NUM

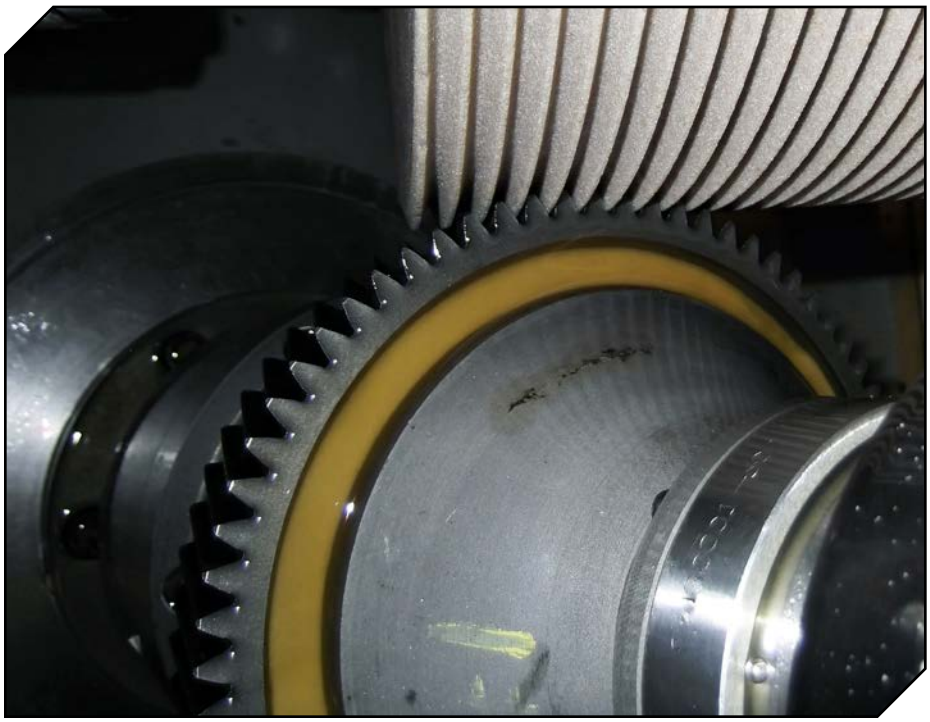
ANNOUNCES CNC SOLUTION FOR GEAR PRODUCTION

NUM has announced a high-performance CNC solution for gear production machines that fully automates threaded wheel grinding. Incorporating unique high-speed gear alignment technology that is believed to be an order of magnitude faster than comparable control schemes, the new CNC system dramatically reduces grinding machine threading-in times to accelerate throughput significantly. The comprehensive new solution is suitable for machine tool manufacturers seeking to improve the performance of their gear production machines, or to help companies expand their gear manufacturing range with threaded wheel grinders.

Based on NUM's new-generation Flexium+ CNC platform, the threaded wheel grinding solution joins the company's *NUMgear* suite of gear production software. Originally developed for gear hobbing applications, the capability of *NUMgear* has been continually extended and now includes solutions for a broad range of gear manufacturing processes, including shaping, grinding and honing, and is used by many of the world's foremost manufacturers of gear production machines.

NUM developed the latest addition to its *NUMgear* portfolio while helping an Asian gear manufacturing machine company to improve the performance of a prototype threaded wheel grinder. To improve grinding speed compared with current levels, NUM decided it needed to develop custom technology software. The principal aims were to reduce the time overhead of learning the teeth positions of the hardened gear prior to grinding, and improve the accuracy of the gear grinding process.

NUM's new product offers a comprehensive CNC solution for gear manufacturing machines. At the heart of the system is a high performance electronic gearbox that allows all master axes – such as the grinding, X, Y and Z axes – and the spindle (C axis) to be fully synchronized. As part of the development work on the new threaded wheel grinder, NUM has added a major new capability to the gearbox, which is now able to predict the acceleration of axes as well as their speed, in order to minimize synchronization time. Together with the Fast Gear Alignment, it forms part of the new *NUMgear* threaded wheel grinding application.



During gear production, "threading-in" – the process of bringing the grinding wheel into contact with the gear blank – involves continuously adjusting the position of the grinding wheel relative to the workpiece. A similar process is employed when bringing the machine's dressing wheel into contact with the grinding wheel. Using acoustic emission sensors to learn the sound signatures of a master gear and then using them to control positioning during production runs is a common technique for automating processes like this. However, the speed and accuracy of NUM's newly-developed Fast Gear Alignment Function eliminates the need for this entirely. As an example, aligning the grinding wheel with a 180 mm diameter gear with 71 helical teeth takes just 0.5 of a second – without any need to acquire acoustic signatures or make manual adjustments.

