



## **FFG presents world portfolio of machine tools and systems with a focus on smart production at EMO in Hanover**

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- Fair Friend Group presents more than 40 machines and manufacturing cells exclusively in hall 14 at EMO Hanover
- Group is combining expertise of renowned machine tool brands to provide smart production solutions
- Display spans from machinery across all metal cutting applications to automation and value added digital solutions

Eislingen, June 20, 2017 – The Fair Friend group is known for its variety of renowned brands, covering the full range of metal cutting machinery for turning, gear making, milling, honing and grinding in all parts sizes and volumes to manufacturing cells, agile systems, rotary transfer machines and turnkey systems including proprietary automation solutions. At the EMO in Hanover from September 18 to 23, the international machine tool manufacturing group is set to prove that the widespread portfolio can be combined smartly to match the needs of customers from various industries across the globe.

### **Automotive Powertrain: optimizing production technology for emission reduction, flexible investments and e-mobility**

MAG, the powertrain specialists in the FFG family, has since several years actively developed concepts for e-mobility. Among various cooperation projects with academic, industrial and public partners was for example the Street Scooter GmbH, where MAG was founder and Shareholder. MAG contributed to development of production concepts and manufacturing equipment. At EMO, MAG will show an example of how to approach the change on the production technology side efficiently, with machinery, retrofit solutions, automation, engineering and production planning all from a single source.

At the same time, FFG is developing solutions for efficient and economic combustion engines. The SPECHT machines from MAG,



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originally designed as high performance machines for use in agile systems, have been enhanced with several functions to meet current automotive powertrain requirements. Both single and dual spindle models can be equipped with linear drives and a proprietary feed out spindle. This configuration allows for various high technology special applications. Two of these will be demonstrated live at EMO: Integrated honing and fine machining of coated cylinder liners and interpolation turning of turbo charger housings. The former is being presented in a production cell with MAG's technology partner Sturm, who is providing the latest coating and inspection technology in a machining center. The pre-machining and finish machining is performed on a SPECHT 600L with linear drives. The process, which has been developed by MAG and Sturm in cooperation with several automotive OEMs, represents a substantial progress in manufacturing technology for coated cylinder liners, which allows for significant weight reduction and performance enhancement compared to the alternative design with conventional cylinder liners.

The newly developed turbo charger machining process, which will be presented on a SPECHT 500 DUO with pallet changer, is building on the dynamics of the SPECHT machine and will save enormous costs per part on the customer side. By replacing milling processes with interpolation turning wherever feasible, tool wear can be reduced by up to ten times. This process is possible with the linear axes and feed out spindle function on the dual spindle SPECHT. Another world premiere from the versatile SPECHT series will be the model size 800, which was designed for flexible high performance machining of commercial vehicle cylinder blocks and heads, at OEM sights as well as tier operations and also for pre-machining jobs at foundries.

### **World premiere for crankshaft machining**

The VDF Boehringer brand has been setting milestones in crankshaft production technology since decades and kept developing its turnkey program ever since then. Having presented an entirely new modular line of crankshaft machines for the whole process chain, VDF Boehringer will bring another world premier to this EMO. The newly designed VDF 221 CIM will widen the



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process portfolio to include high performance internal milling. The intelligent design and stability of the machines provides for high material removal rates, short cycle times, low tool cost and high surface qualities. This highly productive process will be presented in an automated cell together with a VDF 211 CT for high precision turning.

### **Integrated Solutions: shaft and flange machining**

FFG's focus on turnkey solutions is best represented by combining the technology leading brands in an automated system for complete machining. With the renowned expertise of VDF Boehringer and Hessapp turning technology, MAG's coldforming series and Modul gear manufacturing, FFG can deliver integrated and fully optimized production systems for drive shafts and flange applications. For EMO, the specialists from the brands developed a shaft machining cell with a vertical turning center, a coldforming machine and a gear manufacturing center. These are connected via robot and equipped with several auxiliary functions, from integrated measuring and quality testing to chamfering and deburring. FFG is strategically developing the field of shaft and flange machining, adding its system engineering and automation expertise. With the addition of the Italian grinding machine manufacturers from Tacchella, who recently joined the group, the application range is further extended to include finish machining of hardened parts.

### **Complete Machining of large parts for Aerospace and Mold & Die applications**

The tradition of versatile large part machining at FFG is represented by the Italian manufacturer Jobs and the Japanese experts from SNK. Both have been serving the markets for Aerospace and large Die manufacturing for decades. At EMO, they will offer a wide view of their capabilities, showing various elaborate demos on three machines.

The Jobs eVer7 is an overhead gantry system with high traverse rates of up to 50 m/min and a powerful 85 kW spindle. Apart from high material removal rates, it can also be applied for high-end finishing work. The flexibility is given by the proprietary automatic head changing system. The demo on the machine presented in



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Hanover will also include integrated peening technology for surface super finishing.

The Japanese manufacturer SNK will present one large scale machine which will surely be crowd-drawers, too. The impressive horizontal 5-axis profiler with its high torque spindle (1256 Nm max) and integrated pallet automation for workpieces up to 5 meters length is widely applied in the aerospace industry for reliable titanium cutting.

