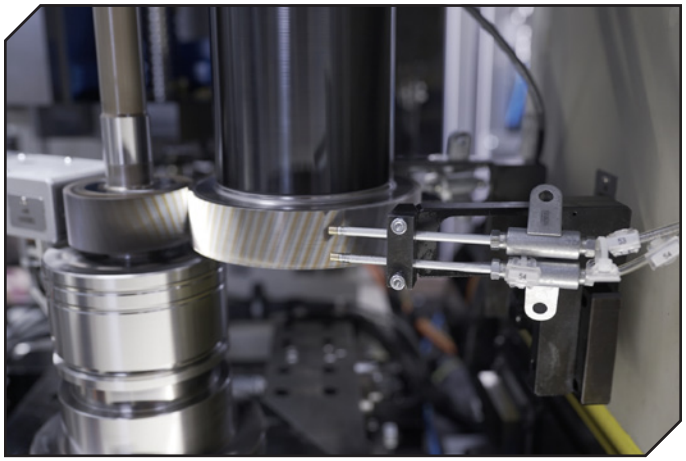
Marposs

ANNOUNCES NVH GEAR TESTER

Marposs has announced its NVH Gear Tester for identifying potential gear defects at the component level prior to gearbox assembly. The NVH gear tester, which works on the Single Flank testing principle of one master gear meshing with the component under inspection, is able to detect macro-geometry (nicks, runout, etc.) and micro-geometry (gear mesh excitation, ghost orders) defects that cause gear whine and noise phenomena.



With electrification of the automotive industry, many hybrid (HEV) and full electric-vehicle (EV) drivetrains are facing a variety of challenges, such as increased NVH requirements in high-speed e-drives. And, although the number of gear wheels is significantly reduced in EVs due to the use of one or two speed reducers instead of the classic manual, automatic or twin-clutch gearboxes, these gear wheels are loaded with torque and rpm not previously found in high-volume production.

With HEVs and EVs, the noise from an internal combustion engine is intermittent or non-existent, so that transmission makes the most dominant vehicle noise. Noise, therefore, becomes not only a mechanical issue for the performance of the transmission, but also a comfort issue for the driver.

Basically, the concept of NVH testing is to stress the gears by applying rotation speeds and torque values similar (or even higher) to those that are applied in the real working conditions. The ability to test gears at operating conditions almost comparable to the final e-drive is a main benefit of the NVH Gear Tester.

The output parameter is the angular acceleration of the part (or master), evaluated instantaneously and in the long run with the use of encoders (TE inspection) and torsional accelerometer inspection. The stiff granite structure of the NVH gear tester makes it impervious to external interferences and a highly configurable software package makes this system as good as correlating data with the end-of-line test rig.

The NVH gear tester has a max rotating speed of 3,000 rpm, driving torque of 0–30 Nm, and can accommodate a max gear tooth height of 70 mm and shaft length of 280 mm. It can be designed to work with either manual or automatic loading.

www.marposs.com

Solar Atmospheres of California

ADDS SMALL FURNACE CAPACITY

To support R&D and additive manufacturing projects, Solar Atmospheres of California (SCA) has added some much-needed small vacuum furnace capacity to their expansive equipment offerings. The new vacuum furnace was procured from SCA's furnace manufacturing sister facility, Solar Manufacturing (SAMI) located in Sellersville, Penn., and was specifically designed to process a variety of materials between 600°F–2,400°F (±10°F) in both vacuum and/or partial pressure environments. Precise cooling capability up to 2-Bar in argon, nitrogen or helium is available with a maximum operating temperature up to 2,650°F. The furnace is also equipped with the SAMI's state-of-the-art SolarVac Polaris Control System for optimum performance and precise cycle control.

SCA President Derek Dennis states, "We are pleased to add this needed piece of vacuum furnace equipment to service our valuable customers. The additive manufacturing industry continues to grow, and this new furnace will allow SCA to respond to small builds and R&D projects quickly and precisely. SCA has plans to add additional equipment in the future to ensure that we have the capacity available to handle the rebounding industry post-COVID."

