



Best IMTS since 2000

Posting its strongest showing since 2000, September's IMTS in Chicago proved that the US manufacturing technologies sector is alive and well. Steed Webzell reports

Over prospect 1,800 exhibitors at IMTS 2008 attracted pre-registration visitor figures for America's premier machine tool exhibition of over 92,400.

"We are ecstatic that IMTS 2008 not only achieved, but exceeded expectations and objectives," said IMTS vice president – exhibitions, Peter Eelman. "The feedback from exhibitors and the purchasing activities of attendees prove that manufacturing is not only healthy, but thriving. Manufacturers coming to the show from around the world clearly understand that investing in the latest technology is key to being competitive."

Many of the leading US-based machine tool companies use IMTS as the global launch pad for a host of new products, and this year was no exception. Haas Automation, for example, took the wraps off many innovations, including: the Mini Mill 2 with extended travels (approximately 100 mm more in each axis); the ES-5 Series of compact HMCs; the EC-550 HMC with dual pallet changer, 50-station toolchanger and 1° pallet indexer; the EC-630PP HMC with

six-station pallet pool for lights-out machining; and the SS-30 rigid and thermally stable turning centre.

Elsewhere at the show, Hurco celebrated its 40th anniversary by introducing an unprecedented number of new machines. As a result, the company says 1,900 people visited the stand, up 5.5 per cent from 2006. In total, Hurco showcased six 5-axis machines and four of these were new to the Hurco line-up: the VMX60SR, BX30U, VMX30U and the VM10U – the latter targeting manufacturers that previously considered 5-axis machining to be too expensive or too complex.

ELITE PRODUCTS ON SHOW

Fellow US machine tool builder Hardinge demonstrated its enhanced Elite Series II turning centres. One of the most important changes made to both models in the Elite II Series is a new turret design that offsets the top plate in the Z-axis, increasing tool length by 50 mm on the backside for live tool machining operations on the optional sub-spindle.

For visitors requiring extra large machining capacity, MAG Giddings & Lewis launched three new models: the FT 3500 floor-type, travelling column horizontal boring mill that can be configured from 4 to 16 m in X and up to 5 m in Y; the HMC 1250 horizontal machining centre; and the VTC 1000 vertical turning centre with enhanced C-axis positioning capabilities.

'Large' was also the theme for German first time IMTS exhibitor Hofler (UK agent Micronz), which finalised the sale of an HF 8000 (8 m) CNC gear hobber – said to be the largest and only known gear cutting machine of its size ever produced. The purchaser, Highway Machine Corporation, based in Princeton, Indiana, produces gears for the mining, steel and large gearbox industries.

'Think big' was the similar theme being promoted on the stand of Mori Seiki: 'big ideas, big machines, big solutions' ran the slogan. During the event, two machines for large workpieces, the NT6600 DCG/4000CS and the NMV8000 DCG/50, were unveiled for the



first time. By using the longest boring bar in its class (1,270 mm), Mori Seiki performed machining demonstrations on the NT6600 DCG/4000CS integrated mill-turn centre to vast numbers of passing visitors.

EDM innovation was also evident at IMTS with the launch of GF AgieCharmilles' FI440CCS wire EDM that is capable of machining a variety of wire diameters. For instance, the machine can yield a 245 cm²/hr production rate with a 0.3 mm brass wire to save up to 30 per cent cutting time and reduce wire cost.

On the stand of EDM competitor Sodick (Sodi-Tech EDM), the theme was 'smart' technology, a nod to Sodick innovations such as linear motor drives, ceramic components and the intelligent QVic control which allows operators to import 3D CAD files that are converted to NC code. Yet these days Sodick has more in its portfolio than the range of EDM machines for which it is, perhaps, best known. The new AZ150 nano precision mill, which uses a 120,000 rpm turbine-air spindle, attracted a lot of attention. Vibration-free, 3 nm resolution, counter-balanced linear motor drives with cross roller guides drives mounted on the X and Y axes allow a machining accuracy of between 5 to 100 nm.

