

# Sunnen

## OFFERS MULTI-FEED HONING TECHNOLOGY

Sunnen's newly patented multi-feed honing technology gives users a choice of tool-feed modes to achieve the shortest cycle times, lowest part cost, and longest abrasive life. Multi-feed combines Sunnen's new controlled-force tool-feed with its controlled-rate feed system. The two different tool-feed modes allow the user to select the better option to suit the workpiece geometry, material and tool type/size. Multi-feed technology is available as an option on new machines in Sunnen's SV-1000 and SV-500 series, as well as a retrofit for existing machines.

Controlled-force honing, a new feature in multi-feed, works like cruise control to ensure the optimum cutting load on the honing abrasive throughout a cycle, irrespective of the incoming part's hardness, geometry or size variation. The company states that, depending on the application, controlled-force honing cuts cycle

times by as much as 50 percent, lengthens abrasive life for lower consumable cost, and allows finer control of surface finish parameters. Controlled-force technology eliminates glazing of the abrasive, due to too little force, and maintains a steady, free-cutting, self-dressing condition for maximum metal removal in the shortest possible cycle time.

"In our development work, we found that more-durable abrasives could often be used, resulting in more parts per set of abrasives and lower cost per part," said Dennis Westhoff, Sunnen's global business development manager. Controlled-force is a good choice for applications using segmented diamond or super-abrasive honing tools, or where incoming workpieces have slight variations in hole diameters, hardness and geometry. "An established honing process can be thrown off balance because of incoming part variations caused by upstream machining, heat treating or plating," Westhoff

explains. "Controlled-force honing always maintains optimum feed force on the honing abrasive under these conditions to eliminate wasteful 'air cutting' glazing or tool damage. The beauty is that if conditions allow, for example with a batch of parts requiring less stock removal, the honing cycle will be shortened significantly and automatically."

Controlled-force's ability to control the cutting load within a very fine range also allows much tighter control of final surface finish parameters. "We have been able to cut the variation of final surface finish measurement by half or more," Westhoff added. Controlled-force honing works with Sunnen's mmT, PH and new KRQ tools.

Controlled-force honing is an enhancement of Sunnen's controlled-rate system for tool wear compensation, which is already capable of adjusting tool size in increments as fine as  $0.1 \mu\text{m}$  (0.000010"). Controlled-rate tool feeding is typically used with plated-diamond CGT honing tools, which use a sleeve of abrasive for full contact with the bore surface. CGT tools are frequently used on cast iron and powder metal workpieces, segmented bores, or parts with multiple lands, ports, keyways or crossholes in the bore. Sunnen's machine control provides up to five feed expansion profiles that can be used during a cycle for rapid part touch, cutting, sizing, finishing and spark-out.

### For more information:

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# Nexen

## RELEASES COMPACT HARMONIC GEARHEAD

Nexen Group, Inc. has announced what it believes to be the industry's shortest and most compact automation gearhead. The new Nexen Harmonic Gearhead directly replaces much larger, high-ratio planetary gearheads utilizing the latest harmonic, strain wave gearing technology. In addition to its extremely short, compact

size, the Harmonic Gearhead has numerous significant advantages over planetary gearing including high torque, true zero backlash and extremely precise positional accuracy.

Nexen's patent-pending, gearing-forward design overlaps components and allows the gearing to be integrated into

the same plane as the bearing, resulting in an extremely short and rigid gearhead. This narrow, rigid design is combined with a large, rugged, crossed-roller output bearing, designed to handle all combinations of radial, axial and overturning moment loads in a single, compact envelope. The company states that the Nexen Harmonic Gearhead is the most durable and accurate available, achieving positional accuracy and high torque with true zero backlash directly to the motor.

With space at a premium in machine tools and automation equipment, the new Harmonic Gearhead can fit virtually any machine with key applications in products and machinery requiring a minimal footprint, such as machine tools, robots and robotic arms, medical equipment, rack and pinion systems and numerous general industrial position-

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ing and motion control applications. In many applications, the Nexen Harmonic Gearhead can operate in less than half the space of conventional planetary gearheads. It is also extremely easy to integrate with a standard ISO 9409 output flange that fits most standard components and end effectors.

