

Media Release

Geneva
September 2019

GF Machining Solutions' FORM X 400 and WPT1+ came together as a complete solution delivering accuracy, quality and autonomy at EMO Hannover 2019

Two GF Machining Solutions products—the AgieCharmilles FORM X 400 die-sinking Electrical Discharge Machining (EDM) machine and the System 3R WorkPartner 1+ (WPT1+) compact part and electrode changing robot—came together as one complete solution during live application demonstrations at EMO Hannover 2019.

Visitors to the GF Division's stand discovered how the FORM X 400 masters temperature fluctuations to guarantee very high precision. The result: superbly precise machining of complex applications where there was no room for error. Adding value-boosting autonomy was the WPT1+ compact part and changing robot, modularly designed for easy adaptability to customers' needs. Together, these two solutions underscored GF Machining Solutions' EMO Hannover 2019 theme, "Connected to your needs."

Engineered to master precision

The FORM X 400 and FORM X 600, introduced in 2018, boast a thermo control system guaranteeing unmatched precision. That sophisticated and unique system compensates for temperature variations by using temperature-stable dielectric fluid to cool the X, Y and Z glass scales, as well as the Z-axis ball screw.

Additionally, the machine body is thermally isolated from the high-speed Z axis. Moving parts are fully disassociated from the loading and machining area, so they are unaffected by temperature variations in the erosion area. By the same token, moving parts are unaffected by extreme range in workpiece weights.

Specially designed with a polymeric frame, the FORM X series' structure affords constant positioning accuracy: The machine's extreme robustness ensures absorption of all of the mechanical forces, so that an accurate gap is maintained between the part and the electrode. Extreme rigidity, precision and dynamics are made possible by the solution's cast iron X, Y and Z axes, all based on highly accurate calculations.

ISPG updates advance micromachining

Like all of GF Machining Solutions' AgieCharmilles die-sinking EDM solutions, the FORM X range features the Intelligent Speed Power Generator (ISPG), the world's most powerful generator for die-sinking EDM. Users achieve unprecedented quality and efficiency, thanks to the series' discharge circuit for spark erosion power modulation and the flexibility to maximize

material removal. For example, micromachining processes are optimized so that fewer electrodes are needed to perfectly machine sharp internal corners.

Optimal machining strategies at the touch of a finger

FORM X 400 and FORM X 600 users profit from advanced levels of logic, speed and safety, thanks to GF Machining Solutions' latest-generation, ergonomic AC FORM human-machine interface (HMI). The AC FORM HMI is organized on one menu level with all icons arranged logically and in chronological order of use—and dynamic contextual help is just a click away.

Greater reliability, improved machining efficiency and significantly less unproductive time are major benefits of the FORM X series' software. It allows users to achieve highest precision and machine performance. The series' TECFORM EXPERT module allows the machine to quickly and safely achieve best performance and produce the desired results. Segment-dedicated technologies free the machine operator from the task of adjusting the generator's parameters.

WorkShopManager: productivity, time to market, flexibility

FORM X 400 users can ramp up their productivity, time to market and flexibility with System 3R's user-friendly WorkShopManager (WSM) that brings all of the workshop's production technologies together in one process chain. WSM keeps production running with standardized procedures, manages the Automation process, grows with the users' demands, makes it easy to add new machines in the future, and boasts a central database for the user's entire factory.

Integration is the key to unlocking the full potential of the user's workshop, and WSM makes it happen. For example, the software makes it easy to insert an urgent job into the process while a production cell is executing a jobs list: WSM allows the list to be interrupted so the urgent part can be machined; upon completion, the cell automatically returns to the list of jobs to be executed. That increases productivity and speeds up time to market.

Additionally, WSM helps advance users' flexibility because it eliminates the need to have all parts and electrodes 100% ready before launching job execution. With WSM, machining can start while the parts and electrodes are being measured and loaded into the robot magazine. Then WSM seamlessly updates the information about the running job.

WPT1+: increased autonomy without manual intervention

In addition to all of these benefits, EMO Hannover 2019 visitors experienced firsthand how the System 3R WPT1+ can ramp up users' autonomy. Shown in an updated design to enhance its perception as a GF Machining Solutions product, the WPT1+ can be added to the left or right side of a FORM X machine to boost autonomy and increase users' productivity per square meter.

