What We Discovered at

**IMTS 2012**

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PUT US TO THE TEST — www.Okuma.com/AffordabilityChallenge

A Message to our Customers...

What’s significant about the number 100,200?

It’s the final registration figure for IMTS 2012. This year’s show at McCormick Place in Chicago attracted the largest crowd in more than a decade. The 1998 show was the last time the halls felt so vibrant and enthusiastic about the future of U.S. manufacturing and our ability to compete globally.

Besides the energy and size of the crowd, what was noticeably different about IMTS 2012 was the evidence of growing collaboration within our industry. While the competitive spirit remains strong, there’s a greater understanding among technology suppliers that we all need to work together for the benefit of you, our customers, who are the names and faces of U.S. manufacturing.

Your needs are driving changes in our industry at all levels. There’s been a shift in manufacturing purpose from “how do I make it?” to “how do I make it better for less?” “Better” implies higher quality, improved productivity, increased profitability, and “less” in overall cost.

IMTS exhibitors provided physical proof that they are striving to modify and improve their product lines in step with the changing needs of U.S. manufacturing. Companies like Okuma and Tsugami continued to push the technology bar upward while extending their market reach with the introduction of lower priced machines well suited to job shops.

Tooling, accessory, coordinate measurement, and software providers are pushing the limits of productivity with new products that enable more intelligent, productive machining processes. The West and East Halls of McCormick Place were jammed with visitors exploring new means to improve machine tool performance.

Making sure that all the equipment on any shop’s floor can communicate with one another is the goal of MT Connect, an open source standards initiative intended to foster greater interdependability between controls, devices, and software.

Widely endorsed by an impressive list of machine tool and related technology suppliers who exhibited at IMTS, MT Connect is a concept whose time has come.

At Morris, we’ve refocused our sales teams at the regional level because all the value is generated at the point of contact with the customer. We have hired additional sales management, increased our application engineering teams, and brought onboard Productivity Engineers and Specialists whose job is to help our customers select tooling, workholding, software, and other accessories to enable machine tools to yield maximum productivity quickly.

Pride in American manufacturing and the desire to be #1 in the world are common threads that pulled people together at IMTS. New purchases are no longer about simply replacing broken and defunct machines or fulfilling the manufacturing requirements of a new customer order. Quality, efficiency, and affordability are what our customers are insisting we deliver!

For readers who did not have the opportunity to visit IMTS 2012, this issue of THROUGHPUT will highlight the products and industry news that caught our attention. For those of you who met up with one of the many Morris associates there, thank you for allowing us to explore IMTS with you.

Brad Morris
President, Morris Group, Inc.
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IMTS 2012, THE SHOW THEME was “Go Beyond,” representing both a goal and a challenge for Okuma and their customers. The goal is to “go beyond” business-as-usual to achieve a competitive advantage and open profitable new markets.

The “Go Beyond” challenge means that Okuma and its customers must embrace a new way of thinking to achieve it. Okuma is deeply committed to finding new and creative ways to help customers optimize their manufacturing processes.

Okuma’s IMTS booth delivered on all aspects of their “Go Beyond” theme and promise. It wasn’t just their machines, which represented the very latest technology in the machine tool industry. It wasn’t just their new P300 Control, which defines software innovation. And it wasn’t just the leveraging power and creativity exhibited by the more than 40 members of Partners in THINC® whose products were integrated into the live cutting demonstrations.

Taken individually, each of these three areas are strong reasons to look to Okuma for competitive advantages. When combined, they most certainly fulfill Okuma’s promise to help their customers “Go Beyond”.

Okuma Machine Tools

“With 15 machines on the show floor, the breadth of equipment we have here at IMTS is just staggering,” said Julie Murphy, Marketing Manager for Okuma.

Open demonstrations on all 15 of the machines showcased the range and vitality of the Okuma line, and eight of the machines were new:

**MU-10000H:** Entering the booth, visitors were greeted by this massive 5-axis horizontal machining center. The machine features a 1-meter square pallet, workpiece weight capacity of 5,500 pounds, and size capacity of 59.05” diameter by 44.29” high. IMTS marked the world debut of the MU-10000H.

**LT-3000EX:** Three turrets provide optimum flexibility, and the 16 stations on each turret set up well for lights out or high production runs. Additional features include Machining-Navi and Okuma’s Collision Avoidance System.

**LF-3000EX:** Three turrets provide optimum flexibility, and the 16 stations on each turret set up well for lights out or high production runs. Additional features include Machining-Navi and Okuma’s Collision Avoidance System.

Okuma IMTS 2012 — ‘Go Beyond’

Innovative CNC Machines, Leading Software, and Partners in THINC® Deliver the Promise
The massive MU-1000H 5-axis horizontal machining center dominated the entrance to the Okuma booth.

All 15 Okuma machines displayed at IMTS featured full demonstrations. Morris engineers explain the benefits of three turrets on the LT-3000EX.

**LU-3000EX:** This high production 4-axis lathe incorporates the latest live tooling technology where the tooling is bolted to the turret for optimum support and power engagement. The 12-station upper turret and 8-station lower turret offer plenty of tool stations and allow users to perform multiple turning operations either simultaneously or independently.

**MB-10000H:** Okuma’s largest horizontal machining center is built on the Thermo-Friendly Concept and includes Thermo-Friendly TAS-S and TAS-C, which provide a highly stable machine platform. The VTM-1200YH 5-axis control vertical multitasking machine is capable of turning relatively large, complex-shaped parts while performing process-intensive machining with 5-axis multitasking to achieve high production efficiency.