Also significant, the new Harmonic Gearhead is available with the Nexen Roller Pinion System (RPS). The gearhead is integrated directly into the pinion without adding any length to the system, resulting in a drive solution that maintains zero backlash from the driving motor shaft thru to the driven load for both linear and rotary motion. This combination also adds significant simplicity, thus saving the extensive time and expense of integrating a gearbox into the motion system; the user can simply bolt and go. Specifically engineered to meet



diverse and demanding motion control challenges, Nexen's RPS delivers high-accuracy positioning with zero backlash and virtually eliminates cumulative error. The RPS surpasses traditional rack and pinion systems with a unique roller pinion/rack combination that can be easily adapted to any application. The pinion consists of bearing-supported rollers that engage a unique tooth profile. Two or more rollers connect with the rack teeth in opposition at all times, eliminating backlash. The RPS rollers approach the tooth face in a tangent path and then smoothly roll down the tooth face, greatly reducing noise levels associated with other linear motion systems, such as tooth slap or ball return noise. The low-friction design delivers more than 99 percent efficiency in converting rotary to linear motion, greatly reducing wear and providing longer service life at high speeds up to 11 m/sec (36.1 ft/sec).

**For more information:**

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## Mahr Federal

### ADDS WIRELESS SYSTEM TO INDICATORS

Mahr Federal has added its new MarConnect Integrated Wireless data transmission system to its family of MarCator Digital Indicators at prices that compete with typical wired systems. New low-power data transmission technology has allowed the transmitter to be built into the digital indicator. The digital indicator sends its data to a small i-stick receiver, resembling a common USB flash drive. MarCom software makes data acquisition even simpler: just take a measurement and transmit your measuring data directly into MS Excel or via a keyboard code into any Windows program without cumbersome cables.

Integrating the transmitters with MarCator Digital Indicators eliminates expensive, power hungry add-on transmitters that can bulk up gages and interfere with portability. Each MarConnect i-stick wireless receiver supports up to

eight digital indicators with a range of up to 12 meters, perfect for most bench-top or workstation applications. And since i-stick receivers are so inexpensive it's now possible to add a receiver to every workstation in the shop.

The MarConnect integrated wireless interface is active as soon as the i-stick is plugged in, and each indicator is identified by signal coding in the MarCom software so there is no confusion as to signals. Data transmitters are built into the MarCator 1086 and 1087 digital indicators, so no

interface boxes or additional batteries are required. Plus, integrating the transmitters into the indicators' electronics makes the units extremely energy efficient, and can extend battery life up to 50 percent longer than competitive systems.

Integrated wireless gives more freedom of movement. For example, when measuring on or at the machine, or with large workpieces, cables do not obstruct. Plus, initiation of signal transmission can be made either from the indicators or directly from the PC. This can be very handy

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if, for example, you have a large gage set up with multiple indicators. Rather than having to send data from each indicator individually, the *MarCom* software can gather all measurement data with a single click. Successful data transmission is confirmed with a message on the digital indicator's display.

MarConnect Integrated Wireless is now available on Mahr's popular MarCator 1086 series of digital indicators with large display and integrated tolerance functions, and on the MarCator 1087 series of multi-functional digital indicators with combined analog and digital display, as well as tolerance and dynamic measuring functions. Both lines are equipped with Mahr's innovative reference system in which the zero position only has to be set



once, and with a lock function that prevents unintentional activation of an operating button.

**For more information:**

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## Hardinge OFFERS SUPER-GRIP POWER CHUCKS

Hardinge Inc. manufactures a line of lever-operated, counter-centrifugal and dynamically balanced Sure-Grip Power Chucks. The lever-operated design of the Hardinge chuck has several advantages over the wedge-type design most commonly found on low-cost, non-counterbalanced chucks that are supplied with the initial purchase of many chuck-style lathes. In the Hardinge lever-operated system, the drawtube is connected to the jaws through a pivoting lever that is mounted on pins inside the chuck body. The lever system has reduced friction and increased mechanical advantage compared to a wedge-operated chuck for a given draw bar pressure. In other words, a lever will always have greater actual gripping power at the jaws than

a wedge-operated chuck, for any given draw bar pressure.

The lever system also has reduced internal bearing surface over the wedge-operated closure, making it less sensitive to lack of lubrication. The greater efficiency of the design results in reduced



wear on the operating cylinder, dramatically increasing component life. For this reason, a lever-operated chuck system (chuck and operating cylinder) will usually have a longer life than that of a wedge-operated system.

In the Hardinge counterbalanced chuck design, weights are incorporated into the actuating levers of the chucks at



the opposite end of the fulcrum or pivot-point of the jaws. Centrifugal force acts upon this weight just as it does on the top jaws. However, since the weight is at the opposite side of the lever from the top jaws, the upward thrust generated counteracts some of the jaw force loss. Thus, the counterbalanced lever design has substantially more gripping force at high RPM than that of a non-counterbalanced style.

