

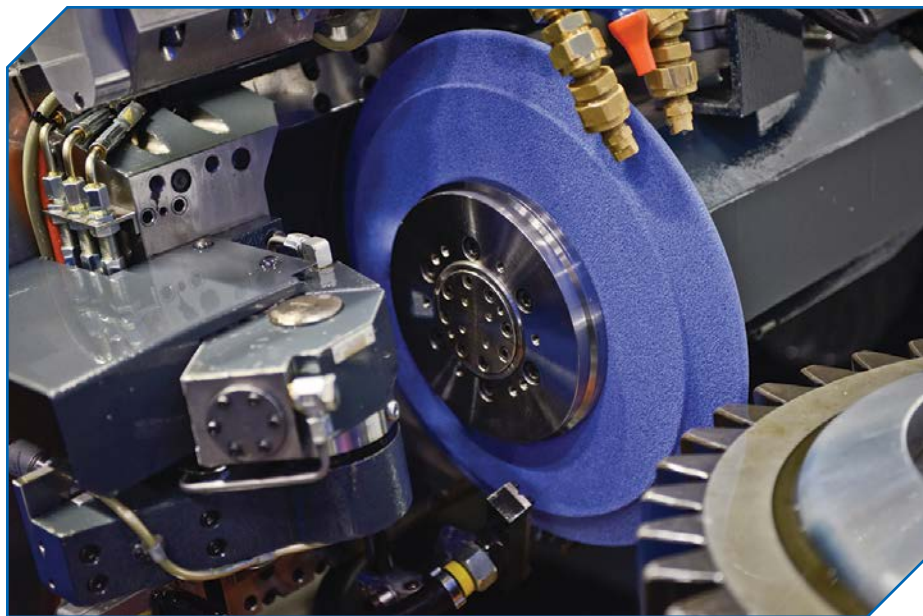
3M

OFFERS CUBITRON II
CONVENTIONAL WHEELS
FOR GEAR GRINDING

3M Abrasive Systems is introducing 3M Cubitron II conventional wheels for gear grinding, giving engineers new tools to take the manufacturing processes to the next level of productivity. These gear grinding wheels are the result of incorporating both 3M's precision shaped grain and state-of-the-art bonding systems, which enable a new dimension of gear grinding performance—helping achieve consistent, high quality finishes and tight geometry tolerances, part after part, while increasing the efficiency and productivity of manufacturing operations.

In 2009, 3M launched the first Cubitron II brand coated abrasive product incorporating 3M precision shaped grain technology. "Customers found tremendous improvement in processing speeds and product life, making it one of our most successful product launches ever," said Dan Cunningham, director sales and marketing, 3M Abrasive Systems. Since that time 3M has begun to extend their precision shaped grain technology into their bonded abrasive products, providing similar benefits. "We're very proud to introduce these new bonded products to our Cubitron II family."

Last year's introduction of the Cubitron II bonded abrasives containing 3M precision shaped grain represented a major transformation of the grinding process. Now, the launch of Cubitron II bonded abrasives for gear grinding is



giving engineers a broad range of benefits in gear grinding, including increased throughput, less wheel dressing, a dramatically lower risk of burning, extended wheel life and consistent grinding performance.

This level of performance is made possible by combining the benefits of state-of-the-art bonding systems with the precision shaped grain technology pioneered by 3M. While conventional ceramic abrasive grains tend to "plow" through metal, resulting in a slower cut and shorter wheel life, the precision shaped grains of Cubitron II continuously fracture as they wear, forming sharp points and edges that slice through metal, wear evenly and provide super-long life and consistency under normal grinding pressure. "By traditional standards, grinding generally refers to machining with undefined cutting edges, while turning and milling utilize defined

cutting edges," says Walter Graf, global segment leader, 3M Abrasives Division. "The grain in 3M Cubitron II abrasives turns this definition on its head!"

