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EMAG at the EMO:

Focusing on electric drive systems and the “smart factory”

Electromobility and Industry 4.0 – these industrial megatrends are featured prominently in the EMAG Group booth at the EMO in Hanover from September 18 to 23 this year. Throughout the show, EMAG machine manufacturers will demonstrate their role as “facilitators” of technological change. For example, they have complete solutions available for the efficient production of central components of electric drive systems. Exhibition visitors will see several high-performance machines in operation – including world-firsts in the areas of turning operation, laser welding/joining and gear cutting. At the same time, the EMAG Group is also accelerating the digitalization of its production technology to establish intelligent factories. Therefore, the EMO will have a dedicated area where customers can test essential Industry 4.0 solutions. A main focus is the consistent usability of the software, which will continue to simplify the control, monitoring and analysis of production.

The goal is a controlled, predictable and monitored production process from start to finish – summarizes the message of the EMAG Industry 4.0 presence at the EMO. The manufacturing data of the machines offer many options for perfecting central processes with custom-fit software tools: “MultiMachineMonitor”, for example, enables the control of different machines from a central location by tablet or PC, and fine-tuning of the production process. The “EC Data” software guarantees the traceability of the production process of a workpiece at any time. “MachineStatus” provides a detailed analysis of the machine and the tools during operation. “At the EMO, we will present even more solutions that demonstrate the effectiveness of these combined approaches”, explains Rainer Seitz, head of software development & IoT at EMAG. “On the

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other hand, standardizing these tools is a high priority for us. We want customers to understand the modules quickly and effortlessly. The main focus of our presentation will be on the simplification of usability.”

Promoting the e-revolution in production

The second focus at the EMO also points to the future of industry because EMAG solutions allow for the efficient production of many components for hybrid or purely electric drive systems – from rotors and complex differentials to new types of transmission shafts. This process covers from raw part, all the way up to the final precision machining. The wide range of technology within the Group makes this all possible – and their capability broad range is demonstrated by the machines that EMAG is displaying at the show. For example, the enhanced dual-spindle VL 3 DUO vertical turning center is a highly productive solution for gear and engine components up to 150 millimeters in diameter. It only requires a minimum installation space of 24.5 square meters – including automation system (TrackMotion), chip conveyor and parts storage. Increased productivity is provided by two entirely separate machining areas with powerful water-cooled motor spindles up to 32.4 kW power (at 40% duty cycle) and 12-post tool turrets. The matching TrackMotion automation system not only ensures the rapid transportation of parts between the two machining areas, but also flips the parts over between OP 10 and OP 20. The results of this process are a minimization of cycle times, and a significant decrease in unit costs. At the same time, direct distance measuring systems and recirculating roller guide rails in all linear axes ensure precision and consistent workpiece qualities.

Of similar interest is the world premiere of the VLC 50 TWIN turning center for gear components with a diameter of up to 75 millimeters. It has two main spindles in one machining area that are able to process two identical workpieces simultaneously. This results in a massive increase of output quantities and lower unit costs. Diameter and length of the two workpieces can be adjusted independently by the two spindles. This

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machine equally has direct distance measuring systems and recirculating roller guide rails. In addition, EMAG uses an innovative linear motor in the X-axis. Dynamics, repetitive precision and endurance precision are significantly higher. "It's important to us that the VLC 50 TWIN can be easily interlinked with EMAG hobbing or deburring machines, with the TrackMotion system, for example", explains Björn Svatek, Sales & Marketing Director Modular Solutions at EMAG. "With this we can create efficient multi-technology production lines, for the complete machining of gears, with low non-productive times and high process reliability, for example."

New degree of flexibility in joining and laser welding

Another world first is the introduction of the ELC 160 HP production solution. This machine is used especially for processing the control gear and clutch body, and combines several process steps into a perfectly timed system: Joining (press fitting) of the clutch body, induction pre-heating (if required by the material) and connecting the components with a laser beam. Cycle times in some instances are less than 10 seconds because the processes run parallel in four different stations.

Furthermore, the ELC 160 HP allows automatic retooling of the fixtures for different gear stages. Due to this feature, the complete set of wheels for a gear can be produced in a one-piece flow, without retooling.

"Manufacturers of dual-clutch transmissions or hybrid systems, for examples, are very interested in this technology because the increasing number of gear stages requires new solutions for efficient processing of continually changing batches", declares Dr. Andreas Mootz, Managing Director of EMAG Automation. "This is exactly what we offer with the ELC 160 HP."

In hall 17, booth C31 EMAG will demonstrate the entire range of its technological approach: Without exception, these are highly productive and flexible production solutions that can be easily combined into production lines according to demand, and only take up a small space.

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Setting up new production solutions – for example, for the growing
100 number of electric drive systems – is thus being significantly simplified.

Images:

Image:EMAG Industrie 4.0.jpg



The goal of EMAG Industry 4.0 products is a controlled, predictable and monitored production process from start to finish.

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Image: E420.jpg



- 110 In the new VL machines for the machining of chucked parts, powerful water-cooled motor spindles with up to 32.4 kW power (at 40% duty cycle) ensure high productivity.

Image: 155.jpg



The world-first ELC 160 HP is the ideal solution for the efficient processing of continually changing batches in the production of gear components.

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Image: VLC 50 TWIN 2.jpg / VLC 50 TWIN 2.jpg



VLC 50 TWIN has two main spindles in one machining area to process two identical workpieces (up to 75 mm in diameter) simultaneously.

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