Felsomat

IMPROVES PART QUALITY AND CUTS PRODUCTION TIME WITH LASER WELDING LINE

When a leading automotive supplier in Mexico was looking to cut production time and improve part quality for their rear drive assembly (RDU) and power transfer unit (PTU) assembly, they knew just who to turn to—Felsomat USA! The Felsomat USA automation experts used their expertise to create not one, but TWO laser welders for this customer. "We're thrilled that we had the opportunity to show this automotive supply leader the capabilities of our laser welding line, and that the customer saw the incredible benefits of our system," says Daniel Maerklin, president at Felsomat USA. Maerklin continued, "We knew our complete laser welding system would be the perfect fit for the application because of its production quality, versality, and short cycle times. Clearly, the customer saw the benefits too as we just shipped their second complete system!"

The Felsomat laser welding cell is called a complete welding system, because of all of the amazing components it includes. "We wanted the laser welding system to really do it all, essentially be a one-stop-shop for the laser welding of parts. With this system, we've successfully achieved that goal," says Maerklin. And that is absolutely not an understatement. This state-of-the-art complete line includes press, laser clean, and ultrasonic test stations, as well as a robot handling system. By combining all of these pieces, the complete part assembly can be performed in one system, minimizing production times and improving overall part quality.

Showcasing some of its extreme versatility, this laser welding line has an interchangeable laser head and clamp that can be easily swapped for each individual part. "We know that the thought of changing out these pieces can be scary, but we've designed the machine so that it is not only simple to change but can also be done in no time! We know that production time is critical, so we ensure changeover times are minimized," says Maerklin.

The laser welder is equipped with a 6 kW TRUMPF laser source. "We work very closely with the experts at TRUMPF and are excited to partner with them again for the laser sources in our state-of-the-art laser welders," continues Maerklin. Not only was versatility and power essential for this customer, but so was maintaining consistently high part qualities. "To ensure parts are perfect, every time, our Felsomat laser welder is equipped with a laser seam tracking and weld monitoring system from Lessmueller" concludes Maerklin.

Felsomat recently hosted its Technology Days from October 12–14 at their Konigsbach-Stein, Germany-based headquarters. Throughout this open house, they showcased their e-motor traction motor stator and rotor assembly systems, 2D and 3D hairpin stator bending demonstrations, and Felsomat FHC hobbing and machine demonstrations.

www.felsomat.de

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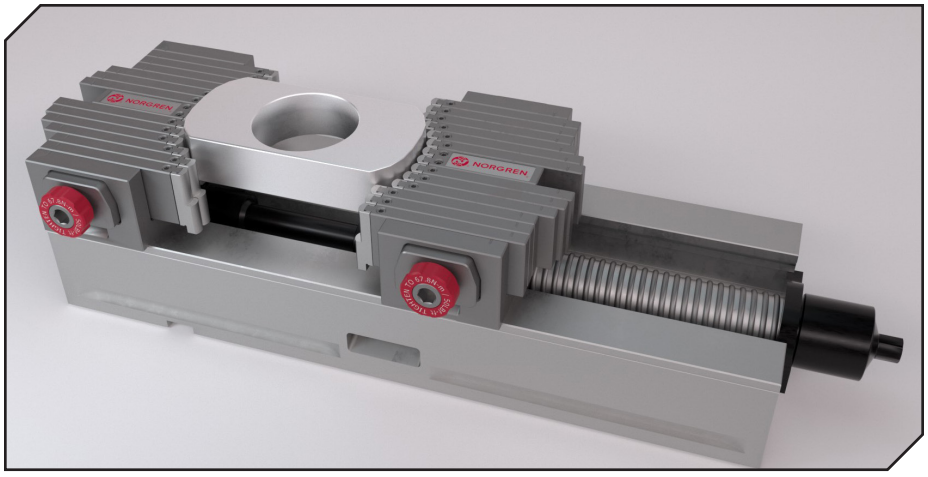
Norgren

LAUNCHES ADAPTIX SOFT JAW



Norgren, part of IMI plc, recently made two key announcements at the 2021 Precision Machining Technology Show (PMTS 2021). One to officially launch Norgren's Workholding business, and the other to preview the Adaptix Soft Jaw, the first product in the new portfolio.

The Adaptix Soft Jaw uses adjustable fingers and interchangeable tips to grip a wide variety of parts or workpieces during the computer numerical control (CNC) machining process. It was specially engineered to be a one-size-fits-all alternative to standard, single-application aluminum soft jaws.

