Press Release

INDEX MS24-6 CNC multi-spindle machine

**Reduce setup times, cut unit costs**

**The successful INDEX MS22 multi-spindle machine now has a successor: the new CNC-controlled MS24-6 multi-spindle automatic lathe. The new machine is slightly larger in maximum bar diameter, but more compact overall and with numerous features that ensure highly economical turning operations – fast setup included!**

The trend toward smaller batch sizes is also affecting the market for multi-spindle automatic lathes. Whereas machines used to produce many millions of parts throughout the year without having to be retooled, it is now common for contract lathe operators to have to retool their multi-spindle machines every two to three days. Setup times therefore have a significant impact on unit costs. Anyone using a data acquisition system today will see these figures calculated down to the very last detail.

Karl-Heinz Schumacher, Head of Development and Design of Multi-Spindle Machines at INDEX, says an optimized setup concept is therefore essential when looking to the future: “Batch sizes are going to get even smaller. This means we need to devise solutions that speed up tooling and setup, and – no less important – simplify these processes while maintaining a high-precision result.” After all, he adds, well-trained staff are becoming increasingly rare worldwide.

**Setup accelerator: the INDEX quick clamping system with integrated W-serration**

The development teams at INDEX have included a range of highly effective solutions on the new MS24-6 multi-spindle automatic lathe, as they did previously in the MS32-6 launched last year. One very special feature is the INDEX quick clamping system with integrated W-serration on the cross slide. Instead of the previously common dovetail system, each cross slide now features a W-serration to greatly simplify micrometer-precise alignment of the tool holder. The W-serration eliminates the degree of freedom in X, meaning that the operator can simply attach the tool holder, which is already preset in the X and Y directions. It is attached using a quick clamping system developed by INDEX that fixes the holder in position using a tie rod and a pre-tensioned wedge rod. All that is needed is a quick turn with the wrench to ensure the firm contact required for use. “This makes the operator 50 percent faster than when changing the holder the conventional way, and practically eliminates the risk of errors,” says Schumacher.

INDEX developed turning tool holders, drill holders and double drill holders for these slides with W-serration, which are now aligned in advance on the presetting unit instead of in the machine. Dimensions are transferred exactly thanks to the W-serration. With the double drill holders, this results in a reduction of setup times from up to two hours to a maximum of ten minutes. All of the live units required for milling, polygonal turning, and drilling, for example, are also available with W-serrations, meaning they can be precisely placed on the new slide. Schumacher: “Despite all of these improvements and innovations, we took care to ensure that the previous tool holders of the MS22-6 can still be used. However, they don't have the new setup advantages.”

**Modern multi-spindle machine for demanding turned parts**

Designed using a modular principle, the new INDEX MS24-6 multi-spindle automatic lathe (max. bar diameter 24 mm, for chuck parts 50 mm) fits perfectly into the niche between the MS16-6 or MS16-6 Plus and the MS32-6. While the INDEX MS16 is ideal for simpler machining tasks and very large batches thanks to the use of grooving and boring slides, the new MS24-6 is an excellent choice for medium to highly demanding machining tasks. The machine features six work spindles and twelve cross slides with NC axes in X, Z, and Y (4x), as well as one or two synchronous spindles for rear-end machining. The machine can be used either with six spindles or two times three spindles. Double rear-end machining is also possible. Live tools, a C-axis, and a Y-axis provide users with a broad range of machining options, such as off-center drilling, threading, contouring, and gear hobbing, or polygonal turning.

The key component of the INDEX MS24-6 is the unique, fluid-cooled spindle drum with its optimized thermal growth and pause jump behavior. The drive power is 8.7 kW at 100% DC and 15 kW at 25% DC per spindle. Speeds of up to 10,000 rpm allow for a wide range of machining options, including aluminum parts.

With regard to the clamping systems, the MS24-6 opens up new possibilities, as Karl-Heinz Schumacher says: “The smaller machines, like the MS16 or the MS22, feature only tension clamping in the form of a traditional collet. Chucked parts are usually clamped with a standard or special jaw chuck. For our new MS24-6, we are now also offering collet clamping with Axfix TOPlus24. This system is based on compression clamping, which prevents axial displacement and achieves maximum concentricity.” The clamping device is therefore particularly recommended for high-precision, pre-machined,e semi-finished parts that are inserted by a robot.