The Millax 31TU features a 2-axis rotary table and THINC®-OSP Control. This machine is a combination 5-axis vertical lathe/virtual machining center and can perform heavy-duty milling and turning operations in one set-up.

The Multus B200-II is a general purpose, multifunction machine that is designed to reduce set-up time by virtually eliminating repetitive fixtureing. The IMTS machine featured a sub-spindle (W), P300S control, Machining-Nav, Super NURBS, tool center point control, and Blum gauging.

**Multus B750W:** The largest of Okuma’s general multifunction machines, the Multus B750W highlighted Okuma’s THINC-OSP Control, Collision Avoidance System, and Thermo-Friendly Concept.

**Partners in THINC:**

More than 40 Partners in THINC actively participated in Okuma’s IMTS booth. Their product representatives worked side-by-side with Okuma’s product specialists to explain many of the finer points of the machine demonstrations. Throughout the booth, Partner technology was integrated into demo after demo. The partnership that exists between Okuma and its valued Partners in THINC was evident to anyone who visited the booth.

Working together for the benefit of their mutual customers, the Partners and Okuma provide solutions that address every step of the machining process, including tooling, software, coordinate measurement, coolant systems, material handling, automation and more.

**THINC®-OSP-P300 – TRY IT!**

Okuma’s new THINC-OSP-P300 control was showcased at IMTS. This reliable, easy-to-use control system was used on many of the demo machines at the show, integrating multiple technologies to deliver seamless performance.

For visitors who wanted to push buttons and test the new control themselves, Okuma set up 13 different stations in the “TRY IT” section of the booth.

Attendees were able to test drive specific areas of the P300 control at six different stations: Collision Avoidance System, Alert Notification, Advanced One-Touch IGF, OSP-P300M Easy Operation, OSP-P300S Easy Operation, and Caron Engineering’s AutoComp.

Seven additional demo stations were also in play showcasing: DataZen MIRA, MTCone, Advanced One-Touch IGF-3DV, Constant Coolant Monitor, THINC Developer’s Group, and Advanced One-Touch IGF-3DV (lathe). This area of the booth highlighted the increasingly important role that numerical controls play in the performance of the machine tool and how Okuma’s new generation THINC-OSP-P300 control in particular is making it progressively easier for manufacturers to optimize machine performance.

Okuma’s innovative exhibits and “TRY IT” stations reinforced Okuma’s commitment and willingness to take the lead in helping customers improve all aspects of their manufacturing processes.

Okuma is planning to display the Okuma “TRY IT” stations at its regional distributor locations throughout North America for the benefit of customers who did not travel to IMTS. Contact your local Morris Group Inc. representative to learn when the new THINC-OSP-P300 control demos will be available in your area.

**IMTS Machines**

Okuma’s machine tool line-up at IMTS was impressive by any benchmark: 15 machines, 8 of them new, all with peripherals, software, and accessories from Partners in THINC.

**IMTS Take Away**

Continual process development and delivered process improvement will continue to drive manufacturing success for the future. Okuma’s combination of cutting edge CNC machines, leading software and control development, and real-world solutions provided by Partners in THINC provide their customers with all of the tools necessary for competitive advantage.

How can you add hours of production to your work day?...

**ROYAL QUICK-GRIP® CNC COLLET CHUCKS**

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- Wider Collet Gripping Range (M5 to M25)
- Ultra-Compact Design
- Parallel Workpiece Grip
- Extremely Accurate

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- You are probably only using 40 of them.
- Your machines are worth $100 per hour.
- There are 168 production hours in a week.
- You are probably only using 40 of them.
- Your machines are worth $100 per hour.
- You could be making an extra $12,800 per week on each machine with a Rota-Rack®.
- You already invested in the bar feeder — how can you not complete the automation package?
- A one-week payback — incredible!
- What are you waiting for?

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Go Beyond

(continued from pg 8)
Morris Group, Inc. announced at IMTS that it had entered into an exclusive business agreement with SU-matic, a subsidiary of Suhner Holding AG of Switzerland, to supply Okuma lathe, multitasking machine, and machining center tooling to the North American metalworking industry.

Brad Morris, President of Morris Group, Inc., and Otto H. Suhner, President of Suhner Holding AG, signed the contract on Monday, September 10 while attending the largest manufacturing technology show in North America. The line of tooling will be sold under the name of Velocity SU-matic to reflect the joint partnership between SU-matic and Velocity Products, a business unit of Morris Group, Inc.

“We recognize the superior fit of SU-matic tooling with Okuma machine tools. We are pleased to introduce Europe’s leading supplier of Okuma lathe tooling to this market and to partner with them,” stated Brad Morris.

Velocity SU-matic tooling will be sold by Velocity Products through established machine tool distributors already working with Okuma America Corporation. Concurrent with this announcement, Okuma approved Velocity SU-matic to become a member of its Partners in THINC® program, greatly easing the introduction of the new product line to the market.

“We are pleased to become a member of Okuma’s Partners in THINC program,” said Robert L. Bauer, Vice President of Morris Group, Inc., Velocity Products division.

“The knowledge and expertise of the Okuma distribution network is invaluable to Okuma users. Working with Partners in THINC furthers our ability to supply the optimal tooling to the end-user.”