For the first time, a grinding wheel can claim to be made up of "geometrically defined cutting edges," as each and every grain is exactly the same engineered shape. By looking at the resulting "flowing" chips from these new grinding products, it might be more appropriate to talk about the process as "micro-milling" rather than grinding. These free-flowing chips no longer clog up the grinding wheel and, therefore, the grinding wheel remains free-cutting without loss of cutting ability. In repeated tests, this has shown to drastically reduce the risk of burning and to give consistent and predictable results.

"The tests aren't perfectly created scenarios, either – we're talking about long-term trials under production conditions that have shown grinding times being cut, in most cases, by at least 50 percent in comparison to grinding wheels made of standard ceramic abrasives," continued Graf. "You can see why we're so excited!"

The initial family of Cubitron II gear grinding wheels includes products available in single rib, threaded and spiral bevel configurations.

For more information:

3M
Phone: (888) 364-3577
www.3M.com



Liebherr

INTRODUCES LGG 180

Liebherr's new LGG 180 machine for profile and generating grinding combines short grinding times with consistent high large-scale production quality, thanks to a one-table design. The advantage to the one-table solution is higher quality throughout the entire production. Every machined part is manufactured under the same conditions for the highest reproducibility, said Dr.-Ing. Andreas Mehr, grinding and shaping technology development and consultancy at Liebherr-Verzahntechnik GmbH. "A key argument in favor of the one-table solution is the statistical capability and reliability in continuously producing controlled μ -range finish quality," Mehr emphasizes.

The new grinding head allows for rotation speeds up to 10,000 rpm and has spindle power of 35 kW. Given this performance data, the head enables high cutting speeds and high feed rates. The new grinding machine can exploit the

considerable potential of the innovative abrasive Cubitron II. The machine will enable undulations to be applied specifically to gear wheel flanks for noise optimization purposes for the first time. The ability to produce sub- μ range waviness cost-effectively gives designers a whole new range of optimization options.

Production advantages

The LGG machine delivers fast processing combined with the set-up advantages of a one-table solution. In addition, the machines for both 180 mm and 280 mm gears have the same compact external dimensions, facilitating installation within production lines. "Vehicle manufacturers can thus develop a complete production line, in which all gearing components for a passenger vehicle transmission can be ground: planetary and sun gears, bore-type gears, as well as drive

and pinion shafts with lengths up to 500 mm. In order to minimize any thermal impacts, the machine bed is of a thermally stable material. The core of the machine is the newly developed grinding head. Conventional solutions have been chosen here in several areas in order to be prepared for yet higher quality requirements.

For more information:

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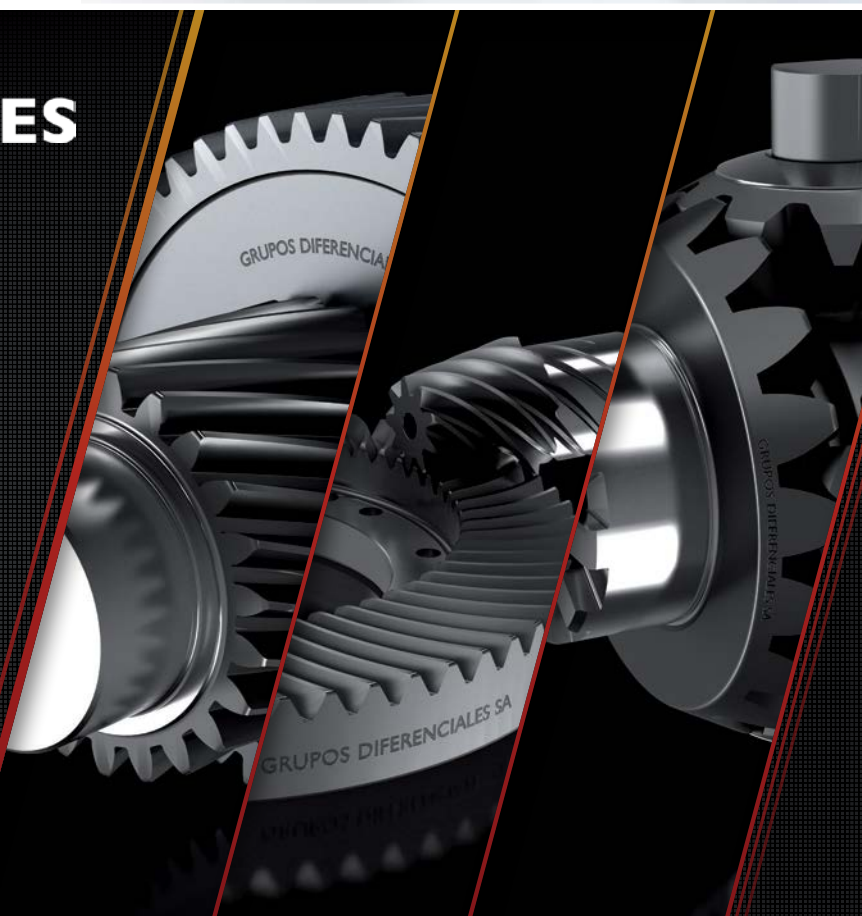
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Gleason Corp.

