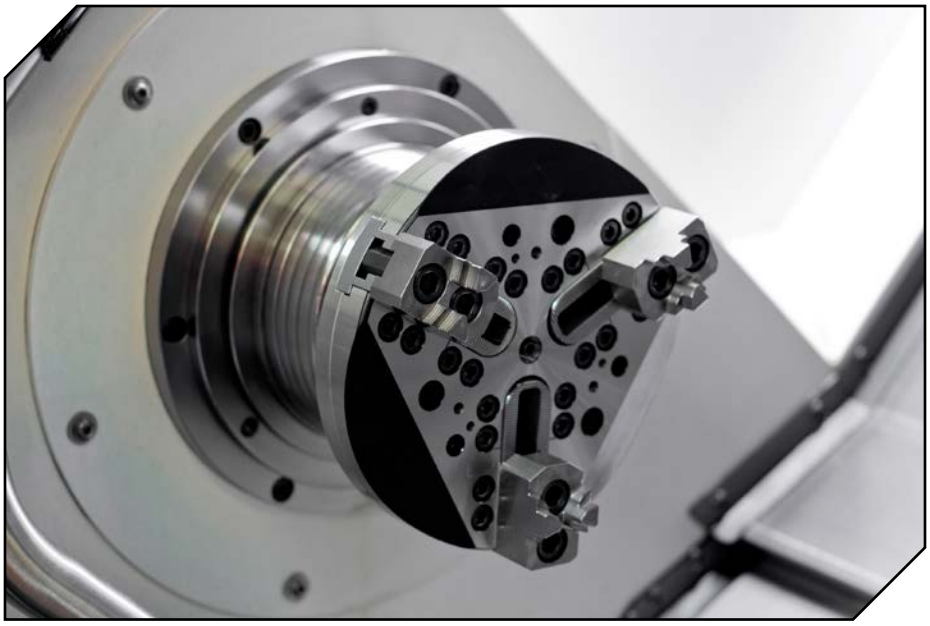
Hainbuch

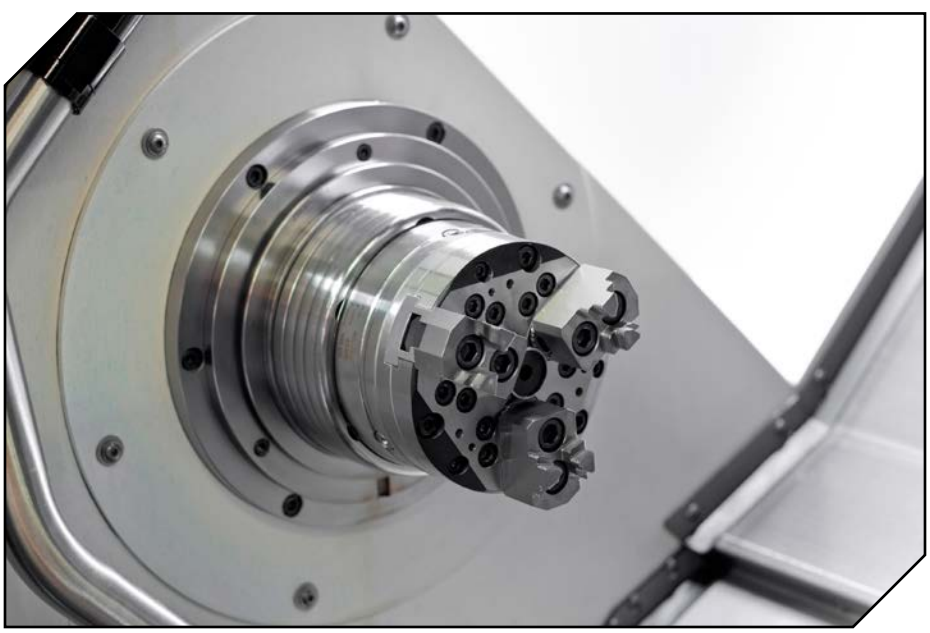
INTRODUCES JAW MODULE GENERATION TECHNOLOGY



Hainbuch presents a jaw module that is small and flexible, that can be quickly changed, and that covers a large clamping range. The result is a quick-change clamping solution for all situations. Mandrels and clamping heads can also be used in the basic unit. The new jaw module completes the circle and gives a new clamping dimension that opens up even more possibilities for users. All this with less weight and a smaller interference contour. In short: ID clamping, OD clamping and jaw clamping all-in-one.

