

Forest City Gear

EXPANDS QUALITY CAPABILITIES WITH DIGITAL MAGNIFICATION TECHNOLOGY

Forest City Gear has added an EVO Cam advanced full-HD digital microscope to its Quality Assurance Lab to greatly speed and simplify the visual inspection of precision parts.

The EVO Cam provides the operator with a particularly large 30:1 optical zoom and magnification up to 300x to display even the most minute workpiece details in ultra-sharp full-HD 1080p / 60fps live video. As compared to the traditional stereoscopes typically used for visual parts inspection, the EVO Cam offers the Forest City Gear operator a much faster and more accurate way to detect for burrs, tears and other surface finish anomalies that might exist in workpieces after machining.

“It’s a particularly useful tool for the fine pitch, high precision gears we excel at producing for demanding aerospace applications,” says Quality Assurance Manager John Young. “It’s also been invaluable for inspection of some of the gears we’ve produced for the Mars Rover 2020 program, where we’re striving for perfection.”

EVO Cam is well suited for fast visual inspection of gears, since it gives operators the ability to view the entire



workpiece, or the smallest detail, at the touch of a button. It also has a 360° rotating viewer capability to reveal an angled all-round view of the part.

It’s just one of many technologies that Forest City Gear has at its disposal in a Quality Assurance Lab that is among the most advanced in the industry.

For more information:
Forest City Gear
Phone: (815) 623-2168
www.forestcitygear.com

KISSsoft

IMPLEMENTS BEVEL AND HYPOID GEAR CALCULATIONS

In the ISO Committee, the scuffing load capacity calculation for bevel and hypoid gears is currently in draft form, and has been implemented so in *KISSsoft*. This method is mainly applicable for hypoid

gears, and it also takes into account effects such as the running in of GL5 oils.

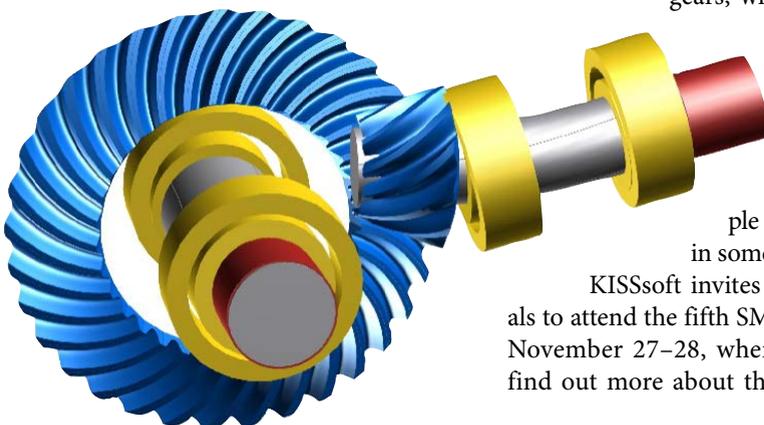
The backlash (as the tooth thickness allowance) according to ISO, Gleason and Klingelnberg is now available for bevel gears, which is especially helpful in the bevel gear design process, because the manufacturing principle is not yet defined in some cases.

KISSsoft invites gear professionals to attend the fifth SMK in Rapperswil November 27–28, where attendees can find out more about this topic. Among

others, Dr. Joachim Thomas from ZG Hypoid GmbH, Frederik Mieth from the Technical University Dresden and Jürg Langhart from KISSsoft AG will give presentations on bevel gears.

In addition, there are still places open for the advanced training gear design and optimization course in taking place September 25–28. Visit the website below for details.

For more information:
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Starrett

INTRODUCES AGD DIGITAL INDICATORS

The L.S. Starrett Company has introduced a range of Digital Electronic Indicators conforming to true AGD (American Gage Design) Group 1 dimensions, providing the ability to replace traditional mechanical indicating applications in the smallest AGD size specification class. Starrett 2700 Electronic Indicators are the first digital

gages to match true AGD Group 1 dimensions (1.70"/ 43mm diameter).

Starrett 2700 Indicators feature a 1.70" diameter, 270 degree rotating bezel, allowing different user viewing preferences. The gages are available in two displays - a single LCD Numeric IQ model (the largest of its class) with low battery warning and programmable ratios, or a



Numeric/ Analog AD model showing the two displays simultaneously.

Gages feature a .400" (10 mm) travel, accuracy of ± 0.0001 " (0.002 mm) on the F2715 models and accuracy of ± 0.0002 " (0.004 mm) on the F2714 models. The gages can store and view 200 readings internally. Stored readings can be downloaded with included software and a USB style cable. Starrett 2700 Digital Indicators have a CR2032 cell long-life battery that can last up to 3,000 hours under typical use. Gages are output-compatible for SPC documentation via cable or wirelessly using a Starrett DataSure® Data Collection device.