"Single-application soft jaws require a significant amount of time, skill and raw material to construct, even before a single part is milled," said Tom Wood, senior director of growth initiatives at Norgren. "We saw an opportunity to solve several machining problems with just one tool, and so we designed the Adaptix Soft Jaw to grip nearly any part with comparable repeatability and clamping force as single-application soft jaws. This singular innovation in the CNC machining workflow can have a huge impact on several pain points in the industry."

The Adaptix Soft Jaw's adjustable fingers and interchangeable tips are made out of a variety of different materials to match the milling needs of a particular part. The fingers easily mold into place to conform to the shape of the target part and then are locked in place. This configuration process takes minutes, instead of hours, on average, with traditional soft jaws. The soft jaw fits directly onto a vise, and is currently compatible with Kurt and Schunk brand vises, with other vise compatibility planned in the near future.

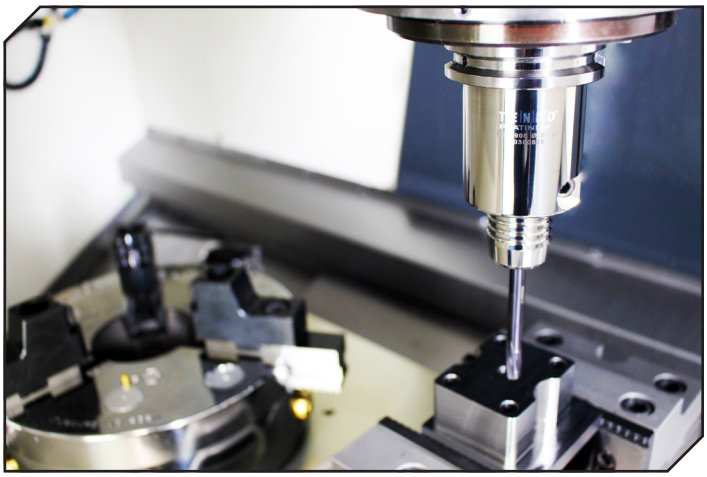
"The COVID-19 pandemic and the pressure it placed on supply chains, hiring needs, and skills training only exacerbated the existing needs of the machining industry," said Wood. "Adaptix and, by extension, Norgren Workholding were created by Norgren

to leverage our commitment to breakthrough engineering to make manufacturing more streamlined and accessible, and to solve several industry bottlenecks. So, we are thrilled to have collaborated with industry experts to create a first-of-its-kind soft jaw for the next generation of machinists."

www.norgrenworkholding.com

Schunk

INTRODUCES HYDRAULIC TOOLHOLDER



Schunk has announced the launch of the new TENDO Platinum V2 hydraulic toolholder. Designed and manufactured in the USA, the TENDO V2 is a culmination of more than 40 years of ongoing research and development in hydraulic toolholder technology to bring manufacturers the most advanced direct clamping toolholder in the industry.

A critically thought out, modern toolholder

With its ergonomic slim outer profile for easy and comfortable actuation, the TENDO Platinum V2 is specifically designed for direct clamping the tool. Imbalance correction goes unnoticed and is carefully designed into the body profile. Constructed of durable hardened tool steel, the V2 improves stability, stiffness, and clamping force to give you a toolholder with longer sustained accuracy throughout its life.