The Hainbuch solution, consisting of a chuck and a jaw module, has nothing in common with the large, heavy, energy sapping big jaws that can be found in many machine shops,where their size is more of an obstacle than an advantage. These heavy chucks put load on the machine spindle and are slow to accelerate and decelerate, losing time and using energy. This takes longer for the part to be produced and hence makes it more expensive and also wears the machine bearings out more quickly. This is squandering of energy and piece rate time in its purest form. Naturally these are costs that today no one can afford or want to pay. Let's assume that someone purchases a lathe/milling machine with spindle taper DIN A2-6 65 mm bar capacity, here the workpiece range is usually diameter of 10 to 200 mm. To cover that range, a machine with a 215 jaw chuck is purchased. However 80 percent of the components are in a clamping range of 100 mm and smaller. And here the dilemma arises that in practice you have to cope with daily: Large clamping device, small workpiece. It is difficult to get all of the tools in place, often the tools will not reach center line and often special tools are required with longer reach, increasing vibration and losing accuracy. Also there is a high risk of collision.

Hainbuch modular solutions use a simple formula: Small workpiece = small clamping solution. Using the new small jaw module, about 80 percent of usual components are covered, and for larger components it can be easily changed over to a large jaw module within 30 seconds. The basic unit is a Spanntop chuck or Toplus chuck, now accepted as an excellent workholding device in its own right. Add to this the jaw module, clamping heads and mandrels; you achieve reliability, accuracy, and safety that traditional jaw chucks lack, especially for ID clamping. Advantages include a simple modular system for fast clamping to a clamping range of 200 mm; availability in two sizes (144, with clamping range from 25–115 mm and 215, with clamping range from 25–200 mm); minimal interference contour; proven technology; optimal utilization of the jaws; flexible, fast and repeatable set-up on clamping head or mandrel clamping; rigid workpiece clamping through the use of clamping head or mandrel; full bar size passage when using the clamping head; suitability for sensitive clamping and delicate components; option to be used as a pick-up chuck on sub spindles; ease of maintenance; resistance to contamination thanks to guideway seal and suitability for stationary use.



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Mahr Federal

OFFERS DIVERSE LINE OF CALIPERS

Mahr Federal offers an extremely broad line of MarCal calipers for a wide range of outside, inside, depth, step, and compound measurements. The MarCal line includes standard, special, and universal digital, dial, and mechanical calipers, as well as workshop calipers, depth calipers, and a line of linear machine scales with digital display.

The award-winning MarCal digital caliper line offers a number of advanced features, such as lapped guideways, a reference system that retains the zero position setting, and an increased number of product options and accessories. MarCal digital calipers offer a number of data output options, including wireless, and are available with protection against dust and immersion to class IP67. Advanced electronics provide increased battery life, and the line is available in a wide range of sizes, and blade and anvil configurations.

In addition to calipers with standard jaw designs, the MarCal line also includes a number of specially designed contact tips for measuring special part characteristics, and even jaws with replaceable and configurable contact points. Examples include cylindrically shaped jaws for exploring the wall thickness on cylindrical parts; narrow tipped jaws for measuring small grooves; jaw anvils configured to access recessed grooves, both ID and OD; tapered jaw tips designed to measure center-to-center distances on holes; adjustable height jaws to facilitate stepped measurements; knife-edge jaws with extra reach; and many more.

For users who require a high degree of versatility in their calipers, Mahr Federal offers a Universal Digital Caliper design. The MarCal 16 EWV can be used as a standard caliper, but includes a number of special blade tips, anvils and accessories that snap on for measuring a variety of groove and recess configurations. Other standard accessories include a depth measuring bridge, an ID setting gage, a device to determine measuring force, and attachments for measuring threads, balls, serrations and similar geometries. The MarCal Universal Digital Caliper includes all the standard features of the MarCal Digital Caliper line, and comes complete in a special carrying case designed to accommodate all the accessories.

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EMAG

OFFERS HEAT SHRINK ASSEMBLY PROCESS

The composite camshaft is still gaining ground in the marketplace. The main reason for this is the considerable weight reduction it brings, compared to its one-piece rival. The composite version is by now also widely used in the HGV sector. However, the main disadvantage of many current assembly processes is the high joining force applied, which creates unacceptable tolerances in positioning and alignment of the cams. By contrast, the patented heat shrink assembly process from EMAG offers a decisive advantage, as it ensures that "ready-to-fit" camshafts, gear shafts and other precision composite units can be produced without problems.

The advantages of the composite camshaft are well known: less expense, less weight, the possibility to use different materials for the various constituent components, greater flexibility in production and the ability to implement new cam geometries, such as negative radii, with ease. The necessary reduction in fuel consumption – and with it those of CO_2 emissions – are easier to achieve with an increasing use of composite camshafts.

Alternative processes for the joining of cam and shaft have one serious disadvantage: the two components cannot be joined with the necessary accuracy to avoid a subsequent finish grinding process. In many cases, the joining of cam to tube is carried out using a form-fit process like press-fitting, knurling and/or spline/serrated gearing. The joining forces required for these processes can deform the components and result in unacceptable tolerances in cam position and orientation.