www.solaratm.com

Mahr

INTRODUCES MAR4D PLQ SERIES

Mahr recently introduced its new Mar4D PLQ product series. The cylinder coordinate measuring machines (CMMs) with multi-sensor technology are optimized for use in production and in the measuring room. Complex workpieces require a highly efficient measuring machine: It should solve various measuring tasks as quickly as possible, close to production and reproducibly in one system. This is exactly what the cylinder coordinate measuring machines of the new Mar4D line do. Equipped with up to four CNC axes, optical and optional tactile sensors, as well as sophisticated monitoring systems, they reliably and precisely record 3D measured values.Depending on the machine variant and equipment, the Mar4D PLQ can inspect rotationally symmetrical workpieces up to a diameter of 200 mm, a length of 1,000 mm and a weight of 50 kg.

www.mahr.com

Kennametal

INTRODUCES FIX8 FOR HEAVY-DUTY TURNING

Kennametal has released the FIX8 heavy-duty turning system, delivering maximum metal removal rates in steel, stainless steel and cast iron. With eight cutting edges per insert, the system increases productivity of any heavy-duty turning operation, providing the lowest cost per edge while reducing cutting forces up to 15 percent.

"FIX8 is designed to cover a wide range of applications, including turning and facing, smooth surfaces, interrupted, and heavily interrupted cuts. From medium depth-of-cut to roughing in steels, cast iron and challenging materials like stainless steel, FIX8 handles it all. Even extreme feed rates of up to 1.4 mm (0.055") and depths of cut up to 12 mm (0.472") are possible with FIX8," says Matthew Fuerst, product manager, Kennametal.

The tangential design of the FIX8 insert features a rigid clamping system that pulls the insert securely into the pocket seat, offering suitable stability that enables the insert to withstand large cutting forces and vibrations for optimal performance. The insert is also supported by a replaceable carbide shim, protecting the pocket against deformation and damage.

The FIX8 tool holder features precision 3D coolant technology, supplying sufficient coolant precisely where needed. Three coolant nozzles are directed to the rake face, controlling temperature, chip evacuation, and supporting chip formation. Coolant exit holes in two different locations are directed toward the flank of the insert, controlling the heat in the cutting zone and prolonging tool life.

www.kennametal.com

Kapp Niles

OFFERS KNG 350 FLEX

The KNG 350 Flex HS is based on a compact, setup-optimized machine concept and is intended for use in small to large-scale series production of externally geared workpieces with a diameter of up to 350 mm. The integrated loading device ensures shortest nonproductive periods and can accommodate both bore parts and shaft workpieces. The new functional and ergonomic machine design, paired with the KN grind inerface, supports the user during setup and optimization of grinding projects. High-performance technology options mean that maximum precision and surface qualities can be achieved. The KNG 350 series is characterized by flexibility in processing options, loading options, automated and manual, as well as application-oriented software functions.

www.kapp-niles.com

Southern Gear

ADDS PRECISION MEASUREMENT RESOURCES

Southern Gear is meeting customer requirements for the precise measurement of increasingly complex cylindrical and bevel gears with two advanced new Keyence Image Dimension Measurement Systems, capable of measuring up to 300 dimensions on as many as 100 parts in just seconds.

Dimensional measurement with conventional instruments and measurement tools is typically a slow, tedious process requiring the setup and adjustment of multiple complex fixtures — a process that's heavily dependent on highly trained operators to achieve accurate and consistent results. With the new Keyence IM-8000 systems, setup and operation is greatly simplified and

highly automated. For example, there is no time-consuming part positioning work or datum setup required. The simple "place-and-press" operation ensures consistent measurement of hundreds of dimensions on multiple parts with just the push of a button and regardless of operator skill.

"These new systems seem tailor-made for the complex precision parts we're producing today for customers across the widest spectrum of applications," says Southern Gear President Karen Malin. "We're working to speed throughput in every facet of our operation; these new systems are taking significant time and effort out of these increasingly important operations."

The addition of the Keyence systems is part of a multi-million dollar, company-wide investment in new technologies, methodologies and processes that, over the last several years, has, according to Malin, added much needed capacity to Southern Gear's vertically-integrated shop floor.