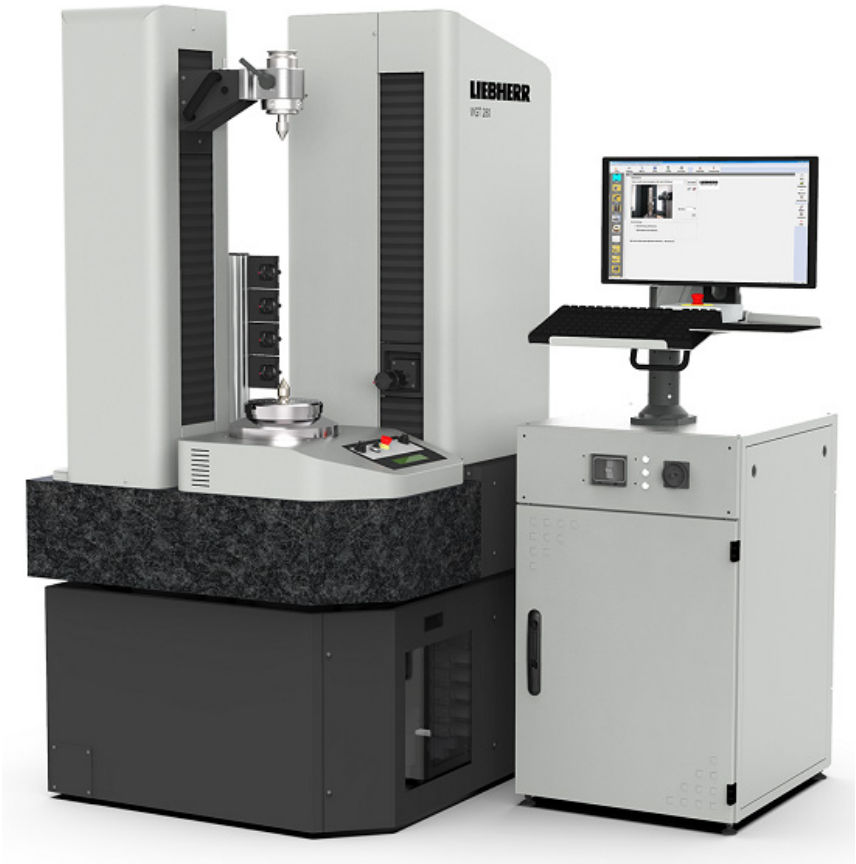
Innovative since the beginning

The TENDO Original with three rings was developed in 1978 and was the first in the market to feature a run-out/repeat accuracy greater than or equal to 0.003, balance G2.5 25,000 rpm, and no risk of damage when clamped without the tool. SCHUNK continues to bring technological advances to the world of toolholding with the release of the TENDO Platinum V2.

Schunk.com

Liebherr

OFFERS LHINSPECT SOFTWARE FOR WGT SERIES



After acquiring the highly efficient software from metrotek, Liebherr will be offering it under the name LHInspect for use on the WGT series of high-precision, four-axis inspection machines.

LHInspect offers a unique range of functions and will be used in conjunction with the WGT series of machines for inspecting all types of gears, gear cutting tools and shaft-type workpieces, including size and position determination. LHInspect also supports the manufacturer-neutral GDE interface for exchanging geometrical and measurement data between gear inspection machines and gear cutting machines as the basis for automated correction of setting data (LHOpenConnect).

The easy to operate and user-friendly WGT gear inspection machines with LHInspect, are the result of decades of experience in gear inspection technology.

In the future, Liebherr Verzahntechnik GmbH will continue to develop LHInspect while focusing on the needs of customers.

www.liebherr.com

TCI Precision Metals

INSTALLS WATERJET MACHINING CENTER FOR MACHINE-READY BLANKS

TCI Precision Metals has announced the installation of its second OMAX 80X waterjet machining center. The new machine is the second waterjet added in the last twelve months to keep up with growing demand for precision Machine-Ready Blanks and other specialty parts.

TCI has standardized on the OMAX 80X for its speed and more accuracy compared to other abrasive jet waterjets in the industry, which will help TCI Precision Metals maintain its excellent customer lead times even the face of growing demand.

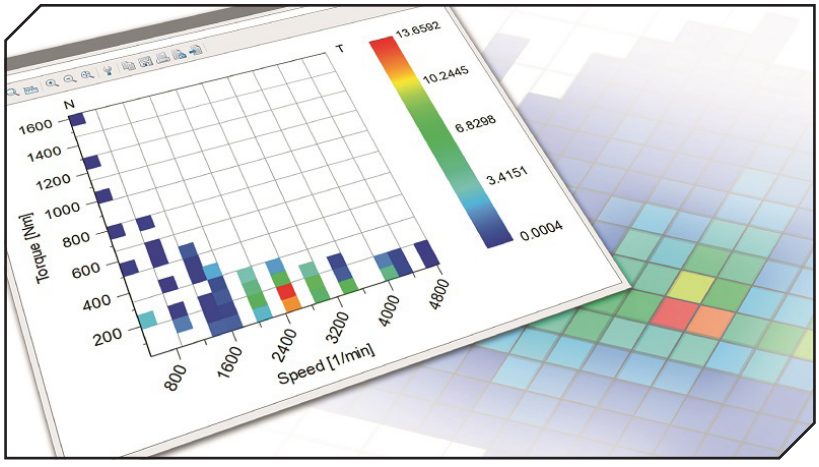
"Our recent investments in both sawing and waterjet cutting equipment have paid off big for our customers by helping us shorten lead time and improve on time delivery. Most of our Machine-Ready Blanks orders are for either aluminum or stainless steel alloys. For our aluminum customers we previously installed a new Schelling fm8 plate saw, capable of cutting aluminum and other nonferrous metals up to 6-inches in thickness at speeds up to 100 ft/min. We then added our initial OMAX waterjet machine, and now our second one, capable of cutting stainless steel alloys and other ferrous materials that are up to 8" thick on 15'0"×7'5" table. This allows us to maintain complete control over managing our customer's expectations when it comes to special needs and on time delivery," said Ben Belzer, president of TCI Precision Metals.