Heat Shrink Assembly Means Precision Joining

Thermal joining, i.e. the heat shrinking of cam onto tube, ensures that the required tolerances are achieved with a reaction force-free process. The know-how to tightly control the process parameters of "temperature" and "time" — and the mechanical design of the joining equipment — are of the utmost importance in this process.

An optimal combination of robot and special-concept gripping technology allows for fusion gaps of < 15 µm to be achieved safely. The concept's great flexibility allows camshaft designers more freedom in their designs and ensures that the process can also be used for medium batch sizes, where frequent component type changes are the order of the day. The high degree of precision of the composite camshaft drastically reduces the need to subsequently grind the cams or — where precision cams are used — does away with the requirement completely. A further

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advantage of this process lies in the possibility of using different materials for the composite shaft. This includes forged cams, for instance in 100Cr6, or finish-ground cams, even dimensionally accurate sintered cams that do not require a downstream finish-grinding operation. Secondary components, such as bungs and endpieces, can — just like the actual shaft itself — be made of more advantageous materials. All this allows the camshaft to be made to suit the requirements of the engine and to optimize it in terms of load bearing capacity and manufacturing costs.

And Now One Step Further

Where the camshaft needs to be ground after heat shrink assembly, the joining machine can be linked up to a grinder. This is particularly easy when using an EMAG grinding center of the VTC DS Series. With this setup, the joining machine robot transfers the assembled camshaft directly to the loading position on the grinding center. The advantages of this process from EMAG also apply to the machining of other components. When machining gear shafts, ground gears can be joined tightly on the shaft, without needing to account for the grinding wheel overrun at the design stage. It also minimizes the length of the shaft and makes the whole unit more compact.

Maximum Flexibility

The EMAG process is characterized by only a very few machining components being in direct contact with the workpiece. It allows for the machines to be reset in the shortest possible time (typically less than 15 minutes).

Quality Achievements

The heat shrink assembly process offered by EMAG combines flexibility with productivity, while freedom of design and choice of production technologies ensure a short cycle time. While one cam is heat shrinking, the next one is already being preheated. Equipping the heat shrinking machine with a number of preheating units allows for the optimal application of this technology to the task at hand. It is these advantages that may well be the reason why so many firmly established manufacturers of camshafts and other precision assemblies are showing such a great interest in the new process, are asking for machining tests, or are already applying the process under actual production conditions. In the ideal case, the customer will take advantage of the synergy provided by the EMAG Group and ask for a complete concept to be prepared that covers everything from pre-machining to heat shrinking and end machining.

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Sunnen

HONING MACHINE FOR JOB SHOPS

The new SV-20 honing system is the first competitively priced large-part machine for job-shop part production with a true linear, vertical, servo-stroking system to produce precision bore geometries on compressors, oilfield components, automotive/truck blocks and similar parts. Suitable for job shops and repair facilities, the SV-20 is equipped with a variable-speed 15–550 rpm, 4.1-kW (5.5 hp) spindle motor, powerful enough to drive two-stage, metal-bond, diamond abrasives for short cycle times with high accuracy and minimal labor. The SV-20's linear stroking system keeps the honing tool concentric with the bore throughout the full stroke length to produce a consistent diameter from top to bottom of the bore. The machine's work envelope of 915 mm × 1015 mm (36" × 40"), front-loading design, and weight capacity up to 680 kg (1,500 lb) combine for versatility in processing a wide range of large parts. The SV-20 can be used to hone bores with inside diameters from 19-200 mm (0.75-8.00"). The PLC-controlled SV-20 utilizes a color touch screen, with a toggle switch to jog for fast setup. The swiveling operator panel can be adjusted for viewing from a variety of positions. A hand wheel on the machine allows left/right positioning of the column on its 760-mm (30") X-axis. The machine comes standard with a 208-litre (55-gallon) internal coolant system equipped with two standard canister filters. The SV-20's rotary servo tool feed system can be used with two-stage hone heads to complete roughing and finishing without stone changes for faster processing times. The machine is compatible with all of Sunnen's past and current tooling for CK/CV/SV-series machines, including diamond abrasive hone heads and brushes, GHSS single-stage hone heads with CBN or diamond abrasives and brushes, and GHTS hone heads for two-stage honing with CBN or diamond abrasives. The SV-20 is available with a 400V/50Hz/3Ph or 460V/60Hz/3Ph electrical system. The machine will be featured during Westec, October 15-17 in Los Angeles at Sunnen's booth (#2136).