These indicators are Made In America, have a 3/8" (.375") stem with 4-48 thread and are available in four models based on display readout format and resolutions. Switchable resolutions are .001/ .0005/ .0001/ .00005 or .001/ .0005/ .0001 in inch. In metric readouts, switchable resolutions are 0.02/ 0.01/ 0.002/ 0.001 or 0.02/ 0.01/ 0.002 mm. Gage functions are easy-to-operate and include: Absolute True Position, Travel Reverse, TIR, Tolerance Settings, Floating Zero, In/mm conversion, three Hold functions (max/ min/ freeze) and Auto Off.

For more information:

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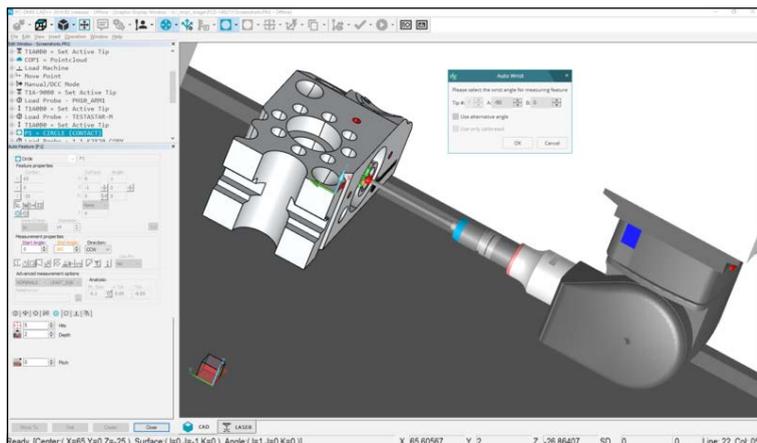
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Hexagon Manufacturing Intelligence

LAUNCHES LATEST EDITION OF MEASUREMENT SOFTWARE

Hexagon's Manufacturing Intelligence division has launched *PC-DMIS 2018 R2*, the latest edition of its measurement software. This is the second of two major releases scheduled for *PC-DMIS* in 2018, with continued



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service pack updates to ensure maximum reliability of the platform.

PC-DMIS 2018 R2 introduces a new reporting workflow, making it easier than ever to create customized reports with simple drag and drop and an intuitive slideshow-style interface. A new QuickPath tool expands on existing QuickFeature functionality to simplify feature creation with a safe path *PC-DMIS 2018 R2* also introduces the ability to add run charts from qs-STAT into the *PC-DMIS* report. Improved Probe Utility allows users to mark favorite tip configurations, create required tip angles by simply clicking on CAD, and buy replacements with Shopping Cart tools; a new e-Store is coming soon to hexagonmi.com. Improvements in the use of lasers, specifically for path creation and offline programming, are also featured in the new release.

“*PC-DMIS 2018 R2* continues the recent trend towards maximizing productivity in the three major metrology tasks: creation, execution, and collaboration,” said Ken Woodbine, product line manager for metrology software at Hexagon Manufacturing Intelligence. “Creating measurement routines is even simpler and more intuitive with the addition of both QuickPath for adding motion in ‘walk up and measure’ applications and the offline path visualization and simulation for laser probes. Execution is also streamlined with improvements to our Inspect module, making it easier to control access to routines, and for operators to search and find routines and reports.”

For more information:
Hexagon Manufacturing Intelligence
Phone: (401) 866-2000
www.hexagon.com

Sandvik Coromant

OFFERS TWO NEW CERAMIC INSERT GRADES

Sandvik Coromant has introduced two new ceramic insert grades that are capable of performing high-speed, high-security turning operations on components made from demanding HRSA (heat resistant super alloy) materials. The CC6220 and CC6230 ceramic grades have been developed to machine demanding materials where whisker ceramics and SiAlONs fall short. Their ability to handle higher cutting speeds contributes to reduced cost per component, while inherent machining security ensures that quality is not compromised to help manufacturers produce high quality parts, time after time.

There is growing demand for aerospace engine parts that can withstand extreme temperatures beyond the capability of those made from Inconel and other high-performance super alloys. Although these powder metallurgic materials can be tailored to handle substantially higher temperatures, they are more difficult to machine than common HRSAs.

“CC6220 and CC6230 excel when turning demanding materials in intermediate stage machining,” says Rolf Olofsson, product management turning at Sandvik Coromant. “They take productivity to a new level in comparison with whisker ceramics and SiAlONs, in terms of both cutting speeds and feeds. Moreover, repeatable quality is assured.”