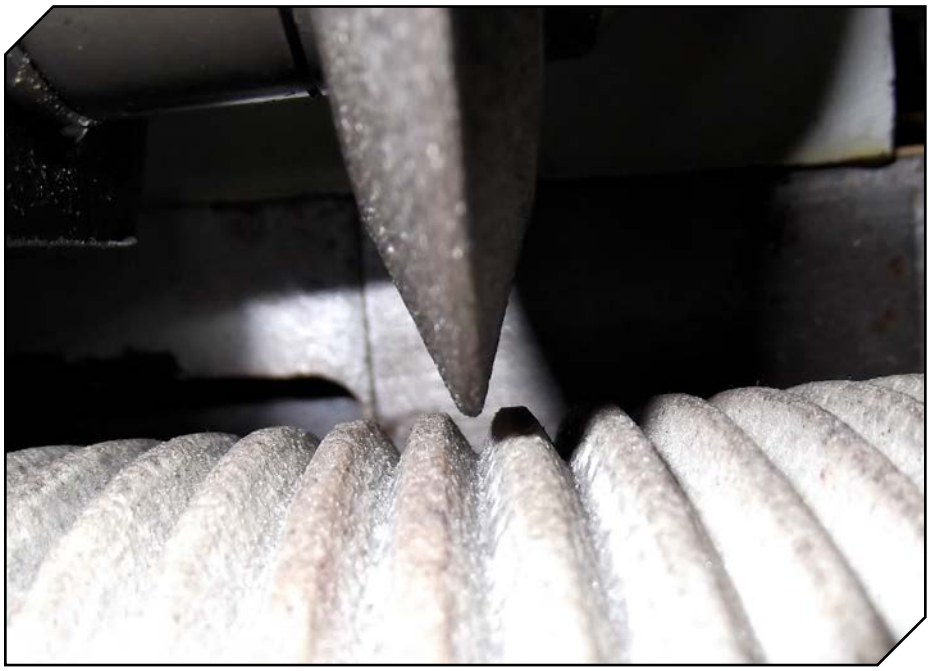
A second aim of NUM's development required that the gear grinder CNC control should generate gears as accurately as possible. The latest machine from NUM's Asian customer produced gears with a tooth profile quality of DIN class 7. During the development process, NUM found that the diamond plated dressing wheel did not come up to specification. To overcome this problem without incurring major tooling costs, NUM decided to support their customer by helping to modify the technology programs. The positive results of this action far exceeded expectations, and NUM's solution can help a machine to consistently grind gear teeth profiles to within 3.5 microns, comfortably achieving DIN class 3 – an improvement of four class levels.

The latest gear grinding development is an example of one of the major principles underpinning NUM's business philosophy: a willingness to customize its CNC technology for machine makers. NUM supports this with a decentralized

R&D structure which locates engineering staff around the world to allow it to work closely with machine builders. In this case, the new gear grinding solution was jointly developed by NUM's HQ in Switzerland and the company's technology centre in Changzhou, China, which is close to many major gear manufacturing machine builders and is currently undergoing major expansion.

"NUM is committed to helping its customers develop market-leading machines through close partnership," according to Peter von Rüti, CEO of NUM Group. "Our local presence and willingness to work directly with customers to resolve technical issues very quickly provide both parties with a key competitive advantage."

For more information:
NUM Corporation
Phone: (630) 505-7722
sales.us@num.com
www.num.com