According to Bauer, SU-matic is the leading supplier of Okuma lathe tooling in Europe with more than 60% market share. The company works in close collaboration with Okuma’s product development team in Japan and produces tooling made specifically for Okuma machine tools. This collaboration means that high quality tooling is ready for installation on even the newest Okuma machine tools, like the Okuma LU-3000EX High Production 4-axis Lathe which debuted at this year’s IMTS.

Static and driven tooling for “M” turret LB-EX Series and LT-2000EX machines is available now. Tooling for LU-3000EX and LT-3000EX lathes will be available in 2013. Velocity Products maintains inventory of SU-matic tooling at a Morris-owned facility in Huntsville, Alabama. Certified repair service is provided out of this same location. All Velocity SU-matic tooling is guaranteed for a period of two years from purchase. For more information about Velocity SU-matic tooling, please contact info@velocityproducts.com.

Morris Group, Inc. is not responsible for the accuracy of the Bridgeport machine specifications shown on this document. Specifications are subject to change without notice. Please contact your local Morris distributor for more information.

Available for Immediate Delivery – While Supplies Last

For more information:
GX-OSP@morrisgroupinc.com

Bridgeport’s GX 1000 vertical machining center now available with Okuma’s OSP-P200 CNC

The Bridgeport GX 1000 OSP unleashes the power of Okuma’s OSP-P200 CNC… because your performance demands it. Known for its extreme rigidity and tireless performance, the GX 1000 OSP is designed for heavy cutting. Its rugged spindle design, cast iron base and large double nut ball screws allow for deep sustained cuts and rapid metal removal. The advanced functionality of Okuma’s open source OSP-P200 CNC opens up virtually limitless possibilities.

Key Features Include:

- Spindle Power (HP): 5/20/27
- Max spindle speed: 10,000 rpm
- Max Torque w/OSP Control: 61/85/112
- Rapid Traverse Rate: 1417 ipm
- XYZ Travels: 40.16” x 21.25” x 21.25”
- Number of tool positions: 30

Available for Immediate Delivery – While Supplies Last
Focus on Process Control

RENISHAW ENCOURAGES manufacturers to analyze every step of their machining processes in order to identify areas of improvement. They so firmly believe in the benefits that can be reaped via improved process control that they regularly provide systematic and thorough analyses free of charge to manufacturers.

“Our product specialists provide objective information,” states Jeff Seliga, Marketing Manager for Renishaw. “In areas where we see potential for improvement, we’ll recommend an appropriate solution.”

The Renishaw booth displayed the various technologies that are often used to improve process control. Centrally displayed was Renishaw’s Productive Process Pyramid™, a colorful graphic that provides a helpful framework to identify manufacturing process variations and the correlated process control solutions. Each layer of the Pyramid represents a series of controls that together address all sources of machining process variation.

The process foundation layer focuses on stabilizing the environment in which the process will be performed as well as optimizing and monitoring the performance of the machine itself. These are preventive controls that reduce the number of sources of variation before machining starts. The XL-80 laser system, QC20-W ballbar system, and AxSet™ Check-Up are examples of Renishaw’s preventive control products. All were demonstrated at IMTS.

Next is the process setting layer. It addresses sources of variation such as part location, the size of tools, and offsets on the machine which could cause non-conforming components. These are predictive controls that are applied just before cutting starts. Controls in this layer include machine setting, probe setting, part setting, and tool setting. Building on the stability introduced by the prior layer, process setting controls help to eliminate human error by automating manual processes.

The third layer, in-process control, tackles sources of variation that are inherent to machining like tool wear and changes in temperature and provides intelligent feedback to the process and decision-making as machining progresses. These active controls, applied during metal cutting, are the only cost-effective way to monitor the in-process state of the component.

And finally, the post-process layer is about checking the process and the finished part against their specifications, as well as logging process routes and outcomes. These are informative controls applied after machining is complete. Aspects of this can be done on the machine tool, but most tasks are done offline.

“I know it’s an overused claim, but we really do provide solutions,” Seliga says. “Applying patented and innovative products and delivering excellent customer service are the fundamentals that we provide to help manufacturers succeed.”

About Renishaw
Renishaw is a global company with core skills in measurement, motion control, spectroscopy and precision machining. Its products are designed to improve operational performance, from improving manufacturing efficiencies and raising product quality to maximizing research capabilities and improving the efficacy of medical procedures.

www.renishaw.com
Tsugami created the new B0326 (and its sister product, the B0325), plus the B0265 / B0266 machines to satisfy customer requirements for parts larger than 20mm but smaller than those that would be machined on the larger B0385. “20mm machines are the most commonly purchased models in North America,” says Scott Anthony. However, he is quick to add that they have seen a large increase in the number of 26 and 32mm machines sold in the last few years. He attributes this to a number of factors including the increasing adoption of Swiss turning by job shops. “Newer Swiss type machines have a capability range that far exceeds traditional ‘Swiss’ parts,” he adds.

These new, larger B0 series machines offer users some intriguing new features. In addition to the live cross and sub spindle tools found on S-series machines, Tsugami has added two new rotary tools driven by the sub spindle that provide enhanced face milling capability. With 320mm of stroke, the B0326’s robust 8,000 rpm main spindle can accommodate parts up to 12.5” in length. Its standard tool zone configuration features four (4) cross rotary tool positions for the main spindle, four (4) driven tool positions on the back tool post, and full C-axis on both the main and the sub spindle. Tsugami offers the option to replace the rear gang slide with four (4) rotary spindles; 15,000 rpm high speed cartridge spindles are available for those positions.