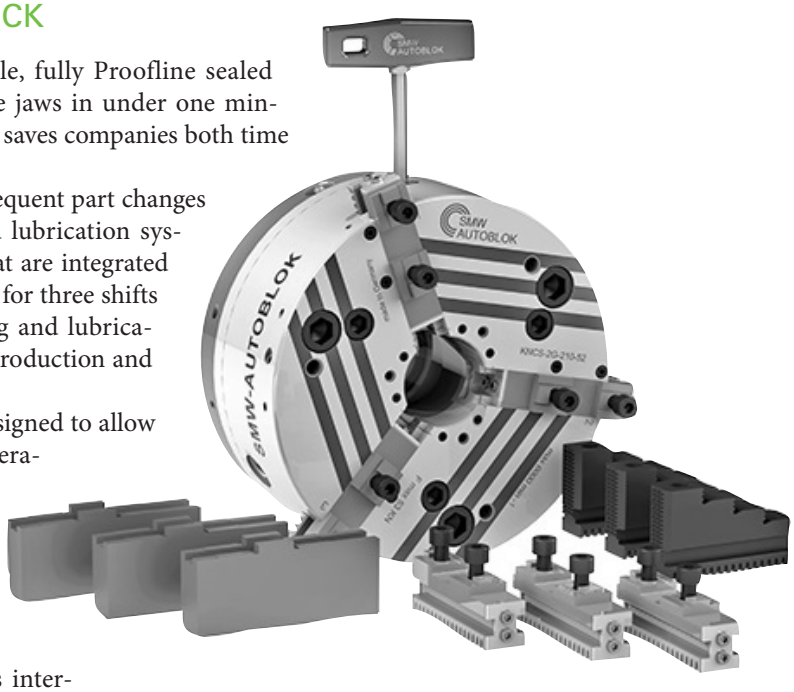
www.southerngear.com

SMW Autoblok

INTRODUCES KNCS-2G POWER CHUCK

SMW Autoblok has recently introduced the flexible, fully Proofline sealed KNCS-2G power chuck that allows users to change jaws in under one minute — reducing downtime during changeovers which saves companies both time and money.

Ideal for lathe and mill-turn applications where frequent part changes are prevalent, the KNCS-2G features an optimized lubrication system with additional channels and grease pockets that are integrated into the jaw guideways to allow the chuck to operate for three shifts before additional lubrication is needed. The sealing and lubrication system makes the KNCS-2G suitable for mass production and ensures constant clamp force and extended life.



The chamfered guideways of the KNCS-2G are designed to allow for quick-change of jaws, making it flexible for operations needing multiple jaw changes and setups. The fully Proofline sealed chuck body and base jaws also provide additional protection against chips, lubricants and other debris.

The chuck body and internal parts are case hardened for increased chuck life and highest rigidity, precision and durability. The KNCS-2G is interchangeable with the standard KNCS-N chucks and existing master jaws can still be used without sealing. Sizes are available in 170–630 mm.

www.smwautoblok.com

WFL Millturn

OFFERS HEAVYWEIGHT MACHINING BENEFITS

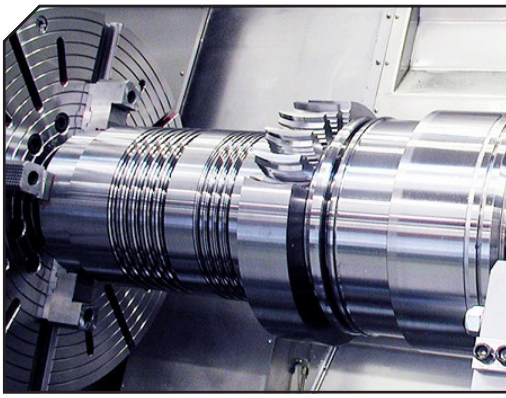
Higher, faster, further — as the saying goes, but now there's "longer, wider, heavier." Industrial requirements are constantly being pushed upwards. All of which means that WFL is entering exciting territory: heavyweight machining. The machining of large and very heavy components is often an extremely laborious undertaking that involves significant costs. Maximum process reliability and, above all, time savings in a component's throughput time are the name of the game.

Combining all machining and measuring operations into a single Millturn complete machining center from WFL massively increases the efficiency of manufacturing. The unique Millturn machine concept and turning-boring-milling unit with gearbox offers precise chipping performance.

Gas and steam turbines or components for wind turbines, rollers, crankshafts and transmission parts in machine construction — can now be machined by WFL. A Millturn can even easily handle high-strength steel or HRSA (heat resistant super alloy) material.

A Millturn eliminates the need for tedious changeover processes. Warpage-free and secure clamping is critical for premium quality standards. Large masses have a tendency to deform or change simply as a result of their net weight. The sag of a turbine shaft weighing 60 tonnes is so great that this needs to be taken into account when clamping the workpiece.