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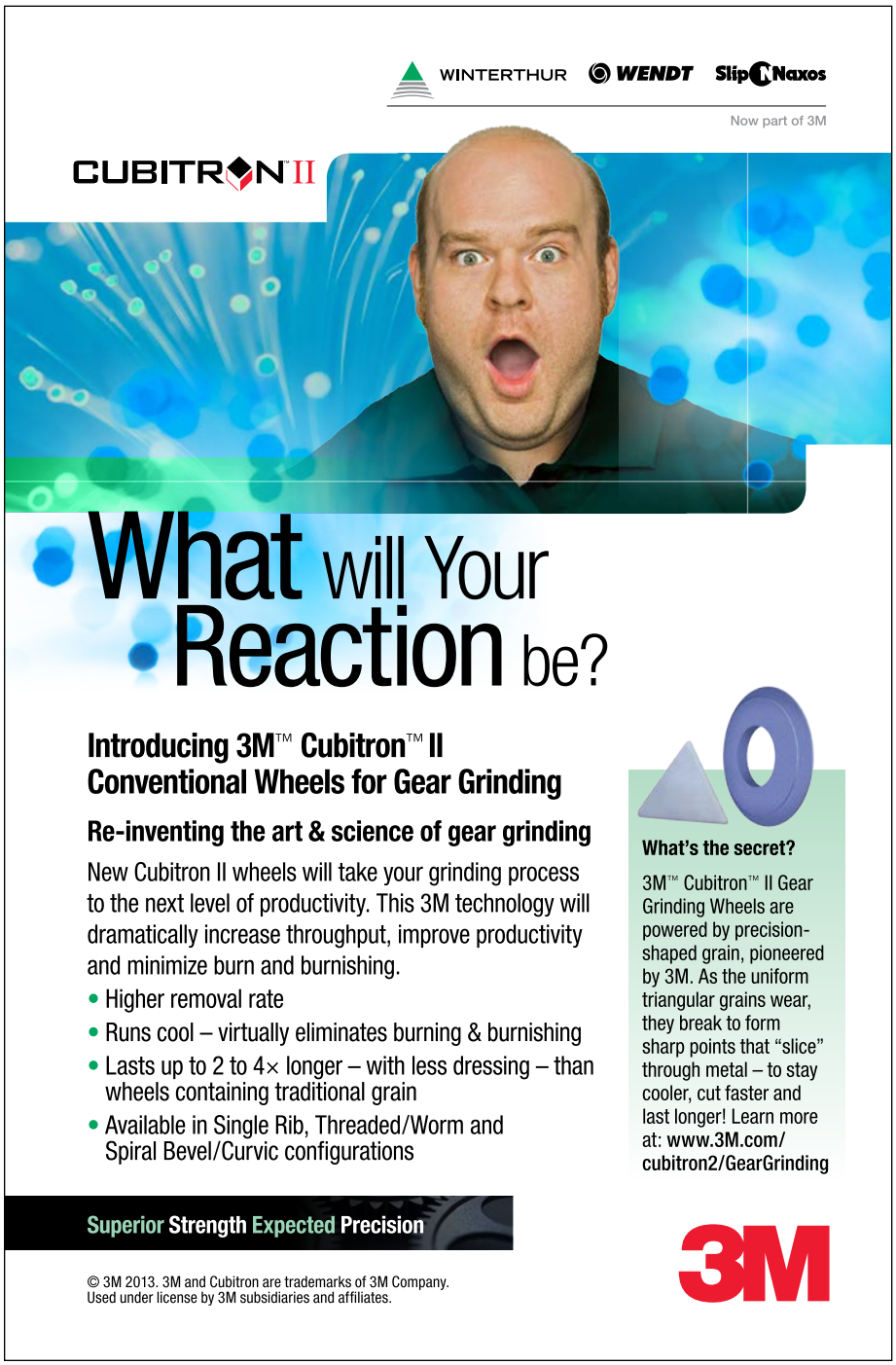
Coord3

INTRODUCES BENCHMARK CMM

The new Benchmark CMM from Coord3 offers a high performance budget CMM with the added benefit of a small footprint. The unique "half-gantry" advanced alloy design has its X and Y axes at the same level, providing increased rigidity and offering a metrology platform for high accuracy small and medium part CMM inspection. The open structure Benchmark provides suitable ergonomics for the inspection of high volume production parts or single part inspection in the smaller manufacturing operations. Its compact size is suitable for production CMM or quality room applications and fits through a standard door width. The full air-bearing Benchmark CMM, with accuracy of 2.5 microns and a measuring volume of 500 mm ×400 mm ×440 mm comes standard with a Renishaw touch-probe. Benchmark is available in manual or CNC configurations. Manual units can be upgraded to full CNC in the field at a later date, offering a two-phase investment in CMM technology. The CMM can be used in job shops and can also be used as a programmable production gage. In addition, optional wireless thermal compensation allows the Benchmark to measure accurately in shop conditions. This Benchmark CMM is equipped with *TouchDMIS* software for CMM usability, offering the world's first all *TOUCH CMM* software with full CAD capability. *TouchDMIS* requires just a few hours of training and an incredibility short learning curve.

For more information:
Coord3 Metrology LLC
Phone: (855) 4-COORD3
usa.sales@coord3-cmm.com
www.coord3-cmm.com



Dillon

PROVIDES SOFT BLANK TOP JAWS

Soft blank top jaws from Dillon Manufacturing, Inc., provide a smooth gripping surface, low T.I.R. (Total Indicator Reading), and have greater holding power due to increased part contact. The smooth jaw surface leaves little or no markings on the finished surfaces. Available in 1018 steel, and 6061 aluminum, as well as 4140, 8620 and A2, brass, Delrin, or stainless steel to suit virtually any CNC or manual chuck project involving turned or bored parts. Dillon soft blank top jaws can be removed and later reused for the same operation, or machined to grip an altogether new part, until the blanks are consumed, making them ideal for machine shops which routinely handle parts with different shapes and geometries. The soft blank top jaws can be custom bored, turned, or shaped. A shoulder can be machine to provide a locating stop for parts to gain close tolerance repeatability for the parts length and depth. They may be left soft or heat treated if the material is steel, depending upon project and quantities machined. Dillon soft blank top jaws are suitable for second operation finishing work such as shafts, gear blanks, wheel hub, and bearings.