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Complete Power Skiving Solutions

Gleason Corporation has announced their complete set of Power Skiving solutions, providing an economical process ideally suited for the production of internal gears, and for all gears with interfering contours and features. By combining unique machine, cutting tool, and Power

Skiving process expertise, Gleason offers users significant performance improvements, particularly in operations where shaping, forming, pressing and broaching are typically used. As compared to shaping, for example, Gleason Power Skiving Solutions can deliver productivity rates as much as eight times higher. The Gleason Power Skiving process



additionally delivers quality levels that are superior to other soft machining processes, with the potential to be used as a 'green' finishing operation.

Built on proven Gleason machine platforms with models available for work pieces as large as 700 mm in diameter, Gleason Power Skiving machines utilize extremely rigid guideways and specially designed spindles with oversized diameters and more rigid bearings. Easily integrated into production lines, a large selection of peripheral equipment provides users with the ideal solution for any production volume and lot size.

Gleason provides the cutting tools and the Power Skiving process, helping to deliver significantly better part quality and surface finishes than shaping. Profile modifications as well as a tooth tip chamfer can be built into the cutter while lead modifications are realized by additional movements of the machine axes. The cutting cycles can be modified for aggressive roughing and fine finishing maximizing both productivity and quality. Profile, lead and tooth thickness can be corrected according to the results shown on the inspection charts.

Comprehensive Power Skiving Technology Software enables users to easily simulate the entire cutting process and plan the most effective process strategy. Users can analyze the influence of different cutting tool geometries and process parameters. The Technology Software allows you to decide if a given part can be safely and economically power skived or whether it would be better shaped, making Power Skiving as simple and familiar as shaping.

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Gleason 1500GMS

Gleason Corporation's 1500GMS Analytical Gear Inspection System has been updated to deliver improved inspection speeds and offer many new features to meet the widest range of inspection tasks for gears and non-gears as large as 1,500 mm in diameter.

Among the many new design options now available on the new 1500GMS is its ability to include surface finish measurement as part of the normal gear inspection process. Typically, this inspection procedure is performed offline with other dedicated, expensive equipment requiring time-consuming setups which also require additional periodic calibrations and preventative maintenance schedules. Instead, the 1500GMS saves precious time by inspecting multiple traces on any number of gear teeth using a motorized rotary probe system adapted to the existing SP80H 3-D scanning head. A wide range of surface finish inspection parameters are possible, with programming for the operation incorporated right into the 1500GMS' popular



GAMA suite of applications' software. The new 1500GMS can also perform increasingly important Barkhausen noise testing to detect grind burn as just another routine step taken during the course of normal gear inspection. The 1500GMS uses proven Stresstech Rollscan 300 Analyzer technology integrated into the platform to save the time and setups usually required to perform Barkhausen off-line on other equipment,

and eliminate the additional requirement of Nital Etching.

The new 1500GMS now supports non-gear metrology as well, through use of the Gleason-Capps prismatic measurement software platform, making it ideal for the inspection of any rotationally symmetrical workpiece that requires high accuracy inspection of features common to all types of gears.