Along with productivity improvements of more than 50% over whisker ceramics and SiAlONs, CC6220 and CC6230 offer long tool life in challenging HRSAs, and thereby lower cost per part.

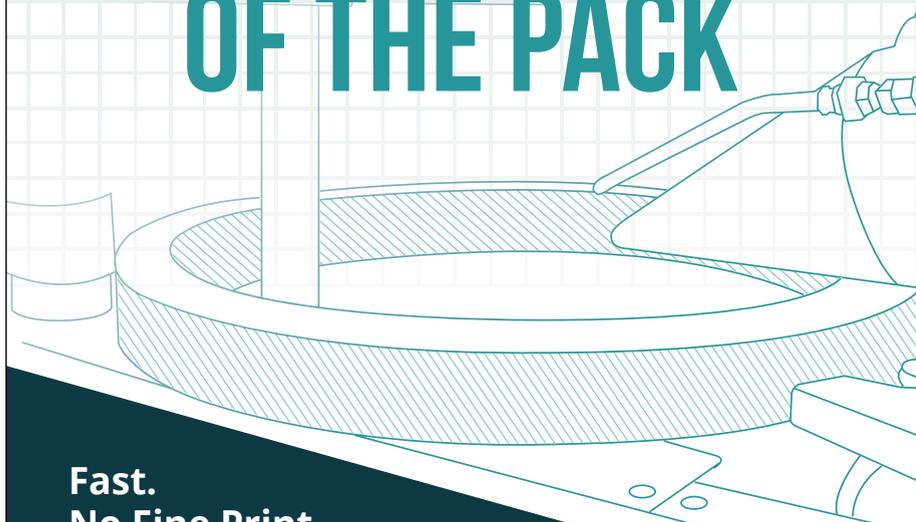
One of the most common applications to benefit is expected to be the turning of turbine discs. In a customer example machining a low-pressure turbine (LPT) disc made from Rene material (42-45 HRc) as part of the intermediate stage machining process, a CC6220 RPGX insert was deployed to perform pocketing and CC6230 RPGX inserts for rough-turning operation at cutting speeds as high as 400 m/min (1380 sfm). The process achieved a metal removal rate (MRR) of 80 cm³/min (5 inch³/min).

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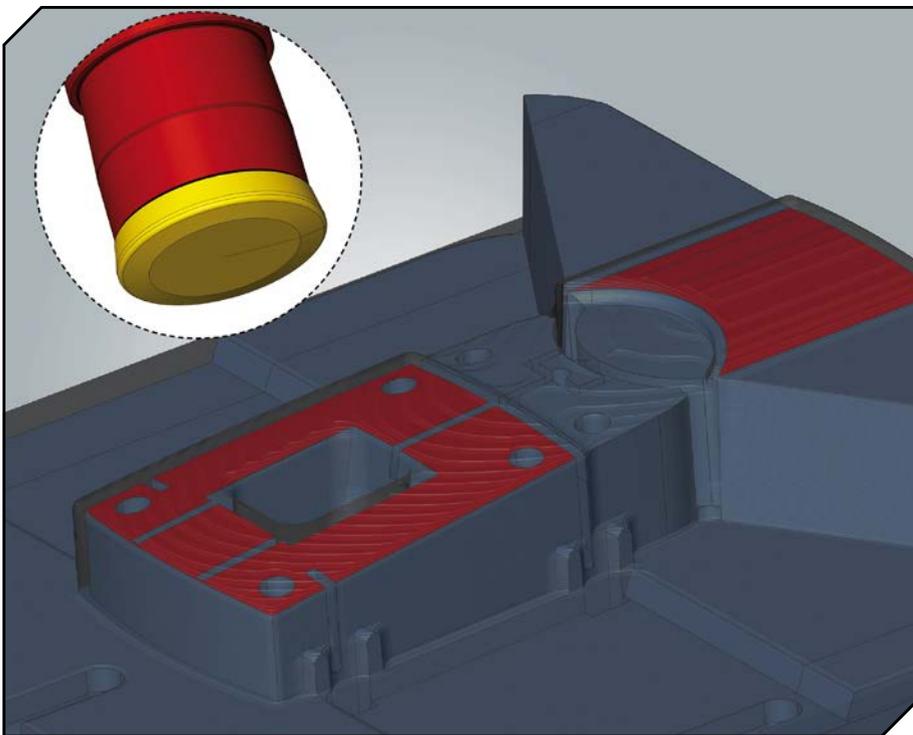
Open Mind Technologies

RELEASES LATEST VERSION OF HYPERMILL SOFTWARE

Open Mind Technologies AG, a developer of CAD/CAM software solutions, has introduced *HyperMill 2018.2*, the latest version of its advanced, comprehensive CAM software. *HyperMill 2018.2* offers a range of enhancements and new features for 3D Shape Z-level Finishing and 3D Optimized Roughing, greater CAD functionality and more.