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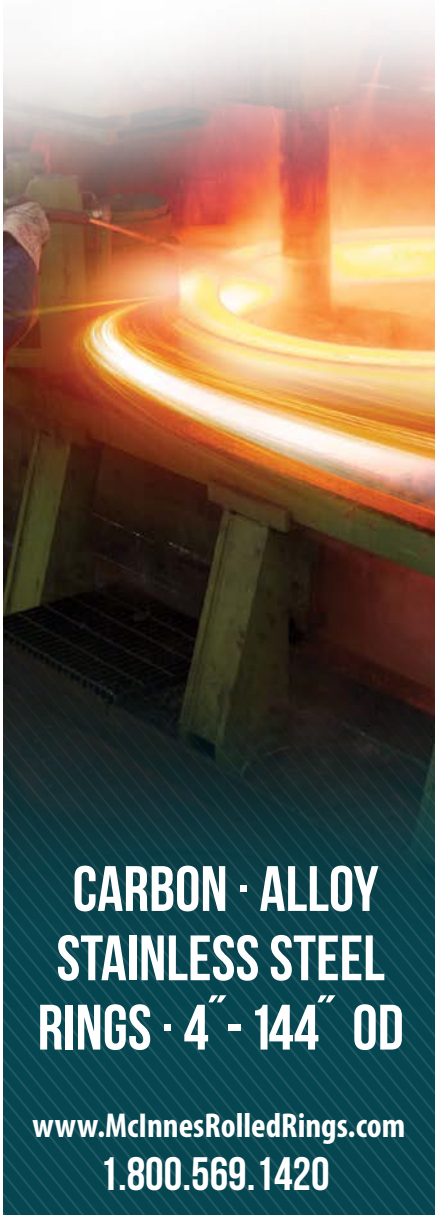

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Northfield Precision

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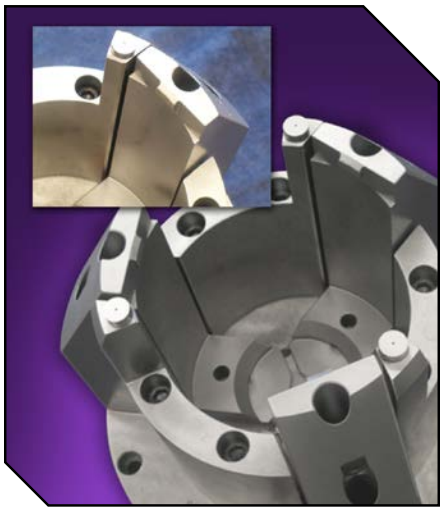


Northfield Precision Instrument Corporation introduces their Model 1000 sliding jaw air chuck. This air chuck, with 0.0001" TIR, has a special top tooling and axial locator. This particular air chuck was custom designed for a gaging company that needed to grip a small area of a large casting so they could check OD runout of their part. Special, tall top jaws are diamond-coated for a secure grip on the casting. An axial locator with button pads is used as a resting surface for the part's flange while swallowing the rest of the part. Northfield Precision designs and manufactures air chucks for any lathe, boring machine, grinder or VMC. Models include through-hole, high-speed and quick-change. Chucks are available in SAE or metric, in sizes from 3" (76 mm) to 18" (457 mm). Accuracies of 0.001" to 0.00001" (0.254 m) are guaranteed. Custom workholding chucks and jaws are available and free engineering assistance is offered.

For more information:
Northfield Precision Instrument Corp.
Phone: (516) 431-1112
info@northfield.com
www.northfield.com

IDC Industries

INSTALLS NILES ZP24 GEAR GRINDER

IDC Industries is installing their new Niles ZP24 gear grinder. This new machine, the largest of its type in Michigan, will allow IDC to better serve their customers in the steel, mining and paper manufacturing industries worldwide. IDC repairs, rebuilds and manufactures new gears and reducers from their new facility in Clinton Township, MI. The new Niles ZP24 grinder is capable of grinding internal and external gears over seven feet in diameter, and includes on-board gear inspection.