S207: Set-Up Time Reduction

The Tsugami S207 has achieved a certain amount of notoriety for its continuous contouring B-axis. Featuring live tool positions for the main and the sub spindle, the S207 can cut sculpted geometries that were impractical to produce on a Swiss type machine prior to its introduction. The S207 offers the option to replace the rear gang slide with four (4) rotary spindles; 15,000 rpm high speed cartridge spindles are available for those positions. Parts that might have required secondary operations on a machining center can now be produced complete from bar stock with little or no intervention from the operator. “Our customers are actively looking for solutions that help them make the most efficient use of resources and deliver greater value at a lower cost.”

B0326: A Touch Once Solution

Given these market needs, it was perhaps no surprise that Tsugami’s new B0326 (32mm) Swiss type lathe was the centerpiece of the booth. Featuring modular tooling, the ability to operate in a guide bushing or guide bushless configuration, and featuring a large number of live tool positions for both the main and sub spindle, this new entrant just might be the perfect “job shop” machine.

“Reducing changeover times and eliminating secondary operations were two things we heard over and over again at this year’s IMTS,” says Michael Mugno, REM Sales Vice President. Accuracy and repeatability are a given. Manufacturers today, and certainly those visiting IMTS, are looking for solutions that allow them to produce complete parts and respond quickly to changing demands.

“Those two needs are the driving forces behind our decision to make ‘Touch Once’ the theme of our booth this year,” explains marketing manager Jeff Boulden. “Our customers face unrelenting pressure to deliver greater value at a lower cost.” Solutions that allow them to do that are in high demand. At its core, Touch Once is a strategy driven by the market trends toward smaller lot sizes and increasing complexity within part families. Manufacturers responding to these trends have invested heavily in machine tools and productivity enhancing peripherals. When properly implemented, these investments have allowed them to replace batch production processes with lean strategies that seek to produce parts and components as they are required by the customer.

Swiss turning, traditionally considered a higher volume process, has evolved as well. “Tsugami recognized this trend early on and began adjusting their designs accordingly,” says Scott Anthony, REM Sales Eastern Business Unit Manager. “Modular tooling and an increasing number of live tool positions have effectively turned Swiss machines into mill/turn machines ideal for many types of small parts.” Parts that might have required secondary operations on a machining center can now be produced complete from bar stock with little or no intervention from the operator. “Our customers are actively looking for solutions that help them make the most efficient use of resources and deliver greater value at a lower cost.”
to streamline the part set-up and change-over process. They saw that it presented an excellent opportunity to save them time and money. The S207’s programmable B-axis meant that parts requiring angled drilling and milling operations could be handled programmatically, eliminating a step in the set-up process. Special angled tools would not need to be purchased. Secondary operations would not be necessary.

B0385: Matching Machine Functionality to Requirements

“Most buyers are surprised by the fact that the B0385 does not have a turret,” says Scott Anthony. He adds, though, “that they quickly realized its value for larger Swiss parts.” According to Anthony, machine purchases are driven by customer requirements. Sometimes a machine with turret-driven live tools, or one with a tool magazine and live tool spindle is the right choice. When parts are relatively straightforward, one could easily end up paying for features that are never utilized. “We ask buyers to consider the amount of functionality that they need to meet current demands and to think about how they plan to use that machine in the future.” He is quick to add that all Tsugami machines can produce parts to exacting tolerances. “The B0385 allows us to offer a more comprehensive range of solutions.”

The B0385 is ideal for heavy machining of shafts and other long parts, such as those found in the firearms industry. A solid cast iron base and rugged 15HP ‘Double-Spindle’ design give it the cutting power necessary to take deep cuts. “Judging machine cutting speed based on main spindle rpm can be deceptive”, says Scott Anthony. A more rigid machine, like the B0385, might finish a part more quickly than a less rigid machine with higher spindle rpm because the operator can take a more aggressive cut.

Wrap Up

Why so much talk about process, about reducing set-up time, and about eliminating secondary operations when, historically, speeds and feeds have been the focal point of IMTS? The answer to that question is why so many people visited IMTS 2012. Machining today is no longer just about cutting accurate parts. The bar has been raised. Accurate, fast, and repeatable is considered baseline functionality. Manufacturers are looking for technology that will help them make better use of their resources; they are relentlessly pursuing more efficient processes, and need to do more with less. A few of the machine tool manufacturers have figured this out. Tsugami is one of them.

(continued from pg 15)

• Touch Once Strategy reduces set-up/changeover time
• New “Swiss” machines have modular tooling and increased live tooling stations—effectively turning them into mill/turn machines for small parts applications
• Swiss style turning is NOT just for long run parts anymore—short runs now the “new normal” on many models
• Greatly expanded capability of new models enable them to eliminate secondary operations and produce parts in one pass
• Job shops are increasingly choosing Swiss turning because of the new flexibility/capability
• Continuous contouring B-axis technology is transforming how sculpted geometries are produced, opening new applications for Swiss style turning on the shop floor

TSUGAMI AT A GLANCE...

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ACTING U.S. COMMERCE SECRETARY REBECCA M. BLANK,
IMTS 2012 OPENING REMARKS, ON U.S. MANUFACTURING...
Building on Strengths
Listening to Customers

When THROUGHPUT asked Hardinge Group engineers and executives to describe the difference between this year’s IMTS and previous shows, the answers were near unanimous. Historically, customers and prospects came to the booth with parts or prints and had specific questions about how to turn, grind, or mill a particular piece. The main challenge was to match a machine to the part or print. Now, booth visitors want to explore the total process in addition to learning about the core capabilities of different machines.

