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Rotary table, transfer centre or CNC unit – the EMO Hannover offers decision-making assistance for choosing the right series strategy

Frankfurt am Main, 5 March 2013 – *For machinery producers, it's always a rather special design challenge when manufacturers are seeking an optimum solution for a series production job. Possible choices include rotary table systems, transfer centres or CNC units. At the EMO Hannover 2013, there will be an abundance of solutions for this purpose on show, not least from MAG, Göppingen, and the Swiss Starrag Group.*

"A line's useful lifetime is 20 years, but a workpiece lasts for only seven: this means the production system is going to see at least three generations of components" is how Dr. Manfred Berger, President Automotive Europe at MAG Europe GmbH from Göppingen, describes the tricky job profile involved. The company meets these requirements from its customers for modern-day production systems in most cases with versatile manufacturing systems based on single and twin-spindle CNC units, which, says Manfred Berger "are commonly, but incorrectly, referred to as machining centres".

The CNC unit dominates

At MAG, the CNC units continue to dominate, accounting for about 90 per cent of machinery sales. When difficult components are involved, specialised machines are used. “The trend nowadays is definitely towards aluminium workpieces for cars, and thus lighter metal-cutting with CNC units”, the expert explains. “We make particular use of transfer machines in cases where workpieces of grey cast iron have to be produced in very large quantities.” For these components (batch size >600,000 a year) and aluminium workpieces (> one million a year) with limited part diversity, he adds, not only transfer lines but also rotary machines operate very efficiently with high levels of productivity. Transfer centres are specialised solutions, offering a high level of productivity thanks to their multiple-spindle design, coupled with the flexibility of a travelling device. Drill heads and devices can be easily changed over. To quote Manfred Berger: “Transfer centres thus marry the productivity of a transfer machine to the flexibility of a CNC unit. They are ideally suited for use with high workpiece volumes and limited part diversity.”

But what will visitors to the EMO Hannover 2013 see on MAG’s stand, what “machine variant” will be showcased? Manfred Berger is unable and unwilling to divulge any details, but he’s at least prepared to reveal some trends: “Within the framework of our “Intelligent investment – efficient production” initiative, we shall at the EMO Hannover 2013 also be progressing the in-depth efficacy of our foresightful corporate planning, our capital investment for more flexibility in terms of volume, workpieces and technology, plus the use of sleeping reserves in production lines by tapping into better personnel skilling.”

A Chemnitz-based company approaches the issue from a different viewpoint. “Within the Starrag Group, and in particular at Heckert, we have not focused our product strategy solely on large-series business”, comments Dr. Eberhard Schoppe, Managing Director of Heckert GmbH from Chemnitz (a member of the Swiss Starrag Group). “For us, the primary focus has always been on the flexibility of the manufacturing concepts involved, driven by our technical solutions.”

When it comes to choosing the right production concept, however, the machine buyer is spoiled for choice. “In the context of our production solutions, with the ongoing trend towards automation and maintaining a high degree of flexibility, what we see emerging is a focus on systems for pallet storage and overhead transfer”, observes Heckert’s Managing Director Schoppe. “The increasing product variance at our customers ultimately results in a shrinking series character, and a rising need for automation solutions featuring pallet storage systems.” When it comes to manufacturing large series, says Schoppe, about one in four of Heckert’s machines have for this reason already been fitted with a linear pallet magazine.

The company from Chemnitz prioritises concatenated solutions featuring individual machines. The firm’s Managing Director sees concatenated configurations with pallet systems as an attractive option when a high diversity of workpieces and devices is involved. “The primary advantage is the flexibility”, explains the expert. “In operator-free times, a large workload of highly disparate production jobs can be run.” The user, however, can also enter new machining tasks in the line at any time – usually on a main-time-parallel basis. Machining is performed in an order-referenced sequence, and can be organised using a priority control feature.

Concatenations with direct workpiece handling

In the case of large series with a low diversity of workpieces and clamp settings, by contrast, concatenations with direct workpiece handling are the dominant choice. “The advantages here lie in the cost savings for machine pallets, devices and production footprint”, says Eberhard Schoppe. “The line has been specially and meticulously designed to suit the small number of machining jobs involved, which means it is relatively affordable and highly effective.” Heckert’s flexible production lines have also proved efficacious in the global automotive industry. “A multiple-machine concatenation with a pallet size of 630 has for ten years now been used for producing 8- to 12-cylinder crankcases for V engines in 5-axis complete-machining mode. This demonstrates the flexibility and long-term accuracy of our flexible production systems.”

How is Heckert going to build on its successes with concatenated individual lines, and what may we expect to see on the Starrag Group's stand at the EMO Hannover 2013? Eberhard Schoppe looks into the future: "I see two trends: complete machining based on process integration and 5-axis machining, plus a reduced number of clamping positions."

Author: Nikolaus Fecht, specialist journalist from Gelsenkirchen

EMO Hannover 2013 – the world's premier trade fair for the metalworking sector
From 16 to 21 September 2013, international manufacturers of production technology will be spotlighting "Intelligence in Production" at the EMO Hannover 2013. The world's premier trade fair for the metalworking industry will be showcasing the entire bandwidth of today's most sophisticated metalworking technology, which is the heart of every industrial production process. The fair will be presenting the latest machines, plus efficient technical solutions, product-supportive services, sustainability in the production process, and much, much more. The principal focus of the EMO Hannover is on metal-cutting and forming machine tools, production systems, high-precision tools, automated material flows, computer technology, industrial electronics and accessories. The trade visitors to the EMO come from all major sectors of industry, such as machinery and plant manufacturers, the automotive industry and its component suppliers, the aerospace sector, precision mechanics and optics, shipbuilding, medical technology, tool and die manufacture, steel and lightweight construction. The EMO Hannover is the world's most important international meeting point for production technology specialists from all over the planet. In 2011, the fair attracted more than 2,000 exhibitors, and around 140,000 trade visitors from more than 100 different countries. EMO is a registered trademark of the European Committee for Cooperation of the Machine Tool Industry CECIMO.

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