This machine can also grind worms sectors and cutting tools. Jamie Pangborn, president of IDC Ind., said, "The Niles ZP24 represents the state-of-the-art in gear grinding. It fits perfectly with our growth plans and our ability to provide solutions to our customers in a wide range of industrial markets." In addition, Pangborn commented, "Clinton Township has been very supportive and helpful in our business development since our move here in 2012. We anticipate continued growth through all of 2014 and beyond."

IDC Industries, Inc. was established in 1968 to provide industrial drive components such as pulleys and gearboxes. It soon evolved to rebuilding gear reducers as a response to customer requirements. Now, IDC engineers and builds new gearboxes, open gears and rebuilds customer units for virtually any large industrial application.

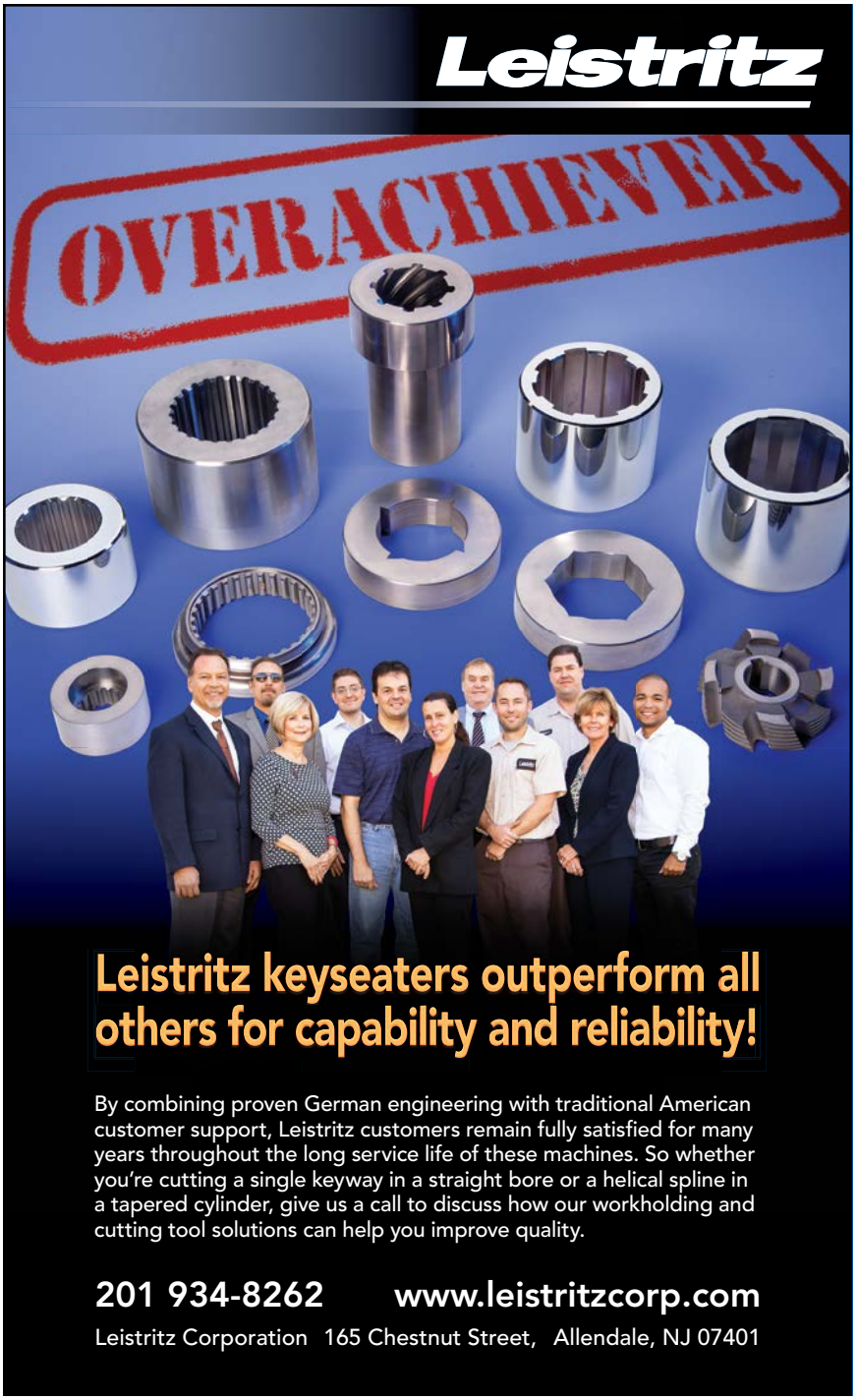
For more information:
IDC Industries, Inc.
Phone: (586) 427-4321
www.idcind.com

Precipart Corp.