This variable can be compensated with the correct design of the clamping device and clamping method. FEM calculation (finite element method) can be used to precisely determine how the workpiece can be correctly clamped and supported. In this case, WFL uses a rolling or hydrostatic steady rest depending on the characteristics of the workpiece. This ensures optimal machining quality and production. The accessibility to the machine with folding grate elements and



tread plates also ensures the best possible ergonomics.

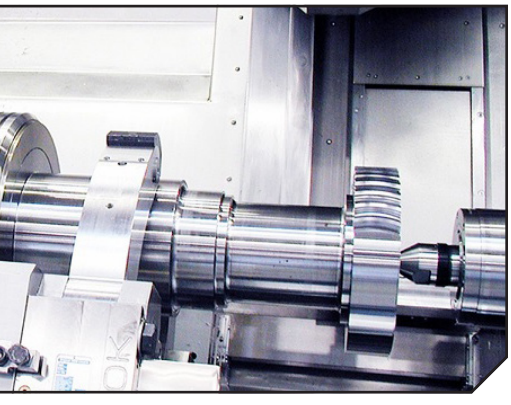
What's more, the enclosed working area enables machining under high coolant pressures. The UHPC pump (Ultra High Pressure Coolant) can be used to reach up to 200 bar. This ensures an optimum tool life even with high machining parameters.

Flexible measurement technologies support the user and once again clearly highlight the benefits of measuring components with large dimensions. WFL measuring cycles are carefully considered down to the last detail. For example, special calibration methods using the measuring probe and temperature compensation — which is particularly important when working with large diameters — allow the expansion of the material to be taken into account. The WFL measurement methods can even be used to produce a workpiece with maximum precision in adverse production conditions (e.g., external influences such as temperature).

It is also possible to precisely measure the position of the workpiece in the working area. This is necessary to precisely manufacture extremely narrow shape and position tolerances, for example, fir tree profile slots or locating holes.

The CrashGuard Studio programming software also supports an effortless review of the machining program. This makes it possible to minimize production errors ahead of time.

www.wfl.at



Doosan Robotics

THRIVES IN COLLABORATIVE ROBOT MARKET

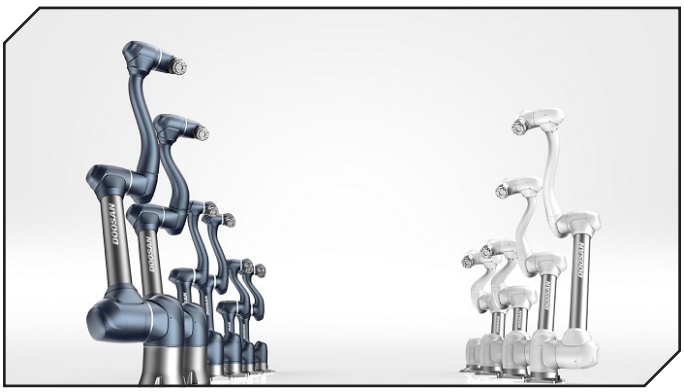
Doosan Robotics has manufactured cobots using proprietary technology in South Korea since 2018.

The company's global performance now accounts for 70 percent of its total sales, with demand continuing to increase from markets including North America and Western Europe. The company plans to establish subsidiaries in these regions to further accelerate growth.

The company also announced it has successfully raised an investment worth $33.7 million from Praxis Capital Partners and Korea Investment Partners. Funds will be used to expand global sales base and strengthen R&D to attract additional partnerships both global and domestic. The company also plans to pursue an initial public offering (IPO) with the ambition to increase cobot production in the manufacturing and service fields.

"We're looking forward to expediting the growth of our business with the recent funds raised," said William (Junghoon) Ryu, CEO at Doosan Robotics. "We will further enhance the competitiveness of new products and software that are mounted with our proprietary technology and strive to attain the position as number one market share holder in the global cobot market," he added.