These include characteristics like bolt-hole patterns, tapered bores and their relationship to the gear faces, diameters, lengths, etc. This option is available in three levels of sophistication, from simple self-taught routines to full CAD based programming from full 3-D models. This new capability greatly enhances the overall capability of the machine and allows the inherent accuracy of an ana-

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lytical gear inspection machine to carry over into coordinate metrology applications.

These enhancements are available on all nine standard models of analytical gear inspection systems from Gleason Metrology Systems.

Phoenix 280G

The new Phoenix 280G bevel gear grinding machine establishes a new benchmark for bevel gear grinding for gears up to 280 mm in diameter with a design that's reliable, highly productive and easy to operate and maintain. There are no rails, wires or pipes in the work chamber to collect swarf, keeping the chamber clean for low preventive maintenance. In addition, the machine offers rapid set-up and all major set-up items can be completed without tools, including the grinding wheel, coolant header and workholding. The coolant header has small blocks that can easily be swapped out by hand, while the grinding wheel can be released hydraulically. Some of the other significant features of the Phoenix 280G include:

Reliability – A well-designed work chamber ensures optimum swarf evacuation. The wheel dresser, for example, telescopes completely out of the work chamber to reduce the wiring/piping typically found there. The tool-less, quick-change coolant header design features a laser guidance device that makes part-to-part pipe alignment more effi-

cient and repeatable when compared to manual alignment.

Productivity – High-speed direct-drive spindles combine with quick-change wheel, arbor and coolant header designs and automatic stock dividing (simultaneously with wheel dressing) to deliver faster floor-to-floor times.

Accuracy – Featuring the extreme rigidity of the Phoenix monolithic column, cast from advanced polymer composite material to achieve very high thermal stability and damping characteristics.

Easy to operate and maintain – Powerful Fanuc 30i or Siemens 840D CNC controls, along with Gleason's user-friendly software, empower even less experienced operators; Phoenix design simplifies installation, integration with robots and gantry-type automation, and maintenance.

Automatic stock divider– The 280G's Automatic Stock Divider, mounted in close proximity to the work spindle, helps ensure consistently high gear quality. The unit automatically determines the tooth slot position of the pre-finished gear to provide accurate and reliable stock division, helping eliminate operator errors.

For more information:

Gleason Corporation
Phone: (585) 473-1000
www.gleason.com



EMAG

OFFERS NEW TECHNOLOGIES AT WESTEC AND SOUTH-TEC

Forecasted growth rates of 6.3 percent in sales of automobiles in the USA clearly demonstrate one thing: that the USA is and will remain one of the most important trading partners for Germany and German industry. The USA is traditionally an important market for EMAG. This is emphasized by the fact that EMAG has been present in Farmington Hills, Michigan, for many years now. Thanks to the deep roots that EMAG has in the USA, it is not only an important employer in the region near the "Motor City" of Detroit, but it is also a reliable business partner for numerous companies throughout North America. Many of EMAG's machines were recently demonstrated at trade shows including Westec and South-tec including:



VL 2-P

Workpieces up to 100 mm in diameter can be machined on the VL 2-P with short cycle times. While there is a pause on other machines to allow the workpiece to be changed, the next workpiece is directly ready to machine on the VL 2-P. The key is that 2 spindles are used and these load themselves alternately while the tool turret swings between the machining positions. When machining is completed on one spindle, the tool slide moves to the second spindle to start a new machining process. Loading and unloading of the spindles which now occur in parallel with machining are virtually eliminated from the machining process and reduce idle times to an absolute minimum.

VT 2-4

The vertical, 4-axis pick-up-turning machine VT 2-4 allows machining of shafts with a length of up to 400 mm and a diameter of up to 100 mm. Our consistent demand for maximum productivity is demonstrated by integration of the automation solution whereby the machine loads itself with raw parts using workpiece grippers. It takes approximately six seconds to change the workpieces and this thus leads to short idle times and, consequently, lower component costs. The actual turning process for which two tool turrets, each with eleven tool positions, are available (fitted with turning tools or driven tools) is performed at a speed of 6,000 rpm in extremely short cycles.