EXHIBITS HIGH PRECISION GEARS AT MD&M WEST

Precipart, a global supplier of custom mechanical components, gears and motion control assemblies, exhibited at MD&M West, February 11-13, 2014 in Anaheim, CA, with a wide range of high-precision machined parts, molded and assembled components used in medical devices. Located in booths 3266 and 3268, Precipart featured several examples of its motion control technology along with a variety of mechanical components designed and manufactured with advanced materials according to precise specifications and exact tolerances. Precipart products are used in many different medical technology applications, including: surgical tools and instruments, powered surgical handpieces, orthopedic implants, diagnostic equipment, surgical robotics and drug delivery systems. As an ISO 13485 registered company, Precipart provides turnkey solutions, including concept development, design, prototype, qualification and manufacturing for medical technology and other industries. Precipart product and engineering experts were available at the show to speak with attendees about medical and other applications, as well as the company's approach to continuous improvement, lean manufacturing and design for manufacturability.

For more information:
Precipart Corporation
Phone: (631) 694-3100
www.precipart.com



Hexagon Metrology

ANNOUNCES LEICA B-PROBE

Hexagon Metrology recently announced the Leica B-Probe, an entry-level, wireless probing device which extends the capability of the Leica Absolute Tracker AT402. The handheld Leica B-Probe is designed for the inspection, alignment and assembly of large scale fabrications such as railway coaches, construction and off-highway vehicles or agricultural machinery.

The Leica B-Probe works within a 32.8 ft (10 m) radial distance from the AT402 with an accuracy of +/-.008 in (0.2 mm) over a full measurement range, offering greater capabilities and flexibility over similar systems that have fixed-base stations. The lightweight 6.7 oz. (190 g) B-Probe features IP50 certification and is AAA battery-powered. By using the move station method, the working range of the system can easily be multiplied with almost no loss in probing accuracy. For even larger parts or measurements that require higher accuracies, a standard retroreflector can also be used in combination with the B-Probe to take full advantage of the AT402's accuracy and 525 ft (160 m) radial measuring range.

"The B-Probe fills a niche between reflector-based measurements and our high-performance 6DoF (six degrees of freedom) offering based on the Leica T-Probe and the Absolute Tracker AT901," said Duncan Redgewell, general manager of Hexagon Metrology's Laser Tracker Product Line. "We recognized that many industries manufacturing large-scale assemblies required range, portability and inspection of hidden features, but had only modest accuracy requirements. The B-Probe was designed specifically for these users."

For more information:
Hexagon Metrology
Phone: (855) 443-9638
www.hexagonmetrology.us

Forkardt

RELEASES OMNIGRIP COLLET SYSTEMS

Forkardt OmniGrip Collet Systems are flexible, sealed collet heads that interchange in seconds and are available with spindle mounts for most brands of CNC lathes. However, quick changeover is not the only benefit you'll experience. With an accuracy of .0004" TIR on the A and D styles, and a .0008" TIR on the DL style, the OmniGrip falls in the "special accuracy" collet classification. These systems achieve the same gripping capability as conventional collets while using less draw bar force.

Vulcanized rubber bonds the hardened, chrome-nickel steel collet sections together providing superior elasticity for repeated opening and closing of the collet without deterioration. A manual wrench can be used to compress the collet providing quick changeover in seconds instead of minutes. The collet head has a gripping range of ±.020" (.5 mm) of its nominal size to allow variation in bar stock without having to change the collet. True parallel clamping minimizes stock "push back" that could create inconsistent part lengths. Purchase one spindle mount and interchange collet heads from job to job. Forkardt

OmniGrip collet heads are fully interchangeable with competitor's models.

An emergency collet can be kept on hand for just-in-time machining when the proper size hardened collet is not in your tool drawer. The taper and collet seat of an emergency collet are hardened while the ID and the face of the collet head are soft. A face boring ring will hold the collet in nominal position for boring to size. Emergency collets are reusable. Standard collets, ordered to size, are stocked in round smooth, round serrated, hex smooth, hex serrated, square smooth, emergency and S-master style collets. Square sizes are made to order.

The OmniGrip Collet Systems are available in 42, 65 and 80 mm sizes and are suitable for machines experiencing multiple changeovers daily and where stock variations occur. When using a Forkardt OmniGrip system, it takes less than 10 seconds to change a collet. Setup time is drastically reduced when compared to 191 seconds to change three jaws on a power chuck or 79 seconds that it takes to change a collet in a standard collet chuck. Test results from repeated collet actuation indicate a highly durable, fully sealed gripping solution.