For reduced programming times and improved milling, 3D Z-level Shape Finishing, available in *HyperCAD-S*, has two new features. "Automatic face extension" can be used during CAM programming to automatically extend the selected milling surfaces, eliminating manual CAD work and resulting in cleaner corner cuts. Also, 3D Z-level Shape Finishing now has the ability to support conical barrel cutters in addition to general and tangential cutters.

During 3D Optimized Roughing, multiple allowances are now recognized and accounted for when using free tool



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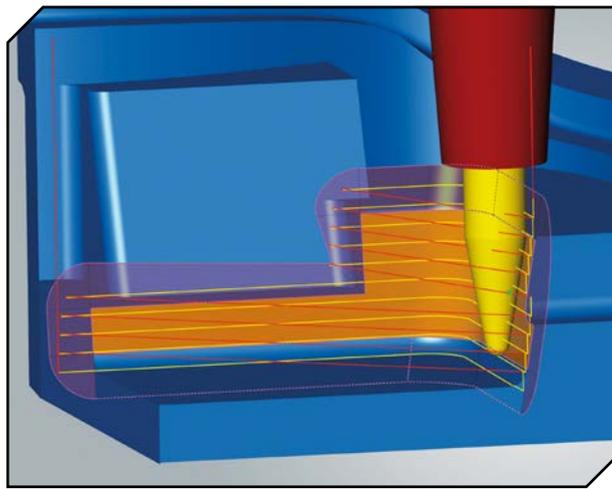
geometries, resulting in easier programming and a high level of flexibility for defining special tools. *HyperMill 2018.2* can define different allowances and adapt the machining process accordingly. High-feed cutters have a special cutting geometry that is easy to define using tool management, and *HyperMill 2018.2* uses the free geometries of the cutting tool edge for calculation, simulation and collision checking.

“Keeping the *HyperMill* suite at the forefront of CAM technology, we are pleased to offer our customers improved CAM strategies and enhanced CAD tools for even greater machining productivity through our new release of *HyperMill 2018.2*,” said Alan Levine, managing director of Open Mind Technologies USA, Inc.

New *HyperMill 2018.2* functionality also includes several enhancements to its *HyperCAD-S* module, including the ability to measure and record the distances between two shapes such as face models, solids, meshes or stock. In addition, for easy changes to milling boundaries and turning contours, *HyperMill 2018.2* offers a ‘V sketch’ command that assigns geometric constraints to 2D contours. When individual contours are changed, the sketch is automatically updated using their dependencies.

The electrode module, which provides quick designing of die-sinking electrodes, offers a new Virtual Electrode function for securely creating electrode copies which are checked for collisions, and can be assigned new technology values or the values of the master electrodes. For easier analysis, the reference system and eroding position for each electrode copy are included in a report.

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Walter Surface Technologies

OFFERS WELD CLEANING SYSTEM

Walter Surface Technologies, the global industry leader in surface treatment technologies, recently introduced the Surfox 305, a patented electrochemical MIG and TIG weld cleaning system that is now safer, faster, and more user-friendly.

The Surfox 305 works fast to remove heat tint from the heat-affected zone of MIG, TIG, and spot welds on stainless steel and aluminum making it the most versatile weld cleaning system to date. It cleans the surface without disrupting passivation on stainless steel or altering the surface finish, and its dynamic current control protects the surface against micro-pitting. With an integrated tank and flow-through system, the Surfox 305 delivers the electrolyte solution directly to the workpiece to minimize the risk of spillage or cross-contamination.

“Resisting corrosion is a natural property of stainless steel due to the presence of the passive chromium oxide layer on



the surface, but this layer is compromised from the heat caused by welding,” says Jonathan Douville, senior product manager - Surfox, Finishing & Tooling. “Surfox 305 can safely, quickly, and effectively remove the heat tints caused by welding to help restore the corrosion resistance of stainless steel.”

Designed to streamline weld cleaning operations and minimize downtime, the Surfox 305 offers unsurpassed ease of use and functionality. Its exclusive quick-change brush system allows users to change out accessories easily, and its brushes are designed to clean large and hard-to-reach areas. Other industry-leading features of the Surfox 305 include an AC mode for cleaning and marking, a DC mode for polishing and etching, and a built-in vapor dispersion system.

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