As its own longtime customers migrate toward tighter tolerances, more demanding finishes, and unattended machining, Hardinge Group continues to refine and expand its product lines, concentrating on the company’s strengths.

Evidence of the company’s efforts was apparent at IMTS 2012 where Hardinge displayed nearly twice as many machines as it had in previous years, with new machines accounting for nearly half of what was on the floor.

The company’s focus on doing what it perceives that it does best has borne positive results. “In recent years, we’ve seen the market moving toward Hardinge, not Hardinge chasing the market” stated Brad Devon, National Sales Manager of Hardinge, Inc.

Hardinge SUPER-PRECISION® turning centers, Kellenberger and Jones & Shipman grinders, Bridgeport milling machines, and Hardinge’s workholding and rotary business were focal points of the booth. Here’s a closer look at a few of the many demonstrations that attracted crowds.

Hardinge SUPER-PRECISION
T-Series Turning Centers
The T-51 is the newest model in Hardinge’s SUPER-PRECISION T-Series family. T-Series horizontal turning centers are ideal for two axis high precision machining or complex multitasking operations. T-Series machines are known for extreme accuracy and superior finish: .00001” (.254 micron) part roundness and .000006” (.15 micron) (Ra) surface finish.

At IMTS, Hardinge demonstrated the T-51 with an automation system that enabled unattended machining. Designed by Gosiger Automation, it incorporated a Fanuc M-10IA 6-axis robot and Renishaw Equator comparative gauge. The complete system automatically fed stock into the machine, transported the finished piece to a gauging station for quality control, and stored the finished part.

While the T-51 made one section of the hydraulic spool valve housing during the automation demo, a nearby T-42 turned the corresponding fitted section.

(continues on pg 22)
The cutting demonstrations showcased the T-Series’ capabilities to deliver high precision machining, handle delicate parts, and complete complex parts in a single set-up.

Available in 42 mm, 51 mm, and 65 mm capability, the Hardinge SUPER-PRECISION T-Series provides a solid machining solution for precision work.

Kellenberger CNC Cylindrical Grinding Systems

Kellenberger has been a respected name in the grinding industry for almost 100 years and part of Hardinge Group since 1995. The newest Kellenberger Kel-Varia 1500 with Hydrostatic B-axis and Direct Drive C-axis workhead was demonstrated by Hardinge Group at IMTS and by many counts fits the description of the “ultimate grinding machine.” Ideal for tool, die, and mold work, this high precision cylindrical grinding system can hold a tolerance of 50 millionths of an inch.

The B-axis wheehead permits automatic positioning of the wheehead at any angle; its use of hydrostatic guideways greatly enhances accuracy. The optional C-axis workhead is powered by direct drive and is useful in applications involving non-round work.

The Kel-Varia earns winning marks for its “measuring machine” standard of precision. Hydrostatic guideways for the longitudinal slide movement (Z-axis) and for the wheehead infed (X-axis) provide zero friction movement at all speeds. Steps as small as one micron (.0001 degrees) may be traveled without stick-slip. Combine these features with improved rotational speeds of 1 second (down from 8 seconds in previous versions) and it’s clear why the Kel-Varia is a top-choice for super precision work.

The Kel-Varia can accommodate workpieces weighing up to 300 kg. The 1500 model fits workpieces measuring up to 1500 mm long between centers.

Hydrostatic Guideways

Inside the Hardinge booth was a display that provided a close-up look at Hardinge’s exclusive hydrostatic guideways, like those used on the new Kellenberger Kel-Varia 1500. This proven technology typically operates out-of-sight, underneath the machine, allowing heavy workpieces to move with less effort, less machining time, and improved precision results.

The hydrostatic “simulator” allowed visitors to move a heavy workpiece along the x and z guideways with very little effort, providing great insight into how this particular feature contributes to super precision machining.

Collets, Workholding, Guide Bushings

Hardinge manufactures innovative workholding and rotary products to reduce set-up time and improve productivity for turning, milling, grinding, production, and assembly applications. It is the world’s largest manufacturer of collets, feed fingers, and pads—supplying gripping solutions for all brands of machines. Hardinge is also well known for their custom workholding solutions.

 Appropriately, a large portion of Hardinge’s booth was devoted to their workholding products. FlexC™ quick change collet systems, Sure-Grip® expanding collet systems, Swiss type collets & guide bushings, and their new GD-5AX-SC 5-axis rotary trunnion were just a few of the products featured at IMTS.

With the industry focused on improving process control, workholding innovation is likely to assume a more visible role in reducing manufacturing cycle times. Hardinge’s workholding display was very impressive and did a good job representing the range, depth, and width of their workholding line of business which is entirely too large to fit into a show booth!

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HOW TO IMPROVE the entire process was one of the most repeated phrases at IMTS. Show attendees were interested in all aspects of the manufacturing process, and selecting the right coolant option is a key part of a successful manufacturing process.

As manufacturing systems become more sophisticated, many shops are turning to high pressure (HP) coolant systems. At IMTS, MP Systems showcased a combination of new and re-engineered products in their market leading line of HP pumps.

MP Systems’ New S2, V2
The new S2 Combination Coolant/Chiller System combines the pump and chiller in the same unit, a key feature in delivering constant temperature coolant.

The space-saving pump uses dual sensors (air and coolant) and real time monitoring to adjust and regulate coolant temperature. The benefits of the new pump include no thermal deformation, better chip management, and longer tool life.