For more information:
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Phone: (800) 544-3823
www.forkardt.us

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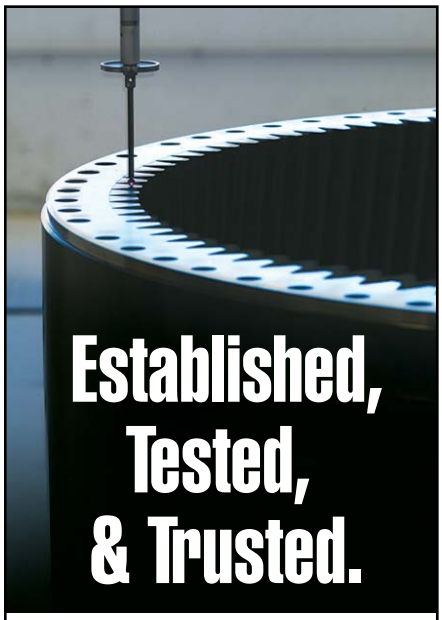

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Suhner

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Bulky part machining can often become very difficult to integrate into a manufacturing process, when attempting to perform multiple operations on conventional CNC machines. Limited space or axis travel, one-sided spindle or tool accessibility are common restrictions when trying to design and fit multiple tool requirements onto a rigid machine concept. In addition, cycle time demands and accessibility issues from all sides and angles can make a single tool, 3-axis CNC machine option a losing proposition.

One new solution involves compact and self-contained single tool Multi-Master flex shaft machining units from Suhner. These units are modular in design, which means they can be positioned in any direction around a workpiece. In most cases, all operations can be performed in one cycle, thereby reducing the overall machining cycle time to a minimum. Since all tooling modules work simultaneously, the cycle time is basically determined by the longest single machining operation and not the addition of all the tools working together. There are virtually no limitations to part size and the number of tools that are engaged at the same time, with this arrangement.

Suhner offers a complete spindle program with optional feed systems...pneumatic, hydraulic and CNC...available in a quill feed or slide-and-spindle design. In combination with modern tooling technology, Suhner Multi-Master machining units can achieve a high degree of performance and accuracy, when incorporated into a machine design.

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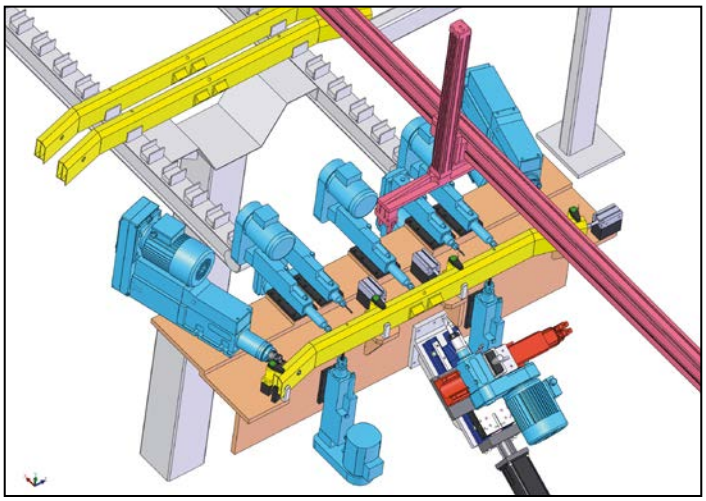
For more information:
Suhner Industrial Products, Corp.
Phone: (706) 235-8045
Automation.usa@suhner.com
www.suhner.com



R&P Metrology

ANNOUNCES CMM CAPABILITIES FOR PORTABLE GEAR PRODUCTION

R&P Metrology GmbH announced new measurement capabilities for the RPG PM 750/1250 Portable Gear Metrology machines. When the system is used with the available docking station, it is capable of a full range of 3-D prismatic metrology. The RPG PM 750/1250 Portable Gear Metrology system now can perform CMM measuring tasks with full CNC control and lab grade accuracy.