VL 2

The VL 2 vertical pick-up turning machine is just the right choice for machining chuck parts with a maximum



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diameter of up to 100 mm and a length of up to 150 mm. At the same time, the VL 2 offers a whole range of clever design details and hi-tech components. These include the pick-up spindle which loads itself with raw parts from the integrated conveyor belt and the tool turret equipped with 12 tool positions which allows diverse machining scenarios. The machine body made of mineralite polymer concrete ensures high strength and excellent vibration damping which is indispensable particularly when machining small chuck components.

VL 5i

Be it small or large series production, the EMAG VL 5i is the ideal manufacturing solution for turned parts up to 250 mm. The VL 5i is an interesting manufacturing solution above all for small- and medium-sized component producers, thanks to its excellent characteristics (e.g. short retooling times and fast programming). An automation system functioning on the basis of the drag-

frame principle is integrated to round off the equipment features. This automation system, combined with the pick-up technology from EMAG, is the basis for the high productivity of the VL 5i. The workpieces are conveyed to the inside of the machine via the revolving automation system. The pick-up spindle loads itself there and it also deposits the finished workpiece back on the conveyor after machining. The advantages are obvious: the revolving automation system allows simple and very reliable loading and unloading of the parts, while the self-loading spindle ensures maximum machining reliability since clamping errors are virtually completely eliminated.

For more information:

EMAG LLC
 Phone: (248) 477-7440
www.emag.com

Schunk

INTEGRATES GRIPPERS WITH SENSING TECHNOLOGY

Schunk has enlarged its number of available sensors for the modular system of grippers with the new OAS sensor. When grippers such as the PGN-plus and the MPG-plus are equipped with an integrated distance and presence sensor, both modules quickly transform into seeing grippers without needing an expensive vision system. The optical system can be directly integrated into the gripping center and continuously supplies the control unit with information, such as measuring the distance of the gripper to the component. This is done during the process without any loss of time. With the OAS, PGN-plus and MPG-plus grippers can differentiate components, recognize position, pick parts from a running belt, detect wrongly gripped components, and increase the reliability of the gripping operation.

The optical sensor works with infrared light at a wavelength of 850 nm. It functions at environmental temperatures between 14° and 131°F, and fulfills the standards for protection class IP65. The sensor module is multi-functional, and can also be combined with other grippers and automated modules. For example, it can be used for analog position monitoring of long-stroke grippers, by integrating it in one of the two base jaws. Combined with grippers and rotary modules, the sensor can be aligned inwards instead of outwards, which assures piston monitoring.

For more information:

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Sodick LAUNCHES EDM MACHINE

Sodick, Inc. hosted their Smart Technology Event on Oct 3-4. The event was located at their corporate headquarters in Schaumburg, Illinois, and brought in over 200 attendees. The event aimed to introduce visitors to a new range of rigid, linear motor driven wire EDM machines and a new electrode machining center. An SL Series wire EDM machine was launched at the event. The SL Series features four models in two specification levels SL-G and SL-Q. The SL600G Wire EDM was displayed during the event. This machine is a rigid linear motor driven EDM that is coupled with glass scales on the X, Y, U and V axes, ensuring the highest possible precision and positioning accuracy. The rigid linear motors have the optimum flat design and come with a 10-year positioning accuracy guarantee.

The SL600G has an X, Y, Z travel of 23.62"×15.75"×13.78" (600×400×350 mm). Wire diameter can range from .002" to .012" (.05 to .30 mm). The machine can accommodate workpieces up to 2,204 lbs (1,000 kg). Amongst the many new enhancements on the SL Series is the new

Sodick Control SPW (Smart Pulse Wire), which uses the Windows 7 operating system and functions similar to a tablet. The operation screen can switch between the traditional Sodick screen and the new tablet style screen to suite the operators preference. Additionally, a new Smart Pulse Generator reduces the number of cuts and time it takes to achieve the target surface finish. Resulting in up to a 40% time savings compared to previous models.

The new TT1-400A was also introduced at the Smart Technology Event. Although the TT1-400A concept was first shown at IMTS 2012, the latest version of the machine was highlighted during this event, and is now available to the US market. The TT1-400A is a high speed electrode machining center designed for precision graphite and copper electrode machining; it uses a 40,000 rpm high torque high speed HSK-E25 spindle.