The pump uses oil or water based coolants and is capable of maintaining plus or minus 1 degree of coolant temperature. Real time monitoring, a 7-day timer, remote/auto shut-off, and 1-hour pre-start provide operating flexibility. There is also a remote valve block option for the S2.

The new V2 Compact Design is a general purpose HP coolant system designed to fit all internal components within the frame. The unit now fits under a standard bar feeder, and is equipped with premium casters for easy relocation on the shop floor.

No More Tangled Lines
MP Systems’ engineering team has also been busy overhauling their existing line of HP pumps. Most of the changes are evolutionary “tweaks”, but one modification stands out from a safety, performance, and cost point of view.

MP Systems created a new valve block which attaches to the host machine (this block used to be on the pump). Now, instead of the traditional “snakes nest” of up to eight expensive HP coiled lines running from the pump to the machine, it’s down to two!
Leading by INNOVATION

“It’s OUR TIME,” says Mark Munroe, Eastern U.S. Sales Manager for Caron Engineering.

In his fifteen-year career at Caron Engineering, Munroe believes that the present is the most “exciting time” for manufacturing and Caron Engineering. He has seen U.S. manufacturing wake up and transform itself into a vibrant community of innovators who are bringing business back home.

Munroe speaks with credibility. Caron Engineering works with a large number of OEMs and a growing number of job shops across the country from all industry sectors. The company has distinguished itself in the metal cutting industry as a leading developer of tool management, wear, and gauging software for CNC machines. It can count more than 4000 installations of its programs and hundreds of custom projects since its founding in 1986 by owner and president, Rob Caron.

TMAC™ Tool Monitoring Adaptive Control was the company’s first product and is probably its most familiar one today. TMAC is frequently installed in lights out and high production settings. It is compatible with virtually all controls used by major machine tool builders.

It protects CNC machines from damage due to broken tools and provides valuable information about the cutting process. The system reduces the high cost of replacement tools, lost production, and rejected parts by measuring tool wear in real time. It operates on the principle that the horsepower required to cut a part increases as the tool’s cutting edges deteriorate.

The “Adaptive” control feature of TMAC reduces cycle time and optimizes cutting conditions to improve tool life.

At IMTS, Caron Engineering introduced TMAC-MP™, a new version of TMAC developed for multifunction machines, specifically those that perform simultaneous cutting operations. Demonstrated on the new Tsugami B0205-II in both the Caron Engineering and Tsugami booths, it is the first program of its type on the market, according to Munroe.

About Caron Engineering

Founded in 1986 by Rob Caron, Caron Engineering, Inc. designs, develops, and installs gauging, monitoring, and software systems used in advanced manufacturing.

- Tool Monitoring
- Adaptive Control
- Laser Tool Setting
- Machine Tool Probing
- Tool Identification
- Machine Tool Control Solutions
- Post and Pre Process Gauging

Renishaw’s strain gauge technology offers an unrivaled opportunity to control the variables of process control for small to medium-size machining centers. Reap the benefits of automated job set-up, reduced scrap and lower fixture costs. The unique frequency-hopping feature of the RMP600 maintains radio transmission and control, even in the “noisiest” environments.

Renishaw’s strain gauge technology— for the most accurate probes in the world.

• Lower contact forces for less stylus bend and pre-travel
• Excellent 3D performance
• CMM-level accuracy
• Excels in the harshest machine conditions
Learn more: Renishaw.com/RMP600

This Tsugami B0205-II lived in the Caron booth, demonstrating the innovative TMAC-MP™ control for multifunction machines.
HEXAGON METROLOGY unveiled its re-branding strategy and refreshed logo at IMTS. The world-recognized names within the Hexagon family of brands stay the same but most of their individual logos are retired. According to a company statement, the re-branding strategy more closely aligns the individual brands with the strengths and synergies of the parent company, Hexagon.

The booth was filled with design, measurement, and visualization technologies representative of Hexagon Metrology’s multiple product lines. Here are a few that caught our attention:

**ROMER**

**Absolute Arm with Integrated Laser Scanner**

Capable of capturing 50,000 data points per second, the enhanced ROMER Absolute Arm is up to 66% faster than previous versions. Operators gain speed without losing quality, even on difficult-to-scan surfaces such as high-gloss carbon-fiber.

Hexagon also introduced a wireless scanning option that allows any ROMER arm with an integrated scanner to be operated completely wirelessly at the same data transmission speed provided by a traditional cable. For unlimited wireless operation in the field, an optional Wireless Scanning Pack includes a dual “hot swappable” battery system that allows one battery to be charged continuously while the other is in use. It is compatible with all new and existing ROMER Absolute Arms with integrated laser scanner.

**BROWN & SHARPE**

**4.5.4 SF Series CMM**

Designed to surpass the demanding requirements of the manufacturing floor, the SF “Shop Floor” Series features advanced thermal isolation, covered ways, built-in vibration resistance, shop-hardened design, and optional analog scanning.

The 4.5.4 SF uses standard 110/220 volt outlets with no need for shop air. Its compact footprint and roll-around stand are sized to fit through a standard door and allow you to move it easily where needed in the shop. With its low upfront cost and simple maintenance, the 4.5.4 SF CMM is cost-effective to own and operate.