www.doosanrobotics.com/en/



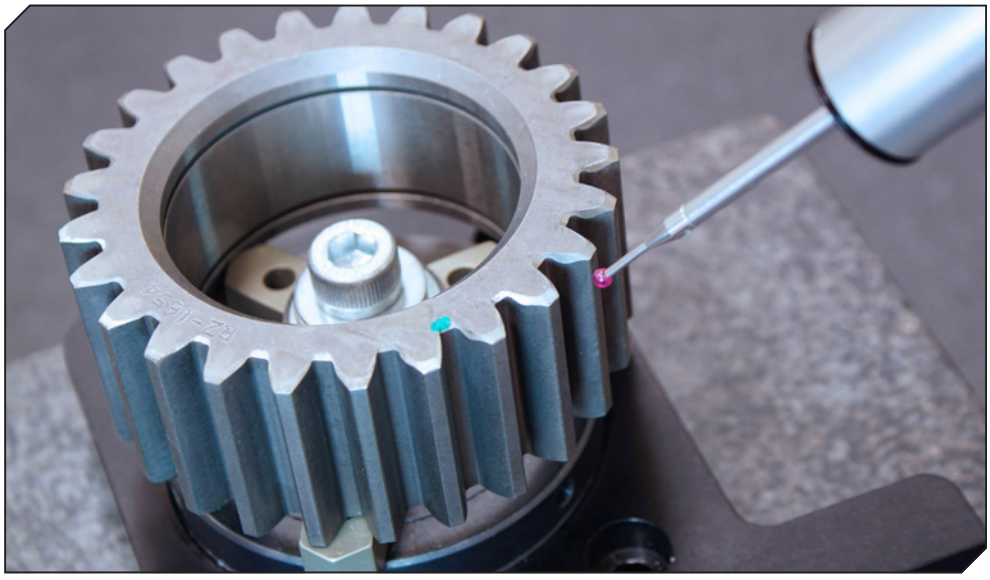
LK Metrology

SOFTWARE UPDATE INSPECTS GEARS AUTOMATICALLY

Coordinate measuring machine (CMM) manufacturer LK Metrology has introduced a third release of its *CAMIO 2021* programming and measurement software featuring numerous improvements. The most significant is the inclusion of a module that automates the inspection of spur and helical involute gears.

CAMIO GEARS makes it possible to begin measuring the specific geometry of gears quickly by using the core capabilities of *CAMIO* software to generate straightforward inspection programs, advanced gear reports and automated probe calibration routines.

For each gear type, the software has a unique set of definitions, evaluation algorithms and reporting graphics conveniently packaged in one add-on module, making it easy for users to bring a new capability to their existing CMM. The module supports alignment of the gear axis during measurement using any of the three CMM axes and traditional touch trigger probes or advanced scanning probes.



Several other improvements have been incorporated into *CAMIO 2021 R3*. Smart 3-2-1 datum alignment is new functionality that intelligently selects the datum axis and origin constraints, as well as the most suitable datum features using best-practice techniques. Should the user change the alignment properties manually, the selections automatically update.

Explorer Tree Datum Definition allows datum features to be defined more efficiently directly from the feature explorer, with the option of specifying the datum label. Report Table Feature Order provides new options for controlling the order in which features are reported in graphical tables, either alphabetically, by program output or in a user-defined order.

Teach-path coordinates and directions may now be defined using the CAD model. The GD&T (geometric dimensioning and tolerancing) reporting algorithm has been further enhanced to be independent of the standard used. Finally, there is new capability for retrieving points from a feature measured using a tactile probe, complementing existing functionality for retrieving data from a point cloud.

For CAD users, exchange file versions are compatible with the latest release of Spatial's InterOp, as was the case in the previous iteration of *CAMIO 2021*. The interoperability software is an industry leader in CAD data translation that enables users to import, interact with, share and export 3D data easily across CMM platforms and manufacturing sites.

CAMIO 2021 R3 encourages novice as well as experienced users to drive the inspection process graphically from the CAD model, either online or offline, although teach-and-learn using the CMM handbox is available. An advanced user interface makes part alignment, feature inspection and dimensional tolerancing fast and intuitive.

The virtual CMM programming environment means that accurate axis movement and probe motion sequences may be simulated for collision detection and cycle time estimations. Help Files now use a version of HTML5 help that supports modern internet browsers, such as Microsoft Edge and Google Chrome, and link to locally installed help pages.

CAMIO 2021 supports *Metrology Gate*, Industry 4.0 software that enables production teams to view and analyze quality data and monitor all CMM activity remotely from any internet-connected device. The web-based portal provides 24/7 access to information from any enabled metrology device for automatically retrieving inspection results and a summary of errors, a record of program changes, uptime of the CMMs and OEE (overall equipment effectiveness).

Historical logs assist troubleshooting and warn when routine maintenance is due, not only of the inspection machines but also of the machine tools or other equipment on which the components are being made. The software provides a modular solution for various levels of CMM automation to raise productivity, cost effectiveness and product quality.

www.lkmetrology.com