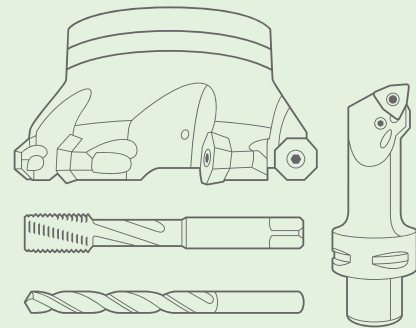
ABRASIVE EDGE

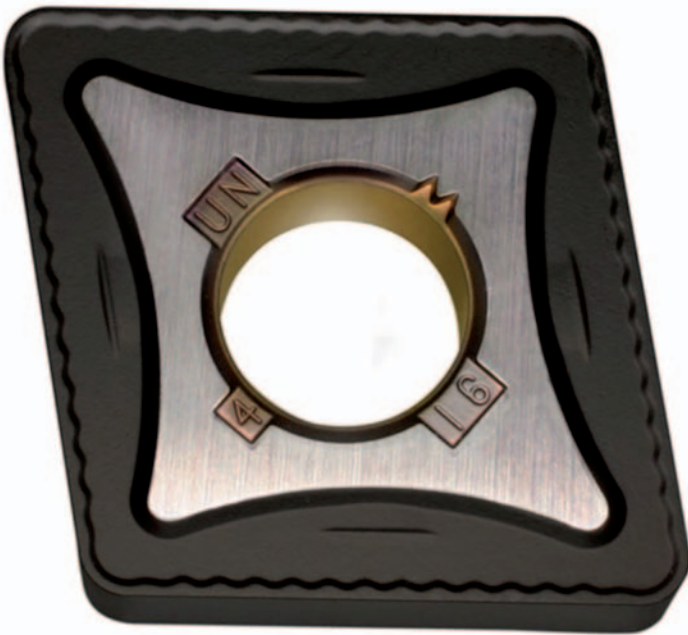
Grinding may well be established technology but Cinetic Landis presented a host of automotive-related launches. The new Landis Giustine double disc grinder is for stepped and TP connecting rods while the Landis LT3 orbital large crankshaft grinder can accommodate shafts up to 8 m. Also introduced at IMTS was the patented Vector grinding process for optimising part quality and productivity when grinding pins and mains of large crankshafts.

On the stand of grinding stalwart Jones & Shipman, a totally new modular wheelhead system was unveiled that will be the main feature of the soon-to-be-launched Ultramat Mk II range of production cylindrical grinding machines targeted at high end aerospace, performance car and the mould and die industries. The innovation features twin back-to-back grinding wheels each with a capacity up to 500 by 100 mm, plus an internal grinding spindle.

New tool and cutter grinding solutions were also found on the stand of Rollomatic (no UK agent). With its six, fully interpolated CNC axes, up to eight grinding wheels and wheel inclination up to

SINGLE-MINDED BENEFITS
DON'T COME FROM
MULTIPLE SUPPLIERS.





Kennametal's new 'Beyond' platform of high performance inserts made their debut at the North American show

30°, the new GrindSmart 620Xi can be adapted for individual insert designs and can grind all operations in one clamping.

From a cutting tool perspective, IMTS yielded a high number of product introductions. Kennametal, for example, introduced its 'Beyond' platform of high performance products. These feature a new surface treatment that improves edge toughness and reliability, and micro-polishes the surface to reduce friction. A fine-grained alumina layer improves productivity and reliability at high cutting temperatures. Beyond products comprise five new grades and 22 geometries for steel turning, three new grades and 10 geometries for cast iron turning, and three new grades and eight geometries for stainless steel turning.

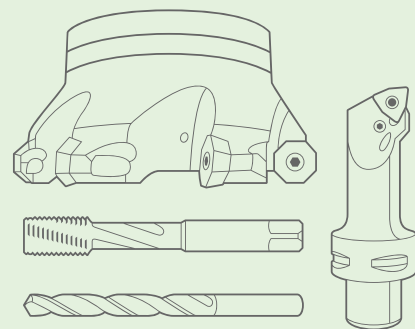
On the Sandvik Coromant stand, the new WMX wiper insert is targeted at turning ISO P steel, ISO M stainless steel and ISO K cast iron. Its secret is an optimised nose radius that enables high surface finish characteristics to be achieved without the need to compromise feedrate. Also making its debut was the CoroMill 690, a long-edge cutter designed to give high productivity when peripheral edge milling titanium alloys used typically for structural aerospace components such as airframes, wings, fuselages and landing gear. (See feature, page 25, this issue.)