OMAX waterjet machining centers are recognized as being highly accurate, flexible, and efficient. With its Tilt-A-Jet cutting head technology, the model 80X produces high precision, finished edge cuts that are square, with no edge tapper, which is a problem with many other waterjet matching centers.

www.tciprecision.com

KISSsoft

EXAMINES GEAR STRENGTH CALCULATION WITH LOAD COLLECTIVES

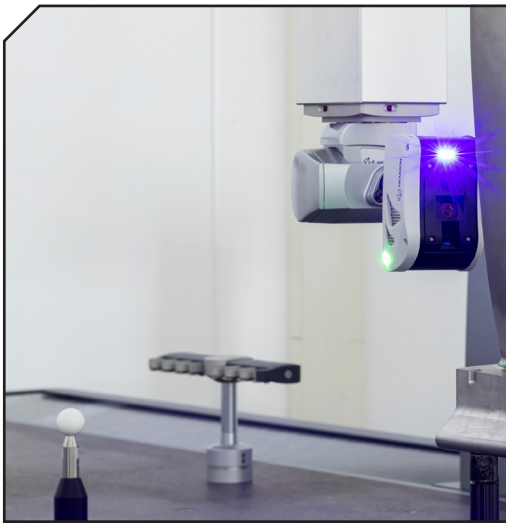


Load spectra can be derived from time series - a measured time-torque-speed curve or one derived from simulations. For time series with only positive torque, the "Simple Count" method is used to obtain a load spectrum with torque-speed bins. The refinement of the resolution in load spectrum bins (grid) can be specified.

The procedure is more complicated for time series with positive and negative torques since the tooth root is then subjected to alternating loads. First, the "Rainflow" method is used to find all significant torque changes over time. A load spectrum, which also contains alternating bending factors YM, is then derived from the resulting Rainflow triangular matrix. In addition to extended reports on the calculation details, graphical displays are now available in matrix form for torque and speed distribution with frequency. The same display can also be used for the direct input of load spectra. The evaluation and control of the collective are thus much clearer.

Dr. Ulrich Kissling will give an (online) presentation (in English) on "Use of duty cycles or measured torque-time data with AGMA ratings" at this year's AGMA Fall Technical Meeting (Nov 1-3, 2021) in the United States.

www.kisssoft.com



Hexagon's Manufacturing Intelligence

INTRODUCES NON-CONTACT LASER SENSOR FOR CMMS

Hexagon's Manufacturing Intelligence division has announced the HP-L-10.10, a genre-busting non-contact laser sensor for Coordinate Measuring Machines (CMMs) that offers manufacturers the ability to perform dimensional measurements at comparable accuracy to tactile probing and inspect almost any surface in a fraction of the time. Manufacturers using CMMs for critical part measurements have become accustomed to trading speed for accuracy. The HP-L-10.10 sensor utilizes Hexagon's latest cross-platform laser line scanning technology to offer similar repeatability and performance compared to tactile measurements executed on the same CMM. Furthermore, it can measure 600,000 individual points per second with a probing form error of just 8µm, rapidly capturing a complete high-resolution digital representation of a part that is valid for both surface and detailed feature inspection. While laser scanning has been possible on CMMs, the HP-L-10.10 is 7 times faster than its predecessor and introduces high precision scanning.

The new sensor employs Hexagon's unique SHINE (Systematic High-Intelligence Noise Elimination) technology, making it possible to scan almost any part surface or finish at maximum speed and accuracy without user intervention.

"We believe this laser-line scanner is game-changing because it offers speed, flexibility and accuracy without sacrificing one crucial inspection need for another," said Patryk Wroclawski, product manager non-contact and laser triangulation. "The HP-L-10.10 redefines what can be achieved with a single piece of equipment, so that our customers can utilize comprehensive measurement data for actions beyond final part quality, whether that be within new product development or continuous improvement initiatives."

The HP-L-10.10 complements Hexagon's extensive offering of sensor solutions for CMMs, providing manufacturers greater flexibility projects with confidence that their CMM investment can take on the broadest range

of measurement applications from larger sheet-metal parts to intricate electric vehicle components. Available for the GLOBAL S productivity line and GLOBAL Advantage CMMs.