**WHAT’S IN A NAME AT HEXAGON METROLOGY?**

- Brown & Sharpe - CMMs
- Cognitens - “white light” metrology systems
- DEA - horizontal arm and gantry CMMs
- m&m - on machine probing
- Leica Geosystems - laser trackers
- Leitz - ultra-high accuracy CMMs
- Optiv - vision systems
- PC-DMIS - dimensional metrology software
- ROMER - portable arm CMMs
- Sheffield - CMMs
- TESA - hand tools and small 1D-3D measuring machines

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TESA hand tools and small 1D-3D measuring machines
Ramping up the Productivity of your New Machine Tools

THROUGHPUT RECENTLY caught up with Mike Zecchin, a productivity specialist with The Robert E. Morris Company to discuss the Morris Productivity Initiative and the role of the productivity specialist.

“We’re here to help our customers get their new machine tools up and running productively,” says Zecchin. He says that businesses frequently struggle to fully capitalize on the capabilities of their new equipment. Lack of familiarity with the machine is a leading cause. Material may not be available. Process sheets may be missing. By the time these issues are resolved operators may need to be trained again.

“The integration of a new machine tool is a process that requires a thorough knowledge of the machine, tooling and machine accessories, software, and the way that businesses frequently struggle to fully capitalize on the capabilities of their new equipment. Lack of familiarity with the machine is a leading cause. Material may not be available. Process sheets may be missing. By the time these issues are resolved operators may need to be trained again.

“These are needed for OEM or after market use. Depending on your needs, you may choose between bench and floor models, basic through enhanced features, variable capacity, and single or twin cameras. Variable price points (the entry point is under $8,000) allow engineers to deliver exactly what presetter functions are needed for OEM or after market use.

Koma Precision is well known in several key areas of the machine tool world. Tsukakona, their rotary table product line, is the largest manufacturer of NC rotary tables in the world. Their angle head and live tooling products feature Alberti – one of the most respected names in machine tool performance.

Koma Precision is the largest global distributor for both Tsukakona and Alberti, and these products were shown in force at the show.

But the real news at IMTS for Koma Precision was the introduction of an extensive new line of tool presetters from Elbo Controlli – a world leader in electronics and optics for machine tools. The East Windsor, Connecticut-based company will be responsible for sales, service, and support of all seven models and accessories.

The presetters are ruggedly constructed with solid granite bases and columns and stainless steel construction. The line follows a graduated system of features/benefits and includes seven models: Sethy, Hathor, Ankh, Khyan, Khyan TW, and Amon Ra.

Depending on your needs, you may choose between bench and floor models, basic through enhanced features, variable capacity, and single or twin cameras. Variable price points (the entry point is under $8,000) allow engineers to deliver exactly what presetter functions are needed for OEM or after market use.

Help is Literally a Phone Call Away

Once engaged, a Morris productivity specialist will visit your business to conduct a thorough analysis of the machine tool and the required peripherals might be the best solution. If the machine is to be used for a variety of jobs an engineered solution might not be as attractive.

“In either case, determining the right tooling and machine accessories begins with workholding,” says Zecchin. “It is application specific and determined by the parts to be produced.” Once the workholding is determined, decisions need to be made relative to tooling and tool holders, then tool setting. “We have some customers who use a Blum laser to set tools on the machine and others that prefer to use a presetter,” he says. “There are benefits to both.”

The decisions don’t end there. Manufacturers must determine whether the application will use flood coolant or high pressure coolant. Will through-spindle coolant be used, and is the machine properly configured for it? “When through-spindle coolant is used, a mist collector is almost always necessary.”

The complexity of this process and the sheer number of steps required to begin utilizing newly purchased technology to its maximum effectiveness is the impetus for our Productivity Initiative. “The hectic pace of business today can make it difficult for manufacturers to dedicate the resources necessary to integrate new technology quickly,” says Bob Bauer, Morris Group’s Vice President. “Morris productivity specialists are there to help our customers compress this process.”

Help is Literally a Phone Call Away

Once engaged, a Morris productivity specialist will visit your business to conduct a thorough analysis of the machine tool and the processes it will perform. When your needs are clearly understood, they will leverage their own knowledge and the collective experience of the Morris network to help you specify and acquire the optimal tooling and accessories for your machine and application.

Zecchin is quick to add that the job of a productivity specialist doesn’t end when that new machine starts cutting parts. “We are always looking for new ways to help our customers increase machine productivity.” He believes that processes must evolve over time as new fixtureing and tooling technology hits the market. According to Zecchin, he contacts some of his customers multiple times per week with ideas to help them be more efficient.

“Our mission is to help our customers do more with less, to continually improve their processes, throughout the lifecycle of their machine tools,” concludes Bauer.
ROYAL PRODUCTS

Change a Collet in 10 Seconds

As the manufacturing industry continues to explore and embrace every facet of process control, reducing set-up and changeover time remains one of the key areas for substantial savings.

Enter Royal Products Quick Grip™ CNC Collet Chucks. Along with a specialized installation tool, these chucks reduce the time necessary to change a collet to 10 seconds or less. That’s a phenomenal opportunity to save time and money, and use set-up staff more effectively elsewhere.

Quick Grip collets also provide better grip force and accuracy by remaining parallel to the workpiece throughout its length. Many spring type collets only provide optimal grip strength at the face of the bore, compromising accuracy.

Quick Grip Collet Chucks come in either Accu-Length or Pullback configurations and, Royal’s inventory, range of collets, and delivery time are among the industry’s best.

It is an important consideration when trying to attract new talent, as well.

Quick Grip collets are an important component of modern manufacturing. Losma has been dedicated to providing effective air and coolant treatment solutions since 1974, long before “green” became an industry buzzword.