For more information:
Sunnen Products
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www.sunnen.com

Dillon Manufacturing

EXPANDS GRIP JAWS

Dillon Manufacturing, Inc. has expanded their line of full grip jaws to 24 inches in diameter. These cast aluminum (356-T6) wraparound type top jaws can provide minimum jaw force for thin-walled parts and distribute the gripping pressure over more of the workpiece's surface —helping to maintain repetitive accuracy. This type of jaw reduces distortion and provides more friction for drive during turning operations. With close tolerances and concentricity easily maintained, they are suitable for applications such as valves, cylinders, specialty wheels and gears, housings and enclosures, adaptors and connectors, aluminum and steel shells, flanges, retainer rings, and other thin-walled parts such as automotive smog control air pump rotors, gas turbine parts, thin-wall tubing and cylinder liners for diesel engines and more. Dillon full grip top jaws are available from stock to fit chuck sizes ranging from 6 to 24 inch diameter, in both standard height and extra high jaws. They can be adapted to mount both manual and power chucks. Lighter weight Dillon full grip top jaws reduce mechanical stress, for improved machine and tool life.

For more information:
Dillon Manufacturing, Inc.
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www.dillonmfg.com

ITAMCO

RELEASES GLASSWARE APPLICATION

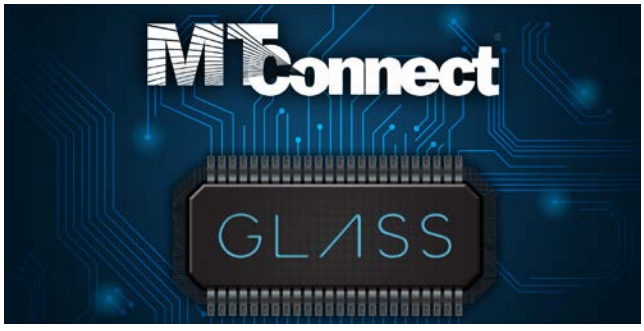
Indiana Technology and Manufacturing Companies (ITAMCO) has released MTConnect + Google Glass, a free Glassware application that monitors machine tools using Google Glass. MTConnect lowers the barriers to manufacturing intelligence, even to as complex a supply-side manufacturing chain as a fortune 500 company. Google Glass—a heads-up display, camera, touchpad, microphone, email and internet connection built into a spectacle frame—coupled with MTConnect functionality, will provide a view into the manufacturing process that until now has been unattainable. The Google Glass user will be liberated from laptops and hand-held smart devices and be able to travel the entire shop floor, gathering and sharing machine data provided by MTConnect, and accessing the internet for more information as he goes. The opportunities inspiring the merger between MTConnect and Google Glass are twofold. The first opportunity is in the

exploitation of augmented reality (AR). AR generates a composite view for the user that is the combination of the real scene, as viewed by the user, and a virtual scene generated by the computer with additional information such as sound, video, graphics, GPS data, or, in this case, manufacturing data via MTConnect. Google Glass becomes a natural extension of MTConnect's view into machines, providing intuitive and user-friendly access to manufacturing data.

The second opportunity lies in the commonalities between MTConnect and Google Glass: the implementation of both is easily achievable, and they are extensible and scalable. Both could be implemented on a small scale and grow with the needs and knowledge base of the facility. Every department in a manufacturing facility benefits from MTConnect + Google Glass, from the shop floor to the management suite. A new machine operator watches YouTube training videos while at the machine, supplementing his training program. Getting and sharing information on the machine and its processes would be as intuitive and non-threatening as using his smartphone or playing a video game. An experienced machine operator sends an email to the maintenance staff as soon as he sees a problem. The CEO travels the shop floor, getting accurate real-time machine data and comparing it to the company's accounting, quality control, sales and engineering data. Project managers evaluate workflow and machine readiness before scheduling future work. They also access 100 percent accurate data and share information with their customers to ensure smooth delivery between vendors. The maintenance staff becomes even more astute at monitoring machines and they respond quicker to problems, while developing stronger preventative maintenance programs. With Google Glass, they can "see" instruction manuals overlaid on the equipment when installing or repairing machinery. The sales staff provides guided Google Glass tours, impressing prospects with the capabilities of the facility and helping them visualize the final product.

Data Streams from MTConnect Agents Directly to Google Glass

Google Glass recognizes the machine tool, grabs appropriate information from MTConnect and parses the MTConnect stream to display it in a user-friendly way for the Google Glass wearer. The user will be able to view the following information from the MTConnect-compatible equipment: power status, emergency stop, alarm/messages, block, controller mode, line, program, execution, path feed-rate, spindle, axis positions, spindle overrides, feed-rate overrides, machine location, part location, and current part status. Also, if there is a camera inside the machine, Google Glass will stream the video to the user and overlay the machine data so the user can compare, analyze and make quick decisions. The user could record and share this data seamlessly with all appropriate parties.



MTConnect + Google Glass will provide a holistic experience of the factory floor that integrates user and machine in a uniquely personal way. The benefits of MTConnect are enhanced due to the faster and more comprehensive delivery method. Google Glass also extends easy-to-understand information to all employees, including administrative and marketing staff who aren't familiar with the shop floor.

For more information:
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