Developed in close collaboration with the device, Hexagon's PC-DMIS inspection software enables users to automatically produce efficient laser-scanning paths by automatically generating the tips, scans, and motions needed for measurement. The software can capture a single point cloud with variable point cloud density within one motion that is valid for both surface and detailed feature inspection. Users can easily visualize surface imperfections, fully exploiting the scanner's multi-faceted capabilities to identify perceived quality issues, imperfections to feed continuous process improvement.

When measuring large parts or remotely programming the CMM, the user's experience is greatly enhanced by an integrated Overview Camera (OVC), that provides a clear view of the work area with visible guides on the part that indicate the measurement range. The visible guides help to warn the Quality technician when the measurement range is exceeded, allowing for easier routine creation and inspection through PC-DMIS software. The overview camera also improves productivity and collaboration during inspection, for example photographing a part surface that is out of tolerance to so the operator and production colleagues can quickly locate the problem.

The HP-L-10.10 laser-line scanner is now available worldwide. Visit Hexagon's new Can I Measure It? micro site for resources explaining how measurement challenges are overcome with effective strategies and the best use of CMM and sensor technologies.

Hexagonmi.com

Mercury Marine

ADVANCES HEAT TREAT PROCESSES WITH ECM TECHNOLOGIES VACUUM FURNACES SYSTEMS

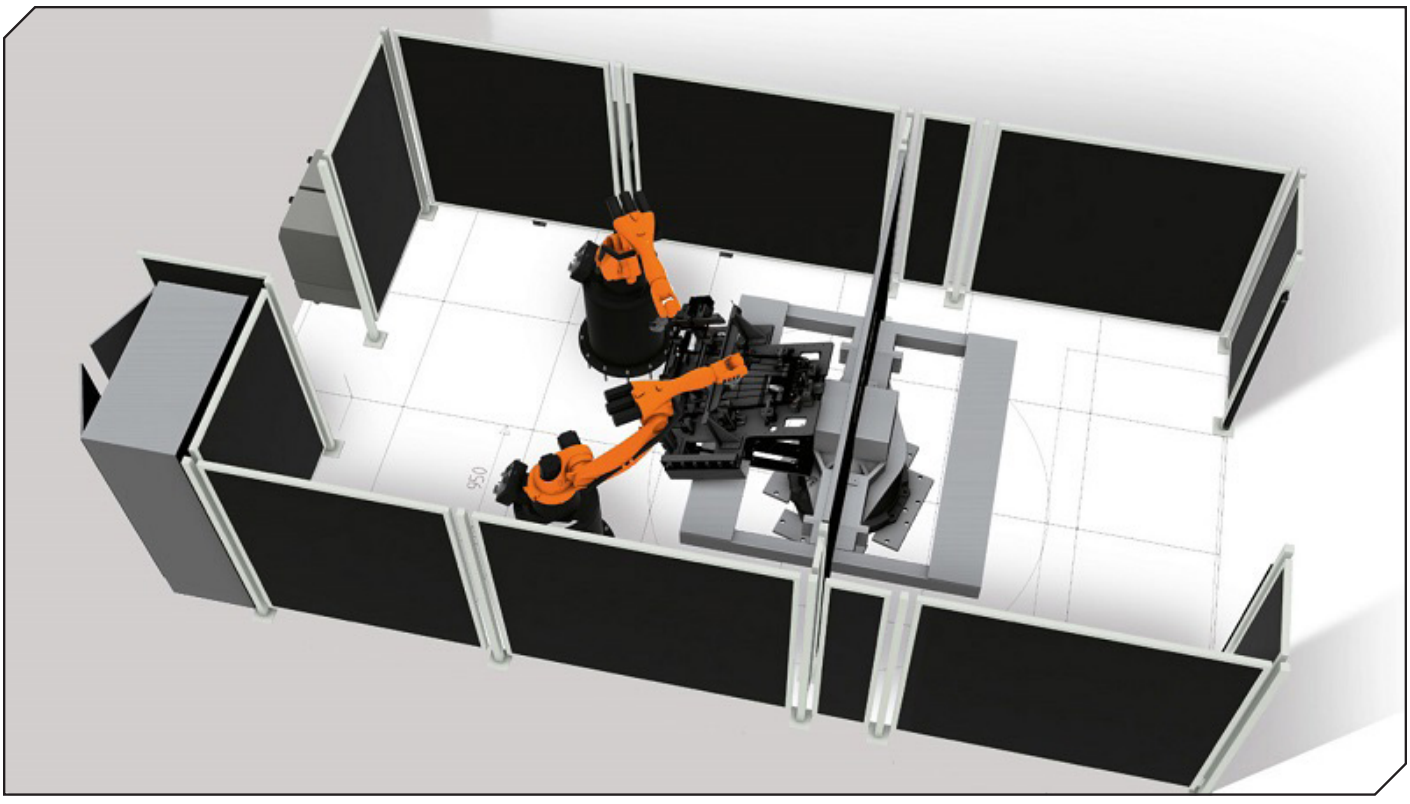
Mercury Marine of Fond du Lac, Wisconsin, recently launched a plan to upgrade its heat-treating capabilities with a move to the low-pressure carburization and high-pressure gas quench system. Partnering with ECM Technologies, the new plan incorporates completely automated Nano vacuum heat treating systems. The innovative Nano system incorporates 20 bar nitrogen gas quenching along with Low Pressure Carburizing (aka vacuum carburizing). The Nano, with its versatile configuration, will operate several different carburizing, hardening, and spheroidizing processes simultaneously. This change marks a departure from Mercury's traditional atmospheric carburization and oil quench system while benefiting from advantages that come with vacuum processing:

- Innovative vacuum heat treating in lieu of traditional atmosphere (elimination of intergranular oxidation & highly repeatable process with consistent results
- Employs preventive maintenance planning, remote system status access and facility information systems integration
- Relocates heat treat from a secondary location to the clean, controlled environment of the machining centers
- Converts to Small Batch processing principles to maximize process efficiency
- State-of-the-art growth with ECM's advanced system automation and robot capability with load building and breakdown
- Controls downstream operations by matching incoming dunnage with exiting workpieces
- Takes advantage of vapor and vacuum-based pre-cleaning technology to remove multiple machining lubricants
- Incorporates cryogenic and tempering processes within the automated system

The system uses all CFC workload fixtures and ECM's advanced automation fixture tracking to maintain a precise cycle count to know fixture life. This improvement for Mercury significantly reduces energy consumption and process cost per piece. Additionally, the vacuum process takes their heat treatment to a near-zero emissions for drivetrain components processed within the system.

Headquartered in Fond du Lac, Wisconsin, Mercury Marine is the world's leading manufacturer of recreational marine propulsion engines. A division of Brunswick Corporation (NYSE: BC), Mercury provides engines, boats, services, and parts for recreational, commercial and government marine applications. The company empowers boaters with products that are easy to use, extremely reliable and backed by the most dedicated customer support in the world. Mercury's industry-leading brand portfolio includes Mercury outboard engines, Mercury MerCruiser sterndrive and inboard packages, Mercury propellers, Mercury inflatable boats, Mercury SmartCraft electronics, Land 'N' Sea marine parts distribution and Mercury and Quicksilver parts and oils.

www.ecm-usa.com
www.MercuryMarine.com.



KUKA Robotics

LAUNCHES LATEST DIGITAL SIMULATION SOFTWARE PACKAGE

KUKA Robotics has launched KUKA.Sim 4.0, a major enhancement of its modular digital simulation software package. This latest version facilitates accurate planning, programming, safety configuration and more through digital twins of the automation processes.

The KUKA.Sim software enables manufacturers to test and validate robotic installations before equipment arrives, minimize the footprint of cells with 3D visualization of safety spaces, then transfer applications with 100% accuracy to an actual robot controller. In addition, KUKA.Sim 4.0 can program robots offline, analyze cycle times and expand with new functionalities through add-on modules.

KUKA.Sim 4.0 checks reachability and detects collisions in virtual space to ensure foolproof implementation of programs and cells, minimizing the time and costs of planning tasks as well as actual production downtime. Through a digital twin that matches the physical process, 3D simulation covers the full planning process from design and verification through PLC code, eliminating bottlenecks with full consistency for advance testing and optimization. For system integrators, KUKA.Sim 4.0 saves time and increases project success with solutions that translate directly to customers' production lines.

In industries from consumer goods to electronics and automotive, KUKA.Sim 4.0 makes automation planning easy with a new KUKA Robot Language (KRL) editor that includes expert and beginner onscreen views with a visual program tree that facilitates ease even without previous KRL experience. Drag-and-drop configuration of an extensive library of smart components enables quick investigation of design ideas with accurate calculation of cycle times. Export options include 3D PDF files, detailed 2D mechanical commissioning data and presentation/simulation results for use on virtual-reality hardware or the Mobile Viewer app for smartphones and tablets.

Modular add-ons expand the flexibility and power of KUKA.Sim 4.0 and enable customers to acquire only the level of functionality they need. The Modeling add-on enables users to build a customized library based on the CAD data from the kinematic systems, sensors, material flow and physical behavior of their own robotic installations. The Connectivity add-on commissions robot cells virtually for accurate planning and implementation. The Arc Welding add-on defines robot approach positions and optimal orientations to speed up offline programming.