Besides complying with federal statutes, use of mist collection and air filtration systems makes good business sense. Recycling air in the manufacturing environment saves heating and cooling costs and dramatically reduces oil buildup on machines, floors, and work surfaces. A cleaner work environment promotes higher work standards and reduces the chance of employee accidents.

Losma’s Icarus line of oil removal and industrial air filtration machines was central to their IMTS display. Icarus models are available in three sizes (S: 392 cfm, M: 679 cfm, L: 1,115 cfm), and each model has two standard configurations which deliver, respectively, 95% and 99.95% filtration efficiency.

The 95% configuration excels in removing oil mist and micro-mist. The 99.95% configuration removes oil mist, micro-mist, vapor, and smoke. Oil deflectors and metallic filters are the initial air treatment in both configurations and variable filters provide the optional 95% or 99.95% efficiency.

Pre-filters, suction hoods, exhaust reducers, and artif- filters are also available for each Losma filtration unit and system. All Losma mist collectors exceed the government requirements for workplace health and safety as established by NIOSH and OSHA Standard 1910.

United States distribution, service, and support are provided out of the company’s Sparta, New Jersey headquarters.

It you haven’t already seen the Royal Quick Grip System, take a serious look if you want to transform changeover time in your shop.

Hard to Pass By: THROUGHPUT finds it almost impossible to walk by a Rota-Rack® without stopping and marveling at the simplicity and effectiveness of this rugged parts handling system. If you are really serious about running unattended, don’t neglect the finished parts!

LOSMA

Showcases Improved Icarus Line

A healthy, clean, and safe shop environment is an essential component of modern manufacturing. Losma has been dedicated to providing effective air and coolant treatment solutions since 1974, long before “green” became an industry buzzword.

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Losma’s Icarus line of oil removal and industrial air filtration machines was central to their IMTS display. Icarus models are available in three sizes (S: 392 cfm, M: 679 cfm, L: 1,115 cfm), and each model has two standard configurations which deliver, respectively, 95% and 99.95% filtration efficiency.

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Losma’s Icarus line of air filtration machines. From top, Small (393 cfm), Medium (679 cfm), and Large (1,115 cfm).

Changing and maintaining filters in any Losma air filtration system is easy.

Rego-Fix®’s Nicholas Korfias demonstrates the brand new six hole powRgrip® 6 toolholder. The PG 6 is a welcome addition to the popular family of PowRgrip toolholders.

ReGo-Fix®
powRgrip® Gets a New Family Member, SecuRgrip Debut...
Bring it On

“IMTS 2012 WAS THE RIGHT place and the right time to maintain the momentum of bringing manufacturing back to the United States and North America,” states Harry Moser, President of the Reshoring Initiative. An outspoken proponent of U.S. manufacturing, Moser says that 50,000 new manufacturing jobs and 10% of manufacturing job growth since January 2010 are due to reshoring.

Mr. Moser works tirelessly to focus national attention on the value of bringing jobs back to the U.S. He participated in a day-long “Insourcing Forum” at the White House in January where he had the opportunity to explain the often overlooked, hidden costs of offshoring, including the expenses of emergency air freight, travel, and the negative impact on innovation when manufacturing is distanced from engineering. Together, these and other hidden costs account for as much as 20-30% of the total cost of offshoring, says Moser.

Moser’s relentless efforts are paying off. The crowds that gathered on Monday, September 10 to watch the official IMTS ribbon-cutting learned from Acting U.S. Commerce Secretary Rebecca M. Blank that the federal government has been listening to what economists, workers on the front lines, and industry insiders like Moser are saying— that U.S. manufacturing plays a key role in strengthening the U.S. economy— and that new federal programs will be made available.

Not coincidentally, on September 25 the White House announced a $40 million multi-agency initiative that supports and incentivizes reshoring. The “Make it in America” challenge will give awards to U.S. companies that bring jobs back from overseas, train American workers, modernize plants and equipment, and take other actions to improve global competitive position. Detailed guidelines for submitting an application and the deadline for applications will be published in early 2013.

Coupled with private programs to attract, train, and retain skilled employees, efforts supporting reshoring are gathering mass. Just a few weeks ago, manufacturing giants General Electric, Alcoa, Boeing, and Lockheed-Martin publicly announced that they would provide an undisclosed amount of financial support to a new program called “Get Skills to Work Coalition” that initially aims to train some 15,000 veterans and plans to train 100,000 workers in ten states by 2015.

Thank you, Harry Moser and all the people who organize and embrace events like IMTS to energize U.S. manufacturing. Collectively, our forces are unstoppable!

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Thank you, Harry Moser and all the people who organize and embrace events like IMTS to energize U.S. manufacturing. Collectively, our forces are unstoppable!

Morris Group is one of more than forty sponsors of the Reshoring Initiative. Read case histories of companies that have brought manufacturing jobs back to the U.S. and learn more about the Reshoring Initiative at www.reshorenow.org.

In this on-demand, 24/7-global market flexibility is the new strength. The affordable Tsugami B020 provides all the precision and durability you expect from Tsugami, but the flexibility to change out in minutes. That can help you balance all your customers’ needs and keep you a step ahead of the competition.

Join the Swiss Revolution.
It’s all about productivity.

Partnering with your local Morris Group company is a winning strategy. We package the best technology available with the process expertise you need to hit your target early and often.

Morris platinum service and preventative maintenance will keep you running at peak efficiency throughout the product life cycle. Simply put, we help you deliver greater value at a lower cost.