**Intelligent automation**

Robot automation is indispensable for the machining of demanding chucked parts. In the solution provided by INDEX, the robot works together with a swivel disk that functions as an interface to an external handling system or other customer-specific automation equipment. Note that a standardized communication interface is available. The robot integrated in the machine places the finished parts on the swivel disk, at the same time picking up raw parts for insertion.

In addition to this convenient automation solution, INDEX offers other, simpler solutions for automated part removal when bar loading magazines are used. Since parts produced today cannot be allowed to have even the slightest scratch, discharge via the swiveling synchronous spindle, a chute, and a conveyor belt is in many cases no longer adequate. That kind of system is, however, still available.

A significant improvement – especially for relatively long parts such as shafts – is provided by a new INDEX solution that can be fitted to the MS24-6. An additional swivel unit takes the cut part from the synchronous spindle and places it in the correct position on the conveyor belt, which is responsible for transporting it out of the machine.

A similar effect is achieved with orderly part removal via an intermediate gripper, to which the synchronous spindle transfers the cut part in a first handshake. The synchronous spindle is then immediately available for the next machining operation. A linear unit removes the part from the intermediate gripper and moves it out to the handling cell, practically at the same time. This reduces time for full part handling to less than 5 seconds!

**Further highlights**

Complementing the INDEX MS24-6 CNC multi-spindle automatic lathe is the INDEX MBL24-6 bar loading magazine, which offers all of the usual MBL benefits regarding smooth bar movement and vibration reduction during machining. It is available as a bundle loader and a bar loader in sizes 3300 and 4300.

With fluid cooling of the spindle drum, counter spindle, and control cabinet, INDEX achieves optimum thermal stability in the MS24-6 multi-spindle automatic lathe, which is of particular significance in view of the machine’s compact design. This unique feature makes it possible to maintain extremely tight tolerances during machining. The MS24-6 also features unique warm-up performance. The machine takes on a constant temperature within a very short time and without requiring lengthy corrections by the operator.

The fully pivoting operating panel with the INDEX iXpanel ensures easy operation of the MS24-6. Building on the SIEMENS S840D sl (Solution Line) controller, the operating concept developed by INDEX simplifies setup and tooling.

Box:

**INDEX MS24-6: top talking points**

* Flexible modular concept
* Reduced footprint due to optimized coolant system
* High repeat accuracy of the slide quick clamping system
* W-serration for reduction in setup time
* Minimized thermal growth with fluid-cooled spindle drum
* Both tension and compression clamping on the main spindle
* Various automation solutions for parts infeed and removal

Images:



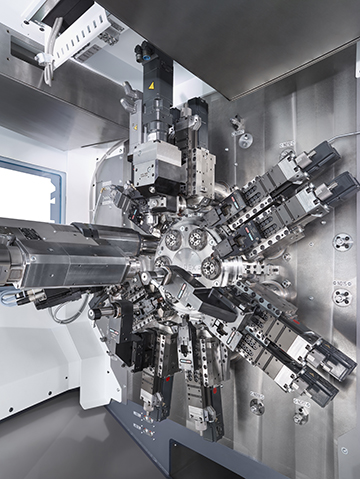
**View of the machine**

Like the other models in the current INDEX multi-spindle series, the MS24-6 features an attractive design. It has an open front, which aids accessibility and ergonomics and allows for various automation options.

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**Image of Karl-Heinz Schumacher**

Karl-Heinz Schumacher, Head of Development and Design of Multi-Spindle Machines at INDEX: “One of the strengths of our new CNC-controlled MS24-6 is undoubtedly its fast and simple setup, which generates clear unit cost advantages with decreasing batch sizes.”



**Image of slide quick clamping system with W-serration**

Quick clamping system for slides, with W-serration: with this INDEX development, tool holders can be set up in a very short time without complicated aligning work. The exact alignment is already predetermined in the W-serration of the slide and the positive teeth of the tool holder.

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