The WPT1+ is available in nine modular models to meet a broad range of user needs, from milling, wire-cutting and die-sinking EDM to Laser, grinding, and mixed milling and EDM technologies. As a partner to manufacturers' production, this solution can serve one or two

machines in a production cell, and its one-, two-, or three-magazine capability provides exceptionally flexible capacity. Pneumatic control of gripping devices and table chucks is integrated into the WPT1+. Together, these characteristics help manufacturers achieve greater return on investment.

Ideal modularity is the hallmark of the WPT1+: It offers maximum magazine capacity in minimal floor space. Unlike many other solutions on the market, it eliminates the risk of “painting yourself into a corner,” because System 3R’s modular magazine offers unprecedented flexibility. The solution can be adapted to each user’s needs, so it’s easy to start with a single magazine and add one or two as required.

Furthermore, just as it is the ideal part or electrode changing solution for use with a wide variety of machining technologies, the WPT1+ is equally efficient for both one-off and serial production. It is extremely user friendly, thanks to generous magazine doors for loading and unloading, and its value is extended by rapid change cycles, integrated pneumatic control of gripping devices and table chucks, and its minimal floor space requirements.

More information:

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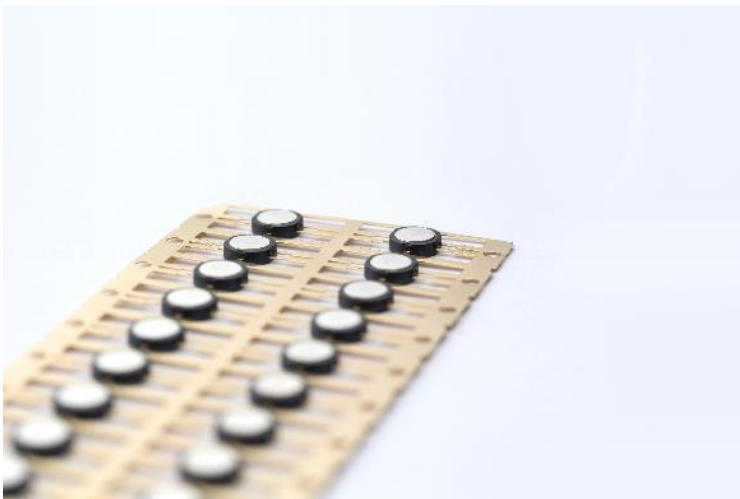
Picture caption:

GF Machining Solutions' AgieCharmilles FORM X 400, shown at EMO Hannover 2019, represents a milestone in very high precision die-sinking EDM by minimizing temperature fluctuations to ensure stability and precision.



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Tooling used in the manufacture of mobile phone camera modules: These miniature modules are machined with unbeatable accuracy—and users achieve greater detail with fewer electrodes, thanks to GF Machining Solutions' AgieCharmilles FORM X 400 die-sinking EDM machine. The FORM X 400 was shown at EMO Hannover 2019 with the System 3R WPT1+ compact part and electrode changing solution.



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GF Machining Solutions' System 3R WPT1+ compact part and electrode changing solution, shown with the GF Division's AgieCharmilles FORM X 400 die-sinking EDM machine at EMO Hannover 2019, is modularly adapted to manufacturers' needs.



Profile of GF Machining Solutions

GF Machining Solutions is the world's leading provider of machine tools, diverse technical solutions and services to manufacturers of precision molds and tooling and of tight-tolerance, precision-machined components. The key segments we serve include the aerospace, automotive, medical, energy, information and communications technology (ICT) and electronics industries. Our extensive portfolio ranges from Electrical Discharge Machining (EDM) solutions, three- and five-axis Milling machines and Spindles, 3D Laser texturing machines, Additive Manufacturing and machines for Laser micromachining to solutions for Tooling, Automation, Software and Digitalization—all backed by unrivaled Customer Services and support. GF Machining Solutions is a globally acting Division of the Georg Fischer Group (Switzerland) and maintains a presence at 50 locations worldwide. Its 3,394 employees generated sales of CHF 1,066 million in 2018. More information can be found at www.gfms.com