The my.KUKA customer portal handles new and existing licenses, provides updates and enables prospective customers to obtain a free trial of KUKA.Sim 4.0. The portal also processes software license purchases.

www.kuka.com

LK Metrology

RELEASES LATEST VERSION OF CAMIO CMM SOFTWARE

LK Metrology has announced the release of the latest version of its measurement, programming, analysis and reporting CMM software. Now called CAMIO 2021, the software has been significantly improved in numerous key areas, helping to increase inspection productivity, improve the quality of data collected and gain better insight into the components being measured.

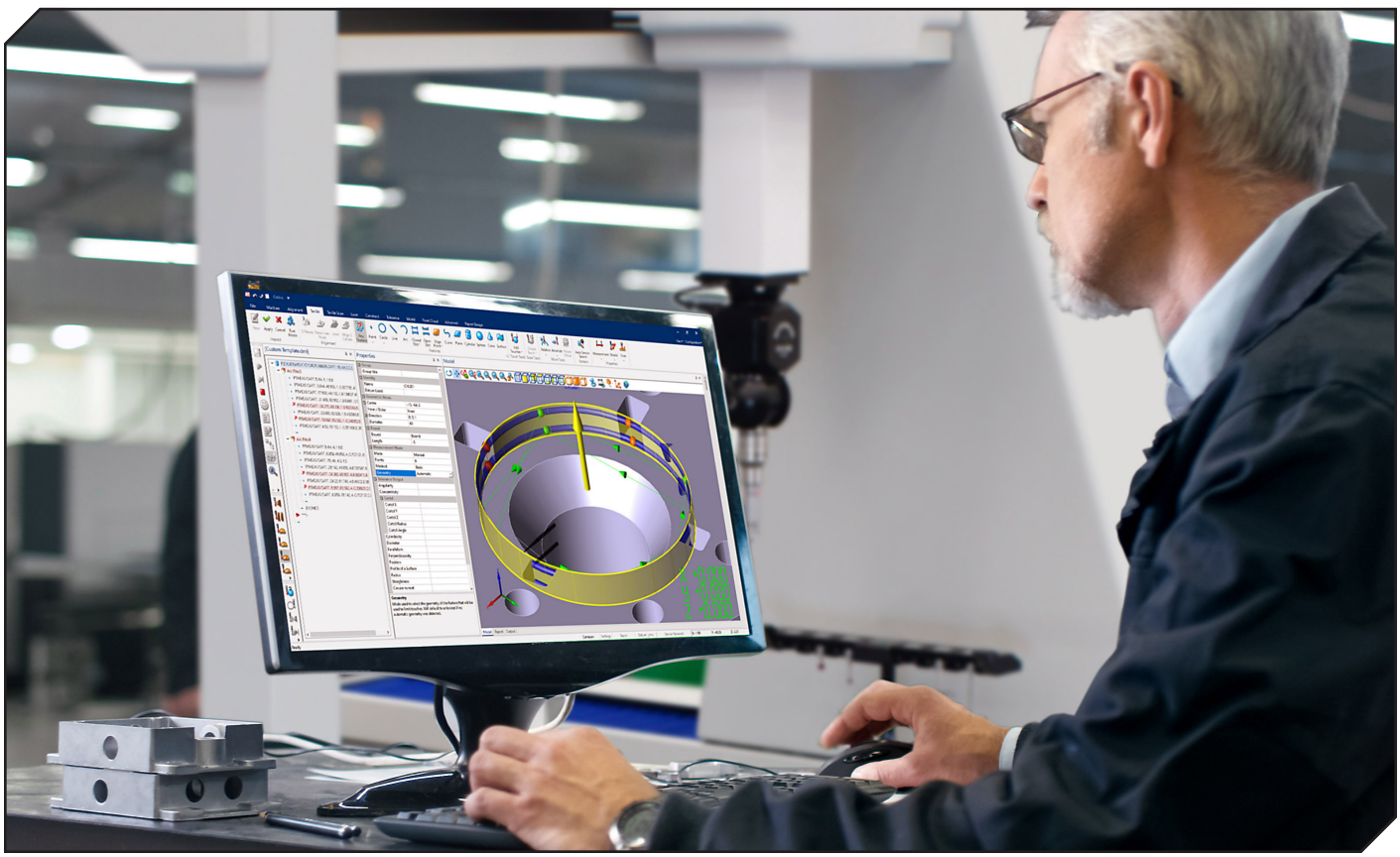
CAMIO 2021 Geometry Validation reduces the time taken when preparing new inspection programs by automatically detecting which surfaces of the CAD model should be used to measure the feature. It ensures that all measurements are taken on suitable surfaces automatically and at the same time provides the programmer with the option to modify the default settings and selections. While the feature is being programmed, the CAD simulation highlights the geometry used for the validation and previews the measurement sequence. This combines with the Teach Path view to provide a full visual and numerical evaluation of the programming sequence prior to executing the touch points or scanning sequence, enabling the programmer to get the inspection sequence right first time when programming online or offline. Other improvements have been made to the programming workflow by extending the advanced picking function to touch points and scan paths on a CAD model and to indicate the selection of existing measured features.