Criterion introduced the latest addition to its modular boring systems at IMTS 2008. The CBER boring system (available in the UK from Fenn Tool) converts precision ER collet holders into precision boring systems and is capable of boring holes from 0.9 to 43 mm in diameter.

EMERGING TECHNOLOGY

The Emerging Technology Centre (ETC) was a hub of excitement featuring the official launch of MTConnect. MTConnect is designed to foster interoperability between equipment controls and devices. For the first time, advanced manufacturing has an open standard that allows royalty-free internet communication and connectivity throughout the process chain. During IMTS, machines operated by

**KNOW-HOW IS
NOTHING WITHOUT
KNOW-WHY.**



25 exhibitors posted data to a dashboard displayed in the ETC.

The concept is to develop a 'middleware' standard that provides the capability to pass data, even from existing data systems and formats, to higher level systems using the XML-based standard.

Moving onto CAD/CAM and nearly all of the major software vendors unveiled or previewed next generation versions. Delcam, for example, had over 40 technical partners at IMTS and says it completed more sales than it had ever achieved previously at a North American event. The company launched FeatureCAM 2009, with increased support for mill-turn equipment and extended 5-axis options, and the next release of PartMaker for turn-mill centres and Swiss-type lathes. PartMaker V9 features a revamped and more productive user-interface, improved capabilities for programming directly on solid models and improved simulation suitable for today's increasingly complex machine architectures.

SOFTWARE DEVELOPMENTS IN BRIEF

Elsewhere at the show: Vero introduced VISI 16 with an updated user interface and PEPS 7 with major additions to PEPS Wire; DP Technology debuted its flagship product Esprit 2009 (Somatec); Mastercam (4D Engineering) previewed X3 as well as the company's Feature Based Machining (FBM), the new Mastercam in SolidWorks product; SolidCAM launched R12 with more than 100 new features; and ICAM introduced Integrated PSE, a new NC manufacturing methodology that allows for interactive post-processing, machine simulation and control emulation.

Gibbs also took the opportunity to preview V9 of its CAD/CAM

Fabrication innovation

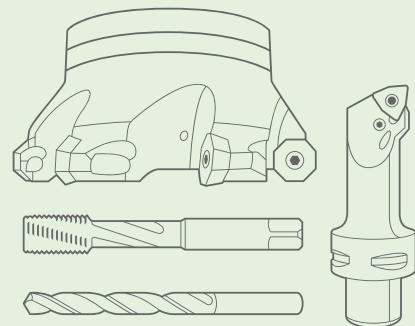
Among the sheet metal processing technology to catch the eye at IMTS was the new Finn-Power C5 Compact Express, which adds unmanned operation to the C5 turret punch press through highly compact load/unload automation (UK agent is Press & Shear Machinery).

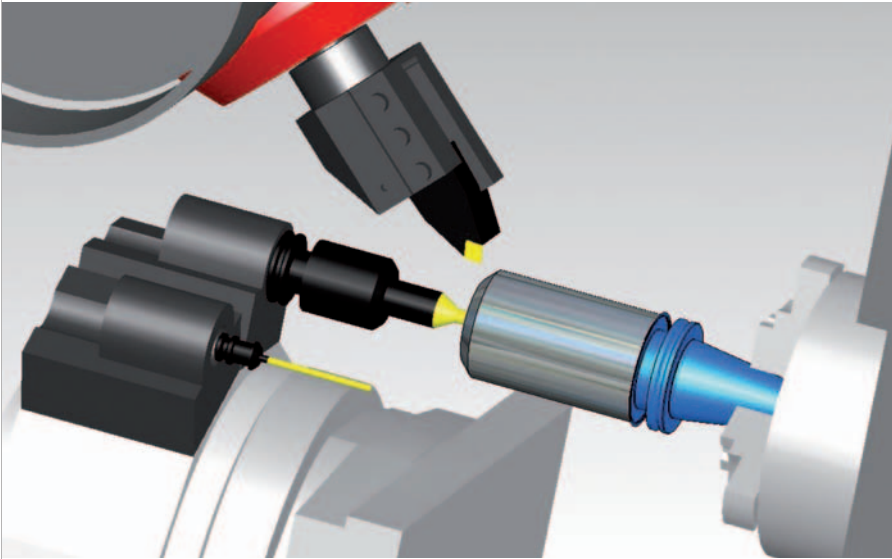
The 20-station, 33-tonne C5 servo hydraulic turret punch press has a maximum sheet capacity of 1270 by 2500 mm and is available with either Siemens or Fanuc CNC control. This new flexible manufacturing unit features fast digitally controlled servo hydraulic punching and indexable upforming, while the entire material flow on the C5 can be conducted from just one side of the machine.

