lake City enables us to provide exemplary service to our custom-

ers in thriving industries in the area, such as mining, coal and power generation."

The facility will join additional Renew locations near Milwaukee and New Orleans. Rexnord's gear business serves a variety of industrial customers worldwide, including mining, aggregate/cement, wood/paper, construction, energy, food and grain, and chemicals.

For more information:

Falk Renew Prager
1930 South 4650 West
Salt Lake City, UT 84104
Phone: (801) 887-5480 or
(888) 439-7961
Fax: (801) 887-5485
FalkRENEW@Rexnord.com

Global Gears and Drives Market

TO REACH
\$94 BILLION BY 2015

Global demand for gears, drives and speed changers declined in 2009, owing to the global economic downturn that had a negative impact on end-use markets, specifically the automotive sector.

Notwithstanding the impact of recession, the global market for gears is expected to surge in the following years, according to a new research report from Global Industry Analysts. Several factors, such as revival in the manufacture of motor vehicles, increased manufacturing output and economic recovery are expected to play a major role in market growth. Overall, the future gears market would be driven by increasing demand for reliable power, ever-increasing value in torque-per-dollar

spent, smaller physical sizes and more energy-efficient transmission systems.

Additionally, end-users are increasingly switching to energy-efficient, expensive systems such as 7-speed and 8-speed transmission, a trend that is expected to add impetus to market growth. Recovery is also expected to emanate from the industrial sector. Demand is expected to receive a boost from growing markets such as solar and wind energy. Growing concerns over energy security and environmental issues are fueling interest in wind energy, which translates into increased demand for wind turbines, and consequently the gearboxes used in them.

Europe represents the largest regional market for gears, drives and speed changers, accounting for more than 30 percent share of the global market, according to the report. The United States trails Europe in terms of sales of gears, drives and speed changers. Growth-wise, Asia-Pacific is projected to be the fastest growing regional market, and is poised to increase at a compounded annual growth rate of more than 5 percent during the next few years. Major factors driving growth in the Asia-Pacific market include dramatic growth in the Chinese and Indian automobile markets, creating significant demand for automotive gears in the region.

In terms of end-uses, automotive represents the largest end-use sector and is likely to remain the dominant source of gears' demand globally due to the recovery in motor vehicle production. Major developments influencing the industry include alternative materials for the production of automotive parts such as aluminum and industrial resins, and growing application of powder metallurgy. Other end-use segments including aerospace, marine and industrial applications are likely to remain a stable source of demand.

Development of new technologies in the manufacturing and end-use sectors is redefining the gears and drives landscape. Integration of computers and computer enabled designing and manufacturing technologies into gear manufacturing methods has created improved and new types of gears that are suitable for diverse applications.

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Tooth contact analysis, CNC controls, computer-aided design, and advanced metrology techniques are some of the technologies that heavily influenced the market in recent years. These technologies have expanded the range of applications for gears as well as the range of materials used to produce gears.

Major players profiled in the report include ABB Ltd., Bonfiglioli Group, BorgWarner Inc., Bosch Rexroth AG, Curtis Machine Company, Dana Corp., Danfoss Group, Eaton Corp., Emerson Industrial Automation, FLSmidth MAAG Gear AG, Haley Marine Gears Inc., Horsburgh & Scott, Hub City Inc., Rexnord LLC, Rockwell Automation Inc., Siemens Energy and Automation, SEW Eurodrive GmbH, Tomkins PLC, Twin Disc Inc., and ZF Friedrichshafen AG.

The report, titled "Gears, Drives and Speed Changers: A Global Strategic Business Report," provides a comprehensive review of the gears, drives and speed changers markets, impact of recession on the market, current market trends, key growth drivers, recent product introductions, recent industry activity, and profiles of major/niche global as well as regional market participants. The report provides annual sales estimates and projections for the gears, drives and speed changers market for the years 2007 through 2015 for the following geographic markets: United States, Canada, Japan, Europe, Asia-Pacific, Latin America, and the rest of world. Global and regional data are also analyzed for the following end-use sectors: automotive, industrial, marine, aerospace and others. A historic review for the period 2001 through 2006 is also provided.

For more information:

Global Industry Analysts, Inc.
 Phone: (408) 528-9966
 Fax: (408) 528-9977
press@StrategyR.com
www.StrategyR.com

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