For more information:

Sodick Inc.
Phone: (847) 310-9000
www.sodick.com



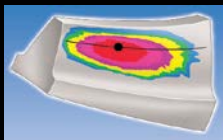
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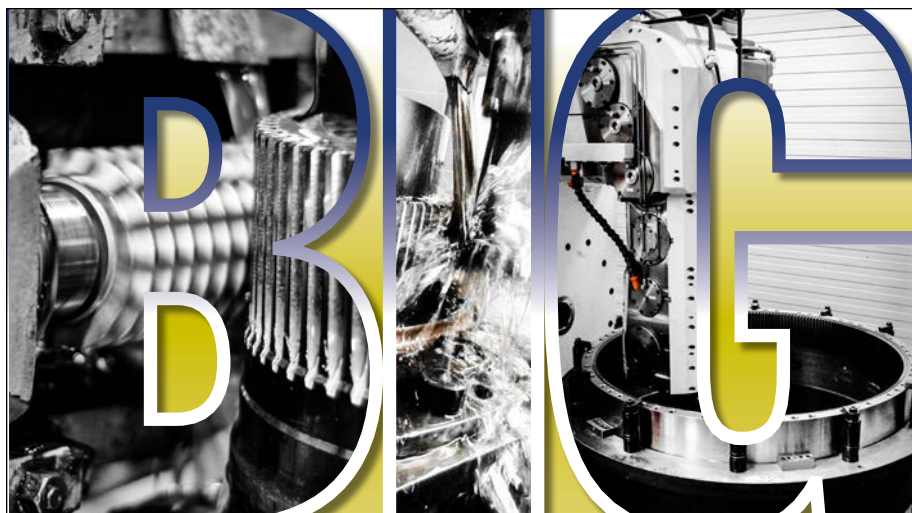


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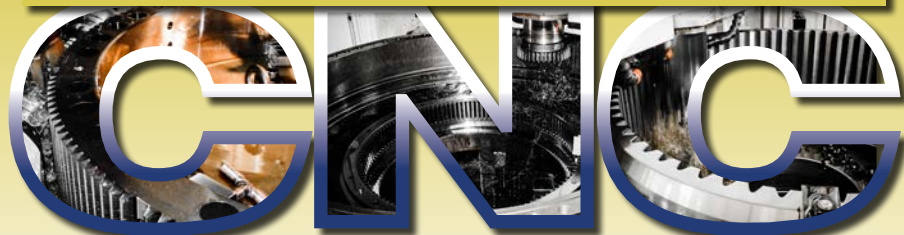
Rexnord

MANUFACTURES LARGEST FALK RING GEAR

Rexnord has completed the manufacture of its largest Falk ring gear in weight and horsepower — 250,000 pounds (113,000 kilograms) and 24,000 horsepower (18 megawatts). In terms of weight and horsepower, the ring gear is also one of the world's largest. This six-part ring gear will be used to refine material in a gold mine in the Southwestern United States. The



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order was placed in March 2012.

With manufacturing beginning in April 2012, numerous Rexnord associates — almost 100 — took part in making this giant gear a reality. “From engineering, through the foundry and the machine shop, Rexnord associates have worked efficiently with the customer to produce a high-quality, high-power gearing solution,” says Dave Olson, Director, Commercial Operations, Mill Products. “Through this tremendous accomplishment, we are demonstrating our company’s expertise and dedication to the industry.”

Gear fast facts:

- Bore size: 443 inches (11,252 millimeters)
- External diameter: 522 inches (13,259 millimeters)
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- Tooth spacing tolerance: .0016 inches (.04 millimeters)

For more than 100 years, Rexnord Falk Mill Products have provided high-quality solutions for a diversified range of industries. With a base of more than 5,000 installed ring gears and pinions, Rexnord Falk Mill Products provide solutions for some of the world's most rugged applications. You can find Rexnord Falk Mill Products in the mining, cement, automotive, construction, manufacturing, paper and power generation industries.

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