For visitors interested in waterjet profiling, FlowConnex from Flow Corporation (Flow UK) allows waterjet machines to be monitored from any location with an internet connection. From the shopfloor, in an office or at an offsite location; operators, supervisors and management can see the status of their Flow waterjet systems on the FlowConnex dashboard.

Available information includes waterjet machine productivity and energy utilisation as well as pump pressure and other critical system parameters.

INNOVATION DOESN'T
HAPPEN IF YOU'RE
AFRAID TO CHANGE.





Slant turning on Delcam's FeatureCAM, which now features more support for mill-turn machines

software, which includes many interface enhancements such as multiple viewports, the new colour options in Cut Part Render, pre-selection highlighting and hidden line toolpath display. Gibbs also used IMTS to introduce its Advanced

3D/HSM toolpath engine with a wide range of multi-surface and high speed machining methodologies. Incidentally, Gibbs software is available in the UK from Tech CAD/CAM.

Among the many other highlights of

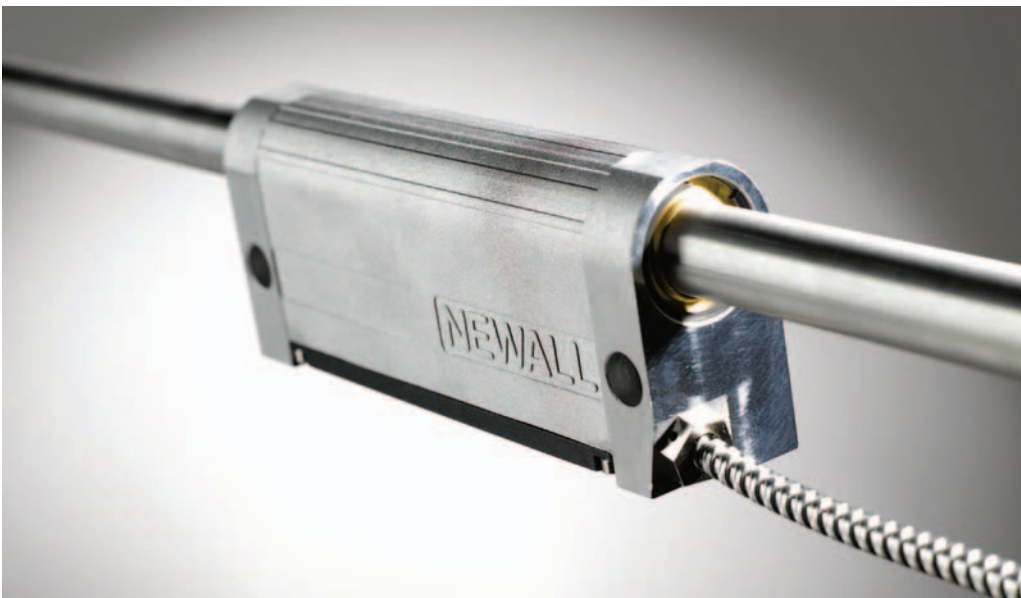
what proved to be a highly positive IMTS for visitors and exhibitors alike, were a number of new probes from Blum-Novotest based on the innovative Shark360 measuring mechanism, such as the TC54-20 universal 3D probe with infrared data transmission for tool setting and breakage control.

Midaco (UK agent Roemheld) introduced a new series of robotic part loading and unloading systems adaptable to most CNC lathes and vertical machining centres, while RH Collets introduced its Collet Bore Maximiser (available from Holmes UK), which improves cutting tool performance, reduces component damage and minimises collet breakage.

Innovations from barfeed specialist LNS, included the Quick Six S2 short load barfeed and the Trytex 08 bar loader for small diameter (0.8 to 7.0 mm), high volume applications. □

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