The major advantage of the Sure-Grip power chuck is the configuration of the drawtube that actuates the chuck. Since Hardinge machines all have collet spindles that do not require a collet chuck or adaptor, it is a simple matter to remove the collet and quickly mount the 3-jaw Sure-Grip power chuck when needed. The chuck's drawtube threads directly into the machine's draw bar, just as a collet would. This changeover can be accomplished in ten minutes or less. Other designs can take hours. The Sure-Grip power chuck is also available for non-Hardinge lathes that do not have collet style spindles.

Hardinge manufactures its chuck components to high accuracy and repeatability standards. The repeatability of a chuck is the measure of its ability to repeat the performance, either from job-to-job or from part-to-part. Most models of Hardinge Sure-Grip power chucks have an accuracy (T.I.R.) of .0005 in. and repeatability of .0005 in., making them suitable for close tolerance turning requirements. Hardinge Sure-Grip power chucks are competitively priced, while demonstrating distinct advantages over the wedge style chuck.

**For more information:**

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## Saint-Gobain

### INTRODUCES GRINDING APP

Saint-Gobain Abrasives has recently introduced a Norton Abrasives Grinding App. This application includes three calculators: a wheel speed conversion calculator, as well as a coolant and dressing parameter calculator for abrasives

applications. The Norton Grinding App also features a right angle grinding product selector and distributor locator. A link to Norton's abrasives connection and website to find and order product, check orders and inventory is available, in addition to a convenient button to contact Norton. "With the increasing use of handheld digital technology, we are pleased to offer our customers with a convenient, simple-to-use grinding app," said David Long, director of marketing and strategy at Norton Abrasives. "The



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app is designed for manufacturers to quickly simplify the process of calculating the requirements for their grinding application.” The new Norton Grinding App is available for IOS and Android operating systems on mobile devices.

**For more information:**

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[www.sgabrasives.com](http://www.sgabrasives.com)



# Flexible Abrasive Wheels

**BLEND AND FINISH IN SINGLE OPERATION**

An upgraded line of blending, finishing, and polishing wheels that operate at higher rpms for use in automated and hand finishing operations has been introduced by Rex-Cut Abrasives of Fall River, Massachusetts. Rex-Cut Smooth Touch



Blending and Polishing Wheels feature non-woven cotton fiber construction that constantly exposes fresh abrasives as they work, are flexible, conformable, and provide smooth control. Suitable for use on stainless steel, exotic metals, and aluminum requiring a high finish, they are available in standard coarse, medium, and fine grits for use at speeds up to 30,000 rpm, depending upon diameter and thickness. Incorporating a proprietary bond that provides a single density for applications comparable to conventional 2-9 density unitized wheels, Rex-Cut Smooth Touch Blending and Polishing Wheels are available in 2", 3", 4", and 6" dia. sizes, 1/8", 1/4", and 1/2" thick. They will also last up to five times longer than conventional unitized wheels, claims the firm. Rex-Cut Smooth Touch Blending and Polishing Wheels are priced

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## Marposs

### INTRODUCES TOUCH PROBE SYSTEM

Marposs Corp. announces the new Mida T25P ultra-compact, high accuracy touch probe for machine tools with piezoelectric technology. Although piezoelectric sensors are well known in various metrology applications, the new T25P is the first touch probe for machine tool applications to incorporate this technology. The T25P touch probe's excellent multi-directional response characteristics make it ideal for high accuracy machining applications such as tool and cutter grinders and sharpeners.



Specifications of the T25P probe include unidirectional repeatability of ( $2\sigma$ )  $0.25 \mu\text{m}$ , 2-D lobing in X/Y:  $\pm 0.25 \mu\text{m}$ , and 3-D lobing in X/Y/Z:  $\pm 1 \mu\text{m}$  (based on use of a 35mm length stylus). The T25P touch probe consists of three basic components—the tripod kinematics, the piezoelectric sensor, and a microprocessor circuit board. The tripod kinematics supplies stylus mechanical over-travel and provides double crash protection. Unlike other touch probes that require triggering of a switch, the T25P probe operates by means of a change in voltage. Upon detecting a contact by the stylus from any direction, a pulse signal of constant duration is generated that

is elaborated by the PCB's microprocessor and made available for output to the probe's interface with the machine tool's CNC.

The T25P probe has very low trigger force and zero pre-travel, therefore the time between the point of contact by the T25P probe and the resulting signal is significantly reduced compared to traditional mechanical touch probes. Because the trigger point is identical in every direction, it is only necessary to calibrate the probe in one axis regardless of the

number of axes or approach directions. The T25P probe is protected from temperature variations, high-pressure coolant and harsh environments.