New for CAMIO 2021, probe self-centering allows the center point of a V-groove to be automatically located and measured using a scanning probe. This replicates hard gauging and measurement using gauge-balls, typically used for gear tooth inspection and measuring countersink depth. Probe self-centering responds to the continuous deflections of an analogue probe in real time to locate the mid-point between two surfaces.

CAMIO 2021 Orientation Tolerancing automatically determines the appropriate relationship to a secondary datum based on the nominal feature definitions. Any manually specified relationship is ignored, except in cases where a relationship cannot be determined automatically. Tolerance zone shape and relationship to the secondary datum outputs have also been added for enhancing the output of orientation tolerances. Perpendicularity, parallelism and angularity checking have been enhanced with improved validation, evaluation and user feedback for geometric dimensioning and tolerancing (GD&T).

For CAD users, the CAMIO 2021 exchange file versions have been updated to the latest release of Spatial's InterOp. The interoperability software is an industry-leader in CAD data translation that allows users to import, interact with, share and export 3D data easily across CMM platforms and manufacturing sites. The Select Components dialogue box has been extended to reserve stalls in the ACR3 change rack for any CMM laser scanner, including all those from Nikon Metrology. Lastly, the NmAPI interface that enables deployment of Nikon Metrology laser scanners on a CMM has been updated to version 4.6.

www.lkmetrology.com



Klingelnberg

PRESENTS FLEXIBLE ROLL TESTING ON THE R 300

The Höfler Cylindrical Gear Roll Testing Machine R 300 is the latest machine development from the engineering company Klingelnberg in the area of cylindrical gear technology. Designed for all five roll testing methods, this compact machine is the ideal solution for anyone who wants to combine inspection cycles and reduce disassembly costs while benefiting from a user-friendly design.

Due to the increasing outsourcing of part and component production in large-scale transmission manufacturing, some transmission and vehicle manufacturers now require a certificate of quality for all gears installed in the powertrain. A further driver of ever-higher inspection levels is e-mobility. With the elimination of the combustion engine, there is an even greater focus on the noise behavior of the transmission than before, since the electric motor has a comparatively low masking effect on gear noise. To meet this challenge, Klingelnberg is building on roll testing technology, a familiar method from the bevel gear industry that is now moving into the world of cylindrical gears.

Only with a flexible test machine can the many quality control requirements for gears be met. Depending on the configuration, the R 300 provides the option of using all five roll testing methods. These include the single flank test, the structure-borne noise test and torsional acceleration test, the double-flank test, and the helix roll test. Thus the R 300 can be used at every point in the production process chain for cylindrical gears – from monitoring the soft cutting to checking the hardening distortions, to evaluating the noise behavior of the installation-ready gear.

Modular Machine Design

In terms of axis traversing paths, the Höfler Cylindrical Gear Roll Testing Machine R 300 covers the same component spectrum as the tried-and-tested Höfler Cylindrical Gear Generating Grinding Machine Speed Viper. Gear components up to an outside diameter of 300 mm can be tested, for example. In conjunction with the optional counter support, shafts up to 800 mm in length can be analyzed to determine their running performance and noise behavior. With a minimal footprint of 2 m2, the machine's compact design also saves costs since it requires very little expensive floor space.

Convenient, User Friendly Design

The tried-and-tested design of the human-machine interface (HMI), familiar from the cylindrical gear and bevel gear processing machines, also ensures optimal user-friendliness in the R 300. The HMI is equipped with a 19-inch touchscreen, and important functions, such as "Clamp and release workpiece", can be initiated via hardware switches. To make the user navigation as easy as possible, the operator is guided via a process-oriented menu structure to only those windows that are necessary for the specific test task at hand. This contributes significantly to the prevention of input errors and shortens the time required to train new employees.

www.klingelnberg.com