### **Railway Industry: new and used wheelset components**

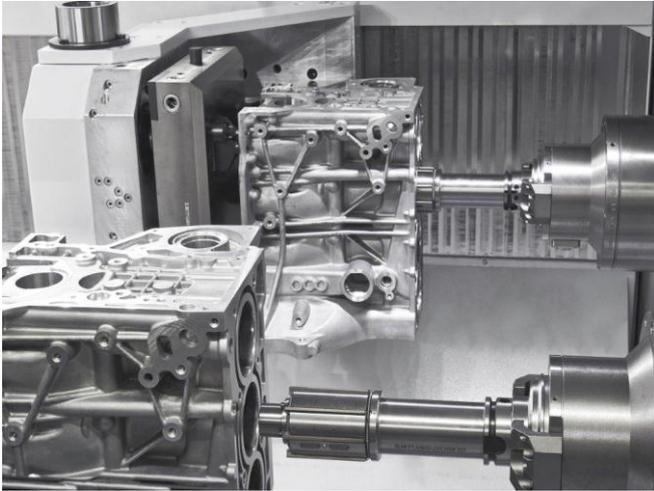
A further highlight in the FFG portfolio is the turnkey capability for railway wheelset component production. VDF Boehringer and Hessapp have been providing machines and systems of all scales to manufacturers around the world, and were able to refine their processes for highly productive and efficient wheel and axle machining over many years. With the Italian Morara grinding experts joining the group recently, the finishing processes can now also be provided from a single source. The EMO display will include two VDF Boehringer large scale lathes ideally suited for entire wheelset reworks, machining of new axles and used axles. Various further machines will be shown to complete the range of applications, including rotary transfer machines from IMAS, Pfiffner and Witzig & Frank, CV joint specialists MAG and Meccanodora, cost-efficient milling, turning and grinding concepts from Feeler, Leadwell, DMC and Equiptop, and 5-axis solutions from Sigma, Sachman and FFG's partner Zuse Hüller Hille.

### **Industry 4.0: direct value added approach and networks**

With roots in all major markets, FFG's approach to Industry 4.0 and the related fields of technology is uniquely widespread. Solutions spread from an integrated Factory Automation approach to multi-level tools for enhanced overall equipment efficiency and alliances with major players in automation, control & drive and IT. The common denominator is a hands-on approach that is taking into account the daily business of customers as well as their overall strategy, enabling them to leverage unused potentials. An overview and examples of these various projects will be presented at EMO, including machine data analysis, tools for system engineering and

integration, monitoring, service and support, cloud-based open architecture SCADA systems and much more.

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MAG's SPECHT machines can be equipped to include honing technology on single and dual spindle machines.



VDF Boehringer lathes and turning centers cover a full range of railway applications, from wheelset or wheel repair to production of new axles.

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The new model size VDF 1300 DUS is designed for reliable large part machining with high rigidity and long term precision.

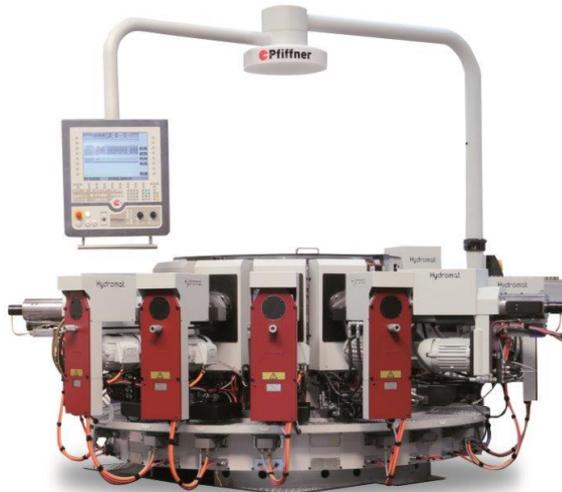


Jobs Laser Speeder: an additive manufacturing machine equipped with laser head. The system is conceived to perform cladding, hardening and measuring operations on very large dies for the automotive field.

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The SNK 5-axis profiler HPS-120A is a rigid and powerful machining center for tough metal cutting jobs, including titanium milling.



Pfiffner, FFG's specialists for highly productive machining, is presenting its CNC rotary transfer machine series EPICplus für part diameters from 3 to 52mm or 100mm side length. Applications range from precise and complex automotive parts to electronics, hydraulics, pneumatics, lock systems, tools or welding nozzles.

**About the Fair Friend Group**

*The Taiwan based Fair Friend Group is a world leading industrial conglomerate with over 80 companies operating in the fields of Machine Tool Technology, PCB, Industrial Equipment and Green Technology. Founded in 1979 in Taiwan, FFG developed into the largest local machine tool manufacturer with major brands like Feeler, Leadwell, Sanco and Equiptop. From 1989, the growth strategy included international acquisitions in the USA, Italy, Germany, Japan, India, South Korea, and Switzerland. The acquisitions included leading manufacturing technology companies like VDF Boehringer, DMC, Hessapp, Honsberg, Ikegai, Jobs, MAG, Meccanodora, Modul, Morara, Pfiffner, Rambaudi, Sachman, Sigma, SNK, Tacchella, and Witzig & Frank.*

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