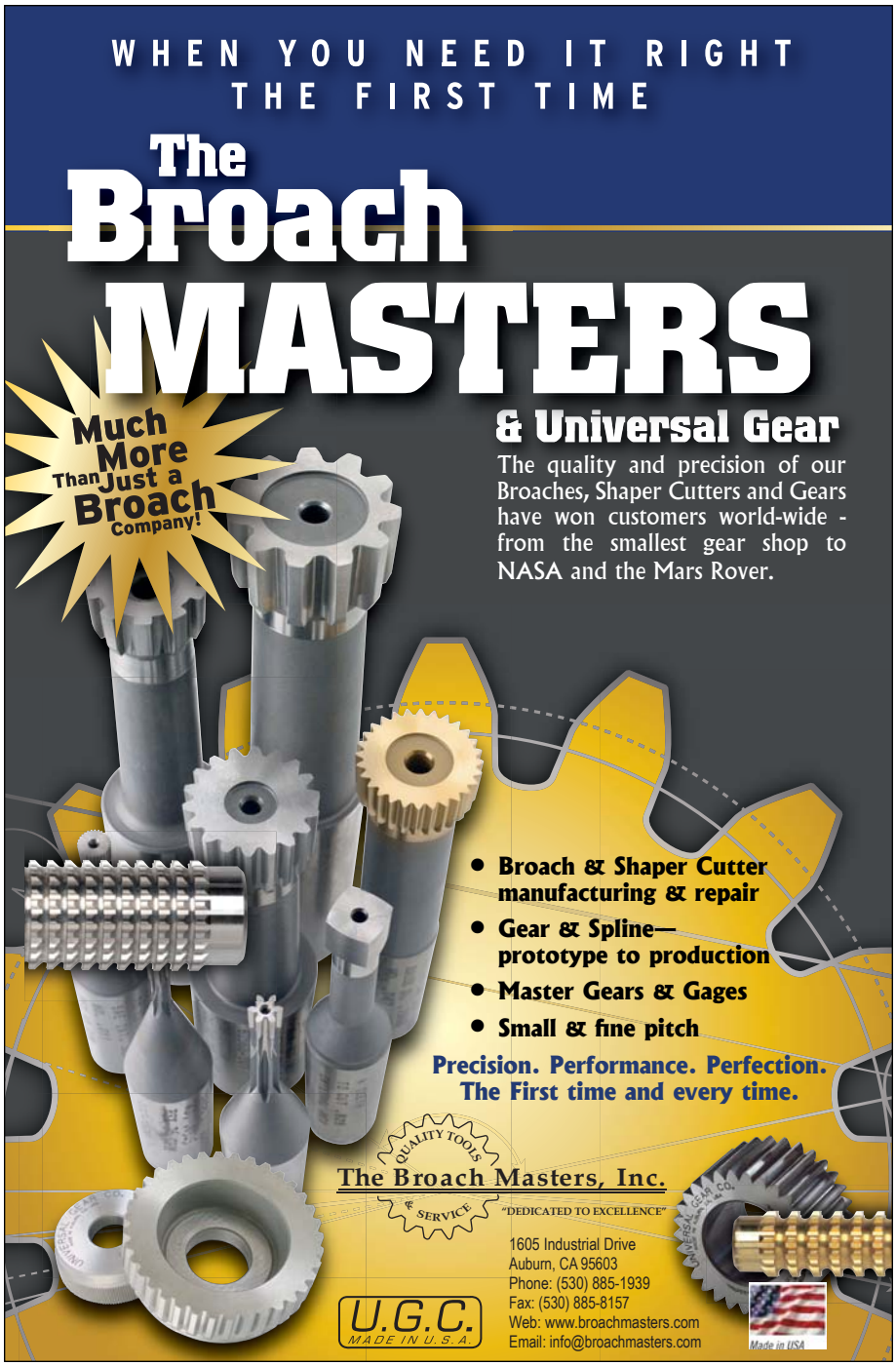
According to Hans Rauth, president of R&P Metrology, "The docking station, with the extremely accurate rotary table, extends the use of the PM system beyond the plant floor, to the inspection lab. Not only can it use generative metrology for gear inspection, it can

become a precise CMM with the customer's choice of software." All R&P Metrology systems adhere to the I++ (Inspection Plus-Plus) protocol and can utilize any CMM software that is compliant, such as Wenzel and Zeiss. Rauth continued, "When used as a portable system, the PM 750/1250 can measure gears of unlimited size. We offer docking stations with 3,000 mm outside capability for inspection lab use for gear inspection and 3-D CMM metrology."

When the R&P PM 750/1250 system is docked, the built-in active rotary table provides higher accuracy for form and roundness measurements, as well as faster measurement times than CMMs without an integrated rotary table. This gives customers a uniquely flexible machine with both shop floor portable gear inspection and inspection lab CMM capabilities, with high accuracy in both modes – truly the best of both worlds.

R&P Metrology designs and builds metrology equipment, concentrating on medium and large parallel axis gears, bevel gears, tools, shafts, bearing rings and 3-D parts. The range starts at approximately 1.0 meter in size. R&P also offers hybrid systems that uniquely combine gear measurement with conventional CMM metrology.

For more information:
Kapp Technologies
Phone: (303) 447-1130
www.kapp-niles.com



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