**For more information:**

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# Ipsen

## SHIPS CUSTOMIZED TURBOTREATER

Ipsen has recently shipped an H3636 2 bar TurboTreater furnace to a commercial heat treatment company in the southeastern U.S. The state-of-the-art, high-temperature furnace included a 2-inch thick carbon composite/graphite felt hot zone with a nominal work zone of 24" x 24" x 36" (610 mm x 610 mm x 914 mm) and a

gross load capacity of 1,500 pounds (680 kg), configured for 460 volts, 60 hertz, 3 phase. The furnace was equipped with the user-friendly CompuVac supervisory control system, as well as a nitrogen and argon partial pressure system.

The TurboTreater offers patented mechanical features such as the



Ipsen unique quarter-twist graphite heating element support hanger, which provides metallic support for ceramics; the flared locking rim for molybdenum cooling gas nozzles, which secures them in place into a rounded extrusion in the plenum wall; and the cooling system design, which generates the highest heat transfer coefficient of any vacuum furnace on the market.

The convenient and efficient TurboTreater line operates as a "build-your-own" furnace, allowing customers to order furnaces specified to their unique needs. Possible modifications include variations on features such as the hot zone insulation package, heating elements, pumping systems, cooling gases, plant voltage, control system and loaders. This allows for the line to be used for a number of processing capabilities including: hardening, annealing, surface treatment, brazing, coating and tempering. These alterations, along with Ipsen's simplified installation, start-up, operation and troubleshooting, are just some of the ways that Ipsen delivers the best, so customers can be the best.

### For more information:

Ipsen  
984 Ipsen Road  
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From left: Legex 12128, Strato-Apex, CARBApex, MACH-V9106, Crysta-Apex S, MACH-3A 653



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# Hexagon Metrology

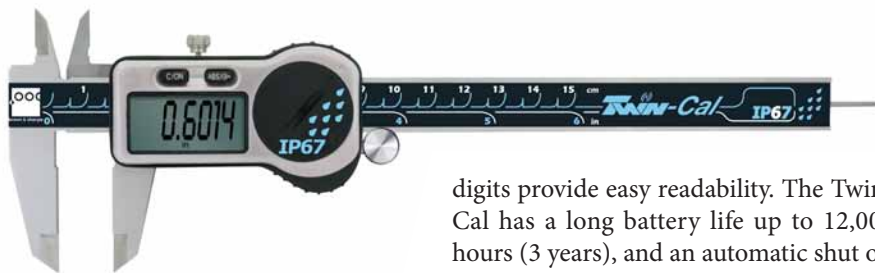
## RELEASES TWIN-CAL IP67 CALIPERS

Hexagon Metrology recently released the new Brown & Sharpe Twin-Cal IP67 calipers with a built-in output connection. This electronic measuring tool is IP67 compliant with its main components encapsulated and protected from shop floor contaminants such as dust, oil and coolants. The adaptable calipers can be used wirelessly or with a cable using the new plug-and-play TLC (TESA Link Connector). This digital caliper is suitable for countless applications in the metrology laboratory or on the production floor, often in combination with mechanical instruments or stationary machines.

The new plug-and-play TLC allows the user to send measured data from the instrument to the computer via USB, Twin (TESA Wireless Interface, available Q1, 2013) or Digimatic option. The USB cable connection allows the caliper to be directly connected to a computer. The wireless module is integrated in the battery cap and enables the operator to retrieve data for optimal SPC monitoring. Digimatic output is a cabled connection that allows Brown & Sharpe instruments to work with any competitor's interface. For the same cost, the adaptable calipers are available with any of the interface options. The TLC also has an IP67 rating to withstand the same harsh conditions as the caliper.

"This evolutionary, adaptable instrument will revolutionize connectivity thanks to its Twin concept," says Martin Hedman, TESA group managing director and CEO. "Brown & Sharpe hand tools have a solid reputation for quality, dependability and workmanship. We have produced hand measuring tools for more than 150 years. The new Twin-Cal IP67 caliper is just another example of our market leadership in innovation."

The Twin-Cal has an instant inch/metric conversion option, with a measuring range of 150 mm/6 in., 200 mm/8 in. and 300 mm/12 in. The caliper maintains a resolution of 0.01 mm/0.0005 in. with repeatability of 0.01 mm. The absolute



measuring system retains a zero setting so the calipers are ready to measure when turned on. Soft touch features allows for consistent, smooth measurements. With the largest LCD to date, 11-millimeter

digits provide easy readability. The Twin-Cal has a long battery life up to 12,000 hours (3 years), and an automatic shut off after two hours.

**For more information:**  
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